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 9
to
Contract Number **071B9200040**

CONTRACTOR	
	DELCAN CORPORATION
	650 E. Algonquin Rd, Suite 104
	Schaumburg, IL 60173
	Joseph Brahm
	(847) 925-0120
	j.brahm@delcan.com
	*******3452

STATE			
	Program Manager	John Kalanquin	MDOT
		517-241-0177	
		kalanquinj@Michigan.gov	
	Contract Administrator	James Topping	DTMB
		(517) 284-7000	
		ToppingJ@michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: MDOT Statewide Advanced Traffic Management System (ATMS)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
October 1, 2008	September 30, 2011	7 - 1 Year	September 30, 2016

PAYMENT TERMS	DELIVERY TIMEFRAME
N/A	N/A

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

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☒	1 year	☐		September 30, 2017

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$3,979,921.37	$ 96,800	$4,076,721.37

DESCRIPTION: Effective June 24, 2016 the sixth of seven option years is exercised. The new expiration date is September 30, 2017. An additional $96,800 is added to the Contract value per the attached agency SOW and vendor agreement letter which includes the cost schedule added under Change Notice #6. Buyer is updated to James Topping.

All other terms, conditions, specifications, and pricing remain the same. Per agency agreement, vendor agreement and DTMB Procurement approval.

Original approved Ad Board amount: $4,015,624.00
Remaining Ad Board Amount: $0.00

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

Project Title: **Delcan (ATMS) Exercise Option Year**	**Period of Coverage:** **9/30/16 to 10/1/17**
Requesting Department: **MDOT/Agency Services MDOT**	**Date:** **4/12/2016**
Agency Project Manager: **Lee Nedervel**	**Phone:** **517-335-5317**
DTMB Project Manager: **Mark Burrows**	**517-281-0583**

Brief Description of Services to be provided:
The mission of the State of Michigan's Intelligent Transportation Systems (ITS) Group is to:
"Develop and sustain a program at MDOT to improve transportation system safety and operational performance using existing and innovative Intelligent Transportation System technologies for economic benefit and improved quality of life."

To assist MDOT in achieving this mission a statewide network of Traffic Management Centers (TMCs) was created. These TMCs manage a wide array of ITS devices, including cameras, dynamic message signs, and traffic sensors.

Now that they are in place, we must pay yearly maintenance on the application we use to run the TMCs.

BACKGROUND:
MDOT is currently organized into 7 regions that maintain traffic flow and manage traffic within each region (http://www.michigan.gov/mdot/0,1607,7-151-9623-36042--,00.html). Each region within the state has at least one (if not more) TMC created. The TMCs are tasked with managing the various ITS devices within their particular area of control. The TMC controlled areas are strengthened by networking all of the TMCs within the state together (existing or to be created), thus allowing better control of all highway traffic statewide.

PROJECT OBJECTIVE:
The purpose of this project was to replace the ATMS platforms at the existing three (3) TMCs and to allow for future implementation at other TMCs across the state. That work has been completed. We are exercising the option year on the contract to pay yearly maintenance on the Delcan ATMS application.

SCOPE OF WORK:
We are exercising the option year on the contract to pay yearly maintenance on the Delcan ATMS application.

TASKS:
N/A

DELIVERABLES:
N/A

ACCEPTANCE CRITERIA:
Final acceptance is expressly conditioned upon completion and acceptance of all deliverables/milestones, completion of all tasks in the project plan as approved, completion of all applicable inspection and/or testing procedures, and the certification by the State that the Contractor has met the defined requirements.

PROJECT CONTROL AND REPORTS:
Reporting formats must be submitted to the State's Project Managers for approval within ten (10) business days after the effective date of this Contract. Once both parties have agreed to the format of the report, it shall become the standard to follow for the duration of the Contract. Progress Reports shall be submitted by the Contractor no more than five (5) business days after the end of each month. They shall include, but are not limited to:

- Updated project work plan
- Summary of activity during the report period
- Accomplishments during the report period
- Deliverables status
- Adherence to schedule status
- Action Item status
- Issues encountered during the report period, and resolutions
- Proposed changes for the CCB

SPECIFIC DEPARTMENT STANDARDS:
Agency standards, if any, in addition to DTMB standards.

PAYMENT SCHEDULE:
Maintenance is paid yearly.

EXPENSES:
The State will NOT pay for any travel expenses, including hotel, mileage, meals, parking, etc.

PROJECT CONTACTS:
The designated Agency Project Manager is:

Name **Lee Nefeval**
Department MDOT
Area
Building/Floor
Address
City/State/Zip
Phone Number **517-335-5317**
Fax Number
Email Address nedervell@michigan.gov

The designated DTMB Project Manager is:

Name **Mark Burrows**
Department DTMB Agency Services/Customer Services
Area
Building/Floor Van Wagoner 3rd Floor
Address 425 W Ottawa St
City/State/Zip Lansing Michigan 48909
Phone Number **517-281-0583**
Fax Number
Email Address normandinj@michigan.gov

AGENCY RESPONSIBILITIES:
N/A

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:
Consultants will work at 425 W Ottawa (Van Wagoner Building) in Lansing, Michigan.

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:
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.

Form No. DTMB-3521 (Rev. 7/2015)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract change will not be executed unless form is filed

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

CHANGE NOTICE NO. 8

to

CONTRACT NO. 071B9200040

between

THE STATE OF MICHIGAN

and

NAME & ADDRESS OF CONTRACTOR	PRIMARY CONTACT	EMAIL
Delcan Corporation	Joseph Brahm	j.brahm@delcan.com
650 E. Algonquin Road, Suite 104	PHONE	CONTRACTOR'S TAX ID NO. (LAST FOUR DIGITS ONLY)
Schaumburg, IL 60173	(847) 925-0120	

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
PROGRAM MANAGER / CCI	MDOT	John Kalanquin	517-241-0177	kalanquinj@michigan.gov
CONTRACT ADMINISTRATOR	DTMB	David Hatch	517-284-7044	hatchd@michigan.gov

CONTRACT SUMMARY

DESCRIPTION: MDOT Statewide Advanced Traffic Management System (ATMS)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
October 1, 2008	September 30, 2011	7 , 1 Year	September 30, 2015

PAYMENT TERMS	DELIVERY TIMEFRAME
N/A	N/A

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

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

EXERCISE OPTION?	LENGTH OF OPTION	EXERCISE EXTENSION?	LENGTH OF EXTENSION	REVISED EXP. DATE
☒	1 Year	☐		September 30, 2016

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$3,883,121.37	$96,800.00	$3,979,921.37

DESCRIPTION: Effective September 25, 2015 the fifth of seven option years is exercised. The new expiration date is September 30, 2016. The State Contacts are also updated as included above. An additional $96,800.00 is added to the contract value per the attached agency SOW and vendor agreement letter which includes the cost schedule as added the contract under Change Notice #6. All other terms, conditions, specifications, and pricing remain the same. Per agency agreement, vendor agreement and DTMB Procurement approval.

Originally approved Ad Board amount: $4,015,624.00;
Remaining from Original Ad Board amount: $35,702.63

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

Project Title: **Delcan (ATMS) Exercise Option Year**	**Period of Coverage:** **9/30/15 to 10/1/16**
Requesting Department: **MDOT/Agency Services MDOT**	**Date:** **8/31/2015**
Agency Project Manager: **Lee Nedervel**	**Phone:** **517-335-5317**
DTMB Project Manager: **Mark Burrows**	**517-281-0583**

Brief Description of Services to be provided:
The mission of the State of Michigan's Intelligent Transportation Systems (ITS) Group is to:
"Develop and sustain a program at MDOT to improve transportation system safety and operational performance using existing and innovative Intelligent Transportation System technologies for economic benefit and improved quality of life."

To assist MDOT in achieving this mission a statewide network of Traffic Management Centers (TMCs) was created. These TMCs manage a wide array of ITS devices, including cameras, dynamic message signs, and traffic sensors.

Now that they are in place, we must pay yearly maintenance on the application we use to run the TMCs.

BACKGROUND:
MDOT is currently organized into 7 regions that maintain traffic flow and manage traffic within each region (http://www.michigan.gov/mdot/0,1607,7-151-9623-36042--,00.html). Each region within the state has at least one (if not more) TMC created. The TMCs are tasked with managing the various ITS devices within their particular area of control. The TMC controlled areas are strengthened by networking all of the TMCs within the state together (existing or to be created), thus allowing better control of all highway traffic statewide.

PROJECT OBJECTIVE:
The purpose of this project was to replace the ATMS platforms at the existing three (3) TMCs and to allow for future implementation at other TMCs across the state. That work has been completed. We are exercising the option year on the contract to pay yearly maintenance on the Delcan ATMS application.

SCOPE OF WORK:
We are exercising the option year on the contract to pay yearly maintenance on the Delcan ATMS application.

TASKS:

N/A

DELIVERABLES:

N/A

ACCEPTANCE CRITERIA:
Final acceptance is expressly conditioned upon completion and acceptance of all deliverables/milestones, completion of all tasks in the project plan as approved, completion of all applicable inspection and/or testing procedures, and the certification by the State that the Contractor has met the defined requirements.

PROJECT CONTROL AND REPORTS:
Reporting formats must be submitted to the State's Project Managers for approval within ten (10) business days after the effective date of this Contract. Once both parties have agreed to the format of the report, it shall become the standard to follow for the duration of the Contract. Progress Reports shall be submitted by the Contractor no more than five (5) business days after the end of each month. They shall include, but are not limited to:

- Updated project work plan
- Summary of activity during the report period
- Accomplishments during the report period
- Deliverables status
- Adherence to schedule status
- Action Item status
- Issues encountered during the report period, and resolutions
- Proposed changes for the CCB

SPECIFIC DEPARTMENT STANDARDS:
Agency standards, if any, in addition to DTMB standards.

PAYMENT SCHEDULE:
Maintenance is paid yearly.

EXPENSES:
The State will NOT pay for any travel expenses, including hotel, mileage, meals, parking, etc.

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name **Lee Nefeval**
Department MDOT
Area
Building/Floor
Address
City/State/Zip
Phone Number **517-335-5317**
Fax Number
Email Address nedervell@michigan.gov

The designated DTMB Project Manager is:

Name **Mark Burrows**
Department DTMB Agency Services/Customer Services
Area
Building/Floor Van Wagoner 3rd Floor
Address 425 W Ottawa St
City/State/Zip Lansing Michigan 48909
Phone Number **517-281-0583**
Fax Number
Email Address normandinj@michigan.gov

AGENCY RESPONSIBILITIES:

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:
Consultants will work at 425 W Ottawa (Van Wagoner Building) in Lansing, Michigan.

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:
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.

650 E. Algonquin Road, Suite 400
Tel: 847-925-0120 • Fax: 847-925-0140
www.delcan.com

08/19/2015

Monica Coulter
State of Michigan
Department of Management and Budget
P.O. Box 30026
Lancing, Michigan 48909

Re: MDOT Statewide Advanced Traffic Management System ATMS Project
Contract Number: 071B9200040

Dear Mr. Burrows:

The following is the ATMS maintenance cost schedule as updated last year. The 2015-2016 Maintenance cost is $96,800.

Cost Categories	Payment Schedule
1. First Year of Maintenance (10/1/2011 – 9/30/2012)	60,000
2. Second Year of Maintenance (10/1/2012 – 9/30/2013)	73,720
3. Third Year of Maintenance (10/1/2013 – 9/30/2014)	91,670
4. Fourth Year of Maintenance (10/1/2014 – 9/30/2015)	$86,800
5. Fifth Year of Maintenance (10/1/2015 – 9/30/2016)	$96,800
6. Sixth Year of Maintenance (10/1/2016 – 9/30/2017)	$96,800
7. Seventh Year of Maintenance (10/1/2017 – 9/30/2018)	$96,800
8. Eighth Year of Maintenance (10/1/2018 – 9/30/2019)	$97,800
9. Ninth Year of Maintenance (10/1/2019 – 9/30/2020)	$97,800
10. Tenth Year of Maintenance (10/1/2020 – 9/30/2021)	$97,800

This maintenance budget does not include any ATMS enhancements or new or modified field element interfaces. Also note that the maintenance costs for years 4 through 10 are not included in the Base ATMS agreement budget. Adding the "Fifth Year of Maintenance" will require an increase to the contract budget.

Please give me a call if you need anything else or have any questions related to this issue.

Sincerely,

Joseph Brahm
Delcan Corporation (A Parsons Company)

Form No. DTMB-3521 (Rev. 5/2015)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract change will not be executed unless form is filed

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

CHANGE NOTICE NO. 7

to

CONTRACT NO. 071B9200040

between

THE STATE OF MICHIGAN

and

NAME & ADDRESS OF CONTRACTOR	PRIMARY CONTACT	EMAIL
Delcan Corporation	Joseph Brahm	j.brahm@delcan.com
650 E. Algonquin Road, Suite 104	PHONE	VENDOR TAX ID # (LAST FOUR DIGITS ONLY)
Schaumburg, IL 60173	(847) 925-0120	

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
PROGRAM MANAGER / CCI	MDOT	John Kalanquin	(517) 241-0177	kalanquinj@michigan.gov
CONTRACT ADMINISTRATOR	DTMB	Whitnie Zuker	(517) 335-5306	zukerw@michigan.gov

CONTRACT SUMMARY

DESCRIPTION: MDOT Statewide Advanced Traffic Management System (ATMS)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
October 1, 2008	September 30, 2011		September 30, 2015

PAYMENT TERMS	F.O.B.	SHIPPED TO
N/A	N/A	N/A

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

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

EXTEND CONTRACT EXPIRATION DATE	EXERCISE CONTRACT OPTION YEAR(S)	EXTENSION BEYOND CONTRACT OPTION YEARS	LENGTH OF EXTENSION/OPTION	EXPIRATION DATE AFTER CHANGE
☒ No ☐ Yes	☐	☐		Sept. 30, 2015

CURRENT VALUE	VALUE/COST OF CHANGE NOTICE	ESTIMATED REVISED AGGREGATE CONTRACT VALUE
$3,865,624.00	$17,497.37	$3,883,121.37

DESCRIPTION:
Effective immediately, this contract is increased by $17,497.37 to upgrade The Advanced Traffic Management System (ATMS). This increase is required due to the fact that the old data feed will be retired in June 2015 and the new data feed requires ATMS to be modified in order to keep the existing functionality. The data feed allows MDOT to access real-time traffic data and gives them the ability to monitor traffic within the ATMS Software. Without these modifications the feed will not be able to provide the information that is used for public safety. All other terms, conditions, pricing and specifications remain the same. Per vendor and agency agreement and DTMB Procurement approval.

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

Project Title: **Advanced Traffic Management System - Traffic Data Feed Upgrade**	**Period of Coverage:** **4/30/2015 to 9/30/2015**
Requesting Department: **MDOT/Bureau of Highways and Executive Bureau**	**Date:** **4/16/2015**
Agency Project Manager: **Luke Biernbaum**	**Phone:** **517-636-5021**
DTMB Project Manager: **Mark Burrows / Monica Coulter**	**Phone:** **517-335-2655/517-243-7419**

Brief Description of Services to be provided:
As part of an existing contract, MDOT needs Parsons to upgrade the Advanced Traffic Management System (ATMS) in order to integrate a new real-time traffic data feed supplied by HERE. Enhancement services, such as this, were accounted for in the MDOT Statewide Advanced Traffic Management System (ATMS) licensing contract (071B9200040).

BACKGROUND:
MDOT has an existing contract with HERE which allows access to a real-time traffic data feed, providing MDOT the ability to monitor traffic within the ATMS software. Furthermore, the ATMS uses the real-time traffic data feed for calculating travel times that are posted on dynamic message signs (DMS) throughout the state. The current feed used by the ATMS is also provided by HERE but will be retired by June 2015. All data generated or used by the ATMS system is used for public safety purposes.

PROJECT OBJECTIVE:
The purpose of this Statement of Work (SOW) is to solicite Parsons in providing an update to the Intelligent Networks ATMS product to meet MDOT's business and public needs. This update will provide system operations continuity for MDOT, which includes keeping travel time messages on DMS thoughout the state.

SCOPE OF WORK:
Make the necessary changes to the ATMS system to support the new HERE traffic data feed before the current traffic data feed from HERE expires in June. These changes to use the new data feed are to duplicate existing functionality. Additional features that the feed has will not be encorporated into this scope of work.

TASKS:
Parsons will support the transition to the new feed so that there is no more than 30 minutes possible down time that may affect MDOT operations. This scope of work, at a minimum, includes:

1. System Software Design and Development (80 hours)
2. System Unit testing in the MDOT Development environment (16 hours)
3. Package build and submittal to DTMB which shall include (16 hours)
    - Release / build
    - Test Cases
    - Installation notes
    - Data Conversion notes and scripts
    - Backout process
    - Updates to system scripts used for monitoring and system startup/shutdown
4. Upon acceptance Deployment to state QA/Test environment
5. QA/Test environment Testing by Parsons and MDOT testing team
6. Formal review of testing results with the testing team and Parsons
7. Assist with software deployment into MDOT's Production environment
8. Final user acceptance (7 hours total among scope items 4-7)

Items 1-3 will be completed within three weeks of initiation (Estimated 5/20/2015 – 6/10/ 2015) barring any unforeseen issues with the updated HERE feed. Installation and testing (Items 4-7) will be coordinated with DTMB and MDOT.

OUT OF SCOPE:

The following items have been identified as out of scope and will not be required tasks withing this scope of work:

1. Changes will not be made to the TMC codes and locations of the traffic data segments. This has been confirmed by Phil Bernard of HERE, but this continuity is a central point of this estimate.
2. Upgraded features offered by HERE such as predictive data and segment subsection updates are not included in this statement of work and these items will require separate estimates if desired by MDOT.
3. System documentation will remain the same since no user interfaces or user processes will change.
4. No changes to the existing map will be made.
5. No changes to travel time segments will be required, because the TMC Codes and locations will not change. This is according to conversations between Parosns and HERE.
6. If there are unanticipated changes to the TMC codes or locations the changes to the ATMS are **NOT** covered under this estimate.

DELIVERABLES:

Deliverables will not be considered complete until the Agency Project Manager has formally accepted them. Deliverables for this project include:

Package Build shall be submitted and is acceptable by DTMB. The Installation Process should account to no more than 30 minutes of service interuption when moved into the State's Production Environment.

PROJECT CONTROL AND REPORTS:

A progress status updated will be added to the State's ATMS Stakeholder team that meets every three weeks throughout the life of this project. Each progress update shall contain the following:

1. **Hours**: Indicate the number of hours expended during the past two weeks, and the cumulative total to date for the project.
2. **Accomplishments:** Indicate what was worked on and what was completed during the current reporting period.
3. **Funds:** Indicate the amount of funds expended during the current reporting period, and the cumulative total to date for the project.

SPECIFIC DEPARTMENT STANDARDS:

Agency standards, if any, in addition to DTMB standards.

PAYMENT SCHEDULE:

Payment ($17,497.37) will be made on a Firm-Fixed basis after testing and acceptance. DTMB will pay CONTRACTOR upon receipt of properly completed invoice(s) which shall be submitted to the billing address on the State issued purchase order not more often than monthly. DTMB Accounts Payable area will coordinate obtaining Agency and DTMB Project Manager approvals. All invoices should reflect actual work completed by payment date, and must be approved by the Agency 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.

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

EXPENSES:

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

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Luke Biernbaum
Department MDOT/Bureau of Highways and Executive Bureau
Area

Building/Floor Construction and Technology Building/1st Floor
Address 8885 Ricks Road
City/State/Zip Lansing, Michigan 48909
Phone Number 517-636-5021
Fax Number
Email Address TBD@michigan.gov

The designated DTMB Project Manager(s) is:

Name Mark Burrows/Monica Coulter
Department Agency Services/MDOT
Area
Building/Floor Van Wagoner Building/3rd Floor
Address 425 W Ottawa St
City/State/Zip Lansing Michigan 48909
Phone Number 517-335-2655/517-243-7419
Fax Number
Email Address burrowsm@michigan.gov / coulterm@michigan.gov

Understanding of Service

A major component of any ATMS is the ability to measure travel times and provide this information to the public. Delcan (now a Parsons company) has provided iNet as an ATMS solution to do exactly that. In the original contract the interface was with NAVTEQ, but the feed has been updated and the company is now known as HERE.

MDOT has an existing contract with HERE which allows access to a real-time traffic data feed, providing MDOT the ability to monitor traffic within the ATMS software. The ATMS uses the real-time traffic data feed for calculating travel times that are posted on dynamic message signs (DMS) throughout the state. The current feed used by the ATMS is also provided by HERE but will be retired by June 2015. All data generated or used by the ATMS system is used for public safety purposes.

The goal of this project will be to update the ATMS to read the new feed at previous functionality levels. Future enhancements are possible to update elements such as the base map and predictive data, but this proposal is only for the update to the new feed.

We do not anticipate any delay or issues as this project does not involve any construction or outside factors. The only critical path item will be HERE providing answers to any questions about the new feed, but much of this work has already been done while investigating the need for change.

Updates during the project will be provided at every ATMS Stakeholder team meeting. As requested, we will also provide and hours and accomplishments update.

Acceptance Testing

System level acceptance testing will be based on test plans that will be developed to meet the goals set forth in the scope, specifically meeting existing functionality. System level acceptance testing will be scheduled upon completion of code modifications and testing of the system in the States QA environment using the updated feed. Testing will include the appropriate level of regression testing based on the nature of the changes and the components affected in the ATMS.

Documentation

As part of this update, documentation of the installation process will be provided. Included will be a backout process, as well as updated scripts for startup/shutdown and monitoring. We will also provide a test plan and build notes describing the changes that were made and how to test the results of the change.

Qualifications of Team

The team we are proposing for this project has extensive experience related to the planning and implementation of the travel time system in Michigan. Team members were specifically selected to ensure all relevant aspects of the project are thoroughly covered with the right technical experience.

Delcan (PARSONS) is one of the world's leading large scale ITS systems integrators. We have designed and deployed ITS solutions throughout the world. Within Michigan, Delcan (PARSONS) is responsible for the deployment of your state wide ATMS, and we are part of the team deploying the Truck Parking status project within the State.

We have the experience required to ensure that all relevant DTMB, MDOT, FHWA, and AASTHO practices, guidelines, policies and standards are fully considered and addressed in this project. You're also ensured that your solution will be based on the lessons learned from many ATMS updates and ITS projects.

Role of Key Personnel

Project Management –Scott Lee

- **Testing** - **Preston Judkins** will lead system testing with support from technical staff as required.
- **Training – Preston Judkins** will lead training.
- **Software Development – Ranjit Gopal** will lead development using his software team.

Scope and Pricing

This project is the first step in updating the HERE feed. Below is the scope of what will be accomplished.

Parsons will support the transition to the new feed so that there is no more than 30 minutes down time due to the file modification that may affect MDOT operations (not including network issues). This scope of work includes:

9. System Software Design and Development (80 hours);
10. System Unit testing in the MDOT Development environment (16 hours);
11. Package build and submittal to DTMB which shall include (16 hours):
    - Release / build
    - Test Cases
    - Installation notes
    - Data Conversion notes and scripts
    - Backout process
    - Updates to system scripts used for monitoring and system startup/shutdown
12. Upon acceptance Deployment to state QA/Test environment
13. QA/Test environment Testing by Parsons and MDOT testing team
14. Formal review of testing results with the testing team and Parsons
15. Assist with software deployment into MDOT's Production environment
16. Final user acceptance (7 hours total among scope items 4-7)

Items 1-3 will be completed within three weeks of initiation (*Estimated 5/20/2015 – 6/10/ 2015*) barring any unforeseen issues with the updated HERE feed. Installation and testing (Items 4-7) will be coordinated with DTMB and MDOT.

The following items have been identified as out of scope and will not be required tasks within this scope of work:

7. Changes will not be made to the TMC codes and locations of the traffic data segments. This has been confirmed by Phil Bernard of HERE, but this continuity is a central point of this estimate.
8. Upgraded features offered by HERE such as predictive data and segment subsection updates are not included in this statement of work and these items will require separate estimates if desired by MDOT.
9. System documentation will remain the same since no user interfaces or user processes will change.
10. No changes to the existing map will be made.

11. No changes to travel time segments will be required, because the TMC Codes and locations will not change. This is according to conversations between Parsons and HERE.
12. If there are unanticipated changes to the TMC codes or locations the changes to the ATMS are **NOT** covered under this estimate.

For the requested work, this proposal is $17,497.37 a fixed price, using scope personnel classifications noted below. Payment expected within 30 days of acceptance and invoice delivery.

Enhancement services, such as this, were accounted for in the MDOT Statewide Advanced Traffic Management System (ATMS) licensing contract (071B9200040).

Personnel Breakdown	Hourly Rate	Hours	Total
Lead Engineer	$181.73	16	$2,907.68
Senior Engineer	$157.59	55	$8,667.45
Intermediate Engineer	$123.38	48	$5,922.24
Total		119	$17,497.37

Form No. DTMB-3521 (Rev. 4/2012)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract change will not be executed unless form is filed

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

CHANGE NOTICE NO. 6

to

CONTRACT NO. 071B9200040

between

THE STATE OF MICHIGAN

and

NAME & ADDRESS OF CONTRACTOR:	PRIMARY CONTACT	EMAIL
Delcan	Joseph Brahm	j.brahm@delcan.com
650 E. Algonquin Road, Suite 104	**TELEPHONE**	**CONTRACTOR #, MAIL CODE**
Schaumburg, IL 60173	(847) 925-0120	

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
CONTRACT COMPLIANCE INSPECTOR	MDOT	John Kalanquin	517-241-0177	kalanquinj@michigan.gov
BUYER	DTMB	Whitnie Zuker	517-335-5306	zukerw@michigan.gov

CONTRACT SUMMARY:

DESCRIPTION: **MDOT Statewide Advanced Traffic Management System (ATMS)**

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
October 1, 2008	September 30, 2011		September 30, 2014
PAYMENT TERMS	**F.O.B**	**SHIPPED**	**SHIPPED FROM**
N/A	N/A	N/A	N/A

ALTERNATE PAYMENT OPTIONS:			AVAILABLE TO MiDEAL PARTICIPANTS
☐ P-card	☐ Direct Voucher (DV)	☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS:

N/A

DESCRIPTION OF CHANGE NOTICE:

EXTEND CONTRACT EXPIRATION DATE	EXERCISE CONTRACT OPTION YEAR(S)	EXTENSION BEYOND CONTRACT OPTION YEARS	LENGTH OF OPTION/EXTENSION	EXPIRATION DATE AFTER CHANGE
☐ No ☒ Yes	☒	☐	1 year	Sept. 30, 2015

VALUE/COST OF CHANGE NOTICE:	ESTIMATED AGGREGATE CONTRACT VALUE REMAINS:
$86,800.00	$3,865,624.00

Effective September 9, 2014, this contract is hereby EXTENDED to September 30, 2015, using the 4th option year to extend. Contract is also increased by $86,800.00 and the attached revised pricing dated 8/28/14 is hereby incorporated into contract. The increase in maintenance is due to the addition of new components to the Statewide ATMS that include the Truck Parking, ICM, DUAP Weather Integration and the Board Wait Time. New Contract Value is $3,865,624.00. All other terms, conditions, pricing and specifications remain the same. Per vendor and agency agreement and DTMB Procurement approval.

650 E. Algonquin Road, Suite 400
Tel: 847-925-0120 • Fax: 847-925-0140
www.delcan.com

08/28/2014

Mark Burrows
State of Michigan
Department of Management and Budget
P.O. Box 30026
Lancing, Michigan 48909

Re: MDOT Statewide Advanced Traffic Management System ATMS Project
Contract Number: 071B9200040

Dear Mr. Burrows:

The following is the revised ATMS maintenance cost schedule based on the addition of the new components to the Statewide ATMS that includes the Truck Parking, ICM, DUAP Weather integration and the Border Wait Time (ATMS changes only. Does not include field elements) enhancements.

Cost Categories	Payment Schedule
1. First Year of Maintenance (10/1/2011 – 9/30/2012)	60,000
2. Second Year of Maintenance (10/1/2012 – 9/30/2013)	73,720
3. Third Year of Maintenance (10/1/2013 – 9/30/2014)	91,670
4. Fourth Year of Maintenance (10/1/2014 – 9/30/2015)	~~70,000~~ $86,800
5. Fifth Year of Maintenance (10/1/2015 – 9/30/2016)	~~80,000~~ $96,800
6. Sixth Year of Maintenance (10/1/2016 – 9/30/2017)	~~80,000~~ $96,800
7. Seventh Year of Maintenance (10/1/2017 – 9/30/2018)	~~80,000~~ $96,800
8. Eighth Year of Maintenance (10/1/2018 – 9/30/2019)	~~81,000~~ $97,800
9. Ninth Year of Maintenance (10/1/2019 – 9/30/2020)	~~81,000~~ $97,800
10. Tenth Year of Maintenance (10/1/2020 – 9/30/2021)	~~81,000~~ $97,800

Note that the maintenance costs for years 4 through 10 are not included in the Base ATMS agreement budget ($3,778,824). Adding the "Fourth Year of Maintenance" would need to increase the base contract to $3,865,624.

Please give me a call if you need anything else or have any questions related to this issue.

Sincerely,

Joseph Brahm
Delcan Corporation

Form No. DTMB-3521 (Rev. 4/2012)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract change will not be executed unless form is filed

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

CHANGE NOTICE NO. 5

to

CONTRACT NO. 071B9200040

between

THE STATE OF MICHIGAN

and

NAME & ADDRESS OF CONTRACTOR:	PRIMARY CONTACT	EMAIL
Delcan	Joseph Brahm	j.brahm@delcan.com
650 E. Algonquin Road, Suite 104	**TELEPHONE**	**CONTRACTOR #, MAIL CODE**
Schaumburg, IL 60173	(847) 925-0120	

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
CONTRACT COMPLIANCE INSPECTOR	MDOT	Bill Pemble	517-241-0177	
BUYER	DTMB	Whitnie Zuker	517-335-5306	zukerw@michigan.gov

CONTRACT SUMMARY:

DESCRIPTION: **MDOT Statewide Advanced Traffic Management System (ATMS)**

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
October 1, 2008	September 30, 2011		September 30, 2013
PAYMENT TERMS	**F.O.B**	**SHIPPED**	**SHIPPED FROM**
N/A	N/A	N/A	N/A

ALTERNATE PAYMENT OPTIONS:	AVAILABLE TO MiDEAL PARTICIPANTS
☐ P-card ☐ Direct Voucher (DV) ☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS:

N/A

DESCRIPTION OF CHANGE NOTICE:

EXTEND CONTRACT EXPIRATION DATE	EXERCISE CONTRACT OPTION YEAR(S)	EXTENSION BEYOND CONTRACT OPTION YEARS	LENGTH OF OPTION/EXTENSION	EXPIRATION DATE AFTER CHANGE
☐ No ☒ Yes	☒	☐	1 year	Sept. 30, 2014

VALUE/COST OF CHANGE NOTICE:	ESTIMATED AGGREGATE CONTRACT VALUE REMAINS:
$0.00	$3,778,824.00

Effective immediately, this contract is hereby EXTENDED to September 30, 2014, using a contract option year to extend. Please also note that the buyer has been changed to Whitnie Zuker. All other terms, conditions, pricing and specifications remain the same. Per vendor and agency agreement and DTMB Procurement approval.

Form No. DTMB-3521 (Rev. 4/2012)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract change will not be executed unless form is filed

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

September 28, 2012

CHANGE NOTICE NO. 4

to

CONTRACT NO. 071B9200040

between

THE STATE OF MICHIGAN

and

NAME & ADDRESS OF CONTRACTOR:	PRIMARY CONTACT	EMAIL
Delcan	Joseph Brahm	j.brahm@delcan.com
650 E. Algonquin Road, Suite 104	**TELEPHONE**	**CONTRACTOR #, MAIL CODE**
Schaumburg, IL 60173	(847) 925-0120	

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
CONTRACT COMPLIANCE INSPECTOR	MDOT	Bill Pemble	(517) 241-0177	
BUYER	DTMB	Mark Lawrence	(517) 241-1640	Lawrencem1@michigan.gov

CONTRACT SUMMARY:

DESCRIPTION: **MDOT Statewide Advanced Traffic Management System (ATMS)**

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
October 1, 2008	September 30, 2011		September 30, 2012
PAYMENT TERMS	**F.O.B**	**SHIPPED**	**SHIPPED FROM**
N/A	N/A	N/A	N/A

ALTERNATE PAYMENT OPTIONS:			AVAILABLE TO MiDEAL PARTICIPANTS	
☐ P-card	☐ Direct Voucher (DV)	☐ Other	☐ Yes	☒ No

MINIMUM DELIVERY REQUIREMENTS:

N/A

DESCRIPTION OF CHANGE NOTICE:

EXTEND CONTRACT EXPIRATION DATE	EXERCISE CONTRACT OPTION YEAR(S)	EXTENSION BEYOND CONTRACT OPTION YEARS	LENGTH OF OPTION/EXTENSION	EXPIRATION DATE AFTER CHANGE
☐ No ☒ Yes	☒	☐	1 year	Sept. 30, 2013

VALUE/COST OF CHANGE NOTICE:	ESTIMATED AGGREGATE CONTRACT VALUE REMAINS:
$0.00	$3,778,824.00

Effective September 30, 2012, this contract is hereby EXTENDED to September 30, 2013, using a contract option year to extend. Please also note that the buyer has been changed to Mark Lawrence. All other terms, conditions, pricing and specifications remain the same. Per vendor and agency agreement and DTMB Procurement approval.

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 **December 13, 2011**
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 3
TO
CONTRACT NO. 071B9200040
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF VENDOR **Delcan** **650 E. Algonquin Rd, Suite 104** **Schaumburg, IL 60173** **j.brahm@delcan.com**	TELEPHONE Joseph Brahm **(847) 925-0120** VENDOR NUMBER/MAIL CODE BUYER/CA (517) 373-3993 **Joe Kelly**
Contract Administrator: Bill Pemble - 517-241-0177 **MDOT Statewide Advanced Traffic Management System (ATMS)**	
CONTRACT PERIOD: From: **October 1, 2008** To: **September 30, 2012**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

NATURE OF CHANGE(S):

Effective immediately, a contract option is exercised and this Contract is EXTENDED one year to September 30, 2012 per the attached vendor agreement. As outlined in the vendor agreement letter, the maintenance table is replaced with the attached and the first year of maintenance began on October 1, 2011. All other pricing, terms, conditions, and specifications remain unchanged.

Please Note: The Contract Administrator for the State has been changed to Bill Pemble.

AUTHORITY/REASON(S):

Per agreement between vendor, MDOT and DTMB Purchasing Operations.

TOTAL ESTIMATED CONTRACT VALUE REMAINS: $3,778,824.00

071B9200040
Change Notice No.3
Signature Page

FOR THE CONTRACTOR:	**FOR THE STATE:**
Delcan	
Firm Name	Signature
	Jeff Brownlee, Chief Procurement Officer
Authorized Agent Signature	Name
	DTMB Purchasing Operations
Authorized Agent (Print or Type)	Title
Date	Date

Delcan
TRANSPORTATION • INFORMATION TECHNOLOGY • WATER

650 E. Algonquin Road, Suite 400
Tel: 847-925-0120 • Fax: 847-925-0140
www.delcan.com

12/12/11

Steve Motz
State of Michigan
Department of Management and Budget
P.O. Box 30026
Lancing, Michigan 48909

Re: MDOT Statewide Advanced Traffic Management System ATMS Project
Contract Number: 071B9200040

Dear Mr. Motz:

Pursuant to our discussions, and your email dated 12/09/11, Delcan can agree to move forward with the extension of the contract with the understanding that the Maintenance period started on 10/1/2011, as shown in the table below.

Cost Categories	**Payment Schedule**
1. First Year of Maintenance (10/1/2011 – 9/30/2012)	60,000
2. Second Year of Maintenance (10/1/2012 – 9/30/2013)	73,720
3. Third Year of Maintenance (10/1/2013 – 9/30/2014)	91,670
4. Fourth Year of Maintenance (10/1/2014 – 9/30/2015)	70,000
5. Fifth Year of Maintenance (10/1/2015 – 9/30/2016)	80,000
6. Sixth Year of Maintenance (10/1/2016 – 9/30/2017)	80,000
7. Seventh Year of Maintenance (10/1/2017 – 9/30/2018)	80,000
8. Eighth Year of Maintenance (10/1/2018 – 9/30/2019)	81,000
9. Ninth Year of Maintenance (10/1/2019 – 9/30/2020)	81,000
10. Tenth Year of Maintenance (10/1/2020 – 9/30/2021)	81,000
Total Cost	**778,390**

In this regard, the last sentence of the first paragraph on page 21 of the agreement will be amended to read "The maintenance period will begin on 10/1/2011.", and the first table on page 24 will be replaced with the table above.

Sincerely,

Joseph Brahm
Delcan Corporation

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 **June 1, 2011**
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 2
TO
CONTRACT NO. 071B9200040
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF VENDOR **Delcan** **650 E. Algonquin Rd, Suite 104** **Schaumburg, IL 60173** **j.brahm@delcan.com**	TELEPHONE Joseph Brahm **(847) 925-0120** VENDOR NUMBER/MAIL CODE BUYER/CA (517) 373-3993 **Joe Kelly**
Contract Administrator: Cindy Turben **MDOT Statewide Advanced Traffic Management System (ATMS)**	
CONTRACT PERIOD: From: **October 1, 2008** To: **September 30, 2011**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

NATURE OF CHANGE(S):

Effective immediately, this contract is amended to include all advance traffic management system sites statewide. Also, contract payment schedule for Phase 1 (Tasks 5 and 6) and Phase 2 (Tasks 7 and 8) have been revised. Please also note that the buyer has been changed to Joe Kelly.

AUTHORITY/REASON(S):

Per agreement between vendor, MDOT and DTMB Purchasing Operations.

TOTAL ESTIMATED CONTRACT VALUE REMAINS: $3,778,824.00

Revised Contract Payment Schedule for Phase 1 Tasks 5 and 6

Task 5: Phase 1 Software Development an Deliverable	Original Contract Payment
1. Provide Results of Unit Level Testing	102,628
2. Successful Issue Corrections and Completion of All Tests	818,438
Total Cost	921,066

Task 6: Implement Phase 1 Deliverable	Original Contract Payment	First Productior Region	Grand	Second Production	Third Productior	Fourth Production	MITSC BWB	Check
		25%	***30%***	***5%***	***5%***	***5%***	***30%***	**100%**
1. Training and Documentation as Identified in Attachment I	127,715	$31,929	$38,315	$6,386	$6,386	$6,386	$38,315	$127,715
2. Phase 1 System configuration Document	45,390	$11,348	$13,617	$2,270	$2,270	$2,270	$13,617	$45,390
3. Installation of ATMS solution in Production environment for Phase 1, Stage 1	90,540	$22,635	$27,162	$4,527	$4,527	$4,527	$27,162	$90,540
4. Installation of ATMS solution in Production environment for Phase 1, Stage 2	90,540	$22,635	$27,162	$4,527	$4,527	$4,527	$27,162	$90,540
Total Cost	354,185	*88,546*	*106,256*	*17,709*	*17,709*	*17,709*	106,256	$354,185

NOTE: No additional software development or User Acceptance Testing is anticipated with the addtion ofthe new regions so there are no software development or UAT payments assigned to these regions. However additional devices will be integrated into the system as part of Task 6, "Implement Phase 1", as a result, there are payments associated with these regions under Task 6.

Revised Contract Payment Schedule for Phase 2 Tasks 7 and 8

Task 7: Phase 2 Software Dev. & UAT Deliverable	Original Contract Payment	Data Validation 4.2.4	External Int. & CAD 4.9 & 5.2.1.3	CCTV Operations 5.1.4	Monitor ESS 5.4.2.5	Manage HAR 5.1.9	Monitor AVL 5.1.14	Traffic Info Via Externa 5.1.19.1.2	Flow of Events 5.3.1.1	Publish Speed Limit 5.3.8.1.1	Manage Users 5.4.1.8	*Monitor* Remote Devices 5.4.2.4	Final Acceptance Remaining	Check Sum
		4%	***8%***	***9%***	***9%***	***6%***	***9%***	***8%***	***9%***	***4%***	***9%***	***10%***	**15.00%**	**100%**
1. Provide Results of Unit Level Testing	221,240	$8,850	$17,699	$19,912	$19,912	$13,274	$19,912	$17,699	$19,912	$8,850	$19,912	$22,124	$33,186	$221,240
2. Successful Issue Corrections and Completion of All Tests	732,962	$29,318	$58,637	$65,967	$65,967	$43,978	$65,967	$58,637	$65,967	$29,318	$65,967	$73,296	$109,944	$732,962
Total Cost	954,201	$38,168	$76,336	$85,878	$85,878	$57,252	$85,878	$76,336	$85,878	$38,168	$85,878	$95,420	$143,130	$954,201

Task 8: Implement Phase 2 Deliverable	Original Contract Payment	Data Validation 4.2.4	External Int. & CAD 4.9 & 5.2.1.3	CCTV Operations 5.1.4	Monitor ESS 5.1.7.1.1 & 5.4.2.5	Manage HAR 5.1.9	Monitor AVL 5.1.14	Traffic Info Via Externa 5.1.19.1.2	Flow of Events 5.3.1.1	Publish Speed Limit 5.3.8.1.1	Manage Users 5.4.1.8	*Monitor* Remote Devices 5.4.2.4	Final Acceptance Remaining	Check Sum
1. Training and Documentation as Identified in Attachment I	127,715	$5,109	$10,217	$11,494	$11,494	$7,663	$11,494	$10,217	$11,494	$5,109	$11,494	$12,772	$19,157	$127,715
2. Phase 2 System configuration Document	45,390	$1,816	$3,631	$4,085	$4,085	$2,723	$4,085	$3,631	$4,085	$1,816	$4,085	$4,539	$6,809	$45,390
3. Installation of ATMS solution in Production environment for Phase 2, Stage 1	60,840	$2,434	$4,867	$5,476	$5,476	$3,650	$5,476	$4,867	$5,476	$2,434	$5,476	$6,084	$9,126	$60,840
4. Installation of ATMS solution in Production environment for Phase 2, Stage 2	60,840	$2,434	$4,867	$5,476	$5,476	$3,650	$5,476	$4,867	$5,476	$2,434	$5,476	$6,084	$9,126	$60,840
Total Cost	294,783	$11,791	$23,583	$26,530	$26,530	$17,687	$26,530	$23,583	$26,530	$11,791	$26,530	$29,478	$44,217	$294,783

Note: Delcan and the State will work cooperatively to determine when Phase 2 components will be tested and deployed in production. Some components of Phase 2 may be tested and deployed in coordination with parts of Phase 1, if there is sufficient ITS infrastructure to support the testing of the functionality. The team will strive to keep the number of new UAT tests for phase 2 at four or less by grouping components for UAT testing .

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

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

January 26, 2010

CHANGE NOTICE NO. 1
TO
CONTRACT NO. 071B9200040
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF VENDOR **Delcan** **650 E. Algonquin Rd, Suite 104** **Schaumburg, IL 60173** **j.brahm@delcan.com**	TELEPHONE Joseph Brahm **(847) 925-0120** VENDOR NUMBER/MAIL CODE BUYER/CA (517) 241-3215 **Steve Motz**
Contract Administrator: Cindy Turben **MDOT Statewide Advanced Traffic Management System (ATMS)**	
CONTRACT PERIOD: From: **October 1, 2008** To: **September 30, 2011**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

NATURE OF CHANGE(S):

For fiscal year 2010, the maintenance pricing is reduced by 5% per the attached Contractor correspondence and revised Article 1, Appendix C. All other terms, conditions, specifications, and pricing remain the same.

AUTHORITY/REASON(S):

Per agreement between vendor and DMB Purchasing Operations.

TOTAL ESTIMATED CONTRACT VALUE: $3,778,824.00

Mail From: "Joe Brahm" <j.brahm@delcan.com>

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From: "Joe Brahm" <j.brahm@delcan.com> 11/10/2009 12:34 PM
To: Motz, Steve
CC: Pemble, William
Subject: rate reduction for 2010 fiscal year

Steve,

As we discussed, Delcan is ok with a 5% rate reduction for any extra work performed in the 2010 fiscal year. See the attached revised rate table. We understand that this would be the rate applied to any new change order work that was completed in the 2010 MDOT fiscal year. At the beginning of the MDOT 2011 fiscal year the rates would revert back to the original rates listed in Article 1, Appendix C of the Agreement. For further clarification, we understand that this rate reduction will have no affect on the Article 1, Appendix A "Payment Milestone Breakdown".

I believe you said you would put an amendment together from this info.

Give me a call if you need anything else for now or have any questions.

Thanks

Joseph

Message 2010 extra work rate...

Article 1, Appendix C

Labor Rates

Rate Category	Fully-loaded Hourly Rate ($)	* FY 2010 Fully-loaded Hourly Rate ($)
Project Manager	$ 229.00	$ 217.55
Technical Lead	$ 229.00	$ 217.55
Chief Engineer	$ 187.76	$ 178.37
Lead Engineer*	$ 181.73	$ 172.64
Senior Engineer	$ 157.59	$ 149.71
Intermediate Engineer	$ 123.38	$ 117.21
Engineer	$ 88.81	$ 84.37
Sr. Technical Staff	$ 149.53	$ 142.05
Inter. Technical Staff*	$ 80.66	$ 76.63
Technical Staff	$ 58.77	$ 55.83
Contracts & Admin.	$ 71.49	$ 67.92

* Fiscal Year 2010 reduced rates. Applied to change order work completed in 2010 only.

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

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

CONTRACT NO. 071B9200040
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF VENDOR **Delcan** **650 E. Algonquin Rd, Suite 104** **Schaumburg, IL 60173** **j.brahm@delcan.com**	TELEPHONE Joseph Brahm **(847) 925-0120** VENDOR NUMBER/MAIL CODE BUYER/CA (517) 241-3215 **Steve Motz**
Contract Administrator: Cindy Turben **MDOT Statewide Advanced Traffic Management System (ATMS)**	
CONTRACT PERIOD: From: **October 1, 2008** To: **September 30, 2011**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION: **The terms and conditions of this Contract are those of this Contract Agreement, #071I8200081, and the vendor's quotes dated 5/23/08. In the event of any conflicts between the specifications, terms and conditions indicated by the State and those indicated by the vendor, those of the State take precedence.** **Estimated Contract Value: $3,778,824.00**	

THIS IS NOT AN ORDER: This Contract Agreement is awarded on the basis of our inquiry bearing the ITB No. 071I8200081. Orders for delivery may be issued directly by the State Departments through the issuance of a Purchase Order Form.

FOR THE VENDOR:	**FOR THE STATE:**
Delcan Firm Name	Signature
Authorized Agent Signature	**Greg Faremouth, IT Division Director** Name
Joseph Brahm Authorized Agent (Print or Type)	**IT Division, Purchasing Operations** Title
Date	Date

STATE OF MICHIGAN
Department of Management and Budget
Purchasing Operations

Contract No. 071B9200040
MDOT Statewide Advanced Traffic Management System (ATMS)

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

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Meanings of Acronyms and Abbreviations - The definitions included in the table below pertain to every component of this Contract, including all appendices and attachments:

ADBD – State Administrative Board
ATIS – Advanced Traveler Information System
ATMS – Advanced Traffic Management System
CAD – Computer-Aided Dispatch
CAS – Chemical Abstracts Service
CCB – Configuration Control Board
CCTV – Closed Circuit Television
CFR – Code of Federal Regulations
CML – Chemical Markup Language
COTS – Commercial Off-the-Shelf
DMB – Department of Management & Budget
DMS – Dynamic Message Sign
DR/CR – Deficiency Report and Clarification Request
EFT – Electronic Funds Transfer
EPA – Environmental Protection Agency
EPCRA – Emergency Planning and Community Right-to-Know Act
FEIN – Federal employer identification number
FHWA – Federal Highway Administration
FOIA – Freedom of Information Act
GCM – Gary-Chicago-Milwaukee Corridor
GIS – Geographic Information System
ICHAT – Internet Criminal History Access Tool
IP – Internet protocol
IT – Information Technology
ITS – Intelligent Transportation System
JEC – Joint Evaluation Committee
LAN – Local Area Network
MCL – Michigan case law
MDIT – Michigan Department of Information Technology
MDOT – Michigan Department of Transportation
MITS – Michigan Intelligent Transportation Systems
MSP – Michigan State Police
NCIC – National Crime Information Center
NREPA – Natural Resources and Environmental Protection Act
NTCIP – National Transportation Communications for ITS Protocol
NTP – Notice to Proceed
OAS – Office of Acquisition Services
OEM – Original Equipment Manufacturer
PCB – Polychlorinated Biphenyls
PDF – Portable Document Format
PMBOK – Project Management Body of Knowledge
PMM – Project Management Methodology
PO – Purchase Order
PPA – Pollution Prevention Act
ppm – Parts Per Million
RFP – Request For Proposals
RTF – Rich Text Format
RWIS – Road Weather Information System
SEIN – State employer identification number
SLA – Service Level Agreement
SOW – Statement of Work

SQL – Structured Query Language
SRS – Solution Requirements Specification (Attachment A)
TMC – Traffic Management Center
TRI – Toxic Chemical Release Inventory
UAT – User Acceptance Testing
VII – Vehicle Infrastructure Integration
XML – Extensible Markup Language

Article 1 – Statement of Work (SOW)

1.0 PROJECT IDENTIFICATION

1.001 Project Request

In this contract, the State of Michigan (the State), through the Michigan Department of Information Technology (MDIT), with assistance of the Michigan Department of Management & Budget (DMB), on behalf of the Michigan Department of Transportation (MDOT), will work with Delcan (Contractor) to provide an Advanced Traffic Management System (ATMS) solution.

This contract includes project management, design, development, implementation, software, hardware, and ongoing support and maintenance for the ATMS. The solution will be used in all existing and future traffic management centers (TMCs) in the State of Michigan.

The contractor will be required to interface with the Computer-Aided Dispatch (CAD) provider for the Michigan State Police (MSP). The Contractor will be required to enter into a non-disclosure agreement (**Attachment C**) in order to receive detailed interface documentation from the CAD Vendor, Plant CML.

This contract has a term of three (3) years, which includes all project milestones, tasks and deliverables, plus seven (7) one-year options for maintenance and support of the product. The State reserves the right to request additional extensions for future enhancements and maintenance for the useful life of the software.

Renewal of this contract will be at the sole discretion of the State and will be based upon the acceptable performance of the Contractor as determined by the State.

1.002 Background

The mission of the State of Michigan's Intelligent Transportation Systems (ITS) Group is to:

"Develop and sustain a program at MDOT to improve transportation system safety and operational performance using existing and innovative Intelligent Transportation System technologies for economic benefit and improved quality of life."

To assist MDOT in achieving this mission a statewide network of Traffic Management Centers (TMCs) needs to be created. These TMCs will manage a wide array of ITS devices, including cameras, dynamic message signs, and traffic sensors.

MDOT is currently organized into 7 regions that maintain traffic flow and manage traffic within each region (http://www.michigan.gov/mdot/0,1607,7-151-9623-36042--,00.html). Each region within the state will have at least one (if not more) TMC created. The TMCs will be tasked with managing the various ITS devices within their particular area of control. The TMC controlled areas will then be strengthened by networking all of the TMCs within the state together (existing or to be created), thus allowing better control of all highway traffic statewide. In order to bind these TMCs together, a robust, scalable, and network capable ATMS is needed.

There are currently three TMCs in the state: the Michigan Intelligent Transportation Systems Center (MITSC) in the Detroit Metro Region, the Blue Water Bridge Operations Center in Port Huron, and the MDOT Grand Region TMC in Grand Rapids. The MITSC manages highway traffic in parts of the Metro Region (Wayne, Oakland, and Macomb counties). The Grand Region TMC manages highway traffic primarily within the city of Grand Rapids. The Blue Water Bridge TMC manages traffic at the international bridge crossing.

The purpose of this project is to replace the ATMS platforms at the existing three (3) TMCs and to allow for future implementation at other TMCs across the state.

Several high-level needs for the ATMS have been identified, including:

- Meets the needs of a variety of users throughout the State in both urban and rural areas, and at border crossings
- Is scalable to meet the needs of future users and accommodate future uses
- Facilitates sharing of data and video among multiple agencies and third parties throughout the State in a secure environment
- Provides accurate real-time information to travelers to enable them to make better decisions that save time and improve safety
- Enables MDOT to plan for and implement mitigation strategies for construction, special events, and other incidents
- Enables MDOT to collect feedback on performance in order to improve operations
- Integrates with Intelligent Transportation Systems (ITS) devices such as video cameras, dynamic message signs (DMS), vehicle sensors, and road weather information systems (RWIS) sensors
- Facilitates Michigan being a showcase for emerging Vehicle Infrastructure Integration (VII) technologies
- Is stable and reliable
- Conforms with National ITS standards and Information Technology (IT) industry standards

1.1 SCOPE OF WORK AND DELIVERABLES

1.101 In-Scope

The contractor will provide the following services:

- Project Management
- Verification and Validation of Current Technical Environment
- Verification and Validation of Requirements
- ATMS software and 3rd party COTS software required to implement the solution (State is responsible for procurement of DB software – see section 1.102, Out of Scope below)
- Software Development and Implementation Plans
- Software Development and User Acceptance Testing for all Phases and Stages
- Implementation of all Phases and Stages
- Training and Documentation
- Warranty
- Maintenance and Support
- Additional Services/Enhancements

1.102 Out-Of-Scope

The following services are out-of-scope:

- Procurement of ITS devices
- Provision of network bandwidth
- Vendor hosted solution
- Management of network infrastructure
- Operations services, including:
    - Systems management
    - Disaster recovery
    - Security administration services
    - Data storage and backup services
- Procurement of Database Software

1.103 Environment

All services and products provided as a result of this Contract must comply with all applicable State's Enterprise IT policies, standards, and procedures, in effect at the time this Contract was issued. The State must be able to support all hardware and third-party COTS software and other items produced as the result of the Contract.

Hardware must be compatible with MDIT hardware standards, which can be found in **Attachment E**.

The links below will provide information on the State's Enterprise IT policies, standards, and procedures, which include the security policy and procedures, the IT strategic plan, and the State Unified Information Technology Environment (SUITE), which includes the State's Project Management Methodology (PMM) and Systems Engineering Methodology (SEM). **Attachment E** takes precedence over any conflicts with the hardware listed in any of the web sites listed below.

Enterprise IT Policies, Standards, and Procedures:
http://www.michigan.gov/dit/0,1607,7-139-34305---,00.html

IT Strategic Plan:
http://www.michigan.gov/dit/0,1607,7-139-30637-135173--,00.html

The State's Unified Information Technology Environment (SUITE), which must be followed:
http://www.michigan.gov/suite

The State's Project Management Methodology (PMM), which must be followed:
http://www.michigan.gov/dit/0,1607,7-139-30637_31101-58009--,00.html
IT Security Policy and Procedures:
http://www.michigan.gov/dit/0,1607,7-139-34305-108216--,00.html

The State's security environment includes:

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

The State will be responsible for the procurement, installation and maintenance of center to center networking equipment (switches, routers, firewalls, etc.). As well, the State will be responsible for any future ITS device network components.

1.104 Work and Deliverables

A. Solution Requirements

The Contractor's solution shall fulfill each of the Solution Requirements included as **Attachment A**.

The Contractor's solution shall meet the levels of service identified in **Article 1, Appendix D – Service Level Requirements**.

B. Services to be Provided

The ATMS solution shall be developed in two Phases, with Phase 1 (limited feature set release) representing a core set of features that can be implemented with a minimum amount of custom software development. Phase 2 (full feature set release) shall include the balance of the system features required in this Contract and will fully upgrade the accepted and operational Phase 1 implementations.

In addition to the phasing of software features, the ATMS shall be implemented in stages which correspond to locations. To reduce scheduling complexity, however, the Blue Water Bridge Operations Center and MITS Center will be implemented in a single Stage. The ATMS will be implemented to service the TMCs listed below.

There are five resulting implementation stages as follows:

Phase 1 (limited feature set release):

- Stage 1: Grand Region TMC
- Stage 2: MITS Center and Blue Water Bridge Operations Center

Phase 2 (full feature set release):

- Stage 1: Grand Region TMC
- Stage 2: MITS Center and Blue Water Bridge Operations Center

The Contractor shall provide the following services for the complete and successful implementation of an ATMS providing the functionality required for the State's transportation operations for the Michigan Department of Transportation.

TASK 1 – Project Management

The Contractor shall designate a Project Manager who will be the primary interface for all communications that occur between the Contractor and the State. This project manager shall perform all project management tasks for the Contractor and shall provide input into the state project managers on the overall project. This Project Manager shall perform/deliver the following services to the State:

- Create and maintain a Contractor specific Project Work Plan
- Create and maintain a Contractor specific Risk Management Plan
- Assist in creating an overall project Communications Management Plan
- Manage the delivery of the ATMS solution project deliverables and schedule deliverable review meetings
- Create and maintain Contractor specific weekly project Status Reports
- Create and maintain Contractor specific Issues Report
- Manage Contractor's Subcontractors, if any
- Escalate project issues, project risks, and other concerns to overall project management team as needed
- Manage and report on the Contractor specific portions of project's budget
- Assist and consult with the State Project Managers regarding creation and maintenance of Change Control Board (CCB), which is provided in Section 1.203
- Define and submit additional deliverables the Contractor deems necessary
- Provide all Project Management services in alignment with the State's SUITE. See section 1.4

Deliverables:

1) Initial Project Status Report
2) Initial Specific Issues Report
3) Initial Project Work Plan and Project Schedule
4) Initial Risk Management Plan
5) Initial Communication Management Plan

Ongoing Deliverables include but are not limited to the following:

- Weekly Project Status Report
- Updated Specific Issues Report
- Updated Project Work Plan and Project Schedule
- Updated Risk Management Plan
- Updated Communication Management Plan

TASK 2 - Verification and Validation of Current Technical Environment

The Contractor shall demonstrate an understanding of the current technical environment before development begins. The Contractor shall verify and validate the current technical environment.

This includes a description of data resident in the existing traffic management system, DMS message libraries, camera view presets, detector data archives and any data exchanged between applications including external systems.

Deliverables:

1) Updated Technical Assessment and Inventory Document

TASK 3 - Verification and Validation of Solution Requirements

A review of the requirements provided in **Attachment A** must be performed with the State. The review is meant to verify and validate the solution requirements and identify any changes that may have been identified since the time of the original requirements gathering. This review must include, but not be limited to:

- Verify existing requirements as stated in Attachment A with the State
- Identifying data exchange formats between external systems
- Identifying communications requirements for field devices

The Contractor shall provide a Gap Analysis Document. This document should describe the gaps in functionality between the proposed software solution and that which is required for this project, with similar organization to Attachment A.

Deliverables:

1) Detailed solution requirements review with the State
2) Gap Analysis Document
3) Finalized Phase 1 and Phase 2 solution requirements

TASK 4 – Software Development and Implementation Plans

Contractor will provide a **Software Development Plan** describing the software customization approach for this project. This should include a detailed description of the tools and methods for:

- Requirements analysis, tracking, and maintenance
- Software architecture design
- Code development
- Critical priority analysis
- Performance analysis
- Unit and System (regression and new functionality) testing
- Bug tracking and fixing
- Version tracking

This should also include a discussion of the geographic location(s) of the software development team, how the team is managed, how the various members will work together to complete project tasks, and how quality will be maintained.

The Contractor shall provide a diagram of their Software, Hardware and Network infrastructure, labeled **Technical Design Architecture.** The Design Architecture must be an overall detailed architectural diagram including detailed graphics displaying the listed hardware and its relative placement in the architecture. The Contractor shall clearly mark the communication channels between hardware units, identifying such elements as encryption (where appropriate), communication protocols and bandwidth requirements. The Contractor must identify the physical locations of assets and any constraints or limitations with respect to the physical proximity of system components to one another or to user locations.

The Contractor shall identify any changes to hardware quantities and specifications (identified in Attachment B).

Further, the Contractor shall define any server operating system configurations required for the ATMS solution (e.g., Windows services that may need to be running, user security, etc). The Contractor shall also define any RDBMS configurations required for the ATMS solution (e.g., memory settings, automated maintenance tasks, specific locations for backups, user security, etc).

The Contractor shall develop and deliver a **Software Implementation Plan**, which will describe physical space requirements, State resources required, training requirements and execution, and ongoing maintenance and support after implementation.

It is expected that the Contractor will engage in parallel activities where possible to expedite the overall schedule. For instance, Phase 2 development should begin prior to the completion of Phase 1 acceptance testing.

As part of the Software Implementation Plan, Transition Plans shall be developed. This shall include a timetable and resource plan for switching over from the current ATMS to the new ATMS (Phase 1) for all stages. These cutover plans must each include a failure contingency plan that will revert to the previous system state if needed.

The Contractor shall lead a **Critical Design Review meeting** where the validated Solution Requirements, the Software Development Plan, and the Software Implementation Plan will be presented and discussed. This meeting shall be scheduled once the Software Development and Software Implementation Plans have been completed.

Deliverables:

1) Software Development Plan for all Phases, including software customization plan, milestones, and schedule
2) Technical Design Architecture
3) Software Implementation Plan for all stages, including transition plans, system integration, system configuration and installation plans, milestones, and schedule per Phase
4) Critical Design Review Meeting with the State

TASK 5 - Software Development and User Acceptance Testing- Phase 1

The Contractor shall perform all software customization and install it for testing in a test environment separate from the operational ATMS.

The State and authorized representatives will monitor and consult with the Contractor to assess progress toward completion of customization, including customization design and implementation approach and progress. Customization may occur either on-site or off-site, at the mutual agreement of the Contractor and State.

The Contractor will perform Unit testing, System testing (regression and new functionality), and integration testing.

The Contractor will be responsible for managing user acceptance test issues.

The State, with the assistance of the Contractor, shall develop a user acceptance test plan and procedures that will exercise all of the requirements stated for Phase 1 (a similar plan will be developed for Phase 2). These parties will then execute this plan in a state controlled quality assured environment until the user acceptance test is accepted by the State. The user acceptance test plan is anticipated to include:

- A user acceptance test case traceability matrix that indicates which requirements are being tested for in each test case.
- A user acceptance test plan that details the testing process (test cases) as well as the ITS devices that will need to be tested for.

All field device controllers, cameras, and any other equipment needed to execute the user acceptance test will be provided by the State. They must include at least one of each different type of ITS device in use by MDOT at the time of the test demonstrating the full functionality of each required device driver.

Deliverables:

1) Delivery of NETworks Software License
2) Provide Results of Unit and System Tests
3) Successful Issue Corrections and Completion of all Tests

TASK 6 - Implement Phase 1

The Contractor shall implement the accepted solution in the production environment. Implementations will include software installation, integration with center and field hardware, external systems, data conversion, and performance of acceptance tests in the production environment (all of these items should be covered in the implementation plan created in Milestone 2).

The contractor shall grant the State the rights and licenses to deploy the software across the state. The contractor shall grant the State the rights and licenses to deploy the software within local and municipal partner agencies, including counties, cities, public safety agencies, etc.

Installation of the ATMS solution in the production environment may not begin until after the successful completion of the Phase 1 user acceptance test. The Contractor will be responsible for fixing all problems that have been documented during the post implementation period.

As part of this service, the Contractor shall provide a Phase 1 System Configuration Document, which represents the “as-built” documentation for the solution. This will include ATMS system documentation and relevant hardware maintenance documentation.

Deliverables:

1) Training and Documentation as identified in Attachment I
2) Phase 1 System Configuration Document
3) Installation of the ATMS solution in the production environment for Phase 1, Stage 1
4) Installation of the ATMS solution in the production environment for Phase 1, Stage 2

TASK 7 - Software Development and User Acceptance Testing- Phase 2

The Contractor shall perform all software customization and install it for testing in a test environment separate from the operational ATMS.

The State and authorized representatives will monitor and consult with the Contractor to assess progress toward completion of customization, including customization design and implementation approach and progress. Customization may occur either on-site or off-site, at the mutual agreement of the Contractor and State.

The Contractor will perform Unit testing, System testing (regression and new functionality) and Integration testing.

The Contractor will be responsible for managing user acceptance test issues.

The State, with the assistance of the Contractor, shall develop a user acceptance test plan and procedures that will exercise all of the requirements stated for Phase 1 (a similar plan will be developed for Phase 2). These parties will then execute this plan in a state controlled quality assured environment until the user acceptance test is accepted by the State. The user acceptance test plan is anticipated to include:

- A user acceptance test case traceability matrix that indicates which requirements are being tested for in each test case.
- A user acceptance test plan that details the testing process (test cases) as well as the ITS devices that will need to be tested for.

All field device controllers, cameras, and any other equipment needed to execute the user acceptance test will be provided by the State. They must include at least one of each different type of ITS device in use by MDOT at the time of the test demonstrating the functionality of each required device driver.

Phase 2 customization can begin prior to the completion of Phase 1 user acceptance testing.

The Phase 2 user acceptance test should include a regression test of the Phase 1 (thus the Phase 1 user acceptance test environment should be kept intact after Phase 1 and added to Phase 2). Phase 2 implementation cannot begin until the successful conclusion of the Phase 2 user acceptance test.

Deliverables:

1) Provide Results of Unit and System Tests
2) Successful Issue Corrections and Completion of all Tests

TASK 8 - Implement Phase 2

The Contractor shall implement Phase 2 of the accepted solution in the production environment. All implementation tasks in Phase 2 parallel the implementation tasks and constraints in Phase 1.

Deliverables:

1) Training and Documentation as identified in Attachment I
2) Phase 2 System Configuration Document
3) Installation of the ATMS solution in the production environment for Phase 2, Stage 1
4) Installation of the ATMS solution in the production environment for Phase 2, Stage 2

C. Warranty Period

a. Contractor will provide a warranty of 60 calendar days from the date Phase 2, Stage 2 of the project is deployed into production. The Contractor will resolve those warranty defects that are communicated to the Contractor no later than day 45 of the 60 calendar-day warranty period.
b. If all defects are not resolved by day 45 of the warranty period, the 60 day warranty period will begin again from day 1 when the last defect is fixed and put into production.
c. For the purpose of warranty, a defect is defined as an instance of application behavior that represents a lack of compliance with the approved requirement specifications and associated technical design developed by the Contractor (significant or material defects). The Contractor will fix such defects identified during the warranty periods at no additional cost to the State.
d. The State agrees to notify the Contractor of such defects within three (3) days of occurrence of such defect in the production environment. The State will appropriately triage the defect and ascertain that it requires Contractor repair.
e. Corrective action by the Contractor may include, but is not limited to, repairing or replacing the nonconforming element.
f. The Contractor will provide an escalation process for warranty support.
g. The Contractor must warrant the functioning of the system against defects that are detected after UAT and implementation that could not be detected in the Quality Assurance environment due to the limited amount of access and load. This warranty is limited to the extent such defects do not meet the business functionality that is represented in the State approved requirement specifications and associated technical design. This warranty is limited to those defects that are directly attributed to software

code developed by Contractor. This warranty does not cover for any issues pertaining to system throughput and performance to the extent such issues are not attributed to the code developed by the contractor.

h. The Contractor is not responsible for any defects arising from components not developed by the Contractor.
i. In the event deployment of application components is delayed due to reasons attributed to the State, then warranty for the relevant application components will begin from the date the application was accepted under the user acceptance test process.
j. Contractor is not responsible for providing any warranty on components should any component or work product be modified by anyone other than Contractor personnel assigned during this statement of work.

D. Post Implementation Software Maintenance and Support

The Contractor shall provide maintenance and support to the ATMS solution that includes:

- Providing replacement copies or correction services to correct any error, malfunction, or defect in the software.
- Updated versions of the software that are improvements, extensions, maintenance releases and updates, error corrections or other changes that are logical improvements or extensions of the original software supplied to the State.
- Documentation updates.
- Remote access for technical support within the State firewall.

All maintenance updates to the software shall be scheduled in advance and take place during off-peak hours as approved by the State. The Contractor shall submit a Software Update Plan (see below) for all ATMS software updates.

The Contractor shall update the software as necessary to maintain performance and solution requirements of the delivered system and to maintain currency with supported purchased hardware and software. The Contractor shall apply updates to the system in response to COTS software updates introduced by the State with 90 days advance notice. The Contractor will be required to ensure software compatibility with COTS software patches and service packs with 30 days advance notice. The Contractor will be given 6 months advance notice of major operating system updates to allow for ATMS software updates and off-line testing. The Contractor shall submit a Software Update Plan (see below) for all software updates within ten (10) business days of an update notice by the State.

All proposed software updates shall be presented in individual Software Update Plans, which shall be approved by the State and the Configuration Control Board (CCB). They shall identify at a minimum:

- The reason for the update
- The plan to ensure recoverability
- The off-line test plan and test results
- Actions to roll back the update if errors or problems are encountered
- Verification procedures to demonstrate the success of the update and that no other systems or subsystems are adversely affected
- The proposed schedule for the update

In addition, the Contractor shall provide:

- A process for reporting and tracking problems, and applying software maintenance updates and bug fixes
- A process for receiving, estimating, and scheduling State-requested software upgrades

- A representative at monthly CCB meetings, to be held in either Lansing or Detroit.

The Contractor shall submit Monthly Maintenance Activity Reports, which shall log:

- Incidents
- Failures
- Maintenance requests
- Database updates
- Resource, reference, and training manual updates
- COTS software, operating system, or hardware updates
- All Software Update Plans submitted and/or completed during the month

The Contractor shall provide electronic access to an archive of all past Monthly Maintenance Activity Reports.

A MDIT system administrator will perform routine maintenance activities. However, help desk support shall be provided by the Contractor on a 24/7/365 basis via telephone.

This task does not include professional services to modify, customize, or enhance software functionality to meet specific State business requests.

This task includes 40 hours of annual training during the maintenance years of the Contract. This training will be scheduled by the State. The Contractor will be given 30 days advance notice of any training.

Deliverables:

- Post-implementation support
- Monthly maintenance activity reports
- Up to 40 hours of annual training

E. Additional Services/Enhancements

Additional services related to future system enhancements may be initiated under this Contract. This might include enhancements related to:

- Probe vehicle data such as link travel times and speeds
- ATIS enhancements
- RWIS enhancements
- Future TMCs
- Integration with other software or systems
- Integration of ITS Laboratory in Lansing

Any such additional services will be scoped at a future date and costs will be derived from the agreed upon level of effort and the labor rates identified in **Article 1, Appendix C**.

Prior to the Contractor providing any of the additional services identified above, the State will submit a Statement of Work (SOW) to the Contractor for the enhancements requested and the Contractor will provide a written price proposal. Upon review and approval of the MDIT Project Manager, a Purchase Order release will be issued to the Contractor for the project to begin.

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.

The parties agree that the Services/Deliverables to be rendered by Contractor using the future enhancements/rate card on this Contract will be defined and described in detail in separate Statements of

Work. Contractor shall not be obliged or authorized to commence any work to implement a Statement of Work until authorized via a purchase order issued against this Contract.

Unless otherwise agreed by the parties, each Statement of Work will include:

a. Background
b. Project Objective
c. Scope of Work
d. Deliverables
e. Acceptance Criteria
f. Project Control and Reports
g. Specific Department Standards
h. Payment Schedule
i. Travel and Expenses
j. Project Contacts
k. Agency Responsibilities and Assumptions
l. Location of Where the Work is to be Performed
m. Expected Contractor Work Hours and Conditions

1.2 ROLES AND RESPONSIBILITIES

1.201 Contractor's Staff, Roles, and Responsibilities

The Contractor shall provide sufficient qualified staffing to satisfy the deliverables of this Statement of Work. All assigned personnel must have demonstrated availability to work on this project.

Organizational Chart

The Contractor maintain an updated Organizational Chart (**Article 1, Appendix B**) 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. Key Personnel must be identified in the organizational chart.

The Contractors Project Manager will act as the Contract Administrator and will perform the following administrative duties:

- 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 Contract Administrator if the assigned Contract Administrator is not, in the opinion of the State, adequately serving the needs of the State.

Required Key Personnel

The Contractor shall provide a Project Manager to work closely with the designated personnel from the State to insure a smooth transition to the new system. The Project Manager shall coordinate all of the activities of the Contractor's personnel assigned to the project and shall submit all progress reports required by State. The Project Manager shall be identified as a Key Personnel subject to the State's interview and approval.

Contractor Resource Name	Joseph Brahm
Classification	Project Manager
Key Personnel	Yes
Percentage of time resource will be allocated to project:	Up to 65%

The Contractor shall provide a Technical Lead to work closely with the designated personnel from the State to insure a smooth transition to the new system. The Technical Lead shall coordinate all of the technical activities of the Contractor's personnel assigned to the project. The Technical Lead shall be identified as a Key Personnel subject to the State's interview and approval.

Contractor Resource Name	Dan Lukasik
Classifications	Technical Lead (Technical Development Manager)
Key Personnel	Yes
Percentage of time resource will be allocated to project:	Up to 33%

Upon Contract award, the Contractor must present certifications evidencing satisfactory background checks and drug tests for all staff identified for assignment to this project. The Contractor is responsible for any costs associated with ensuring that their staff meets all requirements.

1.202 State's Staff, Roles, and Responsibilities

The State's project team will consist of a Project Steering Committee, MDIT Project Manager, MDOT Project Manager and a Business System Manager.

The **Project Steering Committee** will provide the following services:

- Act as a final arbiter on proposed changes that significantly affect the business interests of the State
- The following positions will comprise the Project Steering Committee
    - MDOT Chief Operations Officer
    - MDOT Bureau Director of Highway Delivery
    - MDOT Project Manger
    - MDIT Chief Information Officer
    - MDIT Client Service Director
    - MDIT Project Manager
    - FHWA Representative

The **Business System Manager** will represent the State and will provide the vision for the business design and the manner in which the application will provide for that vision. The Business System Manager will:

- Assist in resolving project issues in a timely manner
- Review the project work plan, status, and issues
- Track adherence to the project work plan and review all updates
- Review all project deliverables
- Participate in requirements reviews
- Assist in the development of user acceptance test plans
- Monitor user acceptance testing
- Participate as a key member of the steering committee

All decisions and actions shall require sign off and approval by both State Project Managers (MDOT and MDIT) unless otherwise noted.

The **State's MDIT Project Manager** will provide the following services:

- Approve, accept, manage, and purchase 3rd party software for use under this project
- Approve, accept, manage, and purchase hardware for use under this project
- Monitor quality control activities
- Provide State facilities, as called for under this contract
- Coordinate the State's resources necessary for the project
- Facilitate coordination between various external Contractors
- Facilitate communications between different State departments/divisions (IT-Networking, Integrated Services, Administration, Personnel Department, Accounting, Administration, etc.)
- Milestone acceptance sign-off
- Resolution of project issues
- Escalation of outstanding/high priority issues
- Use change control procedures
- Conduct regular and ongoing reviews of the project to confirm that it meets the original objectives and requirements
- Documentation and archiving of all important project decisions
- Arrange, schedule, and facilitate State staff attendance at all project meetings

The **State's MDOT Project Manager** will provide the following services:

- Monitor quality control activities
- Provide State facilities, as needed
- Coordinate the State's resources necessary for the project
- Facilitate coordination between various external Contractors
- Facilitate communications between different State departments/divisions (Administration, Personnel Department, Accounting, Administration, etc.)
- Milestone acceptance sign-off
- Resolution of project issues
- Escalation of outstanding/high priority issues
- Use change control procedures
- Conduct regular and ongoing reviews of the project to confirm that it meets the original objectives and requirements
- Documentation and archiving of all important project decisions
- Arrange, schedule, and facilitate State staff attendance at all project meetings

Issues will be escalated for resolution as defined below:

- Level 1 – Project Managers
- Level 2 – Steering Committee

1.203 Other Roles and Responsibilities

The State will create a **Change Control Board (CCB)** for purposes of approving all proposed configuration changes to the ATMS that will affect external systems, projects, and facilities. The CCB will conduct regular meetings to review, approve, and assign responsibility for proposed design changes. The Contractor's Project Manager shall serve as a non-voting member of the CCB. The voting members will consist of at a minimum the MDOT Project Manager, MDIT Project Manager, and Business Systems Manager. Other members may be added at the request of the MDOT and MDIT Project Managers.

The following project items must be presented to and approved by the Change Control Board (CCB) prior to any changes to project (project work plan):

- Any changes to tasks within project work plan that will affect either the project budget or project milestone delivery dates
- Any changes to the Contractor specific Risk Management Plan
- Any Contractor resource changes to the project
- Submittal of any project change requests that would affect the project budget or project milestone delivery dates
- Submittal of any changes to project deliverables identified in Section 1.104.

1.3 PROJECT PLAN

1.301 PROJECT PLAN MANAGEMENT

A. Project Plan

Contractor shall maintain an updated Project Plan which shall include the necessary time frames and deliverables for the various stages of the project and the responsibilities and obligations of both the Contractor and the State.

1. In particular, the Project Plan will include a MS Project plan or equivalent (check 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, equipment, materials and supplies required to be provided by the State in meeting the target dates established in the Preliminary Project Plan.
    e. Internal milestones, including applicable Systems Engineering Methodology tasking and

stage exits
f. Task durations

2. The 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. Orientation Meeting

1. Upon ten (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.
2. The meeting will be held in Lansing, Michigan, at a date and time mutually acceptable to the State and the Contractor.
3. The State shall bear no cost for the time and travel of the Contractor for attendance at the meeting.
4. At a minimum, the Project Manager and Technical Lead shall attend the Orientation Meeting unless otherwise approved by the State.

C. Performance Review Meetings

1. The State will require the Contractor to attend monthly meetings, at a minimum, to review the Contractor's performance under the Contract.
2. The meetings will be held in Lansing, Michigan, or by teleconference, as mutually agreed by the State and the Contractor.
3. The State shall bear no cost for the time and travel of the Contractor for attendance at the meeting.
4. At a minimum, the Project Manager and Technical Lead shall attend the Performance Review Meetings unless otherwise approved by the State.

D. Project Control

1. The Contractor will carry out this project under the direction and control of MDIT.
2. Within **twenty (20)** working days of orientation meeting, 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:
   i. The Contractor's project organizational structure.
   ii. 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.
   iii. The project breakdown (work plan) showing sub-projects, activities and tasks, and resources required and allocated to each.
   iv. The time-phased plan in the form of a graphic display, showing each event, task, and decision point in the work plan.
3. The Contractor will manage the project in accordance with the PMBOK® (Project Management Body of Knowledge from the Project Management Institute) and the State Unified Information Technology Environment (SUITE), which includes the State's Project Management Methodology (PMM) and Systems Engineering Methodology (SEM).
   a. 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:
      i. Staffing tables with names of personnel assigned to Contract tasks.
      ii. Project plans showing tasks, subtasks, deliverables, and the resources required.
      iii. Updates must include actual time spent on each task and a revised estimate to complete.
      iv. Graphs showing critical events, dependencies and decision points during the course of the Contract.
   b. 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.

1.302 REPORTS

Reporting formats must be submitted to the State's Project Managers for approval within ten (10) business days after the effective date of this Contract. Once both parties have agreed to the format of the report, it shall become the standard to follow for the duration of the Contract.

Progress Reports shall be submitted by the Contractor no more than five (5) business days after the end of each month. They shall include, but are not limited to:

- Updated project work plan
- Summary of activity during the report period
- Accomplishments during the report period
- Deliverables status
- Adherence to schedule status
- Action Item status
- Issues encountered during the report period, and resolutions
- Proposed changes for the CCB
- Maintenance activity

1.4 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 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
- Party assigned to resolve 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

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 this contract. 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.

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 Change Control Board, the DIT Contract Administrator will submit a request for change to the Department of 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 DMB 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 DMB Office of Purchasing Operations, risk non-payment for the out-of-scope/pricing products and/or services.**

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

1.5 ACCEPTANCE

1.501 CRITERIA

A. 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 the final product.
3. Draft documents are not accepted as final deliverables.
4. The documents will be reviewed and accepted in accordance with the requirements of the Contract and Appendices.
5. The State will review documents within a mutually agreed upon timeframe.
   a. Approvals will be written and signed by the MDIT and MDOT Project Managers.
   b. Unacceptable issues will be documented and submitted to the Contractor.
   c. After issues are resolved or waived, the Contractor will resubmit documents for approval within 30 days of receipt.

B. Software Deliverables - Software includes, but is not limited to, software product, development tools, support tools, data migration software, integration software, and installation software.

1. Beta software is not accepted as final deliverable.
2. The software will be reviewed and accepted in accordance with the requirements of the contract.
3. The State will review software within a mutually agreed upon timeframe for acceptance of functionality, usability, installation, performance, security, standards compliance, backup/recovery, and operation.
   a. Approvals will be written and signed by the MDIT and MDOT Project Manager.
   b. Unacceptable issues will be documented and submitted to the Contractor.
   c. After issues are resolved or waived, the Contractor will resubmit software for approval within 30 days of receipt.
4. Software is installed and configured, with assistance from MDIT, in an appropriate environment (e.g. development, conversion, QA testing, UAT testing, production, and training).
5. Contingency plans, de- installation procedures, and software are provided by the Contractor and approved by the MDIT and MDOT Project Managers.
6. Final acceptance of the software will depend on the successful completion of User Acceptance Testing (UAT).

7. Testing will demonstrate the system's compliance with the requirements of the RFP. At a minimum, the testing will confirm the following:
   a. Functional - the capabilities of the system with respect to the functions and features described in the RFP.
   b. Performance - the ability of the system to perform the workload throughput requirements. All problems should be completed satisfactorily within the allotted time frame.
8. The State will review test software, data, and results within a mutually agreed upon timeframe.
   a. Approvals will be written and signed by the MDIT and MDOT Project Managers.
   b. Unacceptable issues will be documented and submitted to the Contractor.
   c. After issues are resolved or waived, the Contractor will resubmit test software, data and results for approval within 30 days of receipt.
9. The State will review software license agreements within a mutually agreed upon timeframe.
   a. Approvals will be written and signed by the MDIT and MDOT Project Managers.
   b. Unacceptable issues will be documented and submitted to the Contractor.
   c. After issues are resolved or waived, the Contractor will resubmit the license agreement for approval and final signature by the authorized State signatory within 30 days of receipt
10. Software source code, where applicable, is reviewed by MDIT within a mutually agreed upon timeframe for readability, structure, and configuration management.
    a. Approvals will be written and signed by the MDIT and MDOT Project Managers.
    b. Unacceptable issues will be documented and submitted to the Contractor.
    c. After issues are resolved or waived, the Contractor will resubmit source code for approval.

1.502 FINAL ACCEPTANCE

Final acceptance is expressly conditioned upon completion and acceptance of all deliverables/milestones, completion of all tasks in the project plan as approved, completion of all applicable inspection and/or testing procedures, and the certification by the State that the Contractor has met the defined requirements.

1.6 COMPENSATION

1.601 Compensation and Payment

The payment schedule for the project, with the exception of maintenance and support, shall be associated with the firm fixed price deliverables listed in the payment schedule (**Article 1, Attachment A**) and described in Article 1, Section 1.104.B.

Payment

Contractor will submit properly itemized invoices to DIT Procurement at P.O. Box 30026, Lansing, MI 48909 *or* 530 W. Allegan, Lansing, MI 48933. Invoices shall provide and itemize, as applicable:

- Contract number;
- Purchase Order number
- Contractor name, address, phone number, and Federal Tax Identification Number;
- Description of any commodities/equipment, 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 discounts.

The Contractor may submit invoices at the end of each month for milestones completed and accepted during the month. No invoice will be approved unless the associated deliverable(s) have been approved.

The State shall 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. The maintenance period shall begin at the end of the warranty period, which is described in Section 1.104C.

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

Article 1, Appendix A

Payment Milestone Breakdown

Total Cost for Task 1-8 = **$3,553,434**

Total Cost for Base Year (1-3) Maintenance = **$225,390**

TOTAL COST IN BASE YEARS ($3,778,824)

Task 1 Project Management

Resources Required	Payment Schedule
Pricing for all PM Tasks and Deliverables are included and spread equally among the tasks below	N/A

Task 2: Verification and Validation of Current Technical Environment

Deliverable	Payment Schedule
a. Updated Technical Assessment and Inventory Document	60,240
Total Cost	**60,240**

Task 3: Verification and Validation of Solution Requirements

Deliverable	Payment Schedule
a. Detailed solution requirements review with the State	59,796
b. Gap Analysis Document	42,240
c. Finalized Phase 1 and Phase 2 solution requirements	38,160
Total Cost	**140,195**

Task 4: Software Development and Implementation Plans

Deliverable	Payment Schedule
a. Software Development Plan	36,600
b. Technical Design Architecture	52,920
c. Software Implementation Plan	42,360
d. Critical Design Review	46,890
Total Cost	**178,768**

Task 5: Phase 1 Software Development and User Acceptance Testing

Deliverable	Payment Schedule
Delivery of NETworks Software License	650,000
Provide Results of Unit Level Testing	102,628
Successful Issue Corrections and Completion of All Tests	818,438
Total Cost	**1,571,065**

Task 6: Implement Phase 1

Deliverable	Payment Schedule
Training and Documentation as Identified in Attachment I	127,715
Phase 1 System configuration Document	45,390
Installation of ATMS solution in Production envirnment for Phase 1, Stage 1	90,540
Installation of ATMS solution in Production envirnment for Phase 1, Stage 2	90,540
Total Cost	**354,183**

Task 7: Phase 2 Software Development and User Acceptance Testing

Deliverable	Payment Schedule
Provide Results of Unit Level Testing	221,240
Successful Issue Corrections and Completion of All Tests	732,962
Total Cost	**954,201**

Task 8: Implement Phase 2

Deliverable	Payment Schedule
Training and Documentation as Identified in Attachment I	127,715
Phase 2 System configuration Document	45,390
Installation of ATMS solution in Production envirnment for Phase 2, Stage 1	60,840
Installation of ATMS solution in Production envirnment for Phase 2, Stage 2	60,840
Total Cost	**294,783**

Post Implemenation Software Mainteance and Support

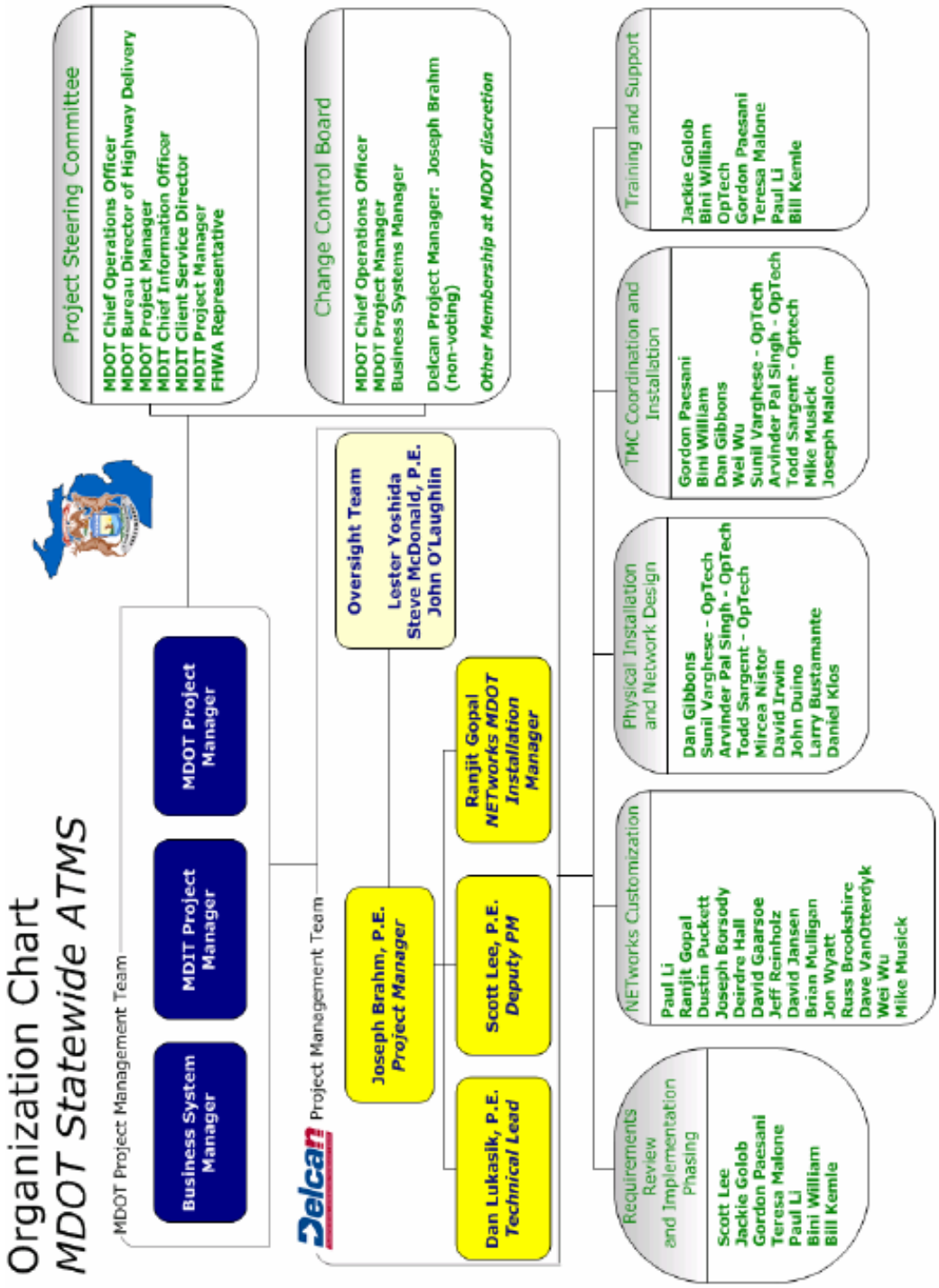
Cost Categories	Payment Schedule

1. First Year	60,000
2. Second Year	73,720
3. Third Year	91,670
4. Fourth Year (Option Year)	70,000
5. Fifth Year (Option Year)	80,000
6. Sixth Year (Option Year)	80,000
7. Seventh Year (Option Year)	80,000
8. Eighth Year (Option Year)	81,000
9. Ninth Year (Option Year)	81,000
10. Tenth Year (Option Year)	81,000
Total Cost	**778,390**

Note: The State anticipates that the hardware specified in the proposal will procured through existing State procurement channels. The pricing identified in this Table, is provided as an option that can be exercised at the States discretion.

Optional Hardware Pricing	Recommended Quantity	Unit Cost ($)
Database Servers	4	$11,300
Application Servers	4	$10,300
Backup Servers	2	$11,300
Video Management Servers	2	$8,000
Client Workstations	23	$1,500
Development Server	1	$10,300
Gateway C2C Server	2	$6,000

Article 1, Appendix B



Organizational Chart

Article 1, Appendix C

Labor Rates

Rate Category	Fully-loaded Hourly Rate ($)
Project Manager	$ 229.00
Technical Lead	$ 229.00
Chief Engineer	$ 187.76
Lead Engineer*	$ 181.73
Senior Engineer	$ 157.59
Intermediate Engineer	$ 123.38
Engineer	$ 88.81
Sr. Technical Staff	$ 149.53
Inter. Technical Staff*	$ 80.66
Technical Staff	$ 58.77
Contracts & Admin.	$ 71.49

The following rates are provided for years 1-3 of this contract. Rates may be subject to an escalation not to exceed 4% annually during the optional years of this contract.

Article 1, Appendix D

Service Level Requirements

Requirement 1	Support Response/Resolution
Description	Upon completion, acceptance and deployment of the ATMS , Contractor will respond to calls for software support as follows: **Critical** (System outage) – Contractor response within 30 minutes, plan of action within 1 hour, resolved (system running but possibly not at full functionality) within 4 hours. **High** (Major modules down, some services available) Contractor response within 2 hours, resolved within 8 hours. **Moderate** (Majority of application is up, some services down) Contractor response within 4 hours, resolved within 2 business days. **Low** (Limited problem with no major disruptive ramifications) Contractor response by next business day, resolved within 7 days.
Measurement	Total number of trouble tickets closed within the severity level time frame divided by total number of tickets closed.
Target Performance	95% compliance with target service level.
Period of Review	Monthly

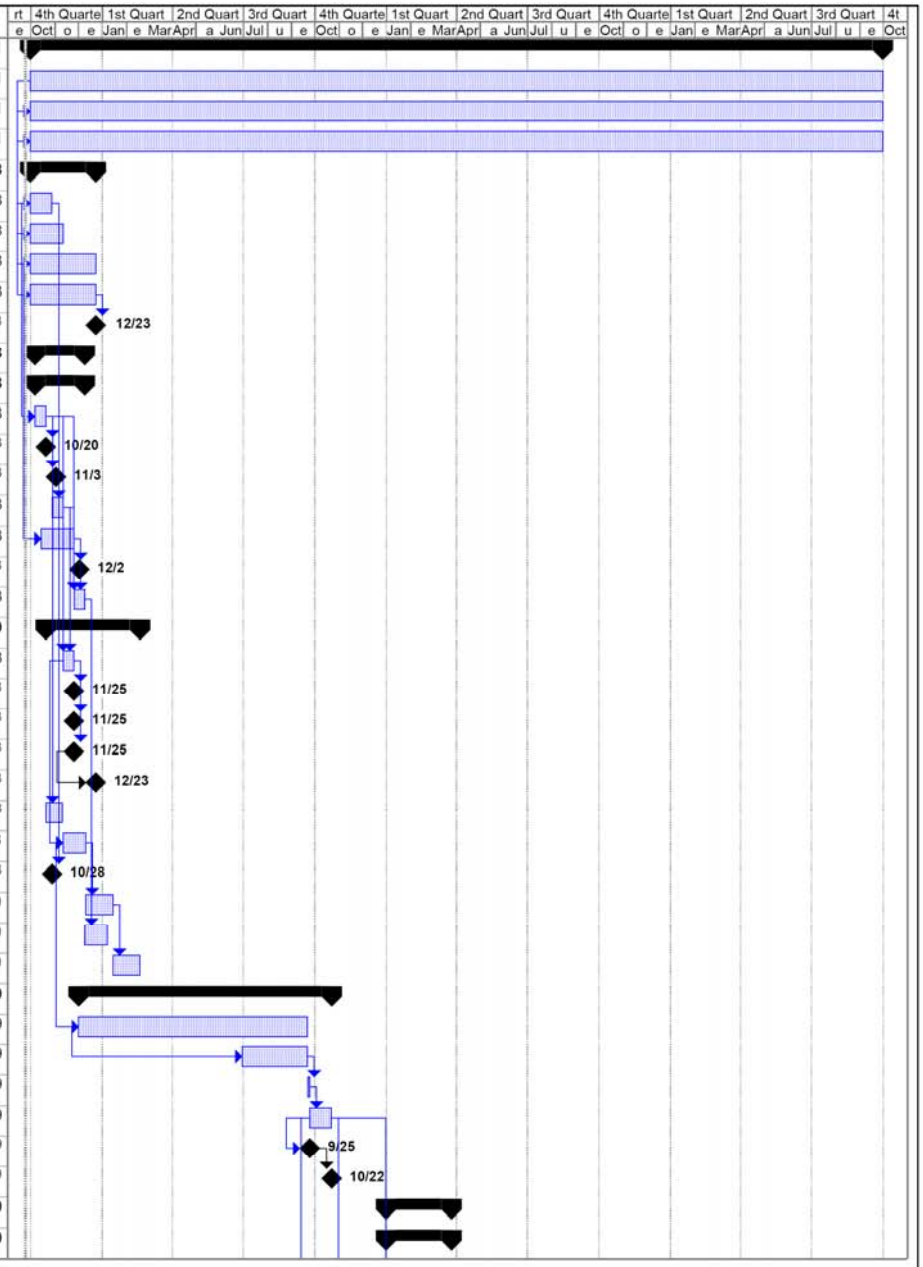
Requirement 2	Telephone Support
Description	The Contractor shall provide telephone technical support on a 24x7 basis for all applications procured as a result of this contract with 90% of calls answered or returned within 15 minutes by live person.
Measurement	Number of calls answered / total calls.
Target Performance	95% compliance with target service level.
Period of Review	Monthly

State Responsibility: Delcan will not be responsible for loss time resulting from State of Michigan hardware and communication equipment failures.

Article 1, Appendix E

Preliminary Project Plan

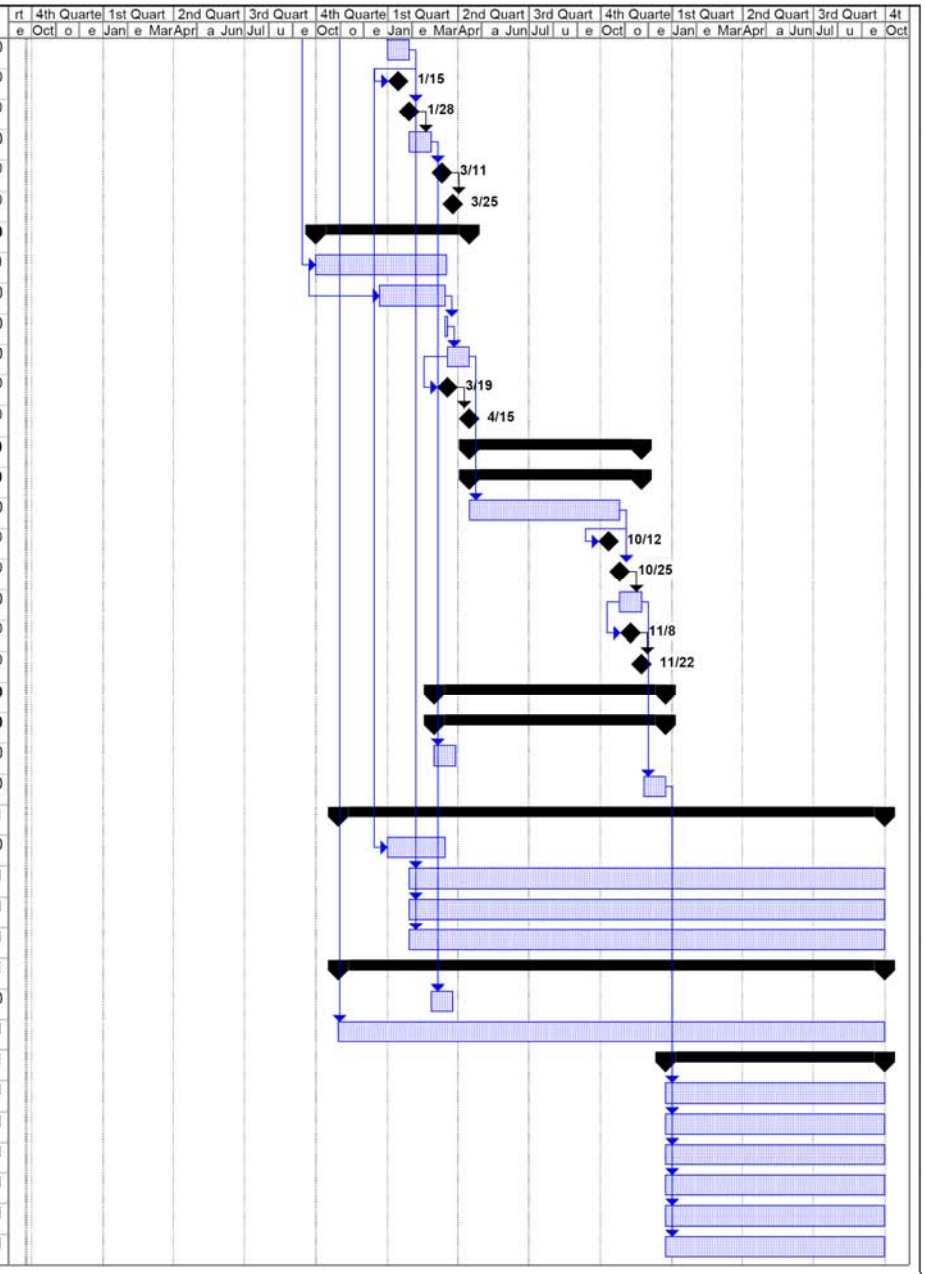
ID	Task Name	Duration	Start	Finish
1	**Project Management - Task 1**	**783 days**	**Wed 10/1/08**	**Fri 9/30/11**
2	Oversight	783 days	Wed 10/1/08	Fri 9/30/11
3	Monthly Status Meeting	783 days	Wed 10/1/08	Fri 9/30/11
4	Internal Reviews and QA.QC	783 days	Wed 10/1/08	Fri 9/30/11
5	**Verify and Validate Current Environment - Task 2**	**60 days**	**Wed 10/1/08**	**Tue 12/23/08**
6	Review and Analyze Requirements	20 days	Wed 10/1/08	Tue 10/28/08
7	Review, Document and Analyze Existing Hardware	30 days	Wed 10/1/08	Tue 11/11/08
8	Review, Document and Analyze Existing Interfaces (C2C and (C2	60 days	Wed 10/1/08	Tue 12/23/08
9	Review, Document and Analyze Communications	60 days	Wed 10/1/08	Tue 12/23/08
10	*MS1 - Updated Technical Assessment and Inventory Document*	0 days	Tue 12/23/08	Tue 12/23/08
11	**Verify and Validate Current Environment - Task 3**	**46 days**	**Tue 10/7/08**	**Tue 12/9/08**
12	**Finalize Software Solution Deployment Plan**	**46 days**	**Tue 10/7/08**	**Tue 12/9/08**
13	Map Requirements to NETworks	10 days	Tue 10/7/08	Mon 10/20/08
14	*MS2 - Detailed Solution Requirements Review*	0 days	Mon 10/20/08	Mon 10/20/08
15	*MS3 - Gap Analysis Document*	0 days	Mon 11/3/08	Mon 11/3/08
16	Identify Customizations	10 days	Wed 10/29/08	Tue 11/11/08
17	Identify Interface Requirements	30 days	Wed 10/15/08	Tue 11/25/08
18	*MS4 - Finalized Phase 1 and 2 Solution Requirements*	0 days	Tue 12/2/08	Tue 12/2/08
19	Develop Software Customization and Test Schedule	10 days	Wed 11/26/08	Tue 12/9/08
20	**Software Development and Implementation Plans - Task 4**	**87 days**	**Tue 10/21/08**	**Wed 2/18/09**
21	Develop Implementation Plan	10 days	Wed 11/12/08	Tue 11/25/08
22	*MS5 - Software Development Plan*	0 days	Tue 11/25/08	Tue 11/25/08
23	*MS6 - Technical Design Architecture*	0 days	Tue 11/25/08	Tue 11/25/08
24	*MS7 - Software Implementation Plan*	0 days	Tue 11/25/08	Tue 11/25/08
25	*MS8 - Critical Design Review*	0 days	Tue 12/23/08	Tue 12/23/08
26	Procurement Modifications	15 days	Tue 10/21/08	Mon 11/10/08
27	Build Test Environment	21 days	Wed 11/12/08	Wed 12/10/08
28	*MS* - Delivery of NETworks Software License and to Escrow*	0 days	Tue 10/28/08	Tue 10/28/08
29	Develop Test Matrix	25 days	Thu 12/11/08	Wed 1/14/09
30	Develop Configuration Management Plan	21 days	Wed 12/10/08	Wed 1/7/09
31	Build Test Procedures	25 days	Thu 1/15/09	Wed 2/18/09
32	**Software Development and UAT - Phase 1 - Task 5**	**233 days**	**Tue 12/2/08**	**Thu 10/22/09**
33	Build Customization Phase 1	210 days	Tue 12/2/08	Mon 9/21/09
34	Develop Test Plans from Requirements	60 days	Tue 6/30/09	Mon 9/21/09
35	Review Test Plans with MDOT	3 days	Tue 9/22/09	Thu 9/24/09
36	Perform Test and Document	20 days	Fri 9/25/09	Thu 10/22/09
37	*MS9 - Results of Unit Level Testing*	0 days	Fri 9/25/09	Fri 9/25/09
38	*MS10 - Successful Issues Corrections and Completion of All Tests*	0 days	Thu 10/22/09	Thu 10/22/09
39	**Implementation Phase 1 - Task 6**	**60 days**	**Fri 1/1/10**	**Thu 3/25/10**
40	**Implementation**	**60 days**	**Fri 1/1/10**	**Thu 3/25/10**



Project: MDOT_Project3_attempt2_09
Date: Tue 9/23/08

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

ID	Task Name	Duration	Start	Finish
41	Installation	20 days	Fri 1/1/10	Thu 1/28/10
42	*MS13 - Production Installation Ph1 Stage 1*	0 days	Fri 1/15/10	Fri 1/15/10
43	*MS14 - Production Installation Ph2 Stage 2*	0 days	Thu 1/28/10	Thu 1/28/10
44	System Configuration Documentation	20 days	Fri 1/29/10	Thu 2/25/10
45	*MS11 - Training and Doc Completion Ph1*	0 days	Thu 3/11/10	Thu 3/11/10
46	*MS12 - System Configuration Document Ph1*	0 days	Thu 3/25/10	Thu 3/25/10
47	**Software Development and UAT - Phase 2 - Task 7**	**141 days**	**Thu 10/1/09**	**Thu 4/15/10**
48	Build Customization Phase 2	120 days	Thu 10/1/09	Wed 3/17/10
49	Develop Test Plans from Requirements	60 days	Tue 12/22/09	Mon 3/15/10
50	Review Test Plans with MDOT	3 days	Tue 3/16/10	Thu 3/18/10
51	Perform Test and Document	20 days	Fri 3/19/10	Thu 4/15/10
52	*MS15 - Results of Unit Level Testing*	0 days	Fri 3/19/10	Fri 3/19/10
53	*MS16 - Successful Issues Corrections and Completion of All Tests*	0 days	Thu 4/15/10	Thu 4/15/10
54	**Implementation Phase 2 - Task 8**	**157 days**	**Fri 4/16/10**	**Mon 11/22/10**
55	**Implementation**	**157 days**	**Fri 4/16/10**	**Mon 11/22/10**
56	Installation	137 days	Fri 4/16/10	Mon 10/25/10
57	*MS19 - Production Installation Ph2 Stage 1*	0 days	Tue 10/12/10	Tue 10/12/10
58	*MS20 - Production Installation Ph2 Stage 2*	0 days	Mon 10/25/10	Mon 10/25/10
59	System Configuration Documentation	20 days	Tue 10/26/10	Mon 11/22/10
60	*MS17 - Training and Doc Completion Ph2*	0 days	Mon 11/8/10	Mon 11/8/10
61	*MS18 - System Configuration Document Ph2*	0 days	Mon 11/22/10	Mon 11/22/10
62	**Post-Implementation Support and Training - Part D**	**213 days**	**Tue 3/2/10**	**Thu 12/23/10**
63	**Training - Groups A, B, C, D**	**213 days**	**Tue 3/2/10**	**Thu 12/23/10**
64	Phase 1	20 days	Tue 3/2/10	Mon 3/29/10
65	Phase 2	20 days	Fri 11/26/10	Thu 12/23/10
66	**Software Maintenance and Support - Part D**	**501 days**	**Fri 10/30/09**	**Fri 9/30/11**
67	Establish Change Control Board and Operating Parameters	52 days	Fri 1/1/10	Mon 3/15/10
68	CCB Meetings	436 days	Fri 1/29/10	Fri 9/30/11
69	Track CCB Changes via Software Update Plans	436 days	Fri 1/29/10	Fri 9/30/11
70	Provide Monthly Maintenance Activity Reports	436 days	Fri 1/29/10	Fri 9/30/11
71	**Help Desk - MDOT/MDIT**	**501 days**	**Fri 10/30/09**	**Fri 9/30/11**
72	Develop Help Desk Requirements and Process	20 days	Fri 2/26/10	Thu 3/25/10
73	Develop Duplicate Facility at Delcan for Troubleshooting	501 days	Fri 10/30/09	Fri 9/30/11
74	**Additional Services/Enhancements - Part E**	**201 days**	**Fri 12/24/10**	**Fri 9/30/11**
75	Probe Data Integration	201 days	Fri 12/24/10	Fri 9/30/11
76	ATIS Enhancement	201 days	Fri 12/24/10	Fri 9/30/11
77	RWIS Enhancement	201 days	Fri 12/24/10	Fri 9/30/11
78	Future TMC Evaluation and Integration	201 days	Fri 12/24/10	Fri 9/30/11
79	Additional/Emerging Interfaces	201 days	Fri 12/24/10	Fri 9/30/11
80	Integration of ITS Laboratory in Lansing	201 days	Fri 12/24/10	Fri 9/30/11



Project: MDOT_Project3_attempt2_09
Date: Tue 9/23/08

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

Article 2 – General Terms and Conditions

2.010 CONTRACT STRUCTURE AND ADMINISTRATION

2.011 Definitions

Capitalized terms used in this Contract (including its Exhibits) shall have the following meanings, unless the context requires otherwise:

(a) "Days" means calendar days unless otherwise specified.
(b) "24x7x365" means 24 hours a day, 7 days a week, and 365 days a year (including the 366th day in a leap year).
(c) "Additional Service" means any Service/Deliverable that is 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. "Additional Service" does not include New Work.
(d) "Amendment Labor Rates" means the schedule of fully-loaded hourly labor rates identified in **Article 1, Appendix C**.
(e) "Audit Period" has the meaning given in Section 2.111.
(f) "Business Critical" means any function identified in any Statement of Work as Business Critical.
(g) "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 8:00 AM Eastern Time through 5:00 PM Eastern Time unless otherwise stated.
(h) "Deliverable" means physical goods and/or commodities as required or identified by a Statement of Work.
(i) "Incident" means any interruption in Services.
(j) "Key Personnel" means any such personnel designated in Section 1.201.
(k) "New Work" means any Service/Deliverable that is 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. "New Work" does not include Additional Service.
(l) "Services" means any function performed for the benefit of the State.
(m) "State Location" means any physical location where the State performs work. "State Location" may include State-owned, leased, or rented space.
(n) "Subcontractor" means a company to which the Contractor delegates the performance of a portion of the Services, but does not include independent Contractors engaged by the Contractor solely in a staff augmentation role.
(o) "Work in Process" means a Deliverable that has been partially prepared, but has not been presented to the State for approval.

2.012 Attachments and Exhibits

All Attachments and/or Exhibits that reference this Contract that are attached to any and all Statement(s) of Work, and all Attachments and/or Exhibits that are attached to this Contract, are incorporated in their entirety into, and shall form a part of, this Contract.

2.013 Statements of Work

(a) The parties agree that the Services/Deliverables to be rendered by the 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. The 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, or an amendment to this Contract (see Section 2.106). The Contractor shall perform in accordance with this Contract, including the Statements of Work/Purchase Orders executed under it.

(b) Unless otherwise agreed by the parties, each Statement of Work (as defined in Article 1) will include, or will incorporate by reference to the appropriate Contract Attachment containing the following information:

- A description of the Services to be performed by the Contractor under the Statement of Work;
- A project schedule (including the commencement and completion dates for all tasks, subtasks (for all projects of sufficient duration and complexity to warrant a subtask breakdown), and Deliverables;
- A list of the Deliverables to be provided, if any, including any particular specifications and acceptance criteria for such Deliverables, and the dates on which the Deliverables are scheduled to be completed and delivered to the State;
- All Deliverable price schedules and other charges associated with the Statement of Work, the overall fixed price for such Statement of Work, and any other appropriate pricing and payment terms;
- A specification of the Contractor's and the State's respective performance responsibilities with respect to the performance or completion of all tasks, subtasks, and Deliverables;
- A listing of any Key Personnel of Contractor and/or its Subcontractors for that Statement of Work and any future Statements of Work;
- Any other information or provisions the parties agree to include.

(c) Reserved.

(d) The initial Statements of Work, as of the Effective Date, are attached to this Contract.

2.014 Issuing Office

This Contract is issued by the Department of Management and Budget, Office of Acquisition Services ("OAS"), the Michigan Department of Transportation ("MDOT"), and the Michigan Department of Information Technology ("MDIT") (collectively, including all other relevant State of Michigan departments and agencies, the "State"). OAS is the sole point of contact in the State with regard to all procurement and contractual matters relating to the Contract. **OAS is the only State office authorized to change, modify, amend, alter, or clarify the prices, specifications, terms, and conditions of this Contract.** The Contract Administrator within the Office of Acquisition Services for this Contract is:

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

2.015 MDIT Contract Administrator

Upon receipt at OAS of the properly executed Contract, it is anticipated that the Director of DMB Acquisition Services, in consultation with the Department of Information Technology and/or the Department of Transportation, will direct that the person named below, or any other person so designated, be authorized to monitor and coordinate the activities for the Contract on a day-to-day basis during its term. However, monitoring of this Contract implies **no authority to change, modify, clarify, amend, or otherwise alter the prices, terms, conditions, and specifications of such Contract as that authority is retained by the Office of Acquisition Services**. The MDIT Contract Administrator for this Contract is:

Cindy Turben, CPPB
Michigan Department of Information Technology Constitution Hall, 1st Floor North
525 W. Allegan Street
Lansing, MI 48913
Phone: 517.335.6069
Fax: 517.241.8852
turbenc@michigan.gov

2.020 CONTRACT OBJECTIVES/SCOPE/BACKGROUND

2.021 Background

See Section 1.002.

2.022 Purpose

The purpose of this contract is to procure Advanced Traffic Management System (ATMS) software to replace the existing software in the State of Michigan's two existing traffic management centers (TMCs), one in the Detroit Metro area and the other in the City of Grand Rapids, and a new backup site at the MDIT data center in Lansing. In addition, this software will be a standard platform that can be deployed in future centers across the State of Michigan. Different parts of the State have different operational needs and priorities and the ATMS must be flexible and scalable to accommodate all of its users. The software will control freeway surveillance cameras, dynamic message signs, traffic sensors, and other field devices as required. It will also allow operators to manage incidents and effectively share information for real-time operations and log operations activity for reporting and performance measurement purposes.

This Contract is for a mixture of goods and services.

2.023 Objectives and Scope

The basic outcomes of this Contract will be a fully deployed and operational ATMS in Grand Rapids and in Detroit with a backup configuration in Lansing that fully meets the solution requirements in this RFP. The Contract has a three year base term with seven (7) one-year options for software maintenance and support.

See Section 1.001 for more detail.

2.024 Interpretation

Sections 2.021 through 2.023 are intended to provide background and context for this Contract and are not intended to expand the scope of the obligations under this Contract or to alter the plain meaning of the terms and conditions of this Contract. However, to the extent the terms and conditions of this Contract are unclear or otherwise ambiguous, such terms and conditions are to be interpreted and construed in light of the provisions of this Section.

2.025 Form, Function and Utility

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

2.030 LEGAL EFFECT AND TERM

2.031 Legal Effect

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

2.032 Contract Term

This Contract is for a period of three (3) years commencing on the date that the last signature required to make the Contract enforceable is obtained. All outstanding Purchase Orders shall also expire upon the termination (cancellation for any of the reasons listed in Section 2.210) of the Contract, unless otherwise extended pursuant to the Contract. Absent an early termination for any reason, Purchase Orders issued, but not expired, by the end of the Contract's stated term will remain in effect for the balance of the fiscal year for which they were issued.

2.033 Renewal(s)

This Contract may be renewed in writing by mutual agreement of the parties not less than thirty (30) days before its expiration. The Contract may be renewed for up to seven (7) additional one (1) year periods. Successful completion of negotiations surrounding the terms of the extension will be a pre-requisite for the exercise of any option year.

2.040 CONTRACTOR PERSONNEL

2.041 Contractor Personnel

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

(b) Key Personnel

(i) In discharging its obligations under this Contract, the Contractor shall provide an organizational chart showing the roles of the Key Personnel named in Section 1.8.200.

(ii) Key Personnel shall be dedicated as defined in the organizational chart 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.

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

proposed individual unacceptable, the State will provide a written explanation, including reasonable detail, outlining the reasons for the rejection. Additionally, the State's request shall be based on legitimate, good-faith reasons. The proposed alternative for the denied individual shall be fully qualified for the position.

(iv) The Contractor shall not remove any Key Personnel from their assigned roles or from the Contract without the prior written consent of the State. If the Contractor does remove Key Personnel without the prior written consent of the State, it shall be considered an unauthorized removal ("Unauthorized Removal"). It shall not be considered an Unauthorized Removal if Key Personnel must be replaced for reasons beyond the reasonable control of Contractor, including illness, disability, leave of absence, personal emergency circumstances, resignation, or termination for cause of the Key Personnel's employment. It shall not be considered an Unauthorized Removal if Key Personnel must be replaced 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 the Contractor provides thirty (30) days of shadowing unless parties agree to a different time period. The Contractor and the State shall 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 rights under Section 2.210.

(c) Reassignment of non-Key Personnel. Prior to redeploying to other projects, at the completion of their assigned tasks on this Project, teams of its non-Key Personnel who are performing Services on-site at State facilities or who are otherwise dedicated primarily to the Project, the Contractor shall give the State at least ten (10) Business Days notice of the proposed redeployment to give the State an opportunity to object to the redeployment if the State reasonably believes such team's Contract responsibilities are not likely to be completed and approved by the State prior to the proposed date of redeployment.

(d) Reassignment of Key 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 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 personnel for the removed person shall 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 might be affected by the State's required removal. If any such incident with removed personnel results in delay that was not reasonably anticipated under the circumstances and which is attributable to the State, the applicable SLAs for the affected Service will not be counted in Section 2.076 for a time as agreed to by the parties.

(e) Staffing Levels.

(i) All staff requirements not specified in the applicable Statement of Work or State-approved project work plan as State personnel will be supplied by Contractor. This includes secretarial, clerical, and Contract administration support staff necessary for the Contractor to perform its obligations hereunder.

(ii) The Contractor shall provide sufficient personnel resources for the completion of Contract tasks indicated in the Contractor's project work plan approved by the State. If the level of personnel resources is insufficient to complete any Contractor Contract tasks in accordance with the Contract time schedule, as demonstrated by Contractor's failure to meet mutually agreed to time schedules, the Contractor shall promptly add additional qualified personnel resources to the performance of the affected tasks, at no additional charge to the State, in an amount sufficient to complete the performance of the Contractor's tasks in accordance with the Contract time schedule.

(f) Personnel Turnover. The Parties agree that it is in their best interests to keep the turnover rate of the employees of the Contractor and its Subcontractors who are performing the Services to a

reasonable minimum. Accordingly, if the State determines that the turnover rate of such employees is excessive and so notifies the Contractor, the Contractor will meet with the State to discuss the reasons for the turnover rate and otherwise use commercially reasonable efforts to minimize such turnover rate. If requested to do so by the State, the Contractor will submit to the State its proposals for reducing the turnover rate to an acceptable level. In any event, notwithstanding the turnover of personnel, the Contractor remains obligated to perform the Services without degradation and in accordance with the State-approved Contract schedule.

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

2.042 Contractor Identification

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

2.043 Cooperation with Third Parties

The 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, and, as reasonably requested by the State, to provide to the State's agents and other Contractors with reasonable access to the Contractor's Project personnel, systems, and facilities to the extent that they relate to the activities specifically associated with this Contract, and will not interfere with or jeopardize the safety or operation of the systems or facilities, and provided that the Contractor receives reasonable prior written notice of any such request. The State acknowledges that the Contractor's time schedule for the Contract is very specific and agrees not to unnecessarily or unreasonably interfere with, delay, or otherwise impede the Contractor's performance under this Contract with such requests for access.

2.044 Subcontracting by Contractor

(a) The Contractor shall have full responsibility for the successful performance and completion of all of the Services and Deliverables. The State will consider the 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.

(b) The Contractor shall not delegate any duties under this Contract to a Subcontractor unless the Department of Management and Budget, Office of Acquisition Services has given written consent to such delegation. The State shall have the right of prior written approval of all Subcontractors and to require the Contractor to replace any Subcontractors found, in the reasonable judgment of the State, to be unacceptable. The State's request shall be written, with reasonable detail, outlining the reasons for the removal request. Additionally, the State's request shall be based on legitimate, good-faith reasons. Replacement Subcontractor(s) for the removed Subcontractor shall be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed Subcontractor, the State will agree to an equitable adjustment in the 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 that is not reasonably anticipated under the circumstances and which is attributable to the State, the applicable SLAs for the affected Work will not be counted in Section 2.076 for a time agreed upon by the parties.

(c) In any subcontracts entered into by the Contractor for the performance of the Services, the Contractor shall require the Subcontractor, to the extent of the Services to be performed by the Subcontractor, to be bound to the Contractor by the terms of this Contract and to assume

toward the Contractor all of the obligations and responsibilities that the Contractor, by this Contract, assumes toward the State. The State reserves the right to receive copies of and review all subcontracts, although the Contractor may delete or mask any proprietary information, including pricing, contained in such subcontracts before providing them to the State. The management of any Subcontractor will be the responsibility of the Contractor, and the Contractor shall remain responsible for the performance of its Subcontractors to the same extent as if the Contractor had not subcontracted such performance. The Contractor shall make all payments to the Subcontractors or suppliers of the Contractor. Except as otherwise agreed in writing by the State and the Contractor, the State will not be obligated to direct payments for the Services other than to the Contractor. The State's written approval of any Subcontractor engaged by the Contractor to perform any obligation under this Contract shall not relieve the Contractor of any obligations or performance required under this Contract.

(d) Except where specifically approved in writing by the State on a case-by-case basis, the Contractor shall flow down the obligations in Sections 2.040, 2.110, 2.150, 2.160, 2.171(c), 2.172(b), 2.180, 2.260, 2.276, and 2.297 in all of its agreements with any Subcontractors.

(e) 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.

2.045 Contractor Responsibility for Personnel

The 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 the Contractor to perform the Services.

2.050 STATE STANDARDS

2.051 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/0,1607,7-139-34305---,00.html and/or in **Attachment E**. When in conflict, **Attachment E** will prevail.

2.052 PM Methodology Standards

The State has adopted a standard documented Project Management Methodology (PMM) for use on all Information Technology (IT) based projects. See the State's PMM website at: http://www.michigan.gov/projectmanagement.

The Contractor shall use the State's SUITE methodology and PMM to manage this Contract. If the Contractor requires training on the PMM, those costs shall be the responsibility of the Contractor, unless otherwise stated.

2.053 Adherence to Portal Technology Tools

Not applicable.

2.054 Acceptable Use Policy

To the extent that the Contractor has access to the State's computer system, the Contractor must comply with the State's Acceptable Use Policy, which can be viewed at: http://www.michigan.gov/dit/0,1607,7-139-34305-73760--,00.html. All Contractor employees must be required, in writing, to agree to the State's Acceptable Use Policy before accessing the State's system. The State reserves the right to terminate the Contractor's access to the State's system if a violation occurs.

2.060 DELIVERABLES

2.061 Ordering

(a) Any Services/Deliverables to be furnished under this Contract shall be ordered by issuance of written Purchase Orders/Blanket Purchase Orders by the State after approval by the Contract

Administrator or his/her designee. All orders are subject to the terms and conditions of this Contract. In the event of a conflict between an order and this Contract, the Contract shall take precedence as stated in Section 2.293. In no event shall any additional terms and conditions contained on a Purchase Order/Blanket Purchase Order be applicable, unless specifically contained in that Purchase Order/Blanket Purchase Order's accompanying Statement of Work.

(b) MDIT will continue to oversee the use of this Contract by End Users. MDIT may, in writing, delegate to agencies the authority to submit requests for certain services directly to the Contractor. MDIT may also designate, in writing, some services as non-delegated and require MDIT review and approval before agency acquisition. MDIT will use Contractor-provided management reports and periodic random agency audits to monitor and administer contract usage for delegated services.

2.062 Software

The Contractor shall list the items of software that the Contractor will furnish on behalf of the State for execution of the Contract. 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 the Contractor at no additional charge (except where agreed upon and specified in a Statement of Work or Contract Change Notice).

2.063 Hardware

The Contractor shall list the items of hardware that the Contractor will furnish on behalf of the State for execution of the Contract. 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 the Contractor at no additional charge (except where agreed upon and specified in a Contract Change Notice).

2.064 Equipment to be New and Prohibited Products

(a) Equipment to be New
If applicable, all equipment provided under this Contract by the Contractor shall be new where the Contractor has knowledge regarding whether the equipment is new or is 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 the Contractor does not have knowledge or the ability to select one or the other, unless specifically agreed otherwise in writing by the State.

(b) Prohibited Products
The State will not accept salvage, distressed, outdated, or discontinued merchandise. Shipping of such merchandise to any State agency, as a result of an order placed against the Contract, shall be considered default by the Contractor of the terms and conditions of the Contract and may result in cancellation of the Contract by the State. The brand and product number offered for all items shall remain consistent for the term of the Contract, unless Acquisition Services has approved a change order pursuant to Section 2.106.

2.070 PERFORMANCE

2.071 Performance, In General

The State engages the Contractor to execute the Contract and perform the Services/provide the Deliverables, and the Contractor undertakes to execute and complete the Contract in its entirety in accordance with the terms and conditions of this Contract and with the participation of State representatives as specified in this Contract.

2.072 Time of Performance

(a) The Contractor shall use commercially reasonable efforts to provide the resources necessary to complete all Services and Deliverables in accordance with 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 2.072(a), Contractor shall notify the State in a timely manner upon becoming aware of any circumstances that might 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, in such event, shall 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 in accordance with the specified Contract time periods, the Contractor shall notify the State in a timely manner and shall use commercially reasonable efforts to perform its obligations in accordance with such Contract time periods notwithstanding the State's failure. The Contractor will not be in default for a delay in performance to the extent such delay is caused by the State.

2.073 N/A

2.074 Bankruptcy

If the Contractor files for protection under the bankruptcy laws, or if an involuntary petition is filed against the Contractor and not removed within thirty (30) days, or if the Contractor becomes insolvent, is adjudicated bankrupt, or if it should make a general assignment for the benefit of creditors, or if a receiver shall be appointed because of its insolvency, and the Contractor and/or its affiliates are unable to provide reasonable assurances that the Contractor and/or its affiliates can deliver the services provided herein, 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 such Works in Process by whatever appropriate method the State may deem expedient. The 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.

To secure the State's progress payments before the delivery of any services or materials required for the execution of the Contractor's obligations hereunder, and any work which the Contractor may subcontract in the support of the performance of its obligations hereunder, title shall vest in the State to the extent that the State has made progress payments hereunder.

2.075 N/A

2.076 Service Level Agreements (SLAs)

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

(i) SLAs will not be calculated for individual Incidents where any event of Excusable Failure has occurred as defined in Section 2.202,

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

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

(iv) 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 a 24x7x365 time period, except that the time period measurement will be suspended based on the following ("Stop-Clock Conditions"):

1. Time period(s) will not apply where the Contractor does not have access to a physical State Location and where access to the State Location is necessary for problem identification and resolution.
2. Time period(s) will not apply where the 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 (3) unscheduled outages or interruptions 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 thirty (30) day period. Chronic Failure will result in the State's option to terminate the affected individual Service(s) and procure them from a different vendor for the chronic location(s) with the Contractor to pay the difference in charges for up to three (3) 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. The Contractor will provide its analysis within two (2) weeks of the outage(s) and provide a recommendation for resolution.

(d) All decimals shall be rounded to two decimal places with 5 and greater rounding up and 4 and less rounding down unless otherwise specified.

2.080 DELIVERY AND ACCEPTANCE OF DELIVERABLES

2.081 Delivery of Deliverables

Section 1.104 contains a list of the Deliverables to be prepared and delivered by the 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. 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, the 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, the 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.

2.082 Contractor's System Testing

The Contractor will be responsible for System Testing each Custom Software Deliverable in the 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 the Contractor's system development methodology:

(a) The Contractor will be responsible for performing Unit Testing and incremental Integration Testing of the components of each Custom Software Deliverable.

(b) 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 and 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, the number of field devices, the number of centers, and the number of users, as such projections are set forth in the applicable Statement

of Work. The Contractor is required to provide any software or equipment needed to perform the testing, including whatever is needed to simulate a certain number of future devices or centers.

(c) The State, with the assistance of the Contractor, shall develop a User Acceptance Test Plan as identified in Article 1.

2.083 Approval of Deliverables, In General

All Deliverables (Written Deliverables and Custom Software Deliverables) require formal written approval by the State or the State's designated Business System Manager, 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 the 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 the 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. All deliverables shall be submitted electronically in Microsoft Office or otherwise approved file formats simultaneously to the State and the State's designated Business System Manager.

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 the Contractor in accordance with Section 2.080.

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 the Contractor to rectify them post-approval. In any case, the Contractor will be responsible for working diligently to correct within a reasonable time at the 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), the Contractor is unable to correct all deficiencies preventing State approval of a Deliverable, the State may: (i) demand that the Contractor cure the failure and give Contractor additional time to cure the failure at the sole expense of the Contractor; or (ii) keep this Contract in force and do, either itself or through other parties, whatever the Contractor has failed to do, in which event the 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 the Contractor (and without the need to afford the 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 the Contractor for correction and re-delivery prior to resuming the review or UAT process and, in that event, the 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 the 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.

2.084 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 the Contractor in writing by the end of the State Review Period either stating that the Written Deliverable is approved in the form delivered by the Contractor or describing any deficiencies that must 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 the Contractor a notice of deficiencies, the Contractor shall 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. The Contractor's correction efforts will be made at no additional charge. Upon receipt of a corrected Written Deliverable from the 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.

2.085 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.

Thirty (30) days (or such other number of days as the parties may agree to in writing) prior to the Contractor's scheduled delivery of any Custom Software Deliverable to the State for approval, the State shall provide to the Contractor a set of proposed test plans that define test cases. Based off those test cases, the Contractor shall provide the State with detailed test procedures that include 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. The 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 Section 1.104, the State Review Period for conducting UAT will be as indicated in Section 1.104. For any other Custom Software Deliverables not listed in Section 1.104, the State Review Period shall be the number of days agreed to in writing by the parties (failing which it shall be ten (10) business days by default). The State Review Period for each Custom Software Deliverable will begin when the Contractor has delivered the Custom Software Deliverable to the State and the State's designated Business System Manager accompanied by the certification required by Section 2.080 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 the 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 the Contractor of the deficiency by making an entry in an incident reporting system available to both the Contractor and the State. The 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. The 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 the Contractor.

Within three (3) business days after the end of the State Review Period, the State will give the Contractor a written notice indicating the State's approval or rejection of the Custom Software Deliverable according to the criteria and processes set out in this Section 2.080.

2.086 Final Acceptance

Final Acceptance is expressly conditioned upon completion of all deliverables, completion of all tasks in the Project Work Plan as approved, completion of all applicable inspection and/or testing procedures, and the certification by the State that the Contractor has met all of the defined requirements. If the State elects to defer putting a Software Deliverable into live production for its own reasons, not based on concerns about outstanding material deficiencies in the Deliverable, the State will nevertheless grant Final Acceptance of the Project.

2.090 FINANCIAL

2.091 Pricing

(a) Fixed Prices for Services/Deliverables
Each Statement of Work/PO 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. To the extent the parties agree that certain specific Services will be provided on a time and materials basis, such Services shall be provided at the Amendment Labor Rates (**Article 1, Appendix C**). 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. The Contractor must show verification of measurable progress at the time of requesting progress payments.

(b) 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 the Contractor's charges under such Statement of Work commensurate with the reduction in scope, using the rates in **Article 1, Appendix C** unless specifically identified in an applicable Statement of Work.

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

(d) Labor Rates
All time and material charges will be at the rates specified in **Article 1, Appendix C**.

2.092 Invoicing and Payment Procedures and Terms

(a) Invoicing and Payment – In General
- (i) Each Statement of Work issued under this Contract shall list the prices for all Services/Deliverables, equipment, and commodities to be provided, and the associated payment milestones and payment amounts.
- (ii) Each Contractor invoice will 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. The charges for Services billed on a time and materials basis shall be determined based on the actual number of hours of Services performed, at the applicable Labor Rates specified in **Article 1, Appendix C**. Invoices for Services performed on a time and materials basis will 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.

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

(b) Taxes (see also Section 2.305 and Article 3, Section 3.022-3.024)
The State is exempt from Federal Excise Tax, State and Local Sales Taxes, and Use Tax with respect to the sale to and use by it of tangible personal property. Such taxes shall not be included in Contract prices as long as the State maintains such exemptions. Copies of all tax exemption certificates will be supplied to the Contractor, if requested.

(c) Out-of-Pocket Expenses
The Contractor acknowledges that the out-of-pocket expenses that the Contractor expects to incur in performing the Services/providing the Deliverables (such as, but not limited to, travel and lodging, document reproduction and shipping, and long distance telephone) are included in the Contractor's fixed price for each Statement of Work. Accordingly, the Contractor's 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 the Contractor for such an expense at the State's current travel reimbursement rates. See http://www.mi.gov/dmb/0,1607,7-150-9141_13132---,00.html for current rates.

(d) Proration
To the extent there are any Services that are to be paid for on a monthly basis, the cost of such Services shall be prorated for any partial month.

(e) 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.

(f) Final Payment
The making of final payment by the State to the 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 will 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. The Contractor's acceptance of final payment by the State under this Contract shall constitute a waiver of all claims by the Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still unsettled.

2.093 State Funding Obligation

The State's obligation under this Contract is payable only and solely from funds appropriated for the purpose of this Contract. The Contractor acknowledges and agrees that all funds for payments after the end of the current fiscal year are subject to the availability of a legislative appropriation for the purpose of this Contract. Events of non-appropriation are addressed further in Section 2.210 of this Contract.

2.094 Holdback

Not applicable.

2.095 Electronic Payment Availability

Public Act 533 of 2004 requires that payments under this contract be processed by electronic funds transfer (EFT). The Contractor is required to register to receive payments by EFT at the Contract & Payment Express website (www.cpexpress.state.mi.us).

2.100 CONTRACT MANAGEMENT

2.101 Contract Management Responsibility

(a) The 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. The Contractor's duties will include monitoring and reporting the State's performance of its participation and support responsibilities (as well as the Contractor's own responsibilities) and providing timely notice to the State in the Contractor's reasonable opinion if the State's failure to perform its responsibilities in accordance with the Project work plan in Section 1.3 is likely to delay the timely achievement of any Contract tasks.

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

2.102 Problem and Contract Management Procedures

Problem Management and Contract Management procedures will be governed by the Contract and the applicable Statements of Work.

2.103 Reports and Meetings

See Article 1.

2.104 System Changes

The Contractor is not responsible for and not authorized to make changes to any State systems without written authorization from the State. Any changes the Contractor makes to State systems with the State's approval shall be done in accordance with applicable State procedures, including security, access, and configuration management procedures.

2.105 Reserved

2.106 Change Requests

The State reserves the right to request from time to time, any changes to the requirements and specifications of the Contract and the work to be performed by the Contractor under the Contract. During the course of ordinary business, it may become necessary for the State to discontinue certain business practices or create Additional Services/Deliverables. At a minimum, to the extent applicable, the State would request the Contractor to provide a detailed outline of all work to be done, including tasks necessary to accomplish the services/deliverables, timeframes, listing of key personnel assigned, estimated hours for each individual per task, and a complete and detailed 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, and before commencing performance of the requested activities that 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 notice is given by the Contractor shall be conclusively considered to be in-scope Services/Deliverables, 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.

(a) Change Requests

(i) State Requests

If the State should require the 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 the Contractor (a “Change”), the State shall submit a written request for the Contractor to furnish a proposal for carrying out the requested Change (a “Change Request”).

(ii) Contractor Recommendations

The Contractor shall be entitled to propose a Change to the State, on its own initiative, should it be of the opinion that this would benefit the Contract.

(iii) Upon receipt of a Change Request or on its own initiative, the 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. The 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 the Contractor provides a written proposal and should the Contractor be of the opinion that a requested Change is not 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.

(iv) By giving the 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 the Contractor. Should the parties agree on carrying out a Change, a written Contract Change Notice shall 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”).

(v) 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 Management and Budget, Office of Acquisition Services.

(vi) If the State requests or directs the Contractor to perform any activities that the Contractor believes constitute a Change, the Contractor must notify the State that it believes the requested activities are a Change prior to commencing the performance of the requested activities. If the Contractor fails to so notify the State prior to commencing performance of the requested activities, such activities shall be considered to be performed gratuitously by the Contractor, and the Contractor shall not have any right thereafter to assert any claim for additional compensation or time for the performance of such activities. If the Contractor commences performance of gratuitous services outside the scope of this Contract and subsequently elects to stop performing such out-of-scope

services, the Contractor shall, at the request of the State, back out or reverse any changes resulting from such performance that would adversely affect the Contract.

2.107 Management Tools

The Contractor will use an automated tool for planning, monitoring, and tracking the Contract's progress. In addition, the Contractor shall use automated project management tools as reasonably necessary to perform the Services, which tools shall include the capability to produce through the end of the Contract: (i) staffing tables with names of personnel assigned to Contract tasks, (ii) project work 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 sixty (60) days, updated monthly), and (iii) graphs showing critical events, dependencies, and decision points during the course of the Contract. Any tool(s) used by the 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's standard to the extent such information is described with reasonable detail in the Statements of Work and to the extent the related work is of sufficient project complexity and duration to warrant such reporting.

2.110 RECORDS AND INSPECTIONS

2.111 Records and Inspections

(a) Inspection of Work Performed. The State's authorized representatives shall at all reasonable times and with ten (10) days prior written request, have the right to enter the Contractor's premises, or any other places, where the Services are being performed, and shall have access, upon reasonable request, to interim drafts of Deliverables or work-in-progress. Upon ten (10) days prior written notice and 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 such access will not reasonably interfere or jeopardize the safety or operation of the systems or facilities. The Contractor shall provide all reasonable facilities and assistance for the State's representatives.

(b) Examination of Records. The Contractor agrees that the State, including its duly authorized representatives, until the expiration of seven (7) years following the creation of the material (collectively, the "Audit Period"), shall, upon twenty (20) days prior written notice, have access to and the right to examine and copy any of the Contractor's books, records, documents, and papers pertinent to establishing the Contractor's compliance with the Contract and with applicable laws and rules, including the State's procurement rules, regulations, and procedures, and actual performance of the Contract for the purpose of conducting an audit, examination, excerpt, and/or transcription, but the State shall not have access to any information deemed confidential to the Contractor to the extent such access would require such confidential information to become publicly available. This provision also applies to the books, records, accounts, documents, and papers, in print or electronic form, of any parent, affiliated, or subsidiary organization of the Contractor, or any Subcontractor of the Contractor performing services in connection with the Contract.

(c) Retention of Records. The Contractor shall maintain at least until the end of the Audit Period all pertinent financial and accounting records (including time sheets and payroll records, and information pertaining to the Contract and to the Services, equipment, and commodities provided under the Contract) pertaining to the Contract in accordance with generally accepted accounting principles and other procedures specified in this Section. Financial and accounting records shall be made available, upon request, to the State at any time during the Audit Period. If an audit, litigation, or other action involving the 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.

(d) Audit Resolution. If necessary, the Contractor and the State shall meet to review each audit report promptly after issuance. The Contractor will respond to each audit report in writing within

thirty (30) days from receipt of such report, unless a shorter response time is specified in such report. The Contractor and the State shall develop, agree upon, and monitor an action plan to promptly address and resolve any deficiencies, concerns, and/or recommendations in such audit report.

2.112 Errors

(a) If the audit demonstrates any errors in the statements provided to the State, then the amount in error shall be reflected as a credit or debit on the next invoice and in subsequent invoices until the amount is paid or refunded in full. However, a credit or debit may not be carried for more than four (4) quarterly statements. If a balance remains after four (4) quarterly statements, then the remaining amount will be due as a payment or refund within forty-five (45) days of the last quarterly statement that the balance appeared on or termination of the contract, whichever is earlier.

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

2.120 STATE RESPONSIBILITIES

2.121 State Performance Obligations

(a) Equipment and Other Resources. To facilitate the Contractor's performance of the Services/Deliverables, the State shall provide to the Contractor such equipment and resources as identified in the Statements of Work or other Contract Exhibits as items to be provided by the State.

(b) Facilities. The State shall 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 shall 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. The Contractor agrees that it will not, without the prior written consent of the State, use any State Facilities or access any State information systems provided for the Contractor's use, or to which the Contractor otherwise gains access in the course of performing the Services, for any purpose other than providing the Services to the State.

(c) Return. The Contractor shall be responsible for returning 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.

(d) Except as otherwise provided in Section 2.220, the State's failure to perform its responsibilities as set forth in this Contract shall not be deemed to be grounds for termination by the Contractor. However, the Contractor will not be liable for any default or delay in the performance of its obligations under this Contract to the extent such default or delay is caused by nonperformance of the State's obligations under this Contract, provided the Contractor provides the State with reasonable written notice of such nonperformance and the Contractor uses commercially reasonable efforts to perform notwithstanding the State's failure to perform. In addition, if the State's nonperformance of its responsibilities under this Contract materially increases the time required for the Contractor's performance or the Contractor's cost of performance, the Contractor shall be entitled to seek an equitable extension via the Change Request process described in Section 2.106.

2.130 SECURITY

2.131 Background Checks

The Contractor shall authorize the investigation of its personnel proposed to have access to State facilities and systems on a case-by-case basis. The scope of the background check is at the discretion of the State and the

results will be used to determine Contractor personnel eligibility for working within State facilities and systems. Such investigations will include Michigan State Police Background checks (ICHAT) and may include the National Crime Information Center (NCIC) fingerprints. Proposed Contractor personnel may be required to complete and submit an RI-8 Fingerprint Card for the NCIC fingerprint check. Any request for background checks will be initiated by the State and will be reasonably related to the type of work requested.

All Contractor personnel will also be expected to comply with the State's security and acceptable use policies for State IT equipment and resources (see http://www.michigan.gov/dit/0,1607,7-139-34305-73760--,00.html). Furthermore, Contractor personnel will be expected to agree to the State's security and acceptable use policies before the Contractor personnel will be accepted as a resource to perform work for the State. It is expected the Contractor will present these documents to the prospective employee before the Contractor presents the individual to the State as a proposed resource. Contractor staff will be expected to comply with all Physical Security procedures in place within the facilities where they are working.

2.140 RESERVED

2.150 CONFIDENTIALITY

2.151 Freedom of Information

All information in any proposal submitted to the State by the Contractor and in 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").

2.152 Confidentiality

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

2.153 Protection of Confidential Information

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

2.154 Exclusions

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

2.155 No Implied Rights

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

2.156 Remedies

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

2.157 Security Breach Notification

In the event of a breach of this Section, the Contractor shall take (i) prompt corrective action to cure any such deficiencies and (ii) any action pertaining to such unauthorized disclosure required by applicable federal and state laws and regulations. The Contractor and the State will cooperate to mitigate, to the extent practicable, the effects of any breach, intrusion, or unauthorized use or disclosure. The Contractor shall 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 ten (10) days of becoming aware of such use or disclosure or such shorter time period as is reasonable under the circumstances.

2.158 Survival

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

2.159 Destruction of Confidential Information

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

2.160 PROPRIETARY RIGHTS

2.161 Ownership

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

Vesting of Rights. With the sole exception of any preexisting licensed works identified in writing, the Contractor shall assign, and upon creation of each Deliverable automatically assigns, to the State ownership of all United States and international copyrights, trademarks, patents, or other proprietary rights in each and every Deliverable, whether or not registered by the Contractor, insofar as any such Deliverable, by operation of law, may not be considered work made for hire by the Contractor for the State. From time to time upon the

State's request, the Contractor and/or its personnel shall confirm such assignment by execution and delivery of the assignments, confirmations of assignment, or other written instruments as the State may request. The State shall have the right to obtain and hold in its own name all copyright, trademark, and patent registrations and other evidence of rights that may be available for Deliverables.

2.162 Source Code

(a) Definition. "Source Code Escrow Package" shall mean:

(i) 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;

(ii) A complete copy of any existing design documentation and user documentation, including any updates or revisions; and/or

(iii) 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.

(b) Delivery of Source Code into Escrow. The 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 thirty (30) days of the execution of this Contract.

(c) 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, the 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.

(d) 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.

(e) Escrow Fees. All fees and expenses charged by the Escrow Agent will be paid by the Contractor.

(f) 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:

(i) 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;

(ii) 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;

(iii) 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.

(g) 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 Section 2.162(f), then:

(i) The State shall comply with all procedures in the Escrow Contract;

(ii) The State shall maintain all materials and information comprising the Source Code Escrow Package in confidence in accordance with this Contract;

(iii) If the release is a temporary one, then the State shall promptly return all released materials to the Contractor when the circumstances leading to the release are no longer in effect.

(h) License. Upon release from the Escrow Agent pursuant to an event described in Section 2.162(f), 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.

(i) Derivative Works. Any Derivative Works to the source code released from escrow which 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.

2.163 Rights in Data

(a) The State will be and remain the owner of all data made available by the State to the Contractor or its agents, Subcontractors, or representatives pursuant to 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, nor will any employee of the Contractor other than those on a strictly need-to-know basis have access to the State's data. The 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 shall only use personally identifiable information as strictly necessary to provide the Services and shall disclose such information only to its employees who have a strict need to know such information. The Contractor shall comply at all times with all laws and regulations applicable to such personally identifiable information.

(b) The State is and shall remain the owner of all State-specific data pursuant to 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 shall only use personally identifiable information as strictly necessary to utilize the Services and shall disclose such information only to its employees who have a strict need to know such information, except as provided by law. The State shall comply at all times with all laws and regulations applicable to such personally identifiable information. Other material developed and provided to the State shall remain the State's sole and exclusive property.

2.164 Ownership of Materials

The State and 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.

2.165 Standard Software

If applicable and necessary, all Standard Software used in performing the Services shall be provided to the State under a separate license agreement between the State and the owner (or authorized licensor) of such software. Standard Software to be licensed to the State is listed in Exhibit C.

2.166 Pre-existing Materials for Custom Software Deliverables

Neither the 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 the

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 the 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.

2.167 General Skills

Notwithstanding anything to the contrary in this Section, each party, its Subcontractors, and their personnel shall be free to use and employ its and their general skills, know-how, and expertise, and to use, disclose, and employ any generalized ideas, concepts, know-how, methods, techniques, or skills gained or learned during the course of performing the Services, so long as it or they acquire and apply the foregoing without disclosure of any confidential or proprietary information of the other party.

2.170 WARRANTIES AND REPRESENTATIONS

2.171 Warranties and Representations

The Contractor represents and warrants:

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

(b) The Contract Appendices, Attachments, and Exhibits identify the equipment, 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 the Contractor or developed by the Contractor under this Contract, and the 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 the Contractor to the State under this Contract, nor their use by the State, will infringe the patent, copyright, trade secret, or other proprietary rights of any third party.

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

(e) The contract signatory has the power and authority, including any necessary corporate authorizations, necessary to enter into this Contract on behalf of the 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, shall have, or shall acquire, any contractual, financial, business, or other interest, direct or indirect, that would conflict in any manner or degree with the 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. The Contractor shall notify the State within two (2) days of any such interest that may be incompatible with the interests of the State.

(h) Neither the Contractor nor any Affiliates, nor any employee of either, has accepted or shall 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. The Contractor shall not attempt to influence any State employee by the direct or indirect offer of anything of value.

(i) Neither the 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 the Contractor or such 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 the Contractor to any other bidder; and no attempt was made by the 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 the 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 the Contractor as of the respective dates, or for the respective periods, covered by such financial statements, reports, and other information. Since the respective dates or periods covered by such financial statements, reports, or other information, there have been no material adverse changes in the business, properties, financial condition, or results of operations of the Contractor.

(l) All written information furnished to the State by or behalf of 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 such information not misleading.

(m) It is not in material default or breach of any other contract or agreement that it might have with the State or any of its departments, commissions, boards, or agencies. The 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 such department within the previous five (5) years for the reason that the Contractor failed to perform or otherwise breached an obligation of such contract.

2.172 Software Warranties

(a) Performance Warranty

The Contractor represents and warrants that Deliverables, after Final Acceptance, will perform and operate in compliance with the requirements and other standards of performance contained in this Contract (including all descriptions, specifications and drawings made a part of the Contract) for a period of sixty (60) days as described in Section 1.104C. In the event of a breach of this warranty, Contractor will promptly correct the affected Deliverable(s) at no charge to the State.

(b) No Surreptitious Code Warranty

The Contractor represents and warrants that no copy of licensed Software provided to the State contains or will contain 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.

(c) Calendar Warranty

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

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

(d) Third-party Software Warranty

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

2.173 Equipment Warranty

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

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

Within three (3) business days of notification from the State, the Contractor shall adjust, repair, or replace all equipment that is defective or not performing in compliance with the Contract. The Contractor shall assume all costs for replacing parts or units and their installation including transportation and delivery fees, if any.

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

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

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

2.174 Physical Media Warranty

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

2.175 Standard Warranties

(a) Warranty of Merchantability.
Deliverables shall be merchantable. All Deliverables 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 on the container or label.

(b) Warranty of fitness for a particular purpose.
When the Contractor has reason to know or knows any particular purpose for which the Deliverables are required, and when the State is relying on the Contractor's skill or judgment to select or furnish suitable Deliverables, the Contractor warranties that the Deliverables are fit for such purpose.

(c) Warranty of title.
The Contractor shall convey good title in those Deliverables, whose transfer is right and lawful. All Deliverables provided by the Contractor shall be delivered free from any security interest, lien, or encumbrance. Deliverables shall be delivered free of any rightful claim of any third person of ownership, interest, lien, or encumbrance.

2.176 Consequences for Breach

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

2.180 INSURANCE

2.181 Liability Insurance

(a) Liability Insurance
The Contractor is required to provide proof of the minimum levels of insurance coverage as indicated below. The purpose of this coverage shall be to protect the State from claims which might arise out of or result from the Contractor's performance of services under the terms of this Contract, whether such services are performed by the Contractor, or by any Subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts they might 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 that these damages are covered by the insurance policies the Contractor is required to maintain pursuant to this Contract.

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

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

The insurers selected by Contractor shall have an A.M. Best rating of A or better, or as otherwise approved in writing by the State, or if such ratings are no longer available, with a comparable rating from a recognized insurance rating agency. All policies of insurance required in this Contract shall be issued by companies that have been approved to do business in the State (see http://www.mi.gov/cis/0,1607,7-154-10555_22535---,00.html).

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

Before the Contract is signed by both parties or before the purchase order is issued by the State, the Contractor must furnish to the Director of Acquisition Services, certificates of insurance verifying insurance coverage ("Certificates"). The Certificates must be on the standard "accord" form or equivalent. **THE CONTRACT OR PURCHASE ORDER NUMBER MUST BE SHOWN ON THE CERTIFICATE OF INSURANCE TO ASSURE CORRECT FILING.** All Certificates are to be prepared and submitted by the Insurance Provider. All Certificates shall contain a provision indicating that the coverages afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without THIRTY (30) days prior written notice, except for ten (10) days for non-payment of premium, having been given to the Director of Acquisition Services, Department of Management and Budget. The notice must include the Contract or Purchase Order number affected and be mailed to: Director, Acquisition Services, Department of Management and Budget, P.O. Box 30026, Lansing, Michigan 48909. Failure to provide evidence of coverage, may, at the State's sole option, result in this Contract's termination.

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

□1. Commercial General Liability with the following minimum coverage:
$2,000,000 General Aggregate Limit other than Products/Completed Operations
$2,000,000 Products/Completed Operations Aggregate Limit
$1,000,000 Personal & Advertising Injury Limit
$1,000,000 Each Occurrence Limit
$500,000 Fire Damage Limit (any one fire)

The Contractor shall 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 the 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 shall have vehicle liability insurance on any vehicle including owned, hired,

and non-owned vehicles used in the Contractor's business for bodily injury and property damage as required by law.

The Contractor shall 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 the insurance policies contain a waiver of subrogation by the insurance company.

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

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

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

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

□5. Employee Fidelity, including 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 the 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 five million dollars ($5,000,000.00), which shall apply, at a minimum, to the insurance required in Subsection 1 (Commercial General Liability) above.

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

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

(b) Subcontractors
Except where the State has approved in writing a Contractor subcontract with other insurance provisions, the Contractor shall require all of its Subcontractors under this Contract to purchase

and maintain the insurance coverage as described in this Section for the Contractor in connection with the performance of work by those Subcontractors. Alternatively, the Contractor may include any Subcontractors under the Contractor's insurance on the coverage required in this Section. The Subcontractor(s) shall fully comply with the insurance coverage required in this Section. Failure of the Subcontractor(s) to comply with insurance requirements does not limit the Contractor's liability or responsibility.

(c) Certificates of Insurance and Other Requirements
The Contractor shall furnish to the Office of Acquisition Services certificate(s) of insurance verifying insurance coverage or providing satisfactory evidence of self-insurance as required in this Section (the "Certificates"). Before the Contract is signed, and not less than twenty (20) days before the insurance expiration date every year thereafter, the Contractor shall provide evidence that the State and its agents, officers, and employees are listed as additional insureds 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 shall maintain all required insurance coverage throughout the term of the Contract and any extensions thereto and, in the case of claims-made Commercial General Liability policies, shall secure tail coverage for at least three (3) years following the expiration or termination for any reason of this Contract. The minimum limits of coverage specified above are not intended, and shall not be construed, to limit any liability or indemnity of the Contractor under this Contract to any indemnified party or other persons. The Contractor shall be responsible for all deductibles with regard to such 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, at the State's election (but without any obligation to do so) after the State has given the Contractor at least thirty (30) days written notice, the State may pay such premium or procure similar insurance coverage from another company or companies; and at the State's election, the State may deduct the entire cost (or part thereof) from any payment due the Contractor, or the Contractor shall pay the entire cost (or any part thereof) upon demand by the State.

2.190 INDEMNIFICATION

2.191 Indemnification

(a) General Indemnification
To the extent permitted by law, the Contractor shall 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 might be injured or damaged by the Contractor in the performance of this Contract and that are attributable to the negligence or tortuous acts of the Contractor or any of its Subcontractors, or by anyone else for whose acts any of them might be liable.

(b) 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 the Contractor's breach of the No Surreptitious Code Warranty.

(c) Employee Indemnification
In any and all 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 shall not be limited

in any way by the amount or type of damages, compensation, or benefits payable by or for the Contractor or any of its Subcontractors under worker's disability compensation acts, disability 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.

(d) Patent/Copyright Infringement Indemnification

To the extent permitted by law, the Contractor shall 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 such action or proceeding is based on a claim that any piece of equipment, software, commodity, or service supplied by the Contractor or its Subcontractors, or the operation of such equipment, software, commodity, or service, or the use or reproduction of any documentation provided with such equipment, software, commodity, or service infringes any United States 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 shall at the Contractor's sole expense (i) procure for the State the right to continue using the equipment, software, commodity, or service or, if such option is not reasonably available to the Contractor; or (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 such option is not reasonably available to Contractor, (iii) accept its return by the State with appropriate credits to the State against the Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Notwithstanding the foregoing, the Contractor shall have 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; or (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.

2.192 Continuation of Indemnification Obligations

The Contractor's duty to indemnify pursuant to 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 prior to expiration or cancellation.

2.193 Indemnification Procedures

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

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

(b) If the Contractor delivers a Notice of Election relating to any claim: (i) the State shall be entitled to participate in the defense of such claim and to employ counsel at its own expense to assist in the handling of such claim and to monitor and advise the State about the status and progress of the defense; (ii) the Contractor shall, 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 shall periodically advise the State about the status and progress of the defense and shall obtain the prior written approval of the State before entering into any settlement of such claim or ceasing to defend against such claim; and (iv) to the extent that any principles of Michigan governmental or public law may be involved or challenged, the State shall have the right, at its own expense, to control the defense of that portion of such claim involving the principles of Michigan governmental or public law. Notwithstanding the foregoing, the State may retain control of the defense and settlement of a claim by written notice to the Contractor given within ten (10) days after the State's receipt of the Contractor's information requested by the State pursuant to 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 of Michigan, or any of its subdivisions pursuant to this Section, must be coordinated with the Department of Attorney General. In the event the insurer's attorney represents the State pursuant to this Section, the insurer's attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.

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

2.200 LIMITS OF LIABILITY AND EXCUSABLE FAILURE

2.201 Limits of Liability

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

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

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 shall 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.

2.202 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 such 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 such party; provided the non-performing party and its Subcontractors are without fault in causing such default or delay, and such default or delay could not have been prevented by reasonable precautions and cannot reasonably be circumvented by the non-performing party through the use of alternate sources, workaround plans, or other means, including disaster recovery plans.

In such event, the non-performing party will be excused from any further performance or observance of the obligation(s) so affected for as long as such circumstances prevail and such party continues to use its commercially reasonable efforts to recommence performance or observance whenever and to whatever extent possible without delay and provided further that such party promptly notifies the other party in writing of the inception of the excusable failure occurrence, and also of its abatement or cessation.

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 ten (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 shall not be liable for payment for the unperformed Services/Deliverables not provided under the Contract for so long as the delay in performance shall continue; (b) the State may terminate any portion of the Contract so affected and the charges payable there under shall be equitably adjusted to reflect those Services/Deliverables terminated; or (c) the State may terminate the affected Statement of Work without liability to the 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 shall 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 the Contractor which are caused by acts or omissions of its Subcontractors will not relieve the Contractor of its obligations under the Contract except to the extent that a Subcontractor is itself subject to an Excusable Failure condition described above and the Contractor cannot reasonably circumvent the effect of the Subcontractor's default or delay in performance through the use of alternate sources, workaround plans, or other means.

2.203 Disaster Recovery

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

2.210 TERMINATION/CANCELLATION BY THE STATE

The State may terminate this Contract without further liability or penalty to the State, its departments, divisions, agencies, offices, commissions, officers, agents, and employees for any of the reasons listed in this section.

2.211 Termination for Cause

(a) In the event that the Contractor breaches any of its material duties or obligations under this Contract (including a Chronic Failure to meet any particular SLA as defined in Section 2.076), which are either not capable of or subject to being cured, or are not cured within the time period specified in the written notice of breach provided by the State (such time period not to be less than thirty (30) days), or pose a serious and imminent threat to the health and safety of any person, or the imminent loss, damage, or destruction of any real or tangible personal property, the State may, having provided written notice of termination to the Contractor, terminate this Contract in whole or in part, for cause, as of the date specified in the notice of termination.

(b) In the event that this Contract is terminated for cause, in addition to any legal remedies otherwise available to the State by law or equity, the Contractor shall be responsible for all costs incurred by the State in terminating this Contract, including but not limited to, State administrative costs, reasonable attorneys' fees and court costs, and any reasonable additional costs the State might incur to procure the Services/Deliverables required by this Contract from other sources. Re-procurement costs shall not be considered by the parties to be consequential, indirect, or incidental damages, and shall not be excluded by any other terms otherwise included in this Contract, provided such costs are not in excess of fifty percent (50%) more than the prices for such Service/Deliverables provided under this Contract.

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

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

2.212 Termination for Convenience

The State may terminate this Contract for its convenience, in whole or part, if the State determines that such a termination is in the State's best interest. Reasons for such termination will 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, or 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 the Contractor written notice at least thirty (30) days prior to the date of termination. If the State chooses to terminate this Contract in part, the charges payable under this Contract shall be equitably adjusted to reflect those Services/Deliverables that are terminated. Services and related provisions of this Contract that are terminated for cause shall cease on the effective date of the termination.

2.213 Non-Appropriation

(a) The Contractor acknowledges that, if this Contract extends for several fiscal years, continuation of this Contract is subject to appropriation or availability of funds for this Contract. If funds to enable the State to effect continued payment under this Contract are not appropriated or otherwise made available, the State will have the right to 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 the Contractor. The State shall give the Contractor at least thirty (30) days advance written notice of termination for non-appropriation or unavailability (or such time as is available if the State receives notice of the final decision less than thirty (30) days before the funding cutoff).

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

(c) In the event the State terminates this Contract, eliminates certain Deliverables, or reduces the level of Services to be provided by the Contractor pursuant to this Section, the State will pay the Contractor for all Work-in-Process performed through the effective date of the termination or reduction in level, as the case might be and as determined by the State, to the extent funds are available. For the avoidance of doubt, this Section will not preclude the Contractor from reducing or stopping Services/Deliverables and/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.

2.214 Criminal Conviction

The State may terminate this Contract immediately and without further liability or penalty in the event the Contractor, an officer of the Contractor, or an owner of a 25% or greater share of the Contractor is convicted of a criminal offense incident to the application for, or performance of, a State, public, or private Contract or subcontract; convicted of a criminal offense, including any of the following: embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, attempting to influence a public employee to breach the ethical conduct standards for State of Michigan employees; convicted under State or federal antitrust statutes; or convicted of any other criminal offense which in the sole discretion of the State reflects upon the Contractor's business integrity.

2.215 Approvals Rescinded

The State may terminate this Contract without further liability or penalty in the event any final administrative or judicial decision or adjudication disapproves a previously approved request for purchase of personal services pursuant to Constitution 1963, Article 11, § 5, and Civil Service Rule 7-1. Termination may be in whole or in part and may be immediate as of the date of the written notice to the Contractor or may be effective as of the date stated in such written notice.

2.216 Rights and Obligations upon Termination

(a) If this Contract is terminated by the State for any reason, the Contractor shall (i) stop all work as specified in the notice of termination; (ii) take any action that might be necessary, or that the State may direct, for preservation and protection of Deliverables or other property derived or resulting from this Contract that might be in the Contractor's possession; (iii) return all materials and property provided directly or indirectly to Contractor by any entity, agent, or employee of the State; (iv) in the event that the Contractor maintains title in Deliverables that is intended to be transferred to the State at the termination of the Contract, the Contractor will 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 shall be provided to the State on an "As-Is" basis except to the extent the amounts paid by the State in respect of such items included compensation to the Contractor for the provision of warranty services in respect of such materials); and (v) 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) In the event the State terminates this Contract prior to its expiration for its own convenience, the State shall pay the Contractor for all charges due for Services provided prior to the date of termination and, if applicable, as a separate item of payment pursuant to this Contract, for 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 the Contractor pursuant to this Contract shall, at the option of the State, become the State's property, and the Contractor shall be entitled to receive equitable fair compensation for such Deliverables. Regardless of the basis for the termination, the State shall not be obligated to pay, or otherwise compensate, the Contractor for any loss of 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 shall have the right to assume, at its option, any and all 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.

2.217 Reservation of Rights

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

2.218 Contractor Transition Responsibilities

In the event this contract is terminated, for convenience or cause, dissolved, voided, rescinded, nullified, expires, or is otherwise rendered unenforceable, the Contractor agrees to comply with direction provided by the State to assist in the orderly transition of equipment, services, software, leases, etc. to the State or a third party designated by the State. In the event of the termination or expiration of this Contract, the Contractor agrees to make all reasonable efforts to effect an orderly transition of services within a reasonable period of time that in no event will exceed one-hundred eighty (180) days. These efforts shall include, but are not limited to, the following:

(a) Personnel – The Contractor shall work with the State, or a specified third party, to develop a transition plan setting forth the specific tasks and schedule to be accomplished by the parties to effect an orderly transition. The Contractor shall allow as many personnel as practical 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, the Contractor agrees to reasonably, and with good-faith, work with the State to use the Services of the Contractor's Subcontractors or vendors. The Contractor will notify all of the Contractor's Subcontractors of procedures to be followed during transition.

(b) Information – The Contractor agrees to provide reasonable detailed specifications for all Services/Deliverables needed by the State, or a 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 Contract 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 the Contractor's possession subject to appropriate payment by the State.

(c) Software – 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 shall 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 shall, upon expiration of the Contract, transfer back to the State at their current revision level. Upon notification by the State, the Contractor may be required to freeze all non-critical changes to Deliverables/Services.

(d) Payment – If the transition results from a termination for any reason, reimbursement shall be governed by the termination provisions of this Contract. If the transition results from expiration, the Contractor will be reimbursed for all reasonable transition costs (i.e. costs incurred within the agreed period after contract expiration that result from transition operations) at the rates specified by **Article 1, Appendix C**. The Contractor will prepare an accurate accounting from which the State and the Contractor may reconcile all outstanding accounts.

2.219 State Transition Responsibilities

In the event that this Contract is terminated, dissolved, voided, rescinded, nullified, or otherwise rendered unenforceable, the State agrees to perform the following obligations, and any others upon which the State and the Contractor agree:

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

2.221 Termination by Contractor

If the State materially breaches its obligation to pay the Contractor undisputed amounts due and owing under this Contract in accordance with Section 2.090, or if the State breaches its other obligations under this Contract to an extent that makes it impossible or commercially impractical for the Contractor to perform the Services, and if the State does not cure the breach within the time period specified in a written notice of breach provided to the State by the Contractor (such time period not to be less than thirty (30) days), then the Contractor may terminate this Contract, in whole or in part based on Statement of Work for cause, as of the date specified in the notice of termination; provided, however, that the Contractor shall discharge its obligations under Section 2.250 before any such termination.

2.230 STOP WORK

2.231 Stop Work Orders

The State may, at any time, by written stop work order to the Contractor, require that the Contractor stop all, or any part, of the work called for by the Contract for a period of up to ninety (90) calendar days after the stop work order is delivered to the Contractor, and for any further period to which the parties may agree. The stop work order will be specifically identified as such and will indicate that it is issued under this Section 2.230. Upon receipt of the stop work order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the stop work order during the period of work stoppage. Within the period of the stop work order, the State shall either: (a) cancel the stop work order; or (b) terminate the work covered by the stop work order as provided in Section 2.210.

2.232 Cancellation or Expiration of Stop Work Order

If a stop work order issued under this Section 2.230 is canceled or the period of the stop work order or any extension thereof expires, the Contractor shall resume work. The parties shall agree upon an equitable adjustment in the delivery schedule, the Contract price, or both, and the Contract will be modified, in writing, accordingly, if: (a) the stop work order results in an increase in the time required for, or in the Contractor's costs properly allocable to, the performance of any part of the Contract; and (b) the Contractor asserts its right to an equitable adjustment within thirty (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 2.106**.**

2.233 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, such termination shall be deemed to be a termination for convenience under Section 2.212, and the State shall allow 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 the Contractor for loss of profits because of a stop work order issued under this Section 2.230.

2.240 RESERVED

2.250 DISPUTE RESOLUTION

2.251 In General

Any claim, counterclaim, or dispute between the State and the Contractor arising out of or relating to the Contract or any Statement of Work shall be resolved in accordance with the provisions of this paragraph. For

all Contractor claims seeking an increase in the amounts payable to the Contractor under the Contract, or the time for the Contractor's performance, the Contractor shall submit a letter executed by the Contractor's Contract Administrator or his designee certifying that (a) the claim is made in good faith, (b) the amount claimed accurately reflects the adjustments in the amounts payable to the Contractor or the time for the Contractor's performance for which the Contractor believes the State is liable and covers all costs of every type to which the Contractor is entitled from the occurrence of the claimed event, and (c) the supporting data provided with such an affidavit are current and complete to the Contractor's best knowledge and belief.

2.252 Informal Dispute Resolution

(a) All operational disputes between the parties shall be resolved under the Contract Management procedures developed pursuant to Section 2.100. If the parties are unable to resolve any disputes after compliance with such processes, the parties shall meet with the Director of Acquisition Services, DMB, or designee, for the purpose of attempting to resolve such dispute without the need for formal legal proceedings, as follows:

(i) The representatives of the Contractor and the State shall meet as often as the parties reasonably deem necessary in order to gather and furnish to each other all information with respect to the matter in issue that 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.

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

(iii) The specific format for the discussions will be left to the discretion of the designated State and Contractor representatives, but may include the preparation of agreed upon statements of fact or written statements of position.

(iv) Following the completion of this process within sixty (60) calendar days, the Director of Acquisition Services, DMB, or designee, shall issue a written opinion regarding the issue(s) in dispute within thirty (30) calendar days. The opinion regarding the dispute shall be considered the State's final action and the exhaustion of administrative remedies.

(b) This Section 2.250 will not be construed to prevent either party from instituting, and a party is authorized to institute, formal proceedings earlier to avoid the expiration of any applicable limitations period, to preserve a superior position with respect to other creditors, or pursuant to Section 2.253.

(c) The State will not mediate disputes between the Contractor and any other entity, except State agencies, concerning responsibility for performance of work pursuant to the Contract.

2.253 Injunctive Relief

The only circumstance in which disputes between the State and the Contractor will not be subject to the provisions of Section 2.252 is where a party makes a good faith determination that a breach of the terms of the Contract by the other party is such that the damages to such party resulting from the breach will be so immediate, so large or severe, and so incapable of adequate redress after the fact that a temporary restraining order or other immediate injunctive relief is the only adequate remedy.

2.254 Continued Performance

Each party agrees to continue performing its obligations under the Contract while a dispute is being resolved except to the extent that the issue in dispute precludes performance (dispute over payment shall not be deemed to preclude performance) and without limiting either party's right to terminate the Contract as provided in Section 2.210 and 2.220, as the case may be.

2.260 FEDERAL AND STATE CONTRACT REQUIREMENTS

2.261 Nondiscrimination

In the performance of the Contract, the 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, marital status, or physical or mental disability. The 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 pursuant to 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.

2.262 Unfair Labor Practices

Pursuant to 1980 PA 278, MCL 423.231, *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 pursuant to 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. Pursuant to section 4 of 1980 PA 278, MCL 423.324, the State may void any contract if, subsequent to award of the contract, the name of the Contractor as an employer or the name of the Subcontractor, manufacturer, or supplier of the Contractor appears in the register.

2.263 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.

2.264 FHWA Adherence

The following clauses apply because the resulting contract will funded, partially or fully, by the Federal Highway Administration (FHWA). Bidders' proposals will be rejected if the Bidder will not accept Contracts funded by the FHWA.

The Contractor's signature on this contract constitutes the Contractor's certification of "status" under penalty of perjury under the laws of the United States in respect to 49 C.F.R. Part 29 pursuant to Executive Order 12549 (http://www.fhwa.dot.gov/hep/49cfr29.htm). The certification, which is included as a part of this Contract as **Attachment F**, is Appendix A of 49 CFR part 29, applies to the Contractor (referred to in Appendix A as 'the prospective primary participant'). The Contractor is responsible for obtaining the same certification from all Subcontractors under this Contract by inserting the following paragraph in all subcontracts: "The Subcontractor's signature on the Contract constitutes the Subcontractor's certification of 'status' under penalty of perjury under the laws of the United States in respect to 49 CFR part 29 pursuant to Executive Order 12549. The certification, which is included as a part of this Contract as **Attachment G** is Appendix B of 49 CFR Part 29." This certification is required of all Subcontractors, testing laboratories, and other lower tier participants that the Contractor enters into a written arrangement for the procurement of goods or services provided for in a contract.

The Contractor stipulates that any facility to be utilized in the performance of this Contract, unless such Contract is exempt under the Clean Air Act, as amended (42 U.S.C. 7401 et seq., as amended including Pub L. 101-549), and under the Clean Air Act, as amended (33 U.S.C. 1251 et seq., as amended, including Pub. L. 100-4), Executive Order 11738, and regulations in implementation thereof (40 CRF Part 15), is not listed, on; the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities Pursuant to 40 CFR 15.20.

The Contractor agrees to comply with all the requirements of the Clean Air Act and the Clean Water Act and all

regulations and guidelines listed there under related to Contractor and Services under this contract.

The Contractor shall promptly notify the Department and the U.S. EPA Assistant Administrator for Enforcement of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility to be utilized for this Contract is under consideration to be listed on the EPA List of Violating Facilities.

The Contractor agrees to include or cause to be included the requirements if the preceding three paragraphs (a), (b), and (c), in every nonexempt subcontract.

The Contractor shall agree that no otherwise qualified handicapped individual in the United States, as defined in Section 1630.2 Americans with Disabilities Act, Title 42, USC 1201, shall solely by reason of their handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

2.270 LITIGATION

2.271 Disclosure of Litigation

(a) Disclosure. The 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 that arises during the term of the Contract and extensions thereto, to which the Contractor (or, to the extent the Contractor is aware, any Subcontractor hereunder) is a party, and which involves: (i) disputes that might reasonably be expected to adversely affect the viability or financial stability of the Contractor or any Subcontractor hereunder; or (ii) a claim or written allegation of fraud against the Contractor or, to the extent the Contractor is aware, any Subcontractor hereunder by a governmental or public entity arising out of their business dealings with governmental or public entities. Any such litigation, investigation, arbitration, or other proceeding (collectively, "Proceeding") shall be disclosed in a written statement to the Contract Administrator within thirty (30) days of its occurrence. Details of settlements that are prevented from disclosure by the terms of the settlement may be annotated as such. Information provided to the State from the Contractor's publicly filed documents referencing its material litigation will be deemed to satisfy the requirements of this Section.

(b) Assurances. In the event that any such Proceeding disclosed to the State pursuant to this Section, or of which the State otherwise becomes aware, during the term of this Contract would cause a reasonable party to be concerned about (i) the ability of the Contractor (or a Subcontractor hereunder) to continue to perform this Contract in accordance with its terms and conditions, or (ii) whether the Contractor (or a Subcontractor hereunder) in performing Services for the State is engaged in conduct that is similar in nature to conduct alleged in such Proceeding, and which conduct would constitute a breach of this Contract or a violation of Michigan law, regulations, or public policy, then the Contractor shall be required to provide the State all reasonable assurances requested by the State to demonstrate that:

(i) The Contractor and/or its Subcontractors hereunder will be able to continue to perform this Contract and any Statements of Work in accordance with its terms and conditions, and

(ii) The Contractor and/or its Subcontractors hereunder have not and will not engage in conduct in performing the Services that is similar in nature to the conduct alleged in such Proceeding.

(c) The Contractor shall make the following notifications in writing:

(i) Within thirty (30) days of the 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, the Contractor shall notify the Office of Acquisition Services.

(ii) The Contractor shall also notify the Office of Acquisition Services within thirty (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.

(iii) The Contractor shall also notify Acquisition Services within thirty (30) days whenever changes to company affiliations occur.

2.272 Governing Law

The Contract shall in all respects be governed by, and construed in accordance with, 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.

2.273 Compliance with Laws

The Contractor shall comply with all applicable state, federal, and local laws and ordinances ("Applicable Laws") in providing the Services/Deliverables.

2.274 Jurisdiction

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

2.280 ENVIRONMENTAL PROVISION

2.281 Environmental Provision

For the purposes of this Section, "Hazardous Materials" is a generic term used to describe asbestos; ACBMs; PCBs; petroleum products; such construction materials as paint thinners, solvents, gasoline, oil, etc.; and any other material for which the manufacture, use, treatment, storage, transportation, or disposal of 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 such 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. This Contract does not cover the handling, removal, or disposal of all Hazardous Materials.

(a) The Contractor shall use, handle, store, dispose of, process, transport, and transfer any material considered a Hazardous Material in accordance with all federal, state, and local laws. The State shall provide a safe and suitable environment for performance of the Contractor's Work. Prior to 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 such Hazardous Material. If the Contractor encounters material reasonably believed to be a Hazardous Material and which might present a substantial danger, the Contractor shall immediately stop all affected Work, give written notice to the State of the conditions encountered, and take appropriate health and safety precautions.

(b) Upon receipt of a written notice, the State will investigate the conditions. If the material is a Hazardous Material that might present a substantial danger, and the Hazardous Material was not brought to the site by the Contractor, or did 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 affected Work shall be resumed as directed in writing by the State. Any determination by the Michigan Department of Community Health and/or the Michigan Department of Environmental Quality (whichever is applicable) that the Hazardous Material has either been removed or rendered harmless shall be binding upon the State and the Contractor for the purposes of resuming the Work. If any such incident with Hazardous Material results in delay not reasonably anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Work will not be counted in Section 2.076 for a time as mutually agreed to 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 in accordance with Applicable Laws to the condition approved by applicable regulatory agency(ies). If the Contractor fails to take appropriate action pursuant to Applicable Laws and consistent with the State requirements, then the State may take appropriate action.

2.290 GENERAL

2.291 Amendments

The Contract may not be modified, amended, extended, or augmented, except by a writing executed by the parties.

2.292 Assignment

(a) Neither party shall have the right to assign the Contract, or to 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, or division without the prior consent of the Contractor and the Contractor may assign the Contract to an affiliate so long as such affiliate is adequately capitalized and can provide adequate assurances that such affiliate can perform the Contract. Any purported assignment in violation of this Section shall be null and void. It is the policy of the State of Michigan to withhold consent from proposed assignments, subcontracts, or novations when such 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.

(b) The Contractor may not, without the prior written approval of the State, assign its right to receive payments due under the Contract. In the event of any such permitted assignment, the Contractor shall not be relieved of its responsibility to perform any duty imposed upon it herein, and the requirement under the Contract that all payments shall be made to one entity shall continue.

2.293 Entire Contract; Order of Precedence

(a) 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 such subject matter and any additional terms and conditions on the purchase order shall apply as limited by Section 2.061.

(b) In the event of any inconsistency between the terms of the Contract and a Statement of Work, the terms of the Statement of Work will take precedence (as to that Statement of Work only); provided, however, that a Statement of Work may not modify or amend the terms of Sections 2.110 through 2.220 of the Contract, which may be modified or amended only by a formal Contract amendment.

2.294 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.

2.295 Relationship of the Parties (Independent Contractor Relationship)

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

2.296 Notices

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

State:
State of Michigan
Office of Acquisition Services
Attention: Steve Motz
PO Box 30026
530 West Allegan
Lansing, Michigan 48909

With a copy to:
State of Michigan
Department of Information Technology
Attention: Gary Baron
Van Wagoner Building
425 West Ottawa Street
Lansing, Michigan 48909

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

(b) Binding Commitments
Representatives of the Contractor identified in the Contractor's proposed organizational chart shall have the authority to make binding commitments on the Contractor's behalf within the bounds set forth in such table. The Contractor may change such representatives from time to time upon written notice.

2.297 Media Releases and Contract Distribution

(a) Media Releases
Neither the Contractor nor the State will make any news releases, public announcements, or public disclosures, nor will they have any conversations with representatives of the news media,

pertaining to the Contract or the Services without the prior written approval of the other party, and then only in accordance with explicit written instructions provided by that party. In addition, neither the Contractor nor the State will use the name, trademarks, or other proprietary identifying symbol of the other party or its affiliates without such party's prior written consent. Prior written consent of the Contractor must be obtained from authorized representatives.

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

2.298 Reformation and Severability

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

2.299 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, such consent or approval shall be in writing and shall not be unreasonably withheld or delayed.

2.300 No Waiver of Default

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

2.301 Survival

Any provisions of the Contract that impose continuing obligations on the parties including the parties' respective warranty, indemnity, and confidentiality obligations, shall 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.

2.302 Covenant of Good Faith

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

2.303 Permits

The Contractor shall 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 rights-of-way.

2.304 Website Incorporation

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

2.305 Taxes

Contractors are expected to collect and pay all applicable federal, state, and local employment taxes, including the taxes defined in Section 3.022, for all persons involved in the resulting Contract.

The State may refuse to award a contract to any Contractor who has failed to pay any applicable State taxes. The State may refuse to accept a Contractor's bid, if the Contractor has any outstanding debt with the State. Prior to any award, the State will verify whether the Contractor has any outstanding debt with the State.

2.306 Prevailing Wage

The rates of wages and fringe benefits to be paid to 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 locality 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. The Contractor, its Subcontractors,

their Subcontractors, and all persons involved with the performance of this contract in privity of contract with the Contractor shall also post, in a conspicuous place, the address and telephone number of the Michigan Department of Labor and Economic Development, which is the office responsible for enforcement of the wage rates and fringe benefits. The 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 locality where the work is to be performed.

2.307 Call Center Disclosure

The 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 shall be a material breach of this Contract.

2.308 Future Bidding Preclusion

The Contractor acknowledges that, to the extent this Contract involves the creation, research, investigation, or generation of a future RFP, it might 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 leading edge on the competitive RFP.

2.309 N/A

2.310 RESERVED

2.320 EXTENDED PURCHASING

2.321 MiDEAL

Public Act 431 of 1984 permits DMB 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. Unless otherwise stated, it is the responsibility of the Contractor to ensure that the non-state agency is an authorized purchaser before extending the Contract pricing.

The Contractor will supply Contract Services and equipment at the established State of Michigan contract prices and terms to the extent applicable and where available. Inasmuch as these are non-state agencies, all invoices will be submitted to and payment remitted by 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.

List of Attachments

Attachment A
ATMS Solution Requirements

Attachment B
Server/Workstation Specifications

Attachment C
Plant CML Non-Disclosure Agreement

Attachment D
Gateway Traveler Information System Interface Definition Document

Attachment E
State of Michigan Hardware Software Standards
MDIT/MDOT ATMS Project

Attachment F
49 CFR Part 29, Appendix A

Attachment G
49 CFR Part 29, Appendix B

Attachment H
Training and Documentation

General Requirements

This section defines system and project deliverable requirements that have not been explicitly captured in the individual use case specifications as provided in section 5.

4 General Requirements

This section defines system and project deliverable requirements that have not been explicitly captured in the individual use case specifications as provided in section 5.

Requirement	Phase	Standard/Custom
4.1 General System Functionality		
This clause defines various general system functionalities that are required		
4.1.1 System Error Logging		
A. The ATMS shall log all system errors.	Phase 1	STANDARD
B. All system error log entries shall include a text description of the error, the module detecting the error condition, a date, and a time stamp.	Phase 1	STANDARD
C. The log shall be filterable and sortable by any field.	Phase 1	STANDARD*
D. The ATMS shall allow the System Administrator to configure an Alarm that will be generated whenever a system error occurs.	Phase 1	STANDARD*
4.1.2 Remote Access		
A. The ATMS shall provide remote access to all features of the software through a web-based SSL connection, for example, through a Virtual Private Network (VPN). *The remote workstation shall only require an off-the-shelf web browser without any special vendor software.* *Each instance of the ATMS shall manage users separately. Thus, a user may have different permissions on different instances of the ATMS (i.e., different regions of the state).*	Phase 1	STANDARD
B. The ATMS shall provide remote access to all features of the software from any computer with access to the State Network, including ATMS workstations connected to other state ATMS sites, through a secure connection.	Phase 1	STANDARD
C. The proposed security design shall be submitted to the Engineer for approval before implementing the design.	Phase 1	STANDARD
4.1.3 Security		
A. The ATMS shall require users to log-in before accessing any feature of the system.	Phase 1	STANDARD
B. The ATMS shall restrict user access to functions based on user privileges. For example, System Operators may be authorized to change the messages on a Dynamic Message Sign (DMS) while others are able to view the current message but not change it.	Phase 1	STANDARD
1. Requirements within this document shall be interpreted to identify the minimum authorization required to perform a given function.	Phase 1	STANDARD
a. If this document contains a requirement that states: "the ATMS shall allow a System Administrator to perform action X," there shall be an implicit corollary requirement of: "The ATMS shall not allow users without System Administrator access to perform action X."	Phase 1	STANDARD
b. If this document contains a requirement that states: "the ATMS shall allow a System Operator to perform action X," the ATMS shall also allow all users with additional rights (e.g., Supervisors, Administrators, etc.) to perform the same action.	Phase 1	STANDARD
4.1.4 System Clock		

Requirement	Phase	Standard/Custom
The ATMS shall constantly track the current time within 1.0 second of a nationally recognized clock source.	Phase 1	STANDARD
4.1.5 System Log		
A. The ATMS shall maintain a historic log of all of the following information in the system database.	Phase 1	STANDARD
1. Information about each event, including	Phase 1	STANDARD
a. The static information about an event (e.g., the event ID)	Phase 1	STANDARD
b. The information entered about the event	Phase 1	STANDARD
c. The actions performed in response to the event	Phase 1	STANDARD*
d. The messages (for example, Alerts) sent or received about an event.	Phase 1	STANDARD
e. Any changes to the above information.	Phase 1	
2. Commands for field devices entered into the device's queue, even if they are never sent to the device.	Phase 1	STANDARD*
3. Commands sent to field devices	Phase 1	STANDARD
4. Traffic data received from field devices	Phase 1	STANDARD
5. All user activity resulting in a system action.	Phase 1	
6. System events for software, hardware, interfaces, operating system, and the network.	Phase 1	
B. The ATMS shall archive all logged data according to State policies.	Phase 1	CUSTOM
C. The ATMS shall maintain all log entries within its database for a period defined by the System Administrator. *The ATMS shall maintain all log entries within its database for a period of 24 months.*	Phase 1	STANDARD
D. The ATMS shall purge all data older than the System Administrator defined age from its database. *Data older than 25 months shall be removed from the database.*	Phase 1	STANDARD
1. Any data that has not yet been archived shall be archived prior to purging.	Phase 1	STANDARD
E. Each log entry shall include a description of the entry, the ID of the person or process that caused the log entry, the date and time the event occurred.	Phase 1	STANDARD
1. The description of the entry shall include a before and after image of any database parameter that was changed.	Phase 1	STANDARD
4.1.6 Archival of Data		
A. The ATMS shall send all data currently in the system to the archive on a regular basis. *The data shall be sent to the archive server in Lansing, Michigan nightly. The Contractor shall provide the archive server configured to accept data from the ATMS.*	Phase 2	STANDARD

Requirement	Phase	Standard/Custom
4.2 Usability		
This clause defines usability requirements.		
4.2.1 System Map Requirements		
A. The operator shall be able to open multiple windows to view multiple map views, textual information, and video images from the CCTV cameras.	Phase 1	CUSTOM
1. Workstations at the local TMC shall be able maintain at least the following 34 windows open simultaneously while maintaining all system performance criteria:	Phase 1	STANDARD*

a. 6 full motion video windows.	Phase 1	STANDARD
b. 20 text-based windows such as documents, input forms, dialog boxes, etc.	Phase 1	STANDARD
c. 8 windows containing live, updated views of the system map.	Phase 1	CUSTOM
2. Remote workstations meeting the minimum hardware requirements recommended for the ATMS shall be able to maintain at least the following 22 windows open simultaneously while maintaining all system performance criteria:	Phase 1	STANDARD
a. 1 full motion video window.	Phase 1	STANDARD
b. 20 text-based windows such as documents, input forms, dialog boxes, etc.	Phase 1	STANDARD
c. 2 windows containing live, updated views of the system map.	Phase 1	CUSTOM
B. The ATMS shall allow the user to zoom-in and zoom-out each display of the system map independent of any other display of the system map.	Phase 1	STANDARD
1. The ATMS shall allow a user to zoom out a map display to view the entire map defined for the project. *The system map shall cover the entire state and shall depict all known devices in each of the regions.*	Phase 1	STANDARD
2. The ATMS shall display an appropriate level of detail (for example, which labels are displayed) for each zoom level of the system map, as approved by the Engineer.	Phase 1	STANDARD
3. The ATMS shall support user-specified preset views that define an area to view at a specified zoom level.	Phase 1	STANDARD*
a. The ATMS shall allow a user to display a preset view by selecting the view from a list of preset views.	Phase 1	STANDARD
b. The ATMS shall allow a user to display a preset view by clicking on the system map within the area covered by the preset view.	Phase 1	CUSTOM
i. The ATMS shall allow the user to return to the previous view by pressing a single hardware or software button.	Phase 1	STANDARD
4. The ATMS shall allow a user to pan the map display in any direction to the limits of the map region. *The map region shall cover the entire state of Michigan.*	Phase 1	STANDARD
C. The ATMS shall orient the system map so that north is at the top of the screen.	Phase 1	STANDARD
D. The ATMS shall redraw the user display of the system map within 2 seconds of any zoom or pan operation or modification to the displayed themes. The following items shall be redrawn in order:	Phase 1	STANDARD
1. Freeways	Phase 1	STANDARD
2. Major arterials	Phase 1	STANDARD
3. ITS devices	Phase 1	STANDARD
4.2.2 Selection of Items		
A. The ATMS shall allow the user to select any device or event by clicking its icon on the System Map.	Phase 1	STANDARD
B. The ATMS shall allow the user to select any device or event by selecting its entry from a listing of all similar items.	Phase 1	STANDARD
1. The ATMS shall display the status of each device in the list.	Phase 1	STANDARD
4.2.3 Look and Feel		
A. The ATMS shall provide all users with the ability to access all functions for which they are authorized through a single, integrated user interface that has a consistent look-and-feel.	Phase 1	STANDARD

4.2.4 Data Validation		
A. The ATMS shall perform a spell check on entries for all free form text fields.	Phase 2	STANDARD*
1. If the field contains a word that is not found in the dictionary, the ATMS shall prompt the user to edit the subject word.	Phase 2	STANDARD*
a. The ATMS shall allow the user to select a replacement word from a list of similar words.	Phase 2	STANDARD*
b. The ATMS shall allow the user to edit the word directly.	Phase 2	STANDARD*
c. The ATMS shall allow the user to ignore the error.	Phase 2	STANDARD*
d. If the user is a Supervisor or Administrator, the ATMS shall allow the user to add the word to the dictionary.	Phase 2	STANDARD*
B. The ATMS shall provide selection lists (drop-down or otherwise) for all data entry fields that have a finite set of possible values (for example, incident type).	Phase 1	STANDARD
C. The ATMS shall have built-in range checking for all data entry fields that require a ranged numeric value (for example, number of injuries must be a non-negative integer).	Phase 1	STANDARD

Requirement	Phase	Standard/Custom
4.3 Reliability		
This clause defines reliability requirements.		
4.3.1 Availability		
The following availability requirements are inclusive of downtime required for planned and unplanned system maintenance.		
A. The primary ATMS server array shall be available 24 hours a day, every day of the year with no more than 1.0% down time during any one-week period.	Phase 1	STANDARD
B. The primary ATMS server array shall be available between the hours of 5:00 a.m. and 10:00 p.m., every day of the year with no more than 0.1% down time during these hours during any one-year period.	Phase 1	STANDARD
C. The Mean Time Between Failures for the primary ATMS server array shall exceed 300 hours.	Phase 1	STANDARD
4.3.2 Redundancy		
A. The ATMS shall support a fully redundant system. *The redundant communications server shall be located on-site. The redundant database and application servers shall be located in Lansing, Michigan. Lansing servers shall be backed up each night at a minimum. All hardware shall be purchased by the Contractor according to MDIT-approved specifications.*	Phase 1	STANDARD
B. The ATMS shall require the System Administrator to roll-over the operation of the ATMS to the redundant system any time maintenance is performed that is likely to cause problems with the primary ATMS server array.	Phase 1	STANDARD
1. A roll-over to the redundant system that is initiated by the System Administrator shall notify all connected client workstations that they will be logged out for maintenance two minutes prior to server shutdown. They will be directed to log back in to the redundant system at the end of the two minute period.	Phase 1	STANDARD

C. Whenever the primary ATMS server array becomes unavailable when they are actively running the system, the operation of the ATMS shall automatically roll-over to the redundant system. *The redundant database and application servers shall be located in Lansing, Michigan. The redundant communications server shall be located within each local TMC.*	Phase 1	STANDARD
1. An automatic roll-over to the redundant system shall be able restore all System Operators to full operational control within 5 minutes of the onset of the failure that caused a roll-over.	Phase 1	STANDARD
4.3.3 Watchdog		
A. The ATMS shall monitor each major software service and detect any lockups.	Phase 1	STANDARD
B. Upon detecting any lockup, the ATMS shall automatically restart the service without any human intervention and log the activity.	Phase 1	STANDARD

Requirement	Phase	Standard/Custom
4.4 Performance		
This clause defines the performance requirements of the ATMS.		
4.4.1 Simultaneous Users		
A. The ATMS shall support the number of simultaneous local and remote users as required by the project at any time while maintaining required system performance in all areas. *The ATMS shall support up to 100 simultaneous users (formed by any combination of local and remote users) for each TMC at any time while maintaining required system performance in all areas.*	Phase 1	STANDARD
B. The ATMS shall support the number of registered users as required by the project. *The ATMS shall support 400 registered users.*	Phase 1	STANDARD
4.4.2 User Types		
The ATMS shall support the following user types, at a minimum:	Phase 1	STANDARD
A. User, with read-only access	Phase 1	STANDARD
B. System Operator, which has all of the rights of a User, plus the ability to control the operation of the ATMS as defined within this document.	Phase 1	STANDARD
C. Supervisor, which has all of the rights of a System Operator but has certain additional privileges as defined in this document (e.g., being able to override CCTV control).	Phase 1	STANDARD
D. System Administrator, which has all of the rights of a Supervisor, plus read-write access to all configuration items as defined within this document.	Phase 1	STANDARD
4.4.3 Response Time		
A. The ATMS shall complete all requests within 10 seconds, unless otherwise stated within a use case specification.	Phase 1	STANDARD
B. The ATMS shall change the user's mouse cursor to a wait symbol for any action that requires more than 0.5 seconds.	Phase 1	STANDARD*

Requirement	Phase	Standard/Custom
4.5 Supportability		
This clause defines supportability and maintainability requirements.		

4.5.1 Remote User Upgrades		
A. The ATMS shall ensure that all local users are using a current version of the user-interface software and shall automatically update the software as needed.	Phase 1	STANDARD
B. The ATMS shall ensure that all remote users are using a current version of the user-interface software and shall automatically update the software as needed.	Phase 1	STANDARD
4.5.2 Training Instance		
In addition to the main ATMS installation and redundant servers, the Developer shall provide a non-production replica of the ATMS for development, training, simulation, and exercise purposes.	Phase 1	STANDARD

Requirement	Phase	Standard/Custom
4.6 Design Constraints		
4.6.1 Standards Compliance		
A. The specific communication standards to be used for each interface are identified as a part of the use case specific requirements provided in Section 5.	Phase 1	STANDARD
B. Any proposal to use a protocol that is not an ITS Standard, or is not currently in use within the state, shall require the written approval of the State. *The ATMS shall support all protocols in use within the State of Michigan.*	Phase 1	STANDARD
4.6.2 Standards Based		
The internal design of the ATMS shall use data element definitions and data element names that are consistent with the ATMS Data Dictionary standard.	Phase 1	STANDARD
4.6.3 Hardware Limitations		
A. All hardware shall conform to applicable state standards. *See Attachment F*	Phase 1	STANDARD
B. The Contractor shall define the detailed hardware configuration for its recommended ATMS Workstation.	Phase 1	STANDARD
1. A Recommended ATMS Workstation located in the TMC and connected per the Contractor defined mechanism shall be able to realize all of the requirements defined in this SRS, including all performance requirements.	Phase 1	STANDARD
C. The Contractor shall define the detailed hardware configuration for its recommended ATMS Servers.	Phase 1	STANDARD
D. A remote user shall be able to access all features of the ATMS with a standard State Workstation. *See Attachment F*	Phase 1	STANDARD
E. All servers shall have hard drives configured for RAID 5.	Phase 1	STANDARD
4.6.4 Operating System Limitations		
All servers and workstations shall use a state standard operating system. *See Attachment F*	Phase 1	STANDARD
4.6.5 Database Restrictions		
A. The ATMS shall use a State approved relational database management system (RDBMS). *See Attachment F for acceptable database server platforms.*	Phase 1	STANDARD
B. The database shall allow open access from third party applications, such as COTS reporting tools.	Phase 1	STANDARD
4.6.6 Modular Design		

A-F. N/A	N/A	N/A
G. The ATMS shall include a COTS reporting tool with a well-defined and documented API.	Phase 1	STANDARD
H. The ATMS mapping engine shall be a native Environmental Systems Research Institute (ESRI) engine. *Base maps shall conform to the Michigan Geographic Framework (MGF). See http://www.michigan.gov/cgi*	Phase 1	STANDARD
4.6.7 Open Design		
All computer equipment shall be provided using non-customized commercially available products whenever possible. Detailed descriptions of all components and their costs, including Communications servers, Database servers, Web servers, operator workstations, their components, and peripheral equipment shall be included as part of the System Design documentation and shall be subject to approval or request for modification by the State. *All products must conform to Michigan DIT standards as listed at http://www.michigan.gov/dit under the 'Policies and Standards' tab.*	Phase 1	STANDARD
4.6.8 Restrictions on Applications		
The operator workstations shall not include any games or music (for example, mp3) when delivered to the State.	Phase 1	STANDARD
4.6.9 Required Applications		
4.6.9.1 Antivirus Software		
A. *The State will install its own licensed anti-virus software upon delivery. The contractor installed software shall not conflict with the later installation of the state software. The State anti-virus software can be found on www.michigan.gov/dit on the Policies and Standards tab.*	Phase 1	STANDARD
4.6.9.2 Microsoft Outlook		
4.6.9.3 Microsoft Internet Explorer		
4.6.9.4 System Monitoring Software		
4.6.10 Intranet Connection		
4.6.11 Programming Language		
4.6.12 Programming Environment		
4.6.13 Required Workstations		

E. There will be 23 required ATMS client workstations will be located as follows: 1- Grand Rapids Police Dispatch*, 1 Monroe Center, NW 5- MDOT West Michigan Grand Region TMC, 1420 Front Street, NW 2- City of Grand Rapids*, 509 Wealthy St. SW 1- Kent County Road Commission* 4- MITS Center Operators 3- MITS Center System Administrators 1- MITS Center Operations Supervisor 2- MITS Center Spares 2- Lansing Transportation Laboratory, Construction and Technology Building, Lansing 2- Blue Water Bridge Operations Center * - non-MDOT agencies, which will provide their own hardware and COTS software. Vendor recommended minimum specifications are a personal computer with 1 gigabyte ram, windows XP (min) and Internet Explorer (min).	Phase 1	STANDARD

Requirement	Phase	Standard/Custom
4.7 Documentation		
Requirements related to documentation are identified in the following subclauses.		
4.7.1 General Documentation Requirements		
A. The developer shall provide a minimum of two (2) copies of all documents to the state in both electronic and hard copy format. *For the MDOT ATMS project, this shall include two (2) copies for each deployment site.*	Phase 1	STANDARD
B. The Developer shall develop and submit all documents for State approval.	Phase 1	STANDARD
4.7.2 Concept of Operations		
The ATMS shall be delivered with an updated and refined Concept of Operations as follows:	Phase 1	STANDARD
A. The Developer shall base the Concept of Operations on the initial draft Concept of Operations.	Phase 1	STANDARD
B. The Developer shall maintain a separate managed item for each paragraph of the Concept of Operations.	Phase 1	STANDARD
C. The Developer shall maintain the defined meta-attributes for each item.	Phase 1	STANDARD
D. The Developer shall baseline the Concept of Operations within the requirements management package upon reaching each milestone during the project.	Phase 1	STANDARD
E. All changes made to the initial draft Concept of Operations shall be tracked using the State's authorized requirements management software package.	Phase 1	STANDARD
F. The Developer shall update the Concept of Operations to reflect unique aspects about the specific project.	Phase 1	STANDARD
G. The Developer shall continuously update the Concept of Operations during the project to reflect refined user needs and requirements discovered as the project progresses.	Phase 1	STANDARD
H. The Developer shall present all changes made to the Concept of Operations to the Configuration Control Board (CCB) for final approval.	Phase 1	STANDARD
1. Any items in the Concept of Operations that have been changed shall be flagged.	Phase 1	STANDARD
2. The flag shall be removed when the CCB makes a decision about the change.	Phase 1	STANDARD

3. If the CCB rejects a change, the item will be restored to its previously approved state.	Phase 1	STANDARD
4.7.3 Software Requirements Specification		
Requirements related to the Software Requirements Specification are as follows:	Phase 1	STANDARD
A. The Developer shall base the Software Requirements Specification on the initial draft Software Requirements Specification.	Phase 1	STANDARD
B. The Developer shall maintain a separate managed item for each paragraph of the Software Requirements Specification.	Phase 1	STANDARD
C. The Developer shall maintain and update the traceability of each requirement to the respective need contained in the Concept of Operations.	Phase 1	STANDARD
1. The Development shall verify that each requirement traces to at least one need identified in the Concept of Operations.	Phase 1	STANDARD
2. The Developer shall verify that each need identified in the Concept of Operations traces from at least one requirement in the Software Requirements Specification.	Phase 1	STANDARD
3. The Developer shall verify that the requirements traced to each need fulfill the semantics of the stated need and properly reflects the semantics of any stakeholder requests from which the need was derived.	Phase 1	STANDARD
D. The Developer shall maintain the defined meta-attributes for each item.	Phase 1	STANDARD
E. The Developer shall baseline the Software Requirements Specification within the requirements management package upon reaching each milestone during the project.	Phase 1	STANDARD
F. All changes made to the initial draft Software Requirements Specification shall be tracked using the State's authorized requirements management software package.	Phase 1	STANDARD
G. The Developer shall update the Software Requirements Specification to reflect unique aspects about the specific project.	Phase 1	STANDARD
H. The Developer shall continuously update the Software Requirements Specification during the project to reflect refined user needs and requirements discovered as the project progresses.	Phase 1	STANDARD
I. The Developer shall present all changes made to the Software Requirements Specification to the CCB for final approval.	Phase 1	STANDARD
1. Any items in the Software Requirements Specification that have been changed shall be flagged.	Phase 1	STANDARD
2. The flag shall be removed when the CCB makes a decision about the change.	Phase 1	STANDARD
3. If the CCB rejects a change, the item will be restored to its previously approved state.	Phase 1	STANDARD
4.7.4 Software Architecture		
A. The Developer shall develop a Software Architecture that defines the major software modules for the ATMS.	Phase 1	STANDARD
B. The Developer shall trace each element of the Software Architecture to the appropriate requirement in the Software Requirements Specification.	Phase 1	STANDARD
1. The Developer shall verify that each requirement identified in the Software Requirements Specification includes a trace from at least one Software Architecture element.	Phase 1	STANDARD

2. The Developer shall verify that the software elements traced to each requirement fulfill the semantics of the stated requirement and the needs and requests to which it traces.	Phase 1	STANDARD
C. The Developer shall baseline the Software Architecture within the requirements management package upon reaching each milestone during the project.	Phase 1	STANDARD
D. All changes made to the Software Architecture shall be tracked using the State's authorized requirements management software package.	Phase 1	STANDARD
E. The Developer shall continuously update the Software Architecture during the project to reflect refined user needs and requirements discovered as the project progresses.	Phase 1	STANDARD
F. The Developer shall present all changes made to the Software Architecture to the CCB for final approval.	Phase 1	STANDARD
1. Any items in the Software Architecture that have been changed shall be flagged.	Phase 1	STANDARD
2. The flag shall be removed when the CCB makes a decision about the change.	Phase 1	STANDARD
3. If the CCB rejects a change, the item will be restored to its previously approved state.	Phase 1	STANDARD
4.7.5 Software Design		
A. The Developer shall develop a Software Design for each software module defined in the System Architecture.	Phase 1	STANDARD
B. The Developer shall trace each element of the Software Design to the appropriate software module and to the appropriate requirement in the Software Requirements Specification.	Phase 1	STANDARD
C. The Developer shall baseline the Software Design upon reaching each milestone during the project.	Phase 1	STANDARD
D. The Developer shall continuously update the Software Design during the project to reflect refined user needs and requirements discovered during the project.	Phase 1	STANDARD
E. The Developer shall include a complete definition of the database schema in the Software Design.	Phase 1	STANDARD
4.7.6 User Manual		
A. The Developer shall provide a user manual that explains the purpose for and how to use each feature supported by the software, including those intended for system administrators.	Phase 1	STANDARD
B. The Developer shall include a table of contents in the user manual.	Phase 1	STANDARD
C. The Developer shall include an index in the user manual.	Phase 1	STANDARD
D. The Developer shall include a glossary of terms in the user manual.	Phase 1	STANDARD
E. The Developer shall maintain the User Manual such that it reflects the current build throughout the project.	Phase 1	STANDARD
4.7.7 Online Help		
The ATMS shall be provided with an extensive on-line help facility to assist Users in understanding how to use all the features provided by the software.	Phase 1	CUSTOM
4.7.8 Knowledge Transfer		
4.7.9 Configuration of Development Environment		
4.7.10 Installation Guide		

The Developer shall provide an Installation Guide that defines how to load a the software onto the ATMS servers and clients	Phase 1	STANDARD
4.7.11 Readme File		
4.7.12 Unit Test Plans		
4.7.13 Software Component Test Plans		
A. The Developer shall develop and deliver Software Component Test Plans that addresses each requirement defined in the System Requirements Specification.	Phase 1	STANDARD
B. The Developer shall trace each test procedure of the Software Component Test Plans to the appropriate requirement(s) in the Software Requirements Specification.	Phase 1	STANDARD
1. The Developer shall verify that each requirement identified in the Software Requirements Specification includes at least one trace from a test procedure contained in the Software Component Test Plans.	Phase 1	STANDARD
2. The Developer shall verify that the test procedures traced to each requirement properly test the semantics of the stated requirement.	Phase 1	STANDARD
C. The Developer shall baseline the Software Component Test Plans within the requirements management package upon reaching each milestone during the project.	Phase 1	STANDARD
D. All changes made to the Software Component Test Plans shall be tracked using the State's authorized requirements management software package.	Phase 1	STANDARD
E. The Developer shall continuously update the Software Component Test Plans during the project to reflect refined user needs and requirements discovered as the project progresses.	Phase 1	STANDARD
F. The Developer shall present all changes made to the Software Component Test Plans to the CCB for final approval.	Phase 1	STANDARD
1. Any items in the Software Component Test Plans that have been changed shall be flagged.	Phase 1	STANDARD
2. The flag shall be removed when the CCB makes a decision about the change.	Phase 1	STANDARD
3. If the CCB rejects a change, the item will be restored to its previously approved state.	Phase 1	STANDARD
4.7.14 Integration Test Plan		
A. The Developer shall develop and deliver an Integration Test Plan that addresses each requirement defined in the System Requirements Specification.	Phase 1	STANDARD
B. The Developer shall trace each test procedure of the Integration Test Plan to the appropriate requirement(s) in the Software Requirements Specification.	Phase 1	STANDARD
1. The Developer shall verify that each requirement identified in the Software Requirements Specification includes at least one trace from a test procedure contained in the Integration Test Plan.	Phase 1	STANDARD
2. The Developer shall verify that the test procedures traced to each requirement properly test the semantics of the stated requirement.	Phase 1	STANDARD
3. The Developer shall verify that the test procedures properly test combinations of requirements to integrate various components into a single operation.	Phase 1	STANDARD
C. The Developer shall baseline the Integration Test Plan within the requirements management package upon reaching each milestone during the project.	Phase 1	STANDARD

D. All changes made to the Integration Test Plan shall be tracked using the State's authorized requirements management software package.	Phase 1	STANDARD
E. The Developer shall continuously update the Integration Test Plan during the project to reflect refined user needs and requirements discovered as the project progresses.	Phase 1	STANDARD
F. The Developer shall present all changes made to the Integration Test Plan to the CCB for final approval.	Phase 1	STANDARD
1. Any items in the Integration Test Plan that have been changed shall be flagged.	Phase 1	STANDARD
2. The flag shall be removed when the CCB makes a decision about the change.	Phase 1	STANDARD
3. If the CCB rejects a change, the item will be restored to its previously approved state.	Phase 1	STANDARD
4.7.15 System Test Plan		
A. The Developer shall develop and deliver a System Test Plan that addresses each requirement defined in the System Requirements Specification.	Phase 1	STANDARD
B. The Developer shall trace each test procedure of the System Test Plan to the appropriate requirement(s) in the Software Requirements Specification.	Phase 1	STANDARD
1. The Developer shall verify that each requirement identified in the Software Requirements Specification includes at least one trace from a test procedure contained in the System Test Plan.	Phase 1	STANDARD
2. The Developer shall verify that the test procedures traced to each requirement properly test the semantics of the stated requirement.	Phase 1	STANDARD
C. The Developer shall baseline the System Test Plan within the requirements management package upon reaching each milestone during the project.	Phase 1	STANDARD
D. All changes made to the System Test Plan shall be tracked using the State's authorized requirements management software package.	Phase 1	STANDARD
E. The Developer shall continuously update the System Test Plan during the project to reflect refined user needs and requirements discovered as the project progresses.	Phase 1	STANDARD
F. The Developer shall present all changes made to the System Test Plan to the CCB for final approval.	Phase 1	STANDARD
1. Any items in the System Test Plan that have been changed shall be flagged.	Phase 1	STANDARD
2. The flag shall be removed when the CCB makes a decision about the change.	Phase 1	STANDARD
3. If the CCB rejects a change, the item will be restored to its previously approved state.	Phase 1	STANDARD
4.7.16 Software Documentation		
The State's approved requirements management package is Telelogic DOORS version 8.1.	Phase 1	STANDARD

Requirement	Phase	Standard/Custom
4.8 Purchased Components		
A. The software developer shall assign all licenses and rights for all purchased components to the State.	Phase 1	STANDARD

B. Any COTS software used by the ATMS shall be the latest version offered by its developer, unless otherwise approved by the Engineer. *When in conflict, MDIT Standards will override this requirement.*	Phase 1	STANDARD
C. Any COTS software used by the ATMS shall be no older than 5 years, unless otherwise approved by the Engineer. *When in conflict, MDIT Standards will override this requirement.*	Phase 1	STANDARD
D. Any COTS software used by the ATMS shall have at least a 5% market share, unless otherwise approved by the Engineer. *When in conflict, MDIT Standards will override this requirement.*	Phase 1	STANDARD

Requirement	Phase	Standard/Custom
4.9 External Interface Requirements		
A. The integrator shall perform a bandwidth analysis for each communications link for each phase of the project before starting any coding effort for the phase.	Phase 1	STANDARD
B. MSP Computer-Aided Dispatch (CAD) System:: The ATMS shall be able to receive incident alerts from the MSP CAD and integrate it into its internal alerts and incident management functionality.	Phase 2	CUSTOM
C. MI Drive ATIS web site: The ATMS shall supply a data feed (e.g., an XML file) that conforms to recognized ITS standards. MI Drive will modify its database to accommodate the data formats provided by the ATMS without imposing addition constraints.	Phase 2	STANDARD
D. GCM Gateway: The ATMS shall be able to receive data from the GCM Gateway and publish detector and camera image data in formats compatible with GCM Gateway specifications provided in an attachment.	Phase 2	CUSTOM

Requirement	Phase	Standard/Custom
4.10 Licensing		
A. The software developer shall grant the State the rights and licenses to deploy the software across the state. *The software developer shall grant the State the rights and licenses to deploy the software within local and municipal partner agencies, including counties, cities, public safety agencies, etc.*	Phase 1	STANDARD

5 Use Case Specifications

The following clauses define the system requirements for each use case. The requirements presented within this document represent the end-user requirements; additional derived requirements may exist for implementations. For example, the Monitor Traffic Conditions Use Case requires the system to collect traffic data from a variety of sources and the Publish Detailed Traffic and Road/Weather Condition Information Use Case requires the system to send this information to the Data Clearinghouse. Managing the traffic information until it is transmitted to the Data Clearinghouse is not explicitly stated because it is not an end-user requirement and would be difficult to test. However, it would be a derived requirement that must be fulfilled in order for an implementation to fulfill the stated requirements of these two use cases.

5.1 Manage Traffic

One of the primary responsibilities of a TMC is to manage the traffic that occurs within its operational region on

a daily basis. Base operations are achieved by ensuring the proper implementation of the daily traffic control schedule for a variety of traffic control devices. If any problems occur in this base operation, personnel may be dispatched to the scene to immediately address the problem to ensure that public safety is maintained. The System Operator may also need to document the problem so that maintenance staff can investigate the issue and repair the equipment.

Requirement	Phase	Standard / Custom
5.1.1 Create Maintenance Ticket		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.1.2 Determine Current Toll Rates		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.1.3 Manage Alarms		
Each System Operator should be notified to any unusual conditions as they occur and should be able to acknowledge the notifications and quickly respond to them.		
5.1.3.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.1.3.1.1 Create an Alarm		
The Create an Alarm flow may be initiated by any other defined Use Case to notify the System Operators of a condition. Every Alarm will be associated with a message to be displayed to the System Operator, a priority level, and a link that allows the System Operator to quickly address the Alarm as appropriate.	Phase 1	CUSTOM
A. Upon the receipt of a request to post an Alarm, the ATMS shall immediately notify each System Operator in the manner defined by the System Operator's preferences.	Phase 1	CUSTOM
B. The ATMS shall log the creation of the Alarm and shall record the information contained in the Alarm.	Phase 1	STANDARD*
C. The Alarm will initialize in the unacknowledged and un-owned state, unless otherwise defined by the calling Use Case.	Phase 1	CUSTOM
5.1.3.1.2 Manage Alarm Window		
A. The ATMS shall always display the Notification Window to the System Operator.	Phase 1	STANDARD*
1. The ATMS shall list all Alarms that meet the System Operator's filtering conditions in the Notification Window.	Phase 1	STANDARD*
B. The ATMS shall allow the System Operator to display the following information about each Alarm:	Phase 1	CUSTOM
1. Type	Phase 1	STANDARD*
2. Subtype	Phase 1	CUSTOM
3. Location (latitude, longitude, road, direction of travel, etc.)	Phase 1	CUSTOM
4. Status	Phase 1	STANDARD*
5. Priority	Phase 1	CUSTOM
6. Traffic impact severity	Phase 1	CUSTOM
C. The ATMS shall allow the System Operator to filter the display of Alarms based on the value of any one to three of the available Alarm attributes.	Phase 1	CUSTOM

D. The ATMS shall allow the System Operator to sort the display of Alarms based on the value of any one to three of the available Alarm attributes.	Phase 1	CUSTOM
E. The ATMS shall use visual clues to indicate the state of each Alarm. For example, highlight unacknowledged alarms and gray-out Alarms owned by other System Operators.	Phase 1	CUSTOM
5.1.3.1.3 Acknowledge an Alarm in Window		
A. The ATMS shall allow the System Operator to select any unacknowledged and un-owned Alarm from the Notification Window.	Phase 1	CUSTOM
B. The ATMS shall allow the System Operator to view all available information about the Alarm and associated condition.	Phase 1	STANDARD*
1. The ATMS shall display a log of the updates and actions that have been applied to this Alarm.	Phase 1	STANDARD*
C. The ATMS shall allow the System Operator to:	Phase 1	CUSTOM
1. Acknowledge the Alarm without taking ownership of it	Phase 1	CUSTOM
2. Take ownership of the Alarm	Phase 1	CUSTOM
D. If the System Operator takes ownership of the Alarm, the ATMS shall proceed to the Take Ownership of an Alarm Subflow.<See 5.1.3.1.5 Take Ownership of an Alarm Subflow>	Phase 1	CUSTOM
5.1.3.1.4 Acknowledge a Pop-up Alarm		
A. The ATMS shall display a pop-up alarm to the System Operator and prevent the Operator from performing other actions until the Alarm is acknowledged.	Phase 1	CUSTOM
B. The ATMS shall allow the System Operator to:	Phase 1	CUSTOM
1. Acknowledge the Alarm without taking ownership of it	Phase 1	CUSTOM
2. Take ownership of the Alarm	Phase 1	CUSTOM
C. If the System Operator takes ownership of the Alarm, the ATMS shall proceed to the Take Ownership of an Alarm Subflow.<See 5.1.3.1.5 Take Ownership of an Alarm Subflow>	Phase 1	CUSTOM
5.1.3.1.5 Take Ownership of an Alarm Subflow	Phase 1	
A. The ATMS shall update the status of the Alarm on all System Operator workstations to show who is the owner.	Phase 1	CUSTOM
B. The ATMS shall log who has taken ownership of the Alarm.	Phase 1	CUSTOM
C. The ATMS shall automatically launch an interface that allows the System Operator to address the Alarm. For example, a new incident alarm might link the System Operator to a dialog that allows the Operator to verify the incident.	Phase 1	CUSTOM
5.1.3.1.6 Remind Operator of Active Alarm		
A. If the System Operator has not performed any management of an alarm for a duration that exceeds the Reminder Notification Time, the ATMS shall alert the owning System Operator about the Alarm in a fashion defined by his/her Alarm preferences.	Phase 1	CUSTOM
5.1.3.1.7 Edit Alarm Preferences		
A. The ATMS shall allow each System Operator to customize his/her Alarm preferences.	Phase 1	CUSTOM
B. The ATMS shall allow the System Operator to adjust the Alarm preferences to allow different notification styles based on the Alarm passing filtering conditions.	Phase 1	CUSTOM
C. The ATMS shall support the following filtering conditions for Alarms:	Phase 1	CUSTOM
1. The location associated with the Alarm (e.g., road on which it is located)	Phase 1	CUSTOM
2. The priority of the Alarm	Phase 1	CUSTOM
3. The type of Alarm (e.g., incident versus device failure)	Phase 1	CUSTOM
D. For each filtering condition and the default case, the ATMS shall allow the System Operator to define one or more mechanisms by which he/she wishes to be notified. The options shall include:	Phase 1	CUSTOM
1. Notification window (default)	Phase 1	CUSTOM
2. Icon on the system map	Phase 1	CUSTOM

3. Pop-up dialog that must be acknowledged prior to other actions that take place	Phase 1	CUSTOM
4. Audible signal (with associated sound file) that starts after a user-defined delay and repeats until the Alarm has been acknowledged.	Phase 1	CUSTOM
a. The ATMS shall provide a mechanism to disable the audible signal without acknowledging the Alarm (for example, to stop the audible alarm while reading the information).	Phase 1	CUSTOM
5. An SMS text message if the System Operator is not currently logged in.	Phase 1	
6. An e-mail message if the System Operator is not currently logged in.	Phase 1	
E. If the System Operator deselects the Notification Window option, the ATMS shall warn the Operator that he/she will not be notified and the other notification options shall not be made available for selection.	Phase 1	CUSTOM
F. For each filtering condition and the default case, the ATMS shall allow the System Operator to define the Reminder Notification Time to be any value from 1 to 120 minutes.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.1.4 Manage CCTV Operations		
Any System Operator may request the control of a CCTV camera. The ATMS will manage the assignment of CCTV camera control to prevent conflicting commands from different System Operators.		
5.1.4.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.1.4.1.1 Select a Camera to Control		
A. The ATMS shall allow the System Operator to select to control any camera within the system.	Phase 1	STANDARD
B. If the camera is being controlled by another System Operator, the ATMS shall perform the following:	Phase 2	STANDARD
1. The ATMS shall notify the requesting System Operator of the workstation and Operator that currently has control of the camera.	Phase 2	STANDARD
2. If the System Operator is a Supervisor or Administrator, the ATMS shall allow the Supervisor to override the lock of control on the camera.	Phase 2	STANDARD
a. If the Supervisor chooses to override the lock of control on the camera, the ATMS shall notify the current user of the camera that control has been removed and the ATMS shall assign control to the requesting Supervisor.	Phase 2	STANDARD
3. Otherwise, the ATMS shall perform the Request Camera Control Transfer Subflow.	Phase 2	STANDARD
C. Otherwise, the ATMS shall assign control of the camera to the System Operator.	Phase 1	STANDARD
D. If the System Operator has been assigned control of the camera, the ATMS shall allow the System Operator to perform any of the defined control operations.	Phase 1	STANDARD
1. The ATMS shall allow the System Operator to perform the Control CCTV Camera Subflow.<See 5.1.4.1.2 Control CCTV Camera Subflow>	Phase 1	STANDARD
2. The ATMS shall allow the System Operator to perform the Investigate Preset Scene Subflow.<See 5.1.4.1.3 Investigate Preset Scene Subflow>	Phase 1	STANDARD
3. The ATMS shall allow the System Operator to perform the Define a Preset Scene Subflow.<See 5.1.4.1.4 Define a Preset Scene Subflow>	Phase 1	STANDARD
4. The ATMS shall allow the System Operator to perform the Delete a Preset Scene Subflow.<See 5.1.4.1.5 Delete a Preset Scene Subflow>	Phase 1	STANDARD
E. If the System Operator has been assigned control of the camera, the ATMS shall repeat Step D until control of the camera changes due to:	Phase 1	STANDARD

1. The controlling System Operator releasing control of the camera per the Release Control Flow of Events as defined in this Use Case.<See 5.1.4.1.9 Release Control>	Phase 1	STANDARD
2. A Supervisor or Administrator overriding the control of the camera.	Phase 2	STANDARD
3. The controlling System Operator logs out of the ATMS.	Phase 1	STANDARD
4. The System Operator failing to perform any of the above defined subflows before an Administrator defined time-out period.	Phase 1	STANDARD
5.1.4.1.2 Control CCTV Camera Subflow		
A. The ATMS shall allow the System Operator to perform any of the following actions:	Phase 1	STANDARD
1. Pan the camera left or right	Phase 1	STANDARD
2. Tilt the camera up or down	Phase 1	STANDARD
3. Zoom the camera in or out	Phase 1	STANDARD
4. Focus the camera nearer, further, or automatic	Phase 1	STANDARD
5. Control the iris to make it more open, more closed, or automatic	Phase 1	STANDARD
B. The ATMS shall command the selected CCTV camera to move per the operator input.	Phase 1	STANDARD
5.1.4.1.3 Investigate Preset Scene Subflow		
A. The ATMS shall allow the System Operator to choose to view a preset scene.	Phase 1	STANDARD
B. The ATMS shall present the System Operator with a sample view of each defined preset scene for the selected camera and for the current System Operator.	Phase 1	CUSTOM
C. The ATMS shall allow the System Operator to select any of the presented preset scenes defined for the selected camera.	Phase 1	STANDARD
D. The ATMS shall command the selected CCTV camera to move to the selected preset scene.	Phase 1	STANDARD
5.1.4.1.4 Define a Preset Scene Subflow		
A. The ATMS shall allow the System Operator to save the current pan, tilt, zoom, focus, and other settings for the camera as a preset scene.	Phase 1	STANDARD
1. The preset scenes stored for a camera shall be common for all users.	Phase 1	
2. The ATMS shall store the preset scenes in a central location (e.g., on a database server)	Phase 1	
B. If the camera already has the maximum number of scenes defined, the ATMS shall notify the user that an existing preset must be deleted before another can be defined and the ATMS shall terminate this use case.	Phase 1	STANDARD
C. The ATMS shall prompt the System Operator for a name for the scene.	Phase 1	STANDARD
D. The ATMS shall allow the System Operator to cancel the save operation; if the System Operator cancels the operation, the ATMS shall terminate this use case.	Phase 1	STANDARD
E. The ATMS shall save the current sample image of the scene with the defined preset name.	Phase 1	STANDARD
5.1.4.1.5 Delete a Preset Scene Subflow		
A. The ATMS shall allow the System Operator to delete an existing preset scene.	Phase 1	STANDARD
B. The ATMS shall present the System Operator with a sample view of each defined preset scene for the selected camera for the current System Operator.	Phase 1	STANDARD
C. The ATMS shall allow the System Operator to select any of the presented preset scenes defined for the selected camera and System Operator.	Phase 1	STANDARD
D. The ATMS shall prompt the System Operator to verify the deletion of the preset scene.	Phase 1	STANDARD
E. If the System Operator cancels the operation, the ATMS shall terminate this use case.	Phase 1	STANDARD
F. The ATMS shall delete the selected preset scene.	Phase 1	STANDARD

5.1.4.1.6 Tag a Scene Subflow		
5.1.4.1.7 Return to Tagged Scene Subflow		
5.1.4.1.8 Request Camera Control Transfer Subflow		
A. The ATMS shall allow the requesting System Operator to submit a request to the controlling System Operator to release control.	Phase 2	STANDARD*
B. If the requesting System Operator submits the request:	Phase 2	STANDARD
1. The ATMS shall notify the controlling System Operator of the request and the Operator and Workstation that is making the request.	Phase 2	STANDARD*
2. The ATMS shall allow the controlling System Operator to accept or deny the request.	Phase 2	CUSTOM
3. If the System Operator accepts the request, the ATMS shall transfer the assignment of control of the camera to the requesting System Operator and shall notify the requesting System Operator of the transfer.	Phase 2	CUSTOM
4. Otherwise, the ATMS shall notify the requesting System Operator that the request has been denied.	Phase 2	CUSTOM
C. Otherwise, the ATMS shall deny control to the System Operator.	Phase 2	CUSTOM
5.1.4.1.9 Release Control		
The ATMS shall allow the System Operator who is currently assigned control of a camera to release control.	Phase 2	STANDARD
5.1.4.2 Special Requirements		
5.1.4.2.1 CCTV Details		
The Monitor Device Details Flow of the Monitor Devices Use Case shall include the following information:	Phase 2	STANDARD
A. The System Operator that currently has control of the camera.	Phase 2	STANDARD
5.1.4.2.2 Communication Interfaces		
A. The ATMS shall support the protocols for all existing CCTV cameras in the TMC Region. The State will provide a copy of the communications protocol for each existing CCTV camera.	Phase 1	STANDARD
B. The ATMS shall support NTCIP 1205 for controlling CCTV cameras.	Phase 1	STANDARD
C. The ATMS shall support all mandatory and optional features traced from the "Need to Share CCTV Camera Status and Control" feature of the TMDD standard.	Phase 1	
5.1.4.2.3 Performance Requirements		
A. The ATMS shall support the definition of 32 preset Scenes for each camera. A preset Scene shall comprise camera position (pan and tilt), zoom, focus, and other controller selection options. Each preset Scene shall allow an associated text phrase.	Phase 1	STANDARD
B. The ATMS shall support the number of CCTV cameras required for the project. *Each of the three installations of the ATMS shall support 1,000 cameras. Any number of the 1,000 camera inputs may be assigned to remote cameras (i.e., cameras managed by other TMCs). The ATMS shall be able to monitor cameras from remote TMCs and shall be able to control cameras from remote TMCs, if permission is granted by the remote TMC.*	Phase 1	STANDARD
5.1.4.2.4 Design Constraints		
A. The ATMS shall allow System Operators to perform all camera control functions from the Operator Workstation.	Phase 1	STANDARD
B. When a camera is panned, the ATMS shall update the System Map to indicate the camera's new orientation within 30 seconds of the movement being completed.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.1.5 Manage Composite Device Operations		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.1.6 Manage DMS Operations		
The ATMS includes various features that may affect the operation of Dynamic Message Signs (DMS). The ATMS will manage the proper operation of DMS based on the priority associated with each request for DMS control.		
5.1.6.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.1.6.1.1 Manage DMS Message Display		
A. For each DMS, the ATMS shall maintain a prioritized list of messages that are to be posted.	Phase 1	STANDARD*
B. The ATMS shall create a log entry each time a message is added to the prioritized list of messages.	Phase 1	STANDARD*
C. The ATMS shall create a log entry each time a message is removed from the prioritized list of messages.	Phase 1	STANDARD*
D. When the remaining duration of the currently displayed message falls below the Message Time Remaining Warning Period, the ATMS shall notify the message owner.	Phase 1	CUSTOM
E. Whenever the highest priority message changes, the ATMS shall download the new message to the sign controller and then activate it; the ATMS shall not rely upon message definitions previously stored within the sign controller.	Phase 1	STANDARD*
1. If a sign is configured for message concatenation and if the two messages with the highest priorities are both single page messages with identical priorities, the ATMS shall concatenate the two messages together, separated by a new page.	Phase 1	CUSTOM
a. The ATMS shall notify the System Operator of the concatenation and allow the System Operator to accept or reject the concatenation.	Phase 2	CUSTOM
b. If the System Operator accepts the concatenated message, the ATMS shall download the resulting message.	Phase 2	CUSTOM
c. Otherwise, the ATMS shall download only the highest priority message without any concatenation.	Phase 2	CUSTOM
2. If the highest priority message contains travel time fields, the ATMS shall replace the field with current travel time information as obtained from the database.	Phase 1	STANDARD*
3. If the highest priority message contains travel time fields, the ATMS shall update the message with updated travel time information at a frequency configured by the System Administrator.	Phase 1	STANDARD*
F. If the prioritized list of messages is empty for a given sign, the ATMS shall blank the sign.	Phase 1	STANDARD*
G. The ATMS shall create a log entry each time the ATMS commands the DMS to change messages (including blank messages and updates to travel times).	Phase 1	STANDARD
H. The ATMS shall create a log entry at least once a day for each sign in the system.	Phase 1	STANDARD
5.1.6.1.2 Add a Message		
A. The ATMS shall perform the Verify DMS Message Content Subflow.<See 5.1.6.1.13 Verify DMS Message Content Subflow>	Phase 1	STANDARD
B. The ATMS shall add the message to the prioritized list of messages for the sign.	Phase 1	STANDARD
5.1.6.1.3 Monitor DMS		
This flow is an extension to the end of the Activate Monitoring of Device Information Flow of Events in the Monitor Devices Use Case.<See 5.4.2.1.1.4 Activate Monitoring of Device Information>		
A. The ATMS shall issue an alarm if the DMS reports an error state.	Phase 1	STANDARD
5.1.6.1.4 Configure VMS for Message Concatenation		

A. The ATMS shall allow the System Administrator to configure a sign to support message concatenation.	Phase 2	CUSTOM
5.1.6.1.5 Display a Test Pattern		
A. The ATMS shall allow a System Administrator to select a DMS.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to perform diagnostics on the DMS.	Phase 1	STANDARD
C. The ATMS shall allow the System Administrator to display a test pattern on the DMS.	Phase 1	CUSTOM
D. The ATMS shall present the System Administrator with the list of test patterns available for the DMS.	Phase 1	CUSTOM
E. The ATMS shall allow the System Administrator to select one of the test patterns to be displayed.	Phase 1	CUSTOM
F. The ATMS shall require the System Administrator to define the maximum time to display the test message.	Phase 1	CUSTOM
G. If the System Administrator cancels the operation, this use case shall terminate.	Phase 1	CUSTOM
H. The ATMS shall warn the System Administrator that the test pattern is about to be displayed and will override any current message. The warning will also indicate the contents of the current message.	Phase 1	CUSTOM
I. If the System Administrator cancels the operation, this use case shall terminate.	Phase 1	CUSTOM
J. The ATMS shall add the test pattern to the prioritized list of messages for the sign with the highest possible priority.	Phase 1	CUSTOM
K. Once the message is displayed, the ATMS shall notify the System Administrator that the test pattern is being displayed.	Phase 1	CUSTOM
L. The ATMS shall allow the System Administrator to easily terminate the display of the test pattern as long as it is being displayed. NOTE: If the System Administrator does not terminate the test pattern, the Manage DMS Display Flow should automatically terminate its display once it has reached the maximum time defined in Step F.	Phase 1	CUSTOM
5.1.6.1.6 Perform Diagnostic Testing		
A. The ATMS shall allow a System Administrator to select a DMS.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to perform diagnostic testing of the selected DMS.	Phase 1	STANDARD
C. For matrix signs, the ATMS shall perform the Subsystem Test Subflow on the pixel subsystem.<See 5.1.6.1.7 Subsystem Test Subflow>	Phase 1	STANDARD
D. For signs with a climate control system, the ATMS shall perform the Subsystem Test Subflow on the Climate Control System.<See 5.1.6.1.7 Subsystem Test Subflow>	Phase 1	STANDARD
5.1.6.1.7 Subsystem Test Subflow		
A. The ATMS shall command the sign to perform a test on the selected subsystem.	Phase 1	STANDARD
B. When the subsystem test is complete, the ATMS shall query the sign to determine the subsystem test results.	Phase 1	STANDARD
C. The ATMS shall log the detailed results of the subsystem test.	Phase 1	STANDARD
D. The ATMS shall display the detailed results of the subsystem test to the System Administrator.	Phase 1	STANDARD
5.1.6.1.8 Manually Blank the Sign		
A. The ATMS shall allow a System Operator to select a DMS, a set of DMS, or a DMS Group.<See 5.4.1.3 Manage DMS Groups>	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to blank the selected DMS.	Phase 1	STANDARD
1. The ATMS shall require the System Operator to specify the priority of the blank command, with a default of the highest priority allowed for the given System Operator.	Phase 1	STANDARD*
2. The ATMS shall require the System Operator to specify the duration of the blank command, with a default of infinite.	Phase 1	STANDARD*

C. The ATMS shall add the blank command to the prioritized list of messages for the sign.	Phase 1	STANDARD*
5.1.6.1.9 Manually Post a Message		
A. The ATMS shall allow a System Operator to select a DMS, a set of DMS (i.e., several individual DMS selected by the System Operator), or a DMS Group.<See 5.4.1.3 Manage DMS Groups>	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to manually post a message on the sign.	Phase 1	STANDARD
1. The ATMS shall allow the System Operator to choose a previously defined message from the message library.	Phase 1	STANDARD
2. For VMS, the ATMS shall allow the System Operator to manually enter a message, if the System Operator has sufficient privileges as assigned by the System Administrator.	Phase 1	STANDARD
3. The ATMS shall require the System Operator to specify the priority of the command, with a default of the highest priority allowed for the given System Operator.	Phase 1	STANDARD*
4. The ATMS shall require the System Operator to specify the duration of the command, with a default of the maximum duration allowed for the System Operator.	Phase 1	CUSTOM
C. The ATMS shall perform the Add a Message Flow of this use case.<See 5.1.6.1.2 Add a Message >	Phase 1	STANDARD
5.1.6.1.10 View DMS Message Log		
A. The ATMS shall allow the System Operator to view the message log for a selected DMS.	Phase 1	STANDARD
5.1.6.1.11 Manage the VMS Library		
A. The ATMS shall allow a System Operator to add, modify and delete messages from the VMS Message Library.	Phase 1	STANDARD
1. The ATMS shall have a single message library, which is common to all users.	Phase 1	
2. The ATMS shall store the message library in a central location (e.g., on a database server).	Phase 1	
B. The ATMS shall require the System Operator to specify whether the subject message is to be associated with just the selected DMS, a set of DMS, a DMS Group, all DMS of the specified type, or all DMS.<See 5.4.1.3 Manage DMS Groups>	Phase 1	STANDARD
C. The ATMS shall perform the Define a DMS Message Subflow.<See 5.1.6.1.12 Define a DMS Message Subflow >	Phase 1	STANDARD
5.1.6.1.12 Define a DMS Message Subflow		
A. The ATMS shall allow the System Operator to accept or edit the suggested DMS message.	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to replace the suggested message with another message from the DMS Message Library that is associated with the subject sign.	Phase 1	STANDARD
1. When displaying a list of messages from the DMS Message Library, the ATMS shall only display those messages associated with the subject sign.	Phase 1	CUSTOM
2. The ATMS shall allow the System Operator to sort the messages by name.	Phase 1	STANDARD
3. The ATMS shall allow the System Operator to sort the messages by textual content of the message.	Phase 1	CUSTOM
4. The ATMS shall allow the System Operator to search for messages containing a user-defined string.	Phase 2	CUSTOM
5. For VMS, the ATMS shall allow the user to continue editing the message from the library or to use it as is.	Phase 1	STANDARD
C. The ATMS shall support all the features defined under VMS Definition Requirements, to the extent that they are supported by the subject sign type.	Phase 1	STANDARD

D. The ATMS shall be able to display an image of the message on the System Operator's monitor just as it would appear on the DMS, for each DMS supported by the system, including flash rates and page display timing.	Phase 1	CUSTOM
E. The ATMS shall perform the Verify DMS Message Content Subflow.<See 5.1.6.1.13 Verify DMS Message Content Subflow>	Phase 1	STANDARD
F. The ATMS shall verify that the message is compatible with all signs associated with the message.	Phase 1	STANDARD
G. The ATMS shall allow the System Operator to save the message to the DMS Message Library with a specified name.	Phase 1	STANDARD
H. If the name for the message already exists in the library, the ATMS shall notify the System Administrator and allow the options of replacing the existing message or selecting a new name for the message just created.	Phase 1	CUSTOM
I. If the System Operator chooses to save the message, the ATMS shall verify that a message with identical message text does not already exist in the library.	Phase 1	CUSTOM
J. If a message with identical message text already exists in the library, the ATMS shall advise the user that the message already exists and will return to Step A of this flow.	Phase 1	CUSTOM
5.1.6.1.13 Verify DMS Message Content Subflow		
A. The ATMS shall verify that the requested message does not contain any words from the Banned Word List.	Phase 1	CUSTOM
B. If the ATMS finds a banned word, it shall reject the request and terminate this use case, unless overridden by a supervisor or manager.	Phase 1	CUSTOM
C. The ATMS shall either check the requested message for misspelled words or check for words that are not in an approved word list.	Phase 1	STANDARD*
D. If Step C identifies any problems, the ATMS shall prompt the user to modify the spelling, to ignore the issue, or, if the user is a Supervisor or Administrator, to add the word to the dictionary.	Phase 1	CUSTOM
5.1.6.2 Special Requirements		
5.1.6.2.1 DMS Domain Model Information		
In addition to the information defined in the Base Domain Model of the Manage Field Device Database Use Case, The ATMS shall store the following information about each DMS:		
A. The sign type, which shall be associated with the following information:		
1. The sign type as defined in NTCIP 1203	Phase 1	STANDARD
2. The height of the sign in pixels	Phase 1	CUSTOM
3. The width of the sign in pixels	Phase 1	CUSTOM
4. The sign technology	Phase 1	CUSTOM
5. The horizontal and vertical pitch of pixels	Phase 1	CUSTOM
5.1.6.2.2 DMS Map Display		
The Monitor Devices on the Map Flow of the Monitor Devices Use Case shall include the following information:		
A. Whether a message is currently displayed on the sign	Phase 1	STANDARD
5.1.6.2.3 DMS Details		
The Monitor Device Details Flow of the Monitor Devices Use Case shall include the following information:		
A. The DMS message currently displayed on the sign, or an indication that the sign is blank	Phase 1	STANDARD
B. The owner of the message, which may be an event, an algorithm (e.g., travel time algorithm), or a user	Phase 1	CUSTOM
5.1.6.2.4 DMS Monitoring Information		

The Activate Monitoring of Device Information Flow of the Monitor Devices Use Case shall include the information reference by the following NTCIP 1203 version 02.31 requirements, if the given device supports the information. For non-NTCIP devices, the Activate Monitoring of Device Information Flow shall include equivalent information to the extent that it is supported by the device. The final design shall be approved by the Engineer.	Phase 1	STANDARD
A. Provide General DMS Error Status Information (3.4.3.1.2)	Phase 1	STANDARD
B. Monitor Controller Software Operations (3.4.3.1.3.5)	Phase 1	STANDARD
C. Monitor Information about the Currently Displayed Message (3.4.3.2.1)	Phase 1	STANDARD
5.1.6.2.5 VMS Message Definition Requirements		
The ATMS shall allow the System Operator to define messages containing the following features, to the extent that they are supported by the selected VMS.		
A. All ASCII characters with character codes between 32 and 126, inclusive.	Phase 1	CUSTOM
B. Left, center, and right horizontal justification.	Phase 1	CUSTOM
C. Top, middle, and bottom vertical justification	Phase 1	CUSTOM
D. Up to 3 lines per page	Phase 1	STANDARD
E. Up to 3 pages per message	Phase 1	STANDARD
F. The ATMS shall allow the System Operator to define messages containing one to three fields that reference travel time values.	Phase 1	STANDARD*
1. Each field shall reference a cumulative travel time from one point to another, which may include a reference to multiple link travel times.	Phase 1	STANDARD*
5.1.6.2.6 DMS Message Verification		
A. The ATMS shall allow the System Administrator to edit the Banned Words List.	Phase 1	CUSTOM
B. A message saved in the library shall include sufficient information to properly display the message on a sign.	Phase 1	STANDARD
5.1.6.2.7 Stored Message Definition Requirements		
The Message Library shall store the following information for each message:		
A. The type of message (for example, whether it is a permanent test pattern stored in the sign, a permanent message, or a message that can be downloaded)	Phase 1	STANDARD
B. The types of signs (e.g., model numbers) that support the message	Phase 1	CUSTOM
C. A description of the message	Phase 1	STANDARD
D. A unique name for the message	Phase 1	STANDARD
E. The formatted message text and any timing data	Phase 1	CUSTOM
F. The identifier used to activate the message (if it is stored in the sign controller)	Phase 1	CUSTOM
G. Any other information needed to command the sign to display the message	Phase 1	CUSTOM
5.1.6.2.8 Message Queue Requirements		
The prioritized list of messages shall contain the following information about each message request:		
A. The information about the message, for example, as stored in the message library	Phase 1	STANDARD*
B. The user, event, or service that requested the message on the sign	Phase 1	STANDARD*
C. The time at which the message is scheduled to expire	Phase 1	STANDARD*
5.1.6.2.9 DMS Configurable Parameter Settings		
The Configure Device Subsystem Parameters Flow of the Manage Field Device Database Use Case shall include the following parameters:		
A. Message Time Remaining Warning Period - the amount of time prior to the expiration of a DMS message that the ATMS shall notify the owner that the DMS message is about to expire	Phase 1	CUSTOM
5.1.6.2.10 DMS Log Information		
Each DMS log entry shall contain the following information.		

A. The type of log entry (e.g. addition/deletion to priority list, activation/deactivation from sign, etc.)	Phase 1	STANDARD
B. The owner of the message (e.g., event ID, System Operator ID, etc.)	Phase 1	STANDARD
C. The text of the message as a MULTI string	Phase 1	STANDARD
D. The time-stamp on the entry	Phase 1	STANDARD
E. The time the message was originally requested	Phase 1	STANDARD
F. The time at which the message was intended to start	Phase 1	STANDARD
G. The time the message is set to expire	Phase 1	STANDARD
H. The sign ID	Phase 1	STANDARD
I. The latitude and longitude of the sign	Phase 1	STANDARD
J. The roadway on which the sign is located and mile marker	Phase 1	STANDARD
K. The direction of travel that the sign faces	Phase 1	STANDARD
5.1.6.2.11 Communication Interfaces		
A. The ATMS shall support the protocols for all existing DMS in the Region. The State will provide a copy of the communications protocol for each DMS.	Phase 1	STANDARD
B. The ATMS shall support an NTCIP 1203 conformant interface for exchanging data with DMS.	Phase 1	STANDARD
C. The system shall be capable of communication with a portable DMS using a wired telephone connection when the portable unit is placed on a base pad.	Phase 1	STANDARD
D. The system shall be capable of communication with a portable DMS using a cellular telephone.	Phase 1	STANDARD
5.1.6.2.12 Performance Requirements		
A. The ATMS shall issue all necessary commands to display a message within 1 minute of the message becoming the highest priority message.	Phase 1	STANDARD
B. The ATMS shall be able to store a library of at least 2,000 messages.	Phase 1	STANDARD
C. The ATMS shall support the number of variable message signs (i.e., DMS that support downloadable messages) as required by the project. *The ATMS shall support 512 VMS.*	Phase 1	STANDARD
D. N/A	N/A	N/A
E. The ATMS shall support the number of variable speed limit signs required by the project. *The ATMS shall support 64 variable speed limit signs.*	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.1.7 Manage Environmental Sensor Station Operations		
System Operators need to be able to monitor road/weather conditions as detected by field sensors.		
5.1.7.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.1.7.1.1 Monitor ESS		
This flow is an extension to the end of the Activate Monitoring of Device Information Flow of Events in the Monitor Devices Use Case.		
A. The ATMS shall monitor the sensor values obtained from the ESS.	Phase 2	STANDARD
B. The ATMS shall compare the new sensor values with the thresholds defined for the device.<See 5.4.2.5.1.1 Configure Thresholds>	Phase 2	STANDARD
C. If any of the thresholds have been crossed since the last update from the device, the ATMS shall generate update Alarms as appropriate.	Phase 2	CUSTOM
1. If the value was previously within the defined thresholds and it is now outside of the thresholds, the ATMS shall perform the Create an Alarm Flow of the Manage Alarms Use Case and shall display the event on the System map.	Phase 2	CUSTOM

2. If the value was previously outside the defined thresholds and is is now within the thresholds, the ATMS shall terminate the Alarm and remove the event from the System map.	Phase 2	CUSTOM
5.1.7.2 Special Requirements		
5.1.7.2.1 ESS Domain Model Information		
In addition to the information defined in the Base Domain Model of the Manage Field Device Database Use Case, The ATMS shall store the following information about each ESS:		
A. The types of sensors connected to the ESS.	Phase 2	STANDARD
5.1.7.2.2 ESS Details		
The Monitor Device Details Flow of the Monitor Devices Use Case shall include the following information, if available:		
A. Pavement temperature (list)	Phase 2	STANDARD
B. Surface temperature (list)	Phase 2	STANDARD
C. Air Temperature (list)	Phase 2	STANDARD
D. Average wind speed	Phase 2	STANDARD
E. Wind gust speed	Phase 2	STANDARD
F. Precipitation rate	Phase 2	STANDARD
G. Snowfall accumulation rate	Phase 2	STANDARD
H. Visibility	Phase 2	STANDARD
I. The most recent snapshot taken from each snapshot camera		
5.1.7.2.3 Communication Interfaces		
A. Communications to the field devices may be achieved through direct communications to the field devices or by communicating with a road/weather management system.	Phase 2	STANDARD
B. The ATMS shall support an NTCIP 1204 interface, as defined by the Engineer, including the snapshot feature.	Phase 2	STANDARD
5.1.7.2.4 Performance Requirements		
A. The ATMS shall ensure that the data from the ESS is never older than 5 minutes.	Phase 2	STANDARD
B. The ATMS shall support the number of ESS required by the project. *The ATMS shall support 100 ESS.*	Phase 2	STANDARD

Requirement	Phase	Standard / Custom
5.1.8 Manage Gate Operations		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.1.9 Manage HAR Operations		
The ATMS includes various features that may affect the operation of Highway Advisory Radios. The ATMS will manage the proper operation of Highway Advisory Radios based on the priority associated with each request.		
5.1.9.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.1.9.1.1 Manage HAR Broadcasts		
A. For each HAR, the ATMS shall maintain a prioritized list of messages that are to be announced over the HAR transmitter.	Phase 2	STANDARD*
1. The ATMS shall log each addition and deletion to this list.	Phase 2	STANDARD*
B. The ATMS shall constantly monitor this list and use text to speech conversion algorithms to create an announcement that announces the HAR station call letters and owner and then announces each Message, ordered by priority.	Phase 2	STANDARD*

C. The ATMS shall command the HAR to continually broadcast the current announcement.	Phase 2	STANDARD*
D. If the announcement includes any high priority Messages, the HAR alert sign beacons shall be activated; otherwise they shall be de-activated.	Phase 2	STANDARD*
E. If the prioritized list of Messages is empty for a given HAR station, the ATMS shall include an announcement that there are no messages currently active for the area.	Phase 2	STANDARD*
5.1.9.1.2 Add a Broadcast Message		
A. The ATMS shall verify that the requested message does not contain any words from the Banned Word List.	Phase 2	CUSTOM
B. If the ATMS finds a banned word, it shall reject the request and terminate this use case, unless overridden by a supervisor or manager.	Phase 2	CUSTOM
C. The ATMS shall check the requested message for misspelled words.	Phase 2	STANDARD*
D. If there are any misspelled words, the ATMS shall prompt the user to modify the spelling, to ignore the issue, or to add the word to the dictionary.	Phase 2	STANDARD*
E. The ATMS shall allow the System Operator to listen to the message.	Phase 2	STANDARD*
F. The ATMS shall add the message to the prioritized list of messages for the HAR.	Phase 2	STANDARD*
5.1.9.1.3 Define a HAR Message Subflow		STANDARD*
A. The ATMS shall allow the System Operator to accept or edit the suggested HAR message.	Phase 2	STANDARD*
B. The ATMS shall allow the System Operator to replace the suggested message with another message from the HAR Message Library that is associated with the subject sign.	Phase 2	STANDARD*
1. When displaying a list of messages from the HAR Message Library, the ATMS shall only display those messages associated with the subject sign.	Phase 2	STANDARD*
2. The ATMS shall allow the System Operator to sort the messages by name.	Phase 2	STANDARD*
3. The ATMS shall allow the System Operator to sort the messages by textual content of the message.	Phase 2	STANDARD*
4. The ATMS shall allow the System Operator to search for messages containing a user-defined string.	Phase 2	STANDARD*
5. The ATMS shall allow the user to continue editing the message from the library or to use it as is.	Phase 2	STANDARD*
C. The ATMS shall be able to play the message on the System Operator's workstation just as it would sound on the HAR.	Phase 2	STANDARD*
D. The ATMS shall perform the Verify HAR Message Content Subflow.<See 5.1.9.1.4 Verify HAR Message Content Subflow>	Phase 2	CUSTOM
E. The ATMS shall allow the System Operator to save the message to the HAR Message Library with a specified name.	Phase 2	STANDARD*
F. If the name for the message already exists in the library, the ATMS shall notify the System Administrator and allow the options of replacing the existing message or selecting a new name for the message just created.	Phase 2	CUSTOM
G. If the System Operator chooses to save the message, the ATMS shall verify that a message with identical message text does not already exist in the library.	Phase 2	CUSTOM
H. If a message with identical message text already exists in the library, the ATMS shall advise the user that the message already exists and will return to Step A of this flow.	Phase 2	CUSTOM
5.1.9.1.4 Verify HAR Message Content Subflow		
A. The ATMS shall verify that the requested message does not contain any words from the Banned Word List.	Phase 2	CUSTOM
B. If the ATMS finds a banned word, it shall reject the request and terminate this use case, unless overridden by a supervisor or manager.	Phase 2	CUSTOM

C. The ATMS shall either check the requested message for misspelled words or check for words that are not in an approved word list.	Phase 2	CUSTOM
D. If Step C identifies any problems, the ATMS shall prompt the user to modify the spelling, to ignore the issue, or to add the word to the dictionary.	Phase 2	CUSTOM
5.1.9.1.5 Monitor HAR		
This flow is an extension to the end of the Activate Monitoring of Device Information Flow of Events in the Monitoring Devices Use Case.<See 5.4.2.1.1.4 Activate Monitoring of Device Information>	Phase 2	
A. The ATMS shall issue an alarm if the HAR reports an error state.	Phase 2	CUSTOM
5.1.9.1.6 Manage the Message Library		
A. The ATMS shall allow the System Administrator to add, delete, and modify pre-defined messages to be stored in the message library.	Phase 2	STANDARD*
B. If the name for the message already exists in the library, the ATMS shall notify the System Administrator and allow the options of replacing the existing message or selecting a new name for the message just created.	Phase 2	CUSTOM
5.1.9.2 Special Requirements		
5.1.9.2.1 HAR Monitoring Information		
The Activate Monitoring of Device Information Flow of the Monitor Devices Use Case shall include the following information.		
A. The current announcement in both text and verbal form.	Phase 2	STANDARD*
B. The operational status of the HAR.	Phase 2	STANDARD*
C. The operational status of any HAR alert sign beacons.	Phase 2	STANDARD*
5.1.9.2.2 Communication Interfaces		STANDARD*
The Contractor shall implement the protocols for all existing HARs. Available protocol documentation shall be provided by the State.	Phase 2	STANDARD*
5.1.9.2.3 Design Constraints		
In addition, the software shall assist the operator in the audio portion of message creation. An on-line help capability shall be provided to support the operator in developing message content.	Phase 2	CUSTOM
5.1.9.2.4 Performance Requirements		
The ATMS shall support 20 HAR transmitters.	Phase 2	STANDARD*

Requirement	Phase	Standard / Custom
5.1.10 Manage Lane Control Signal Operations		
~~N/A~~	N/A	N/A

Requirement	Phase	Standard / Custom
5.1.11 Manage Ramp Meter Operations		
~~N/A~~	N/A	N/A

Requirement	Phase	Standard / Custom
5.1.12 Manage Sub-centers		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom

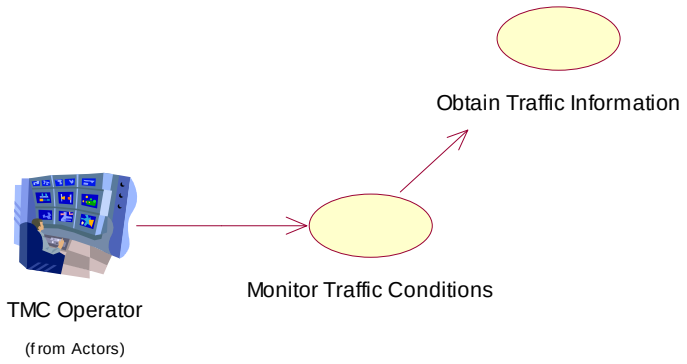
5.1.13 Manage Vehicle Detector Operations		
The ATMS needs to monitor the operation of vehicle detectors for a variety of purposes.		
5.1.13.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.1.13.1.1 Monitor Vehicle Detector		
This flow is an extension to the end of the Activate Monitoring of Device Information Flow of Events in the Monitor Devices Use Case.<See 5.4.2.1.1.4 Activate Monitoring of Device Information>		
A. The ATMS shall issue an alarm if the vehicle detector controller or any vehicle detector reports an error state.	Phase 1	CUSTOM
B. The ATMS shall update the vehicle detector icon on the System Map to reflect the error state of the controller and its detectors.	Phase 1	STANDARD
5.1.13.1.2 Configure Vehicle Detector		
A. The ATMS shall allow the System Administrator to select a Vehicle Detector Station.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to configure the selected Vehicle Detector Station.	Phase 1	STANDARD
C. The ATMS shall allow the System Administrator to configure all configuration variables supported by the selected Vehicle Detector Station's protocol.	Phase 1	CUSTOM
D. The ATMS shall verify the values entered by the System Administrator.	Phase 1	STANDARD
E. The ATMS shall download the new configuration settings to the controller.	Phase 1	STANDARD
F. The ATMS shall notify the System Administrator of any errors resulting from the download process.	Phase 1	STANDARD
5.1.13.2 Special Requirements		
5.1.13.2.1 Vehicle Detector Monitoring Information		
The ATMS shall monitor and store the following information as a part of the Activate Monitoring of Device Information Flow of Events of the Monitor Devices Use Case, if the information is available for a given device.		
A. Controller status information (i.e., the controller might manage multiple detectors)	Phase 1	STANDARD
B. Volume or count information, for each detector	Phase 1	STANDARD
C. Speed information, for each detector	Phase 1	STANDARD
D. Travel time information, for each detector	Phase 1	STANDARD*
E. Detector occupancy information (i.e., percent of time the detection zone is occupied), for each detector	Phase 1	STANDARD
F. N/A	N/A	N/A
G. Vehicle classification information, for each detector	Phase 1	STANDARD
H. Detector status information, for each detector	Phase 1	STANDARD
I. Controller events and alarms	Phase 1	CUSTOM
5.1.13.2.2 Communication Interfaces		
A. The ATMS shall support the protocols for all existing traffic detectors in the Region. The State will provide a copy of the communications protocol for each existing traffic detector.	Phase 1	STANDARD
B. The ATMS shall support an NTCIP 1206 conformant interface for obtaining data from data collection and monitoring traffic detectors.	Phase 1	STANDARD
C. The ATMS shall support an NTCIP 1209 conformant interface for obtaining data from transportation sensor system traffic detectors.	Phase 1	STANDARD
5.1.13.2.3 Performance Requirements		
5.1.13.2.3.1 Polling Frequency		
The ATMS shall poll each traffic detector at a frequency defined by the System Administrator, ranging between 15 and 600 seconds, in one second increments.	Phase 1	STANDARD
5.1.13.2.3.2 Detector Support		

The ATMS shall support collecting data from the number of traffic detectors required by the project simultaneously with any combination of supported communication protocols, even at the most frequent polling rate. *The ATMS shall support 4,000 directly connected traffic detectors and a total of 10,000 detectors for the statewide system map.*	Phase 1	STANDARD
5.1.13.2.4 Design Constraints		
A. The exact information to be collected from each source is intended to be comprehensive for the subject device. The system integrator must obtain approval from the Engineer if they propose to not collect any information for any given poll of the equipment.	Phase 1	STANDARD
B. Data obtained from each poll shall be stored within the ATMS until it is successfully sent to the archive.	Phase 1	STANDARD
5.1.13.2.5 Extended Domain Model		
The ATMS shall store the following information about each vehicle detector station:		
A. The upstream vehicle detector station	Phase 1	STANDARD
B. The distance to the upstream station	Phase 1	STANDARD
C. The downstream vehicle detector station	Phase 1	STANDARD
D. The distance to the downstream station	Phase 1	STANDARD
E. The number of detectors connected to the station	Phase 1	STANDARD
F. The location of each detector	Phase 1	STANDARD
G. The information collected by each detector	Phase 1	STANDARD
H. The Link to which each detector is assigned	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.1.14 Monitor AVL Equipped Vehicles		
An ATMS Operator needs to be able to dispatch personnel as needed to respond to incidents, to respond to urgent conditions, and/or to deploy traffic control devices. The personnel to be dispatched will most frequently be the RSP, although it may also include maintenance personnel, bridge inspectors, snowplows, etc. In order to dispatch the most appropriate vehicle, the ATMS Operator also needs to be aware of the current location, type and status of each vehicle (e.g., using an automated vehicle location system).		
5.1.14.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.1.14.1.1 View AVL Equipped Vehicles on Map		
1. The ATMS shall allow the System Operator to display AVL equipped vehicles on the system map.	Phase 2	STANDARD*
2. The ATMS shall display all AVL equipped vehicles on the system map.	Phase 2	STANDARD*
3. The icons used to display each vehicle shall concisely convey the following information:	Phase 2	STANDARD*
a. The type of vehicle (e.g., service patrol, maintenance, etc.)	Phase 2	STANDARD*
b. The operational status of the vehicle (e.g., out-of-service, patrolling, responding, on-scene, etc.)	Phase 2	STANDARD*
5.1.14.1.2 Hide AVL Equipped Vehicles		STANDARD*
1. The ATMS shall allow the System Operator to hide AVL equipped vehicles.	Phase 2	STANDARD*
2. The ATMS shall hide all AVL equipped vehicles from displaying on the system map.	Phase 2	STANDARD*

Requirement	Phase	Standard / Custom
5.1.15 Monitor Traffic Information		

This use case allows a System Operator to view current traffic condition information for the transportation network.		
5.1.15.1 Flow of Events		
5.1.15.1.1 Monitor System Map		
A. The ATMS shall allow a System Operator to select the display of a system map.	Phase 1	STANDARD
B. The ATMS shall display a system map that shows the Region's transportation network, color-coded to indicate areas of congestion, per the last attribute selected by the same System Operator.	Phase 1	STANDARD
5.1.15.1.2 Change Traffic Condition Attribute		
A. The ATMS shall allow the System Operator to select the traffic condition attribute used to determine the color-coding. Options shall include: 1. Speed 2. Volume 3. Occupancy	Phase 1	STANDARD*
B. The ATMS shall update the color-coding of the system map to depict congestion levels based on the newly selected attribute.	Phase 1	STANDARD*
5.1.15.1.3 Monitor Traffic Information Details for Link		
A. The ATMS shall allow the System Operator to select any link defined on the map.	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to view all of the detailed traffic information available for the selected link, including: 1. Volume 2. Speed 3. Travel Time 4. Occupancy 5. Any Vehicle Detectors that are normally used to derive information for the link 6. Any External Systems that are normally used to derive information for the link	Phase 1	CUSTOM
C. The ATMS shall allow the System Operator to select a Vehicle Detector or External System from the above list to view its information in greater detail.	Phase 1	STANDARD
D. If the System Operator chooses to view detailed Vehicle Detector data, the ATMS shall proceed to Step B of the Monitor Traffic Information Details for a Vehicle Detector flow of events.<See 5.1.15.1.4 Monitor Traffic Information Details for a Vehicle Detector>	Phase 1	STANDARD
E. If the System Operator chooses to view detailed External System data, the ATMS shall proceed to Step A of the Monitor Traffic Information Details for External System flow of events.<See 5.1.15.1.5 Monitor Traffic Information Details for External System>	Phase 2	STANDARD
5.1.15.1.4 Monitor Traffic Information Details for a Vehicle Detector		
A. The ATMS shall allow the System Operator to select any Vehicle Detector defined on the map either from the map or from a list of vehicle detectors.	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to view all the detailed traffic information available for the selected Vehicle Detector, including:	Phase 1	STANDARD
1. Volume (vehicles/hour)	Phase 1	STANDARD
2. Speed	Phase 1	STANDARD
3. Occupancy	Phase 1	STANDARD
4. Controller status	Phase 1	STANDARD
5. Detector status	Phase 1	STANDARD
6. Status logs for the vehicle detector and controller	Phase 1	STANDARD
5.1.15.1.5 Monitor Traffic Information Details for External System		
A. The ATMS shall allow the System Operator to view all the detailed traffic information available for the selected External System.	Phase 2	STANDARD
5.1.15.2 Special Requirements		
5.1.15.2.1 Performance Requirements		
5.1.15.2.1.1 Timing Requirements		

The ATMS shall continually update the map display with current traffic information within 15 seconds of the information being received from the sources external to the ATMS (i.e., detectors or external systems).	Phase 1	STANDARD
5.1.15.2.1.2 Quantity Requirements		
The ATMS shall be able to display the map showing all links defined in the transportation network.	Phase 1	STANDARD
5.1.15.2.1.3 Congestion Levels		
A. The ATMS shall support at least 6 congestion levels for each of the Traffic Condition Attributes.	Phase 1	STANDARD*
B. The System Administrator shall be able to configure the division points between levels.	Phase 1	STANDARD
C. The congestion levels shall be the same for all users, all roads, all segments of the roads, and all times of day.	Phase 1	STANDARD
D. The color codes assigned to each congestion level shall be configurable by each user.	Phase 1	STANDARD*
5.1.15.2.2 Design Constraints		
The algorithm used to smooth raw data shall be approved by the Engineer before implementation.	Phase 1	STANDARD
5.1.15.3 Preconditions		
The following preconditions apply to this use case.		
5.1.15.3.1 Link Conditions Known		
In order to display proper traffic condition information for any link, the link conditions must be known. The ATMS shall use a special color to identify any link for which data is unavailable, could not be determined, or is out-of-date.	Phase 1	STANDARD
5.1.15.3.2 Detailed Traffic Data Known		
In order to display detailed traffic condition data, the data must have been collected. The ATMS shall indicate if any information could not be obtained, was suspect, or is out-of-date.	Phase 1	STANDARD
5.1.15.4 Postconditions		
5.1.15.5 Extension Points		
5.1.15.6 Diagrams		
The Monitor Traffic Conditions use case is initiated by the System Operator selecting the display of the system map.		
The Monitor Traffic Conditions use case depends upon the Obtain Traffic Information use case to collect the data to be displayed on the system map.		
		

Requirement	Phase	Standard / Custom
5.1.16 Monitor Truck Roll-over Sites		
N/A	N/A	N/A

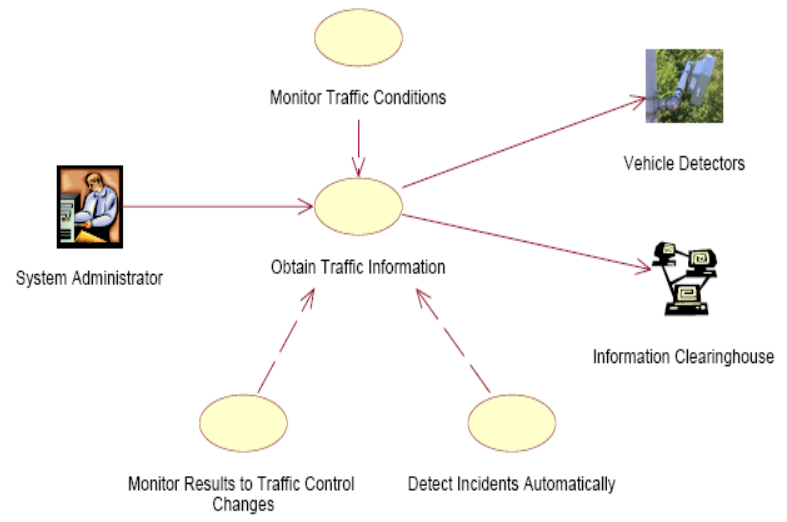
Requirement	Phase	Standard / Custom
5.1.17 Monitor Tunnel System		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.1.18 Obtain Road/Weather Conditions		
N/A		

Requirement	Phase	Standard / Custom
5.1.19 Obtain Traffic Information		
One of the major roles of the ATMS is to constantly monitor traffic conditions. This information is then used in a variety of ways, including informing System Operators of current conditions, automatically updating public information displays with current condition information, as inputs to algorithms that may suggest operator actions, etc. Traffic condition information monitored may include travel times, speeds, volume, vehicle classification, incident information from other centers, transit schedules, etc. These key parameters may be collected through a combination of detectors in the field using traditional and new technologies, algorithms to interpret raw data (e.g., converting occupancy to speed), and through information sharing with other agencies and partners. The ATMS should be able to support all of these interfaces.		
5.1.19.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.1.19.1.1 Obtain Information from Vehicle Detectors		
The primary flow of events for this use case shall be as follows:		
A. The ATMS shall use the Manage Vehicle Detector Operations Use Case to obtain all traffic data and error codes available from the device.<See 5.1.13 Manage Vehicle Detector Operations>	Phase 1	STANDARD
B. The ATMS shall flag any suspect data obtained.	Phase 1	STANDARD
C. The ATMS shall estimate Lane Link and Roadway Link travel conditions, including traffic volume, speed, travel time, and occupancy, based on the data available in the system that has not been flagged as suspect.	Phase 1	STANDARD
D. The ATMS shall continually loop through this use case until the System Administrator de-activates polling.	Phase 1	STANDARD
5.1.19.1.2 Obtain Traffic Information via External Systems		
This alternative flow of events replaces Steps A-C in the main flow with the following steps.		
A. The ATMS shall allow the System Administrator to activate the acquisition of traffic information from External Systems for which acquisition of traffic information has been enabled.	Phase 2	STANDARD
B. The ATMS shall subscribe for the information per the configuration.	Phase 2	STANDARD
C. The ATMS shall periodically obtain the configured traffic information from each enabled External System, along with any error information.	Phase 2	STANDARD
D. The ATMS shall issue an alarm if any data from the External System becomes older than the defined time threshold for the data.	Phase 2	CUSTOM
E. Any data that is restricted from further distribution shall be flagged.	Phase 2	CUSTOM
5.1.19.1.3 Obtain Traffic Information Manually		
This alternative flow of events replaces the main flow with the following steps.		

A. The ATMS shall allow the System Operator to select any link in the system.	Phase 2	STANDARD
B. The ATMS shall allow the System Operator to manually override travel time information for the link.	Phase 2	CUSTOM
C. The ATMS shall prompt the System Operator to enter the new travel time for the link and the duration for which the travel time will be considered valid.	Phase 2	CUSTOM
D. If the System Operator cancels the operation, the ATMS shall terminate the use case.	Phase 2	CUSTOM
E. The ATMS shall warn the System Operator that this action will override automated algorithms and prompt the System Operator for verification.	Phase 2	CUSTOM
F. If the System Operator cancels the operation, the ATMS shall terminate the use case.	Phase 2	CUSTOM
G. The ATMS shall use the entered travel time for the link until the duration expires and ignore any estimates produced by other algorithms (although the values of these other algorithms will still be logged).	Phase 2	CUSTOM
H. The ATMS will visually indicate that the travel times for the link have been manually overridden.	Phase 2	CUSTOM
5.1.19.1.4 Restore Automated Collection		
A. The ATMS shall allow the System Operator to select any link in the system for which travel times are being manually overridden.	Phase 2	CUSTOM
B. The ATMS shall allow the System Operator to disable the manual override and restore the travel times derived from any automated collection algorithms.	Phase 2	CUSTOM
C. The ATMS shall prompt the System Operator to verify the disabling of the manual override.	Phase 2	CUSTOM
D. If the System Operator cancels the action, the ATMS shall terminate this use case.	Phase 2	CUSTOM
E. The ATMS shall disable the manual override and shall restore any previously defined algorithm to determine travel times.	Phase 2	CUSTOM
5.1.19.1.5 De-activate Data Collection from External Systems		
The ATMS shall allow the System Administrator to de-activate the data acquisition from all External Systems at any time.	Phase 2	STANDARD
5.1.19.2 Special Requirements		
5.1.19.2.1 Communications Interfaces		
A. The ATMS shall support an interface based on the most recent TMDD/MS-ETMCC standards and drafts when obtaining data from external systems.	Phase 2	STANDARD
B. The Integrator shall work with the State and other partner agencies in establishing the detailed protocol requirements.	Phase 2	STANDARD
5.1.19.2.2 Performance Requirements		
5.1.19.2.2.1 External Interface Support		
The ATMS shall support simultaneously collecting traffic information from up to 12 different externally connected systems while also collecting data from the connected vehicle detectors.	Phase 2	STANDARD
5.1.19.2.2.2 Data Availability		
Any data associated with a link shall be integrated and available for operator use within 15 seconds of polling.	Phase 1	STANDARD
5.1.19.2.3 Design Constraints		
A. The ATMS shall define its transportation network to be a network of Links.	Phase 1	STANDARD
B. A single poll of a device may return information from multiple sensors that may be located on separate Links.	Phase 1	STANDARD
C. The algorithm used to estimate Link travel conditions shall be approved by the Engineer before implementation, but should conform to the following guidelines.	Phase 1	STANDARD

1. The Link volume shall be computed by adding the observed volume on all lanes that are defined as being a part of the Link and presented as vehicles per hour.	Phase 1	STANDARD
2. The Link speed shall be a weighted average, with the speed in each lane weighted by the number of vehicles counted in that lane	Phase 1	STANDARD
3. Link occupancy shall be an average of the occupancies observed in each lane.	Phase 1	STANDARD
4. The Link travel time shall be determined by the length of the Link divided by the Link speed.	Phase 1	STANDARD
5. The Link vehicle classification volumes shall be computed by adding the observed volumes on all lanes for the given vehicle class.	Phase 1	STANDARD
6. The Link vehicle classification speeds shall be averaged to indicate the average speed of all vehicles in the subject class across all the lanes assigned to the Link.	Phase 1	STANDARD
5.1.19.3 Preconditions		
There is one precondition for this use case, as follows.		
5.1.19.3.1 Traffic Condition Sources Configured		
Before starting this use case, the ATMS must be configured to obtain information from the Vehicle Detectors and/or External Systems. This shall be achieved using the Manage Field Device Database and/or Manage Connected Systems use cases.		
5.1.19.4 Postconditions		
There are two postconditions to this use case as follows.		
5.1.19.4.1 Detailed Traffic Data Known		
Upon completion of this use case through the primary flow, the system will be aware of the detailed traffic conditions.		
5.1.19.4.2 Link Conditions Known		
Upon completion of this use case, the system will be aware of the traffic conditions of at least some of the links on the traffic network.		
5.1.19.5 Extension Points		
This use case may be extended by adding steps between Steps D and E of the primary flow.		
5.1.19.6 Diagrams		
The Obtain Traffic Information use case is initiated by the System Administrator by either activating or deactivating the process.		
The Obtain Traffic Information use case obtains information from Vehicle Detectors and External Systems.		
The Monitor Traffic Conditions and Monitor Results to Traffic Control Changes use cases use the Obtain Traffic Information use case to obtain the information to be manually monitored.		
The Detect Incidents Automatically use case extends the Obtain Traffic Information use case by adding steps that check for anomalous conditions.		



5.2 Manage Incidents

While day-to-day traffic management is a constant background activity, most of the staff time is required to deal with the exceptional conditions created by incidents. These incidents can range from minor disturbances (e.g., a disabled vehicle) to major, cross-jurisdictional events that may close freeway lanes near system boundaries and involved emergency personnel.

5.2.1 Detect Incidents

The first phase of managing an incident is detection. The various use cases involved in this activity are detailed in the following subclauses.

Requirement	Phase	Standard / Custom
5.2.1.1 Detect Incidents Automatically		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.2.1.2 Manually Enter an Event		
Incidents may be detected by the System Operator when Touring Hot Spots, or due to the receipt of a phone call. Incidents may also be detected by FCP while they are in the field. The ATMS should allow these users of the system to enter new incidents and provide information about these incidents.		
5.2.1.2.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.1.2.1.1 Create an Event on the Map		
A. The ATMS shall allow a System Operator to select any location on the system map.	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to select an option to create an event at the selected location.	Phase 1	STANDARD
C. The ATMS shall perform the Edit an Event Subflow.<See 5.2.1.2.1.3 Edit an Event Subflow>	Phase 1	STANDARD
5.2.1.2.1.2 Create an Event from the Menu		
A. The ATMS shall allow the System Operator to select an option to create a new event.	Phase 1	STANDARD
B. The ATMS shall perform the Edit an Event Subflow.<See 5.2.1.2.1.3 Edit an Event Subflow>	Phase 1	STANDARD
5.2.1.2.1.3 Edit an Event Subflow		

C. The ATMS shall perform the Modify Event Information Subflow of the Update Event Information Use Case using the selected location as the primary location of the event. <See 5.2.2.7.1.3 Modify Event Information Subflow>	Phase 1	STANDARD
D. The ATMS shall allow the System Operator to monitor the event by performing the Monitor Event Subflow of the Update Event Information Use Case.<See 5.2.2.7.1.4 Monitor Event Subflow>	Phase 1	STANDARD
E. The ATMS shall determine if the event meets the criteria of any predefined event response scenario. If so, the ATMS shall allow the System Operator the option to implement the predefined response as defined, to revise the predefined response before implementation, or to not implement the response.	Phase 1	STANDARD
F. The ATMS shall allow the System Operator to define traffic operations for the event by performing the Define Traffic Operations Subflow of the Update Event Information Use Case.<See 5.2.2.7.1.5 Define Traffic Operations Subflow>	Phase 1	STANDARD
G. The ATMS shall allow the System Operator to define a Message to be disseminated to the public about the event by performing the Define a Message Subflow of the Define a Message Use Case.<See 5.3.1.1.2 Define a Message Subflow>	Phase 1	STANDARD*
H. If the event is active, the ATMS shall perform the Implement Event Response Subflow of the Update Event Information Use Case.<See 5.2.2.7.1.6 Implement Event Response Subflow>	Phase 1	STANDARD*
5.2.1.2.2 Special Requirements		
5.2.1.2.2.1 Event Types		
Event Types shall include the following:		
A. Incidents	Phase 1	STANDARD
B. Special Events	Phase 1	STANDARD
C. Roadwork	Phase 1	STANDARD
D. Air Quality Alerts	Phase 1	STANDARD
E. Amber Alerts	Phase 1	STANDARD
F. DHS Alerts	Phase 1	STANDARD
G. Weather Alerts	Phase 1	STANDARD
5.2.1.2.2.2 Location Definition		
The ATMS shall allow the user to define any of the following types of locations for an event:		
A. Point location	Phase 1	STANDARD
B. A linear extent (for example, a stretch of roadway)	Phase 1	STANDARD
C. An area (for example, an evacuation area)	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.2.1.3 Receive Alert		
The TMC needs to become aware of incidents as soon as possible. In many cases, the first detection of an event is from the general public calling 911, a regional traffic emergency number (i.e., #77), the police, or some other Public Safety Access Point (PSAP). Incidents may also be detected by other TMCs or by the FCP in the field. The ATMS should be able to receive electronic notification of incidents from other systems; including CAD, other TMCs, automated incident detection systems, the FCP, and Park-and-Ride panic buttons; and alert the appropriate ATMS Operator of the incident.		
5.2.1.3.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.1.3.1.1 Receive Alert from Another System		
A. The ATMS shall be able to receive event alerts from authorized sources.	Phase 2	STANDARD
B. The ATMS shall log all information about each Alert that it receives. At a minimum, this shall include the following information:	Phase 2	STANDARD

1. Alert identifier	Phase 2	STANDARD
2. Alert type	Phase 2	STANDARD
3. Alert subtype	Phase 2	STANDARD
4. Alert status	Phase 2	STANDARD
5. Traffic impact severity	Phase 2	STANDARD
6. Date and time of receipt	Phase 2	STANDARD
7. Source of the Alert	Phase 2	STANDARD
8. Location associated with the Alert	Phase 2	STANDARD
9. Description of the Alert	Phase 2	STANDARD
C. If an incoming Alert references an Event in the ATMS database or references a remotely defined event that has already been paralleled within the ATMS, the ATMS shall process the Alert as an update to the previously created Event.	Phase 2	STANDARD
1. The ATMS shall associate the Alert with any Event(s) which it references.	Phase 2	STANDARD
2. The ATMS shall associate the Alert with any parallel Event(s).	Phase 2	STANDARD
3. The ATMS shall store the association between the Alert and the Event(s).	Phase 2	STANDARD
4. The ATMS shall generate an Alarm to the owning System Operator using the Create an Alarm Flow of the Manage Alarms Use Case. The Alarm shall notify the System Operator that the subject external source has updated the associated event.<See 5.1.3.1.1 Create an Alarm>	Phase 2	CUSTOM
5. The ATMS shall exit this use case.	Phase 2	STANDARD
D. Otherwise, the ATMS shall automatically create a parallel Event in the system database that will be initialized with data gathered from the Alert.	Phase 2	CUSTOM
1. The Event shall be associated with the Alert.	Phase 2	CUSTOM
2. The Event shall be created in the unverified state, unless the remote system is a trusted system that has already verified the incident.	Phase 2	STANDARD
a. The System Administrator shall define which systems are trusted for verifying events.	Phase 2	STANDARD
3. The ATMS shall generate an Alarm to the System Operators using the Create an Alarm Flow of the Manage Alarms Use Case. The Alarm shall notify the System Operators that the subject external source has identified a potential event.<See 5.1.3.1.1 Create an Alarm>	Phase 2	CUSTOM
4. If the Alert/unverified Event is associated with a location, the ATMS shall place an icon on the system map at the subject location to notify all System Operators of the unverified Event.	Phase 2	STANDARD
5. The ATMS shall log the newly created Event in its log.	Phase 2	STANDARD
5.2.1.3.1.2 Receive Incident Alert from FCP		
5.2.1.3.1.3 Receive Incident Alert from Panic Button		
5.2.1.3.2 Special Requirements		
5.2.1.3.2.1 Communication Interfaces		
A. The ATMS shall support incident alerts based on the IEEE 1512 interface. *The ATMS shall support the Michigan State Police defined communications interface for their Computer Aided Dispatch System.*	Phase 2	CUSTOM
B. The ATMS shall support the Common Alerting Protocol (CAP) interface.	Phase 2	CUSTOM
5.2.1.3.2.2 Performance Requirements		
A. The ATMS shall notify the System Operator within 15.0 seconds of receiving an alert from an External System.	Phase 2	STANDARD
B. N/A	N/A	N/A
C. The ATMS shall allow one or more events to be associated with the same inbound Alert.	Phase 2	STANDARD
D. The ATMS shall allow an event to be associated with zero or more inbound Alerts.	Phase 2	STANDARD
5.2.1.3.2.3 Design Constraints		

The exact interface definitions, including interpretations of the IEEE 1512 standards, shall be finalized with the coordination of other related agencies and the approval of the Engineer.	Phase 2	STANDARD

Requirement	Phase	Standard / Custom
5.2.1.4 Schedule an Event		
The State needs to be able to schedule a wide range of events and associated device operations. The events may be recurring or one-time events.		
5.2.1.4.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.1.4.1.1 Define a Scheduled Event		
A. The ATMS shall allow an Event Planner or a System Operator to create a new scheduled event.	Phase 1	STANDARD
B. The ATMS shall perform the steps of the Update Event Information Subflow of the Update Event Information Use Case.<See 5.2.2.7.1.2 Update Event Information Subflow>	Phase 1	STANDARD
5.2.1.4.1.2 Modify a Scheduled Event		
A. The ATMS shall allow an Event Planner to select any scheduled event that was previously created by himself/herself.	Phase 1	STANDARD
B. The ATMS shall allow a System Operator to select any existing scheduled event.	Phase 1	STANDARD
C. The ATMS shall allow the Event Planner/System Operator to modify the selected scheduled event by performing the steps of the Update Event Information Subflow of the Update Event Information Use Case using the current information for the scheduled event.<See 5.2.2.7.1.2 Update Event Information Subflow>	Phase 1	STANDARD
5.2.1.4.1.3 Delete a Scheduled Event		
A. The ATMS shall allow an Event Planner to select any scheduled event that was previously created by himself/herself.	Phase 1	STANDARD
B. The ATMS shall allow a System Operator to select any existing scheduled event.	Phase 1	STANDARD
C. The ATMS shall allow the Event Planner/System Operator to delete the selected scheduled event.	Phase 1	STANDARD

Requirement	Phase	Standard / Custom
5.2.1.5 Verify an Event		
A System Operator needs to be able to verify and accept an event alarm or override the alarm. Overriding an alarm might include declaring it to be a false alarm (e.g., if it was a reported incident), snoozing the event, or cancelling the action (e.g., if it was a planned event).		
5.2.1.5.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.1.5.1.1 Verify an Event		
A. The ATMS shall allow a System Operator to select an Event with an outstanding Alarm by clicking on the Alarm in the Notification Window.	Phase 1	CUSTOM
B. The ATMS shall allow the System Operator to modify the event information by performing the Modify Event Information Subflow of the Update Event Information Use Case.<See 5.2.2.7.1.3 Modify Event Information Subflow>	Phase 1	STANDARD*
C. The ATMS shall allow the System Operator to monitor the event by performing the Monitor the Event Subflow of the Update Event Information Use Case.<See 5.2.2.7.1.4 Monitor Event Subflow>	Phase 1	STANDARD

D. The ATMS shall determine if the event meets the criteria of any predefined event management plan. If so, the ATMS shall allow the System Operator the option to implement the predefined response as defined, to revise the predefined response before implementation, or to not implement the response.<See 5.2.2.3 Define Event Management Plan>	Phase 1	STANDARD*
E. The ATMS shall allow the System Operator to define traffic operations for the event by performing the Define Traffic Operations Subflow of the Update Event Information Use Case.<See 5.2.2.7.1.5 Define Traffic Operations Subflow>	Phase 1	STANDARD
F. The ATMS shall allow the System Operator to define a Message to be disseminated to the public about the event by performing the Define a Message Subflow of the Define a Message Use Case.<See 5.3.1.1.2 Define a Message Subflow>	Phase 1	CUSTOM
G. If the event is active, the ATMS shall perform the Implement Event Response Subflow of the Update Event Information Use Case.<See 5.2.2.7.1.6 Implement Event Response Subflow>	Phase 1	STANDARD*

Requirement	Phase	Standard / Custom
5.2.1.6 Visually Monitor a Location		
The ATMS operator needs to be able to visually monitor any heavily traveled route on demand in an attempt to verify an incident prior to personnel arriving on the scene and to monitor the incident and related traffic impact throughout its duration. This is generally achieved by controlling the existing and expanding network of CCTV video cameras that monitor the transportation network.		
5.2.1.6.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.1.6.1.1 Select Camera to Monitor		
A. The ATMS shall allow the System Operator to select any CCTV camera within the system to monitor.	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to identify the monitor on which the image from the camera should be displayed.	Phase 1	STANDARD
C. The ATMS shall display the image from the selected camera on the selected monitor.	Phase 1	STANDARD
NOTE: Camera control requirements are defined in the Manage CCTV Operations Use Case.<See 5.1.4 Manage CCTV Operations>		
5.2.1.6.2 Special Requirements		
5.2.1.6.2.1 Performance		
A. Any number of System Operators shall be able to control cameras and their accessories simultaneously.	Phase 1	STANDARD
B. Any System Operator shall be able to control and view any number of cameras and their accessories simultaneously.	Phase 1	STANDARD
C. When allowing the System Operator to select a monitor on which to display a video image, the ATMS shall allow the System Operator to choose any of the following monitors for which the Operator has been authorized to control:	Phase 1	STANDARD
1. Any of the dedicated monitors at the System Operator's workstation	Phase 1	STANDARD
2. Any of the virtual monitors supported as windows on the System Operator's desktop.	Phase 1	STANDARD
3. Any of the system monitors specified in the TMC, for example, those at the front of the control room.	Phase 1	STANDARD
4. Any of the virtual monitors supported by the image processing equipment installed in the TMC; for example, image processing equipment that is used to display multiple images on a single large monitor or to display a single image across multiple monitors.	Phase 1	STANDARD

Requirement	Phase	Standard / Custom
5.2.1.7 Visually Tour Hot Spots		
As a part of daily operations, the ATMS Operator needs to be able to take a visual tour of regional transportation hot spots using CCTV cameras. This will allow the operator to identify any unusual conditions that may not have been identified through other incident detection schemes. Thus, the ATMS should also allow the ATMS Operator to enter a new incident that may have been discovered through observation of these images.		
5.2.1.7.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.1.7.1.1 Tour Hot Spots		
A. The ATMS shall allow a System Operator to start a tour of hot spots located within the Operator's area of responsibility.	Phase 1	STANDARD*
B. The ATMS shall require the System Operator to select the monitor on which to display the visual images of the hot-spot tour.	Phase 1	STANDARD*
C. The ATMS shall determine the last hot spot investigated.	Phase 1	CUSTOM
D. If the camera associated with the subject hot spot is currently controlled by a System Operator (See the Visually Monitor a Location Use Case), the ATMS shall skip to Step G.<See 5.2.1.6 Visually Monitor a Location>	Phase 1	STANDARD*
E. The ATMS shall command the camera associated with the subject hot spot to go to the preset associated with the subject hot spot.	Phase 1	STANDARD*
F. The ATMS shall cause the selected monitor to display the image received from the camera associated with the subject hot-spot.	Phase 1	STANDARD*
G. The ATMS shall allow a System Operator to pause the tour at any point to further investigate the conditions at a site.	Phase 1	STANDARD*
H. If all cameras associated with the hot-spot tour are currently controlled by System Operators, the System Operator that initiated this use case shall be notified that the tour cannot be performed due to this problem.	Phase 1	STANDARD*
I. The ATMS shall determine the next hot-spot to be investigated.	Phase 1	STANDARD*
J. The ATMS shall repeat Steps D through I until the tour is terminated.	Phase 1	STANDARD*
5.2.1.7.1.2 Terminate Hot Spot Tour		
A. The ATMS shall allow a System Operator to terminate a currently running tour of hot-spots.	Phase 1	STANDARD*
5.2.1.7.1.3 Change Display Monitor		
A. The ATMS shall allow the System Operator to change the monitor to be used to display the visual images of the hot-spot tour.	Phase 1	STANDARD*
5.2.1.7.1.4 Define Hot Spot Tour		
A. The ATMS shall allow the System Operator to define a new hot-spot tour.	Phase 1	STANDARD*
1. The defined hot-spot tours shall be common for all users.	Phase 1	
2. The ATMS shall store the defined hot-spot tours at a central location (e.g., on a database server).	Phase 1	
B. The ATMS shall require the System Operator to define a unique name to identify the tour.	Phase 1	STANDARD*
C. The ATMS shall allow the System Operator to add a preset scene from any camera to the hot spot tour.	Phase 1	STANDARD*
D. The ATMS shall allow the System Operator to modify the order of selected preset scenes.	Phase 1	STANDARD*
E. The ATMS shall allow the System Operator to remove a preset scene from the tour.	Phase 1	STANDARD*
F. The ATMS shall allow the System Operator to repeat Steps C through E as desired until the System Operator chooses to save or cancel the hot-spot tour definition.	Phase 1	STANDARD*
G. If the System Operator chooses to cancel the definition, the ATMS shall exit this Use Case.	Phase 1	STANDARD*

H. The ATMS shall store the definition of the hot-spot tour for later reference.	Phase 1	STANDARD*
5.2.1.7.1.5 Delete Hot Spot		
1. The ATMS shall allow the System Administrator to remove a hot spot from the tour.	Phase 1	STANDARD*
5.2.1.7.2 Special Requirements		
5.2.1.7.2.1 Performance Requirements		
A. The ATMS shall display each hot spot image for a period of time from one to 30 seconds, as specified by the System Administrator in one second increments.	Phase 1	STANDARD*
B. The ATMS shall allow the definition of up to 2,000 hot spots.	Phase 1	STANDARD*
5.2.1.7.2.2 Design Constraints		
The ATMS shall not prevent a System Operator from taking control of a camera that is included in a running hot-spot tour, even if the tour is actively displaying the image received from the camera.	Phase 1	STANDARD*

5.2.2 Manage Incident Response

As a part of incident response, the TMC staff may decide to modify the operation of the transportation network to improve motorist safety and/or to provide more efficient traffic flow given the current conditions. This may be achieved several ways as described in the following subclauses.

Requirement	Phase	Standard / Custom
5.2.2.1 Alert Another TMC		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.2.2.2 Alert Individuals		
State managers should be kept aware of major events. To ensure that the information about events is distributed in an efficient manner, the System Operator should be able to readily alert multiple individuals about an incident via e-mail.		
5.2.2.2.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.2.2.1.1 Alert Individuals		
A. The ATMS shall allow the System Operator to send an event notice/update to any defined distribution list.	Phase 1	STANDARD*
1. The ATMS shall automatically populate the message with summary information about the event, such as the event name, description, and status.	Phase 1	STANDARD*
2. The ATMS shall allow the System Operator to edit the message before sending.	Phase 1	STANDARD*
5.2.2.2.1.2 Maintain Distribution Lists		STANDARD*
A. The ATMS shall allow the System Administrator to create, edit and delete distribution lists.	Phase 1	STANDARD*
1. A distribution list shall contain zero or more e-mail addresses.	Phase 1	STANDARD*

Requirement	Phase	Standard / Custom
5.2.2.3 Define Event Management Plan		

Part of the event planning process is determining how large scale events will be handled before they occur. The results of this planning process frequently include detour routes and traffic control patterns that could be activated in response to a major event, if deemed necessary. In cases, it may be desirable to pre-program these plans into the system so that they can be easily activated. For example, this might include defining the messages to be posted on a variety of signs that give directions for the detour and/or changes in signal timing to accommodate the changes to the traffic flows so that the entire plan can be quickly and correctly activated when needed.		
5.2.2.3.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.2.3.1.1 Maintain Event Management Plans		
A. The ATMS shall be able to store a variety of event management plans that are customized for incidents at key locations within the region.	Phase 1	STANDARD*
1. The Event Management Plans shall be associated with a set of characteristics that will allow the ATMS to automatically recommend the event management plan by matching the characteristics with current conditions and event information.	Phase 1	STANDARD*
2. The Event Management Plans shall define the operational changes in traffic control equipment to respond to the event.	Phase 1	STANDARD*
3. The Event Management Plans shall include recommended Messages to be disseminated about the incident.	Phase 1	STANDARD*
B. The ATMS shall allow a System Operator to edit the settings of the event management plans.	Phase 1	STANDARD*
C. The ATMS shall allow a System Operator to create new Event Management Plans.	Phase 1	STANDARD*
D. The ATMS shall allow a System Operator to delete an Event Management Plan.	Phase 1	STANDARD*
5.2.2.3.1.2 Import and Export Event Management Plans		
A. The ATMS shall allow an Event Management Plan developed in a test environment to be imported into a live system.	Phase 1	STANDARD*

Requirement	Phase	Standard / Custom
5.2.2.4 Manage Response Resource		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.2.2.5 Record Image of Scene		
System Operators may wish to attach and potentially annotate snapshot images with an incident record. These snapshots may be captured from live camera feeds and/or uploaded from the field, for example though an FCP taking a picture with a cell-phone camera.		
5.2.2.5.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.2.5.1.1 FCP Upload of Image		
5.2.2.5.1.2 ATMS Frame Capture of Image		
A. The ATMS shall allow the System Operator who is assigned control of a camera to perform a frame capture of the video image.	Phase 1	CUSTOM
B. The ATMS shall allow the System Operator to access the captured frame from third-party applications (e.g., to attach to an e-mail or to edit).	Phase 1	STANDARD
C. The ATMS shall allow the System Operator to associate the image with an Event, either by creating a link or by embedding the image into the Event record.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.2.2.6 Record Video Feed		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.2.2.7 Update Event Information		
During the life of an event, the System Operator needs to be able to record changing conditions, update the messages to be disseminated to the public, and update the status of the event.		
5.2.2.7.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.2.2.7.1.1 Main Flow		
A. The ATMS shall allow a System Operator to select an event either through a list of all events or by clicking on the event icon on the system map.	Phase 1	STANDARD
1. The ATMS shall allow multiple System Operators manage the same event at the same time.	Phase 2	STANDARD
B. The ATMS shall allow the System Operator to modify the event information by performing the Update Event Information Subflow.<See 5.2.2.7.1.2 Update Event Information Subflow>	Phase 1	STANDARD
5.2.2.7.1.2 Update Event Information Subflow		
A. The ATMS shall allow the System Operator to modify the event information by performing the Modify Event Information Subflow.<See 5.2.2.7.1.3 Modify Event Information Subflow>	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to monitor the event by performing the Monitor Event Subflow.<See 5.2.2.7.1.4 Monitor Event Subflow>	Phase 1	STANDARD
C. The ATMS shall allow the System Operator to view the recommended event response plan.	Phase 1	STANDARD*
1. If the System Operator selects to use this response plan, the ATMS shall update the traffic operations and Message definitions as defined by the plan.	Phase 1	STANDARD*
D. The ATMS shall allow the System Operator to define traffic operations for the event by performing the Define Traffic Operations Subflow.<See 5.2.2.7.1.5 Define Traffic Operations Subflow>	Phase 1	STANDARD*
E. The ATMS shall allow the System Operator to define a Message to be disseminated to the public about the event by performing the Define a Message Subflow of the Define a Message Use Case.<See 5.3.1.1.2 Define a Message Subflow>	Phase 1	STANDARD*
F. If the event is active, the ATMS shall perform the Implement Event Response Subflow.<See 5.2.2.7.1.6 Implement Event Response Subflow>	Phase 1	STANDARD*
5.2.2.7.1.3 Modify Event Information Subflow		
A. The ATMS shall not allow any User to modify the event identifier.	Phase 1	STANDARD
B. The ATMS shall allow the Authorized User to modify the type (e.g., "accident") and subtype (e.g., "two-car accident") of event.	Phase 1	STANDARD
1 N/A	N/A	N/A
2. N/A	N/A	N/A
3. System Operators shall be Authorized Users for entering any event type.	Phase 1	STANDARD
4. If the Authorized User is a System Operator the ATMS shall default the event type to "Incident," if it has not previously been set.	Phase 1	STANDARD
5. If the event type is "Incident," the ATMS shall allow the System Operator to modify its severity.	Phase 1	STANDARD
C. The ATMS shall allow the Authorized User to modify the name (or short description) of the event.	Phase 1	STANDARD

D. The ATMS shall allow the Authorized User to modify the textual description of the event, including the extent of the event (milepost to milepost), lanes affected, posted speed limit, associated traffic control devices, and detour information.	Phase 1	STANDARD
E. The ATMS shall allow the Authorized User to graphically define the configuration of the event.	Phase 1	STANDARD
F. The ATMS shall allow the Authorized User to modify the location of the event.	Phase 1	STANDARD
1. The ATMS shall allow the Authorized User to modify the primary point location of the event by dragging its icon to the desired location on the map.	Phase 1	STANDARD
2. The ATMS shall allow the Authorized User to modify the primary point location of the event by changing the latitude and longitude of the event.	Phase 1	STANDARD
3. The ATMS shall allow the Authorized User to add/modify additional locations that are associated with the event. The additional locations may be any of the following:	Phase 1	STANDARD
a. A point location	Phase 1	STANDARD
b. A linear location	Phase 1	STANDARD
i. By entering beginning and ending milepost numbers.	Phase 1	STANDARD
ii. By dragging the extent of the linear location on the system map.	Phase 1	STANDARD
c. An area location	Phase 1	CUSTOM
G. The ATMS shall allow the Authorized User to modify which, if any, travel lanes or shoulders are blocked.	Phase 2	STANDARD
1. The ATMS shall graphically identify which lanes are present at the location.	Phase 2	STANDARD
2. The ATMS shall allow the Authorized User to identify which lanes are blocked or closed from those available.	Phase 2	STANDARD
3. The ATMS shall automatically update the estimated capacity of the roadway links associated with the event.	Phase 2	STANDARD*
4. The ATMS shall allow the Authorized User to modify the estimated capacity of the roadway links associated with the event.	Phase 2	STANDARD*
5. The ATMS shall allow the Authorized User to annotate the graphic by dragging and dropping any set of the following icons onto the map and providing a description of each:	Phase 2	CUSTOM
a. traffic barriers	Phase 2	CUSTOM
b. portable message signs	Phase 2	STANDARD
c. personnel	Phase 2	CUSTOM
H. The ATMS shall allow the owning System Operator to modify the activity status of the event.	Phase 1	STANDARD
1. If the event type is a Special Event, a Roadwork Event, or a Traffic Operations Event, the default initial activity status shall be the scheduled state; otherwise, the default initial activity status shall be the active state.	Phase 1	STANDARD
2. The ATMS shall allow the System Operator to change the state to closed (e.g., to override the initial state in order to enter a new event in the ATMS to document an event that occurred earlier, to close an active event, or to prevent a scheduled event from activating).	Phase 1	STANDARD
3. The ATMS shall allow the System Operator to change the state to scheduled (e.g., to override the initial state to indicate a future event, to re-enable a scheduled event that was previously closed).	Phase 1	STANDARD
4. The ATMS shall allow the System Operator to change the state to active (e.g., to override the initial state to indicate a current event or to reopen a previously closed event).	Phase 1	STANDARD
I. The ATMS shall allow the System Operator to modify confirmation status of the event.	Phase 1	STANDARD
1. If the event already has an owning System Operator, the ATMS shall only authorize the owning System Operator and System Supervisors to edit this field.	Phase 1	STANDARD

2. The ATMS shall default events to the unverified state, if the verification status has not previously been set.	Phase 1	STANDARD
3. The ATMS shall allow the System Operator to reject the event and declare it to be a false alarm.	Phase 1	STANDARD
a. The ATMS shall allow the System Operator to enter notes about why the event was rejected.	Phase 1	STANDARD
b. The ATMS shall change the activity status of the event to closed.	Phase 1	STANDARD
c. The ATMS shall log the above information along with which System Operator rejected the event.	Phase 1	STANDARD
4. The ATMS shall allow the System Operator to verify the event.	Phase 1	STANDARD
a. The ATMS shall make the System Operator making the change the owning System Operator.	Phase 1	STANDARD
J. The ATMS shall allow the Authorized User to enter contact information for the person who is responsible for the event.	Phase 1	STANDARD*
K. The ATMS shall record time information as appropriate to the event.	Phase 1	STANDARD
1. The ATMS shall record the time at which the event was created within the system.	Phase 1	STANDARD
a. The ATMS shall not allow any user to alter this time-stamp.	Phase 1	STANDARD
2. The ATMS shall allow the Authorized User to modify the start time of the event.	Phase 1	STANDARD
a. The ATMS shall default the start time to the time that the event was created.	Phase 1	STANDARD
3. If the event is active, the ATMS shall fulfill the following requirements:	Phase 1	STANDARD
a. The ATMS shall display the elapsed time since the event start time.	Phase 1	STANDARD
b. The ATMS shall allow the System Operator to modify the estimated remaining duration of the event.	Phase 1	STANDARD
c. The ATMS shall default the remaining duration to an infinite value, if it has not been previously set.	Phase 1	CUSTOM
4. If the event is scheduled, the ATMS shall fulfill the following requirements:	Phase 1	STANDARD
a. The ATMS shall allow the Authorized User to modify whether the event is a one-time event or a repeating event.	Phase 1	STANDARD
b. The ATMS shall allow the Authorized User to modify the scheduled duration for each instance of the event.	Phase 1	STANDARD
c. If the event is a repeating event, the ATMS shall allow the Authorized User to modify the scheduled start date.	Phase 1	STANDARD
d. If the event is a repeating event, the ATMS shall allow the Authorized User to modify the scheduled end date.	Phase 1	STANDARD
e. If the event is a repeating event, the ATMS shall allow the Authorized User to modify the scheduled days of week that the scheduled event will occur.	Phase 1	CUSTOM
5. If the event is closed, the ATMS shall allow the System Operator to modify the event duration.	Phase 1	STANDARD
L. The ATMS shall allow the Authorized User to add, modify, and delete associations to any other event defined within the ATMS.	Phase 1	STANDARD
1. The ATMS shall allow the user to indicate the type of association (e.g., "caused by", "resulted in", "nearby", etc.)	Phase 1	CUSTOM
M. The ATMS shall allow the Authorized User to add and delete associations to any Alert received from an external system.	Phase 2	CUSTOM
N. The ATMS shall allow the Authorized User to add and delete associations to any Alarm generated within the ATMS.	Phase 1	CUSTOM
O. The ATMS shall allow the System Operator to record a frame captured image from a live video feed with the event.	Phase 1	CUSTOM

1. The ATMS shall allow the System Operator to select a camera feed.	Phase 1	STANDARD
2. The ATMS shall allow the System Operator to capture a frame of the image to a file.	Phase 1	CUSTOM
3. The ATMS shall allow the System Operator to associate the captured image file with the event.	Phase 1	CUSTOM
4. The ATMS shall allow the System Operator to enter a description of the image file.	Phase 1	CUSTOM
P. The ATMS shall allow the System Operator to add log entries to the event.	Phase 1	STANDARD
1. The ATMS shall record the time at which each log entry was made.	Phase 1	STANDARD
2. The ATMS shall allow the System Operator to enter a description for the log entry.	Phase 1	STANDARD
3. The ATMS shall allow the System Operator to associate each log entry with a time-stamp that is independent of when the entry was made.	Phase 1	STANDARD
Q. The ATMS shall allow the System Operator to modify whether the event is to be an internal event, in which case the ATMS shall prevent any information about the event from being published.	Phase 1	CUSTOM
R. The ATMS shall update the type of icon and the location of the event icon on the System Map within 2 seconds of the event being modified.	Phase 1	STANDARD
S. The ATMS shall log the available information about the event.	Phase 1	STANDARD
T. If the event has previously been associated with an Event Management Plan, the ATMS shall prompt the System Operator to review the response plan.	Phase 2	CUSTOM
5.2.2.7.1.4 Monitor Event Subflow		
A. N/A.	N/A	N/A
B. The ATMS shall allow the System Operator to associate any CCTV camera with the event.	Phase 1	CUSTOM
C. The ATMS shall allow the System Operator to remove the association with any associated CCTV camera.	Phase 1	CUSTOM
D. The ATMS shall allow the System Operator to readily access images and control panels for the associated CCTV cameras by using the Visually Monitor a Location Use Case.	Phase 1	CUSTOM
5.2.2.7.1.5 Define Traffic Operations Subflow		
A. The ATMS shall allow the System Operator to associate/dissociate actions that should be associated with the Event.	Phase 1	STANDARD*
1. The ATMS shall allow the System Operator to select one or more items to associate with the event.	Phase 1	STANDARD*
a. The ATMS shall allow the System Operator to select a DMS to associate with the event.	Phase 1	STANDARD*
i. The ATMS shall allow the System Operator to select a DMS to associate with the event.	Phase 1	STANDARD*
ii. The ATMS shall allow the System Operator to select a blank-out sign to associate with the event.	Phase 1	STANDARD*
b. The ATMS shall allow the System Operator to select an HAR to associate with the event.	Phase 2	STANDARD*
c. The ATMS shall allow the System Operator to select a CCTV camera to associate with the event.	Phase 1	CUSTOM
d. The ATMS shall allow the System Operator to select a CCTV camera tour to associate with the event.	Phase 1	CUSTOM
e-h. N/A	N/A	N/A
i. The ATMS shall allow the System Operator to select to associate an Alarm with the event.	Phase 1	CUSTOM
2. The ATMS shall require the System Operator to define the desired control state for each associated item.	Phase 1	STANDARD*
a. The ATMS shall require the System Operator to define the message to be displayed on the DMS.	Phase 1	STANDARD*

b. The ATMS shall require the System Operator to define the message to be transmitted on the HAR.	Phase 2	STANDARD*
c. The ATMS shall require the System Operator to define the preset scene to which the CCTV camera should be positioned and the video output to which the image should be sent.	Phase 1	STANDARD*
d. The ATMS shall require the System Operator to define the video output to which the CCTV camera tour should be sent.	Phase 1	STANDARD*
e-h.N/A.	N/A	N/A
i. The ATMS shall require the System Operator to define the text for the Alarm.	Phase 1	CUSTOM
3. For each item, the ATMS shall require the System Operator to define the priority to be associated with the desired control state.	Phase 1	STANDARD*
4. The ATMS shall allow the System Operator to dissociate any currently associated item from the event.	Phase 1	STANDARD*
5. The ATMS shall not allow the System Operator to associate any action with the event that the System Operator does not have the privilege to execute directly.	Phase 1	STANDARD*
B. The ATMS shall allow the System Operator to modify the control state and priority for any item currently associated with the event.	Phase 1	STANDARD*
C. The ATMS shall verify that the Event is not associated with any device control states that are prohibited by any associated device group state.	Phase 1	STANDARD*
1. If there is a conflict, the ATMS shall prompt the System Operator to correct the conflict prior to finalizing the schedule.	Phase 1	STANDARD*
5.2.2.7.1.6 Implement Event Response Subflow		STANDARD*
A. The ATMS shall perform each Traffic Operation action associated with the event	Phase 1	STANDARD*
1. The ATMS shall create a log entry in the event for the result of each attempted action.	Phase 1	STANDARD
2. If an action results in an error (for example, if a command to control a DMS has insufficient priority), the ATMS shall generate a high priority Alarm to all System Operators using the Create an Alarm Flow of the Manage Alarms Use Case. <See 5.1.3.1.1 Create an Alarm>	Phase 1	CUSTOM
a. The ATMS shall allow the System Operator responding to the error Alarm to re-perform the action.	Phase 1	CUSTOM
3. The ATMS shall continue to process any remaining actions associated with the Event. NOTE: This shall not be interpreted to override rules established by Device Group.	Phase 1	CUSTOM
B. The ATMS shall disseminate the Message associated with the event by performing the Disseminate Message Subflow of the Publish Event Information Use Case.<See 5.3.7.1.1 Disseminate Message Subflow>	Phase 1	CUSTOM
1. The ATMS shall create a log entry in the event for the result of each attempted action.	Phase 1	STANDARD
2. If an action results in an error (for example, if a command to control a DMS has insufficient priority), the ATMS shall generate a high priority Alarm to all System Operators using the Create an Alarm Flow of the Manage Alarms Use Case. <See 5.1.3.1.1 Create an Alarm>	Phase 1	CUSTOM
a. The ATMS shall allow the System Operator responding to the error Alarm to re-perform the action.	Phase 1	CUSTOM
5.2.2.7.1.7 Transfer Event		
A. The ATMS shall allow a System Operator to select an event either through a list of all events or by clicking on the event icon on the system map.	Phase 1	STANDARD
B. The ATMS shall allow the owning System Operator to transfer ownership of the event.	Phase 1	CUSTOM
1. The ATMS shall require the System Operator to identify the System Operator to which to transfer ownership from a list of System Operators who are currently logged-in.	Phase 1	CUSTOM

2. The ATMS shall notify the selected System Operator of the request to transfer ownership of the event.	Phase 1	CUSTOM
3. The ATMS shall require the selected System Operator to either accept or reject the transfer request.	Phase 1	CUSTOM
C. If the selected System Operator accepts control, the ATMS shall notify the originating System Operator that the transfer was successful.	Phase 1	CUSTOM
D. If the selected System Operator rejects the transfer, the ATMS shall notify the originating System Operator of the unsuccessful attempt to transfer ownership.	Phase 1	CUSTOM
E. The ATMS shall create a log entry in the event to document the results of the transfer attempt.	Phase 1	CUSTOM
5.2.2.7.1.8 Reject an Event		
A. The ATMS shall allow a System Operator to select an event either through a list of all events or by clicking on the event icon on the system map.	Phase 1	STANDARD
B. The ATMS shall allow the owning System Operator to change the state of the event to a false alarm.	Phase 1	STANDARD
1. The ATMS shall prompt the System Operator to enter an explanation for the reclassification.	Phase 1	STANDARD
2. The ATMS shall log the information from the event that is being terminated.	Phase 1	STANDARD
3. The ATMS shall terminate the event and remove the icon from the System Map.	Phase 1	STANDARD
4. The ATMS shall exit this use case.	Phase 1	STANDARD
C. The ATMS shall allow the owning System Operator to merge the event with another event.	Phase 1	CUSTOM
1. The ATMS shall prompt the System Operator to select the associated event from the list of existing events.	Phase 1	STANDARD
2. The ATMS shall log the information from the event that is being merged.	Phase 1	CUSTOM
3. The ATMS shall terminate the duplicate event and remove the icon from the System Map.	Phase 1	CUSTOM
4. The ATMS shall exit this use case.	Phase 1	CUSTOM
D. The ATMS shall allow the owning System Operator to split the event into multiple events.	Phase 1	CUSTOM
1. The ATMS shall prompt the System Operator to identify the number of events into which to split the current event.	Phase 1	CUSTOM
2. The ATMS shall perform the Update Event Information Subflow for each event.<See 5.2.2.7.1.2 Update Event Information Subflow>	Phase 1	CUSTOM
3. The ATMS shall remove the icon of the original event from the System Map	Phase 1	CUSTOM
4. The ATMS shall exit this use case.	Phase 1	CUSTOM
5.2.2.7.1.9 Reopen An Event		
A. The ATMS shall allow a System Operator to select a previously closed event either through a list of all events or by clicking on the event icon on the system map.	Phase 1	STANDARD*
B. The ATMS shall allow the System Operator to reopen a previously terminated event.	Phase 1	STANDARD*
1. The ATMS shall allow the System Operator to reopen a previously closed event.	Phase 1	STANDARD*
2. The ATMS shall allow the System Operator to reopen a previously reject event (i.e. an event previously declared to be a false alarm.)	Phase 1	STANDARD*
5.2.2.7.1.10 Remind Operator		
A. The ATMS shall notify the owning System Operator if an Event has been idle for a specified period of time.	Phase 1	CUSTOM
1. An idle event is one that is not yet closed but has neither been updated by the operator nor updated by an associated Alert.	Phase 1	CUSTOM
2. The period of time shall be defined by the System Administrator.	Phase 1	CUSTOM

3. The type of notification (e.g., Alarm, pop-up box, or audible sound) shall be defined by the System Operator.	Phase 1	CUSTOM
B. After a time specified by the System Administrator, if the System Operator has not acknowledged the Alarm, the ATMS shall notify the Supervisor of the Event inactivity.	Phase 1	CUSTOM
5.2.2.7.1.11 Conclude an Event		
A. When the amount of time remaining for an event falls below a defined value, the ATMS shall generate an Alarm to the owning System Operator using the Create an Alarm Flow of the Manage Alarms Use Case.<See 5.1.3.1.1 Create an Alarm>	Phase 1	CUSTOM
1. The ATMS shall allow the System Administrator to define the time at which the ATMS shall generate the alarm, defined as a number of minutes remaining for the event.	Phase 1	CUSTOM
2. The Alarm shall notify the System Operators that the subject event is about to end.	Phase 1	CUSTOM
3. If there is no defined owner for the event, the Alarm shall be sent to all System Operators.	Phase 1	CUSTOM
B. If no System Operator has taken ownership of the Alarm prior to the remaining duration reaching zero, the ATMS shall terminate the event, per the Terminate Event Subflow.	Phase 1	CUSTOM
5.2.2.7.1.12 Terminate Event Subflow		
A. The ATMS shall terminate each current device control action that is associated with the event.	Phase 1	STANDARD*
B. The ATMS shall change the state of the event to closed.	Phase 1	STANDARD
5.2.2.7.2 Special Requirements		
5.2.2.7.2.1 Required Information		
5.2.2.7.2.2 Performance Requirements		
A. The ATMS shall update the position of the event icon on all System Map displays within 2 seconds of any change in location or status.	Phase 2	STANDARD
B. The ATMS shall support the definition of 100 DMS messages per event (roadwork, special event, incident, etc.)	Phase 2	STANDARD
C. The ATMS shall support 2000 events at any one time.	Phase 2	STANDARD

5.3 Publish Flow Information

Normal traffic management also includes monitoring current traffic conditions through a variety of means which may include: manual observation of raw images, automated data collection from the field, and obtaining traffic condition information from other systems. The traffic information is used by the System Operator to detect any anomalies and is also sent to the Information Service Providers so that it can be disseminated to the public-at-large and recorded in the archive.

Requirement	Phase	Standard / Custom
5.3.1 Define a Message		

The TMC is responsible for conveying information to the motoring public about current and expected conditions. This information is disseminated to the public through a variety of mechanisms, including: highway advisory radio, DMS, 511 call-in services, 511 web sites, information service providers, etc. In order for the State to maintain its credibility, the information provided through these various sources need to be timely and consistent. However, the level of detail and presentation form for each of these outlets is different. System Operators have a need to manage this complexity by creating a single Message to be disseminated. The Message will include presentations appropriate for all the various dissemination mechanisms, but is managed as a single unit. This will allow the operator to extend, modify or terminate the Message duration for all dissemination mechanisms through one act. In addition, these Messages can be saved to a library, which will allow an Operator to quickly select the Message to disseminate through all mechanisms with a high level of confidence that the information sent to the sources will be consistent with one another.		
5.3.1.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.3.1.1.1 Manage the Message Library		
A. The ATMS shall allow the System Operator to manage the Message Library.	Phase 2	CUSTOM
B. The ATMS shall allow the System Operator to add a Message to the Message Library; if the System Operator chooses this option, the ATMS shall perform the Define a Message Subflow.<See 5.3.1.1.2 Define a Message Subflow>	Phase 2	CUSTOM
C. The ATMS shall allow the System Operator to modify an existing Message in the Library. If the System Operator chooses this option, the ATMS shall perform the Select a Message Subflow.<See 5.3.1.1.3 Select a Message Subflow>	Phase 2	CUSTOM
D. The ATMS shall allow the System Operator to delete a selected Message from the Library.	Phase 2	CUSTOM
5.3.1.1.2 Define a Message Subflow		
A. The ATMS shall allow the System Operator to select (and deselect) a DMS, a set of DMS, and/or a DMS Group that are to be used to display the Message. If this Subflow was initiated as a part of managing an event, the ATMS shall identify the DMS that are within an Operator defined radius of the incident so that they are easily selectable.<See 5.4.1.3 Manage DMS Groups>	Phase 2	CUSTOM
1. The ATMS shall allow the System Operator to sort a list of all DMS by the roadway name and travel direction with which they are associated.	Phase 2	STANDARD
2. The ATMS shall allow the System Operator to select a DMS from the system map.	Phase 2	STANDARD
B. The ATMS shall suggest a message for each selected DMS based on the event type and associated information.	Phase 2	CUSTOM
C. The ATMS shall allow the System Operator to modify the information to be displayed on the selected DMS according to the Define a DMS Message Subflow of the Manage DMS Operations Use Case.<See 5.1.6.1.12 Define a DMS Message Subflow >	Phase 2	STANDARD
D. The ATMS shall allow the System Operator to immediately post the DMS messages.	Phase 2	STANDARD
E-F.N/A.	N/A	N/A
G. The ATMS shall allow the System Operator to select the agencies to be alerted to the event.	Phase 2	CUSTOM
1. The ATMS shall select all agencies that have subscribed to the information by default.	Phase 2	CUSTOM
H. The ATMS shall allow the System Operator to define the information to be distributed to the public-at-large. This ATMS shall allow this information to include:	Phase 2	CUSTOM
1. Message text	Phase 2	CUSTOM

a. The ATMS shall provide the System Operator with suggested Message Text based on the event information.		
2. An image from the display of the System Operator	Phase 2	CUSTOM
3. An image from a CCTV camera	Phase 2	CUSTOM
I. The ATMS shall allow the System Operator to define additional textual information that should only be accessible by State and other authorized personnel.	Phase 2	CUSTOM
J. The ATMS shall require that the System Operator define the priority of the Message. The priority will default to a value that is reflective of the Incident Type and Severity.	Phase 2	CUSTOM
K. The ATMS shall require that the System Operator define the duration for which the Message will be valid. The ATMS shall allow the System Operator to have the option of defining this duration by defining the number of minutes the Message is valid, by defining an end time, or linking the end of the Message with the end of the associated Event.	Phase 2	CUSTOM
L. The ATMS shall allow the System Operator to cancel the operation, in which case, the ATMS shall skip the remainder of this Flow of Events and return to the calling Flow.	Phase 2	CUSTOM
M. The ATMS shall allow the System Operator to save the Message to the Message Library by providing a unique name for the Message. If the name is already in use, the ATMS shall prompt the System Operator to verify the operation to overwrite the Message.	Phase 2	CUSTOM
5.3.1.1.3 Select a Message Subflow		
A. The ATMS shall display a list of all Messages to the System Operator.	Phase 2	CUSTOM
B. The ATMS shall allow the System Operator to search the Messages for those containing Operator entered text.	Phase 2	CUSTOM
C. The ATMS shall allow the System Operator to search for Messages based on whether they include specific device(s).	Phase 2	CUSTOM
D. The ATMS shall allow the System Operator to search for Messages based on whether they include devices within an Operator defined radius of an Operator defined location.	Phase 2	CUSTOM
E. Once an Operator has selected a Message, the ATMS shall allow the System Operator to modify the Message by performing the Define a Message Subflow using the selected Message's content to pre-populate all fields.<See 5.3.1.1.2 Define a Message Subflow>	Phase 2	CUSTOM
F. The ATMS shall allow the System Operator to create a new Message rather than selecting an existing Message by performing the Define a Message Subflow without the selection of an existing Message.<See 5.3.1.1.2 Define a Message Subflow>	Phase 2	CUSTOM
5.3.1.2 Special Requirements		
5.3.1.2.1 HAR Definition Requirements		
5.3.1.2.2 Communication Interfaces		
5.3.1.2.3 Performance Requirements		
The ATMS shall support the definition of at least 2,000 Messages.	Phase 2	CUSTOM

Requirement	Phase	Standard / Custom
5.3.2 Distribute Video Images		
The State has a large number of video cameras deployed in the field. During incidents, the images provided by these cameras can provide public safety agencies with a better feel of what is happening at the scene. Further, the public-at-large has consistently expressed interest in being able to view these images so that they can determine traffic conditions on their planned route. As such, there is a need to provide these images to a wide variety of outside entities. The State may wish to restrict access to some images that may be deemed in appropriate for public release while continuing to provide access to authorized public agencies.		

5.3.2.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.3.2.1.1 Provide Video Feed		
A. The ATMS shall provide authorized systems with the ability to obtain high-quality video output from any or all of the cameras that have not been disabled.	Phase 1	STANDARD
B. The ATMS shall provide authorized systems with the ability to control CCTV cameras.		
5.3.2.1.2 Disable Distribution of a Video Feed		
A. The ATMS shall allow a System Operator to block the distribution of one or more specific video feeds to one or more outside entities that may disseminate the images to the public. Other outside entities shall still be able to monitor and/or control the images.	Phase 2	STANDARD
B. The ATMS shall replace the selected video feed for the selected outputs with a message saying the video has been hidden when distributed to these outside entities.	Phase 2	STANDARD
5.3.2.1.3 Re-enable Distribution of Video Feed		
A. The ATMS shall allow a System Operator to allow the distribution of a specific video feed to outside entities.	Phase 2	STANDARD
B. The ATMS shall provide the subject video feed to all outside entities.	Phase 2	STANDARD
5.3.2.2 Special Requirements		
5.3.2.2.1 Communication Interfaces		
The interface shall conform to one of the major industry standards and approved by the Engineer.	Phase 2	STANDARD
5.3.2.2.2 Performance Requirements		
A. The video feed provided to the outside entities shall be at 30 frames per second.	Phase 2	STANDARD
B. The ATMS shall support providing the same number of video feeds to outside entities as there are video inputs to the ATMS.	Phase 2	CUSTOM
5.3.2.2.3 Converter Specification		
The Contractor shall provide specifications for any additional hardware and software required to convert video outputs. *The converter shall be able to convert from the 30 frames per second feed to a Windows Media Player video stream of 4 frames per second requiring no more than 40 kbps.*	Phase 2	CUSTOM

Requirement	Phase	Standard / Custom
5.3.3 Provide System Reports		
The State's management needs to be able to monitor the efficiency of TMC operations and the ATMS should support management in producing meaningful performance measures.		
5.3.3.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.3.3.1.1 Provide Standard Reports		
The ATMS shall allow the Administrator to generate any of the predefined reports.		STANDARD
5.3.3.1.2 Customize Reports		
The ATMS shall allow the Administrator to customize new predefined reports.		STANDARD
5.3.3.1.3 Customize Queries		
The ATMS shall allow the Supervisor to perform customized queries against the database.		STANDARD
5.3.3.2 Special Requirements		
5.3.3.2.1 Initial Pre-defined Reports		
The ATMS shall support the following reports		
A. Operational Performance of Traffic Network		

1. System-wide Reports		
a. System-wide Travel Speeds	Phase 1	CUSTOM
b. System-wide Travel Time	Phase 1	CUSTOM
2. N/A		
3. N/A		
4. N/A		
5. DMS Usage Reports		
a. Number of DMS Messages by Type	Phase 1	STANDARD
b. Percent time by DMS Message Type	Phase 1	CUSTOM
c. Number of Unique DMS messages	Phase 1	STANDARD
d. Number of Operator Modified Messages	Phase 1	STANDARD
6. RWIS Reports		
a. Number of Weather Stations Deployed	Phase 2	CUSTOM
b. Number of Responses Due to Weather Detection	Phase 2	CUSTOM
c. Number of Times Weather Station Saved Staff Response	Phase 2	CUSTOM
B. Maintenance Reports		
1. N/A		
2. Device Reports		
a. Number of Devices in Failure by Type	Phase 1	STANDARD
b. Device Down Time	Phase 1	CUSTOM
c. Number of Devices in System by Type	Phase 1	STANDARD
d. Number of Devices Operating	Phase 1	CUSTOM
e. Communications Reliability Report	Phase 1	CUSTOM
3. ATMS Reports		
a. System Software Module Failures	Phase 1	CUSTOM
b. System Hardware Module Failures	Phase 1	CUSTOM
c. Subsystem Software Failures	Phase 1	CUSTOM
d. Subsystem Hardware Failures	Phase 1	CUSTOM
e. System Component Down Time	Phase 1	CUSTOM
C. Event Reports		STANDARD
1. Incident Reports		STANDARD
a. Frequency of Incidents	Phase 1	CUSTOM
b. Number of Incidents	Phase 1	STANDARD
c. Number of Incidents by Type	Phase 1	STANDARD
d. Number of Incidents by Impact or Severity	Phase 1	STANDARD
e. Number of Incidents by Location	Phase 1	STANDARD
f. Number of Secondary Incidents	Phase 1	CUSTOM
g. Number of Disabled Vehicles	Phase 1	STANDARD
h. Number of Incidents Detected by Detection Source		
i. Incident Detection Time by Type	Phase 1	CUSTOM
j. Incident Verification Time	Phase 1	STANDARD
k. Incident Response Time	Phase 1	CUSTOM
l. Incident Clearance Time	Phase 1	STANDARD
m. Number of Lanes Blocked During Incident	Phase 1	STANDARD
n. Interval Response Time as Blocked Lanes are Opened	Phase 1	CUSTOM
o. Information Dissemination Time	Phase 1	CUSTOM
p. Time it Takes to Accomplish Tasks (such as time to display a message after event created)	Phase 2	CUSTOM
q. Time for Tow Truck Response	Phase 2	CUSTOM
r. Incident Timeline Report		
i. The ATMS shall allow a System Operator to generate an incident timeline report that provides a timeline of all system activity including Messages, call logs, operator notes, measures of effectiveness data, etc.	Phase 1	CUSTOM
s. Incident Details Report	Phase 1	CUSTOM
2. Roadwork Reports		
a. Number of Work Zones	Phase 1	CUSTOM
b. Number of Incidents in Work Zones	Phase 1	CUSTOM

c. Number of DOT/Contractors Injured in Work Zone	Phase 1	CUSTOM
D. FCP Operations		
1. Number of FCP Assists	Phase 1	CUSTOM
2. Number of FCP Assists by Type	Phase 1	CUSTOM
3. FCP Assist Time	Phase 1	CUSTOM
4. Number of FCP Assists by Location	Phase 1	CUSTOM
5. Number of Times FCP is First Responder	Phase 1	CUSTOM
6. Number of Incidents Cleared by FCPs	Phase 1	CUSTOM
7. Number of FCP Stops	Phase 1	CUSTOM
8. Number of FCP Tows	Phase 1	CUSTOM
E. ATMS Operation Reports		
1. Amount of Storage Required	Phase 1	CUSTOM
2. Quality of Data	Phase 1	CUSTOM
3. User Activity Report	Phase 1	STANDARD

Requirement	Phase	Standard / Custom
5.3.4 Publish Detailed Road-Weather Condition Information		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.3.5 Publish Detailed Traffic Condition Information		
The TMC needs to coordinate with planning and traffic engineering groups, both locally and statewide, to maximize the use of traffic data collection infrastructure. Planning and traffic engineering groups require traffic data with different aggregation levels (days instead of hours), higher quality (missing data is unacceptable), and vehicle classification information (not a priority for systems operations). Such differences often lead to both groups having different traffic detectors at the same location. While the use of data from ITS detectors is not as straightforward as it seems, it is a valuable resource that needs to be exploited to increase the coverage for planning and traffic engineering applications. As a result, virtually all traffic data collected by the ATMS should be published to the regional information service provider so that it can be archived and accessed by authorized users.		
5.3.5.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.3.5.1.1 Enable Publishing of Detailed Traffic Condition Information		
A. The ATMS shall allow the Systems Administrator to enable the publishing of detailed traffic condition information.	Phase 1	CUSTOM
B. The ATMS shall require the Systems Administrator to define the frequency at which the information will be published.	Phase 1	CUSTOM
C. The ATMS shall require the Systems Administrator to select the specific parameters to be published with each report.	Phase 1	CUSTOM
5.3.5.1.2 Subscribe for Detailed Traffic Condition Information		
A. The ATMS shall allow remote systems to subscribe for Detailed Traffic Condition Information.	Phase 1	CUSTOM
5.3.5.1.3 Publish Detailed Traffic Condition Information		
A. If the publishing of detailed traffic condition information has been enabled, the ATMS shall publish the detailed traffic condition information to each subscribed remote system at a frequency defined by the Systems Administrator.	Phase 1	CUSTOM
5.3.5.2 Special Requirements		
5.3.5.2.1 Protect Proprietary Data		

The ATMS shall not publish any traffic condition information that has been flagged as proprietary to any remote system that has not been identified as an internal State system.	Phase 1	CUSTOM
5.3.5.2.2 Communication Interfaces		
5.3.5.2.3 Performance Requirements		
5.3.5.2.4 Design Constraints		
A. The ATMS shall notify all authorized systems of all Lane Link data.	Phase 1	CUSTOM
B. The ATMS shall notify all authorized systems of all Roadway Link data.	Phase 1	CUSTOM
C. The ATMS shall notify all authorized systems of all Detector data.	Phase 1	CUSTOM
D. The ATMS shall send the notifications to the authorized systems at a user defined frequency ranging from zero (0) to 300 seconds in one second increments. A frequency of zero (0) shall mean that the ATMS shall transmit the data when it becomes available.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.3.6 Publish DMS Messages		
Traveler information systems and other TMCs often wish to notify their users of the messages that are currently being posted on message signs across the region. As a result, the TMC should provide this information to outside systems.		
5.3.6.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.3.6.1.1 Enable Publishing of DMS Messages		
A. The ATMS shall allow the Systems Administrator to enable the publishing of DMS message information.	Phase 1	CUSTOM
B. The ATMS shall require the Systems Administrator to define the frequency at which the information will be published.	Phase 1	CUSTOM
5.3.6.1.2 Subscribe for DMS Messages		
A. The ATMS shall allow remote systems to subscribe for DMS message information.	Phase 1	CUSTOM
5.3.6.1.3 Publish DMS Messages		
A. If the publishing of DMS message information has been enabled, the ATMS shall publish the DMS message information to each subscribed remote system at a frequency defined by the Systems Administrator.	Phase 1	CUSTOM
5.3.6.2 Special Requirements		
5.3.6.2.1 Communication Interfaces		
The ATMS shall support all mandatory and optional requirements of the "Need to Share DMS Inventory" and "Need to Share DMS Status" features of the TMDD.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.3.7 Publish Event Information		
Information about the event is of interest to many different parties. These parties include the public-at-large, State personnel that may want to review details of the event as a part of a post-analysis, university students as part of research projects, etc. Some of these users should have access to all information, while other users may have restricted access to prevent the disclosure of sensitive information. The ATMS will send **all** information about an event to the Information Service Provider when it becomes available and the event is confirmed; the Information Service Provider will be configured to determine what data will be made available to which users.		
5.3.7.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		

5.3.7.1.1 Disseminate Message Subflow		
A. The ATMS shall notify the agencies that have been selected to be notified.	Phase 1	CUSTOM
1. Each outbound Alert to each external system shall be stored by the ATMS and associated with the event.	Phase 1	CUSTOM
B. The ATMS shall perform the Add a Message Flow of the Manage DMS Operations Use Case for each of the DMS selected. If a previously added message has been removed, the ATMS shall remove the message from the prioritized list.<See 5.1.6.1.2 Add a Message >	Phase 2	STANDARD
C. The ATMS shall perform the Add a Broadcast Message Flow of the Manage HAR Operations Use Case for each HAR selected. If a previously added message has been removed, the ATMS shall remove the message from the list.<See 5.1.9.1.2 Add a Broadcast Message >	Phase 2	CUSTOM
5.3.7.1.2 Notify System Operator of End of Event Duration		
A. The ATMS shall track the estimated incident time remaining of each incident within the system.	Phase 2	STANDARD
B. The ATMS shall generate an Alarm to the System Operator per the Create an Alarm Flow of the Manage Alarms Use Case when the incident time remaining falls below a threshold defined by the System Operator.<See 5.1.3.1.1 Create an Alarm>	Phase 2	CUSTOM
C. The ATMS shall allow the System Operator to acknowledge the Alarm.	Phase 2	CUSTOM
D. Upon the System Operator acknowledging the Alarm, the ATMS shall present the System Operator the list of devices that will revert to their normal operations upon expiration of the incident.	Phase 2	CUSTOM
E. The ATMS shall prevent the Incident from expiring while the System Operator is managing the incident.	Phase 2	CUSTOM
F. The ATMS shall allow the System Operator to extend the duration of the incident.	Phase 2	CUSTOM
G. When the System Operator has accepted all edits to the incident, the ATMS shall warn the user that the incident and related device controls will terminate according to the time remaining (i.e., either immediately or within so many minutes.)	Phase 2	CUSTOM
H. The ATMS shall allow the System Operator to cancel the operation and return to editing the incident data (and thereby avoid terminating the incident).	Phase 2	STANDARD*
I. The ATMS shall allow the System Operator to accept the operation; in which case, the ATMS shall implement any changes made by the System Operator.	Phase 2	STANDARD*
5.3.7.1.3 Notify System Operator of End of Message Duration		
A. The ATMS shall track the estimated time remaining of each Message defined for each Event within the system.	Phase 2	CUSTOM
B. The ATMS shall generate an Alarm to the System Operator by performing the Create an Alarm Flow of the Manage Alarms Use Case when the Message time remaining falls below a threshold defined by the System Operator, unless the end of Message is linked to the end of the Event (in which case the Operator is notified of the end of Event).<See 5.1.3.1.1 Create an Alarm>	Phase 2	STANDARD*
C. The ATMS shall allow the System Operator to acknowledge the Alarm.	Phase 2	STANDARD*
D. Upon the System Operator acknowledging the Alarm, the ATMS shall present the System Operator the list of devices that will revert to their normal operations upon expiration of the incident.	Phase 2	STANDARD*
E. The ATMS shall allow the System Operator to extend the duration of the Message.	Phase 2	CUSTOM
F. When the System Operator has accepted all edits to the Message, the ATMS shall warn the user that the Message and related device controls will terminate according to the time remaining (i.e., either immediately or within so many minutes.)	Phase 2	CUSTOM

G. The ATMS shall allow the System Operator to cancel the operation and return to editing the Message data (and thereby avoid terminating the incident).	Phase 2	STANDARD*
H. The ATMS shall allow the System Operator to accept the operation; in which case, the ATMS shall implement any changes made by the System Operator.	Phase 2	STANDARD*
5.3.7.2 Special Requirements		
5.3.7.2.1 Communication Interfaces		
The ATMS shall support the two-way communications interface defined by the State.	Phase 1	STANDARD
5.3.7.2.2 Design Constraints		
A. The ATMS shall automatically track the following information about each Event: 1. Event Identifier 2. Linked Events (e.g., from CAD systems) 3. Name and organization of person first reporting Event 4. Name and organization of last person to update the record	Phase 1	CUSTOM
B. Basic Event Information shall include the following: 1. Event Type 2. Event Subtype 3. Event Severity 4. Event Location 5. Event Status 6. Internal Notes 7. Start Time 8. Estimated Duration	Phase 1	STANDARD
C. Enhanced Event Information shall be based on the Event Type.	Phase 1	STANDARD
D. Enhanced Event Information for vehicular crashes and accidents shall include: 1. Number of Vehicles involved 2. The type of each vehicle 3. Number of injuries 4. Number of fatalities 5. Number of lanes blocked 6. HAZMAT conditions 7. Etc.	Phase 1	STANDARD

Requirement	Phase	Standard / Custom
5.3.8 Publish Speed Limits		
Actively managing speed limits has been demonstrated to improve traffic capacity during periods of congestion and improve safety during inclement weather. The State is interested in using this technology to better manage the transportation network.		
5.3.8.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.3.8.1.1 Publish Speed Limits		
A. The ATMS shall post the current speed limit for each variable speed limit site on the variable speed limit sign associated with the site.	Phase 1	CUSTOM
B. The ATMS shall provide the current speed limits for all variable speed limit sites to any authorized external system or user requesting this information.	Phase 1	CUSTOM
C. The ATMS shall continually monitor each variable speed limit sign to ensure that the sign is reporting that is properly displaying the current speed limit.	Phase 1	CUSTOM
1. If the sign indicates that the speed limit is not being properly displayed, the ATMS shall generate an Alarm to the System Operator.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.3.9 Publish Toll Information		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.3.10 Publish Travel Times		
The State needs to inform the pubic of the current travel times so that they can make appropriate travel decisions before and during their trips. In some cases, there may be a need to display travel times for different modes, such as mixed flow lanes, HOT lanes, and transit. To provide this service, the ATMS will need to automatically determine current travel times and publish this information on message signs and to regional information clearing houses, which will subsequently post the information to other sources such as 511. If certain roadways are closed, this information should also be published.		
5.3.10.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.3.10.1.1 Enable Publishing of Travel Times		
A. The ATMS shall allow the Systems Administrator to enable the publishing of travel times.	Phase 1	CUSTOM
B. The ATMS shall require the Systems Administrator to define the frequency at which the information will be published.	Phase 1	CUSTOM
5.3.10.1.2 Subscribe for Travel Times		
A. The ATMS shall allow remote systems to subscribe for travel times.	Phase 1	CUSTOM
5.3.10.1.3 Publish Travel Times		
A. If the publishing of travel times has been enabled, the ATMS shall publish the travel times for each link defined within the ATMS for which the information is known to each subscribed remote system at a frequency defined by the Systems Administrator.	Phase 1	CUSTOM
5.3.10.1.4 Enable DMS Travel Time Message		
A. The ATMS shall allow the System Operator to select a DMS.	Phase 1	STANDARD*
B. The ATMS shall allow the System Operator to associate a Travel Time message for the selected DMS by performing the Define a DMS Message Subflow of the Manage DMS Operations Use Case.<See 5.1.6.1.12 Define a DMS Message Subflow >	Phase 1	STANDARD*
C. The ATMS shall require the System Operator to specify the priority of the message, up to the highest priority allowed for the given System Operator.	Phase 1	STANDARD*
D. The ATMS shall perform the Add a Message Flow of the Manage DMS Operations Use Case for this message with the indicated priority and an infinite duration.<See 5.1.6.1.2 Add a Message >	Phase 1	STANDARD*
5.3.10.1.5 Disable DMS Travel Time Message		
A. The ATMS shall allow the System Operator to select a DMS.	Phase 1	STANDARD*
B. If the DMS has a travel time message enabled, the ATMS shall allow the System Operator to disable the travel time message for the sign.	Phase 1	STANDARD*
5.3.10.2 Special Requirements		
5.3.10.2.1 Protect Proprietary Data		
The ATMS shall not publish any travel times that have been flagged as proprietary to any remote system that has not been identified as an internal State system.	Phase 1	CUSTOM

5.4 Manage Infrastructure

The TMC also has a significant role in the management of the State's infrastructure, as shown in the following figure and discussed in the subsequent clauses.

5.4.1 Manage Infrastructure Administration

To manage the regional infrastructure, the System Administrator needs to be able to configure the system to recognize the attached equipment and authorized users and systems.

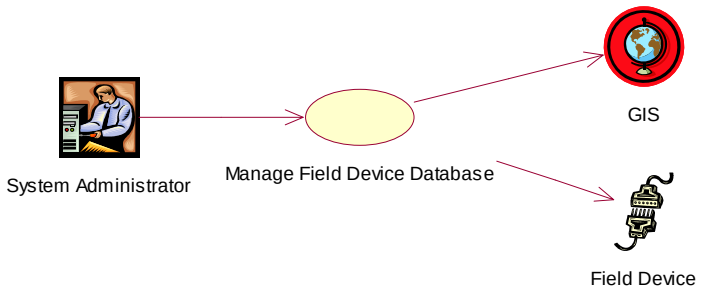
Requirement	Phase	Standard / Custom
5.4.1.1 Diagnose Communication Problems		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.4.1.2 Manage CCTV Camera Field of View Restrictions		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.4.1.3 Manage DMS Groups		
System Operators need to be able to quickly select signs on which to display information. Rather than having to select each sign individually, the system should allow the definition of DMS Groups that users can reference as a single unit.		
5.4.1.3.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.1.3.1.1 Create a New DMS Group		
A. The ATMS shall allow a System Administrator to create a new DMS Group definition.	Phase 1	CUSTOM
B. The ATMS shall require the System Administrator to provide a name for the DMS Group.	Phase 1	CUSTOM
C. The ATMS shall ensure that the name provided for the DMS Group is unique among all currently defined DMS Groups.	Phase 1	CUSTOM
D. The ATMS shall perform the Edit a DMS Group Subflow.<See 5.4.1.3.1.3 Edit a DMS Group Subflow>	Phase 1	CUSTOM
5.4.1.3.1.2 Modify an Existing DMS Group		
A. The ATMS shall allow a System Administrator to select to modify an existing DMS Group.	Phase 1	CUSTOM
B. The ATMS shall perform the Edit a DMS Group Subflow.<See 5.4.1.3.1.3 Edit a DMS Group Subflow>	Phase 1	CUSTOM
5.4.1.3.1.3 Edit a DMS Group Subflow		
A. The ATMS shall allow the System Administrator to select one or more DMS to be included in the DMS Group.	Phase 1	CUSTOM
1. Selecting a DMS for inclusion in one group shall not cause it to be removed from any other DMS Group. In other words, a given DMS may be a part of multiple DMS Groups.	Phase 1	CUSTOM
B. The ATMS shall allow the System Administrator to remove any or all of the selected DMS from the DMS Group.	Phase 1	CUSTOM
5.4.1.3.1.4 Delete a DMS Group		
A. The ATMS shall allow a System Administrator to delete an existing DMS Group definition.	Phase 1	CUSTOM
5.4.1.3.2 Special Requirements		
5.4.1.3.2.1 Performance Requirements		
The ATMS shall support the definition of up to 100 DMS Groups.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.4.1.4 Manage Field Device Database		
The inventory of equipment controlled by the ATMS is constantly changing. Existing devices may be temporarily turned off, replaced, or removed and new devices may be added as a part of construction projects. The System Administrator needs to be able to reflect these changes in the database and on the system map with a minimal amount of effort. In addition, this database needs to be coordinated with other efforts within the state to maintain an accurate record of field devices and their status (e.g., other centers, the maintenance database, the 511 system, and GIS system).		
5.4.1.4.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.1.4.1.1 Add a Device		
A. The ATMS shall allow the System Administrator to select an option to add a device to the system, including pads for portable devices.	Phase 1	STANDARD
B. The ATMS shall prompt the user for the device information (see Domain Model).	Phase 1	STANDARD
C. The ATMS shall validate the information entered.	Phase 1	STANDARD
D. If the validation fails, the ATMS shall notify the System Administrator and return to Step B.	Phase 1	STANDARD
E. If the device is set to enabled, the ATMS shall attempt to communicate with the device.	Phase 1	STANDARD
F. If the communication fails, the ATMS shall notify the System Administrator and allow the Administrator to either return to Step B or to proceed.	Phase 1	STANDARD
G. The ATMS shall store the device information.	Phase 1	STANDARD
H. If the device is set to enabled, the ATMS shall make it immediately available to any other subsystem. For example, this will allow device polling to start, if it is enabled for the defined device type.	Phase 1	STANDARD
I. The ATMS shall notify the GIS of the addition of the new device.	Phase 1	STANDARD
J. The ATMS shall display the system map, zoomed in to the location where the device was added.	Phase 1	STANDARD
K. The ATMS shall notify the System Administrator whether any problems occurred during the use case.	Phase 1	STANDARD
5.4.1.4.1.2 Delete a Device		
A. The ATMS shall allow the System Administrator to select any one or more device(s) defined in the system.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to select an option to delete the device(s) from the system.	Phase 1	STANDARD
C. The ATMS shall prompt the user either verify or cancel the action.	Phase 1	STANDARD
D. If the System Administrator cancels the action, the use case shall terminate.	Phase 1	STANDARD
E. The ATMS shall delete the device(s) from its database along with all static data about the device.	Phase 1	STANDARD
F. The ATMS shall retain any data that is to be archived until it is successfully archived.	Phase 1	STANDARD
G. The ATMS shall notify the GIS of the deletion of the device(s).	Phase 1	STANDARD
H. The ATMS shall notify the System Administrator whether any problems occurred during the use case.	Phase 1	STANDARD
5.4.1.4.1.3 Modify a Device		
A. The ATMS shall allow the System Administrator to select any device defined in the system.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to select an option to modify the configuration of the device in the system.	Phase 1	STANDARD

C. The ATMS shall proceed to Step B of the Add a Device flow of events for the device, but will also fill out the form of device information with the device's current values as defined in the ATMS database.<See 5.4.1.4.1.1 Add a Device>	Phase 1	STANDARD
5.4.1.4.1.4 Update List of Remote Devices		
A. The ATMS shall update its database to include devices supported by all connected remote TMCs on at least a daily basis.	Phase 2	CUSTOM
5.4.1.4.1.5 Set Device Off-line		
A. The ATMS shall allow the System Administrator to select any device or groups of devices.	Phase 1	CUSTOM
B. The ATMS shall allow the System Administrator to set the devices to an off-line status.	Phase 1	STANDARD
C. The ATMS shall prompt the System Administrator to verify the action to set the devices to an off-line status.	Phase 1	STANDARD
D. If the System Administrator cancels the operation, the ATMS shall exit this use case.	Phase 1	STANDARD
E. The ATMS shall set the devices to an off-line status, which will prevent any further communications with them until they are brought back on-line.	Phase 1	STANDARD
F. The ATMS shall not notify System Operators of any communication problems with devices that are off-line.	Phase 1	STANDARD
5.4.1.4.1.6 Set Device On-line		
A. The ATMS shall allow the System Administrator to select any device or groups of devices.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to set the devices to an on-line status.	Phase 1	STANDARD
C. The ATMS shall prompt the System Administrator to verify the action to set the devices to an on-line status.	Phase 1	STANDARD
D. If the System Administrator cancels the operation, the ATMS shall exit this use case.	Phase 1	STANDARD
E. The ATMS shall restore the communication status of the device(s) to a normal mode and reset any previous communications error.	Phase 1	STANDARD
F. The ATMS shall set the devices to an on-line status, which will allow requests and commands to be sent to the device.	Phase 1	STANDARD
5.4.1.4.1.7 Configure Device Subsystem Parameters		
5.4.1.4.1.8 Manage List of Device Types		
5.4.1.4.1.9 Manage Device Subtypes		
5.4.1.4.2 Special Requirements		
5.4.1.4.2.1 Communication Interfaces		
5.4.1.4.2.2 Design Constraints		
The ATMS shall support the following device types:		
A. CCTV camera	Phase 1	STANDARD
B. Dynamic message sign	Phase 1	STANDARD
C. Highway advisory radio	Phase 2	STANDARD
D. Variable Speed Sign	Phase 1	CUSTOM
E. Vehicle detector station	Phase 1	STANDARD
F. Video switch	Phase 1	STANDARD
G. Weather station	Phase 2	STANDARD
5.4.1.4.2.3 Base Domain Model		
The ATMS shall store the following information about each device:		
A. Type of device	Phase 1	STANDARD
B. Whether the device is portable	Phase 1	STANDARD
C. The location of the device, if it is not portable or if it is portable without GPS capabilities	Phase 1	STANDARD
D. Unique ID for the device	Phase 1	STANDARD
E. Internal textual name for the device, as used by System Operators	Phase 1	STANDARD
F. Public textual name for the device, as used by external systems and the public	Phase 1	STANDARD
G-K. N/A	N/A	N/A

L. The device set of which the device is a member (i.e., used to command a group of devices to the same state)	Phase 1	CUSTOM
M. Communication profile information as appropriate for the protocols (e.g., IP Address, PMPP information, etc)	Phase 1	STANDARD
N. The device identifier of the controller for the device, if monitored/controlled indirectly	Phase 1	STANDARD
O. The device identifier for the associated field cabinet	Phase 1	STANDARD
P. Retry interval for any message that does not receive an expected response	Phase 1	CUSTOM
Q. Maximum retries for any message	Phase 1	CUSTOM
R. Any additional information as defined for the device type (See the Manage <Device Type> Use Case Specification under Manage Traffic)	Phase 1	STANDARD
S. Any other information necessary to enable the device within the system	Phase 1	STANDARD
5.4.1.4.2.4 Portable Devices		
The ATMS shall allow devices to be defined as stationary, portable with GPS capabilities, or portable without GPS capabilities.	Phase 1	STANDARD*
5.4.1.4.3 Preconditions		
5.4.1.4.4 Postconditions		
5.4.1.4.5 Extension Points		
5.4.1.4.6 Diagrams		
		

Requirement	Phase	Standard / Custom
5.4.1.5 Manage List of Contacts		
N/A	N/A	N/A

Requirement	Phase	Standard / Custom
5.4.1.6 Manage Road Network		
The system administrator needs to be able to add, modify, close, and delete roads from the system configuration.		
5.4.1.6.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.1.6.1.1 Synchronize Road Network with Regional GIS		
A. The ATMS shall allow the System Administrator to command the ATMS to synchronize its roadway network with the regional GIS.	Phase 1	STANDARD*
5.4.1.6.1.2 Add a Roadway Segment		
A. The ATMS shall allow the System Administrator to add a roadway segment to the roadway network.	Phase 1	CUSTOM
B. The ATMS shall alert the System Administrator to any roadway Links that were affected by the change.	Phase 1	CUSTOM
5.4.1.6.1.3 Delete a Roadway Segment		
A. The ATMS shall allow the System Administrator to delete a roadway segment from the roadway network.	Phase 1	CUSTOM

B. The ATMS shall alert the System Administrator to any roadway Links that were affected by the deletion.	Phase 1	CUSTOM
5.4.1.6.1.4 Edit Roadway Segment Details		
A. The ATMS shall allow the System Administrator to define/edit the lane configuration and vehicle restriction information for a selected roadway segment.	Phase 1	CUSTOM
5.4.1.6.1.5 Define Nodes		
A. The ATMS shall allow the System Administrator to define Nodes on the Roadway Network. Nodes may be defined at any point on a Roadway Segment, including the end point.	Phase 1	STANDARD*
B. The ATMS shall create Lane Links based on the defined Nodes.	Phase 1	
5.4.1.6.1.6 Define a Roadway Link		
A. The ATMS shall allow a System Administrator to define Roadway Links on the Roadway Network. Links may be defined as a connection between any two defined nodes.	Phase 1	CUSTOM
5.4.1.6.1.7 Delete Roadway Link Definitions		
A. The ATMS shall allow a Systems Administrator to delete the definition of a Roadway Link.	Phase 1	CUSTOM
5.4.1.6.1.8 Associate Detectors to a Link		
A. The ATMS shall allow a System Administrator to associate a vehicle detector with a Roadway Link.	Phase 1	STANDARD*
5.4.1.6.1.9 Disassociate Detectors		
A. The ATMS shall allow a Systems Administrator to dissociate a vehicle detector from a Roadway Link.	Phase 1	STANDARD*
5.4.1.6.2 Special Requirements		
5.4.1.6.2.1 Communication Interfaces		
5.4.1.6.2.2 Performance Requirements		
The ATMS shall support the number of roadway links as required by the project.	Phase 1	CUSTOM
5.4.1.6.2.3 Design Constraints		
A. The ATMS shall allow links to be associated with any number of detectors.	Phase 1	CUSTOM
B. The ATMS shall allow links to be associated with detectors that are connected to different field controllers (and are therefore polled separately).	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.4.1.7 Manage User Access		
The State needs to ensure that access to the ATMS is tightly controlled. Access by all personnel should be tracked and managed to ensure the system stays secure.		
5.4.1.7.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.1.7.1.1 Login		
A. The ATMS shall require that any user requesting access to the system provide a user name and password.	Phase 1	STANDARD
B. If the user name and password do not form a valid pair, the ATMS shall deny access to the system and provide an error message to the user.	Phase 1	STANDARD
C. If the user name and password form a valid pair, the ATMS shall grant the user access to the system with the rights defined for the specified user account.	Phase 1	STANDARD
D. The ATMS shall log the access attempt and whether it was successful.	Phase 1	STANDARD
5.4.1.7.1.2 Log-out		
A. The ATMS shall allow a user to log-out.	Phase 1	STANDARD
B. For each event that the user owns, the ATMS shall perform the Transfer an Incident Flow of the Update Event Information Use Case.	Phase 1	CUSTOM

C. The ATMS shall log that the user has logged-out of the ATMS.	Phase 1	STANDARD
5.4.1.7.1.3 Automatic Log-out		
A. If the user's input devices are idle for a time defined by the System Administrator, the ATMS shall automatically log out the user.	Phase 1	CUSTOM
B. The ATMS shall automatically transfer the ownership of any events owned by the user to the Supervisor.	Phase 1	CUSTOM
C. The ATMS shall log that the user has logged out of the ATMS.	Phase 1	STANDARD
5.4.1.7.1.4 Remote Disconnect		
5.4.1.7.2 Special Requirements		
5.4.1.7.2.1 Design Constraints		
A. The ATMS Client shall encrypt the user name when transmitted over any public Internet connection.	Phase 1	STANDARD
B. The ATMS Client shall always encrypt the transmitted password, regardless of the connection type.	Phase 1	STANDARD

Requirement	Phase	Standard / Custom
5.4.1.8 Manage Users		
TMC staff changes over time and some personnel may be promoted or reassigned. The ATMS shall allow the system administrator to manage the list of authorized users and their access privileges.		
5.4.1.8.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.1.8.1.1 Add a User		
A. The ATMS shall allow the System Administrator to add a new user to the system.	Phase 1	STANDARD
B. The ATMS shall obtain information about the new user from the System Administrator, including the name, user name, and access rights for the new user.	Phase 1	STANDARD
C. If the System Administrator cancels the operation, the ATMS shall exit this use case.	Phase 1	STANDARD
D. The ATMS shall create the new user accounts with the supplied settings and shall set the initial password to the user name.	Phase 1	STANDARD
E. The ATMS shall log the creation of the new user account along with the defined settings.	Phase 1	STANDARD
F. When the new user logs in for the first time, the ATMS shall require that the user change the default password before completing the login process.	Phase 1	CUSTOM
5.4.1.8.1.2 Disable a User Account		
A. The ATMS shall allow the System Administrator to select any user account(s).	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to disable the user account(s).	Phase 1	STANDARD
C. The ATMS shall prompt the System Administrator to verify the action of disabling the user account(s).	Phase 1	STANDARD
D. If the System Administrator cancels the action, the ATMS shall exit this use case.	Phase 1	STANDARD
E. The ATMS shall disable the user account such that any future attempt to log in with the account will be denied until the account is re-enabled.	Phase 1	STANDARD
1. If the user is logged in when the account is disabled, the ATMS shall immediately terminate the user's session.	Phase 1	STANDARD
F. The ATMS shall log that the user account has been disabled.	Phase 1	STANDARD
5.4.1.8.1.3 Modify a User		
A. The ATMS shall allow the System Administrator to select any user account.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to modify the user account.	Phase 1	STANDARD

C. The ATMS shall allow the System Administrator to change any of the access rights for the user account.	Phase 1	STANDARD
D. The ATMS shall prompt the user to verify the change in the user settings.	Phase 1	STANDARD
E. If the System Administrator cancels the action, the ATMS shall exit this use case.	Phase 1	STANDARD
F. The ATMS shall apply the changes and log the changes in the system log.	Phase 1	STANDARD
5.4.1.8.1.4 Add a User Group		
A. The ATMS shall allow the System Administrator to define a new user group.	Phase 2	STANDARD
B. The ATMS shall allow the System Administrator to define access rights for the user group.	Phase 2	STANDARD
C. The ATMS shall allow the System Administrator to assign users and user groups to the user group.	Phase 2	STANDARD
D. The ATMS shall prompt the System Administrator to verify the settings.	Phase 2	STANDARD
E. If the System Administrator cancels this action, the ATMS shall exit this use case.	Phase 2	STANDARD
F. The ATMS shall create the new user group and assign the specified users to be members of the user group, which will grant all users in the user group with the specified user group access privileges as a minimum.	Phase 2	STANDARD
5.4.1.8.1.5 Modify a User Group		
A. The ATMS shall allow the System Administrator to modify a user group.	Phase 2	STANDARD
B. The ATMS shall allow the System Administrator to modify the access rights for the user group.	Phase 2	STANDARD
C. The ATMS shall allow the System Administrator to modify the list of users and user groups assigned to the user group.	Phase 2	STANDARD
D. The ATMS shall prompt the System Administrator to verify the changes.	Phase 2	STANDARD
E. If the System Administrator cancels this action, the ATMS shall exit this use case.	Phase 2	STANDARD
F. The ATMS shall implement the requested changes.	Phase 2	STANDARD
5.4.1.8.1.6 Delete a User Group		
A. The ATMS shall allow the System Administrator to delete a user group.	Phase 2	STANDARD
B. The ATMS shall prompt the System Administrator to verify the deletion.	Phase 2	STANDARD
C. If the System Administrator cancels this action, the ATMS shall exit this use case.	Phase 2	STANDARD
D. The ATMS shall delete the specified user group; all users and user groups of the group shall be removed from the group but shall retain any other access rights that they have been assigned.	Phase 2	STANDARD
5.4.1.8.2 Special Requirements		
5.4.1.8.2.1 Initial Configuration		
The ATMS shall initially be configured with the following user groups:		
A. Guest - The Guest user group shall be restricted to read-only access for common features; it shall not have any access to administrative features.	Phase 1	STANDARD
B. System Operator - The System Operator user group shall have read-write access for common features.	Phase 1	STANDARD
C. System Administrator - The System Administrator user group shall have read-write access for common features and for administrative features.	Phase 1	STANDARD
5.4.1.8.2.2 Performance Requirements		
A. ATMS shall support up to 100 enabled user accounts and up to 10,000 total user accounts.	Phase 1	STANDARD

Requirement	Phase	Standard / Custom
5.4.1.9 Monitor System Performance		
The system should record all operational information so that managers can review the performance of the system and overall TMC operations. Information that should be logged includes: electronic data exchanges with other systems, FCP activities, control of all devices, etc.		
5.4.1.9.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.1.9.1.1 Monitor TMC System Components		
A. The ATMS shall monitor the status of each subsystem of the ATMS.	Phase 1	STANDARD
B. The ATMS shall issue an Alarm to the System Operator upon the detection of any subsystem failure.	Phase 1	CUSTOM
5.4.1.9.1.2 Declare Component Failure		
A. The ATMS shall allow the System Operator to declare that a subsystem has failed.	Phase 1	CUSTOM
B. The ATMS shall stop the subject subsystem.	Phase 1	CUSTOM
C. The ATMS shall not restart the subject subsystem until the System Operator changes its state to working.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.4.1.10 Perform ATMS Maintenance		
Large complex databases that are required to operate 24 hours a day, every day, generally require periodic maintenance to ensure proper database performance. The ATMS should be designed to allow this maintenance to be performed during off-peak periods with minimal impact to operations.		
5.4.1.10.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.1.10.1.1 Basic Flow of Events		
The flow of this use case shall be defined by the System Integrator.	Phase 1	STANDARD
5.4.1.10.2 Special Requirements		
5.4.1.10.2.1 Design Constraints		
The design shall be approved by the Engineer.	Phase 1	STANDARD

Requirement	Phase	Standard / Custom
5.4.1.11 Perform System Recovery		
The State needs to be able to recover from system crashes as soon as possible; thus, the system acquired should have a defined recovery plan that can be performed with a minimum amount of time. This plan should define the resources (e.g., personnel, spare parts, etc.) that need to be readily available to respond to such events.		
5.4.1.11.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.1.11.1.1 Basic Flow of Events		
The Developer shall define the process required to perform a system recovery.	Phase 1	STANDARD
5.4.1.11.2 Special Requirements		
5.4.1.11.2.1 Design Constraints		
The process shall be approved by the Engineer.	Phase 1	STANDARD

5.4.2 Operate Infrastructure

Once the ATMS is configured, the System Operator is responsible for managing the operation of the infrastructure.

Requirement	Phase	Standard / Custom
5.4.2.1 Monitor Devices		
The TMC is responsible for the proper operation of all devices within its region. To ensure that devices are properly operating and secured, the ATMS should constantly monitor all field devices and create a log entry any time unexpected conditions are detected. System Operators should be able to determine the status of any field device through an interactive map depicting each item at its field location. Key information that should be available from such a display includes device health (e.g., communication status), device state (e.g., the message currently on the sign), and affected areas (e.g., broadcast area for an HAR).		
5.4.2.1.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.2.1.1.1 Monitor Devices on the Map		
A. The ATMS shall allow the System Operator to display devices on the system map by their device type.	Phase 1	STANDARD
B. The ATMS shall display all devices of the selected type(s) on the system map.	Phase 1	STANDARD
C. The ATMS shall prevent all devices of other types from displaying on the map.	Phase 1	STANDARD
D. The icons used to display each device shall concisely convey the following information:	Phase 1	STANDARD
1. The device type	Phase 1	STANDARD
2. The communications status of the device as either normal, error, failed, or not currently polled	Phase 1	STANDARD
3. The operational status of the device as either normal/expected or error/unexpected.	Phase 1	STANDARD
E. When displaying HAR transmitters, an approximate reception area of an operator-specified distance shall be shown on the map.	Phase 2	STANDARD*
5.4.2.1.1.2 Monitor Device List		
A. The ATMS shall allow the System Operator to display a list of all devices.	Phase 1	STANDARD
B. For each piece of equipment, the ATMS shall display summary information about the device.	Phase 1	STANDARD
C. The ATMS shall allow the System Operator to filter the list by any of the attributes shown.	Phase 1	CUSTOM
D. The ATMS shall allow the System Operator to sort the list by any of the attributes shown.	Phase 1	STANDARD
E. The ATMS shall allow the System Operator to select any listed device to view all detailed information stored about the device.	Phase 1	STANDARD
5.4.2.1.1.3 Monitor Device Details		
A. The ATMS shall allow the System Operator to select a device.	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to display detailed information about the device.	Phase 1	STANDARD
C. The ATMS shall display the detailed information about the device, including:	Phase 1	STANDARD
1. The static information stored for the device.	Phase 1	STANDARD
2. The communications status of the device (e.g.,, normal, error, failed, off-line)	Phase 1	STANDARD
3. The detailed operational status of the device (e.g., whether the operation is as expected, the details about any errors that are being reported by the device, the time of the last communications, etc.)	Phase 1	STANDARD
4. Details about the device operation (e.g., the message displayed on the sign, the count data provided by a vehicle detector, etc.)	Phase 1	STANDARD
5. The date and time at which the device was last polled.	Phase 1	CUSTOM
D. The ATMS shall allow the System Operator to command the ATMS to immediately refresh this information.	Phase 1	CUSTOM

E. If the System Operator requests the information to be refreshed, the ATMS will immediately poll the device for all displayed information and will display the results to the System Operator.	Phase 1	CUSTOM
5.4.2.1.1.4 Activate Monitoring of Device Information		
A. The ATMS shall allow the System Administrator to activate the monitoring of any or all device type groups.	Phase 1	STANDARD
B. For each device that has been enabled for monitoring and is part of a device type group that has been activated, the ATMS shall continuously monitor the number of rejected requests and whether the cabinet door is open (if available) and the device-type specific information as defined by the Manage <Subject Device> Operations Use Case. NOTE: In other words, monitoring of the specific device must be enabled and monitoring of the device type group must be activated for this clause to apply to a given device. If it applies, the monitoring requirements apply to both the number of rejected requests and to any additional information that has been defined for the device type.<See 5.1.4 Manage CCTV Operations><See 5.1.6 Manage DMS Operations><See 5.1.5 Manage Composite Device Operations><See 5.1.7 Manage Environmental Sensor Station Operations><See 5.1.8 Manage Gate Operations><See 5.1.9 Manage HAR Operations><See 5.1.10 Manage Lane Control Signal Operations><See 5.1.11 Manage Ramp Meter Operations><See 5.1.13 Manage Vehicle Detector Operations>	Phase 1	CUSTOM
C. The design of the monitoring process shall ensure that the ATMS will become aware of any changes in status, including any changes of the device-type specific information, within a time period defined by the device's Polling Cycle.	Phase 1	STANDARD
D. The ATMS shall issue an alarm if the number of requests rejected by the device changes.	Phase 1	CUSTOM
E. The ATMS shall issue an alarm is any of the monitored information indicates a device malfunction.	Phase 1	STANDARD
5.4.2.1.1.5 De-activate Monitoring of Device Information		
A. The ATMS shall allow the System Administrator to de-activate the monitoring of any or all device type groups.	Phase 1	STANDARD
5.4.2.1.1.6 Enable a Device		
A. The ATMS shall allow the System Administrator to select any one or more device(s) defined in the system.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to select an option to enable the device(s) in the system.	Phase 1	STANDARD
C. The ATMS shall prompt the user either verify or cancel the action.	Phase 1	STANDARD
D. If the System Administrator cancels the action, the use case shall terminate.	Phase 1	STANDARD
E. The ATMS shall enable the device and make it immediately available for monitoring operations.	Phase 1	STANDARD
F. The ATMS shall notify the GIS of the on-line status of the device(s).	Phase 1	STANDARD
G. The ATMS shall notify the System Administrator whether any problems occurred during the use case.	Phase 1	STANDARD
5.4.2.1.1.7 Disable a Device		
A. The ATMS shall allow the System Administrator to select any one or more device(s) defined in the system.	Phase 1	STANDARD
B. The ATMS shall allow the System Administrator to select an option to disable monitoring of the selected device(s) (e.g., due to communications cost).	Phase 1	STANDARD
C. The ATMS shall prompt the user either verify or cancel the action.	Phase 1	STANDARD
D. If the System Administrator cancels the action, the use case shall terminate.	Phase 1	STANDARD

E. The ATMS shall disable the device(s), thereby preventing the ATMS from performing the monitoring task on the device(s). NOTE: The device would still be on-line, and thus diagnostic commands could still be sent to the device.	Phase 1	STANDARD
F. The ATMS shall notify the GIS of the off-line status of the device(s).	Phase 1	STANDARD
G. The ATMS shall notify the System Administrator whether any problems occurred during the use case.	Phase 1	STANDARD
5.4.2.1.1.8 Detect Failed Communication Attempts		
This use case is initiated any time the ATMS issues a request or command to a device and expects a response.		
A. If the device responds to the request/command and the device was previously communicating normally, the ATMS shall exit this use case.	Phase 1	STANDARD
B. If the device responds to the request/command and the device was previously flagged as having a communications error, the ATMS shall log the recovery, change the icon of the device to reflect the on-line status and shall then exit this use case.	Phase 1	STANDARD
C. If the device responds to the request/command and the device was previously flagged as having a communications failure, the ATMS shall log the restoration of communications, shall change the icon of the device to reflect the on-line status and shall then exit this use case.	Phase 1	STANDARD
D. If the device fails to respond, the ATMS shall log the failure in the system log and shall re-issue the request/command at the System Administrator defined retry interval until the reaching a maximum number of retries as defined by the System Administrator.	Phase 1	STANDARD
E. If the device fails to respond after reaching the maximum retries and the device was previously communicating normally, the ATMS shall log the failure, shall issue an Alarm that the device has experienced a communications error, and shall change the icon of the device to reflect this status.	Phase 1	CUSTOM
F. If the device fails to respond after reaching the maximum retries and the device was previously flagged as having a communications error, the ATMS shall log the failure, shall issue an Alarm that the device has failed communications, and shall change the icon of the device to reflect this status.	Phase 1	CUSTOM
G. The ATMS shall log the communications status of all devices at least once per day.	Phase 1	STANDARD
5.4.2.1.1.9 Declare a Device as Failed		
A. The ATMS shall allow a System Operator to declare a device as failed.	Phase 1	CUSTOM
B. The ATMS shall not change the status of the device until changed by a System Operator.	Phase 1	CUSTOM
5.4.2.1.1.10 Identify Failed Communication Link		
A. The ATMS shall automatically detect if a communications link fails (e.g., if communications to all devices on the link fails).	Phase 1	STANDARD
B. The ATMS shall issue an Alarm to the System Operator of the failure.	Phase 1	CUSTOM
5.4.2.1.1.11 Declare Communication Link as Failed		
A. The ATMS shall allow a System Operator to declare a communications link as failed.	Phase 1	CUSTOM
B. The ATMS shall keep the communications link in the failed state until changed by a System Operator.	Phase 1	CUSTOM
5.4.2.1.1.12 View Device Status Log		
A. The ATMS shall allow a System Operator to select a device.	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to view a log indicating the status of the device over time as recorded by the ATMS and any events related to the device.	Phase 1	STANDARD
5.4.2.1.2 Special Requirements		
5.4.2.1.2.1 Device Domain Model Information		
5.4.2.1.2.2 Design Constraints		

A. The ATMS shall use a polling process, an exception reporting process, or a combination of the two to obtain this information.	Phase 1	STANDARD
B. If the ATMS uses an exception reporting process and a device has not reported any information for a period exceeding the device's Maximum Exception Reporting Period, the ATMS shall poll the device for the information.	Phase 1	CUSTOM
5.4.2.1.3 Preconditions		
5.4.2.1.4 Postconditions		
5.4.2.1.5 Extension Points		
Most implementations of this use case will extend the Activate Monitoring of Device Information Flow of Events to include the monitoring of additional information and conditional generation of additional alarms.		

Requirement	Phase	Standard / Custom
5.4.2.2 Monitor Events		
As a part of their normal operations, an operator should be able to determine the status of and information related to any incident through an interactive map depicting each item at its field location.		
5.4.2.2.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.2.2.1.1 Monitor Events on the Map		
A. The ATMS shall allow the System Operator to independently view or hide events on his/her display of the system map by the type and status of the event.	Phase 1	CUSTOM
1 The ATMS shall allow the System Operator to display unverified incidents.	Phase 1	STANDARD
2 The ATMS shall allow the System Operator to display open, verified incidents.	Phase 1	STANDARD
3 The ATMS shall allow the System Operator to display incidents declared to be false alarms.	Phase 1	STANDARD
4 The ATMS shall allow the System Operator to display closed incidents.	Phase 1	STANDARD
5 The ATMS shall allow the System Operator to display active road work events.	Phase 1	STANDARD
6 The ATMS shall allow the System Operator to display scheduled road work events.	Phase 1	STANDARD
7 The ATMS shall allow the System Operator to display closed road work events.	Phase 1	STANDARD
8 The ATMS shall allow the System Operator to display active special events.	Phase 1	STANDARD
9 The ATMS shall allow the System Operator to display scheduled special events.	Phase 1	STANDARD
10 The ATMS shall allow the System Operator to display closed special events.	Phase 1	STANDARD
11 The ATMS shall allow the System Operator to display active weather events.	Phase 1	CUSTOM
12 The ATMS shall allow the System Operator to display scheduled weather events.	Phase 1	CUSTOM
13 The ATMS shall allow the System Operator to display closed weather events.	Phase 1	CUSTOM
14 The ATMS shall allow the System Operator to display active Amber alert events.	Phase 1	STANDARD*
15 The ATMS shall allow the System Operator to display closed Amber alert events.	Phase 1	STANDARD*
16 The ATMS shall allow the System Operator to display active air quality events.	Phase 1	CUSTOM

17 The ATMS shall allow the System Operator to display scheduled air quality events.	Phase 1	CUSTOM
18 The ATMS shall allow the System Operator to display closed air quality events.	Phase 1	CUSTOM
19 The ATMS shall allow the System Operator to display active DHS events.	Phase 1	STANDARD
20 The ATMS shall allow the System Operator to display closed DHS events.	Phase 1	STANDARD
21 The ATMS shall allow the System Operator to display events that have been split.	Phase 1	CUSTOM
22 The ATMS shall allow the System Operator to display merged events.	Phase 1	CUSTOM
B. The ATMS shall prevent the display of any events not meeting the type and status criteria selected.	Phase 1	CUSTOM
C. The ATMS shall display the selected events on the map depicted in the reported location and side of the road, based on direction of travel.	Phase 1	STANDARD
D. The icons used to display each event shall concisely convey the following information about the event:	Phase 1	STANDARD
1. The event type	Phase 1	STANDARD
2. The status of the event as unverified, verified, or rejected.	Phase 1	STANDARD
3. The status of the event as scheduled, active, closed, etc.	Phase 1	STANDARD
4. The severity of the event	Phase 1	STANDARD
5. Whether any lanes are blocked or closed	Phase 1	STANDARD
6. Whether a System Operator has taken ownership of the event	Phase 1	CUSTOM
7. Whether there are outstanding Alarms regarding the incidents	Phase 1	CUSTOM
5.4.2.2.1.2 Hide Incidents from Map Display		
A. The ATMS shall allow the System Operator to hide incidents from the system map.	Phase 1	STANDARD
B. The ATMS shall prevent incidents from displaying on the map.	Phase 1	STANDARD
5.4.2.2.1.3 Monitor Event Summary		
5.4.2.2.1.4 Monitor Event Details		
A. The ATMS shall allow the System Operator to select an incident either from a list of all incidents or from the icon on the map.	Phase 1	STANDARD
B. The ATMS shall allow the System Operator to display detailed information about the incident.	Phase 1	STANDARD
C. The ATMS shall display the detailed information about the incident, including:	Phase 1	STANDARD
1. The incident type	Phase 1	STANDARD
2. The incident severity	Phase 1	STANDARD
3. The expected incident duration	Phase 1	STANDARD
4. The description of the incident	Phase 1	STANDARD
5. A list of all outstanding notices and alerts about the incident	Phase 1	STANDARD
6. A list of all linked incidents from external sources	Phase 1	CUSTOM
7. Etc.	Phase 1	STANDARD
5.4.2.2.2 Special Requirements		
5.4.2.2.2.1 Performance Requirements		
Frequency of communication; response time; number of users or actors, etc.		
5.4.2.2.2.2 Design Constraints		
A. The exact information to be reported about devices and incidents shall be approved by the Engineer before implementing this use case.	Phase 1	STANDARD
B. Activating or deactivating the display of devices or incidents on any Operator Workstation shall not affect the displays on any other Operator Workstation.	Phase 1	STANDARD
C. The ATMS shall be configured to initially support the following device types:	Phase 1	STANDARD
1. Vehicle detector stations	Phase 1	STANDARD
2. DMS	Phase 1	STANDARD
3. CCTV cameras	Phase 1	STANDARD
4. Highway advisory radio transmitters	Phase 2	STANDARD*

D. When zoomed in sufficiently, incident icons will indicate the number of blocked lanes.	Phase 1	CUSTOM

Requirement	Phase	Standard / Custom
5.4.2.3 Monitor Location of Portable Devices		
When incidents occur, the TMC needs to be able to make use of all available equipment as quickly as possible. This may include using portable devices that are already deployed for other purposes and/or locating the nearest portable device that can be requisitioned for the incident. In order properly manage these devices, the TMC needs to be able to quickly locate its portable equipment and to be able to determine its configuration (e.g., which way is a portable sign facing).		
5.4.2.3.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.2.3.1.1 Locate Device		
A. If the subject device is defined to be portable without GPS capabilities, the ATMS shall allow the System Operator to indicate the device's current location and orientation using the System Map at any time.	Phase 1	STANDARD*
B. If a device is defined to be portable with GPS capabilities, the ATMS shall request the location of the device whenever the ATMS issues a standard monitoring poll of the device.	Phase 1	STANDARD*
C. Upon any change in location, the ATMS shall update the location of the device, both within the database and on the system map for all users of the system.	Phase 1	STANDARD*
5.4.2.3.2 Special Requirements		
5.4.2.3.2.1 Performance Requirements		
The update to the database and all instances of the system map shall occur within 30 seconds of the ATMS receiving the response.	Phase 1	STANDARD*

Requirement	Phase	Standard / Custom
5.4.2.4 Monitor Remote Devices		
System Operators may wish to monitor the operation of devices controlled by another TMC to ensure proper coordination of system components across regional boundaries.		
5.4.2.4.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.2.4.1.1 Monitor Remote Devices on the Map		
A. The ATMS shall allow the System Operator to display remote devices on the system map.	Phase 2	STANDARD
B. The ATMS shall display all known remote devices of the type(s) currently selected according to the Monitor Devices on the Map Flow of the Monitor Devices Use Case on the system map.<See 5.4.2.1.1.1 Monitor Devices on the Map>	Phase 2	STANDARD
C. The ATMS shall prevent all remote devices of other types from displaying on the map.	Phase 2	CUSTOM
D. The icons used to display each device shall concisely convey the following information:<See 5.4.2.4.1.4 Activate Monitoring of Device Information>	Phase 2	STANDARD
1. The device type	Phase 2	STANDARD
2. The communications status of the device as either normal, error, failed, or data not retrieved	Phase 2	STANDARD
3. The operational status of the device as either normal/expected or error/unexpected.	Phase 2	STANDARD
5.4.2.4.1.2 Monitor Remote Device List		
A. The ATMS shall allow the System Operator to display a list of all remote devices.	Phase 2	STANDARD

B. For each piece of equipment, the ATMS shall display summary information about the remote device if data for the device is being monitored according to the Activate Monitoring of Remote Devices Flow.<See 5.4.2.4.1.4 Activate Monitoring of Device Information>	Phase 2	STANDARD
C. The ATMS shall allow the System Operator to filter the list by any of the attributes shown.	Phase 2	CUSTOM
D. The ATMS shall allow the System Operator to sort the list by any of the attributes shown.	Phase 2	STANDARD
E. The ATMS shall allow the System Operator to select any listed device to view all detailed information stored about the device.	Phase 2	STANDARD
5.4.2.4.1.3 Monitor Device Details		
A. The ATMS shall allow the System Operator to select a remote device.	Phase 2	STANDARD
B. The ATMS shall allow the System Operator to display the following information about the device if data for the device is being monitored according to the Activate Monitoring of Remote Devices Flow.<See 5.4.2.4.1.4 Activate Monitoring of Device Information>	Phase 2	STANDARD
1. The static information stored for the device.	Phase 2	STANDARD
2. The communications status of the device (e.g.,, normal, error, failed, off-line)	Phase 2	STANDARD
3. Summarized operational status of the device (e.g., about any errors that are being reported by the device)	Phase 2	STANDARD
4. Summarized device operation (e.g., the message displayed on the sign, the count data provided by a vehicle detector, etc.)	Phase 2	STANDARD
5.4.2.4.1.4 Activate Monitoring of Device Information		
A. The ATMS shall allow a System Operator to activate the monitoring of any or all device type groups from any or all remotely connected TMCs. *The Detroit, Grand Rapids, and Lansing TMCs shall all be interconnected.*	Phase 2	STANDARD
1. The ATMS shall require the System Operator to specify the duration for which to monitor the remote devices.	Phase 2	STANDARD
B. For each device type group that has been activated, the ATMS shall monitor the information required by the Monitor Device Details Flow.<See 5.4.2.4.1.3 Monitor Device Details>	Phase 2	CUSTOM
C. The design of the monitoring process shall ensure that the ATMS will become aware of any changes in status, including any changes of the device-type specific information, within a time period defined by the center-to-center Refresh Rate.	Phase 2	STANDARD
D. The ATMS shall issue an alarm if communications with the remote TMC are lost.	Phase 2	CUSTOM
E. The ATMS shall monitor information for any remote devices for which any System Operator has requested monitoring for the duration defined by the System Operators.	Phase 2	STANDARD*
5.4.2.4.1.5 Cancel Monitoring of Device Information		
A. The ATMS shall allow the System Operator to cancel a previous request for the monitoring of any or all device type groups.	Phase 2	STANDARD*
5.4.2.4.2 Special Requirements		
5.4.2.4.2.1 Design Constraints		
A. The ATMS shall use a polling process, an exception reporting process, or a combination of the two to obtain this information from the remote TMC.	Phase 2	STANDARD
B. If the ATMS uses an exception reporting process and a remote TMC has not reported any information for a period exceeding the TMC's Maximum Exception Reporting Period, the ATMS shall poll the TMC for the information.	Phase 2	CUSTOM
5.4.2.4.3 Preconditions		
5.4.2.4.4 Postconditions		
5.4.2.4.5 Extension Points		

Most implementations of this use case will extend the Activate Monitoring of Device Information Flow of Events to include the monitoring of additional information and conditional generation of additional alarms.		

Requirement	Phase	Standard / Custom
5.4.2.5 Monitor Road Weather Conditions		
The TMC is responsible for monitoring road/weather conditions and alerting the public to any hazards that may be present. This user need includes the ability to monitor current road/weather conditions and to compare the current conditions with threshold values to automatically generate road/weather events.		
5.4.2.5.1 Flow of Events		
The following subclauses identify the defined paths through this use case.		
5.4.2.5.1.1 Configure Thresholds		
A. The ATMS shall allow a System Administrator to select an Environmental Sensor Station.	Phase 2	STANDARD
B. The ATMS shall allow the System Administrator to select any of the supported parameters associated with the Environmental Sensor Station.	Phase 2	STANDARD
C. The ATMS shall allow the System Administrator to define an upper threshold value for the selected parameter.	Phase 2	STANDARD*
D. The ATMS shall allow the System Administrator to define a lower threshold value for the selected parameter.	Phase 2	STANDARD*
5.4.2.5.2 Special Requirements		
5.4.2.5.2.1 Communication Interfaces		
Communications to the field devices may be achieved through direct communications to the field devices or by communicating with a road/weather management system.	Phase 2	STANDARD
5.4.2.5.2.2 Performance Requirements		
The ATMS shall ensure that the data from the ESS is never older than 5 minutes.	Phase 2	STANDARD

Notes:

* = Feature scheduled in June 2008 release of NETworks® ATMS

Attachment B - Server/Workstation Specifications

Michigan Statewide ATMS – Application/Communication Servers

Quantity:	4
Environment (e.g., Production, Development)	Production
Manufacturer:	Dell
Model:	PowerEdge 2950
Storage Disk Space:	2X 500GB SATA 7.2K Hard Drives
RAM:	8GB (4x2GB) Dual Ranked DIMMs
Processor:	2X Dual Core Intel Xeon 5130 2.0GHz Processors
OS:	Windows Server 2003 R2 Standard Addition
Database and Version:	Not Applicable (See Database Server)
Other Software & Versions:	None
Other	24X CD-RW/DVD ROM Drive Rack Chassis w/Sliding Rapid/Versa Rails Redundant Power Supply w/Y-Cord Redundant Power Supply w/Y-Cord

Michigan Statewide ATMS – Database Servers

Quantity:	4
Environment (e.g., Production, Development)	Production
Manufacturer:	Dell
Model:	PowerEdge 2950
Storage Disk Space:	5X 500GB SATA 7.2K Hard Drives
RAM:	8GB (4x2GB) Dual Ranked DIMMs
Processor:	2X Dual Core Intel Xeon 5130 2.0GHz Processors
OS:	Windows Server 2003 R2 Standard Addition
Database and Version:	Microsoft SQL Server Standard Edition 2005, or Oracle
Other Software & Versions:	None
Other	24X CD-RW/DVD ROM Drive Rack Chassis w/Sliding Rapid/Versa Rails Redundant Power Supply w/Y-Cord Redundant Power Supply w/Y-Cord

Michigan Statewide ATMS – ATMS Workstations

Quantity:	23
Environment (e.g., Production, Development)	Production
Manufacturer:	Dell
Model:	OptiPlex 755
Storage Disk Space:	80GB
Ram:	2GB DDR2 Non-ECC SDRAM,667MHz, (2 DIMM)
Processor:	Intel® Core™ 2 Duo Processor E6550 (2.33GHz, 4M, VT, 1333MHz FSB)
OS:	Genuine Media Windows® XP Professional, SP2, x32, with
Database and Version:	Not Applicable

Other Software & Versions:	None
Other:	Dell 19 inch UltraSharp™ 1908FP Flat Panel, 48X32 CDRW/DVD Combo, Cyberlink Power DVD™

Michigan Statewide ATMS – C2C Gateway Servers

Quantity:	2
Environment (e.g., Production, Development)	Production
Manufacturer:	Dell
Model:	PowerEdge 2950
Storage Disk Space:	2X 500GB SATA 7.2K Hard Drives
RAM:	8GB (4x2GB) Dual Ranked DIMMs
Processor:	2X Dual Core Intel Xeon 5130 2.0GHz Processors
OS:	Windows Server 2003 R2 Standard Addition
Database and Version:	Not Applicable
Other Software & Versions:	None
Other	24X CD-RW/DVD ROM Drive Rack Chassis w/Sliding Rapid/Versa Rails Redundant Power Supply w/Y-Cord Redundant Power Supply w/Y-Cord

Michigan Statewide ATMS – Backup Servers

Quantity:	2
Environment (e.g., Production, Development)	Production
Manufacturer:	Dell
Model:	PowerEdge 2950
Storage Disk Space:	2X 500GB SATA 7.2K Hard Drives
RAM:	8GB (4x2GB) Dual Ranked DIMMs
Processor:	2X Dual Core Intel Xeon 5130 2.0GHz Processors
OS:	Windows Server 2003 R2 Standard Addition
Database and Version:	Not Applicable
Other Software & Versions:	None
Other	24X CD-RW/DVD ROM Drive Rack Chassis w/Sliding Rapid/Versa Rails Redundant Power Supply w/Y-Cord Redundant Power Supply w/Y-Cord

Michigan Statewide ATMS – Video Servers

Quantity:	2
Environment (e.g., Production, Development)	Development
Manufacturer:	Dell
Model:	PowerEdge 2950
Storage Disk Space:	2X 500GB SATA 7.2K Hard Drives
RAM:	8GB (4x2GB) Dual Ranked DIMMs

Processor:	Dual Core Intel Xeon 5130 2.0GHz Processors
OS:	Red Hat Linux Enterprise Server 5
Database and Version:	None
Other Software & Versions:	None
Other	24X CD-RW/DVD ROM Drive Rack Chassis w/Sliding Rapid/Versa Rails Redundant Power Supply w/Y-Cord Redundant Power Supply w/Y-Cord

Michigan Statewide ATMS – Development Application/Database Servers

Quantity	1
Environment (e.g., Production, Development)	Development
Manufacturer:	Dell
Model:	PowerEdge 2950
Storage Disk Space:	2X 500GB SATA 7.2K Hard Drives
RAM:	8GB (4x2GB) Dual Ranked DIMMs
Processor:	2X Dual Core Intel Xeon 5130 2.0GHz Processors
OS:	Windows Server 2003 R2 Standard Addition
Database and Version:	Microsoft SQL Server Standard Edition 2005, or Oracle
Other Software & Versions:	None
Other	24X CD-RW/DVD ROM Drive Rack Chassis w/Sliding Rapid/Versa Rails Redundant Power Supply w/Y-Cord Redundant Power Supply w/Y-Cord

Attachment C - Plant CML Non-Disclosure Agreement

PLANT CML

MUTUAL NON-DISCLOSURE AGREEMENT

This Mutual Non-Disclosure Agreement (the "Agreement") is made as of _____, 2007 ("Effective Date") between Plant Equipment, Inc. dba PlantCML, a California corporation whose principal place of business is 42505 Rio Nedo, Temecula California, 92590 and its affiliates including but not limited to CML Emergency Services, Inc. and CML Technologies Corp. (hereinafter referred to as "PlantCML") and _____with an office located at _____ (hereinafter referred to as "_____"). PlantCML and _____ may hereinafter be individually referred to as a "Party" or collectively referred to as the "Parties."

It may be necessary for either Party to provide confidential information to the other. With respect to such information, the Parties agree as follows:

1. Definition of Confidential Information. The term "Confidential Information" shall include, but not be limited to, (whether or not reduced to writing), performance, sales, financial, contractual and special marketing information, ideas, software in various stages of development, source codes, object codes, research and development procedures, development notes and plans, technical data and concepts originating by the Disclosing Party, not previously published or otherwise disclosed to the general public, not previously available without restriction to the Receiving Party or others, not normally furnished to others without compensation, and which the Disclosing Party desires to protect against unrestricted disclosure or competitive use, and which is furnished pursuant to this Non-Disclosure Agreement and appropriately identified as being proprietary or confidential when furnished. Without limiting the foregoing, for purposes of this Agreement, Confidential Information shall expressly include Orion CADStar Data Exchange Service documentation for the XML Schema.

2. Purpose. RECEIVING PARTY AGREES IT SHALL ONLY USE CONFIDENTIAL INFORMATION FOR THE PURPOSES OF: _____
_____
_____. ("Purpose").

3. Obligations.

3.1 Protection and Use: Each of the Parties shall hold in confidence and shall not disclose to any third party any Confidential Information disclosed to it by the other, except as expressly permitted under this Agreement. Each of the Parties shall protect the other Party's Confidential Information by using the same degree of care, but not less than a reasonable degree of care, to prevent the unauthorized use, dissemination, publication of, or access to, the Disclosing Party's Confidential Information as it uses to protect its own Confidential Information. The Receiving Party shall restrict the disclosure, dissemination and availability of the Disclosing Party's Confidential Information to its directors, officers, employees and advisors with a demonstrable need to know such Confidential Information (the "Permitted Personnel").

3.2 Restrictions on Use: The Receiving Party shall not: (a) use any Confidential Information received by it in any way detrimental to the Disclosing Party; (b)disclose or make available to any third party, including but not limited to consultants and other agents of the Receiving Party, any Confidential Information received by it without prior written consent of the Disclosing Party; (c) reproduce or copy the Confidential Information without the prior written consent of the Disclosing Party; (d) use any Confidential Information received by it to develop a product for sale; (e) use any Confidential Information received by it to develop a product which is similar to or imitates products which are the subject of the Confidential Information; (f) reverse-engineer, decompile or disassemble any product disclosed to it and shall not remove, overprint or deface any notice of copyright, trademark, logo, legend, or other notices of ownership from any originals or copies of Confidential Information it obtains from the Disclosing Party; or, (g) otherwise use the Confidential Information received by it for its own benefit or the benefit of another.

3.3 Limitations of Obligations: The Receiving Party shall have no obligation to retain as confidential any information which (a) is now or subsequently becomes generally available and known to the public other than as a result of disclosure by the Receiving Party, (b) is lawfully obtained by such Receiving Party from a source other than the Disclosing Party if, to the knowledge of the Receiving Party, the source was not legally bound to the Disclosing Party to maintain the confidentiality of the information, (c) is independently developed by such Receiving Party without use of any Confidential Information, as demonstrated by such Receiving Party's records or (d) was in the possession of the Receiving Party prior to disclosure by Disclosing Party.

3.4 Disclosures Required by Law: The Receiving Party may disclose Confidential Information pursuant to a valid order issued by a court or government agency, provided that the Receiving Party provides the Disclosing Party: (a) prior written notice of such obligation; and (b) the opportunity to oppose such disclosure or obtain a protective order.

4. Ownership Rights to Confidential Information, No License or Warranties. All Confidential Information received by the Receiving Party shall remain the sole and exclusive property of the Disclosing Party. The Parties recognize and agree that nothing contained in this Agreement shall be construed as granting to the other any rights, by license or otherwise, to any of the Disclosing Party's Confidential Information. **ALL CONFIDENTIAL INFORMATION IS PROVIDED "AS IS" WITH ALL FAULTS.** Nothing in this Agreement shall be construed as a warranty, representation, assurance, guarantee or inducement with respect to the content or accuracy of the Confidential Information. In no event shall the Disclosing Party be liable for the accuracy or completeness of the Confidential Information.

5. Term and Termination. The term of this Agreement shall be for two (2) years from the Effective Date. Either Party may terminate this Agreement by providing thirty (30) days prior written notice to the other Party. Upon termination or expiration, whichever occurs first, Receiving Party shall promptly cease all use of the Disclosing Party's Confidential Information. The obligations of Sections 2, 3, 4 and 7 hereof shall survive termination of this Agreement.

6. Return of Materials. Upon termination, expiration or the Disclosing Party's request, the Receiving Party shall promptly return all of the Disclosing Party's Confidential Information along with all copies thereof. At no time shall the Receiving Party possess such items longer than a period of six (6) months.

7. General.

7.1 Remedies: The Parties acknowledge that money damages would be inadequate to remedy any breach of this Agreement. As a result, a non-breaching Party shall be entitled to seek, and a court of competent jurisdiction may grant, specific performance and injunctive or other equitable relief as a remedy for any breach of this Agreement. Such remedy shall be in addition to all other remedies, including money damages, available to a non-breaching Party at law or in equity. In the event a Party brings an action to enforce the obligations hereunder, the prevailing Party(ies) shall be entitled to reimbursement from the other Parties involved in such action for all costs and expenses, including reasonable attorney's fees, incurred by it (them) in connection therewith.

7.2 Entire Agreement: This Agreement contains the entire understanding and agreement between the Parties concerning the subject matter hereof and supersedes any prior agreements, whether written or oral, between the Parties concerning the subject matter hereof.

7.3 Governing Law: This Agreement, including all matters of construction, validity and performance, shall be governed by, construed and enforced in accordance with the laws of the State of California, as applied to contracts made and to be fully performed in such state, without regard to its conflict of law rules.

7.4 Amendments: No amendment to this Agreement shall be valid and binding unless such amendment is agreed to in writing and signed by an authorized officer of each of the Parties.

SAMPLE

7.5 Waivers: No waiver by either Party of any breach by the other Party of any condition or provision contained in this Agreement to be performed by such other Party shall be deemed a waiver of a similar or dissimilar condition or provision at the same or any prior or subsequent time. Any waiver must be in writing and signed by the Party to be charged with the waiver. No delay by either Party in exercising any right, power or privilege hereunder shall operate as a waiver thereof.

7.6 Severability: In the event that any provision or portion of this Agreement shall be determined to be invalid or unenforceable for any reason, in whole or in part, the remaining provisions of this Agreement shall be unaffected thereby and shall remain in full force and effect to the fullest extent permitted by law.

7.7 Successors and Assigns: This Agreement shall be binding upon the parties hereto and their respective successors and assigns and shall not be construed to confer any right, interest or benefit in favor of any other person or entity. Notwithstanding the foregoing, neither Party shall be entitled to neither assign nor transfer all or any of its rights, benefits and/or obligations under this Agreement without the prior written consent of the other Party. For the purposes of this Agreement, any corporate merger, acquisition, consolidation or transfer to an affiliate shall not be considered an assignment. The term affiliate means another entity that directly or indirectly controls, is controlled by, or is under common control with the Party in question.

7.8 Export Laws: Each Party acknowledges that Confidential Information which it receives may include technical data developed in the United States, and therefore, shall not export or re-export any Confidential Information without full compliance with all applicable export laws.

7.9 Notices: Any under, or connection with, this Agreement shall be in writing and shall be deemed to have been given when received by the Party to which said communication is directed at its address set forth below or at such other address as such Party may have designated in writing to the other Party. Any notice requiring prompt action shall be contemporaneously sent by facsimile transmission.

7.10 Headings: The headings in this Agreement are for reference purposes only and shall not limit or otherwise affect the meaning of the provisions.

7.11 Authority and Acceptable Signatures: The persons signing this Agreement have the authority to bind and sign on behalf of their respective Parties. Electronic or Facsimile signatures are acceptable forms of execution of this Agreement and shall be binding on all Parties hereto.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

PLANT EQUIPMENT, INC.
dba PLANTCML

By:_____
Name: _____
Title: _____
Address: 42505 Rio Nedo
Temecula, CA 92590
Phone: (951) 719-2100
Fax: (951) 296-2727

_____

By:_____
Name:
Title:
Address:

Phone:
Fax:

SAMPLE

Attachment D - Gateway Traveler Information System Interface Definition Document

See Attachment Folder

Attachment E - State of Michigan Hardware Software Standards

MDIT/MDOT ATMS Project

Server Hardware:

- Sun – Sun Fire
- Dell – PowerEdge
- HP – 9000 and ProLiant

Server Operating Systems:

- Solaris 10.x (Sun Fire)
- Red Hat Linux Enterprise Server 5.x (Sun Fire, Dell PowerEdge, HP ProLiant)
- Suse Linux Enterprise 10.x (Sun Fire, Dell PowerEdge, HP ProLiant)
- HP-UX 11i v2 and v3 (HP 9000)
- Windows Server 2003 (Dell PowerEdge, HP ProLiant)

RDBMS:

- Oracle 10.x (Solaris 10.x)
- SQL Server 2003 (Windows Server 2003)

Web Server:

- WebSphere 6.1 (Any server/os)

State of Michigan Workstation Environment – MDIT/MDOT ATMS Project

- Dell Optiplex 755 (Desktop or Mini-Tower)
    - Intel Core 2 Duo Processor E6550 (2.33 Mhz)
    - 2GB DDR2 Non-ECC SDRAM, 667 Mhz
    - 80 GB SATA 3.0 Gb/s and 8MB DataBurst Cache
    - 48X32 CDRW/DVD Combo
    - Integrated Video, Intel GMA3100
    - USB Mouse and Keyboard
    - Dell 19” UltraSharp 1908FP Flat Panel
    - Windows XP Professional SP2
    - 4 year warranty from Dell
    - State of Michigan Standard Workstation software to be loaded and configured by MDIT (GroupWise, MS Office, etc)

Attachment F - 49 CFR Part 29, Appendix A

Attachment G

49 CFR Part 29 - Appendix A

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS--PRIMARY COVERED TRANSACTIONS

Instructions For Certification

1. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.

3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

4. The prospective primary participant shall provide immediate written notice to the department or agency to which this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

5. The terms covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded, as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.

6. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

7. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled ``Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion- Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

10. Except for transactions authorized under paragraph 6 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS--PRIMARY COVERED TRANSACTIONS

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification;

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

_____	_____
Signature/Authorized Certifying Official	Typed Name and Title
_____	_____
Applicant/Organization	Date Signed

Attachment G - 49 CFR Part 29, Appendix B

49 CFR Part 29 - Appendix B

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION--LOWER TIER COVERED TRANSACTIONS

Instructions For Certification

1. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or had become erroneous by reason of changed circumstances.

4. The terms covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded, as used in this clause, have the meaning set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled ``Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction,'' without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from covered transactions, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AN VOLUNTARY EXCLUSION--LOWER TIER COVERED TRANSACTIONS

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

_____	_____
Signature/Authorized Certifying Official	Typed Name and Title
_____	_____
Applicant/Organization	Date Signed

Attachment H – Training and Documentation

The Contractor shall develop separate training courses and materials to address the following four categories of staff:

1. Training Group A: Regional Traffic Engineers and Design Engineers. These are individuals who will not interact with the ATMS package on a regular basis, but need to be familiar with the ATMS and need to understand how it functions at a high level.
2. Training Group B: Transportation Management Center Operators and Supervisors. These are individuals who will interact with the ATMS on a daily basis and must be intimately familiar with its functionality at a detailed level
3. Training Group C: System Administrators. These are individuals who are responsible for system administrative functions such as account management, database maintenance, system security, and network administration.
4. Training Group D: Affiliate Remote Users. These are users who will access the ATMS via the Internet browser remote access method. These users will typically not be MDOT or MDIT employees. They need to have only a limited understanding of a select set of features and functions.

The Contractor shall provide a minimum of 200 total hours of training. Training shall be provided at each Phase of development (ATMS Phase 1 and ATMS Phase 2) and each Stage of development (Stage 1 Grand Region TMC; Stage 2 MITS Center and Blue Water Bridge Operations Center).

The training shall cover all features and functionality of the system.

Each training course shall be formatted as a continuous class segmented to accommodate each of the applicable training groups listed above. Those segments are as follows:

- A high-level system overview, basic system functionality, and basic incident management will comprise an initial series of training topics for a single class appropriate for Training Groups A, B, and C.
- High-level training course templates.
- Series of topics focused on detailed system functions and features and in-depth incident management scenario based exercises will be presented in more detail that is most appropriate for Training Group B.
- Series of training topics focused on system administration, system security, and system database management will be developed that is most appropriate for Training Group C.

In addition, after completion of the entire ATMS deployment, a training course focused on remote access via the internet browser style interface will be developed for Training Group D. It is anticipated that this course will also be attended by members of Training Groups A, B, and C.

All proposed formats must present training following each Phase/Stage combination listed below, provide the minimum number of hours called for, and meet all other requirements called for in the Scope of Work.

Phase 1 Training

Day 1 (Training Groups A, B, and C)

- System Overview
- System Account Features (login, security, account management)
- System Configuration
- Device Management
- Basic Incident Management Example

Day 2 (Training Group B)

- Advance System Functionality
- Advanced Incident Management Examples

Day 3 (Training Group B)
- Summary and Wrap Up

Day 4 (Training Group C)
- System Administration Overview
- Account Management
- Account and System Security
- Device Configuration
- Database Maintenance and Management
- Network maintenance and Management

Day 5 (Training Group C)
- Advanced System Administration Topics
- Summary and Wrap-up

Phase 1 training shall be taught immediately prior to production deployment of Phase 1 at the Grand Region TMC and at the MITS Center. Each course shall be tailored to address any special features of the deployment unique to that center.

Phase 2 Training

Day 1 (Training Groups A, B, and C)
- Phase 1 System Review
- Phase 2 Functional Overview
- Phase 2 System Fundamentals

Day 2 (Training Group B)
- Phase 2 Advanced Functionality
- Summary and Wrap Up

Day 3 (Training Group C)
- System Administration Review
- System Administration in a Multi-Center Environment

Day 4 (Training Group C)
- Advanced System Administration Topics
- Summary and Wrap-up

Phase 2 training shall be taught immediately prior to production deployment of Phase 2 at the Grand Region TMC and at the MITS Center. Each course shall be tailored to address any special features of the deployment unique to that center.

Affiliate Training

Day 1 (Training Groups A, B, C, and D)
- System Overview
- System Access
- System Security
- Incident Management Scenarios

It is expected that the State will require the Contractor to train approximately 20 Group A participants, 30 Group B participants, 10 Group C participants, and 20 Group D Participants.

The Contractor shall provide all training materials for successful completion of the Training Program. Training materials for each course shall include as a minimum a course outline, material describing the course, operation and maintenance manuals, and any additional information needed to adequately describe the subject being taught. The training materials shall also include quick reference guides suitable for later use by trainees. Training materials shall not be copyrighted. A set of training materials shall be given to each student. All training materials shall be individually bound in 3-ring, loose-leaf binders, Operations and Maintenance manuals shall be included on CD with the binder.

Contractor shall provide 20 hard copies of the Operator User Manual and 10 hard copies of the System Administrator User Manuals.

All training sessions shall be scheduled in cooperation with the State. The State will help to secure the training location and assist with other logistics as needed. Completed training sessions shall be documented by listing attendees, materials covered, and training duration. Certificates of completion shall be provided to each attendee of each training course. This documentation shall be submitted to the State for tracking of training hours against the Contract.

Prior to developing any detailed course materials, an overall training program describing the training plan shall be submitted for review and approval.

All courses shall be instructed by a minimum of two instructors. All instructors must be approved by the State.

Deliverables:

- Training Plan
- Course syllabi and supporting materials (80)
- Operator User Manuals (20)
- System Administrator User Manuals (10)
- Up to 200 hours of on-site training