STATE OF MICHIGAN
CENTRAL PROCUREMENT SERVICES
Department of Technology, Management, and Budget
525 W. ALLEGAN ST., LANSING, MICHIGAN 48913
P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number **5**

to

Contract Number **071B1300364**

CONTRACTOR	
	ALTARUM INSTITUTE
	3520 Green Ct., Suite 300
	Ann Arbor, MI 48105
	Sean Michaels
	734-302-4674
	sean.michaels@altarum.org
	CV0023268

STATE			
	Program Manager	Multiple - See Below	
	Contract Administrator	Jarrod Barron	DTMB
		(517) 249-0406	
		barronj1@michigan.gov	

CONTRACT SUMMARY			
DISEASE SURVEILLANCE SYSTEM			
INITIAL EFFECTIVE DATE	**INITIAL EXPIRATION DATE**	**INITIAL AVAILABLE OPTIONS**	**EXPIRATION DATE BEFORE**
August 17, 2011	August 17, 2016	2 - 1 Year	August 17, 2019
PAYMENT TERMS		**DELIVERY TIMEFRAME**	
ALTERNATE PAYMENT OPTIONS			**EXTENDED PURCHASING**
☐ P-Card	☐ PRC	☒ Other	☐ Yes ☒ No
MINIMUM DELIVERY REQUIREMENTS			

DESCRIPTION OF CHANGE NOTICE				
OPTION	**LENGTH OF OPTION**	**EXTENSION**	**LENGTH OF EXTENSION**	**REVISED EXP. DATE**
☐		☐		August 17, 2019
CURRENT VALUE	**VALUE OF CHANGE NOTICE**		**ESTIMATED AGGREGATE CONTRACT VALUE**	
$1,471,260.00	$471,713.00		$1,942,973.00	

DESCRIPTION

Effective 1/9/2019, the parties add $471,713.00 for the services in the attached statement of work. All other terms, conditions, specifications, and pricing remain the same. Per Contractor, Agency and DTMB Procurement approval.

Program Managers
for
Multi-Agency and Statewide Contracts

AGENCY	NAME	PHONE	EMAIL
DTMB	Kimberly Koppsch-Woods	517-241-3314	Koppsch-Woodsk@michigan.gov
MDHHS	Edward Hartwick	517-284-4947	HartwickE@michigan.gov

MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATEMENT OF WORK (SOW)

Project Title: Poisoning and Overdose Surveillance Module	**Estimated Period of Coverage:** December 1, 2018, to August 17, 2019
Requesting Agency: Michigan Department of Health and Human Services	**Date:**
Agency Program Manager: Edward Hartwick	**Phone:** 517-284-4947
DTMB Program Manager: Kimberly Koppsch-Woods	**Phone:** 517-241-3314

This Statement of Work (SOW) is made part Contract #071B1300364 (Contract) between the State of Michigan (State) and Altarum Institute (Contractor) effective as of the date set forth on the signature page of this Agreement.

NOW THEREFORE, the Parties agree as follows:

I. BRIEF DESCRIPTION OF SERVICES TO BE PROVIDED

1. The Michigan Department of Health and Human Services (MDHHS) through the Michigan Department of Technology, Management & Budget (DTMB) requests development of a new module within the Michigan Disease Surveillance System (MDSS), referred to as the Poisoning and Overdose Surveillance module.

II. BACKGROUND AND PROJECT OBJECTIVE

1. MDHHS is engaging the Contractor to enhance the Michigan Disease Surveillance System (MDSS) through the addition of a Poisoning and Overdose Surveillance Module. This module will be developed within the existing MDSS to leverage existing infrastructure (e.g., health information exchange (HIE) message transport and the Data Quality Tool (DQT) Rhapsody Integration Engine routes) and technology (e.g., MDSS-patient deduplication and case creation functionality).

2. The Poisoning and Overdose Surveillance Module must be able to receive, process, and provision individual, line-level admission and discharge HL7 messages that are currently exchanged between healthcare facilities and insurance payers (third-party insurers and Medicaid). The transport of these messages to the DQT will be triggered by the Michigan Health Information Network (MiHIN) based on available diagnoses within the unique HL7 messages. The system shall de-duplicate individual patient profiles and match unique events within patient profiles, over time. These data must be exportable by public health surveillance staff for analysis within other, third-party statistical software (e.g., SPSS, SAS, R).

III. SCOPE OF WORK

1. The Poisoning and Overdose Surveillance Module shall be designed to support opioid overdose surveillance; and it may be expanded to include all other drug poisonings, injury, and/or chemical poisonings. The architecture should be designed to support this potential future expansion in scope.

2. The Contractor shall ensure the solution complies with all State policies and standards.

3. Tasks

   A. Initiation and Planning: The objective of this task is for the project management teams, from both the State and Contractor, to develop the project definition, plan, and artifact documents. As a part of this phase, the Contractor will facilitate a kick-off meeting with the State.

      1) State Responsibility

         a) Project Charter

         b) Budget development and approval

         c) Project Management Plan

      2) Contractor Responsibility

         a) Facilitate Kick Off Meeting

         b) Agenda and Notes for Contractor Hosted Meetings

         c) Master Project Schedule

   B. Requirements Gathering

      1) State Responsibility

         a) Participate in requirements gathering sessions

         b) Provide subject matter experts

      2) Contractor Responsibility

         a) Facilitate requirements gathering sessions

         b) Requirements Definition Document

   C. Functional Design and System Design

      1) State Responsibility

         a) Solution Design Team Statement of Work, if needed

         b) Schedule Solution Design Team sessions, if needed

c) Enterprise Architecture Solution Assessment updates, if needed

d) System Security Plan Documentation Collection and Storage

2) Contractor Responsibility

a) Identify and ensure integrations with other systems and technical components (e.g. Michigan Health Information Network (MiHIN), Data Quality Tool (DQT), Michigan Health Information Exchange (HIE))

b) Dataflow Documentation

c) System Security Plan Meetings

d) Functional Design Document

e) System Design Document

f) Participate in Solution Design Team (SDT) sessions that will design technical environment and architecture, if needed

g) Provide information to update the Enterprise Architect Solution Assessment, if needed

D. Development

1) State Responsibility

a) Provide support to the Contractor as requested.

b) Schedule and participate in AppScan testing; provide direction regarding AppScan vulnerability remediation.

c) Provide guidance to the Contractor regarding the State secure application development lifecycle (SADLC) requirements.

2) Contractor Responsibility

a) Comply with State secure application development lifecycle (SADLC) at the direction of the DTMB Program Manager.

b) Participate in AppScan testing and remediate vulnerabilities at the direction of the DTMB Program Manager.

E. System Testing: Once the product is fully integrated, system testing is conducted to validate that the product functions as intended, satisfies all user requirements, and is supported with complete and accurate operating documentation. Anomalies identified at this step are recorded and tracked to resolution.

1) State Responsibility: Participate in end-to-end testing

2) Contractor Responsibility: Complete testing in accordance with Section 2.252 of the Contract.

F. End User Acceptance Testing: User Acceptance Testing (UAT) will follow system testing, and solicit feedback from users for the Contractor to make any final adjustments before releasing the solution for implementation.

1) State Responsibility: The State will take the lead on conducting UAT and will schedule, coordinate, and monitor all UAT activities. The State is responsible for providing end users and Subject Matter Experts.

a) Schedule, coordinate and monitor all user acceptance activities

b) Document Test Plan

c) Document Test Cases

d) Document Test Results

e) Provide end users and subject matter experts

f) Conduct user acceptance testing

g) Participate in Status Meetings

2) Contractor Responsibility

a) Review Failed Test Scenarios

b) Resolve defects

G. Training:

1) State Responsibility: The State will conduct end user training.

2) Contract Responsibility: The Contractor will conduct train-the-trainer training to prepare the State to conduct end user training.

IV. PROJECT DELIVERABLES

1. Full functioning Poisoning and Overdose Surveillance Module within the MDSS that meet business requirements.

2. Integration with all existing upstream and downstream systems (e.g. Michigan Health Information Network (MiHIN), Data Quality Tool (DQT)).

V. LOCATION OF WHERE WORK IS TO BE PERFORMED

1. The work will be conducted at the Contractor's worksite.

VI. ACCEPTANCE CRITERIA

1. All written deliverables and custom software deliverables (Deliverables) require formal written approval by the DTMB and MDHHS Program Managers listed herein in accordance with Section 2.250 of the Contract.

VII. POST IMPLEMENTATION SUPPORT

1. Maintenance and Support – Contractor will provide ongoing maintenance and support as outlined in Section 1.104(I)(A) of the Contract.

2. Additional State Requirements – If a new State requirement or modification of a current requirement is needed a Change Notice will need to be submitted, approved, and signed by both State and Contractor.

VIII. PROJECT ASSUMPTIONS & RISKS

1. Identified assumptions include:

   A. The Contractor will provide a Project Manager who will manage the project and serve as a primary contact and manage Contractor resources and activities. The State will provide a Project Manager who will serve as the primary contact for the State and manage State resources and activities.

   B. The State will provide appropriate staff for requirements gathering, design, development and testing, and other activities, when needed.

   C. State will provide subject matter expertise, when needed.

2. State will provide the required approvals and resources to meet the key milestone dates as outlined in the project schedule.

IX. PROJECT SCHEDULE

1. Production go live must occur before August 15, 2019.

2. The Contractor, in cooperation with the State, will develop the detailed project schedule as part of Initiation and Planning activities.

X. PRICING

1. Payment shall be made on a deliverable basis and upon deliverable acceptance. The total cost for the services outlined herein is $471,713.00. No additional maintenance or support costs shall be assessed. Payment will be made after deliverable acceptance. Invoices must include the purchase order number, dates of completed deliverables and description of the deliverable. DTMB will pay Contractor for properly completed invoices, submitted to the billing address on the State issued purchase order within 45 days of receipt. Invoices will be submitted monthly. All invoices should reflect actual work completed and be approved by the MDHHS Program Manager and DTMB Program Manager prior to payment. The invoices shall describe and document to the State's satisfaction a description of the work performed and progress of the project and cost.

2. Payment Milestones:

Item	Payment %	Amount
A. System Enhancement Activities		
1. Requirements Gathering: Upon State acceptance of Requirements Stage Exit	25%	$117,928.00

2. Functional Design and System Design: Upon State acceptance of System Design Stage Exit	25%	$117,928.00
3. User Acceptance Testing: Upon acceptance of User Acceptance Testing Stage Exit	25%	$117,928.00
4. Production Go Live Release Milestone: Upon release into production	25%	$117,929.00
B. Maintenance and Support	N/A	$0.00
Total:		$471,713.00

Table 1 Payment Milestones

3. Payment shall be considered timely if made by the State within forty-five (45) days after receipt of properly completed invoices.

XI. EXPENSES

1. The State will not pay for any travel expenses, including hotel, mileage, meals, parking, etc.

XII. PROJECT CONTROL AND REPORTS

1. A weekly progress report must be submitted to the MDHHS and DTMB Program Managers throughout the life of this project. Each weekly progress report must contain the following:

   A. Status: Indicate the project health in relation to project baseline schedule.

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

   C. Upcoming Tasks: Indicate tasks due within the next week.

   D. Issues and Risks: Indicate any items that will post as a risk and the mitigation and any outstanding issues.

   E. Variances: Identify any schedule variance from the most recent baseline.

XIII. PROJECT CONTACTS

1. The DTMB Buyer for this project is:

   Jarrod Barron
   Michigan Department of Technology, Management and Budget
   Purchasing Operations
   (O) 517-284-7045
   Email: BarronJ1@michigan.gov

2. The designated MDHHS Program Manager is:

   Edward Hartwick
   Michigan Department of Health and Human Services
   517-284-4947 Office
   Email: HartwickE@michigan.gov

3. The designated DTMB Program Manager is:

   Kimberly Koppsch-Woods
   Michigan Department of Technology, Management and Budget
   Agency Services
   300 E. Michigan Ave
   Lansing, MI 48933
   517-241-3314 Office
   517-243-8786 Mobile
   Email: Koppsch-woodsk@michigan.gov

XIV. GENERAL PROVISIONS

1. **Web or Hyperlinks.** In the event Contractor is unable to access or view any of the web links (also known as hyperlinks) contained within this Contract, Contractor must promptly notify the DTMB Program Manager. An inaccessible or non-working web link will not excuse the Contractor of its duties and obligations under this Contract. Contractor is responsible for ensuring its personnel and/or subcontractors have reviewed all State and DTMB policies under this Contract

2. **This Entire Agreement.** This SOW, together with the existing Contract, constitutes the Parties' complete and exclusive statement regarding work requirements and procedures. Apart from the amendments made in this SOW, all Contract terms and conditions must remain in full force and effect.

IN WITNESS WHEREOF, the Parties, intending to be legally bound, have caused their duly authorized officers to execute this SOW via a contract change notice signature page, which is incorporated herein by reference.

STATE OF MICHIGAN
ENTERPRISE PROCUREMENT

Department of Technology, Management, and Budget

525 W. ALLEGAN ST., LANSING, MICHIGAN 48913
P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number **4**

to

Contract Number **071B1300364**

CONTRACTOR	
	ALTARUM INSTITUTE
	3520 Green Ct., Suite 300
	Ann Arbor, MI 48105
	Sean Michaels
	734-302-4674
	sean.michaels@altarum.org
	CV0023268

STATE			
	Program Manager	Kim Koppsch-Woods	MDHHS
		517-241-3314	
		Koppsch-Woodsk@michigan.gov	
	Contract Administrator	Jarrod Barron	DTMB
		(517) 249-0406	
		barronj1@michigan.gov	

CONTRACT SUMMARY

MICHIGAN DISEASE SURVEILLANCE SYSTEM (MDSS)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 17, 2011	August 17, 2016	2 - 1 Year	August 17, 2018

PAYMENT TERMS	DELIVERY TIMEFRAME

ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING	
☐ P-Card	☐ Direct Voucher (DV)	☐ Other	☐ Yes	☒ No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☐		☐	1 Year	August 17, 2019

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$1,290,459.00	$180,801.00	$1,471,260.00

DESCRIPTION

Effective 7/17/2018, the parties add $180,801.00, extend the contract to 8/17/2019 and revise Cost Tables 2 and 3 per the attached documentation. All other terms, conditions, specifications, and pricing remain the same. Per Contractor, Agency, DTMB Procurement and State Administrative Board approval.

ALTARUM
SOLUTIONS THAT MATTER. HEALTH CARE THAT WORKS.

3520 GREEN COURT, SUITE 300
ANN ARBOR, MI 48105
P (734) 302-4600
F (734) 302-4991

February 7, 2018

Andrea Lynch
DTMB – Agency Services Supporting MDHHS
LynchA3@michigan.gov

RE: Contract No. 071B1300364 – Year8 (Option Year 3)

Dear Ms. Lynch:

Altarum Institute (Altarum) is pleased to provide the quote below in the amount of $180,801 to extend Contract No. 071B1300364 (the "Contract") for Year 8 (Option Year 3) from 8/18/16-8/17/19 under the same terms and conditions. Below is the rate chart for maintenance and support in the Contract. Our proposal reflects a 2% increase from the last year and is based on our Market Price List effective November 1, 2018, which is attached below for reference.

Table 2: Maintenance and Support

	Cost Categories	Total Cost ($)	Comments
A.	**Maintenance and Support cost** *(includes Training, documentation, helpdesk)*		Altarum has applied an annual 2% escalation factor which is based on our historical experience to maintain a qualified workforce.
	First Year	$145,635	
	Second Year	$151,461	
	Third Year	$157,519	
	Fourth Year	$163,820	
	Fifth Year	$170,373	
	Sixth Year (Option Year 1)	**$173,780**	
	Seventh Year (Option Year 2)	**$177,256**	
	Eighth Year (Option Year 3)	**$180,801**	
	Combined Total	**$1,320,646**	

Table 3: Future Enhancements/Rate Card

No.	Staffing Category	Commercial Labor Category	Not to Exceed Hourly Rate	One-month project hours estimate	Extended Price
B.	Project Manager / Technical Lead	Intermediate Consultant	$173.00	180 hours	$31,140
	Business Analyst	Consultant	$138.00	180 hours	$24,840
	Senior Software Developer	Jr. Consultant	$160.00	180 hours	$28,800
	Programmer	Sr Business Technical Specialist	$116.00	180 hours	$20,880
	Technical Writer	Sr Business Technical Specialist	$116.00	180 hours	$20,880
	List Any Other(s)				
	Future Enhancement/Rate Card Estimated Cost		**N/A**		**$126,540**

If you have any questions or concerns about this letter or the attached proposal, please call me directly at (734) 302-4600 or by e-mail at sean.michaels@altarum.org.

Sincerely,

Sean Michaels
Sr. Contract Specialist

ALTARUM INSTITTUE
5-YEAR MARKET PRICE LIST
EFFECTIVE: November 1, 2017

		11/1/2017 - 10/31/2018	11/1/2018 - 10/31/2019	11/1/2019 - 10/31/2020	11/1/2020 - 10/31/2021	11/1/2021 - 10/31/2022
Management						
	Institute Executive	$573.00	$ 602.00	$ 632.00	$ 664.00	$ 697.00
	Institute Manager	$415.00	$ 436.00	$ 458.00	$ 481.00	$ 505.00
	Principal Manager	$372.00	$ 391.00	$ 411.00	$ 432.00	$ 454.00
	Institute Associate	$324.00	$ 340.00	$ 357.00	$ 375.00	$ 394.00
	Program Manager	$283.00	$ 297.00	$ 312.00	$ 328.00	$ 344.00
	Management Assistant	$187.00	$ 196.00	$ 206.00	$ 216.00	$ 227.00
Consultant						
	SME Consultant	$449.00	$ 471.00	$ 495.00	$ 520.00	$ 546.00
	Program Consultant	$267.00	$ 280.00	$ 294.00	$ 309.00	$ 324.00
	Project Consultant	$253.00	$ 266.00	$ 279.00	$ 293.00	$ 308.00
	Sr Consultant	$191.00	$ 201.00	$ 211.00	$ 222.00	$ 233.00
	Expert Consultant	$195.00	$ 205.00	$ 215.00	$ 226.00	$ 237.00
	Intermediate Consultant	$173.00	$ 182.00	$ 191.00	$ 201.00	$ 211.00
	Jr Consultant	$160.00	$ 168.00	$ 176.00	$ 185.00	$ 194.00
	Consultant	$138.00	$ 145.00	$ 152.00	$ 160.00	$ 168.00
Analyst						
	Chief Analyst	$456.00	$ 479.00	$ 503.00	$ 528.00	$ 554.00
	Lead Analyst	$413.00	$ 434.00	$ 456.00	$ 479.00	$ 503.00
	Institute Analyst	$350.00	$ 368.00	$ 386.00	$ 405.00	$ 425.00
	Sr Analyst	$281.00	$ 295.00	$ 310.00	$ 326.00	$ 342.00
	Applied Analyst	$238.00	$ 250.00	$ 263.00	$ 276.00	$ 290.00
	Functional Analyst	$225.00	$ 236.00	$ 248.00	$ 260.00	$ 273.00
	Intermediate Analyst	$210.00	$ 221.00	$ 232.00	$ 244.00	$ 256.00
	Analyst	$171.00	$ 180.00	$ 189.00	$ 198.00	$ 208.00
Specialist						
	Expert/Specialist	$315.00	$ 331.00	$ 348.00	$ 365.00	$ 383.00
	Sr Program Specialist	$310.00	$ 326.00	$ 342.00	$ 359.00	$ 377.00
	Program Specialist	$305.00	$ 320.00	$ 336.00	$ 353.00	$ 371.00
	Sr Business Technical Specialist	$116.00	$ 122.00	$ 128.00	$ 134.00	$ 141.00
	Business Technical Specialist	$97.00	$ 102.00	$ 107.00	$ 112.00	$ 118.00
	Training Specialist	$74.00	$ 78.00	$ 82.00	$ 86.00	$ 90.00
	Research Specialist	$55.00	$ 58.00	$ 61.00	$ 64.00	$ 67.00
	Research Assistant	$42.00	$ 44.00	$ 46.00	$ 48.00	$ 50.00

STATE OF MICHIGAN
ENTERPRISE PROCUREMENT

Department of Technology, Management, and Budget

525 W. ALLEGAN ST., LANSING, MICHIGAN 48913
P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number **3**

to

Contract Number **071B1300364**

CONTRACTOR	
	ALTARUM INSTITUTE
	3520 Green Ct., Suite 300
	Ann Arbor, MI 48105
	Sean Michaels
	734-302-4674
	sean.michaels@altarum.org
	*******3442

STATE			
Program Manager	Kim Koppsch-Woods	MDHHS	
	517-241-3314		
	Koppsch-Woodsk@michigan.gov		
Contract Administrator	Simon Baldwin	DTMB	
	(517) 284-6997		
	baldwins@michigan.gov		

CONTRACT SUMMARY

MICHIGAN DISEASE SURVEILLANCE SYSTEM (MDSS)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 17, 2011	August 17, 2016	2 - 1 Year	August 17, 2017

PAYMENT TERMS	DELIVERY TIMEFRAME

ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING	
☐ P-Card	☐ Direct Voucher (DV)	☐ Other	☐ Yes	☒ No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☒	1 Year	☐		August 17, 2018

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$1,191,203.00	$99,256.00	$1,290,459.00

DESCRIPTION

Effective 8/18/2017, this Contract is exercising the second option year and is increased by $99,256.00. The total cost of the second option year is $177,256.00 ($99,256.00 new and 78,000.00 from existing Contract funds. The revised Contract expiration date is 8/17/2018. All other terms, conditions, specifications, and pricing remain the same. Per Contractor and Agency agreement, and DTMB Procurement approval.

MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK

Project Title: **MDSS Rhapsody Support Option Year 1 CCN**	**Period of Coverage:** **08/17/2017 – 08/17/2018**
Requesting Department: **Michigan Department of Health and Human Services (MDHHS) Crime Victim Services**	**Date:** **06/29/2017**
Agency Project Manager: **Edward Hartwick**	**Phone:** **517.284.4947**
MDTMB Project Manager: **Linda Meyer**	**Phone:** **517-241-7650**

This Statement of Work (SOW) is made a part of a Change Notice to Contract No. 071B1300364 (Contract) between the State of Michigan (State) and Altarum (Vendor). This Contract Change Notice (CCN) will extend the Contract for option year one (1) out of two (2) one year periods permissive under 2.002 contract terms to procure ongoing maintenance and support of the Michigan Disease Surveillance System (MDSS) for the time period of 08/17/2017 – 08/17/2018.

"Michigan Department of Community Health", "Community Health", and "DCH" in the existing Contract means the Michigan Department of Health and Human Services (MDHHS). Under the recently effectuated State Executive Order No. 2015-4, the entities formerly known as the separate Michigan Department of Community Health (MDCH or DCH) and the Michigan Department of Human Services (MDHS or DHS) have become one department named the Michigan Department of Health and Human Services (MDHHS or DHHS).

I. BACKGROUND

1.1 Vendor Contract 071B1300364 offers ongoing maintenance and support for the MDSS and has been the on-going development of a Public Health Information Network (PHIN) compliant disease information system that implements a logical data model based on the National Electronic Disease Surveillance System (NEDSS), to support the Michigan Department of Health and Human Services (MDHHS) public health surveillance system. The MDHHS has incorporated Public Health Information Network Messaging System (PHINMS) as an enterprise-wide messaging solution approved by the National Center for Public Health Informatics at the Centers for Disease Control and Prevention (CDC) in order to meet certification requirements, but seeks further integration of PHINMS into the system.

1.2 The MDSS has been operational since June 13, 2004, and meets the requirements for reporting communicable diseases as specified in Michigan's Public Health Code (MCL 333.5111) and CDC Public Health Emergency Preparedness funding. The system currently has over 1000 users in state and local public health as well as healthcare providers and laboratories. The system provides a web-based disease surveillance application that allows for electronic capture of disease data, case assignment and tracking, addition of public health case investigations and data export.

1.3 This system improves the medical and epidemiological management of the case investigations and enhances public health capacity. Electronic laboratory disease reporting is also supported. Multiple reporting sources are integrated into an electronic investigation workbook, that may be reassigned or transferred as needed for jurisdictional changes, reviewing, or other procedures that are current and yet to be defined. MDSS is able to receive disease reports through manual entry, on-line web submission of case referral/intake reports, or importation of HL7 (Health Level 7, an American National Standards Organization approved standards developing organization) laboratory reports (HL7 laboratory reports are in the standard HL7 V2.3 format and include lab test results). The demographic data contained in each potential case is de-duplicated to ensure the system contains a set of unique patient demographics. MDSS geocodes all encountered addresses. Geographical Information Systems (GIS) geographic mapping is integrated into case screens and into reporting.

II. PROJECT OBJECTIVE:

2.1 The objective of this CCN project is to maintain and support the solution to integrate the MDSS with the SOM Health Information Exchange (HIE) solution using Rhapsody Integration Engine (RIE) to translate, transform and archive HL7, XML and other messages, data and code mappings for translating local codes to standard codes, and the interfaces that are compliant with relevant standards of PHIN.

III. SCOPE OF WORK:

3.1 The scope of work for this CCN includes, but is not limited to the vendor maintaining the software, including all future MDSS' identified components, updates and system enhancements applicable to system modules licensed, without further charge to all licensed users. Vendor shall provide the State with information on software problems encountered at end-user locations, along with the solution to those problems.

3.2 Per the Master contract, 071B1300364, Vendor will provide the following services for the complete and successful support and maintenance of the MDSS system providing the functionality required for the State's business operations. A more complete description of the supplies and/or services sought for this project is provided in Section 1.104, Work and Deliverables. This project consists of the following components:

1. Maintenance - Maintenance is defined as repair or replacement services provided to identify and repair software malfunctions in order to return the system to its original operating condition. Maintenance also includes an agreement to provide an annual renewable software subscription to include future upgrades (both major and minor revisions of the application) and ongoing vendor product support.
2. Support – Help Desk and Technical
3. Enhancements – These projects will be determined at time of need and a separate work statement will be developed.

3.3 Vendor shall provide the tools, connectivity, installation, support and updates as needed for the State to stay in compliance with MDTMB Standards, to properly support and monitor the application. All maintenance is performed by qualified personnel familiar with the hardware.

IV. TASKS/DELIVERABLES:

4.1 Maintenance and Support Deliverables and/or Services are referenced in Section 1.104(1)(E) of the base Contract.

V. ACCEPTANCE CRITERIA:

5.1 Tasks/Deliverables/Services and all work necessary for the complete and successful maintenance, support and enhancements will not be considered complete until the MDTMB and MDHHS Project Managers have formally accepted them in writing.

VI. PROJECT CONTROL AND REPORTS:

6.1 Specifications and configuration documents will be provided by the vendor and approved by DTMB and MDHHS. Vendor will be provided a timeline for the enhancement to be approved by DTMB and DCH. Final configuration documents and related support documents will be provided prior to the enhancement completion.

VII. SPECIFIC DEPARTMENT STANDARDS:

7.1 Per the State Contract 071B1300364, the vendor will adhere to all Agency IT Standards, in addition to MDTMB Policies and Standards.

7.2 The vendor is aware of the specific department standards per the State Contract 071B1300364.

VIII. PAYMENT SCHEDULE:

8.1 Costs associated with Maintenance and Support as well as all future enhancements has been defined within Change Notice 2 of this Contract.

8.2 Payment will be made on a satisfactory acceptance of deliverable basis and all invoices must include the purchase order. DTMB will pay Vendor upon receipt of properly completed invoices which shall be submitted to the billing address on the State issued purchase order not more often than monthly. DTMB Contracts area will coordinate obtaining Agency Project Manager and DTMB Project Manager approvals. All invoices should reflect actual work completed by payment date, and must be approved by the Agency Project Manager and DTMB Project Manager prior to payment. The invoices shall describe and document to the State's satisfaction a description of the work performed the progress of the project, and fees. When expenses are invoiced, receipts will need to be provided along with a detailed breakdown of each type of expense.

8.2 Payment shall be considered timely if made by the DTMB within forty-five (45) days after receipt of properly completed invoices.

IX. EXPENSES:

9.1 The State will not pay for any travel expenses, including hotel, mileage, meals, parking, etc.

X. PROJECT CONTACTS:

10.1 The designated Agency Project Manager is:
Edward Hartwick
Department of Health and Human Services
South Grand Building
333 S. Grand Avenue
Lansing, MI 48933
517-284-4947
HartwickE@michigan.gov

10.2 The designated MDTMB Project Manager is:
Linda Meyer
Department of Technology, Management & Budget
Customer Service supporting MDHHS
Chandler Plaza
300 East Michigan Ave.
Lansing, MI 48933
517-241-7650
MeyerL2@michigan.gov

XI. AGENCY RESPONSIBILITIES:

11.1 The MDHHS/MDTMB will provide a project manager to approve project documents, deliverables, and payments.

11.2 MDHHS will pull reports through a web-based reporting mechanism at regular intervals. The output measurement will be at the time of implementation of the new interface deployment.

XII. LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

12.1 The vendor's consultants will primarily work at their Vendor work location.

XIII. EXPECTED VENDOR WORK HOURS AND CONDITIONS:

13.1 Work hours are not to exceed eight (8) hours a day, forty (40) hours a week. Normal working hours of 8:00 am to 5:00 pm are to be observed unless otherwise agreed to in writing.
No overtime will be permitted.

STATE OF MICHIGAN
ENTERPRISE PROCUREMENT

Department of Technology, Management, and Budget
525 W. ALLEGAN ST., LANSING, MICHIGAN 48913
P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number 2
to
Contract Number **071B1300364**

CONTRACTOR	
	ALTARUM INSTITUTE
	3520 Green Ct., Suite 300
	Ann Arbor, MI 48105
	Sean Michaels
	734-302-4706
	sean.michaels@altarum.org
	*******3442

STATE			
	Program Manager	Kim Koppsch-Woods	DTMB
		Koppsch-WoodsK@michigan.gov	
		(517) 241-3314	
	Contract Administrator	Simon Baldwin	DTMB
		(517) 284-6997	
		BaldwinS@michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: MI DISEASE SURVEILLANCE - DCH

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 17, 2011	August 17, 2016	2 - 1 Year	August 17, 2016

PAYMENT TERMS	DELIVERY TIMEFRAME

ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING	
☐ P-card	☐ Direct Voucher (DV)	☐ Other	☐ Yes	**X** No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☒	1-Year	☐	N/A	August 17, 2017

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$1,191,203.00	$ 0.00	$1,191,203.00

DESCRIPTION: Effective August 18, 2016, the State is exercising the first option year using $173,780.00. The revised Contract expiration date is August 17, 2017. Pricing for the remaining 2 options as well as a revised rate card for future enhancements is now attached. Please note the Contract Administrator has been changed to Simon Baldwin, the Program Manager has been changed to Kim Koppsch-Woods, and the Contractor contact has been changed to Sean Michaels. All other terms, conditions, specifications and pricing remain the same. Per contractor and agency agreement, and DTMB Procurement approval.

Table 2: Maintenance and Support

	Cost Categories	Total Cost ($)	Comments
A.	**Maintenance and Support cost** *(includes Training, documentation, helpdesk)*		Altarum has applied an annual 2% escalation factor which is based on our historical experience to maintain a qualified workforce.
	First Year	$145,635	
	Second Year	$151,461	
	Third Year	$157,519	
	Fourth Year	$163,820	
	Fifth Year	$170,373	
	Sixth Year	**$173,780**	
	Seventh Year	**$177,256**	
	Combined Total	**$1,139,845**	

Table 3: Future Enhancements/Rate Card

No.	Staffing Category	Commercial Labor Category	Not to Exceed Hourly Rate	One-month project hours estimate	Extended Price
B.	Project Manager / Technical Lead	Intermediate Consultant	$173.00	180 hours	$31,140
	Business Analyst	Consultant	$138.00	180 hours	$24,840
	Senior Software Developer	Jr. Consutant	$152.00	180 hours	$27,360
	Programmer	Sr Business Technical Specialist	$116.00	180 hours	$20,880
	Technical Writer	Sr Business Technical Specialist	$116.00	180 hours	$20,880
	List Any Other(s)				
	Future Enhancement/Rate Card Estimated Cost		**N/A**		**$125,100**

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

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET November 21, 2011
PROCUREMENT
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO.1
OF
CONTRACT NO. 071B1300364
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Altarum Institute** **3520 Green Ct. Suite 300** **Ann Arbor, MI 48105** **Email: Kelly.belcher@altarum.org**	TELEPHONE (734) 302-4674 **Kelly Belcher** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-1638 **Reid Sisson**
Contract Compliance Inspector: **MI Disease Surveillance System - DCH**	
CONTRACT PERIOD: 5 **yrs. + 2 one-year options** From: **August 17, 2011** To: **August 17, 2016**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
ALTERNATE PAYMENT OPTIONS: ☐ P-card ☐ Direct Voucher (DV) ☐ Other	
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

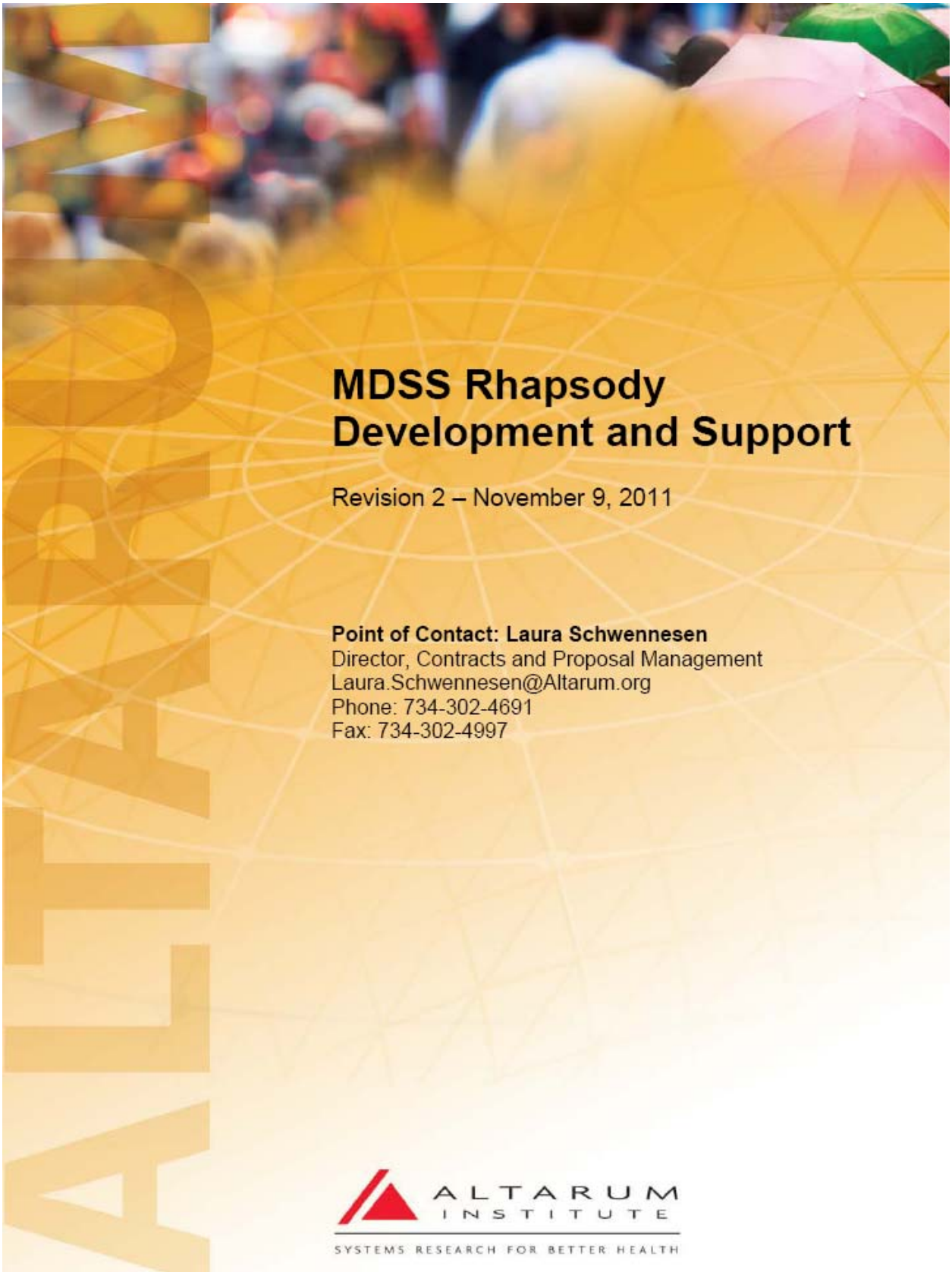
NATURE OF CHANGE(S):

Effective immediately, this contract is hereby INCREASED by $275,000.00. All other terms, conditions, pricing and specifications remain the same.

AUTHORITY/REASON(S):

Per agency and vendor agreement, DTMB Procurement approval and the approval of the State Administrative Board on December 6, 2011.

TOTAL REVISED ESTIMATED CONTRACT VALUE: $1,191,203.00



MDSS Rhapsody Development and Support

Revision 2 – November 9, 2011

Point of Contact: Laura Schwennesen
Director, Contracts and Proposal Management
Laura.Schwennesen@Altarum.org
Phone: 734-302-4691
Fax: 734-302-4997

ALTARUM INSTITUTE
SYSTEMS RESEARCH FOR BETTER HEALTH

ALTARUM INSTITUTE

Michigan Department of Technology, Management and Budget

November 9, 2011

Gary Umstead
Department of Technology Management and Budget Financial Services, IT Purchasing
320 S. Walnut St
PO Box 30026
Lansing MI 48909

Dear Mr. Umstead:

Altarum Institute (Altarum) is pleased to provide the enclosed revised proposal in response to the Statement of Work titled "Rhapsody Development and Support". We have addressed all of the comments provided to us and have reduced our budget to a one year period of performance with an expected start date of December 15, 2011.

We look forward to working collaboratively with the State of Michigan in this endeavor. If there are any questions, please don't hesitate to contact me at 734-302-4691 or via email at laura.schwennesen@altarum.org.

Sincerely,

Laura Schwennesen

Laura Schwennesen
Director, Contracts & Proposal Management

1.0 Introduction

Altarum Institute (Altarum) is a nonprofit research and innovation institution that has been serving government and commercial customers in the healthcare industry for over 30 years. Our staff consists of analysts, scientists, economists, modelers, and programmers with advanced degrees in health policy, health economics, nursing, operations research, biostatistics, epidemiology, and other technical fields. *The overall objective of this proposal is to enable health information exchange to support and monitor providers and hospitals to achieve the EHR Incentive Program meaningful use objectives*.

2.0 Tasks

2.1 Project Plan

When a task is requested by the SOM project managers, the Altarum project manager will create a project plan for that task. This will include a task breakdown, timeline and estimate on the number of hours needed to complete the task. This project plan will have to be approved by the SOM project manager before work will begin on the task. Below is a example of what such a plan could look like. Exact format of the plan to be worked out between the SOM and Altarum project managers.

Exhibit 1A-1: EXAMPLE Task 1 Project Plan and Timeline to include DTMB

Task	Timeline
1.1 - Meet with MDCH to define requirements	Scheduled within 1 week of task commencement
1.2 - Meet with facility users to further define requirements	Scheduled within 2 weeks of task commencement
1.3 - Draft requirements document	Completed within 1 week of completion of task 1.2
1.4 - Meet with MDCH to present and finalize requirements	Scheduled within 1 week completion of task 1.3
1.5 - Develop requirements document	Completed within 1 week completion of task 1.4
1.6 - Develop project plan and cost estimate	Completed within 1 week of requirements approval

The table below summarizes the hours by role needed to complete this task.

Exhibit 1A-2: Task 1 Example of Estimated Level of Effort

Role	Hours
Project Manager	4
Technical Lead	28
Programmer/Analyst	56
Technical Writer	12

2.2 Provide technical expertise to lead efforts to install and configure the Rhapsody Integration Engine (RIE)

The Altarum team will lead the installation and configuration of the RIE on SOM hardware, as directed by the SOM project manager. The number of installations, the versions of the software and the timings of the installations will be determined by the SOM project manager with technical input from the Altarum team. The State will provide access to the required hardware and the software for install.

2.3 Develop and maintain the solution to integrate the MDSS with the SOM HIE solution using the RIE to translate, transform, and archive HL7, XML, and other messages

The Altarum team will develop and maintain the solution to integrate the MDSS with the SOM HIE. This includes any Rhapsody routes to translate, transform and archive the HL7, xml and other message types. This solution will include:

- Secure transport of the message into the SOM HIE and then on to the MDSS
- Rhapsody routes to transform the message into a version of HL7 that the MDSS can accept.
- Any message vocabulary transformations needed for the MDSS.
- Working with outside HIE's or organizations to test and refine incoming messages and messaging protocols.
- Documenting processes and procedures.

2.4 Create and maintain data and code mappings for translating local codes to standard codes for various HL7 message types.

The CDC's Messaging Subscription Service (MSS) is included as part of the Rhapsody environment. The MSS includes an embedded version of PHIN Vocabulary Access and Distribution System (VADS), the CDC's solution for accessing, searching, and distributing vocabularies used within the PHIN. As messages come into the SOM HIE, Altarum will create Rhapsody routes to move them on to the appropriate public health system. Altarum will use the PHIN VADS system to translate local codes into the standard codes necessary so the messages can be accurately consumed by the receiving public health system. Altarum will create and maintain the code mappings and the routes that use them in the RIE.

2.5 Develop and maintain interfaces that are compliant with relevant standards of the Public Health Information Network (PHIN).

Altarum will develop and maintain interfaces for the State and they will comply with all relevant PHIN standards. This includes, but is not limited to:

- Vocubulary standards as defined in PHIN VADS.
- Message standards as defined by the HL7 specifications.
- Message mapping standards as defined by the NEDSS Messaging Guides.
- All relevant PHIN privacy and encryption standards.

2.6 Provide general and technical system administration support and training on the use of the Rhapsody Integration Engine.

Altarum will provide general system administration of the Rhapsody environment. This includes, but is not limited to:

- Daily checks on the message queues to be sure the messages are flowing properly
- Checking the PHINMS connections and providing technical support to submitters,
- Checking error logs for message errors and taking corrective actions,
- Modifying and enhancing Rhapsody routes to correct deficiencies in submitted data,
- Managing the Rhapsody installation, including startup, shutdown, backups and upgrades.

Altarum will also support the training of DTMB staff on any of the administration tasks. This includes documentation, phone calls, emails and possibly hands-on training as directed by the SOM project manager.

2.7 Transition Plan

At the option of the State, Altarum will develop an outgoing transition plan that more fully establishes the transition steps discussed below. Once a transition period is identified by the State, Altarum will initiate through a project closeout meeting at the convenience of the State. At this meeting, key Altarum staff are matched with key State POCs for each area of responsibility. The State POCs may choose to include staff from the incoming contractor for such a meeting. An objective of this meeting will be to schedule an orientation phase to introduce the Altarum team's personnel and project activities to the incoming contractor team. Altarum will schedule meetings during a government approved transition period. These meetings will have the sole purpose of transitioning procedures, methodologies and business processes. Altarum is committed to conducting a successful transition at the end of the period of performance for this task order from this contract to an incoming contractor. Altarum will complete all outgoing transition actions during a period of performance specified at the State's discretion.

3.0 Budget and Payment Schedule

ALTARUM INSTITUTE
Contract #071B13000364 Rates

Base Year - December 15, 2011 through December 14, 2012

Labor Category	Hours	Hourly Rate	Total Cost
Project Manager	100	$175.75	$ 17,575.00
Senior Software Developer	400	$156.75	$ 62,700.00
Business Analyst	700	$137.75	$ 96,425.00
Programmer	800	$123.50	$ 98,800.00
TOTAL LABOR	**2000**		$275,500.00
TOTAL TIME & MATERIAL CEILING			**$275,500.00**

4.0 CONTRACT AND RATE INFORMATION

The following statements are provided for your information in reviewing this proposal and/or in regard to contract #071B1300364.

Commercial Rates

This proposal was prepared using Altarum Institute's approved State of Michigan rate list in accordance with contract #071B1300364 for MDSS future enhancements. Our rates were escalated by 4% annually in order to adjust for the costs of maintaining a qualified workforce and based on our historical experience.

Contracts

Contracts are made with Altarum Institute, a non-profit corporation organized and existing under the laws of the State of Michigan. This proposal is not to be considered binding upon Altarum unless and until its provisions are incorporated in the contract executed in the name of Altarum Institute. Any proposed contractual documents should be sent to:

MAILING ADDRESS:	FOR OVERNIGHT DELIVERY:
ALTARUM INSTITUTE	ALTARUM INSTITUTE
P.O. BOX 134001	3520 GREEN COURT, SUITE 300
ANN ARBOR, MICHIGAN 48113-4001	ANN ARBOR, MICHIGAN 48105
ATTN: Laura Schwennesen	ATTN: Laura Schwennesen

Contract Type and Special Clauses

Unless noted elsewhere in this proposal, Altarum requests that a contract resulting from this proposal be awarded on an hourly Time and Materials basis.

Travel Expenses

No travel or expenses will be reimbursed, unless the State has agreed in advance and in writing to reimburse Contractor for such an expense at the State's current travel reimbursement rates.

Work Location and Work Hours

Altarum will perform the vast majority of the work for this order at our facility. We will work with the client to schedule meetings as necessary. Our staff will be available to provide the support as being requested during normal business hours, which may from time to time fluctuate based on client direction. In no way will the client be invoiced above the total not to exceed ceiling amount.

Funding

Actual funding will occur on a yearly basis, and there is no guarantee as to the level of staffing and/or funding, if any, available to the project.

Submission of Invoices and Reports

Altarum will submit public vouchers or invoices, as applicable, in accordance with our standard practice on all Federal Government contracts and subcontracts and in accordance with contract 071B1300364. Further, Altarum agrees to provide bi-weekly progress reports to the client.

Payments

Altarum may bill for labor categories not used in our estimate. All Altarum's contract rates are provided at the end of this document.

Time and Material orders will be billed monthly for actual hours worked and expenses incurred. Our payment terms are net 30 days after receipt of invoice.

It is requested payments be made in full to Altarum by Electronic Funds Transfer. If required, additional information that may be necessary for Electronic Funds Transfer will be provided after negotiations.

In the event the cognizant payment activity is unable to make payment by Electronic Funds Transfer, it is requested payments be made in full to:

Altarum Institute

P.O. Box 633579

Cincinnati, OH 45263-3579

Altarum Institute
Contract Rates for #071B1300364

Project Manager/Technical Lead	$175.75
Business Analyst	$137.75
Senior Software Developer	$156.75
Programmer	$123.50
Technical Writer	$114.00

5.0 Resumes

Lakshmi Atluri

Education

- Master of Science in Information Systems from Eastern Michigan University, Ypsilanti, Michigan -- April 2002
- Bachelor of Engineering in Computer Science and Engineering from SRM Engineering College, Madras, India -- April 1998

Experience

Senior Systems Engineer, Altarum Institute, Ann Arbor, Michigan -- July 2008 to March Present

Works as a system developer on the Michigan Disease Surveillance System (MDSS) project and is responsible for implementing application enhancements.

Works on the electronic messaging module, which performs electronic lab report messaging between various labs and the MDSS application. Involved in configuring and maintaining new routes and create a Rhapsody interface for translating the messages received from state labs and submitting to the MSS queues of the disease surveillance system. Installed and configured PHINMS for reporting disease surveillance data from the Michigan Department of Health to the CDC. Works on creating the message map for converting lab's local format to HL7 format using Rhapsody message management system. Handle the mapping of the lab codes received from various labs to the appropriate SNOMED code for the disease surveillance systems using the MSS vocabulary management.

Successfully implemented additional functionality to manage sexually transmitted disease (STD) cases within the MDSS application. Also works on uploading the historical STD cases to the MDSS system for improved reporting purposes.

Environment: J2EE, JSP, Struts framework, KODO, Apache, and Tomcat server, Oracle database, Rhapsody and MSS, PHINMS, HL7 protocol.

Senior J2EE Developer, CDI Corporation, Auburn Hills, Michigan -- March 2007 to July 2008

March 2007–July 2008, Client: Chrysler Corporation. Worked on the maintenance of fleet management system website for Chrysler Corporation, and aided in the content management system for the fleet operation. The Fleet Management system is an integration of more than 10 applications. Resolved day-to-day customer requests along with creating or adding new modules to the existing application. Involved in gathering requirements from the customer and creating the business-use cases from them. Designed and developed a user interface, application modules, and business components using J2EE technology such as JSP, Servlets, JNDI, Java Mail, and property configurations using XML. Involved in maintaining the existing applications by adding and updating Web pages per customer requests.

Involved in creating cron jobs to schedule application at a specified time. Involved in performing load, unit, and dynamic testing for safety critical applications. Responsible for creating test plans, procedures and test the application, and performing dynamic tests on the safety critical methods. Developed a complete requirements traceability matrix (RTM), tracing requirements through design and implementation to V&V. Used Dimensions as a source repository for all the applications. Environment: JNDI, UDB, Oracle 9i, Dimensions, Visio, WinSQL, JTest, Web sphere, Vignette Content Management system.

May 2006–February 2007, Client: American Red Cross, Chicago. Designed and developed client server architecture based Surround Application (Phase II), which handles the work order management of its clients. Surround is an open and flexible laboratory system that can be interfaced with current and future testing instruments and host systems. With unique decision-making capabilities, multiple instrument interfaces, and configurable client management tools, Surround provides more choices to best fit each blood center's needs. Surround allows blood banks to customize a default test panel while tracking sample results either automatically or manually. Surround's decision-making embedded intelligence manages the testing process and provides sample and system status reports, including audit trails. Designed and involved in the development of the entire cycle of the application. Met the customers and discussed the requirements; designed the system using the object oriented methodology (UML - class, sequence, and architecture diagrams). Designed and developed the software requirement specifications, system architecture design, and system detailed design for the application using DOORS database. Designed and developed code for user interface using Servlets, JSP, and business logic in J2EE. Created triggers for updating database flags depending on user action and database procedures for data retrieving tasks. Generated work order reports and audit reports for the specified modules. Created the whole testing cases and procedures scripts for unit testing, and verification reports for the application. Performed dynamic testing using JTest for the safety critical methods. Used WinCVS as source repository for the whole application. Environment: J2EE, JSP, Servlets, JDBC, Eclipse, DOORS, Oracle 8i, WinCVS, Visio, Toad, JTest.

March 2005–April 2006, Client: Third Wave Technologies, Wisconsin. Involved in the entire life cycle of development of assay panel manager software. The assay panel manager analyzed fluorescence data to determine the presence of the human papillomavirus (HPV) in a patient sample. The application provided analysis on a high-risk panel of reactions as well as confirmatory indications using a 16/18 panel of reactions. Developed the project technical plan for the entire application. Involved in customer discussions to obtain the requirements, preliminary design, and prototype of the application. Developed the architecture for the design documentation for the system using object-oriented methodology (UML - use-case analysis and design, activity diagrams, class diagrams, sequence diagrams). Designed and developed user interface, application modules, and business components using Java 2, Java Beans (user interface) using JBuilder as the IDE. Developed code to interact with the Excel spreadsheets, generate graphs for the results, and generate the PDF reports using external libraries. Responsible for developing code to provide support to up to five languages. Responsible for creating test plans and procedures and test the application and performing dynamic test on the safety critical methods. Developed a complete requirements traceability matrix (RTM), tracing requirements through design and implementation to V&V. Transformed applications into optimized Windows executable that run directly on hardware using Excelsior JET byte code compiler. Environment: JSP, Java Beans, J2EE, JBuilder, jexcelapi, itext(libraries), JTest, Windows XP, WinCVS. Excelsior JET byte code compiler.

September 2004–February 2005, Client: Northstar Neuroscience, Seattle. Designed and developed Model 5000 Series Programmer software application that runs on Windows CE and is used together with the Model 4000 handheld computer (HP IPAQ Series H2200) as part of a neurostimulation system that provides stimulation to the cortex of the brain. Used MVC framework to design the application. Involved in developing the architecture for the user interface of the application. Met with the customer to understand the requirements and developed the design of the GUI screens. Developed the screens and performed developer confidence testing depending on the requirements. Environment: J2EE, JSP, Eclipse, Windows CE, WinCVS.

April–August 2004, Client: University of Nebraska Medical Center, Nebraska. Designed and developed the architecture of the LAB InterLink System retrospectively. LAB-InterLink is a cost-effective information-systems-based laboratory automation technology used by leading edge hospitals and medical centers throughout the United States, Canada, Europe, and the Middle East. Developed the architecture of the 15 different modules retrospectively. Developed the requirements from the software retrospectively. Responsible for the building system using TRU-UNIX64 and Oracle. Environment: DOORS, Microsoft Visio, Oracle, TRU-UNIX64.

November 2003–March 2004, Client: American Red Cross, Chicago. Designed and developed client server architecture based Surround Application (Phase II), which handles the work order management of its clients. It aids the ARC testing labs in handling the day-to-day operations. It handles different operations and pre-accessioning, testing client tests panel management, client data management, and test result management. Involved in the requirement analysis for a module in the application. Developed the architecture and detailed design for a module in the application. Designed and developed user interface, application modules and business components using J2EE, JSP, and JDeveloper. Responsible for creating triggers for updating the database depending on the user flags. Responsible for writing the test cases and procedures from the requirements. Developed a complete Requirements Traceability Matrix, tracing requirements through design and implementation to V&V. Environment: J2EE, JDBC, JSP, JDeveloper, DOORS, Oracle 8i, WinCVS, Visio, Toad, JTest.

Software Developer, ProQuest, Ann Arbor, Michigan -- January 2003 to June 2003

Designed and developed a change control management system which handles some of the most complex operations of data technology department. It aids the data technology group in tracking project changes, requesting modifications, and versioning. It is well-suited to keep track of the day-to-day problems, changes, and configurations for projects under IS department control. Designed and developed the entire life cycle for the application. Met users to obtain the requirements, analyzing and designing the system using object-oriented methodology (UML - use-case analysis and design, activity diagrams, class diagrams, and sequence diagrams). Designed and developed user interface, application modules, and business components using XML and JSP, Java 2, EJBs, HTML, and JavaScript testing and deployment. Created triggers for updating database flags depending on user action. Created HTML reports for approvals and rejection requests. Responsible for creating test plans, test scripts, and tests for whole application. Environment: Java, XML, Java Swing, Apache Tomcat, MySQL, Toad.

Programmer Analyst, Omni Technologies, Madras, India -- September 1999 to March 2000

Designed and developed human resource information system for the company. This was an intranet application, which maintained employee related information that interrelated the human resource and the accounting departments of the company. This project involved the payroll processing module, which computes the wages of the employees and hosts other reports. It provided a facility to customize the salary structure and took into account the standard deductions, loans, and number of days worked. The reports generated included the salary register, employee history details, accumulative salary information, and pay stubs. Developed security modules authenticating the user by password and also restricting access depending on the permission parameters set by the system administrator. Responsibilities included gathering the software requirements and specifications. Involved in developing Web interfaces using ASP and IIS server. Environment: ODBC, ASP, Java, HTML, and Oracle8.0, HTML, IIS server, Dream Weaver, and Windows 2000.

Programmer Intern, Path Consultants, Madras, India -- June 1998 to August 1999

Designed and developed an inventory control system. The purpose of this system was to develop a user-friendly and latest-standard interface for maintaining a family of parts' profiles and bolts. The user of this program could interactively select and view parts stored in the inventory system. The application also provided functions for calculating various parameters for a part stored in the system in the form of a text file. Responsibilities included gathering the software requirements and specifications. Used ODBC to connect to Oracle Database and Visual C++ to develop front end GUI at server using MFC. Involved in designing and developing different classes using C++. Environment: Windows NT, Oracle 7.3, C++ & Visual C++, MFC.

Developed a material management system to maintain the material information of the inventory. This application was divided into modules that handle data storage of the suppliers, manufacturers, and customers to handle the transactions such as issue returns and receipts. It also included a rolling indent module, which aided in preparing rolling indent for a period of six months. The report module was used to generate reports such as stock management purchase orders and supplier details. Responsibilities included designing Oracle tables to store the required standards and appropriate data to access these tables. Led a team of four to develop a GUI using Oracle Forms. Optimized the code written by team members by code walk-through. Fixed several crash bugs and logical bugs. Environment: Oracle Forms 4.5, ODBC, and Oracle 7.

Richard Keller

Education

- Master of Science in Computer Science and Engineering from Oakland University, Rochester, Michigan – May 1996
- Bachelor of Science in Computer Science from University of Michigan, Ann Arbor, Michigan – May 1987

Experience

Program Manager of System Design and Development, Altarum Institute, Ann Arbor, Michigan -- April 2003 to Present

Is responsible for public health IT projects in the Information and Technologies Strategies Practice Area as well as business development in that area. As the public health IT project manager and technical lead for the Michigan Syndromic Surveillance (MSS) project and the Michigan Disease Surveillance System (MDSS), has technical responsibilities that include system design, development and testing, and leading the development team. Develops the project plan and is the main point of contact with the client. Both projects are for the Michigan Department of Community Health (MDCH).

April 2003–Present, Technical lead and project manager, MSS project. The MSS project enables public health officials to rapidly detect and track unusual outbreaks of illness that may be the result of bioterrorism, other outbreaks of infectious disease, or other public health threats and emergencies. Sponsored by the MDCH, this project is managed by the Altarum Institute. As the technical lead and project manager, is responsible for all aspects of the system across the entire systems development lifecycle. This includes system requirements, hardware and software specifications, project planning, integration of multiple third-party software products, and working with different vendors and consultants. Also investigates the different detection algorithms that will be used to indicate potential outbreaks. The project is a J2EE implementation utilizing Java, Apache, Tomcat, Jboss, ArcIMS, and Oracle. Real-time HL7 messaging is used to receive data from emergency departments throughout Michigan. Virtual private networks (VPN) are being used to ensure secure messaging.

August 2006–Present, Technical lead and project manager, MDSS. The MDSS is a Web-based communicable disease reporting system developed for the state of Michigan. It was developed to national data standards and facilitates coordination among local, state, and federal public health agencies. The MDSS provides for the secure transfer, maintenance, and analysis of communicable disease surveillance information. It addresses needs in many areas of traditional disease surveillance, emergent infectious diseases, and biological terrorism. Sponsored by the MDCH, this project is managed by the Altarum Institute. As the technical lead and project manager, is responsible for all aspects of the system across the entire systems development lifecycle. This includes system requirements, hardware and software specifications, project planning, integration of multiple third-party software products, and working with different vendors and consultants. This project is a J2EE implementation utilizing Java, Tomcat, Kodo (for persistence), jsp, Jasper, ArcIMS, and Oracle. Real-time HL7 messaging is being used to receive data from laboratories.

Product Development Manager, Innovative Software Systems, Inc., Ann Arbor, Michigan -- January 1995 to April 2003

Led development and planning of ISSI product--Data Analyst--which is a high-speed database for data mining and business intelligence. Main responsibilities included project management, technical leadership, and client engagements. The technical responsibilities included algorithm development, activex object development and integration, and third-party tool integration into the Data Analyst suite.

Technical accomplishments include leading the development and integration of multiple data mining algorithms including hierarchical clustering, neural networks, CHAID, and other proprietary algorithms. Integrated a third-party rule engine and used it to develop a Link Analysis module. This module is used to find non-obvious links between data objects in large data sets. Also led the design and development a proprietary business rules module within the Data Analyst suite of tools that runs off the Data Analyst database. Integrated many third-party visualization tools with the Data Analyst suite of tools.

Client engagements included Blue Cross Blue Shield of Michigan, University of Michigan Health Systems, State of Illinois Office of Inspector General, and State of New York Office of Inspector General.

As a senior consultant, developed a Web application for a small startup company in Ann Arbor, Michigan. Used Symantec's IDE and Java to develop a geographical display of demographic data using the client's proprietary database.

Also as a senior consultant, worked on the development of a global process engineering system at Ford Motor Company. This system included a rule-based component, a language translation component, and infrastructure components such as RPC communication, andORACLE integration. My accomplishments include porting the system from a TI Explorer platform to an HP platform, porting the system from Art Enterprise to Harlequin Lispworks, developing a GUI interface to allow developers to update the knowledge base, and writing the interface to the Oracle DB.

Served as lead consultant on a data mining project for Ford Motor Company's Advanced Manufacturing Transmission Division. This study looked for a common "template" of work elements between similar vehicles. We took the allocatable elements data, which is an output of the GPAS system, and searched for patterns between vehicle pairs within certain process codes. This feasibility study took place during the last quarter of 2002. The ISSI tool Data Analyst was used for this study.

Advanced Knowledge Engineer, Electronic Data Systems, Troy, Michigan -- September 1989 to December 1995

Worked in EDS's Object-Oriented and Artificial Intelligence Services Group on numerous General Motors projects. Roles in these projects included everything from team member to technical lead and project manager. Below are some of the key projects worked on while at EDS.

- Joint Design Advisor (JDA), an expert system used to help engineers design joints that utilize threaded fasteners. Served as the technical lead and project manager on this project. The JDA

was a PC-based system developed using the Expert System tool Kappa-PC from Intellicorp.

- Connecting Rod Designer (ConRod), a constraint-based system to help powertrain engineers design connecting rods for GM engines. Served as the technical lead on this project. ConRod was a Unix-based system developed using Kappa from Intellicorp.

- Powertrain Synchronous Engineering System (PSES), a workflow software system that linked a group of powertrain designers, engineers, and managers. Served as the technical lead on this project. The system was used to speed up the development of powertrain components. PSES ran in a mixed PC and Unix environment and was developed with a Xerox workflow product, C++, and Oracle.

President, RAK LLC, Warren, Michigan -- September 1987 to September 1989

Contracted directly with General Motors to design a proof-of-concept automated transmission shaft and tolerance-charting system. Technologies and tools used include an AI development tool called KEE from Intellicorp and LISP.

David Venier

Education

- Bachelor of Science in Computer and Security Technology from Drexel University, Philadelphia, Pennsylvania – 2010
- Associates of Science in Computer Information Systems from Oakland Community College, Farmington Hills, Michigan – 2006

Summary of Experience

An accomplished health information technology professional with over eight years of experience encompassing a unique background including software development, quality assurance, technical writing and customer service. Specializing in interfacing disparate medical systems using HL7 messaging, IHE Profiles and HIE solutions (including CCD exchange in a clinical environment). Active nationally in interfacing and integration efforts. Contributing member on the CDC's Immunization Expert Messaging Panel to standardize specifications for the ONC's immunization export requirement for Stage 1 Meaningful Use. Staying actively involved in healthcare IT trends and standards (HL7, IHE, ONC, CCHIT, HITSP, NIST, etc.). Proven success in project management and completion, creating and implementing innovations which have led to increased customer satisfaction and company growth. Rigorous and proactive work ethic with organizational agility and programming ingenuity applied to meet management objectives and satisfy internal and external customers.

Experience

Altarum Institute, Ann Arbor Michigan – September 2011 to present

Responsible for supporting the electronic lab reporting environment for the MDSS application. This includes configuring and maintaining Rhapsody and the message routes for translating the messages received from labs and submitting to the MDSS. Also support the development of notification messages sent to the CDC using the CDC Case Notification Message Mapping Guides.

Supervisor of Interface Development (December 2010 – Present) and Interface Development Coordinator (June 2006 to December 2010), NextGen Healthcare Information Systems, Horsham, Pennsylvania – June 2006 to September 2011

Used agile management methodologies to supervise the development activities of four dedicated developers as well as two ancillary developers. Created product release plans to meet code cut off time lines using three week sprint planning. Remained involved at all levels of the SDLC of the NextGen interface products. Coordinated the interface development activities between implementation project managers, sales representatives and the interface support teams. Worked with clients and third party vendors to evaluate system interfacing requirements, review specifications and provide solutions based on critical thinking and workflow analysis. Supported and developed interfaces using C# and C++ for HL7, HIE, and clinical equipment integrations.

- Worked directly with clients to review and evaluate HL7 requirements and specifications.
- Developed HL7v2.3.1 & 2.5.1 interfaces for exporting immunization information to registries based on CDC's specifications for Stage 1 Meaningful Use.
- Developed an HL7v2.5.1 interface to export Syndromic Surveillance data based on ISDS specifications for Stage 1 Meaningful Use.
- Created and maintained several other HL7 interfaces.
- Worked to institute quality control processes to produce high quality software solutions.
- Instituted quality assurance testing including management of C# unit tests.
- Created technical documentation, specifications, white papers, and implementation guides.
- Analyzed technical specifications to provide detailed information on integration availability based on existing or planned functionality.
- Participated in and provided project management for a 2½ year interface rewrite and redesign project.
- Earned 6 Gold Star awards in 3½ years which recognizes outstanding employees for consistently superior performance.

Support Technician, Genius Solutions Incorporated, Warren, Michigan – July 2003 to June 2006

Worked as Quality Control Analyst in Research / Development / Testing. As a Support Technician, was responsible for taking calls from customers regarding software, network, hardware, and operating system problems. Most problems resolved over the phone. Tested and implemented major changes to the eTHOMAS and dTHOMAS medical billing programs. Worked as a bridge between the Support Department and Programming Department. Was responsible for troubleshooting eTHOMAS and dTHOMAS medical billing systems. Developed HL7 interfaces between several software companies in VB.NET.

- Implemented changes for HIPAA ANSI X12 billing including coding in Visual Fox Pro and testing with many payors for the changes.
- Designed and implemented changes to the Durable Medical Equipment program (written in Visual Fox Pro) to allow for an expansion in our client base and company profits.
- Worked personally with insurance companies, including Blue Cross, Medicare, and Medicaid, on software problems/resolutions, and implementations.
- Earned Outstanding Performance Awards in 2004 and 2005.
- Developed multiple transport mechanisms for sending claims and receiving response files with payors.
- Documented changes made to the program as technical documents for support.
- Provided support and developed programs written in ASP.net and Visual Fox Pro.

Webmaster / Site Architect and Developer, Nature's Beauty, Berkley, Michigan – 2004 to 2005

Created a webpage capable of accepting orders online and giving customers the ability to see the artist's work. The site was designed using the PHP programming language, MySQL databases and a web management front end to hold all page information. This provided easy dynamic updating by the artist without them ever having to learn HTML and PHP.

Andrey Yeatts, PhD

Education

- Doctorate of Philosophy in Computer Science from University of Arizona – 1996
- Master of Science in Computer Science from University of Arizona – 1989
- Bachelor of Science in Computer Science and Mathematics from Yale University – 1985

Summary of Experience

Dr. Yeatts has provided public health technical support to MDCH and MDIT since February 2002 and was the chief architect on the Michigan Disease Surveillance System (MDSS) until June 2004. Beginning in February 2005, he became a consultant to MDCH and MDIT through Altarum. Dr. Yeatts also oversaw disease reporting system implementations in New York City, Connecticut, North Dakota, and West Virginia.

With over 20 years of experience in information technologies and software engineering, Dr. Yeatts brings rigorous depth and breadth to information technology development. His experience spans the spectrum from user interfaces to compilers and translation to database design and development, and possesses a thorough knowledge of modern languages and development methodologies. He has served in nearly every capacity in information technology, from design and development to field engineering to project management.

Experience

National Optical Astronomy Observatories Principal Engineer, Tucson, Arizona – June 2006 to present

National Optical Astronomy Observatories engineers large scale astronomical observatories throughout the world on behalf of the National Science Foundation, and US public and private organizations. Dr. Yeatts is software team architect and lead for the One Degree Imager camera for the WIYN 3.5m telescope in Kitt Peak, Arizona. Using a highly parallel command and control architecture, multicore powered Java, and high performance networking, the camera is capable of recording 1 billion pixel images to disk in a few seconds, and integrating image processing, camera, and observatory operations in a flexible SOA pipeline framework.

Altarum Consultant Ann Arbor, Michigan – February 2005 to present

Dr. Yeatts has provided technical consulting and recommendations for MDCH and MDIT on MDSS, including integration with the CDC's Public Health Information Network Messaging System (PHIN-MS), HL7 messaging using , and MDSS extensions.

Perot Systems Senior Systems Integration Specialist Plano, Texas – June 2004 to October 2005

Dr. Yeatts was a lead designer and architect for metadata and reporting solutions to healthcare insurance clients. His duties included design and project management for claim information processing, sales and actuarial reporting, and development of metadata architectures for the enterprise data warehouse.

Scientific Technologies, Inc. Director of Software Engineering Tucson, Arizona – June 2001 to June 2004

Scientific Technologies is a consulting and IT vendor to state, local, and national public health organizations. Dr. Yeatts initiated efforts to improve the development process and infrastructure, including installation of the company's first bug tracking and code management servers, and implemented the development process integrating the two. He was chief architect on STC's communicable disease reporting systems, which incorporate electronic lab imports as HL7 V2 and flat files from multiple sources, automatic forms generation, and OLAP warehouse reporting. Dr. Yeatts led efforts to establish a national standard for HL7 interchange between immunization registries communicating though HL7, and provided technical oversight and architecture on SOAP interchange of messages between clinical management systems and STC's immunization registry product. He architected MDSS' innovative database/forms access systems using Query-and Export-by-Example to allow non-technical users extensive data management functionality. Dr. Yeatts was also the lead architect of STC's Master Patient Index (MPI) product, which provided high quality person demographic maintenance, used by disease reporting systems and public health applications in a distributed environment. While at STC, Dr. Yeatts managed 15-20 software engineers, technical leads and test managers.

NewMonics, Inc. Engineering Services Manager Tucson, Arizona – December 1996 to June 2001

NewMonics is a vendor of Java Virtual Machines (JVMs) for the realtime and embedded sectors, including industrial controls and telecommunications. Included in the JVM are complete Java libraries, compilers, linking and configuration tools and virtual machine. Dr. Yeatts led the compiler and translation team to improve performance of the Just-In-Time (JIT) compiler for PowerPC (Java bytecode to PowerPC machine code translator) by over 200% via inlining, data and control flow analysis and machine-dependent techniques. He managed ongoing maintenance and improvements to x86 compiler port.

Dr. Yeatts designed and led the implementation of NewMonics' platform independent native graphics system for the Java virtual machine. He led teams of 3-8 engineers to produce a clean-room implementation of the Java Abstract Windowing Toolkit, including a portable windowing system. Led runtime and library teams in improvements to the NewMonics' Java Virtual Machine; and ports to other CPU architectures and operating systems, such as ARM/VxWorks and x86/RTLinux.

Dr. Yeatts implemented method-profiling capability for the VM. Managed maintenance and improvements to runtime and garbage collector. Implemented JavaLang, JavaNet, and Java.io native methods for NewMonics' clean room Java virtual machine on Win32 API in six weeks (about

10K lines of code).

Led team in design critique and analysis of customer code base for process control, using internally developed code inspection process. Completion of this analysis led to several follow-on projects with the Invensys Corporation. Led design and development of a remote hardware diagnosis system in Java on the Intel Pentium platform for the Intel Corporation. The system dynamically loads hardware tests classes and user interfaces from remote server, and can be driven by web browser, booted from floppy, or driven by network server.

Presented remote architecture design in paper at Embedded Systems Show in London, England. Performed Field Applications Engineering and sales technical support to Fortune 500 clients. Created and presented labs and training in embedded Java, including lectures and exercises, to customers in training courses. Managed and produced NewMonics Embedded Systems Conference West 2000 booth and provided marketing support.

Department of Computer Science University of Arizona Principal Software Systems Programmer Tucson, Arizona – June 1988 to August 1995

Dr. Yeatts was a research programmer in network security and modular network protocol design. Projects included implementing and porting PPP and other network protocols and OSPF routing protocol to the x-kernel network protocol framework, and integrating them with security (encryption and authentication) modules.

Conducted research into user interface development systems based on production system rules with graphical syntax. The major areas of the research are concerned with the visual specification of UI rules, language mechanisms for simple description and reuse of specifications, and efficient predicate satisfaction at runtime based on incremental database relation update. Member of the Worm Community System development team. WCS is a distributed heterogeneous database of genomic and experimental data about the nematode C. elegans for the genetic research community. Assignments included measuring network latencies and transmission rates for various communication strategies, implementation of hypertext links, and enhancements to display functionality.

Designed and implemented Univers, a distributed attribute-based network naming system similar to OSI X.500. Responsible for development and maintenance of Profile, a white-pages server, and XProfile, its GUI client. Responsible for development and maintenance of Dragon, a distributed mail system, and XDragon, its GUI mail reader client.
Developed a distributed system for monitoring and accounting disk usage over multiple Unix systems. Maintained and customized text processing and publication software. Performed miscellaneous Unix 4BSD system administration, including USENET, UUCP and network maintenance. Installed BSD operating system releases.

Physiology Department, Yale Medical School Yale University Software Systems Programmer New Haven, Connecticut – 1987 - 1988

Designed and implemented real-time data collection and experiment process control systems for measuring intracellular ion transport. The systems involved spectrophotometic and electrical

measurement, perfusion rate control, and concurrent display and data acquisition resource sharing. Responsibilities included hardware and software engineering, device selection, and creation of device drivers for displays, analog interfaces, spectrophotometers, and tape and disk peripherals, and kernel modifications to support interprocess communication and real time process scheduling for Unix versions 7, III, and 2.9 BSD. Developed numerical methods for data analysis, such as curve fitting systems of nonlinear equations and complete graphics system using the Silicon Graphics' GL library for entering and manipulating 3D models of visual cortex neurons under a microscope equipped with a programmable stepper stage, camera lucida, digitizing tablet, and Silicon Graphics workstation.

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

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET **August 18, 2011**
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

NOTICE
OF
CONTRACT NO. 071B1300364
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Altarum Institute** **3520 Green Ct. Suite 300** **Ann Arbor, MI 48105** **Email:** Kelly.belcher@altarum.org	TELEPHONE (734) 302-4674 **Kelly Belcher** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-1638 **Reid Sisson**
Contract Compliance Inspector: **MI Disease Surveillance System - DCH**	
CONTRACT PERIOD: 5 yrs. + 2 one-year options From: **August 17, 2011** To: **August 17, 2016**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
ALTERNATE PAYMENT OPTIONS: ☐ P-card ☐ Direct Voucher (DV) ☐ Other	
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

TOTAL ESTIMATED CONTRACT VALUE: $916,203.00

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

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

CONTRACT NO. 071B1300364
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR	TELEPHONE (734) 302-4674
Altarum Institute **3520 Green Ct. Suite 300** **Ann Arbor, MI 48105** **Email: Kelly.belcher@altarum.org**	**Kelly Belcher** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-1638 **Reid Sisson**
Contract Compliance Inspector: **MI Disease Surveillance System - DCH**	
CONTRACT PERIOD: 5 yrs. + 2 one-year options From: **August 17, 2011** To: **August 17, 2016**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
ALTERNATE PAYMENT OPTIONS: ☐ P-card ☐ Direct Voucher (DV) ☐ Other	
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION: **The terms and conditions of this Contract are those of RFP #084R1300076, this Contract Agreement and the vendor's quote. In the event of any conflicts between the specifications, and terms and conditions, indicated by the State and those indicated by the vendor, those of the State take precedence.** **Estimated Contract Value: $916,203.00**	

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

FOR THE CONTRACTOR:	**FOR THE STATE:**
Altarum Institute Firm Name	Signature Reid Sisson, Buyer
Authorized Agent Signature	Name/Title IT Division, Purchasing Operations
Authorized Agent (Print or Type)	Division
Date	Date

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Article 1 – Statement of Work (SOW)

1.000 Project Identification

1.001 PROJECT REQUEST

The State of Michigan (State), through the Michigan Department of Community Health (MDCH) and Department of Technology, Management & Budget (DTMB) has issued this Request for Proposals (RFP) to seek proposals for maintenance, support and future enhancements for the Michigan Disease Surveillance System (MDSS) administered by the MDCH.

1.002 BACKGROUND

The goal of the Michigan Disease Surveillance System (MDSS) has been the on-going development of a Public Health Information Network (PHIN) compliant disease information system that implements a logical data model based on the National Electronic Disease Surveillance System (NEDSS), to support the Michigan Department of Community Health (MDCH) public health surveillance system. The MDCH has incorporated Public Health Information Network Messaging System (PHINMS) as an enterprise-wide messaging solution approved by the **National Center for Public Health Informatics** at the Centers for Disease Control and Prevention (CDC) in order to meet certification requirements, but seeks further integration of PHINMS into the system.

The MDSS has been operational since June 13, 2004, and meets the requirements for reporting communicable diseases as specified in Michigan's public health code (MCL 333.5111) and CDC Public Health Emergency Preparedness funding. The system was created with JAVA, HTML, Javascript, JSP, XML, Oracle Database, CVS, Kodo JDO, Jasper reports, Ant, and HL7. The MDSS also incorporates components of Orion Rhapsody, PHIN-MS and MSS. The system currently has over 1000 users in state and local public health as well as healthcare providers and laboratories. The system provides a web-based disease surveillance application that allows for electronic capture of disease data, case assignment and tracking, addition of public health case investigation data, and data export.

This system improves the medical and epidemiological management of the case investigations and enhances public health capacity. Electronic laboratory disease reporting is also supported. Multiple reporting sources are integrated into an electronic investigation workbook, that may be reassigned or transferred as needed for jurisdictional changes, reviewing, or other procedures that are current and yet to be defined. MDSS is able to receive disease reports through manual entry, on-line web submission of case referral/intake reports, or importation of HL7 (Health Level 7, an American National Standards Organization approved standards developing organization) laboratory reports (HL7 laboratory reports are in the standard HL7 V2.3 format and include lab test results). The demographic data contained in each potential case is de-duplicated to ensure the system contains a set of unique patient demographics. MDSS geocodes all encountered addresses. Geographical Information Systems (GIS) geographic mapping is integrated into case screens, and into reporting. Summary and detail reports are available.

The current application manuals are included in this RFP as Appendix 3. Information provided herein is intended solely to assist Vendors in the preparation of proposals. To the best of the State's knowledge, the information provided is accurate. However, the State does not warrant such accuracy, and any variations subsequently determined will not be construed as a basis for invalidating the RFP.

1.100 Scope of Work and Deliverables

1.101 IN SCOPE

Contractor will provide the following services for the complete and successful implementation of enhancements to the MDSS application and website providing the functionality required for the State's business operations for the Michigan Department of Community Health:

- Maintenance and Support
- Training
- Documentation
- Future Enhancements
- Knowledge Transfer/Transition

A more detailed description of the software, services (work) and deliverables sought for this project is provided in Article 1, Section 1.104, Work and Deliverables.

1.102 OUT OF SCOPE

The purpose of this contract is for technical support and programming enhancements of the existing Michigan Disease Surveillance System. The following are out of scope for this Request for Proposal:

- Replacement Systems

1.103 ENVIRONMENT

The links below provide information on the State's Enterprise information technology (IT) policies, standards and procedures which includes security policy and procedures, IT strategic plan, eMichigan web development and the State Unified Information Technology Environment (SUITE).

Contractors are advised that the State has methods, policies, standards and procedures that have been developed over the years. Contractors are expected to provide proposals that conform to State IT policies and standards. All services and products provided as a result of this RFP must comply with all applicable State IT policies and standards. Contractor is required to review all applicable links provided below and state compliance in their response.

Enterprise IT Policies, Standards and Procedures: http://www.michigan.gov/dmb/0,1607,7-150-56355---,00.html

All software and hardware items provided by the Contractor must run on and be compatible with the MDTMB Standard Information Technology Environment. Additionally, the State must be able to maintain software and other items produced as the result of the Contract. Therefore, non-standard development tools may not be used unless approved by MDTMB. The Contractor must request, in writing, approval to use non-standard software development tools, providing justification for the requested change and all costs associated with any change. The MDTMB Project Manager must approve any tools, in writing, before use on any information technology project.

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, and MDTMB, before work may proceed based on the changed environment.

Enterprise IT Security Policy and Procedures:

http://www.michigan.gov/documents/dmb/1310_183772_7.pdf
http://www.michigan.gov/documents/dmb/1310.02_183775_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/1340_193162_7.pdf
http://www.michigan.gov/documents/dmb/1350.10_184594_7.pdf

The State's security environment includes:

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

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

IT Strategic Plan: http://www.michigan.gov/itstrategicplan

The State Unified Information Technology Environment (SUITE):Includes standards for project management, systems engineering, and associated forms and templates – must be followed: http://www.michigan.gov/suite

Agency Specific Technical Environment
The MDSS includes production, staging and testing environments hosted by the State of Michigan. The system and all data associated is governed by state and federal Health Insurance Privacy and Accountability Acts (HIPAA) and other associated privacy laws at federal, state, and local levels.

The Vendor will have remote access to MDSS software. The production site is a live site for all MDSS applications. Vendor and DTMB use the Staging site to test new enhancements prior to release to the live production version of the MDSS. The test environment is to be used by the programmer/analyst to develop and test enhancements for release to the staging and production sites.

The current technical environment for the MDSS is described below

Current Hardware:

- Application Server: Oracle/SUN T-2000, 1 x 1 GHz 16 core CPU, 8GB RAM, mirrored 73 GB drives, Solaris 10 64-bit, Tomcat v5.5.30, Java 1.4.2_10

- Database Server: Oracle/SUN V-490, 4 x 1.05GHz Dual Core CPU, 16GB RAM, mirrored 146 GB drives (local), Solaris 10 64-bit

Current Software:
MDSS is Web-based application using an Oracle database. The system application consists of approximately 200 screens or worksheets, 11 reports, 300 program modules. Online documentation is available. Enhancements are developed using combinations of the following tools Kodo, CVS, Jasper Reports, Ant, JAVA, HTML, JavaScript, JSP, HL7, Orion Rhapsody, PHIN-MS, MSS and XML. Access to the application will be through remote, secure connection.

Altarum Institute has successfully maintained, supported, and enhanced the Michigan Disease Surveillance System (MDSS) since 2006. We have developed a productive and close working relationship with MDCH and DTMB project leaders, program area staff, and technical staff. This relationship, developed over the years, has helped enable us consistently deliver high quality new releases of the MDSS on time and within budget. To augment Altarum's skills and maintain the current support team intact, we are adding Andrey Yeatts to form the "Altarum Team."

The MDSS is a complex system consisting of:

- An Oracle backend with approximately 286 tables (not counting system tables)
- Approximately 1000 Java classes
- Over 340 Java Data Objects (JDO) managed by the Kodo product
- Over 1300 Java source code files
- Over 100 PDF disease data entry forms
- ESRI Map Services
- An Electronic Laboratory Reporting environment with
    - The Rhapsody interface engine
    - The CDC's Message Subscription System
    - The Public Health Information Network Messaging System (PHINMS)

To maintain, support and enhance the MDSS, the vendor must have expert-level understanding of:

- Oracle and SQL
- Java
- Java Data Objects and Kodo
- Java Server Pages (JSP)
- Javascript
- Java-based Reports (Jasper Reports)

- Apache Struts
- HTML
- Health Level 7 (HL7) and the Rhapsody interface engine

The MDSS interfaces with many external systems so the vendor must have in-depth knowledge of:

- CDC interfaces include:
  - National Electronic Disease Surveillance System (NEDSS)
  - National Electronic Telecommunications System for Surveillance (NETSS)
- Public Health Information Network (PHIN)
- Michigan Electronic Death Records System (EDRS)
- Michigan Center for Geographic Information (CGI)
  - ARCIMS Server
  - ARCSDE Server
  - Geocoder
- State of Michigan Health Information Exchange (SOM HIE)
- Michigan Sub-State Health Information Exchanges
- National, local and hospital laboratories
- Michigan Single Sign On (SSO) environment
- State of Michigan Lightweight Directory Access Protocol (LDAP)
- Michigan Health Alert Network (HAN)
- State of Michigan email server

As shown in Exhibit 1, the Altarum Team has all of these skills—and a proven track record of applying them—and the knowledge to produce successful new versions of the MDSS.

Exhibit 1: The Altarum Team understands and has experience with key components of the MDSS

Required Technology/Tool/Standard/Interface	Altarum Team Experience in SOM Environment
Oracle and SQL	8 years
Java	8 years
Java Data Objects (JDO) and Kodo	5 years
Java Server Pages (JSP)	8 years
Javascript	8 years
Java-based Reports (Jasper Reports)	5 years
Apache Struts	5 years
HTML	8 years
Health Level 7 (HL7) and the Rhapsody interface engine	8 years
CDC interfaces include: o National Electronic Disease Surveillance System (NEDSS) o National Electronic Telecommunications System for Surveillance (NETSS)	5 years
Public Health Information Network (PHIN)	5 years
Michigan Electronic Death Records System (EDRS)	3 years
Michigan Center for Geographic Information (CGI) o ARCIMS Server o ARCSDE Server o Geocoder	8 years
State of Michigan Health Information Exchange (SOM HIE)	1 year
Michigan Sub-State Health Information Exchanges	1 year
National, local and hospital laboratories	8 years
Michigan Single Sign On (SSO) environment	8 years
State of Michigan Lightweight Directory Access Protocol (LDAP)	8 years

Michigan Health Alert Network (HAN)	5 years
State of Michigan email server	8 years

The State's Enterprise IT Security Policy, Procedures and Environment
The Altarum Team is intimately familiar with the State of Michigan's Enterprise IT Policies, Standards and Procedures, having worked with them for the past five years on the MDSS project. In addition, Altarum's experience with SOM IT Standards extends beyond the MDSS, including other SOM projects such as the Michigan Syndromic Surveillance System (MSSS) and Michigan Care Improvement Registry (MCIR).

Altarum has a full understanding of Michigan's IT security policies and procedures and applies them in our daily work on the State's network and with the HIPAA-protected data in the MDSS. The Altarum Team has acquired the necessary clearances to get SecureID tokens and Virtual Private Network (VPN) access to the State's systems. Altarum also requires all employees to complete in-house HIPAA training and refresher courses to ensure we safeguard protected information. This has prepared us to begin work on day one in maintaining, supporting, and enhancing the MDSS without any ramp-up time.

Altarum also has hands-on experience deploying software systems in the State's SSO environment. We understand how login information is passed from SSO to the underlying systems and have successfully deployed the MDSS using this interface.

The State employs the State Unified Information Technology Environment (SUITE) which includes standards for project management, systems engineering, and associated forms and templates. The MDSS was well beyond the Requirements Definition Stage when SUITE usage became mandatory and was therefore exempt from using SUITE. However, the Altarum Team will use SUITE templates and procedures as required by MDCH and DTMB project leaders. The project management and software engineering processes put in place by the Altarum Team align closely with SUITE. This alignment is detailed in the Future Enhancements section below.

MDSS Technical Environment
The Altarum Team is very familiar with the MDSS Test, Stage, and Production environments and the ELR environment. In fact, Altarum staff helped setup these environments, including installing and configuring necessary software such as Rhapsody and Tomcat. Also, as mentioned above, the Altarum Team has already acquired the clearances needed to access these systems remotely. There will be no interruption in support for the MDSS from when the old contract expires and the new one starts while security clearance forms are completed and VPN tokens are mailed out.

There will be no interruption in support for the MDSS from when the old contract expires and the new one starts while security clearance forms are completed and VPN tokens are mailed out.

Altarum has invested significant resources in creating an MDSS development and internal testing environment at the Altarum facility. This environment is intended to duplicate, as closely as possible, the State's environment. This allows us to deliver higher quality products that require less user testing and are more likely to operate as desired in the final production environment. We have also used the Altarum environment to perform user beta testing before taking the system to the Michigan Test environment. Clearly, the ability to create such an environment at Altarum shows a deep technical understanding of the State's environment and sets up apart from others without a ready-to-go in-house test environment duplicating the State's environment.

The State's Test environment is used to test new functionality/releases/emergency bug fixes prior to going to the production environment. This includes user acceptance testing and internal Altarum Team members testing. The State's Stage environment is used mainly for training purposes. However, some users, such as users from local health jurisdictions or regional State staff, are unable to access the Test environment and we often use the Stage environment for testing with these users. The production environment is the final destination of a new MDSS release once it has gone through the testing process.

Currently, the DTMB Project Leader has given Altarum permission to make changes to the MDSS Test and

Stage databases and application servers. Changes to the Production environment, however, are handled by DTMB staff and require the normal change control procedures. Assuming this is the case during the life of the new contract, the process for releasing a new version of the MDSS to the Test, Stage, and Production environments is shown below.

Update Process—New Versions of MDSS

1. After internal Altarum testing is completed, a time and date is arranged through the MDCH and DTMB project leaders to implement the new release on Test.
2. At that time, Altarum stops the Test MDSS and runs the database scripts, form update scripts and updates the application on Test.
3. After bringing the system back up and verifying that things are running properly, Altarum Team member alerts MDCH and DTMB that the Test system is back up and running and ready for user testing.
4. If no issues are found during user testing, a time and date is arranged through the MDCH and DTMB project leaders to implement the new release on Stage.
5. At that time, Altarum stops the Stage MDSS and runs the database scripts, form update scripts and updates the application on Stage.
6. After bringing the system back up and verifying that things are running properly, Altarum Team member alerts MDCH and DTMB that the Staging system is back up and running and ready for user testing (mainly out-state users).
7. If no issues are found during user testing, a time and date is arranged through the MDCH and DTMB project leaders to implement the new release on Production.
8. A change request or RFC is completed by DTMB for the new release.
9. Altarum prepares the installation instructions and moves the database scripts, form update scripts and new MDSS application to the production platform.
10. At the agreed-to time, normally after normal business hours, DTMB staff stops the production MDSS and performs a database backup. They then run the database scripts, form update scripts and update the application on Production.
11. DTMB then informs the Altarum and MDCH project leaders that the update is complete. Altarum and MDCH verify the new installation prior to the end users logging into the new system.
12. The new MDSS release is complete.

Our understanding of and experience with these processes ensures MDCH and DTMB have seamless continuity of MDSS performance.

1.104 Work And Deliverable

I. Services and Deliverables To Be Provided

For the purpose of preparing proposals, Vendors should contemplate that the system will be installed and in operation by time of award. The hardware will be installed and fully operational by time of award. These deliverables are not all-inclusive. Contractors may propose other deliverables within scope. The tasks may not be conducted in the numbered order provided in this RFP. The MDCH Project Manager shall determine the timing of project tasks at the time of project kickoff.

The Vendor shall provide Deliverables/Services and staff, and otherwise do all things necessary for or incidental to the performance of work, as set forth below:

A. Maintenance and Support

Maintenance and support of the MDSS will be done in accordance with the requirements and standards as set forth in this section. : The State anticipates most maintenance and support to be provided via phone and state-supplied VPN. On-site work may be required at the State's discretion. The Vendor shall provide the tools and connectivity installed, in compliance with DTMB standards, to properly support and monitor the application. All maintenance is performed by qualified personnel familiar with the hardware.

Contractor's software maintenance shall include all future MDSS and the identified component software updates and system enhancements applicable to system modules licensed, without further charge to all licensed users who maintain an annually renewable software support contract.

Contractor shall provide the State with information on software problems encountered at end-user locations, along with the solution to those problems, when such information is relevant to State software.

For the first year and all subsequent Contract years, the following services are provided for the current version and one previous version of any Software provided with the deliverables, commencing upon installation of the deliverables or delivery of the Software:

- **Error Correction.** Upon notice by State of a problem with the Software (which problem can be verified), reasonable efforts to correct or provide a working solution for the problem.
- **Material Defects**. The State will be notified of any material errors or defects in the deliverables known, or made known to Contractor from any source during the Contract term that could cause the production of inaccurate, or otherwise materially incorrect, results and shall initiate actions as may be commercially necessary or proper to effect corrections of any such errors or defects.
- **Update**s. All new releases and bug fixes (collectively referred to as "Changes") for any software deliverable developed or published by Contractor and made generally available to its other customers at no additional charge will be provided to the State at no additional charge.

1. Maintenance of the MDSS System and supporting systems, including but not limited to the following:
   - Maintain PHINMS and Rhapsody system DATA feeds, system routes and queues to ensure that they are operating properly.
   - Update *Systematized Nomenclature of Medicine (*SNOMED) lookup tables in Rhapsody for new lab tests that are added to existing feeds.
   - Perform data maintenance that cannot be done through the standard application interface.

2. Support, defined as the following:
   - Create scripts for data pulls and perform ad hoc queries of the database.
   - Conduct basic analysis and troubleshooting of issues with the MDSS, including review of Tomcat and KODO activity logs.
   - Make changes to MDSS case report forms and maintain and up-to-date data dictionary for the MDSS.
   - Provide Remote diagnostic capabilities.
   - Help Desk
     a. Help desk and maintenance support must respond to support calls within 2 hours during regular business hours 8 am – 5 pm Eastern Time.
     b. Helpdesk and maintenance support will provide a phone number or pager number with callback within six hours for after-hours support for trouble shooting involving enhancements installed by the Vendor.

3. Ongoing Enhancements
   As part of overall maintenance and support, Vendor must provide the following subtasks and deliverables as agreed upon with MDCH MDSS Staff. The MDCH Project Manager and DTMB Project Manager must approve each work deliverable before it is considered completed.
   a. Gathering of Requirements
   b. Project plan/enhancement work plan, to include the following:
      i. A work breakdown structure of the major phases of the project, accounting for all tasks, deliverables. resources and milestones for the design development, testing and implementation of the MDSS enhancement including all interfaces and other agency resources.
      ii. Any hardware that may need to be purchased.
      iii. Hours and date timetable for each task, deliverable, and milestone.

iv. Vendor resource loading by task and role.
v. State resource loading by task and role. Note that any use of State personnel must be consistent with the description of the available state project team described in Section 1.202.
vi. Critical path with parallel and dependent project tasks.
vii. Any assumptions of constraints identified by the Vendor must be listed in the Enhancement Work Plan. If there are needs for State staff in addition of those reference in Section 1.202, the Vendor should note this need.

c. Report and online design documentation
d. Programming and development
e. Testing in Test Environment and Customer acceptance testing on Staging Environment to ensure that the requirements are satisfied and to validate the results.
   i. Vendor will demonstrate to the State that all of the system requirements and functions have been satisfied.
   ii. The State will determine if the Contractor has fulfilled all of the requirements.
   iii. The Contractor will be responsible to modify any functionality or requirement that is viewed by the State as not acceptable.
   iv. The Contractor will be responsible to add a function or requirement as defined in the baseline definition that the Contractor failed to include.
   v. All modifications and/or additions to a function in the system as defined in the baseline definition will be performed without any additional cost.
   vi. This entire process will take place prior to installation and live implementation.
f. Installation plan
g. Installation
   i. The Vendor is responsible for the complete implementation of the enhanced application running in a production environment.
h. Post Implementation Support
   i. For regular business hours, 8 am to 5 pm Eastern Time, The Vendor must respond to support calls within 2 hours.
   ii. For after-hours support calls, The Vendor will provide a phone number or pager number with callback within six hours, for trouble shooting involving enhancements installed by the Vendor.
   iii. The first level of support will be provided by MDTMB and MDCH. Only designated contacts within MDTMB or MDCH will be the originators of all support calls to the Vendor.

The ongoing enhancements shall consist of the following:

A. Integration of Electronic Laboratory Reporting into the MDSS

A key component to enhancing the speed that reportable disease investigations are initiated and completed is integration of electronic laboratory reporting. Existing standards are based on HL7 with SNOMED and Logical Observation Identifier Names and Codes (LOINC). The standards, however, are not sufficiently explicit to be fully operational without further agreement regarding, for example, patient identifiers. Vendor shall:

a. Work with laboratories identified by MDCH to implement electronic laboratory reporting. MDCH has taken the lead in developing relationships with at least four major laboratories that provide data to both MDCH and the Local Health Departments (LHDs).
b. Facilitate establishing and documenting the required modifications to the MDSS
c. Integrate laboratories' reporting into the MDSS.

B. Ongoing Integration of PHINMS into the MDSS

PHINMS is used to securely communicate data to CDC. It is a key component to enhancing the speed that reportable disease investigations are communicated to CDC. Vendor shall:

1. Integrate PHINMS with MDSS.

Acceptance Criteria
High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501. Any additional or more specific criteria should be identified here.

Maintenance and support of a live critical system such as the MDSS is a complex undertaking and a task the Altarum Team is well positioned to fulfill. We have been successfully maintaining and supporting the MDSS since 2006 and have an MDSS development and test environment onsite to help quickly debug and correct any errors or problems that occur. This process of maintenance and support has been successful over the past five years and will continue over the life of the new contract, as outlined below.

For the first year and all subsequent contract years, the Altarum Team will provide the following services for the current version and one previous version of the MDSS, commencing upon installation of the deliverables:

- Error Correction—Problems with the MDSS identified by the State and verified by the State and Altarum;
- Material Defects—Errors or defects in any deliverable that may cause inaccurate or incorrect results; and
- Updates—New releases or bug fixes delivered by Altarum to the State.

To maintain continuity of service to MDCH and DTMB, the Altarum Team is proposing the current team that supports MDSS maintenance and support:

- **Rick Keller** as Altarum Project Leader will be the single point of contact for SOM staff and manage the Altarum Team members and deliverables;
- **Mike Grim** as Senior Programmer will handle design and development of major enhancements and maintenance and support duties;
- **Carolina Fulper** as Senior Programmer will handle design and development of major enhancements and maintenance and support duties;
- **Lakshmi Atluri** as programmer and ELR specialist will help with on-going enhancements to the ELR environment, maintain existing data feeds, and support and maintain the MDSS;
- **Andrey Yeatts** as ELR Technical Specialist will handle on-going enhancements to the ELR environment and maintenance of existing data feeds; and
- **John Christensen** as technical writer will create and deliver MDSS documentation and Help systems.

Error Corrections and Material Defects
As is the case currently, DTMB will be the first line of support for any production issues such as a hardware problem or a needed restart of the system. Errors or defects identified by MDCH or DTMB and reported to Altarum will be handled with the following process:

1. **Problem notification**
   MDCH or DTMB staff alerts Altarum to a possible problem through the Helpdesk. The Helpdesk is a single point of contact at Altarum to report any MDSS-related issues. Contact may be made by phone during normal business hours or email anytime. A cell phone number will be made available for emergency issues that may occur during off-hours. As mentioned above DTMB will be the first point of contact for emergency production issues but Altarum will be available as backup as needed.

2. **Task assignment**
   The Altarum Project Leader will gather all information known available about the specific error from the MDCH Project Leader's phone call or email. This information will then be entered into our bug-tracking program, Bugzilla. This program allows us to assign a unique number to the problem, track a severity level, and assign the task of fixing the flaw to an Altarum Team member.

3. **Identify the cause of problem.**
   The programmer assigned to the task will proceed to debug the problem using all available information. The programmer will immediately log onto the state's production system via secure VPN and pull all system logs pertinent to the error identified. Armed with this information and all the information provided by the MDCH project, the programmer will begin to debug the problem by trying to recreate

the error in the Altarum test environment, using exactly the same version currently running on production. The assigned programmer will also check out the necessary software modules from our source-code control system, CVS, to help debug the problem.

4. **Solve the problem**
   Once the cause of the problem has been established, the programmer will formulate a solution (or solutions). The Altarum Project Leader will then contact the MDCH Project Leader and explain what has been found and discuss potential solution to the problem. The MDCH Project Lead will then determine the appropriate actions to remedy the issue.

5. **Implement and test the solution**
   The solution to the problem will first be implemented on our internal copy of the MDSS and tested before ever changing anything at the state. Once testing is complete, any software changes will be checked back into CVS. Depending on the severity of the problem, the patch may be:
   - Scheduled for immediate installation on the State's test machine and the update process begins (see our update process description in our Section 1.103 response) or
   - Added to the list for the next scheduled release of the MDSS.

   Bugzilla is also updated at this point with the problem resolution explained and the status of the bug updated.

Updates

New versions of the MDSS are delivered to the State approximately three times a year, as determined by MDCH and DTMB Project Leaders. An update may contain one or more bug fixes as well as system enhancements. The contents of each release including the priority of any enhancements or bug fixes will be determined by MDCH or DTMB Project Leaders. The Update or New Release process is described in our Section 1.103 response. Any updates to the MDSS made for other customers will be provided to the State at no additional charge.

1) Maintenance of the MDSS system

a. Maintain PHINMS and Rhapsody system

An important part of the MDSS is the ability to receive electronic lab records (ELR). Altarum, working closely with DTMB, has helped design and configure a system for the State of Michigan to receive ELRs and process them in the MDSS. Having an intimate knowledge of the existing system we are able to quickly identify and help solve problems as they occur.

Rhapsody

The production Rhapsody instance is checked daily to make sure everything is up and running correctly. Rhapsody is a commercial product and Altarum has experience working with the vendor, Orion, on bug issues and new releases. Part of the normal maintenance procedures include checking the Rhapsody holding queue for messages that could not be processed. The Altarum Team will investigate why they were not processed and respond accordingly with either fixes to the Rhapsody processing route or contact the lab requesting changes to their message. Messages can get flagged for anything from malformed messages to new lab SNOMED codes.

PHINMS

The Altarum Team will support and maintain the existing PHINMS connections that allow ELR messages to securely flow to the MDSS. We will also develop strategies to support other emerging standards, like Direct and SOAP.

Standards

Altarum will track and implement standards in messaging for state, local, and federal processing, including CDC Nationally Notifiable Disease (NND) messaging

- Implement and maintain CDC tools such as the Messaging Support System (MSS) and Rhapsody processing routes as a standardized base for message interchange
- Implement and leverage tools such as the PHIN-VADS Vocabulary system to improve quality and accuracy of exchanged data

- Update and support HL7 2.5 messaging, Clinical Document Architecture and other developing standards for MDSS

b. Update Systematized Nomenclature of Medicine (SNOMED) lookup tables in Rhapsody for new lab tests that are added to existing feeds.

New labs codes need to be added to the SNOMED mapping table. First we verify that the new code is correct, then we modify the mappings. The messages with the new code are then run thru Rhapsody again and processed correctly.

c. Perform data maintenance that cannot be done through the standard application interface

Any maintenance issues that cannot be handled through the standard application interface such as updating code tables or removing bad records from the pending work queue will be accomplished through database scripts and are included in this maintenance contract. Altarum's five years of experience in these activities demonstrates our capability to perform this maintenance successfully.

2) Support

a. Create scripts for data pulls and ad hoc queries of the MDSS database.

The process starts with a request from the MDCH team leader to our Project Leader. The Altarum Project Leader gathers as much information about the request so it can be forwarded with any points of contact that may be helpful. The Altarum Project Leader creates a Bugzilla ticket and assigns it to one of the programmers on the MDSS project.

Once the programmer receives the request, he/she formulates an approach based on the information given by the Project Leader and any clarifications received from the points of contact provided. Once formulated, the query or queries are run against our internal MDSS databases to quality-check the results. By running internally first, we do not negatively impact MDSS production performance.

Once the queries are finalized a request is given to the DTMB Project Leader that in turn passes them on to be run against the production database.

Once the queries have been run the data is put into whatever format was agreed upon and delivered securely to the MDCH Project Leader. Usually this consists of using the DTMB file transfer functionality available through the Michigan Single Sign-on (SSO) portal.

b. Conduct basic analysis and troubleshooting of issues with the MDSS, including review of Tomcat and KODO activity logs.

The MDSS application requires many different pieces of software to work together to be fully functional. From time to time, unexpected events occur that require us to debug the system as a whole. This generally starts with the Project Leader either calling us or mentioning a problem that's being encountered at the weekly staff meeting. These issues can range from firewall changes, LDAP problems, email server, tomcat issues, database issues etc. Like all issues, the Altarum Project Leader will create a Bugzilla entry with all the information known at the time and assign it to a team member to resolve.

Often the first step in problem resolution is to examine the Kodo or Tomcat logs. The Altarum Team already has all the necessary clearances to access the MDSS Production environment and can retrieve the logs efficiently.

c. Make changes to MDSS case report forms and maintain an up-to-date data dictionary for the MDSS.

Change requests will be made by contacting our Project Leader and describing the changes that are necessary. These agreed on changes will then be included in the next release of the MDSS. These changes will be logged in Bugzilla and tracked internally. All MDSS PDF changes require the use of the MDSS form generation tool.

To modify or create a new form we must use the form generation tool "Interactive Form Creator Interactive Form Creator" (developed by the original MDSS vendor STC). The form generation tool has its own Pointbase Database and runs on the "Resin" web server platform. The form generation tool is a "developers" tool and as such has a less than perfect user interface and a steep, undocumented learning curve. Our years of experience with this tool have allowed us to become proficient at getting the desired result. Once the modifications have been made to the form and tested on our internal servers the generated files are committed to the current release branch in CVS. These changes will go on to be system tested with the rest of the release.

d. Provide a Remote Diagnostic Capabilities

As mentioned earlier, the Altarum Team already has the necessary clearances in place to connect to the State's network and MDSS applications remotely via VPN. As such, Altarum can provide diagnostic capabilities and problem debugging remotely, which helps speed problem resolution and reduced MDSS downtime.

e. Help Desk

The Helpdesk is a single point of contact at Altarum to report any MDSS-related issues. Contact can be made by phone during normal business hours or email anytime. A cell phone number is available for emergency issues that may occur during off-hours. As noted above, DTMB is the first point of contact for emergency production issues, but the Altarum Team is available as backup as needed.

Altarum will respond to support calls within 2 hours during regular business hours 8 am – 5 pm Eastern Time. Typically, as we've shown over the past five years, the response time is much quicker than 2 hours.

Altarum will provide a phone number or pager number with callback within six hours for after-hours support for trouble shooting involving enhancements implemented by Altarum.

3) Ongoing Enhancements

a. Integration of Electronic Laboratory Reporting (ELR) into the MDSS

Along with the regular maintenance of the ELR environment as described above, the Altarum Team will work with at least four laboratories identified by MDCH to implement electronic laboratory reporting. We have successfully brought new laboratories into the MDSS, including Starlims, Labcorp, Mayo, Hurley, and Sparrow hospitals. Based on this experience, Altarum has developed a process for bringing new labs into the MDSS that we plan to use and refine over the life of this contract.

The steps required for adding a new submitter to MDSS are:

1. Deploy PHINMS at the submitter site. After guiding the submitter through the download and binary install, a series of configuration and test steps are performed by the submitter. This is generally a walkthrough by Altarum Team staff with the submitter through the PHINMS installation document, while installing collaboration authorization configuration documents and receiving test messages on the MDCH PHINMS receiver instance. Each round of message testing advances transport functionality from simple connectivity until encrypted messages can be sent securely in an automated fashion. Incremental progress allows errors to be fixed immediately, before more complicated processes are compromised.
2. Develop a Rhapsody message processing path for the message. This may range from merely routing the message through an existing path with appropriate properties, to developing retransformations of the message and new mappings to repair deficiencies or improve data accuracy to MDSS.
3. Both 1 and 2 may be done in parallel if test messages are available. The Rhapsody message processing can be complex; negotiation with the submitter to fix problems at their source can resolve many discrepancies without resorting to Rhapsody repairs.
4. Once a testable solution for the trial messages is created, the test messages in MDSS 2.3z form are routed to the MDSS test instance, where MDCH staff can inspect the messages for accuracy. Fixes may be applied, and the process repeated, with the possible addition of live

messages as the PHINMS feed comes online. Feedback to the submitter is also helpful in improving quality and MDSS accuracy during this process.

5. When message processing is acceptable to MDCH staff, and sufficient live (or recent) messages have been observed on test to properly represent the feed from the submitter, the test connection is switched over to production (or production is added, if additional observation in test is needed). At this point, the submitter feed may be considered in production.
6. If message types other than reportable conditions are commingled with the submitter feed, they may be separated by logic within Rhapsody and split to processing for other programs, such as heavy metals, lead, etc. These programs may have their own additional steps to turn messages into standard tool formats that may be added to the Rhapsody processing chain.
7. As new messaging paradigms and tools are injected into the public health IT toolchain, the Altarum Team is capable of providing rapidly deployed experimental environments for hosting and evaluating non-standard IT systems. This is critical given the rapidly changing ELR technical landscape.
8. The Altarum Team will also provide guidance and support in adapting the multiple tiers and communicating components of the large and complex public health messaging infrastructure to the demands of security and performance of the Michigan state IT systems. We have ported the PHINMS/MSS/Rhapsody several times to different firewall schemes within the state and have maintained continuity in service through.
9. Update MDSS documentation including MDSS Submitters Guide, any technical documentation, and user documentation.

b. Ongoing Integration of PHINMS into the MDSS

PHINMS is used to securely communicate data to CDC and is a key component to enhancing the speed that reportable disease investigations are communicated to CDC. Altarum has successfully setup, configured, and integrated PHINMS with the MDSS over the past five years. We have walked through the installation of the software with hospitals over the phone and in-person during site visits. The integration of PHINMS with MDSS within the context of bringing a new lab into the MDSS is described in step1 above.

B. Training

Technical Consulting and Training

As part of both ongoing maintenance and support or as part of specific deliverables for future enhancements, and as directed by the State, Contractor shall provide End-User Training for MDCH staff (approximately twenty people) on the MDSS Staging Environment for each system release, with approximately 3 releases a year. The training can be by Web conferencing or at State of Michigan's facilities. This may include upgrades, new versions, or release features of the system that affect end-user functionality, and may be provided in a classroom or online, including related manuals or training fliers, as determined by the State.

Contractor will provide technical consulting and training to DTMB programmer/analysts assigned to work with Contractor in use of the development tools used to maintain MDSS, to configure the applications, including establishing databases and interfaces, data conversion, customization, and upgrading the customized software. Contractor shall provide system administration training for State personnel for ongoing maintenance, administration, and security of the system. The requests will be initiated from DTMB. This will include, but is not limited to logical data model, public health information network, approved messaging standards, acrobat tools, GIS Integration, Kodo, CVS, Jasper Reports, Ant, JAVA, HTML, JavaScript, JSP, XML, PHIN-MS, MSS, Orion Rhapsody and HL7.

Deliverable(s)

- Train the trainer
- End-user training
- Technical & System Administration Training

Acceptance Criteria
High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501. Any additional or more specific criteria should be identified here.

As we have over the past five years, the Altarum MDSS team will conduct user training and provide technical consulting and training for DTMB technical staff as required. The Altarum Team has provided this service in the past with both in-person training and online web conferencing. This training includes the development of any training materials necessary to execute the training. The level and frequency of the training will depend on the changes made to the MDSS and will be determined by MDCH and DTMB project leaders.

We will do training sessions for large user groups as well as train-the-trainer instruction as we have in the past. The training materials will reflect the audience being trained as well as the new functionality being presented. Typically, train-the-trainer sessions are with one or two people who need to understand the new functionality well enough to teach other users. For larger user groups, we can present via on-line web conference or in person. For in-person trainings we have utilized the Training Room in the Chandler building in Lansing. Some examples of trainings we have done in the past include:

- Aggregate Reporting;
- New Roles and Privileges; and
- Sexually Transmitted Diseases Program Area Module.

C. Documentation
Contractor shall provide and update documentation as part of maintenance and support and as part of deliverables for enhancements. The Vendor will provide changes to any existing user manuals based on changes made to the MDSS at no cost to the State. The Vendor will also create new manuals or portions of manuals based on any modules or enhancements made to the MDSS. The Vendor will provide complete, up-to-date, electronic manuals for the MDSS, its components, operations, maintenance, administration and use that are easily referenced, easily used and searchable. The documentation of components, features, and use of the hardware/software shall be detailed such that resolution of most problems can be determined from the documentation, and most questions can be answered. All system, operational, user, change, and issue documentation must be available in electronic format, published to an intranet website, accessible to State users, updated regularly, with unique numerical identifiers for each section and be consistent with the most current version of the application(s). All system, operations, user, change and issue documentation is to be organized in a format, which is approved by the State and facilitates updating and allows for revisions to the documentation to be clearly identified. The Contractor must develop and submit for State approval complete, accurate, and timely system, operations, and user documentation. The Contractor must notify the State of any discrepancies or errors outlined in the system, operations, and user documentation.

Deliverable(s)

- User manuals
- Technical manuals
    1. A minimum of two (2) copies of the following documentation in an electronic format, online and in hard copy will be provided:
        a. User and Technical Manuals - On-line and Hard Copy
        b. Data Element Dictionary
        c. Operations Manual
        d. All updates of documentation during the term of the Contract, software license and maintenance agreement
    2. The following documentation is provided for all modules and program development:
        a. System-wide documentation and specifications
        b. Baseline End-User training manuals to be used as a basis for “User Manuals” and online help
        c. Installation procedure
        d. Module configuration documents sufficient for configuration maintenance purposes
        e. Testing scripts

f. Specification documentation
g. Production migration

Acceptance Criteria
High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501. Any additional or more specific criteria should be identified here.

Altarum currently has a process in place to update all necessary user and technical manuals with each new MDSS release and will continue this process for the duration of the new contract. This process includes updates to:

- MDSS Application User Guide;
- MDSS On-line Help (based on the MDSS Application User Guide);
- MDSS System Administration Guide;
- MDSS Administration Guide;
- MDSS Data Dictionary;
- MDSS ELR Messaging Guide; and
- MDSS ELR Submission Guide.

Which manual gets updated and the extent of the changes will depend on the type and size of the change to the MDSS. These manuals are placed on an Altarum project website and are available to Altarum, MDCH, and DTMB staff.

Altarum Team technical writer, John Christensen, is proficient with development tools such as Microsoft Word, PowerPoint, RoboHelp, Visio, Acrobat, and screen capture software to develop professional, user-friendly materials. He has developed user manuals and online Help systems for MDSS, MSSS, and MCIR, and also developed other training guides and support documents to support other MDCH needs.

D. Knowledge Transfer/Transition
The Vendor will work to keep MDCH and DTMB staff up to date of the workings of the system and the Vendor will work to provide any/all information needed to the State and subsequent contractors after the contract period has expired up to six months.

Deliverable(s)

- to State Staff
- from Incumbent Contractor

Acceptance Criteria
High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501. Any additional or more specific criteria should be identified here.

Knowledge transfer and transition are highly dependent on Documentation and Training tasks. The first step in understanding the system is to read through the user and technical documentation and the training materials. Keeping these up-to-date will make knowledge transfer or transitioning the project to another vendor much easier. The Altarum Team will also be available for phone calls, emails or in-person meetings to answer any questions from MDCH or DTMB staff.

The process of transitioning the project to another vendor includes the delivery of all manuals (in their development applications), training materials and source code as directed by MDCH and DTMB project leaders. The Altarum Team will also be available to the State and subsequent vendors for 6 months following the completion of the contract for questions and to facilitate a smooth transition with minimal disruption in MDSS service.

E. Future Enhancements

Enhancements will be required based on future federal and state requirements. Actual funding for enhancements will occur on a yearly basis, and there is no guarantee as to the level of funding, if any, available to the project. MDTMB will provide a separate written statement of work (SOW) for any required future enhancements. **As part of Vendor's response to the SOW,** Vendor shall detail how they will provide the deliverables, their timeframe for completion, estimated hours to complete, and the specific cost to the State for each deliverable. The MDCH Project Manager shall determine the timing of project tasks at the time of project kickoff. Vendor shall provide Deliverables/Services and staff, and otherwise do all things necessary for or incidental to the performance of future enhancement work, as set forth below.

The Vendor shall:

a. In response to the State's Statement of Work, provide a Task Proposal to respond to requests to modify the MDSS to meet future needed functionality within fifteen (15) working days, including cost for the specified deliverables..
   i. Vendor's response will be in a form of a change order, which details the tasks, personnel, estimated time, and cost of the deliverables for the enhancement request.
   ii. If the Vendor is unable to provide an accurate estimate within two weeks, the Vendor will provide within a two weeks' timeframe, when a complete estimate will be delivered to the State.
b. Work will not begin on the enhancement order until the State issues a Purchase Order authorizing Contractor to execute the work.
   i. Once the cost estimate has been approved by the State, then the enhancement work plan will be produced by the Vendor for the State's approval.

For all future enhancements proposals Vendor must provide the following subtasks and deliverables as agreed upon with MDCH MDSS Staff. The MDCH Project Manager and DTMB Project Manager must approve each work deliverable before it is considered completed.

a. Gathering of Requirements
b. Project plan/enhancement work plan to include the following:
c. A work breakdown structure of the major phases of the project, accounting for all tasks, deliverables. Resources and milestones for the design development, testing and implementation of the MDSS enhancement including all interfaces and other agency resources.
d. Any hardware that may need to be purchased.
e. Hours and date timetable for each task, deliverable, and milestone.
f. Vendor resource loading by task and role.
g. State resource loading by task and role. Note that any use of State personnel must be consistent with the description of the available state project team described in Section 1.202.
h. Critical path with parallel and dependent project tasks.
i. Any assumptions of constraints identified by the Vendor must be listed in the Enhancement Work Plan. If there are needs for State staff in addition of those reference in Section 1.202, the Vendor should note this need.
j. Report and online design documentation
k. Programming and development
l. Testing in Test Environment and Customer acceptance testing on Staging Environment to ensure that the requirements are satisfied and to validate the results.
m. Vendor will demonstrate to the State that all of the system requirements and functions have been satisfied.
n. The State will determine if the Contractor has fulfilled all of the requirements.
o. The Contractor will be responsible to modify any functionality or requirement that is viewed by the State as not acceptable.
p. The Contractor will be responsible to add a function or requirement as defined in the baseline definition that the Contractor failed to include.
q. All modifications and/or additions to a function in the system as defined in the baseline definition will be performed without any additional cost.
r. This entire process will take place prior to installation and live implementation.

s. Installation plan
t. Installation
    i. The Vendor is responsible for the complete implementation of the enhanced application running in a production environment.
u. Post Implementation Support
    1. For regular business hours, 8 am to 5 pm Eastern Time, The Vendor must respond to support calls within 2 hours.
    2. For after-hours support calls, The Vendor will provide a phone number or pager number with callback within six hours, for trouble shooting involving enhancements installed by the Vendor.
    3. The first level of support will be provided by MDTMB and MDCH. Only designated contacts within MDTMB or MDCH will be the originators of all support calls to the Vendor.

Acceptance Criteria
High-level acceptance criteria for Document Deliverables and Software Deliverables are listed in Section 1.501. Any additional or more specific criteria should be identified here.

The Altarum Team has extensive experience delivering substantial enhancements to the MDSS on time and within budget. Some examples include:

- The Sexually Transmitted Diseases (STD) Program Area Module (PAM);
- Enhanced Deduplication Functionality;
- Electronic Laboratory Reporting Functionality with Rhapsody;
- New Roles and Privileges Functionality;
- Improved Auditing Capabilities;
- Case Notification Functionality and Interface;
- Aggregate Case Enhancements; and
- HIV Case Export.

We are partners with the State in improving MDSS functionality and stability to better serve the citizens of Michigan.

Enhancement Proposal
When Altarum receives an enhancement request and Statement of Work (SOW), we will:

a. Provide a task proposal within fifteen (15) working days, including cost for the specified deliverables. Our response will detail the tasks, personnel, estimated time, and cost of the deliverables for the enhancement request.
b. If more than 2 weeks are needed to develop an accurate estimate, Altarum will let the State know when to expect the estimate within two weeks of receiving the enhancement request. Altarum will not begin work on the enhancement order until the State issues a Purchase Order authorizing us to execute the work. Once the cost estimate has been approved by the State, then Altarum will produce the enhancement work plan for the State's approval.

The Altarum enhancement proposal will provide the following subtasks and deliverables. For details on the phases of the new enhancement development process, see the Enhancements Process section below.

a. Gathering of Requirements
b. Project plan/enhancement work plan to include the following:
    1. A work breakdown structure of the major phases of the project
    2. Any hardware that may need to be purchased by DTMB or MDCH.
    3. Hours and date timetable for each task, deliverable, and milestone.
    4. Vendor resource loading by task and role.
    5. State resource loading by task and role.
    6. Critical path with parallel and dependent project tasks.
    7. Any assumptions or constraints.
c. Report and online design documentation

d. Programming and development, including
    1. Testing in Test Environment and Customer acceptance testing on Staging Environment.
    2. Demonstrate to the State that all of the system requirements and functions have been satisfied. The State will determine if all of the requirements have been fulfilled.
    3. Altarum will be responsible to modify any functionality or requirement that is viewed by the State as unacceptable.
    4. The Contractor will be responsible to add a function or requirement as defined in the baseline definition that the Contractor failed to include.
    5. All modifications and additions to a function in the system as defined in the baseline definition will be performed without any additional cost.
    6. This entire process will take place prior to installation and live implementation.
e. Installation plan
f. Installation
    1. Altarum is responsible for the complete implementation of the enhanced application running in a production environment. Under the current contract, DTMB staff do all the installations and database changes on Production. Altarum will, if required or asked by DTMB, do the installations on Production.
g. Altarum will provide post implementation support. Please see the section on Helpdesk for more information.

Enhancement Process
Because of our past experience, the Altarum Team is uniquely qualified to deliver accurate and cost-effective estimates and implementations of future enhancements to the MDSS. To accomplish this, we employ a structured software development methodology. Our process aligns closely with the Michigan SUITE process, with the first step being the Requirements Gathering Phase.

Requirements Gathering Phase
During this phase, we use some or all of the following techniques to elicit and understand the customer requirements for the new functionality:

- Written questions;
- Phone interview;
- In-person interviews; and
- Screen mock-ups.

From this, we create a requirements document as well as a complete Work Breakdown Structure (WBS). Cost and time estimates for the new functionality are also developed, taking into account the availability of the required staff. Once we receive sign-off on these documents, we proceed to the next phase, System Design.

System Design Phase
This phase translates the user requirements into the technical design. This includes changes to the database, Kodo (the Java Database Objects (JDO) layer), software code and user interface. The technical design is described in the System Design Document. This document includes changes to the database schema including the tables, views and other object. Any changes to the database will require changes to the Kodo layer in order for the Java Objects to compile and recognize the new functionality.

Software changes to the Java Objects will be described along with corresponding changes to the user interface, reports, NETSS exporting, NEDSS exporting, disease form changes and other components.

Also, if the required functionality touches on the ELR module, those changes will be included in the System Design Document. This could include changes to a route in Rhapsody, the Java Messaging System (JMS), Public Health Information Network Messaging System (PHINMS), firewall rules, etc.

Based on the design of the new functionality, an initial Test Plan is created and must be updated if any changes are made to the design. The Test Plan includes system testing, integration testing, and user testing.

The outputs of this phase include the updated System Design Document and the Testing Plan.

Development Phase
The Development Phase is the implementation of the system design into corresponding modules of the MDSS. The Altarum Team has many years of experience in all areas of the MDSS, including the Oracle backend, the Kodo middleware, the ELR environment with Rhapsody, PHINMS, JMS and the Java frontend including the PDF forms. As stated above, depending on the size and complexity of the modification, the customer can be brought in to test components of the new functionality as they are ready to confirm the user requirements are being met.

Outputs of this phase include the User Training Plan, updated Testing Plan and updated Maintenance Plan.

Testing Phase
In this phase the Test Plan is implemented. The first step in testing is internal system testing on the Altarum test server. This server closely mimics the MI Production environment and provides a good first test of the new functionality. Next, the system is moved to the State's Test environment where a select group of end users can access and test the system. The users that are selected for this testing will depend on the new functionality. For example, changes to the STD module will likely require users from the STD Program Area for testing. This is all documented in the Test Plan.

The final phase of testing takes place on the State's Staging environment. The Staging platform is more easily accessible by users outside of the State's network and thus this testing can include a wider range of users. At this point, the Implementation Plan including the installation instructions are created.

Once signoff is achieved on the User Acceptance Test Plan, we are ready to move to the Implementation Phase and the Production environment.

Implementation Phase
During the Implementation Phase, the new MDSS code, database scripts, form updates and installation instructions are delivered to DTMB for installation on the MDSS Production server. The time of the installation will be after normal business hours and will be set by MDCH/DTMB. During the installation period, Altarum Team members are always available if questions or concerns arise during the installation. After the installation and before end users "go live," Altarum Team members will test the new system to insure a proper and functioning installation.

1.200 Roles and Responsibilities

1.201 CONTRACTOR STAFF, ROLES, AND RESPONSIBILITIES

A. Contractor Staff

Vendor must provide personnel with the ability to:

- Work professionally with the users, administrators and MDTMB personnel associated with MDCH.
- Work with MDCH personnel that have wide ranges of application and computer related knowledge
- Train and/or educate while assisting MDCH personnel.
- Document and act on customer suggestions and complaints.
- Document problems, fixes, resolutions and preventative measures for the future enhancements.
- Troubleshoot problems and provide timely resolutions resulting from installation of an enhancement in order not to cause downtime.

The Contractor will provide resumes in the attached Personnel Resume templates (Attachment XX) for staff, including subcontractors, who will be assigned to the Contract, indicating the duties/responsibilities and qualifications of such personnel, and stating the amount of time each will be assigned to the project. The competence of the personnel the Contractor proposes for this project will be measured by the candidate's education and experience with particular reference to experience on similar projects as described in this Statement of Work. The Contractor will commit that staff identified in its proposal will actually perform the assigned work.

The Contractor will provide, and update when changed, an organizational chart indicating lines of authority for personnel involved in performance of this Contract and relationships of this staff to other programs or functions of the firm. This chart must also show lines of authority to the next senior level of management and indicate who within the firm will have prime responsibility and final authority for the work.

Contractor must provide a list of all subcontractors, including firm name, address, contact person, and a complete description of the work to be contracted. Include descriptive information concerning subcontractor's organization and abilities.

The Contractor will identify a Single Point of Contact (SPOC) within Key Personnel. The duties of the SPOC shall include, but not be limited to:

- supporting the management of the Contract,
- facilitating dispute resolution, and
- advising the State of performance under the terms and conditions of the Contract.

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

The contractor must submit a letter of commitment for Key Personnel, signed by the identified resource, stating their commitment to work for the contractor/subcontractor on this project contingent on award of the bid. If the identified personnel are currently assigned to a State project the contractor must provide a letter signed by the State Project Manager releasing the individual from the project upon execution of the contract.

The State will have the right to approve the assignment and replacement by the Vendor of all key personnel assigned to the MDSS Project. This includes without limitation, the overall project manager, individuals named or described in a schedule to the Contract, and individuals assigned significant managerial responsibilities as mutually agreed upon by the parties. Before assigning an individual to any of these positions, the Vendor will notify the State of the proposed assignment, will introduce the individual to the appropriate State representatives, and will provide the State with a resume and any other information about the individual reasonably requested by the State. The State reserves the right to interview the individual before granting approval.

All Key Personnel may be subject to the State's interview and approval process. Any key staff substitution must have the prior approval of the State. The State has identified the following as key personnel for this project:

- ***Project Manager***
- ***Project Leader***
- ***Technical Lead***

The Vendor will have full responsibility for providing adequate staff to complete the project in the required time frame. The Vendor must include in their bid proposal the names and resumes of individuals meeting the experience and qualifications requirements for the following requested roles:

1. Project Manager
   Responsibilities will include ensuring that the project is in compliance with the contract and satisfies the requirements stated in the RFP. The Project Manager will work closely with the State's Project Managers to oversee that requested MDSS enhancement development adheres to the specifications, project work plan, timetable and MDTMB Standards. Experience working as a project manager for the development or/and maintenance of Web-based communicable disease surveillance systems is required.
   Experience Requirements: 3 years of recent (within the last five years) experience working as a project manager for the development or/and maintenance of Web-based communicable disease surveillance systems is required.

2. Project Leader
   Responsibilities will include the review and analysis of MDSS system and user needs. The Project Leader functions as a liaison between the MDSS users and technical staff to effectively translate the business enhancements into technical requirements. Has knowledge of commonly used concepts, practices and procedures incorporated in a communicable disease surveillance system. Experience working as a project leader for the development or/and maintenance of Web-based communicable disease surveillance systems and experience gathering business requirements is required.

   Experience Requirements:
   - 3 years of recent (within the last five years) experience working as a project leader for the development or/and maintenance of Web-based communicable disease surveillance systems is required.
   - Experience gathering business requirements

3. Technical Lead
   Responsibilities include serving as an expert and technical troubleshooter in matters related to structure analysis, design, coding, testing and installation of MDSS system. Resumes submitted for staff in this role must include areas of expertise by hardware platform, operating system, programming languages, utilities, databases, networks, and telecommunications. Experience with communicable disease surveillance systems, Java/JSP, JavaScript/HTML, XML, Oracle databases, CVS, Kodo, Jasper reporting tool, ANT and experience developing HL7 compliant files/programs is required.

   Experience Requirements:
   - 3 years of recent (within the last five years) experience with communicable disease surveillance systems is required
   - 3 years of recent (within the last five years) experience using Java/JSP is required
   - 3 years of recent (within the last five years) experience using JavaScript/HMTL is required
   - 3 years of recent (within the last five years) experience using XML is required
   - 3 years of recent (within the last five years) experience working Oracle database is required
   - 1 year of experience using CVS is required
   - 1 year of experience using Kodo is required
   - 1 year of experience using Jasper report tool is required
   - 1 year of experience using Ant is required
   - 1 year of experience developing HL7 compliant files/programs is required

4. Programmer/analyst
   Responsibilities include tasks related to structure analysis, design, coding, testing, installation, and documentation of enhancements for MDSS. The candidate must document their area of expertise by hardware platform, operating system, programming languages, utilities, databases, networks, and telecommunications. The position requires experience with Java/JSP, JavaScript/HTML, XML, Oracle databases, CVS, Kodo, Jasper reporting tool, ANT and experience developing HL7 compliant files/programs is required.

   Experience Requirements:
   - 1 year of recent (within the last five years) experience using Java/JSP is required
   - 1 year of recent (within the last five years) experience using JavaScript/HMTL is required
   - 1 year of recent (within the last five years) experience using XML is required
   - 1 year of recent (within the last five years) experience using Oracle database is required
   - Experience with communicable disease surveillance systems is desirable
   - Experience using CVS is desirable
   - Experience using Kodo JDO is desirable
   - Experience using Jasper report tool is desirable
   - Experience using Ant is desirable
   - Experience developing HL7 compliant files/ programs is desirable

5. Helpdesk Representative
   Responsibilities include answering DTMB telephone call inquiries and providing second level technical support for MDSS software. Responsible for tracking help tickets, researching and resolving complaints and escalating calls when appropriate. Vendor staff will require:

Experience Requirements:
- Excellent verbal and written communication skills are required
- Familiarity with communicable disease surveillance systems is desirable

6. Documentation Specialist/Technical Writer
   Responsibilities include assisting in collecting and organizing information required for MDSS User and Technical manuals, training materials, installation guides, and reports. Edits functional descriptions, systems specifications, technical and user manuals, special reports and any other customer deliverables or documents. Ensures reading comprehension by target audience. Vendor staff will require:

   Experience Requirements:
   - Experience in developing and editing technical documents
   - Excellent verbal and written communication skills
   - Familiarity with communicable disease surveillance systems is desirable

The resumes must state the position the individual would be responsible for in this project. The resume of the individual must clearly demonstrate the skills and experience requested. The resumes must have the start date for each skill set required. References must be supplied. The candidate must be available to start work on August 18, 2011.

All staff should to be actively employed by the Vendor. If there are subcontractors, those personnel must also meet the qualifications described in Article 2. All subcontractors must be acknowledged and conveyed to MDCH and MDTMB with documentation that states the subcontracted personnel are qualified, trained and experienced for all work that they will be doing in association with MDCH. The subcontracting must be approved by the MDCH due to the sensitive nature of data, and the potential negative effects on public health. Subcontracted personnel that meet all requirements set forth by MDCH will be considered as the Vendor's personnel. All contracted staff must act professionally, respect patient confidentiality and follow all Health Insurance Portability and Accountability Act (HIPAA) regulations.

Replacement of Personnel at the State's Request
The State reserves the right to require the Vendor to replace Vendor employees who the State judges to be incompetent, careless, unsuitable or otherwise objectionable, or whose continued use is deemed contrary to the best interests of the State. Before a written request is issued it will be discussed by authorized representatives of the State and the Vendor. Upon receipt of a written request from an authorized representative of the State, the Contractor will be required to proceed with the replacement. The replacement request will include the desired replacement date and the reason for the request. The Vendor will use its best efforts to effect the replacement in a manner that does not degrade service quality. This provision will not be deemed to give the State the right to require the Vendor to terminate any Vendor employee; it is intended to give the State only the right to require that the Vendor discontinue using an employee in the performance of services for the State.

The Contractor will provide sufficient qualified staffing to satisfy the deliverables of this Statement of Work.

B. On Site Work Requirements

1. Location of Work
The work is to be performed, completed, and managed at locations determined by the Vendor, but with the expectation that personnel will be available, on hand and able to complete emergency tasks during hours stated previously in this RFP.

2. **Hours of Operation:**
   a. Normal State working hours are 8:00 a.m. to 5:00 p.m. EST, Monday through Friday, with work performed as necessary after those hours to meet project deadlines. No overtime will be authorized or paid.
   b. The State is not obligated to provide State management of assigned work outside of normal State working hours. The State reserves the right to modify the work hours in the best interest of the project.
   c. Contractor shall observe the same standard holidays as State employees. The State does not compensate for holiday pay.

4. **Additional Security and Background Check Requirements:**
   Contractor must present certifications evidencing satisfactory Michigan State Police Background checks ICHAT and drug tests for all staff identified for assignment to this project.

   In addition, proposed Contractor personnel will be required to complete and submit an RI-8 Fingerprint Card for the National Crime Information Center (NCIC) Finger Prints, if required by project.

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

To maintain continuity of service to MDCH and DTMB, the Altarum Team is proposing the current team that supports MDSS maintenance and support:

- **Rick Keller** as Altarum Project Manager/Project Leader/Technical Lead will be the single point of contact (SPOC) for SOM staff and manage the Altarum Team members and deliverables;
- **Mike Grim** as Programmer/Analyst will handle design and development of major enhancements and maintenance and support duties;
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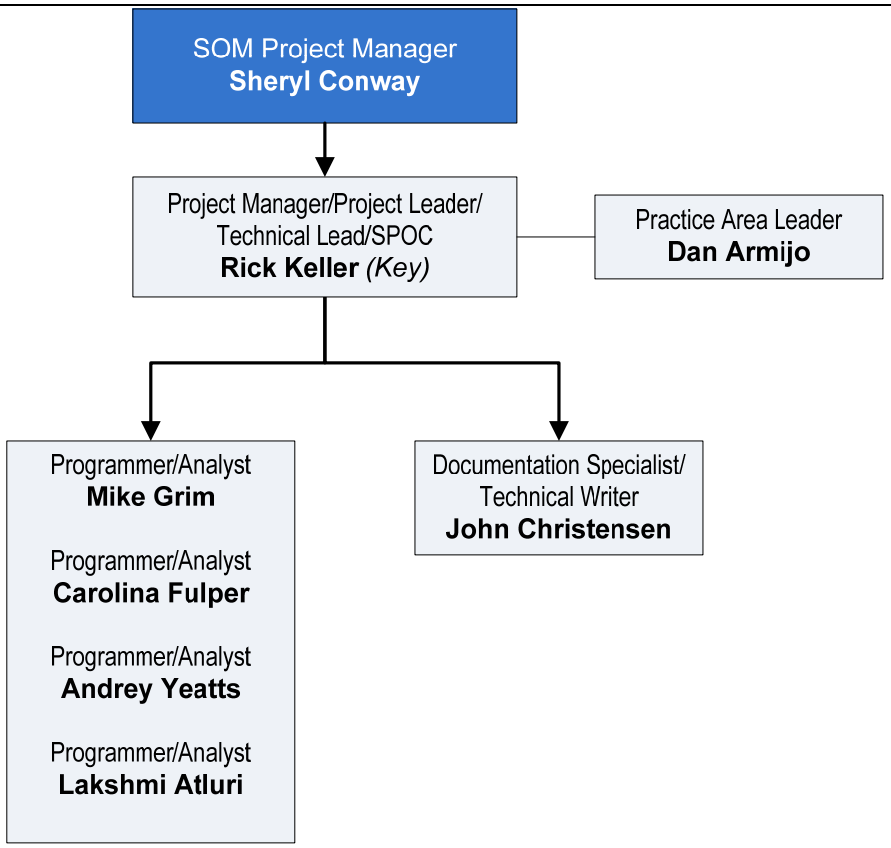
- **Andrey Yeatts** as Programmer/Analyst will handle on-going enhancements to the ELR environment and maintenance of existing data feeds; and
- **John Christensen** as Documentation Specialist/Technical Writer will create and deliver MDSS documentation and Help systems.
- While not part of the Altarum project team, **Dan Armijo**, Information & Technology Strategies Practice Area Leader, provides managerial oversight to Rick Keller and the project.



Resumes for the project team are included as Appendix 2. All individuals are available to start work on August 18, 2011.

1.202 STATE STAFF, ROLES, AND RESPONSIBILITIES

The State will work to assist the Vendor in delivering the enhancements for MDSS. The State will provide a Project Manager from MDCH and MDTMB.

The State Project Managers will be responsible for ensuring that the project is in compliance with the contract and satisfies the requirements stated in the RFP. This will ensure that the system is properly implemented, supports the requesting agency's defined functional and technical requirements, and is properly documented.

The Project Managers from the State will provide expertise, assistance, and technical leadership in all matters such as policy, organization and staff, environment, data, information processing, current systems, acceptance testing, and so forth. The State's Project Managers will work closely with the Vendor's Project Manager in day-to-day project activity.

The State will assign staff, as described below, to participate with the Vendor's staff in all project management processes and enhancement development phases as outlined in the State's IT Methodology. This integration of staff will expedite the ultimate transition of project responsibility to State staff.

State Project Team

- Surveillance Section Manager
- MDCH Project Manager
- Surveillance Epidemiologist(s)
- MDTMB Project Manager
- MDTMB Programmer/Analyst
- MDTMB Database Administrator

State Project Manager- (MDTMB and DCH)
MDTMB will provide a Project Manager who will be responsible for the State's infrastructure and coordinate with the Contractor in determining the system configuration.

The State's Project Managers will provide the following services:

- Provide State facilities, as needed
- Coordinate the State resources necessary for the project
- Facilitate coordination between various external contractors
- Facilitate communication between different State departments/divisions
- Provide acceptance and sign-off of deliverable/milestone
- Review and sign-off of timesheets and invoices
- Resolve project issues
- Escalate outstanding/high priority issues
- Utilize change control procedures
- Conduct regular and ongoing review of the project to confirm that it meets original objectives and requirements
- Document and archive all important project decisions
- Arrange, schedule and facilitate State staff attendance at all project meetings.

Name	Agency/Division	Title
Sheryl Conway	MDTMB/Agency Services	Project Manager
Jim Collins	DCH/ Public Health Agency	Project Manager

1.203 OTHER ROLES AND RESPONSIBILITIES
The State staff roles listed above makes up the proposed State project team that will work with the Vendor. If the Vendor identifies a need for additional state staff with specific technical qualifications to be assigned to this project, the bidder should indicate these needs as a part of their proposal. At the state's discretion, state personnel may be substituted or added as needed. The state reserves the right to add or remove members of the state's project staff with or without replacement.

1.300 Project Plan

1.301 PROJECT PLAN MANAGEMENT

Preliminary Project Plan
As a mandatory requirement for the State's evaluation of proposals, Contractor will provide a Preliminary Project Plan , including necessary time frames and deliverables for the various stages of the project and the responsibilities and obligations of both the Contractor and the State. Failure to provide this preliminary project plan will result in vendor's proposals being considered non-responsive and dismissed from consideration. In particular, the Preliminary Project Plan will include a MS Project plan or equivalent (check the SUITE/PMM standard):

a. A description of the deliverables to be provided under this contract.
b. Target dates and critical paths for the deliverables.
c. Identification of roles and responsibilities, including the organization responsible. Contractor is to provide a roles and responsibility matrix.
d. The labor, hardware, materials and supplies required to be provided by the State in meeting the target dates established in the Preliminary Project Plan.
e. Internal milestones
f. Task durations

The Preliminary Project Plan shall include the following deliverable/milestones for which payment shall be made.

a. Payment to the Contractor will be made upon the completion and acceptance of the deliverable or milestone, not to exceed contractual costs of the phase. A milestone is defined as complete when all of the deliverables within the milestone have been completed.
b. Failure to provide deliverable/milestone by the identified date may be subject to liquidated damages as identified in Article 2.

Note: A Final Project Plan will be required as stated in Article 1, Section 1.301 (C) Project Control.

Orientation Meeting
Upon 10 calendar days from execution of the Contract, the Contractor will be required to attend an orientation meeting to discuss the content and procedures of the Contract. The meeting will be held in Lansing, Michigan, at a date and time mutually acceptable to the State and the Contractor. The State shall bear no cost for the time and travel of the Contractor for attendance at the meeting.

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

Project Control
1. The Contractor will carry out this project under the direction and control of MDTMB, and MDCH.
2. Within 20 working days of the execution of the Contract, the Contractor will submit to the State project manager(s) for final approval of the project plan. This project plan must be in agreement with Article 1, Section 1.104 Work and Deliverables, and must include the following:
   - The Contractor's staffing table with names and title of personnel assigned to the project. This must be in agreement with staffing of accepted proposal. Necessary substitutions due to change of employment status and other unforeseen circumstances may only be made with prior approval of the State.
   - The project work breakdown structure (WBS) showing sub-projects, activities and tasks, and resources required and allocated to each.
   - The time-phased plan in the form of a graphic display, showing each event, task, and decision point in the WBS.
3. Contractor will use an automated tool for planning, monitoring, and tracking the Contract's progress and the level of effort of any Contractor personnel spent performing Services under the Contract. The tool shall have the capability to produce:
   - Staffing tables with names of personnel assigned to Contract tasks.
   - Project plans showing tasks, subtasks, deliverables, and the resources required and allocated to each (including detailed plans for all Services to be performed within the next 15 calendar days, updated semi-monthly).
   - Updates must include actual time spent on each task and a revised estimate to complete.
   - Graphs showing critical events, dependencies and decision points during the course of the Contract.

   Any tool(s) used by Contractor for such purposes must produce information of a type and in a manner and format that will support reporting in compliance with the State standards.

Altarum provides this Preliminary Project Plan and will submit an updated plan within 20 days of contract executions. Mr. Keller will work with the State Project Managers to ensure it meets the State's needs in terms of content and format.

1.0 Preliminary Project Plan

1.1 Introduction

This Preliminary Project Plan describes how Altarum will ensure successful performance and completion of MDSS Maintenance/Support and Enhancements throughout the period of performance. The document describes Altarum's Project Management Plan, including our control policies and procedures for project administration, execution, and tracking. This plan reports the tools and techniques used to plan and track resource commitments for this project.

1.2 Project Management Approach

The foundation of Altarum's successful project management approach is the comprehensive, internationally recognized TenStep® Project Management Model (TSPMM). As described further in Section 2.1.1, this model—based on the Project Management Institute's Project Management Book of Knowledge—includes robust project planning, project management (monitoring and controlling), and project closure processes and tools. The Altarum Project Management Office (PMO) provides training and support to project managers to ensure effective execution. Altarum also offers courses on the Altarum Project Management Model for project managers and project team members. The TSPMM is scalable to a wide range of project sizes, and its three primary stages are shown below.

TenStep Project Management Model

As a midsize contractor, Altarum has a solid understanding of project management principles, tools, and approaches. We have effectively managed many large and complicated projects and programs, many involving highly distributed project teams. The TSPMM ensures that a rigorous approach is applied to all of our projects—from the first steps of planning the project by defining the work through a charter and a project management plan, building a budget and schedule; through managing the project; and finally to project closeout. This rigor ensures that we apply the tested PMI standards through a simple but effective model.

Altarum TSPMM

The Altarum TSPMM is based on several guiding principles that further ensure a successful culture of project management.

- ***Manage to scale.*** Our model is able to be scaled to projects of all sizes and levels of complexity. We do not waste resources applying a complex model to a simple project.
- ***Use on all projects.*** By using the model on all projects, we not only reinforce our culture of project management but also provide the environment where our staff can move seamlessly between projects.
- ***Manage proactively.*** Our model is founded on planning. We anticipate where we can and act to mitigate negative risks and enhance the likelihood of positive risks. But we also establish processes

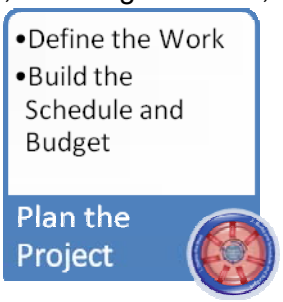
through our project management plan that enables us to manage the unexpected with confidence.

- ***Develop project team and client partnership.*** We recognize that our only reason for existence is to meet the contract needs of our clients and that we work as a team that includes both Altarum staff and our client staff. The project can be successful only if this team can work well together. Our project management model and our staff employ tested methods to foster this partnership.
- ***Establish project management processes up front.*** From the moment we kick off a project, we will engage our TSPMM and make it clear to the client and team how we will manage the project.
- ***Grant sufficient authority.*** Altarum is confident in our project managers and the TSPMM so that decisions can be made on the project as quickly as is reasonable. Project managers trust the model but always know they can reach back to the PMO or their senior managers for help.

Built on these principles, the Altarum TSPMM is conducted in three phases: Plan the Project, Manage the Project, and Close the Project.

Plan the Project

Define the Work. The first step for Altarum projects is to be sure the team, including the client, is clear about all the key details of the project. This includes the project's objective, scope and approach, deliverables, estimated cost and schedule, assumptions, risks, project and team organization. The culmination of this early planning is a Charter that draws heavily from the contract and discussions with the client to define the work that follows.



Build the Schedule and Budget. Building on the Project Charter, the team will construct the work breakdown structure (WBS), staffing plan, and schedule that will then provide the means to establish a more detailed project budget. Altarum utilizes current tools like Microsoft Project to support the more complex scheduling with dependencies and then loads this information into our own product, Contributor. Contributor allows Altarum to look at the status of an individual project plan and its finances, but also allows managers to easily see multiple projects and their staff.

During this step the project manager will work with the team to develop the overall Project Management Plan that includes sections describing how the project will manage the schedule and budget, issues, change, communications, risk, human resources, quality, and metrics. The Project Management Plan will also describe how the project will be closed out.

Manage the Project

Each of the activities in the Manage the Project phase will be controlled by the Project Management Plan that was developed in the Plan the up-front, Project phase. By establishing project management processes project the team, including the client, will understand clearly how the plan and will proceed. Client expectations will be "built in" to the project to work the plan will serve as a reminder about how the team has agreed throughout the project.

Manage the Schedule and Budget. Altarum project managers will update the schedule and budget with current information on a frequency that is reasonable for the project. During the review and update process the team will look for trouble signs. With the team and client, the project manager will determine how to resolve schedule or budget problems or risks and make updates as needed. At all times the team will manage the factors driving the critical path in order to stay on schedule and within budget. Through the use of Contributor, the project manager will be able to assign work to team members and also be able to communicate the project schedule and budget status to the client.

Manage Issues. Issues are more than just common problems. They are problems that meet specific criteria. An issue is a formally-defined problem that will impede the progress of the project and cannot be totally

resolved by the project manager and project team without outside help. The project team will take care of many problems on a daily basis. However, when a problem rises to the level of an "issue," it will be noted on an **Issues Log** and tracked until resolution. Updates on issues will be provided to the client on a regular basis.

Manage Change. Change on a project is inevitable. Even with all the planning in the "Plan the Project" phase, there needs to be an orderly way to deal with change. The **Project Management Plan** will define the process for addressing changes to things like scope, requirements, schedule, or budget. Change requests will be tracked in a **Change Log** and will be analyzed for impacts to scope, schedule, and budget. Impacts will be discussed with the client and an agreement reached on the appropriate actions. Change actions will be recorded in the **Change Log** and updates to schedule and budget made to reflect approved impacts.

Manage Communications. Properly communicating on a project is a critical success factor for managing expectations of all stakeholders. If they are not kept well informed of the project progress there is a much greater chance of problems due to differing expectations and surprises. Altarum project managers will identify project stakeholders, determine their communication needs, and create a communication plan. The **Communication Plan** will include regular reports to both Altarum senior managers through monthly **In Process Reviews** (IPR) and to the client on a periodic basis. The key is to have a communication plan that provides all the information team members need and avoids surprises.

Manage Risk. Risks are future conditions or circumstances that exist outside the control of the project team that will have an adverse impact on the project if they occur. Altarum project managers will develop a **Risk Management Plan** that identifies risks, prioritizes them, and develops mitigation and contingency strategies for the most important ones. A **Risk Register** will help track risks and provide a way to communicate risk status to the team.

Manage Human Resources. Altarum project managers understand that their staff is the key resource to making a project successful. Consequently, they use tools like the **Altarum Skills and Experience Database** and discussions with their senior managers to pick the best available staff for a project. In addition, training is planned to enhance existing skills and procedures are put in place to make staff as efficient and effective as possible. Communication tools like **Microsoft Communicator** or **Microsoft Sharepoint** are used by staff to access project and Institute resources to make them successful.

Manage Quality. Altarum project managers believe that quality is ultimately defined by the client and represents how close the project and deliverables come to meeting the client's requirements and expectations. The team will engage the client from the time they **Define the Work** until the deliverables are met, to ensure the client's expectations are met. The **Quality Management Plan** will guide the team with methods and tools to validate quality expectations are being met throughout the project. We will not wait until the end of the project to make this determination.

Manage Metrics. As a systems research Institute, Altarum appreciates the benefits of managing metrics. We are committed to not only tracking the necessary data to ensure a project stays on budget and on schedule, but we know the culture of project management can only gain strength through ***continuous process improvement***. We take the opportunity at the end of the project, and throughout, to assess how the project has gone. We take the lessons learned and improve the model.

Close the Project

Identify Lessons Learned. In the Metrics Management Plan, project managers establish the expectation that the team will improve the processes in the project. From an Institute perspective same thing. Altarum knows how valuable each project experience improving the way we conduct projects. That is why we have teams identify lessons learned that are then stored in an Institute and analyzed for potential improvements to the Altarum TenStep Management Model.

Altarum continuously we do the can be to project database Project

Close Project Deliverables. We take seriously the obligation Altarum

makes to meet the contractual deliverables. Our Manage Quality step ensures we are constantly evaluating how the project and deliverables are meeting client expectations. That process culminates with a final review to ensure all contract obligations have been met and deliverables have been turned over to the client and that they have met their quality expectations.

Securely Dispose of Data. If the project has used client data, Altarum will abide by all the laws and regulations and agreements that pertain. In addition, Altarum has its own policies and procedures that ensure staff are well trained in the handling of sensitive data.

Evaluate the Team. In addition to improving project processes and the Altarum project management model, we take the time to help our staff improve. Our evaluation process seeks to identify not only the outstanding work our staff do as individuals, but we assess how they work as a team. Project managers will give team members recommendations for improvement so they can progress in their Altarum careers. And, as a team member, we seek input from our clients so they can help our staff improve and so that the institute can perform even better the next time.

1.3 Staffing Plan

To maintain continuity of service to MDCH and DTMB, the Altarum Team is proposing the current team that supports MDSS maintenance and support:

- **Rick Keller** as Altarum Project Manager/Project Leader/Technical Lead will be the single point of contact (SPOC) for SOM staff and manage the Altarum Team members and deliverables;
- **Mike Grim** as Programmer/Analyst will handle design and development of major enhancements and maintenance and support duties;
- **Carolina Fulper** as Programmer/Analyst will handle design and development of major enhancements and maintenance and support duties;
- **Lakshmi Atluri** as Programmer/Analyst will help with on-going enhancements to the ELR environment, maintain existing data feeds, and support and maintain the MDSS;
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- **John Christensen** as Documentation Specialist/Technical Writer will create and deliver MDSS documentation and Help systems.
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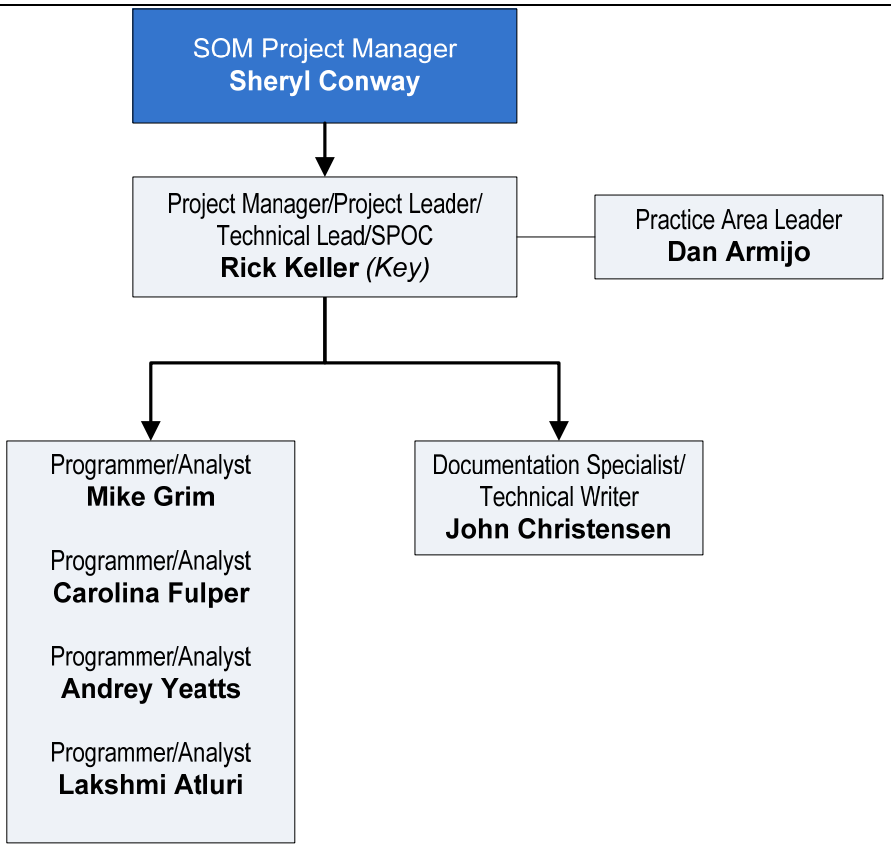

1.4 Project Schedule and Milestones

The project includes both defined deliverables and deliverables to be defined during the period of performance. The tables below list the known and expected deliverables.

Maintenance and Support Project Schedule and Milestones

Task	Role	Duration/Date
Orientation Meeting	SOM, Altarum	Within 10 calendar days of contract execution
Report Formats	Altarum	Within 15 business days of contract execution
Final Project Plan	Altarum	Within 20 working days of contract execution
Risk Management Plan Format	Altarum	Within 20 business days of contract execution
Performance Review Meetings	SOM, Altarum	Monthly for duration of the contract
Monthly Progress Reports (submitted with Monthly Invoice)	Altarum	Monthly for duration of the contract
Issue Log	Altarum	Submitted according to agreed-upon schedule
Risk Management Plan	Altarum	Submitted according to agreed-upon schedule
Update Documentation/Manuals	Altarum	Duration of the contract, as required
MDSS Maintenance	Altarum	Duration of the contract
MDSS Support	Altarum	Duration of the contract
MDSS On-Going Enhancements	Altarum	Duration of the contract
Lab 1 Addition Milestone	Altarum	Date will depend on the readiness of the hospital.
Lab 2 Addition Milestone	Altarum	Date will depend on the readiness of the hospital.
Lab 3 Addition Milestone	Altarum	Date will depend on the readiness of the hospital.
Lab 4 Addition Milestone	Altarum	Date will depend on the readiness of the hospital.

Example Future Enhancements Project Plan (all dates are preliminary and will depend on the exact enhancement being requested by the State)

Task	Role	Duration/Date
Requirements Gathering Phase	Altarum	6 weeks (begins after enhancement request is received from MDCH)
Requirements Document Milestone	Altarum	End of Requirements Phase
Project Enhancement Work Plan Milestone	Altarum	2 weeks (begins after Requirements Phase)
Design Phase	Altarum	6 weeks (begins after Requirements Phase)
Enhancement Design Document Milestone	Altarum	End of Design Phase
Development Phase	Altarum	16 weeks (begins after the Design Phase)
Testing Phase	Altarum	4 weeks (begins after the Development Phase)
Customer sign-off Milestone	MDCH	End of the Testing Phase
Implementation Plan Milestone	Altarum	1 week after customer sign-off
Implementation Phase	Altarum	3 weeks (begins after customer sign-off)
Installation Milestone	Altarum	End of the Implementation Phase

Mr. Keller will work with the State Project Managers to maintain and update the deliverables list as requirements are defined.

1.302 REPORTS

Reporting formats must be submitted to the State's Project Manager for approval within fifteen (15) business days after the execution of the contract resulting from this RFP. Once both parties have agreed to the format of the report, it shall become the standard to follow for the duration of the contract. Each monthly progress report will contain the following:

1. Project schedule status. Identify if the project is on schedule or if there is any deviation from the previously agreed upon schedule. If the project has deviated from the previously agreed upon schedule, identify the reason for deviation and areas effected by the deviation. Identify in detail the steps that will be taken to resolve the deviation. Also specify any schedule adjustments that have resulted from the deviation.
2. Activities of the past month. Summarize the actions taken and progress made on the project during the past month.
3. Activities of the following month. Summarize the actions planned for the following month in order to meet the project delivery and performance schedule requirements.
4. Deliverables. Identify deliverables delivered to MDCH in the past month and deliverables planned for delivery to MDCH in the following month.
5. Issues. Identify problems, difficulties, either anticipated or encountered, and suggested solutions.
6. Resolution of prior issues. Identify resolutions to issues identified in previous progress reports.
7. Percentage completed. Indicate the percentage completed for each task defined in the work plan during the past month, the total percentage completed for each task, total percentage completed for the development phase, and the total percentage completed for the project phase.

The monthly progress reports should be submitted along with monthly invoices.

The MDCH Project Manager will review the reports. The Vendor will respond within two business days (unless extenuating circumstances are approved by MDCH), in writing if requested by MDCH, to all questions and or follow-up issues identified by the MDSS Project Manager.

The Vendor will maintain progress and resource schedules for all tasks under this contract. The Vendor is responsible for tracking and reporting hours expended on each task.

All documentation prepared by the Vendor must:

1. Be submitted to MDCH in a Microsoft Word and/or Excel electronic format. Printed hard copies will be available to the state upon request. Alternative electronic formats must be mutually agreed upon by MDCH and the Vendor.
2. Contain a title page with the following information:
    a. Contract Number
    b. Contract Expiration Date
    c. Task Name (if applicable)
    d. Name of Contractor
    e. Contractor Project Director
    f. Date of Deliverable Or Report
    g. Time Period of Deliverable Or Report

All reports and deliverables to be furnished by the Vendor will be delivered to the MDCH Project Manager. The Vendor will inspect all reports and deliverables for accuracy and adequacy prior to delivery.

Altarum has five years of experience submitting monthly progress reports in the agreed-upon format. The reports contain the information required by the State's Project Managers to adequately monitor and track activities, issues, task status, and schedule deviations/causes/impacts. Mr. Keller will work with the SOM to ensure that our reports are satisfactory in content and format.

1.400 Project Management

1.401 ISSUE MANAGEMENT

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

The Contractor shall maintain an issue log for issues relating to the provision of services under this Contract. The issue management log must be communicated to the State's Project Manager on an agreed upon schedule, with email notifications and updates. The issue log must be updated and must contain the following minimum elements:

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

Issues shall be escalated for resolution from level 1 through level 3, as defined below:

Level 1 – Business leads
Level 2 – Project Managers
Level 3 – Executive Subject Matter Experts (SME's)

An issue is a formally-defined problem that will impede the progress—including schedule, scope, quality, or budget—of the project and cannot be totally resolved by the project leader and project team without outside help. The project team will take care of many problems on a daily basis. However, when a problem rises to the level of an "issue," it will be noted on an **Issues Log** and tracked until resolution. Updates on issues will be provided to the client on a regular basis.

1.402 RISK MANAGEMENT

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

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

A risk management plan format shall be submitted to the State for approval within twenty (20) business days after the effective date of the contract resulting from the upcoming RFP. The risk management plan will be developed during the initial planning phase of the project, and be in accordance with the State's PMM methodology. Once both parties have agreed to the format of the plan, it shall become the standard to follow for the duration of the contract. The plan must be updated bi-weekly, or as agreed upon.

The Contractor shall provide the tool to track risks. The Contractor will work with the State and allow input into the prioritization of risks.

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

Risks are future conditions or circumstances that exist outside the control of the project team that will have an adverse impact on the project if they occur. Mr. Keller will develop a **Risk Management Plan** that identifies risks, prioritizes them, and develops mitigation and contingency strategies for the most important ones. A **Risk Register** will help track risks and provide a way to communicate risk status to the team.

Mr. Keller will deliver a Risk Management Plan in a format satisfactory to the State within 20 business days of contract execution. Risks will be escalated to the State Project Managers as warranted, but the plan will be updated bi-weekly or as agreed upon.

1.403 CHANGE MANAGEMENT

Change management is defined as the process to communicate, assess, monitor, and control all changes to system resources and processes. The State also employs change management in its administration of the Contract.

If a proposed contract change is approved by the Agency, the Contract Administrator will submit a request for change to the Department of Technology, Management and Budget, Purchasing Operations Buyer, who will make recommendations to the Director of Purchasing Operations regarding ultimate approval/disapproval of change request. If the MDTMB Purchasing Operations Director agrees with the proposed modification, and all required approvals are obtained (including State Administrative Board), the Purchasing Operations Buyer will issue an addendum to the Contract, via a Contract Change Notice. **Contractors who provide products or services prior to the issuance of a Contract Change Notice by the MDTMB Purchasing Operations, risk non-payment for the out-of-scope/pricing products and/or services.**

The Contractor must employ change management procedures to handle such things as "out-of-scope" requests or changing business needs of the State while the migration is underway.

The Contractor will employ the change control methodologies to justify changes in the processing environment, and to ensure those changes will not adversely affect performance or availability.

Change on a project is inevitable. Even with all the planning in the "Plan the Project" phase of our management approach, there needs to be an orderly way to deal with change. The **Project Management Plan** will define the process for addressing changes to things like scope, requirements, schedule, or budget. Change requests will be tracked in a **Change Log** and will be analyzed for impacts to scope, schedule, and budget. Mr. Keller will discuss impacts with the State Project Managers and an agreement reached on the appropriate actions. Change actions will be recorded in the **Change Log** and updates to schedule and budget made to reflect approved impacts.

1.500 Acceptance

1.501 CRITERIA

Document Deliverables

Documents include, but not limited to, plans, design documents, project schedules, user guides, and procedure manuals. The following criteria apply to document deliverables:

1. Documents are dated and in electronic format, compatible with State of Michigan software in accordance with Article 1.302.
2. Requirements documents are reviewed and updated throughout the development process to assure requirements are delivered in final product.
3. Draft documents are not accepted as final deliverable.
4. The documents will be reviewed and accepted in accordance with the requirements of this contract and the accepted Vendor's proposal.
5. MDCH will review business documents for approval. Approvals will be written and signed by MDCH Project Manager. Unacceptable issues will be documented and submitted to the Vendor. After issues are resolved or waived, the Vendor will resubmit documents for approval.
6. MDTMB will review technical documents for approval. Approvals will be written and signed by MDTMB Project Manager. Unacceptable issues will be documented and submitted to the Vendor. After issues are resolved or waived, the Vendor will resubmit documents for approval.
7. MDCH and MDTMB will review project documents for approval. Approvals will be written and signed by both MDCH and MDTMB Project Managers. Unacceptable issues will be documented and submitted to the Vendor. After issues are resolved or waived, the Vendor will resubmit documents for approval.

Software Enhancement Deliverables

For deliverables as defined within Section 1.104, Software enhancements may include, but not limited to, software product, development tools, support tools, data migration software, integration software and installation software. The following criteria apply to software enhancement deliverables:

1. Beta software is not accepted as final deliverable.
2. MDCH and DTMB will review within two weeks the software enhancements for acceptance of functionality, usability, installation, performance, security, standards compliance, backup/recovery and operation. Approvals will be written and signed by MDCH and DTMB Project Managers. Unacceptable issues will be documented and submitted to the Vendor. After issues are resolved or waived, the Vendor will resubmit software for approval.
3. Software enhancements are installed and configured in appropriate environment (e.g. development test, staging test, production). Contingency plans and de-installation procedures and software are provided by Vendor and approved by the MDCH and DTMB Project Managers.
4. Vendor will successfully test MDSS software enhancements in the development test environment before moving the enhancement to the staging test environment for final software testing by MDCH and DTMB. Approvals will be written and signed by MDCH and DTMB Project Managers. Unacceptable issues will be documented and submitted to the Vendor. After issues are resolved or waived, the Vendor will resubmit test software, data and results for approval. Only after successful testing in the development and staging area will the enhancement be implemented in the production environment by DTMB staff.
5. Software source code, where applicable, is reviewed by DTMB for readability, structure, and configuration management. Approvals will be written and signed by DTMB Project Manager. Unacceptable issues will be documented and submitted to the Vendor. After issues are resolved or waived, the Vendor will resubmit source code for approval

.

Altarum understands the State's requirements for Software Enhancement Deliverables and is prepared to meet the criteria as described above.

1.502 FINAL ACCEPTANCE

The State shall accept all deliverables in accordance with the requirements detailed in Section 1.1.04. Please see section 2.250 for acceptance of deliverables.

1. All bills related to this contract will be submitted and approved for payment.

Altarum understands the State's requirements for final acceptance of deliverables and is prepared to meet the criteria as described in the referenced sections.

1.600 Compensation and Payment

1.601 COMPENSATION AND PAYMENT

State shall pay Vendor for work performed only as set forth in this SOW. Vendor shall provide all quotes by tasks and deliverables summarized in Article 1.101 In Scope and in the Work and Deliverables described in Article 1.104.

Contract is awarded on a fixed price. MDCH/MDTMB will reimburse the Vendor in accordance with the agreed upon cost schedule. All invoices should reflect actual work done. Specific details of invoices and payment will be agreed upon between MDCH/MDTMB and the Vendor after the proposed Contract Agreement has been signed and accepted by both the Vendor and the Director of Purchasing, Department of Management and Budget. This activity will occur only upon the specific written direction from the Acquisition Services.

MDCH/MDTMB will review all work for acceptance within 30 calendar days of completion and/or receipt. The Vendor will not be paid for any costs attributable to corrections of any errors or omissions that have been determined by the MDCH and MDTMB Project Mangers to be occasioned by the Vendor. Payments will not be made until work is accepted.

Method of Payment

Ongoing maintenance and support will be paid monthly. Vendor shall bill for future enhancements only upon the State's acceptance of final deliverables.

The Costs Table(s) attached must be used as the format for submitting pricing information.

Bidder's must complete the **Cost Table attached.** Altarum has complied with this requirement; please find our completed cost table attached to this response.

Travel

No travel or expenses will be reimbursed. This includes travel costs related to training provided to the State by Contractor. Travel time will not be reimbursed.

Out-of-Pocket Expenses

Contractor out-of-pocket expenses are not separately reimbursable by the State unless, on a case-by-case basis for unusual expenses, the State has agreed in advance and in writing to reimburse Contractor for such an expense at the State's current travel reimbursement rates.

If Contractor reduces its prices for any of the software or services during the term of this Contract, the State shall have the immediate benefit of such lower prices for new purchases. Contractor shall send notice to the State's MDTMB Contract Administrator with the reduced prices within fifteen (15) Business Days [or other appropriate time period] of the reduction taking effect. – OR – Contractor shall send updated prices to the State [quarterly/semi-annually].

Statements of Work and Issuance of Purchase Orders

- Unless otherwise agreed by the parties, each Statement of Work will include:
    1. Background
    2. Project Objective

3. Scope of Work
4. Deliverables
5. Acceptance Criteria
6. Project Control and Reports
7. Specific Department Standards
8. Payment Schedule
9. Travel and Expenses
10. Project Contacts
11. Location of Where the Work is to be performed
12. Expected Contractor Work Hours and Conditions

- The parties agree that the Services/Deliverables to be rendered by Contractor pursuant to this Contract (and any future amendments of it) will be defined and described in detail in Statements of Work or Purchase Orders (PO) executed under this Contract. Contractor shall not be obliged or authorized to commence any work to implement a Statement of Work until authorized via a PO issued against this Contract. Contractor shall perform in accordance with this Contract, including the Statements of Work/Purchase Orders executed under it.

Invoicing
Invoices must be received by the MDCH Project Manager by the 15th of each month. Contractor will submit properly itemized invoices to

MDCH MDSS Project Management
201 Townsend Street, 5th floor
PO Box 30195
Lansing, MI 48909
or
MDCH_MDSS@michigan.gov

. Invoices must provide and itemize, as applicable:

- Contract number;
- Purchase Order number
- Contractor name, address, phone number, and Federal Tax Identification Number;
- Description of any commodities/hardware, including quantity ordered;
- Date(s) of delivery and/or date(s) of installation and set up;
- Price for each item, or Contractor's list price for each item and applicable discounts;
- Maintenance charges;
- Net invoice price for each item;
- Shipping costs;
- Other applicable charges;
- Total invoice price; and
- Payment terms, including any available prompt payment discount.

The State may pay maintenance and support charges on a monthly basis, in arrears. Payment of maintenance service/support of less than one (1) month's duration shall be prorated at 1/30th of the basic monthly maintenance charges for each calendar day.

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

1.602 HOLDBACK - NA/RESERVED

Article 2, Terms and Conditions

2.000 Contract Structure and Term

2.001 CONTRACT TERM
This Contract is for a period of **5 years beginning (8/18/2011) through (8/17/2016).** All outstanding Purchase Orders must also expire upon the termination for any of the reasons listed in **Section 2.150** of the Contract, unless otherwise extended under the Contract. Absent an early termination for any reason, Purchase Orders issued but not expired, by the end of the Contract's stated term, shall remain in effect for the balance of the fiscal year for which they were issued.

2.002 OPTIONS TO RENEW
This Contract may be renewed in writing by mutual agreement of the parties not less than 30 days before its expiration. The Contract may be renewed for up to **2 additional 1 year periods.**

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

Except as otherwise agreed in writing by the parties, the State shall not be liable for costs incurred by Contractor or payment under this Contract, until Contractor is notified in writing that this Contract or Change Order has been approved by the State Administrative Board (if required), signed by all the parties and a Purchase Order against the Contract has been issued.

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

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

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

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

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

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

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

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

2.011 NO WAIVER OF DEFAULT
If a party fails to insist upon strict adherence to any term of the Contract then the party has not waived the right to later insist upon strict adherence to that term, or any other term, of the Contract.

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

2.020 Contract Administration

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

Reid Sisson
Steven T Mason Building
530 West Allegan Street
Lansing, MI 48913
517-241-1638
SissonR@michigan.gov

2.022 DELETED - NA

2.023 PROJECT MANAGER
The following individual will oversee the project:

Sheryl Conway
DTMB/Agency Services for DCH
Chandler Building
300 East Michigan Ave., 1st Floor
Lansing, MI
(517) 373-3137

ConwayS@michigan.gov

2.024 CHANGE REQUESTS

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

If the State requests or directs the Contractor to perform any Services/Deliverables that are outside the scope of the Contractor's responsibilities under the Contract ("New Work"), the Contractor must notify the State promptly before commencing performance of the requested activities it believes are New Work. If the Contractor fails to notify the State before commencing performance of the requested activities, any such activities performed before the Contractor gives notice shall be conclusively considered to be in-scope Services/Deliverables and not New Work.

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

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

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

(2) Contractor Recommendation for Change Requests:
Contractor shall be entitled to propose a Change to the State, on its own initiative, should Contractor believe the proposed Change would benefit the Contract.

(3) Upon receipt of a Change Request or on its own initiative, Contractor shall examine the implications of the requested Change on the technical specifications, Contract schedule and price of the Deliverables and Services and shall submit to the State without undue delay a written proposal for carrying out the Change. Contractor's proposal shall include any associated changes in the technical specifications, Contract schedule and price and method of pricing of the Services. If the Change is to be performed on a time and materials basis, the Amendment Labor Rates shall apply to the provision of such Services. If Contractor provides a written proposal and should Contractor be of the opinion that a requested Change is not to be recommended, it shall communicate its opinion to the State but shall nevertheless carry out the Change as specified in the written proposal if the State directs it to do so.

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

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

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

2.025 NOTICES

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

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

Contractor:
Altarum Institute
3520 Green Court, Suite 300
Ann Arbor, MI 48105
Attn: Kelly Belcher

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

2.026 BINDING COMMITMENTS

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

2.027 RELATIONSHIP OF THE PARTIES

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

2.028 COVENANT OF GOOD FAITH

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

2.029 ASSIGNMENTS

Neither party may assign the Contract, or assign or delegate any of its duties or obligations under the Contract, to any other party (whether by operation of law or otherwise), without the prior written consent of the other party; provided, however, that the State may assign the Contract to any other State agency, department, division or department without the prior consent of Contractor and Contractor may assign the Contract to an affiliate so long as the affiliate is adequately capitalized and can provide adequate assurances that the affiliate can perform the Contract. The State may withhold consent from proposed assignments, subcontracts, or

novations when the transfer of responsibility would operate to decrease the State's likelihood of receiving performance on the Contract or the State's ability to recover damages.

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

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

2.030 General Provisions

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

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

2.033 PERMITS
Contractor must obtain and pay any associated costs for all required governmental permits, licenses and approvals for the delivery, installation and performance of the Services. The State shall pay for all costs and expenses incurred in obtaining and maintaining any necessary easements or right of way.

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

2.035 FUTURE BIDDING PRECLUSION
Contractor acknowledges that, to the extent this Contract involves the creation, research, investigation or generation of a future RFP; it may be precluded from bidding on the subsequent RFP. The State reserves the right to disqualify any Bidder if the State determines that the Bidder has used its position (whether as an incumbent Contractor, or as a Contractor hired to assist with the RFP development, or as a Vendor offering free assistance) to gain a competitive advantage on the RFP

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

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

2.040 Financial Provisions

2.041 FIXED PRICES FOR SERVICES/DELIVERABLES

Each Statement of Work or Purchase Order issued under this Contract shall specify (or indicate by reference to the appropriate Contract Exhibit) the firm, fixed prices for all Services/Deliverables, and the associated payment milestones and payment amounts. The State may make progress payments to the Contractor when requested as work progresses, but not more frequently than monthly, in amounts approved by the Contract Administrator, after negotiation. Contractor shall show verification of measurable progress at the time of requesting progress payments.

2.042 ADJUSTMENTS FOR REDUCTIONS IN SCOPE OF SERVICES/DELIVERABLES

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

2.043 SERVICES/DELIVERABLES COVERED

The State shall not be obligated to pay any amounts in addition to the charges specified in this Contract for all Services/Deliverables to be provided by Contractor and its Subcontractors, if any, under this Contract,.

2.044 INVOICING AND PAYMENT – IN GENERAL

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

(b) Each Contractor invoice shall show details as to charges by Service/Deliverable component and location at a level of detail reasonably necessary to satisfy the State's accounting and charge-back requirements. Invoices for Services performed on a time and materials basis shall show, for each individual, the number of hours of Services performed during the billing period, the billable skill/labor category for such person and the applicable hourly billing rate. Prompt payment by the State is contingent on the Contractor's invoices showing the amount owed by the State minus any holdback amount to be retained by the State in accordance with **Section 1.600**.

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

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

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

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

2.045 PRO-RATION

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

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

2.047 FINAL PAYMENT
The making of final payment by the State to Contractor does not constitute a waiver by either party of any rights or other claims as to the other party's continuing obligations under the Contract, nor shall it constitute a waiver of any claims by one party against the other arising from unsettled claims or failure by a party to comply with this Contract, including claims for Services and Deliverables not reasonably known until after acceptance to be defective or substandard. Contractor's acceptance of final payment by the State under this Contract shall constitute a waiver of all claims by Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still unsettled.

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

2.050 Taxes

2.051 EMPLOYMENT TAXES
Contractor shall collect and pay all applicable federal, state, and local employment taxes, including the taxes.

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

2.060 Contract Management

2.061 CONTRACTOR PERSONNEL QUALIFICATIONS
All persons assigned by Contractor to the performance of Services under this Contract must be employees of Contractor or its majority-owned (directly or indirectly, at any tier) subsidiaries (or a State-approved Subcontractor) and must be fully qualified to perform the work assigned to them. Contractor must include a similar provision in any subcontract entered into with a Subcontractor. For the purposes of this Contract, independent contractors engaged by Contractor solely in a staff augmentation role must be treated by the State as if they were employees of Contractor for this Contract only; however, the State understands that the relationship between Contractor and Subcontractor is an independent contractor relationship.

2.062 CONTRACTOR KEY PERSONNEL
(a) The Contractor must provide the Contract Compliance Inspector with the names of the Key Personnel.
(b) Key Personnel must be dedicated as defined in the Statement of Work to the Project for its duration in the applicable Statement of Work with respect to other individuals designated as Key Personnel for that Statement of Work.

(c) The State shall have the right to recommend and approve in writing the initial assignment, as well as any proposed reassignment or replacement, of any Key Personnel. Before assigning an individual to any Key Personnel position, Contractor shall notify the State of the proposed assignment, shall introduce the individual to the appropriate State representatives, and shall provide the State with a resume and any other information about the individual reasonably requested by the State. The State reserves the right to interview the individual before granting written approval. In the event the State finds a proposed individual unacceptable, the State shall provide a written explanation including reasonable detail outlining the reasons for the rejection.

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

(e) The Contractor must notify the Contract Compliance Inspector and the Contract Administrator at least 10 business days before redeploying non-Key Personnel, who are dedicated to primarily to the Project, to other projects. If the State does not object to the redeployment by its scheduled date, the Contractor may then redeploy the non-Key Personnel.

2.063 RE-ASSIGNMENT OF PERSONNEL AT THE STATE'S REQUEST

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

2.064 CONTRACTOR PERSONNEL LOCATION

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

2.065 CONTRACTOR IDENTIFICATION

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

2.066 COOPERATION WITH THIRD PARTIES

Contractor agrees to cause its personnel and the personnel of any Subcontractors to cooperate with the State and its agents and other contractors including the State's Quality Assurance personnel. As reasonably requested by the State in writing, the Contractor shall provide to the State's agents and other contractors

reasonable access to Contractor's Project personnel, systems and facilities to the extent the access relates to activities specifically associated with this Contract and shall not interfere or jeopardize the safety or operation of the systems or facilities. The State acknowledges that Contractor's time schedule for the Contract is very specific and agrees not to unnecessarily or unreasonably interfere with, delay or otherwise impeded Contractor's performance under this Contract with the requests for access.

2.067 CONTRACT MANAGEMENT RESPONSIBILITIES

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

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

2.068 CONTRACTOR RETURN OF STATE EQUIPMENT/RESOURCES

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

2.070 Subcontracting by Contractor

2.071 CONTRACTOR FULL RESPONSIBILITY

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

2.072 STATE CONSENT TO DELEGATION

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

2.073 SUBCONTRACTOR BOUND TO CONTRACT

In any subcontracts entered into by Contractor for the performance of the Services, Contractor shall require the Subcontractor, to the extent of the Services to be performed by the Subcontractor, to be bound to Contractor by the terms of this Contract and to assume toward Contractor all of the obligations and responsibilities that Contractor, by this Contract, assumes toward the State. The State reserves the right to receive copies of and review all subcontracts, although Contractor may delete or mask any proprietary information, including pricing,

contained in such contracts before providing them to the State. The management of any Subcontractor shall be the responsibility of Contractor, and Contractor shall remain responsible for the performance of its Subcontractors to the same extent as if Contractor had not subcontracted such performance. Contractor shall make all payments to Subcontractors or suppliers of Contractor. Except as otherwise agreed in writing by the State and Contractor, the State shall not be obligated to direct payments for the Services other than to Contractor. The State's written approval of any Subcontractor engaged by Contractor to perform any obligation under this Contract shall not relieve Contractor of any obligations or performance required under this Contract. A list of the Subcontractors, if any, approved by the State as of the execution of this Contract, together with a copy of the applicable subcontract is attached.

2.074 FLOW DOWN

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

2.075 COMPETITIVE SELECTION

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

2.080 State Responsibilities

2.081 EQUIPMENT

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

2.082 FACILITIES

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

2.090 Security

2.091 BACKGROUND CHECKS

On a case-by-case basis, the State may investigate the Contractor's personnel before they may have access to State facilities and systems. The scope of the background check is at the discretion of the State and the results shall be used to determine Contractor personnel eligibility for working within State facilities and systems. The investigations shall include Michigan State Police Background checks (ICHAT) and may include the National Crime Information Center (NCIC) Finger Prints. Proposed Contractor personnel may be required to complete and submit an RI-8 Fingerprint Card for the NCIC Finger Print Check. Any request for background checks shall be initiated by the State and shall be reasonably related to the type of work requested.

All Contractor personnel shall also be expected to comply with the State's security and acceptable use policies for State IT equipment and resources. See http://www.michigan.gov/dtmb. Furthermore, Contractor personnel shall be expected to agree to the State's security and acceptable use policies before the Contractor personnel shall be accepted as a resource to perform work for the State. It is expected the Contractor shall present these documents to the prospective employee before the Contractor presents the individual to the State as a proposed resource. Contractor staff shall be expected to comply with all Physical Security procedures in place within the facilities where they are working.

2.092 SECURITY BREACH NOTIFICATION

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

2.093 PCI DATA SECURITY REQUIREMENTS

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

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

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

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

2.100 Confidentiality

2.101 CONFIDENTIALITY

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

2.102 PROTECTION AND DESTRUCTION OF CONFIDENTIAL INFORMATION

The State and Contractor shall each use at least the same degree of care to prevent disclosing to third parties the Confidential Information of the other as it employs to avoid unauthorized disclosure, publication or dissemination of its own confidential information of like character, but in no event less than reasonable care. Neither Contractor nor the State shall (i) make any use of the Confidential Information of the other except as contemplated by this Contract, (ii) acquire any right in or assert any lien against the Confidential Information of the other, or (iii) if requested to do so, refuse for any reason to promptly return the other party's Confidential Information to the other party. Each party shall limit disclosure of the other party’s Confidential Information to

employees and Subcontractors who must have access to fulfill the purposes of this Contract. Disclosure to, and use by, a Subcontractor is permissible where (A) use of a Subcontractor is authorized under this Contract, (B) the disclosure is necessary or otherwise naturally occurs in connection with work that is within the Subcontractor's scope of responsibility, and (C) Contractor obligates the Subcontractor in a written Contract to maintain the State's Confidential Information in confidence. At the State's request, any employee of Contractor and of any Subcontractor having access or continued access to the State's Confidential Information may be required to execute an acknowledgment that the employee has been advised of Contractor's and the Subcontractor's obligations under this Section and of the employee's obligation to Contractor or Subcontractor, as the case may be, to protect the Confidential Information from unauthorized use or disclosure.

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

2.103 EXCLUSIONS

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

2.104 NO IMPLIED RIGHTS

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

2.105 RESPECTIVE OBLIGATIONS

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

2.110 Records and Inspections

2.111 INSPECTION OF WORK PERFORMED

The State's authorized representatives shall at all reasonable times and with 10 days prior written request, have the right to enter Contractor's premises, or any other places, where the Services are being performed, and shall have access, upon reasonable request, to interim drafts of Deliverables or work-in-progress. Upon 10 Days prior written notice and at all reasonable times, the State's representatives shall be allowed to inspect, monitor, or otherwise evaluate the work being performed and to the extent that the access will not reasonably interfere or jeopardize the safety or operation of the systems or facilities. Contractor shall provide all reasonable facilities and assistance for the State's representatives.

2.112 EXAMINATION OF RECORDS

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

accounts, documents and papers, in print or electronic form, of any parent, affiliated or subsidiary organization of Contractor, or any Subcontractor of Contractor performing services in connection with the Contract.

2.113 RETENTION OF RECORDS

Contractor shall maintain at least until the end of the Audit Period all pertinent financial and accounting records (including time sheets and payroll records, and information pertaining to the Contract and to the Services, equipment, and commodities provided under the Contract) pertaining to the Contract according to generally accepted accounting principles and other procedures specified in this Section. Financial and accounting records shall be made available, upon request, to the State at any time during the Audit Period. If an audit, litigation, or other action involving Contractor's records is initiated before the end of the Audit Period, the records shall be retained until all issues arising out of the audit, litigation, or other action are resolved or until the end of the Audit Period, whichever is later.

2.114 AUDIT RESOLUTION

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

2.115 ERRORS

If the audit demonstrates any errors in the documents provided to the State, then the amount in error shall be reflected as a credit or debit on the next invoice and in subsequent invoices until the amount is paid or refunded in full. However, a credit or debit may not be carried for more than four invoices. If a balance remains after four invoices, then the remaining amount shall be due as a payment or refund within 45 days of the last quarterly invoice that the balance appeared on or termination of the contract, whichever is earlier.

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

2.120 Warranties

2.121 WARRANTIES AND REPRESENTATIONS

The Contractor represents and warrants:

(a) It is capable in all respects of fulfilling and must fulfill all of its obligations under this Contract. The performance of all obligations under this Contract must be provided in a timely, professional, and workman-like manner and must meet the performance and operational standards required under this Contract.

(b) The Contract Appendices, Attachments and Exhibits identify the equipment and software and services necessary for the Deliverable(s) to perform and Services to operate in compliance with the Contract's requirements and other standards of performance.

(c) It is the lawful owner or licensee of any Deliverable licensed or sold to the State by Contractor or developed by Contractor under this Contract, and Contractor has all of the rights necessary to convey to the State the ownership rights or licensed use, as applicable, of any and all Deliverables. None of the Deliverables provided by Contractor to the State under neither this Contract, nor their use by the State shall infringe the patent, copyright, trade secret, or other proprietary rights of any third party.

(d) If, under this Contract, Contractor procures any equipment, software or other Deliverable for the State (including equipment, software and other Deliverables manufactured, re-marketed or otherwise sold by Contractor under Contractor's name), then in addition to Contractor's other responsibilities with respect to the items in this Contract, Contractor must assign or otherwise transfer to the State or its designees, or afford the State the benefits of, any manufacturer's warranty for the Deliverable.

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

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

(g) Neither the Contractor nor any Affiliates, nor any employee of either, has, must have, or must acquire, any contractual, financial, business, or other interest, direct or indirect, that would conflict in any manner or degree with Contractor's performance of its duties and responsibilities to the State under this Contract or otherwise create an appearance of impropriety with respect to the award or performance of this Agreement. Contractor must notify the State about the nature of the conflict or appearance of impropriety within two days of learning about it.

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

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

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

(k) All financial statements, reports, and other information furnished by Contractor to the State as part of its response to the RFP or otherwise in connection with the award of this Contract fairly and accurately represent the business, properties, financial condition, and results of operations of Contractor as of the respective dates, or for the respective periods, covered by the financial statements, reports, other information. Since the respective dates or periods covered by the financial statements, reports, or other information, there have been no material adverse changes in the business, properties, financial condition, or results of operations of Contractor.

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

(m) It is not in material default or breach of any other contract or agreement that it may have with the State or any of its departments, commissions, boards, or agencies. Contractor further represents and warrants that it has not been a party to any contract with the State or any of its departments that was terminated by the State or the department within the previous five years for the reason that Contractor failed to perform or otherwise breached an obligation of the contract.

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

2.122 WARRANTY OF MERCHANTABILITY

Goods provided by Contractor under this agreement shall be merchantable. All goods provided under this Contract shall be of good quality within the description given by the State, shall be fit for their ordinary purpose, shall be adequately contained and packaged within the description given by the State, shall conform to the agreed upon specifications, and shall conform to the affirmations of fact made by the Contractor or on the container or label.

2.123 WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE

When the Contractor has reason to know or knows any particular purpose for which the goods are required, and the State is relying on the Contractor's skill or judgment to select or furnish suitable goods, there is a warranty that the goods are fit for such purpose.

2.124 WARRANTY OF TITLE

Contractor shall, in providing goods to the State, convey good title in those goods, whose transfer is right and lawful. All goods provided by Contractor shall be delivered free from any security interest, lien, or encumbrance of which the State, at the time of contracting, has no knowledge. Goods provided by Contractor,

under this Contract, shall be delivered free of any rightful claim of any third person by of infringement or the like.

2.125 EQUIPMENT WARRANTY

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

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

Within 20 business days of notification from the State, the Contractor must adjust, repair or replace all equipment that is defective or not performing in compliance with the Contract. The Contractor must assume all costs for replacing parts or units and their installation including transportation and delivery fees, if any.

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

The Contractor agrees that all warranty service it provides under this Contract must be performed by Original Equipment Manufacturer (OEM) trained, certified and authorized technicians.

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

2.126 EQUIPMENT TO BE NEW

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

2.127 PROHIBITED PRODUCTS

The State will not accept salvage, distressed, outdated or discontinued merchandise. Shipping of such merchandise to any State agency, as a result of an order placed against the Contract, shall be considered default by the Contractor of the terms and conditions of the Contract and may result in cancellation of the Contract by the State. The brand and product number offered for all items shall remain consistent for the term of the Contract, unless Purchasing Operations has approved a change order pursuant to **Section 2.024**.

2.128 CONSEQUENCES FOR BREACH

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

2.130 Insurance

2.131 LIABILITY INSURANCE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2.132 SUBCONTRACTOR INSURANCE COVERAGE

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

2.133 CERTIFICATES OF INSURANCE AND OTHER REQUIREMENTS

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

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

has given the Contractor at least 30 days written notice, pay the premium or procure similar insurance coverage from another company or companies. The State may deduct any part of the cost from any payment due the Contractor, or the Contractor must pay that cost upon demand by the State.

2.140 Indemnification

2.141 GENERAL INDEMNIFICATION

To the extent permitted by law, the Contractor must indemnify, defend and hold harmless the State from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties), accruing or resulting to any person, firm or corporation that may be injured or damaged by the Contractor in the performance of this Contract and that are attributable to the negligence or tortious acts of the Contractor or any of its subcontractors, or by anyone else for whose acts any of them may be liable.

2.142 CODE INDEMNIFICATION

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

2.143 EMPLOYEE INDEMNIFICATION

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

2.144 PATENT/COPYRIGHT INFRINGEMENT INDEMNIFICATION

To the extent permitted by law, the Contractor must indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that the action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Contractor or its subcontractors, or the operation of the equipment, software, commodity or service, or the use or reproduction of any documentation provided with the equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or service, or its operation, become or in the State's or Contractor's opinion be likely to become the subject of a claim of infringement, the Contractor must at the Contractor's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if the option is not reasonably available to the Contractor, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if the option is not reasonably available to Contractor, (iii) accept its return by the State with appropriate credits to the State against the Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

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

2.145 CONTINUATION OF INDEMNIFICATION OBLIGATIONS

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

2.146 INDEMNIFICATION PROCEDURES

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

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

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

(c) If Contractor does not deliver a Notice of Election relating to any claim of which it is notified by the State as provided above, the State may defend the claim in the manner as it may deem appropriate, at the cost and expense of Contractor. If it is determined that the claim was one against which Contractor was required to indemnify the State, upon request of the State, Contractor must promptly reimburse the State for all the reasonable costs and expenses.

2.150 Termination/Cancellation

2.151 NOTICE AND RIGHT TO CURE

If the Contractor breaches the contract, and the State in its sole discretion determines that the breach is curable, then the State shall provide the Contractor with written notice of the breach and a time period (not less than 30 days) to cure the Breach. The notice of breach and opportunity to cure is inapplicable for successive or repeated breaches or if the State determines in its sole discretion that the breach poses a serious and imminent threat to the health or safety of any person or the imminent loss, damage, or destruction of any real or tangible personal property.

2.152 TERMINATION FOR CAUSE

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

(b) If this Contract is terminated for cause, the Contractor must pay all costs incurred by the State in terminating this Contract, including but not limited to, State administrative costs, reasonable attorneys' fees and court costs, and any reasonable additional costs the State may incur to procure the Services/Deliverables required by this Contract from other sources. Re-procurement costs are not consequential, indirect or incidental damages, and cannot be excluded by any other terms otherwise included in this Contract, provided the costs are not in excess of 50% more than the prices for the Service/Deliverables provided under this Contract.

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

(d) If the State terminates this Contract for cause under this Section, and it is determined, for any reason, that Contractor was not in breach of contract under the provisions of this section, that termination for cause must be deemed to have been a termination for convenience, effective as of the same date, and the rights and obligations of the parties must be limited to that otherwise provided in this Contract for a termination for convenience.

2.153 TERMINATION FOR CONVENIENCE

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

2.154 TERMINATION FOR NON-APPROPRIATION

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

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

(c) If the State terminates this Contract, eliminates certain Deliverables, or reduces the level of Services to be provided by Contractor under this Section, the State must pay Contractor for all Work-in-Process performed through the effective date of the termination or reduction in level, as the case may be and as

determined by the State, to the extent funds are available. This Section shall not preclude Contractor from reducing or stopping Services/Deliverables or raising against the State in a court of competent jurisdiction, any claim for a shortfall in payment for Services performed or Deliverables finally accepted before the effective date of termination.

2.155 TERMINATION FOR CRIMINAL CONVICTION

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

2.156 TERMINATION FOR APPROVALS RESCINDED

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

2.157 RIGHTS AND OBLIGATIONS UPON TERMINATION

(a) If the State terminates this Contract for any reason, the Contractor must (a) stop all work as specified in the notice of termination, (b) take any action that may be necessary, or that the State may direct, for preservation and protection of Deliverables or other property derived or resulting from this Contract that may be in Contractor's possession, (c) return all materials and property provided directly or indirectly to Contractor by any entity, agent or employee of the State, (d) transfer title in, and deliver to, the State, unless otherwise directed, all Deliverables intended to be transferred to the State at the termination of the Contract and which are resulting from the Contract (which must be provided to the State on an "As-Is" basis except to the extent the amounts paid by the State in respect of the items included compensation to Contractor for the provision of warranty services in respect of the materials), and (e) take any action to mitigate and limit any potential damages, or requests for Contractor adjustment or termination settlement costs, to the maximum practical extent, including terminating or limiting as otherwise applicable those subcontracts and outstanding orders for material and supplies resulting from the terminated Contract.

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

(c) Upon a good faith termination, the State may assume, at its option, any subcontracts and agreements for services and deliverables provided under this Contract, and may further pursue completion of the Services/Deliverables under this Contract by replacement contract or otherwise as the State may in its sole judgment deem expedient.

2.158 RESERVATION OF RIGHTS

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

2.160 Termination by Contractor

2.161 TERMINATION BY CONTRACTOR

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

The Contractor may terminate this Contract if the State (i) materially breaches its obligation to pay the Contractor undisputed amounts due and owing under this Contract, (ii) breaches its other obligations under this Contract to an extent that makes it impossible or commercially impractical for the Contractor to perform the Services, or (iii) does not cure the breach within the time period specified in a written notice of breach. But the Contractor must discharge its obligations under **Section 2.160** before it terminates the Contract.

2.170 Transition Responsibilities

2.171 CONTRACTOR TRANSITION RESPONSIBILITIES

If the State terminates this contract, for convenience or cause, or if the Contract is otherwise dissolved, voided, rescinded, nullified, expires or rendered unenforceable, the Contractor shall comply with direction provided by the State to assist in the orderly transition of equipment, services, software, leases, etc. to the State or a third party designated by the State. If this Contract expires or terminates, the Contractor agrees to make all reasonable efforts to effect an orderly transition of services within a reasonable period of time that in no event will exceed ninety (90) days. These efforts must include, but are not limited to, those listed in **Section 2.150.**

2.172 CONTRACTOR PERSONNEL TRANSITION

The Contractor shall work with the State, or a specified third party, to develop a transition plan setting forth the specific tasks and schedule to be accomplished by the parties, to effect an orderly transition. The Contractor must allow as many personnel as practicable to remain on the job to help the State, or a specified third party, maintain the continuity and consistency of the services required by this Contract. In addition, during or following the transition period, in the event the State requires the Services of the Contractor's subcontractors or vendors, as necessary to meet its needs, Contractor agrees to reasonably, and with good-faith, work with the State to use the Services of Contractor's subcontractors or vendors. Contractor will notify all of Contractor's subcontractors of procedures to be followed during transition.

2.173 CONTRACTOR INFORMATION TRANSITION

The Contractor shall provide reasonable detailed specifications for all Services/Deliverables needed by the State, or specified third party, to properly provide the Services/Deliverables required under this Contract. The Contractor will provide the State with asset management data generated from the inception of this Contract through the date on which this Contractor is terminated in a comma-delineated format unless otherwise requested by the State. The Contractor will deliver to the State any remaining owed reports and documentation still in Contractor's possession subject to appropriate payment by the State.

2.174 CONTRACTOR SOFTWARE TRANSITION

The Contractor shall reasonably assist the State in the acquisition of any Contractor software required to perform the Services/use the Deliverables under this Contract. This must include any documentation being used by the Contractor to perform the Services under this Contract. If the State transfers any software licenses to the Contractor, those licenses must, upon expiration of the Contract, transfer back to the State at their current revision level. Upon notification by the State, Contractor may be required to freeze all non-critical changes to Deliverables/Services.

2.175 TRANSITION PAYMENTS

If the transition results from a termination for any reason, the termination provisions of this Contract must govern reimbursement. If the transition results from expiration, the Contractor will be reimbursed for all reasonable transition costs (i.e. costs incurred within the agreed period after contract expiration that result from transition operations) at the rates agreed upon by the State. The Contractor will prepare an accurate accounting from which the State and Contractor may reconcile all outstanding accounts.

2.176 STATE TRANSITION RESPONSIBILITIES

In the event that this Contract is terminated, dissolved, voided, rescinded, nullified, or otherwise rendered unenforceable, the State agrees to reconcile all accounts between the State and the Contractor, complete any pending post-project reviews and perform any others obligations upon which the State and the Contractor agree.

(a) Reconciling all accounts between the State and the Contractor;
(b) Completing any pending post-project reviews.

2.180 Stop Work

2.181 STOP WORK ORDERS

The State may, at any time, by written Stop Work Order to Contractor, require that Contractor stop all, or any part, of the work called for by the Contract for a period of up to 90 calendar days after the Stop Work Order is delivered to Contractor, and for any further period to which the parties may agree. The Stop Work Order must be identified as a Stop Work Order and must indicate that it is issued under this **Section**. Upon receipt of the stop work order, Contractor must immediately comply with its terms and take all reasonable steps to minimize incurring costs allocable to the work covered by the Stop Work Order during the period of work stoppage. Within the period of the stop work order, the State must either: (a) cancel the stop work order; or (b) terminate the work covered by the Stop Work Order as provided in **Section 2.182**.

2.182 CANCELLATION OR EXPIRATION OF STOP WORK ORDER

The Contractor shall resume work if the State cancels a Stop Work Order or if it expires. The parties shall agree upon an equitable adjustment in the delivery schedule, the Contract price, or both, and the Contract shall be modified, in writing, accordingly, if: (a) the Stop Work Order results in an increase in the time required for, or in Contractor's costs properly allocable to, the performance of any part of the Contract; and (b) Contractor asserts its right to an equitable adjustment within 30 calendar days after the end of the period of work stoppage; provided that, if the State decides the facts justify the action, the State may receive and act upon a Contractor proposal submitted at any time before final payment under the Contract. Any adjustment will conform to the requirements of **Section 2.024**.

2.183 ALLOWANCE OF CONTRACTOR COSTS

If the Stop Work Order is not canceled and the work covered by the Stop Work Order is terminated for reasons other than material breach, the termination shall be deemed to be a termination for convenience under **Section 2.153**, and the State shall pay reasonable costs resulting from the Stop Work Order in arriving at the termination settlement. For the avoidance of doubt, the State shall not be liable to Contractor for loss of profits because of a Stop Work Order issued under this Section**.**

2.190 Dispute Resolution

2.191 IN GENERAL

Any claim, counterclaim, or dispute between the State and Contractor arising out of or relating to the Contract or any Statement of Work must be resolved as follows. For all Contractor claims seeking an increase in the amounts payable to Contractor under the Contract, or the time for Contractor's performance, Contractor must submit a letter, together with all data supporting the claims, executed by Contractor's Contract Administrator or the Contract Administrator's designee certifying that (a) the claim is made in good faith, (b) the amount claimed accurately reflects the adjustments in the amounts payable to Contractor or the time for Contractor's performance for which Contractor believes the State is liable and covers all costs of every type to which Contractor is entitled from the occurrence of the claimed event, and (c) the claim and the supporting data are current and complete to Contractor's best knowledge and belief.

2.192 INFORMAL DISPUTE RESOLUTION

(a) All disputes between the parties shall be resolved under the Contract Management procedures in this Contract. If the parties are unable to resolve any dispute after compliance with the processes, the parties must meet with the Director of Purchasing Operations, DTMB, or designee, to resolve the dispute without the need for formal legal proceedings, as follows:

(1) The representatives of Contractor and the State must meet as often as the parties reasonably deem necessary to gather and furnish to each other all information with respect to the matter at issue which the parties believe to be appropriate and germane in connection with its resolution. The representatives shall discuss the problem and negotiate in good faith in an effort to resolve the dispute without the necessity of any formal proceeding.

(2) During the course of negotiations, all reasonable requests made by one party to another for non-privileged information reasonably related to the Contract shall be honored in order that each of the parties may be fully advised of the other's position.

(3) The specific format for the discussions shall be left to the discretion of the designated State and Contractor representatives, but may include the preparation of agreed upon statements of fact or written statements of position.
(4) Following the completion of this process within 60 calendar days, the Director of Purchasing Operations, DTMB, or designee, shall issue a written opinion regarding the issue(s) in dispute within 30 calendar days. The opinion regarding the dispute must be considered the State's final action and the exhaustion of administrative remedies.
(b) This Section shall not be construed to prevent either party from instituting, and a party is authorized to institute, formal proceedings earlier to avoid the expiration of any applicable limitations period, to preserve a superior position with respect to other creditors, or under Section 2.193.
(c) The State shall not mediate disputes between the Contractor and any other entity, except state agencies, concerning responsibility for performance of work under the Contract.

2.193 INJUNCTIVE RELIEF
The only circumstance in which disputes between the State and Contractor shall not be subject to the provisions of **Section 2.192** is where a party makes a good faith determination that a breach of the terms of the Contract by the other party is that the damages to the party resulting from the breach shall be so immediate, so large or severe and so incapable of adequate redress after the fact that a temporary restraining order or other immediate injunctive relief is the only adequate remedy.

2.194 CONTINUED PERFORMANCE
Each party agrees to continue performing its obligations under the Contract while a dispute is being resolved except to the extent the issue in dispute precludes performance (dispute over payment must not be deemed to preclude performance) and without limiting either party's right to terminate the Contract as provided in **Section 2.150**, as the case may be.

2.200 Federal and State Contract Requirements

2.201 NONDISCRIMINATION
In the performance of the Contract, Contractor agrees not to discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, religion, national origin, ancestry, age, sex, height, weight, and marital status, physical or mental disability. Contractor further agrees that every subcontract entered into for the performance of this Contract or any purchase order resulting from this Contract will contain a provision requiring non-discrimination in employment, as specified here, binding upon each Subcontractor. This covenant is required under the Elliot Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, et seq., and the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, et seq., and any breach of this provision may be regarded as a material breach of the Contract.

2.202 UNFAIR LABOR PRACTICES
Under 1980 PA 278, MCL 423.321, et seq., the State shall not award a Contract or subcontract to an employer whose name appears in the current register of employers failing to correct an unfair labor practice compiled under section 2 of the Act. This information is compiled by the United States National Labor Relations Board. A Contractor of the State, in relation to the Contract, shall not enter into a contract with a Subcontractor, manufacturer, or supplier whose name appears in this register. Under section 4 of 1980 PA 278, MCL 423.324, the State may void any Contract if, after award of the Contract, the name of Contractor as an employer or the name of the Subcontractor, manufacturer or supplier of Contractor appears in the register.

2.203 WORKPLACE SAFETY AND DISCRIMINATORY HARASSMENT
In performing Services for the State, the Contractor shall comply with the Department of Civil Services Rule 2-20 regarding Workplace Safety and Rule 1-8.3 regarding Discriminatory Harassment. In addition, the Contractor shall comply with Civil Service regulations and any applicable agency rules provided to the Contractor. For Civil Service Rules, see http://www.mi.gov/mdcs/0,1607,7-147-6877---,00.html.

2.204 PREVAILING WAGE

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

The Contractor, its subcontractors, their subcontractors and all persons involved with the performance of this contract in privity of contract with the Contractor shall keep posted on the work site, in a conspicuous place, a copy of all wage rates and fringe benefits as prescribed in the Contract. Contractor shall also post, in a conspicuous place, the address and telephone number of the Michigan Department of Labor and Economic Development, the agency responsible for enforcement of the wage rates and fringe benefits. Contractor shall keep an accurate record showing the name and occupation of the actual wage and benefits paid to each individual employed in connection with this contract. This record shall be available to the State upon request for reasonable inspection.

If any trade is omitted from the list of wage rates and fringe benefits to be paid to each class of individuals by the Contractor, it is understood that the trades omitted shall also be paid not less than the wage rate and fringe benefits prevailing in the local where the work is to be performed.

2.210 Governing Law

2.211 GOVERNING LAW

The Contract shall in all respects be governed by, and construed according to, the substantive laws of the State of Michigan without regard to any Michigan choice of law rules that would apply the substantive law of any other jurisdiction to the extent not inconsistent with, or pre-empted by federal law.

2.212 COMPLIANCE WITH LAWS

Contractor shall comply with all applicable state, federal and local laws and ordinances in providing the Services/Deliverables.

2.213 JURISDICTION

Any dispute arising from the Contract shall be resolved in the State of Michigan. With respect to any claim between the parties, Contractor consents to venue in Ingham County, Michigan, and irrevocably waives any objections it may have to the jurisdiction on the grounds of lack of personal jurisdiction of the court or the laying of venue of the court or on the basis of forum non conveniens or otherwise. Contractor agrees to appoint agents in the State of Michigan to receive service of process.

2.220 Limitation of Liability

2.221 LIMITATION OF LIABILITY

Neither the Contractor nor the State shall be liable to each other, regardless of the form of action, for consequential, incidental, indirect, or special damages. This limitation of liability does not apply to claims for infringement of United States patent, copyright, trademark or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

The Contractor's liability for damages to the State is limited to two times the value of the Contract or $500,000 whichever is higher. The foregoing limitation of liability does not apply to claims for infringement of United States patent, copyright, trademarks or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

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

2.230 Disclosure Responsibilities

2.231 DISCLOSURE OF LITIGATION

Contractor shall disclose any material criminal litigation, investigations or proceedings involving the Contractor (and each Subcontractor) or any of its officers or directors or any litigation, investigations or proceedings under the Sarbanes-Oxley Act. In addition, each Contractor (and each Subcontractor) shall notify the State of any material civil litigation, arbitration or proceeding which arises during the term of the Contract and extensions, to which Contractor (or, to the extent Contractor is aware, any Subcontractor) is a party, and which involves: (i) disputes that might reasonably be expected to adversely affect the viability or financial stability of Contractor or any Subcontractor; or (ii) a claim or written allegation of fraud against Contractor or, to the extent Contractor is aware, any Subcontractor by a governmental or public entity arising out of their business dealings with governmental or public entities. The Contractor shall disclose in writing to the Contract Administrator any litigation, investigation, arbitration or other proceeding (collectively, "Proceeding") within 30 days of its occurrence. Details of settlements that are prevented from disclosure by the terms of the settlement may be annotated. Information provided to the State from Contractor's publicly filed documents referencing its material litigation shall be deemed to satisfy the requirements of this Section.

If any Proceeding disclosed to the State under this Section, or of which the State otherwise becomes aware, during the term of this Contract would cause a reasonable party to be concerned about:

(a) the ability of Contractor (or a Subcontractor) to continue to perform this Contract according to its terms and conditions, or

(b) whether Contractor (or a Subcontractor) in performing Services for the State is engaged in conduct which is similar in nature to conduct alleged in the Proceeding, which conduct would constitute a breach of this Contract or a violation of Michigan law, regulations or public policy, then the Contractor must provide the State all reasonable assurances requested by the State to demonstrate that:
   (1) Contractor and its Subcontractors will be able to continue to perform this Contract and any Statements of Work according to its terms and conditions, and
   (2) Contractor and its Subcontractors have not and will not engage in conduct in performing the Services which is similar in nature to the conduct alleged in the Proceeding.

(c) Contractor shall make the following notifications in writing:
   (1) Within 30 days of Contractor becoming aware that a change in its ownership or officers has occurred, or is certain to occur, or a change that could result in changes in the valuation of its capitalized assets in the accounting records, Contractor must notify MDTMB Purchasing Operations.
   (2) Contractor shall also notify MDTMB Purchasing Operations within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership or officers.
   (3) Contractor shall also notify MDTMB Purchase Operations within 30 days whenever changes to company affiliations occur.

2.232 CALL CENTER DISCLOSURE

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

2.233 BANKRUPTCY

The State may, without prejudice to any other right or remedy, terminate this Contract, in whole or in part, and, at its option, may take possession of the "Work in Process" and finish the Works in Process by whatever appropriate method the State may deem expedient if:

(a) the Contractor files for protection under the bankruptcy laws;

(b) an involuntary petition is filed against the Contractor and not removed within 30 days;

(c the Contractor becomes insolvent or if a receiver is appointed due to the Contractor's insolvency;

(d) the Contractor makes a general assignment for the benefit of creditors; or

(e) the Contractor or its affiliates are unable to provide reasonable assurances that the Contractor or its affiliates can deliver the services under this Contract.

Contractor will fix appropriate notices or labels on the Work in Process to indicate ownership by the State. To the extent reasonably possible, materials and Work in Process shall be stored separately from other stock and marked conspicuously with labels indicating ownership by the State.

2.240 Performance

2.241 TIME OF PERFORMANCE

(a) Contractor shall use commercially reasonable efforts to provide the resources necessary to complete all Services and Deliverables according to the time schedules contained in the Statements of Work and other Exhibits governing the work, and with professional quality.

(b) Without limiting the generality of **Section 2.241,** Contractor shall notify the State in a timely manner upon becoming aware of any circumstances that may reasonably be expected to jeopardize the timely and successful completion of any Deliverables/Services on the scheduled due dates in the latest State-approved delivery schedule and must inform the State of the projected actual delivery date.

(c) If the Contractor believes that a delay in performance by the State has caused or will cause the Contractor to be unable to perform its obligations according to specified Contract time periods, the Contractor must notify the State in a timely manner and must use commercially reasonable efforts to perform its obligations according to the Contract time periods notwithstanding the State's failure. Contractor will not be in default for a delay in performance to the extent the delay is caused by the State.

2.242 SERVICE LEVEL AGREEMENT (SLA)

(a) SLAs will be completed with the following operational considerations:

(1) SLAs will not be calculated for individual Incidents where any event of Excusable Failure has been determined; Incident means any interruption in Services.

(2) SLAs will not be calculated for individual Incidents where loss of service is planned and where the State has received prior notification or coordination.

(3) SLAs will not apply if the applicable Incident could have been prevented through planning proposed by Contractor and not implemented at the request of the State. To invoke this consideration, complete documentation relevant to the denied planning proposal must be presented to substantiate the proposal.

(4) Time period measurements will be based on the time Incidents are received by the Contractor and the time that the State receives notification of resolution based on 24x7x365 time period, except that the time period measurement will be suspended based on the following:

(i) Time period(s) will not apply where Contractor does not have access to a physical State Location and where access to the State Location is necessary for problem identification and resolution.

(ii) Time period(s) will not apply where Contractor needs to obtain timely and accurate information or appropriate feedback and is unable to obtain timely and accurate information or appropriate feedback from the State.

(b) Chronic Failure for any Service(s) will be defined as three unscheduled outage(s) or interruption(s) on any individual Service for the same reason or cause or if the same reason or cause was reasonably discoverable in the first instance over a rolling 30 day period. Chronic Failure will result in the State's option to terminate the effected individual Service(s) and procure them from a different vendor for the chronic location(s) with Contractor to pay the difference in charges for up to three additional months. The termination of the Service will not affect any tiered pricing levels.

(c) Root Cause Analysis will be performed on any Business Critical outage(s) or outage(s) on Services when requested by the Contract Administrator. Contractor will provide its analysis within two weeks of outage(s) and provide a recommendation for resolution.

(d) All decimals must be rounded to two decimal places with five and greater rounding up and four and less rounding down unless otherwise specified.

2.243 LIQUIDATED DAMAGES

The parties acknowledge that late or improper completion of the Work will cause loss and damage to the State, and that it would be impracticable and extremely difficult to fix the actual damage sustained by the State as a result. Therefore, Contractor and the State agree that if there is late or improper completion of the Work and the State does not elect to exercise its rights under **Section 2.152**, the State is entitled to collect liquidated damages in the amount of $5,000.00 and an additional $100.00 per day for each day Contractor fails to remedy the late or improper completion of the Work.

Unauthorized Removal of any Key Personnel
It is acknowledged that an Unauthorized Removal will interfere with the timely and proper completion of the Contract, to the loss and damage of the State, and that it would be impracticable and extremely difficult to fix the actual damage sustained by the State as a result of any Unauthorized Removal. Therefore, Contractor and the State agree that in the case of any Unauthorized Removal in respect of which the State does not elect to exercise its rights under **Section 2.152**, the State may assess liquidated damages against Contractor as specified below.

For the Unauthorized Removal of any Key Personnel designated in the applicable Statement of Work, the liquidated damages amount is $25,000.00 per individual if the Contractor identifies a replacement approved by the State under **Section 2.060** and assigns the replacement to the Project to shadow the Key Personnel who is leaving for a period of at least 30 days before the Key Personnel's removal.

If Contractor fails to assign a replacement to shadow the removed Key Personnel for at least 30 days, in addition to the $25,000.00 liquidated damages for an Unauthorized Removal, Contractor must pay the amount of $833.33 per day for each day of the 30 day shadow period that the replacement Key Personnel does not shadow the removed Key Personnel, up to $25,000.00 maximum per individual. The total liquidated damages that may be assessed per Unauthorized Removal and failure to provide 30 days of shadowing must not exceed $50,000.00 per individual.

2.244 EXCUSABLE FAILURE

Neither party will be liable for any default, damage or delay in the performance of its obligations under the Contract to the extent the default, damage or delay is caused by government regulations or requirements (executive, legislative, judicial, military or otherwise), power failure, electrical surges or current fluctuations, lightning, earthquake, war, water or other forces of nature or acts of God, delays or failures of transportation, equipment shortages, suppliers' failures, or acts or omissions of common carriers, fire; riots, civil disorders; strikes or other labor disputes, embargoes; injunctions (provided the injunction was not issued as a result of any fault or negligence of the party seeking to have its default or delay excused); or any other cause beyond the reasonable control of a party; provided the non-performing party and its Subcontractors are without fault in causing the default or delay, and the default or delay could not have been prevented by reasonable precautions and cannot reasonably be circumvented by the non-performing party through the use of alternate sources, workaround plans or other means, including disaster recovery plans.

If a party does not perform its contractual obligations for any of the reasons listed above, the non-performing party will be excused from any further performance of its affected obligation(s) for as long as the circumstances prevail. But the party must use commercially reasonable efforts to recommence performance whenever and to whatever extent possible without delay. A party must promptly notify the other party in writing immediately after the excusable failure occurs, and also when it abates or ends.

If any of the above-enumerated circumstances substantially prevent, hinder, or delay the Contractor's performance of the Services/provision of Deliverables for more than 10 Business Days, and the State determines that performance is not likely to be resumed within a period of time that is satisfactory to the State in its reasonable discretion, then at the State's option: (a) the State may procure the affected Services/Deliverables from an alternate source, and the State is not be liable for payment for the unperformed Services/ Deliverables not provided under the Contract for so long as the delay in performance continues; (b) the State may terminate any portion of the Contract so affected and the charges payable will be equitably adjusted to reflect those Services/Deliverables terminated; or (c) the State may terminate the affected Statement of Work without liability to Contractor as of a date specified by the State in a written notice of

termination to the Contractor, except to the extent that the State must pay for Services/Deliverables provided through the date of termination.

The Contractor will not have the right to any additional payments from the State as a result of any Excusable Failure occurrence or to payments for Services not rendered/Deliverables not provided as a result of the Excusable Failure condition. Defaults or delays in performance by Contractor which are caused by acts or omissions of its Subcontractors will not relieve Contractor of its obligations under the Contract except to the extent that a Subcontractor is itself subject to an Excusable Failure condition described above and Contractor cannot reasonably circumvent the effect of the Subcontractor's default or delay in performance through the use of alternate sources, workaround plans or other means.

2.250 Approval of Deliverables

2.251 DELIVERY OF DELIVERABLES

A list of the Deliverables to be prepared and delivered by Contractor including, for each Deliverable, the scheduled delivery date and a designation of whether the Deliverable is a document ("Written Deliverable") or a Custom Software Deliverable is attached, if applicable. All Deliverables shall be completed and delivered for State review and written approval and, where applicable, installed in accordance with the State-approved delivery schedule and any other applicable terms and conditions of this Contract.

Prior to delivering any Deliverable to the State, Contractor will first perform all required quality assurance activities, and, in the case of Custom Software Deliverables, System Testing to verify that the Deliverable is complete and in conformance with its specifications. Before delivering a Deliverable to the State, Contractor shall certify to the State that (1) it has performed such quality assurance activities, (2) it has performed any applicable testing, (3) it has corrected all material deficiencies discovered during such quality assurance activities and testing, (4) the Deliverable is in a suitable state of readiness for the State's review and approval, and (5) the Deliverable/Service has all Critical Security patches/updates applied.

In discharging its obligations under this Section, Contractor shall be at all times (except where the parties agree otherwise in writing) in compliance with Level 3 of the Software Engineering Institute's Capability Maturity Model for Software ("CMM Level 3") or its equivalent.

2.252 CONTRACTOR SYSTEM TESTING

Contractor will be responsible for System Testing each Custom Software Deliverable in Contractor's development environment prior to turning over the Custom Software Deliverable to the State for User Acceptance Testing and approval. Contractor's System Testing shall include the following, at a minimum, plus any other testing required by CMM Level 3 or Contractor's system development methodology:

Contractor will be responsible for performing Unit Testing and incremental Integration Testing of the components of each Custom Software Deliverable.

Contractor's System Testing will also include Integration Testing of each Custom Software Deliverable to ensure proper inter-operation with all prior software Deliverables, interfaces and other components that are intended to inter-operate with such Custom Software Deliverable, and will include Regression Testing, volume and stress testing to ensure that the Custom Software Deliverables are able to meet the State's projected growth in the number and size of transactions to be processed by the Application and number of users, as such projections are set forth in the applicable Statement of Work.

Contractor's System Testing will also include Business Function Testing and Technical Testing of each Application in a simulated production environment. Business Function Testing will include testing of full work streams that flow through the Application as the Application will be incorporated within the State's computing environment. The State shall participate in and provide support for the Business Function Testing to the extent reasonably requested by Contractor. Within ten (10) days before the commencement of Business Function Testing pursuant to this Section, Contractor shall provide the State for State review and written approval Contractor's test plan for Business Function Testing.

Within five (5) Business Days following the completion of System Testing pursuant to this **Section**, Contractor shall provide to the State a testing matrix establishing that testing for each condition identified in the System Testing plans has been conducted and successfully concluded. To the extent that testing occurs on State premises, the State shall be entitled to observe or otherwise participate in testing under this Section as the State may elect.

2.253 APPROVAL OF DELIVERABLES, IN GENERAL

All Deliverables (Written Deliverables and Custom Software Deliverables) require formal written approval by the State, in accordance with the following procedures. Formal approval by the State requires that the Deliverable be confirmed in writing by the State to meet its specifications, which, in the case of Custom Software Deliverables, will include the successful completion of State User Acceptance Testing, to be led by the State with the support and assistance of Contractor. The parties acknowledge that the approval process set forth herein will be facilitated by ongoing consultation between the parties, visibility of interim and intermediate Deliverables and collaboration on key decisions.

The State's obligation to comply with any State Review Period is conditioned on the timely delivery of Deliverables being reviewed. If Contractor fails to provide a Deliverable to the State in a timely manner, the State will nevertheless use commercially reasonable efforts to complete its review or testing within the applicable State Review Period.

Before commencement of its review or testing of a Deliverable, the State may inspect the Deliverable to confirm that all components of the Deliverable (e.g., software, associated documentation, and other materials) have been delivered. If the State determines that the Deliverable is incomplete, the State may refuse delivery of the Deliverable without performing any further inspection or testing of the Deliverable. Otherwise, the review period will be deemed to have started on the day the State receives the Deliverable and the applicable certification by Contractor in accordance with this Section.

The State will approve in writing a Deliverable upon confirming that it conforms to and, in the case of a Custom Software Deliverable, performs in accordance with, its specifications without material deficiency. The State may, but shall not be required to, conditionally approve in writing a Deliverable that contains material deficiencies if the State elects to permit Contractor to rectify them post-approval. In any case, Contractor will be responsible for working diligently to correct within a reasonable time at Contractor's expense all deficiencies in the Deliverable that remain outstanding at the time of State approval.

If, after three (3) opportunities (the original and two repeat efforts), Contractor is unable to correct all deficiencies preventing State approval of a Deliverable, the State may: (i) demand that Contractor cure the failure and give Contractor additional time to cure the failure at the sole expense of Contractor; or (ii) keep this Contract in force and do, either itself or through other parties, whatever Contractor has failed to do, in which event Contractor shall bear any excess expenditure incurred by the State in so doing beyond the contract price for such Deliverable and will pay the State an additional sum equal to ten percent (10%) of such excess expenditure to cover the State's general expenses without the need to furnish proof in substantiation of such general expenses; or (iii) terminate this Contract for default, either in whole or in part by notice to Contractor (and without the need to afford Contractor any further opportunity to cure). Notwithstanding the foregoing, the State shall not use, as a basis for exercising its termination rights under this Section, deficiencies discovered in a repeat State Review Period that could reasonably have been discovered during a prior State Review Period.

The State, at any time and in its own discretion, may halt the UAT or approval process if such process reveals deficiencies in or problems with a Deliverable in a sufficient quantity or of a sufficient severity as to make the continuation of such process unproductive or unworkable. In such case, the State may return the applicable Deliverable to Contractor for correction and re-delivery prior to resuming the review or UAT process and, in that event, Contractor will correct the deficiencies in such Deliverable in accordance with the Contract, as the case may be.

Approval in writing of a Deliverable by the State shall be provisional; that is, such approval shall not preclude the State from later identifying deficiencies in, and declining to accept, a subsequent Deliverable based on or which incorporates or inter-operates with an approved Deliverable, to the extent that the results of subsequent review or testing indicate the existence of deficiencies in the subsequent Deliverable, or if the Application of which the subsequent Deliverable is a component otherwise fails to be accepted pursuant to **Section 2.080**.

2.254 PROCESS FOR APPROVAL OF WRITTEN DELIVERABLES

The State Review Period for Written Deliverables will be the number of days set forth in the applicable Statement of Work following delivery of the final version of the Written Deliverable (failing which the State Review Period, by default, shall be five (5) Business Days for Written Deliverables of one hundred (100) pages or less and ten (10) Business Days for Written Deliverables of more than one hundred (100) pages). The duration of the State Review Periods will be doubled if the State has not had an opportunity to review an interim draft of the Written Deliverable prior to its submission to the State. The State agrees to notify Contractor in writing by the end of the State Review Period either stating that the Written Deliverable is approved in the form delivered by Contractor or describing any deficiencies that shall be corrected prior to approval of the Written Deliverable (or at the State's election, subsequent to approval of the Written Deliverable). If the State delivers to Contractor a notice of deficiencies, Contractor will correct the described deficiencies and within five (5) Business Days resubmit the Deliverable in a form that shows all revisions made to the original version delivered to the State. Contractor's correction efforts will be made at no additional charge. Upon receipt of a corrected Written Deliverable from Contractor, the State will have a reasonable additional period of time, not to exceed the length of the original State Review Period, to review the corrected Written Deliverable to confirm that the identified deficiencies have been corrected.

2.255 PROCESS FOR APPROVAL OF CUSTOM SOFTWARE DELIVERABLES

The State will conduct UAT of each Custom Software Deliverable in accordance with the following procedures to determine whether it meets the criteria for State approval – i.e., whether it conforms to and performs in accordance with its specifications without material deficiencies.

Within thirty (30) days (or such other number of days as the parties may agree to in writing) prior to Contractor's delivery of any Custom Software Deliverable to the State for approval, Contractor shall provide to the State a set of proposed test plans, including test cases, scripts, data and expected outcomes, for the State's use (which the State may supplement in its own discretion) in conducting UAT of the Custom Software Deliverable. Contractor, upon request by the State, shall provide the State with reasonable assistance and support during the UAT process.

For the Custom Software Deliverables listed in an attachment, the State Review Period for conducting UAT will be as indicated in the attachment. For any other Custom Software Deliverables not listed in an attachment, the State Review Period shall be the number of days agreed in writing by the parties (failing which it shall be forty-five (45) days by default). The State Review Period for each Custom Software Deliverable will begin when Contractor has delivered the Custom Software Deliverable to the State accompanied by the certification required by this **Section** and the State's inspection of the Deliverable has confirmed that all components of it have been delivered.

The State's UAT will consist of executing test scripts from the proposed testing submitted by Contractor, but may also include any additional testing deemed appropriate by the State. If the State determines during the UAT that the Custom Software Deliverable contains any deficiencies, the State will notify Contractor of the deficiency by making an entry in an incident reporting system available to both Contractor and the State. Contractor will modify promptly the Custom Software Deliverable to correct the reported deficiencies, conduct appropriate System Testing (including, where applicable, Regression Testing) to confirm the proper correction of the deficiencies and re-deliver the corrected version to the State for re-testing in UAT. Contractor will coordinate the re-delivery of corrected versions of Custom Software Deliverables with the State so as not to disrupt the State's UAT process. The State will promptly re-test the corrected version of the Software Deliverable after receiving it from Contractor.

Within three (3) business days after the end of the State Review Period, the State will give Contractor a written notice indicating the State's approval or rejection of the Custom Software Deliverable according to the criteria and process set out in this **Section**.

2.256 FINAL ACCEPTANCE

"Final Acceptance" shall be considered to occur when the Custom Software Deliverable to be delivered has been approved by the State and has been operating in production without any material deficiency for fourteen (14) consecutive days. If the State elects to defer putting a Custom Software Deliverable into live production for its own reasons, not based on concerns about outstanding material deficiencies in the Deliverable, the State shall nevertheless grant Final Acceptance of the Project.

2.260 Ownership

2.261 OWNERSHIP OF WORK PRODUCT BY STATE

The State owns all Deliverables, as they are work made for hire by the Contractor for the State. The State owns all United States and international copyrights, trademarks, patents or other proprietary rights in the Deliverables.

2.262 VESTING OF RIGHTS

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

2.263 RIGHTS IN DATA

The State is the owner of all data made available by the State to the Contractor or its agents, Subcontractors or representatives under the Contract. The Contractor will not use the State's data for any purpose other than providing the Services, nor will any part of the State's data be disclosed, sold, assigned, leased or otherwise disposed of to the general public or to specific third parties or commercially exploited by or on behalf of the Contractor. No employees of the Contractor, other than those on a strictly need-to-know basis, have access to the State's data. Contractor will not possess or assert any lien or other right against the State's data. Without limiting the generality of this Section, the Contractor must only use personally identifiable information as strictly necessary to provide the Services and must disclose the information only to its employees who have a strict need-to-know the information. The Contractor must comply at all times with all laws and regulations applicable to the personally identifiable information.

The State is the owner of all State-specific data under the Contract. The State may use the data provided by the Contractor for any purpose. The State will not possess or assert any lien or other right against the Contractor's data. Without limiting the generality of this Section, the State may use personally identifiable information only as strictly necessary to utilize the Services and must disclose the information only to its employees who have a strict need to know the information, except as provided by law. The State must comply at all times with all laws and regulations applicable to the personally identifiable information. Other material developed and provided to the State remains the State's sole and exclusive property.

2.264 OWNERSHIP OF MATERIALS

The State and the Contractor will continue to own their respective proprietary technologies developed before entering into the Contract. Any hardware bought through the Contractor by the State, and paid for by the State, will be owned by the State. Any software licensed through the Contractor and sold to the State, will be licensed directly to the State.

2.270 State Standards

2.271 EXISTING TECHNOLOGY STANDARDS
The Contractor will adhere to all existing standards as described within the comprehensive listing of the State's existing technology standards at http://www.michigan.gov/dit.

2.272 ACCEPTABLE USE POLICY
To the extent that Contractor has access to the State computer system, Contractor must comply with the State's Acceptable Use Policy, see http://www.michigan.gov/ditservice. All Contractor employees must be required, in writing, to agree to the State's Acceptable Use Policy before accessing the State system. The State reserves the right to terminate Contractor's access to the State system if a violation occurs.

2.273 SYSTEMS CHANGES
Contractor is not responsible for and not authorized to make changes to any State systems without written authorization from the Project Manager. Any changes Contractor makes to State systems with the State's approval must be done according to applicable State procedures, including security, access and configuration management procedures.

2.280 Extended Purchasing

2.281 MIDEAL (MICHIGAN DELIVERY EXTENDED AGREEMENTS LOCALLY
Public Act 431 of 1984 permits MDTMB to provide purchasing services to any city, village, county, township, school district, intermediate school district, non-profit hospital, institution of higher education, community, or junior college. A current listing of approved program members is available at: www.michigan.gov/buymichiganfirst. Unless otherwise stated, the Contractor must ensure that the non-state agency is an authorized purchaser before extending the Contract pricing.

The Contractor will supply Contract Services and equipment to these local governmental agencies at the established State of Michigan contract prices and terms to the extent applicable and where available. The Contractor must send its invoices to, and pay the local unit of government, on a direct and individual basis.

To the extent that authorized local units of government purchase quantities of Services and/or equipment under this Contract, the quantities of Services and/or equipment purchased will be included in determining the appropriate rate wherever tiered pricing based on quantity is provided.

2.282 STATE EMPLOYEE PURCHASES
The State allows State employees to purchase from this Contract. Unless otherwise stated, it is the responsibility of the Contractor to ensure that the State employee is an authorized purchaser before extending the Contract pricing.

The Contractor will supply Contract Services and Deliverables at the established State of Michigan contract prices and terms to the extent applicable and where available. The Contractor shall send its invoices to and pay the State employee on a direct and individual basis.

To the extent that authorized State employees purchase quantities of Services or Deliverables under this Contract, the quantities of Services and/or Deliverables purchased will be included in determining the appropriate rate wherever tiered pricing based on quantity is provided.

2.290 Environmental Provision

2.291 ENVIRONMENTAL PROVISION
Energy Efficiency Purchasing Policy: The State seeks wherever possible to purchase energy efficient products. This includes giving preference to U.S. Environmental Protection Agency (EPA) certified 'Energy Star' products for any category of products for which EPA has established Energy Star certification. For other purchases, the State may include energy efficiency as one of the priority factors to consider when choosing among comparable products.

Environmental Purchasing Policy: The State of Michigan is committed to encouraging the use of products and services that impact the environment less than competing products. The State is accomplishing this by including environmental considerations in purchasing decisions, while remaining fiscally responsible, to promote practices that improve worker health, conserve natural resources, and prevent pollution. Environmental components that are to be considered include: recycled content and recyclables; energy efficiency; and the presence of undesirable materials in the products, especially those toxic chemicals which are persistent and bioaccumulative. The Contractor should be able to supply products containing recycled and environmentally preferable materials that meet performance requirements and is encouraged to offer such products throughout the duration of this Contract. Information on any relevant third party certification (such as Green Seal, Energy Star, etc.) should also be provided.

Hazardous Materials: For the purposes of this Section, "Hazardous Materials" is a generic term used to describe asbestos, ACBMs, PCBs, petroleum products, construction materials including paint thinners, solvents, gasoline, oil, and any other material the manufacture, use, treatment, storage, transportation or disposal of which is regulated by the federal, state or local laws governing the protection of the public health, natural resources or the environment. This includes, but is not limited to, materials the as batteries and circuit packs, and other materials that are regulated as (1) "Hazardous Materials" under the Hazardous Materials Transportation Act, (2) "chemical hazards" under the Occupational Safety and Health Administration standards, (3) "chemical substances or mixtures" under the Toxic Substances Control Act, (4) "pesticides" under the Federal Insecticide Fungicide and Rodenticide Act, and (5) "hazardous wastes" as defined or listed under the Resource Conservation and Recovery Act.

(a) The Contractor shall use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material according to all federal, State and local laws. The State shall provide a safe and suitable environment for performance of Contractor's Work. Before the commencement of Work, the State shall advise the Contractor of the presence at the work site of any Hazardous Material to the extent that the State is aware of the Hazardous Material. If the Contractor encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the Contractor shall immediately stop all affected Work, notify the State in writing about the conditions encountered, and take appropriate health and safety precautions.

(b) Upon receipt of a written notice, the State will investigate the conditions. If (a) the material is a Hazardous Material that may present a substantial danger, and (b) the Hazardous Material was not brought to the site by the Contractor, or does not result in whole or in part from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Materials, the State shall order a suspension of Work in writing. The State shall proceed to have the Hazardous Material removed or rendered harmless. In the alternative, the State shall terminate the affected Work for the State's convenience.

(c) Once the Hazardous Material has been removed or rendered harmless by the State, the Contractor shall resume Work as directed in writing by the State. Any determination by the Michigan Department of Community Health or the Michigan Department of Environmental Quality that the Hazardous Material has either been removed or rendered harmless is binding upon the State and Contractor for the purposes of resuming the Work. If any incident with Hazardous Material results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Work will not be counted in a time as mutually agreed by the parties.

(d) If the Hazardous Material was brought to the site by the Contractor, or results in whole or in part from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Material, or from any other act or omission within the control of the Contractor, the Contractor shall bear its proportionate share of the delay and costs involved in cleaning up the site and removing and rendering harmless the Hazardous Material according to Applicable Laws to the condition approved by applicable regulatory agency(ies).

Labeling: Michigan has a Consumer Products Rule pertaining to labeling of certain products containing volatile organic compounds. For specific details visit http://www.michigan.gov/deq/0,1607,7-135-3310_4108-173523--,00.html

Refrigeration and Air Conditioning: The Contractor shall comply with the applicable requirements of Sections 608 and 609 of the Clean Air Act (42 U.S.C. 7671g and 7671h) as each or both apply to this contract.

Environmental Performance: Waste Reduction Program - Contractor shall establish a program to promote cost-effective waste reduction in all operations and facilities covered by this contract. The Contractor's programs shall comply with applicable Federal, State, and local requirements, specifically including Section 6002 of the Resource Conservation and Recovery Act (42 U.S.C. 6962, et seq.).

2.300 Deliverables

2.301 SOFTWARE
Contractor shall include an attached list of the items of software the State is required to purchase for executing the Contract. The list shall include all software required to complete the Contract and make the Deliverables operable; if any additional software is required in order for the Deliverables to meet the requirements of this Contract, such software shall be provided to the State by Contractor at no additional charge (except where agreed upon and specified in a Statement of Work or Contract Change Notice). Contractor shall identify software to be provided by the State.

2.302 HARDWARE
Contractor shall include an attached list of the items of hardware the State is required to purchase for executing the Contract. The list shall include all hardware required to complete the Contract and make the Deliverables operable; if any additional hardware is required in order for the Deliverables to meet the requirements of this Contract, such hardware shall be provided to the State by Contractor at no additional charge (except where agreed upon and specified in a Contract Change Notice). Contractor shall identify hardware to be provided by the State.

2.310 Software Warranties

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

2.312 NO SURREPTITIOUS CODE WARRANTY
The Contractor represents and warrants that no copy of licensed Software provided to the State contains or will contain any Self-Help Code or any Unauthorized Code as defined below. This warranty is referred to in this Contract as the “No Surreptitious Code Warranty.”

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

As used in this Contract, “Unauthorized Code” means any virus, Trojan horse, spyware, worm or other Software routines or components designed to permit unauthorized access to disable, erase, or otherwise harm software, equipment, or data; or to perform any other such actions. The term Unauthorized Code does not include Self-Help Code. Unauthorized Code does not include Software routines in a computer program, if any, designed to permit an owner of the computer program (or other person acting by authority of the owner) to obtain access to a licensee’s computer system(s) (e.g. remote access via modem) for purposes of maintenance or technical support.

In addition, Contractor will use up-to-date commercial virus detection software to detect and remove any viruses from any software prior to delivering it to the State.

2.313 CALENDAR WARRANTY

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

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

2.314 THIRD-PARTY SOFTWARE WARRANTY

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

2.315 PHYSICAL MEDIA WARRANTY

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

2.320 Software Licensing

2.321 CROSS-LICENSE, DELIVERABLES ONLY, LICENSE TO CONTRACTOR – DELETED NA

2.322 CROSS-LICENSE, DELIVERABLES AND DERIVATIVE WORK, LICENSE TO CONTRACTOR – DELETED NA

2.323 LICENSE BACK TO THE STATE

Unless otherwise specifically agreed to by the State, before initiating the preparation of any Deliverable that is a Derivative of a preexisting work, the Contractor shall cause the State to have and obtain the irrevocable, nonexclusive, worldwide, royalty-free right and license to (1) use, execute, reproduce, display, perform, distribute internally or externally, sell copies of, and prepare Derivative Works based upon all preexisting works and Derivative Works thereof, and (2) authorize or sublicense others from time to time to do any or all of the foregoing.

2.324 LICENSE RETAINED BY CONTRACTOR – DELETED NA

2.325 PRE-EXISTING MATERIALS FOR CUSTOM SOFTWARE DELIVERABLES

Neither Contractor nor any of its Subcontractors shall incorporate any preexisting materials (including Standard Software) into Custom Software Deliverables or use any pre-existing materials to produce Custom Software Deliverables if such pre-existing materials will be needed by the State in order to use the Custom Software Deliverables unless (i) such pre-existing materials and their owners are identified to the State in writing and (ii) such pre-existing materials are either readily commercially available products for which Contractor or its Subcontractor, as the case may be, has obtained a license (in form and substance approved by the State) in the name of the State, or are materials that Contractor or its Subcontractor, as the case may be, has the right to license to the State and has licensed to the State on terms and conditions approved by the State prior to using such pre-existing materials to perform the Services.

2.330 Source Code Escrow

2.331 DEFINITION

"Source Code Escrow Package" shall mean:

(a) A complete copy in machine-readable form of the source code and executable code of the Licensed Software, including any updates or new releases of the product;

(b) A complete copy of any existing design documentation and user documentation, including any updates or revisions; and/or

(c) Complete instructions for compiling and linking every part of the source code into executable code for purposes of enabling verification of the completeness of the source code as provided below. Such instructions shall include precise identification of all compilers, library packages, and linkers used to generate executable code.

2.332 DELIVERY OF SOURCE CODE INTO ESCROW

Contractor shall deliver a Source Code Escrow Package to the Escrow Agent, pursuant to the Escrow Contract, which shall be entered into on commercially reasonable terms subject to the provisions of this Contract within (30) thirty days of the execution of this Contract.

2.333 DELIVERY OF NEW SOURCE CODE INTO ESCROW

If at any time during the term of this Contract, the Contractor provides a maintenance release or upgrade version of the Licensed Software, Contractor shall within ten (10) days deposit with the Escrow Agent, in accordance with the Escrow Contract, a Source Code Escrow Package for the maintenance release or upgrade version, and provide the State with notice of the delivery.

2.334 VERIFICATION

The State reserves the right at any time, but not more than once a year, either itself or through a third party contractor, upon thirty (30) days written notice, to seek verification of the Source Code Escrow Package.

2.335 ESCROW FEES

The Contractor will pay all fees and expenses charged by the Escrow Agent.

2.336 RELEASE EVENTS

The Source Code Escrow Package may be released from escrow to the State, temporarily or permanently, upon the occurrence of one or more of the following:

(a) The Contractor becomes insolvent, makes a general assignment for the benefit of creditors, files a voluntary petition of bankruptcy, suffers or permits the appointment of a receiver for its business or assets, becomes subject to any proceeding under bankruptcy or insolvency law, whether domestic or foreign;

(b) The Contractor has wound up or liquidated its business voluntarily or otherwise and the State has reason to believe that such events will cause the Contractor to fail to meet its warranties and maintenance obligations in the foreseeable future;

(c) The Contractor voluntarily or otherwise discontinues support of the provided products or fails to support the products in accordance with its maintenance obligations and warranties.

2.337 RELEASE EVENT PROCEDURES

If the State desires to obtain the Source Code Escrow Package from the Escrow Agent upon the occurrence of an Event in this **Section**, then:

(a) The State shall comply with all procedures in the Escrow Contract;

(b) The State shall maintain all materials and information comprising the Source Code Escrow Package in confidence in accordance with this Contract;

(c) If the release is a temporary one, then the State shall promptly return all released materials to Contractor when the circumstances leading to the release are no longer in effect.

2.338 LICENSE

Upon release from the Escrow Agent pursuant to an event described in this **Section**, the Contractor automatically grants the State a non-exclusive, irrevocable license to use, reproduce, modify, maintain, support, update, have made, and create Derivative Works. Further, the State shall have the right to use the Source Code Escrow Package in order to maintain and support the Licensed Software so that it can be used by the State as set forth in this Contract.

2.339 DERIVATIVE WORKS

Any Derivative Works to the source code released from escrow that are made by or on behalf of the State shall be the sole property of the State. The State acknowledges that its ownership rights are limited solely to the Derivative Works and do not include any ownership rights in the underlying source code.

Altarum agrees that a Certificate of Insurance will be provided upon award. Further, Altarum does not take any exception to the terms and conditions provided in this RFP found at Article 2.0.

Glossary

Days	Means calendar days unless otherwise specified.
24x7x365	Means 24 hours a day, seven days a week, and 365 days a year (including the 366th day in a leap year).
Additional Service	Means any Services/Deliverables within the scope of the Contract, but not specifically provided under any Statement of Work, that once added will result in the need to provide the Contractor with additional consideration.
Audit Period	See Section 2.110
Business Day	Whether capitalized or not, shall mean any day other than a Saturday, Sunday or State-recognized legal holiday (as identified in the Collective Bargaining Agreement for State employees) from 8:00am EST through 5:00pm EST unless otherwise stated.
Blanket Purchase Order	An alternate term for Contract as used in the States computer system.
Business Critical	Any function identified in any Statement of Work as Business Critical.
Chronic Failure	Defined in any applicable Service Level Agreements.
Deliverable	Physical goods and/or commodities as required or identified by a Statement of Work
DTMB	Michigan Department of Technology, Management and Budget
Environmentally preferable products	A product or service that has a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. Such products or services may include, but are not limited to, those that contain recycled content, minimize waste, conserve energy or water, and reduce the amount of toxics either disposed of or consumed.
Excusable Failure	See Section 2.244.
Hazardous material	Any material defined as hazardous under the latest version of federal Emergency Planning and Community Right-to-Know Act of 1986 (including revisions adopted during the term of the Contract).
Incident	Any interruption in Services.
ITB	A generic term used to describe an Invitation to Bid. The ITB serves as the document for transmitting the RFP to potential bidders
Key Personnel	Any Personnel designated in Article 1 as Key Personnel.
New Work	Any Services/Deliverables outside the scope of the Contract and not specifically provided under any Statement of Work, that once added will result in the need to provide the Contractor with additional consideration.
Ozone-depleting substance	Any substance the Environmental Protection Agency designates in 40 CFR part 82 as: (1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or (2) Class II, including, but not limited to, hydro chlorofluorocarbons
Post-Consumer Waste	Any product generated by a business or consumer which has served its intended end use, and which has been separated or diverted from solid waste for the purpose of recycling into a usable commodity or product, and which does not include post-industrial waste.
Post-Industrial Waste	Industrial by-products that would otherwise go to disposal and wastes generated after completion of a manufacturing process, but do not include internally generated scrap commonly returned to industrial or manufacturing processes.
Recycling	The series of activities by which materials that are no longer useful to the generator are collected, sorted, processed, and converted into raw materials and used in the production of new products. This definition excludes the use of these materials as a fuel substitute or for energy production.
Deleted – Not Applicable	Section is not applicable or included in this RFP. This is used as a placeholder to maintain consistent numbering.
Reuse	Using a product or component of municipal solid waste in its original form more than once.

RFP	Request for Proposal designed to solicit proposals for services
Services	Any function performed for the benefit of the State.
Source reduction	Any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment prior to recycling, energy recovery, treatment, or disposal.
State Location	Any physical location where the State performs work. State Location may include state-owned, leased, or rented space.
Subcontractor	A company Contractor delegates performance of a portion of the Services to, but does not include independent contractors engaged by Contractor solely in a staff augmentation role.
Unauthorized Removal	Contractor's removal of Key Personnel without the prior written consent of the State.
Waste prevention	Source reduction and reuse, but not recycling.
Waste reduction and Pollution prevention	The practice of minimizing the generation of waste at the source and, when wastes cannot be prevented, utilizing environmentally sound on-site or off-site reuse and recycling. The term includes equipment or technology modifications, process or procedure modifications, product reformulation or redesign, and raw material substitutions. Waste treatment, control, management, and disposal are not considered pollution prevention, per the definitions under Part 143, Waste Minimization, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended.
Work in Progress	A Deliverable that has been partially prepared, but has not been presented to the State for Approval.
Work Product	Refers to any data compilations, reports, and other media, materials, or other objects or works of authorship created or produced by the Contractor as a result of an in furtherance of performing the services required by this Contract.

Attachment 1 - COST TABLE

Instructions for Contractor to complete the Cost Tables template:

Table 1: Summary of the Project Costs

Project Cost(s)	Total Cost ($)	Comments
Maintenance and Support Breakdown in Table 2	$ 788,808	The amount is proposal as a fixed price for the entire duration of the project. Please see below for prices by year.
Future Enhancements/Rate Card (for future enhancements and scope change) Breakdown in Table 3	$127,395	
Total Cost	**$916,203**	

Table 2: Maintenance and Support

	Cost Categories	Total Cost ($)	Comments
A.	**Maintenance and Support cost** *(includes Training, documentation, helpdesk)*		Altarum has applied an annual 4% escalation factor which is based on our historical experience to maintain a qualified workforce.
	First Year	$145,635	
	Second Year	$151,461	
	Third Year	$157,519	
	Fourth Year	$163,820	
	Fifth Year	$170,373	
	Combined Total	**$788,808**	

Table 3: Future Enhancements/Rate Card

No.	Staffing Category		Not to Exceed Hourly Rate	One-month project hours estimate	Extended Price
B.	Project Manager / Technical Lead		$175.75	180 hours	$31,635
	Business Analyst		$137.75	180 hours	$24,795
	Senior Software Developer		$156.75	180 hours	$28,215
	Programmer		$123.50	180 hours	$22,230
	Technical Writer		$114.00	180 hours	$20,520
	List Any Other(s)			180 hours	
	Future Enhancement/Rate Card Estimated Cost		N/A		$127,395

Notes: Please refer to section 1.6 Payment.

Attachment 2
PERSONNEL RESUME TEMPLATE

Proposed Resource Name:	Lakshmi Atluri
Proposed Classification:	*Programmer/Analyst*
Key Personnel:	**Yes** □ ***or*** **No** √
If resource is associated with a subcontractor provide name of company:	**n/a**
Percentage of time resource will be allocated to project:	40%

Bidder: List the skills and experience that qualify the individual for the duties and responsibilities on this project for the proposed role. Provide the name of the project(s) and the year(s) the experience was
List client references for work performed to meet the requirements stated above, and all projects the proposed resource has worked on in the last three (3) years. A minimum of three (3) references are required. By submission of this information, the bidder and identified key person authorize the State of Michigan to contact references and previous employers provided to verify the accuracy of the information. Provide the identified information for each:

Start Date: *July 2008*	End Date: *Present*
Client/Project: *Michigan Disease Surveillance System (MDSS) Project, Michigan Department of Community Health & Department of Technology, Management & Budget:* ***Mr. Jim Collins****, Manager-Surveillance and Infectious Disease Epidemiology Bureau of Epidemiology, MDCH, 201 Townsend, 5th Floor, P.O. Box 30195, Lansing, MI 48913, Lansing: 517-335-8586, collinsjim@michigan.gov;* ***Ms. Sheryl Conway****, DTMB/Agency Services for DCH, Chandler Building, 300 East Michigan Ave., 1st Floor, Lansing, MI , 517-373-3137, ConwayS@michigan.gov;* ***Mr. Edward F. Hartwick****, MDSS & GIS Coordinator, MDCH, Bureau of Epi - Communicable Disease Division, Surveillance and Infectious Disease Epidemiology, 201 Townsend, 5th Floor, Lansing, MI 48933, 517-335-8475*	
Employer: *Altarum Institute*	
Title/Percentage of time: *System Developer/100% (combined MDSS maintenance & enhancement)*	
Description: *Works as a system developer on the Michigan Disease Surveillance System (MDSS) project and is responsible for implementing application enhancements.* *Works on the electronic messaging module, which performs electronic lab report messaging between various labs and the MDSS application. Involved in configuring and maintaining new routes and create a Rhapsody interface for translating the messages received from state labs and submitting to the MSS queues of the disease surveillance system. Installed and configured PHINMS for reporting disease surveillance data from the Michigan Department of Health to the CDC. Works on creating the message map for converting lab's local format to HL7 format using Rhapsody message management system. Handle the mapping of the lab codes received from various labs to the appropriate SNOMED code for the disease surveillance systems using the MSS vocabulary management.* *Successfully implemented additional functionality to manage sexually transmitted disease (STD) cases within the MDSS application. Also works on uploading the historical STD cases to the MDSS system for improved reporting purposes.* *Environment: J2EE, JSP, Struts framework, KODO, Apache, and Tomcat server, Oracle database, Rhapsody and MSS, PHINMS, HL7 protocol.*	

Start Date: *March 2007*	End Date: *July 2008*
Client/Project: *Chrysler Corporation/Maintenance of fleet management system website*	
Employer: *CDI Corporation*	
Title/Percentage of time: *Senior J2EE Developer/100%*	
Description: *Worked on the maintenance of fleet management system website for Chrysler Corporation, and aided in the content management system for the fleet operation. The Fleet Management system is an integration of more than 10 applications. Resolved day-to-day customer requests along with creating or adding new modules to the existing application. Involved in gathering requirements from the customer and creating the business-use cases from them. Designed and developed a user interface, application modules, and business components using J2EE technology such as JSP, Servlets, JNDI, Java Mail, and property configurations using XML. Involved in maintaining the existing applications by adding and updating Web pages per customer requests. Involved in creating cron jobs to schedule application at a specified time. Involved in performing load, unit, and dynamic testing for safety critical applications. Responsible for creating test plans, procedures and test the application, and performing dynamic tests on the safety critical methods. Developed a complete requirements traceability matrix (RTM), tracing requirements through design and implementation to V&V. Used Dimensions as a source repository for all the applications. Environment: JNDI, UDB, Oracle 9i, Dimensions, Visio, WinSQL, JTest, Web sphere, Vignette Content Management system.*	

Start Date: *May 2006*	End Date: *February 2007*
Client/Project: *American Red Cross, Chicago*	
Employer: *CDI Corporation*	
Title/Percentage of time: *Senior J2EE Developer*	
Description: *Designed and developed client server architecture based Surround Application (Phase II), which handles the work order management of its clients. Surround is an open and flexible laboratory system that can be interfaced with current and future testing instruments and host systems. With unique decision-making capabilities, multiple instrument interfaces, and configurable client management tools, Surround provides more choices to best fit each blood center's needs. Surround allows blood banks to customize a default test panel while tracking sample results either automatically or manually. Surround's decision-making embedded intelligence manages the testing process and provides sample and system status reports, including audit trails. Designed and involved in the development of the entire cycle of the application. Met the customers and discussed the requirements; designed the system using the object oriented methodology (UML - class, sequence, and architecture diagrams). Designed and developed the software requirement specifications, system architecture design, and system detailed design for the application using DOORS database. Designed and developed code for user interface using Servlets, JSP, and business logic in J2EE. Created triggers for updating database flags depending on user action and database procedures for data retrieving tasks. Generated work order reports and audit reports for the specified modules. Created the whole testing cases and procedures scripts for unit testing, and verification reports for the application. Performed dynamic testing using JTest for the safety critical methods. Used WinCVS as source repository for the whole application. Environment: J2EE, JSP, Servlets, JDBC, Eclipse, DOORS, Oracle 8i, WinCVS, Visio, Toad, JTest.*	

Start Date: *March 2005*	End Date: *April 2006*
Client/Project: *Third Wave Technologies, Wisconsin*	
Employer: *CDI Corporation*	
Title/Percentage of time: *Senior J2EE Developer*	
Description: *Involved in the entire life cycle of development of assay panel manager software. The assay panel manager analyzed fluorescence data to determine the presence of the human papillomavirus (HPV) in a patient sample. The application provided analysis on a high-risk panel of reactions as well as confirmatory indications using a 16/18 panel of reactions. Developed the project technical plan for the entire application. Involved in customer discussions to obtain the requirements, preliminary design, and prototype of the application. Developed the architecture for the design documentation for the system using object-oriented methodology (UML - use-case analysis and design, activity diagrams, class diagrams, sequence diagrams). Designed and developed user interface, application modules, and business components using Java 2, Java*	

Beans (user interface) using JBuilder as the IDE. Developed code to interact with the Excel spreadsheets, generate graphs for the results, and generate the PDF reports using external libraries. Responsible for developing code to provide support to up to five languages. Responsible for creating test plans and procedures and test the application and performing dynamic test on the safety critical methods. Developed a complete requirements traceability matrix (RTM), tracing requirements through design and implementation to V&V. Transformed applications into optimized Windows executable that run directly on hardware using Excelsior JET byte code compiler. Environment: JSP, Java Beans, J2EE, JBuilder, jexcelapi, itext(libraries), JTest, Windows XP, WinCVS. Excelsior JET byte code compiler.

EDUCATION

Education		
Degree (i.e. PhD, Master's, Bachelors)	*Master of Science*	Year Completed: *2002*
Program	*Information Systems*	
University	*Eastern Michigan University, Ypsilanti, Michigan*	

Additional Education		
Degree (i.e. PhD, Master's, Bachelors)	*Bachelor of Engineering*	Year Completed: *1998*
Program	*Computer Science and Engineering*	
University	*SRM Engineering College, Madras, India*	

TRAINING – Provide any relevant technical or professional training related to the role resource will be providing on this project.

Technical or Professional Training	
Course Name	
Topic	*(include credit hours if applicable)*
Date taken	

Certifications/Affiliations	
Name	
Topic/Description	
Date completed	

The Bidder must submit a letter of commitment for Key Personnel, signed by the identified resource, stating their commitment to work for the bidder/subcontractor on this project contingent on award of the bid. If the identified personnel are currently assigned to a State project the bidder must provide a letter signed by the State Project Manager releasing the individual from the project.

Proposed Resource Name:	John Christensen
Proposed Classification:	*Documentation Specialist/Technical Writer*
Key Personnel:	**Yes** □ ***or*** **No** √
If resource is associated with a subcontractor provide name of company:	**n/a**
Percentage of time resource will be allocated to project:	5%

Bidder: List the skills and experience that qualify the individual for the duties and responsibilities on this project for the proposed role. Provide the name of the project(s) and the year(s) the experience was
List client references for work performed to meet the requirements stated above, and all projects the proposed resource has worked on in the last three (3) years. A minimum of three (3) references are required. By submission of this information, the bidder and identified key person authorize the State of Michigan to contact references and previous employers provided to verify the accuracy of the information. Provide the identified information for each:

Start Date: *September 2010*	End Date: *Present*
Client/Project: *US Department of Veterans Affairs, National Center for Veterans Analysis and Statistics (NCVAS), COTR:* ***Mr. Joe Salvatore****, VA Office of Policy and Planning, 1717 H Street, NW, Room 540A, Washington, DC 20420, 202-266-4685, Joe.Salvatore@va.gov*	
Employer: *Altarum Institute*	
Title/Percentage of time: *Project Controller/Senior Technical Writer/10%*	
Description: *Supporting the US Department of Veterans Affairs, National Center for Veterans Analysis and Statistics (NCVAS), as Project Controller on three task orders. Responsibilities include tracking task order requirements, deliverables, budgets, security and awareness training, and serving as the team's liaison with VA task leaders. Also managing the project SharePoint portal and supporting the effort with technical writing and editing on contract deliverables.*	

Start Date: *April 2003*	End Date: *Present*
Client/Project: *Michigan Disease Surveillance System (MDSS) Project, Michigan Department of Community Health & Department of Technology, Management & Budget:* ***Mr. Jim Collins****, Manager-Surveillance and Infectious Disease Epidemiology Bureau of Epidemiology, MDCH, 201 Townsend, 5th Floor, P.O. Box 30195, Lansing, MI 48913, Lansing: 517-335-8586, collinsjim@michigan.gov;* ***Ms. Sheryl Conway****, DTMB/Agency Services for DCH, Chandler Building, 300 East Michigan Ave., 1st Floor, Lansing, MI , 517-373-3137, ConwayS@michigan.gov;*	
Employer: *Altarum Institute*	
Title/Percentage of time: *Senior Technical Writer/5%*	
Description: *Supported the Michigan Syndromic Surveillance System (MSSS) and Michigan Disease Surveillance System (MDSS) with User Manual creation, updates, and online Help system development.*	

Start Date: *November 2009*	End Date: *December 2009*
Client/Project: *Michigan Department of Community Health, HIV/STD/VH/TB Epidemiology Section, Division of the Communicable Disease Bureau of Epidemiology,* ***Ms. Nilsa Mack****, Capitol View Building Campus, 201 Townsend, Lansing, MI 48913, (517) 335-8866, mackn@michigan.gov*	
Employer: *Altarum Institute*	
Title/Percentage of time: *Senior Technical Writer/15%*	
Description: *Developed a customized PDF Portfolio containing the Michigan HIV/AIDS Surveillance Manual and Technical Guidelines for the Michigan Department of Community Health, HIV/STD/VH/TB Epidemiology Section, Division of the Communicable Disease Bureau of Epidemiology. The PDF Portfolio condensed multiple documents and various file formats into a single PDF file that could be edited and shared easily. Also developed and delivered an instruction guide with details on maintaining the PDF Portfolio.*	

EDUCATION

Education		
Degree (i.e. PhD, Master's, Bachelors)	*Bachelor of Arts*	Year Completed: *1988*
Program	*Mandarin Chinese*	
University	*Brigham Young University, Provo, Utah*	

TRAINING – Provide any relevant technical or professional training related to the role resource will be providing on this project.

Technical or Professional Training	
Course Name	
Topic	*(include credit hours if applicable)*
Date taken	

Certifications/Affiliations	
Name	
Topic/Description	
Date completed	

The Bidder must submit a letter of commitment for Key Personnel, signed by the identified resource, stating their commitment to work for the bidder/subcontractor on this project contingent on award of the bid. If the identified personnel are currently assigned to a State project the bidder must provide a letter signed by the State Project Manager releasing the individual from the project.

Proposed Resource Name:	Carolina Fulper
Proposed Classification:	*Programmer/Analyst*
Key Personnel:	**Yes** □ ***or*** **No** √
If resource is associated with a subcontractor provide name of company:	**n/a**
Percentage of time resource will be allocated to project:	25%

Bidder: List the skills and experience that qualify the individual for the duties and responsibilities on this project for the proposed role. Provide the name of the project(s) and the year(s) the experience was
List client references for work performed to meet the requirements stated above, and all projects the proposed resource has worked on in the last three (3) years. A minimum of three (3) references are required. By submission of this information, the bidder and identified key person authorize the State of Michigan to contact references and previous employers provided to verify the accuracy of the information. Provide the identified information for each:

Start Date: *May 2008*	End Date: *Present*
Client/Project: *Michigan Disease Surveillance System (MDSS) Project, Michigan Department of Community Health & Department of Technology, Management & Budget:* ***Mr. Jim Collins****, Manager-Surveillance and Infectious Disease Epidemiology Bureau of Epidemiology, MDCH, 201 Townsend, 5th Floor, P.O. Box 30195, Lansing, MI 48913, Lansing: 517-335-8586, collinsjim@michigan.gov;* ***Ms. Sheryl Conway****, DTMB/Agency Services for DCH, Chandler Building, 300 East Michigan Ave., 1st Floor, Lansing, MI , 517-373-3137, ConwayS@michigan.gov;* ***Mr. Edward F. Hartwick****, MDSS & GIS Coordinator, MDCH, Bureau of Epi - Communicable Disease Division, Surveillance and Infectious Disease Epidemiology, 201 Townsend, 5th Floor, Lansing, MI 48933, 517-335-8475*	
Employer: *Altarum Institute*	
Title/Percentage of time: *System Developer/50% (combined MDSS maintenance & enhancement)*	
Description: *Designs and implements custom modifications and new functionality for Michigan's Web-based communicable disease reporting system. This system facilitates the secure transfer, maintenance, and analysis of communicable disease surveillance information. This is a Java EE Web application with a Struts framework (Java, Java Server Pages, Java Beans) running in Apache Tomcat and using Kodo JPA/JDO to access data from an Oracle 10g database.*	

Start Date: *January 2006*	End Date: *May 2008*
Client/Project: *Connecticut Immunization Registry Tracking System, Connecticut Department of Public Health, Vincent Sacco*	
Employer: *Altarum Institute*	
Title/Percentage of time: *Senior Systems Developer/60%*	
Description: *Designed and implemented custom modifications and new functionality for Connecticut's Web-based immunization registry. The environment was J2EE (Java, JSPs, EJBs, JDBC) with Oracle Application Server and Oracle 10g database.*	

EDUCATION

Education		
Degree (i.e. PhD, Master's, Bachelors)	*Master of Science*	Year Completed: *1994*
Program	*Computer Science*	
University	*George Washington University, Washington, DC*	

Additional Education		
Degree (i.e. PhD, Master's, Bachelors)	*Bachelor of Science*	Year Completed: *1987*
Program	*Computer Science, Applied Mathematics*	
University	*Bradley University, Peoria, Illinois*	

TRAINING – Provide any relevant technical or professional training related to the role resource will be providing on this project.

Technical or Professional Training	
Course Name	
Topic	*(include credit hours if applicable)*
Date taken	

Certifications/Affiliations	
Name	
Topic/Description	
Date completed	

The Bidder must submit a letter of commitment for Key Personnel, signed by the identified resource, stating their commitment to work for the bidder/subcontractor on this project contingent on award of the bid. If the identified personnel are currently assigned to a State project the bidder must provide a letter signed by the State Project Manager releasing the individual from the project.

Proposed Resource Name:	Mike Grim
Proposed Classification:	*Programmer/Analyst*
Key Personnel:	**Yes** □ ***or*** **No** √
If resource is associated with a subcontractor provide name of company:	**n/a**
Percentage of time resource will be allocated to project:	40%

Bidder: List the skills and experience that qualify the individual for the duties and responsibilities on this project for the proposed role. Provide the name of the project(s) and the year(s) the experience was
List client references for work performed to meet the requirements stated above, and all projects the proposed resource has worked on in the last three (3) years. A minimum of three (3) references are required. By submission of this information, the bidder and identified key person authorize the State of Michigan to contact references and previous employers provided to verify the accuracy of the information. Provide the identified information for each:

Start Date: *January 2005*	End Date: *Present*
Client/Project: *Michigan Disease Surveillance System (MDSS) Project, Michigan Department of Community Health & Department of Technology, Management & Budget:* ***Mr. Jim Collins****, Manager-Surveillance and Infectious Disease Epidemiology Bureau of Epidemiology, MDCH, 201 Townsend, 5th Floor, P.O. Box 30195, Lansing, MI 48913, Lansing: 517-335-8586, collinsjim@michigan.gov;* ***Ms. Sheryl Conway****, DTMB/Agency Services for DCH, Chandler Building, 300 East Michigan Ave., 1st Floor, Lansing, MI , 517-373-3137, ConwayS@michigan.gov;* ***Mr. Edward F. Hartwick****, MDSS & GIS Coordinator, MDCH, Bureau of Epi - Communicable Disease Division, Surveillance and Infectious Disease Epidemiology, 201 Townsend, 5th Floor, Lansing, MI 48933, 517-335-8475*	
Employer: *Altarum Institute*	
Title/Percentage of time: *System Developer/100% (combined MDSS maintenance & enhancement)*	
Description: *Incorporated HL7 death messages into the Michigan's Medical Disease Surveillance System (MDSS). This major software development effort uses RHAPSODY, Java JMS queues and HL7. The MDSS will process incoming HL7 death messages and update existing cases with this information.* *Participated in the design and implementation of a HL7 NEDSS export module for the Michigan's Medical Disease Surveillance System (MDSS). This module allows for creation and scheduling of HL7 messages containing contagious disease information to the CDC based on heuristic processing of MDSS cases. This modification uses Rhapsody, Java, and HL7 to complete the task.* *Designed, coded and implemented an overhaul of the deduplication process. This modification gives the end user much more information to make better decisions in the deduplication process. This modification uses Java, Java Server Pages (JSP), JavaScript, HTML,XML, Oracle database management and configuration, CVS, ANT, Kodo, Jasper, HL7, and ESRI ArcIMS.* *Designed , coded and implemented the new MDSS roles system. This modification allowed for greater control of information access. It's a flexible system that allows for the creation of new roles as necessary in the future. This modification users are Java, Java Server Pages (JSP), JavaScript, HTML,XML, Oracle database management and configuration, CVS, ANT, Kodo, Jasper, HL7, and ESRI ArcIMS.* *Designs, codes, and implements major enhancements for Michigan's Medical Disease Surveillance System (MDSS). Configures, compiles, installs the MDSS on a Sun Solaris on our internal test platform. Skills involved in this effort are Java, Java Server Pages (JSP), JavaScript, HTML,XML, Oracle database management and configuration, CVS, ANT, Kodo, Jasper, HL7, and ESRI ArcIMS.* *Designs, codes, and implements enhancements to Michigan's Syndromic Surveillance System running on a Sun Solaris box using JavaScript, Java, JSP, HTML, ESRI's ArcIMS and ESRI's ArcSDE, JBOSS and Tomcat servlet containers against an Oracle Database.* *Assists in technical evaluation and testing of Michigan's MDSS. Works with configuration, compilation, and installation of the MDSS on a Sun Solaris on our internal test platform. Skills involved in this effort are Java, JSP, JavaScript, HTML, XML, Oracle database management and configuration, CVS, ANT, Kodo, Jasper, HL7, and ESRI ArcIMS.*	

EDUCATION

Education		
Degree (i.e. PhD, Master's, Bachelors)	*Bachelor of Science*	Year Completed: *1989*
Program	*Computer Science Theory and Analysis*	
University	*Western Michigan University, Kalamazoo, Michigan*	

TRAINING – Provide any relevant technical or professional training related to the role resource will be providing on this project.

Technical or Professional Training	
Course Name	
Topic	*(include credit hours if applicable)*
Date taken	

Certifications/Affiliations	
Name	
Topic/Description	
Date completed	

The Bidder must submit a letter of commitment for Key Personnel, signed by the identified resource, stating their commitment to work for the bidder/subcontractor on this project contingent on award of the bid. If the identified personnel are currently assigned to a State project the bidder must provide a letter signed by the State Project Manager releasing the individual from the project.

Proposed Resource Name:	Rick Keller
Proposed Classification:	*Project Manager/Project Leader/Technical Lead*
Key Personnel:	**Yes** √ ***or*** **No** □
If resource is associated with a subcontractor provide name of company:	**n/a**
Percentage of time resource will be allocated to project:	20%

Bidder: List the skills and experience that qualify the individual for the duties and responsibilities on this project for the proposed role. Provide the name of the project(s) and the year(s) the experience was
List client references for work performed to meet the requirements stated above, and all projects the proposed resource has worked on in the last three (3) years. A minimum of three (3) references are required. By submission of this information, the bidder and identified key person authorize the State of Michigan to contact references and previous employers provided to verify the accuracy of the information. Provide the identified information for each:

Start Date: *April 2003*	End Date: *Present*
Client/Project: *Michigan Disease Surveillance System (MDSS) Project, Michigan Department of Community Health & Department of Technology, Management & Budget:* ***Mr. Jim Collins****, Manager-Surveillance and Infectious Disease Epidemiology Bureau of Epidemiology, MDCH, 201 Townsend, 5th Floor, P.O. Box 30195, Lansing, MI 48913, Lansing: 517-335-8586, collinsjim@michigan.gov;* ***Ms. Sheryl Conway****, DTMB/Agency Services for DCH, Chandler Building, 300 East Michigan Ave., 1st Floor, Lansing, MI , 517-373-3137, ConwayS@michigan.gov;* ***Mr. Edward F. Hartwick****, MDSS & GIS Coordinator, MDCH, Bureau of Epi - Communicable Disease Division, Surveillance and Infectious Disease Epidemiology, 201 Townsend, 5th Floor, Lansing, MI 48933, 517-335-8475*	
Employer: *Altarum Institute*	
Title/Percentage of time: *Project Leader & Technical Lead/90% (combined MDSS maintenance & enhancement)*	
Description: *Is responsible for public health IT projects in the Information and Technologies Strategies Practice Area as well as business development in that area. As the public health IT project manager and technical lead for the Michigan Syndromic Surveillance (MSS) project and the Michigan Disease Surveillance System (MDSS), has technical responsibilities that include system design, development and testing, and leading the development team. Develops the project plan and is the main point of contact with the client. Both projects are for the Michigan Department of Community Health (MDCH).*	

Start Date: *April 2003*	End Date: *Present*
Client/Project: *Michigan Syndromic Surveillance (MSS) Michigan Department of Community Health & Department of Technology, Management & Budget:* ***Mr. Jim Collins****, Manager-Surveillance and Infectious Disease Epidemiology Bureau of Epidemiology, MDCH, 201 Townsend, 5th Floor, P.O. Box 30195, Lansing, MI 48913, Lansing: 517-335-8586, collinsjim@michigan.gov;*	
Employer: *Altarum Institute*	
Title/Percentage of time: *Technical Lead and Project Manager/10%*	
Description: *The MSSS project enables public health officials to rapidly detect and track unusual outbreaks of illness that may be the result of bioterrorism, other outbreaks of infectious disease, or other public health threats and emergencies. Sponsored by the MDCH, this project is managed by the Altarum Institute. As the technical lead and project manager, is responsible for all aspects of the system across the entire systems development lifecycle. This includes system requirements, hardware and software specifications, project planning, integration of multiple third-party software products, and working with different vendors and consultants. Also investigates the different detection algorithms that will be used to indicate potential outbreaks. The project is a J2EE implementation utilizing Java, Apache, Tomcat, Jboss, ArcIMS, and Oracle. Real-time HL7 messaging is used to receive data from emergency departments throughout Michigan. Virtual private networks (VPN) are being used to ensure secure messaging.*	

EDUCATION

Education		
Degree (i.e. PhD, Master's, Bachelors)	*Master of Science*	Year Completed: *1996*
Program	*Computer Science, Engineering*	
University	*Oakland University, Rochester, Michigan*	

Additional Education		
Degree (i.e. PhD, Master's, Bachelors)	*Bachelor of Science*	Year Completed: *1987*
Program	*Computer Science*	
University	*University of Michigan, Ann Arbor, Michigan*	

TRAINING – Provide any relevant technical or professional training related to the role resource will be providing on this project.

Technical or Professional Training	
Course Name	
Topic	*(include credit hours if applicable)*
Date taken	

Certifications/Affiliations	
Name	
Topic/Description	
Date completed	

The Bidder must submit a letter of commitment for Key Personnel, signed by the identified resource, stating their commitment to work for the bidder/subcontractor on this project contingent on award of the bid. If the identified personnel are currently assigned to a State project the bidder must provide a letter signed by the State Project Manager releasing the individual from the project.

Proposed Resource Name:	Andrey Yeatts
Proposed Classification:	*Programmer/Analyst*
Key Personnel:	**Yes** ☐ ***or*** **No** √
If resource is associated with a subcontractor provide name of company:	**n/a**
Percentage of time resource will be allocated to project:	10%

Bidder: List the skills and experience that qualify the individual for the duties and responsibilities on this project for the proposed role. Provide the name of the project(s) and the year(s) the experience was
List client references for work performed to meet the requirements stated above, and all projects the proposed resource has worked on in the last three (3) years. A minimum of three (3) references are required. By submission of this information, the bidder and identified key person authorize the State of Michigan to contact references and previous employers provided to verify the accuracy of the information. Provide the identified information for each:

Start Date: *February 2005*	End Date: *Present*
Client/Project: *Michigan Disease Surveillance System (MDSS) Project, Michigan Department of Community Health & Department of Technology, Management & Budget:* ***Mr. Jim Collins****, Manager-Surveillance and Infectious Disease Epidemiology Bureau of Epidemiology, MDCH, 201 Townsend, 5th Floor, P.O. Box 30195, Lansing, MI 48913, Lansing: 517-335-8586, collinsjim@michigan.gov;* ***Ms. Sheryl Conway****, DTMB/Agency Services for DCH, Chandler Building, 300 East Michigan Ave., 1st Floor, Lansing, MI , 517-373-3137, ConwayS@michigan.gov;* ***Mr. Edward F. Hartwick****, MDSS & GIS Coordinator, MDCH, Bureau of Epi - Communicable Disease Division, Surveillance and Infectious Disease Epidemiology, 201 Townsend, 5th Floor, Lansing, MI 48933, 517-335-8475*	
Employer: *Altarum Institute*	
Title/Percentage of time: *System Developer/50% (combined MDSS maintenance & enhancement)*	
Description: *Dr. Yeatts has provided technical consulting and recommendations for MDCH and MDIT on the Michigan Disease Surveillance System (MDSS), including integration with the Centers for Disease Control and Prevention's (CDC's) Public Health Information Network Messaging System (PHIN-MS), Health Level 7 (HL7) messaging, and MDSS extensions.* *Dr. Yeatts has provided public health technical support to the Michigan Department of Community Health (MDCH) and the Michigan Department of Information Technology (MDIT) since February 2002, and was the chief architect on the Michigan Disease Surveillance System (MDSS) until June 2004. Beginning in February 2005, he became a consultant to MDCH and MDIT through Altarum. Dr. Yeatts also oversaw disease reporting system implementations in New York City, Connecticut, North Dakota, and West Virginia.* *With over 20 years of experience in information technologies and software engineering, Dr. Yeatts brings rigorous depth and breadth to information technology development. His experience spans he has a thorough knowledge of modern languages and development methodologies. He has served in nearly every capacity in information technology, from design and development to field engineering to project management.*	

EDUCATION

Education		
Degree (i.e. PhD, Master's, Bachelors)	*PhD*	Year Completed: *1996*
Program	*Computer Science*	
University	*University of Arizona, Tucson, Arizona*	

Additional Education		
Degree (i.e. PhD, Master's, Bachelors)	*Master of Science*	Year Completed: *1989*
Program	*Computer Science*	
University	*University of Arizona, Tucson, Arizona*	

Additional Education		
Degree (i.e. PhD, Master's, Bachelors)	*Bachelor of Science*	Year Completed: *1985*
Program	*Computer Science and Mathematics*	
University	*Yale University, New Haven, Connecticut*	

TRAINING – Provide any relevant technical or professional training related to the role resource will be providing on this project.

Technical or Professional Training	
Course Name	
Topic	*(include credit hours if applicable)*
Date taken	

Certifications/Affiliations	
Name	
Topic/Description	
Date completed	

The Bidder must submit a letter of commitment for Key Personnel, signed by the identified resource, stating their commitment to work for the bidder/subcontractor on this project contingent on award of the bid. If the identified personnel are currently assigned to a State project the bidder must provide a letter signed by the State Project Manager releasing the individual from the project.