



STATE OF MICHIGAN
CENTRAL PROCUREMENT SERVICES
 Department of Technology, Management, and Budget
 320 S. WALNUT ST., LANSING, MICHIGAN 48933
 P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number **16**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Various	DNR
Contract Administrator	Sarah Platte	DTMB	
	517-219-2406		
	plattes3@michigan.gov		

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,533,876.00	\$19,844.35	\$1,553,720.35		

DESCRIPTION

Effective 12/12/2023, the parties add the attached Statement of Work for the purpose of implementing updates to the pertaining to efficiencies in system workflows and reporting. The State adds \$19,844.35 in funding to pay for the work to be done.

The starting cumulative amount for CN 16 on the Contract is being corrected to \$1,533,876.00 to correct a previous error. With the funds of CN 16, the total cumulative amount is \$1,553,720.35.

Additionally, a retroactive Ad Board request for approval on \$308737.35 in funds is being made to rectify the mistake of not seeking Ad Board approval on Change Notice 15.

All other terms, conditions, specifications remain the same. Per Contractor, Agency, DTMB Procurement, and State Administrative Board on 12/12/2023.

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Katherine Armstrong	231-342-9737	ARMSTRONGK@michigan.gov



STATE OF MICHIGAN
CENTRAL PROCUREMENT SERVICES
 Department of Technology, Management, and Budget
 320 S. WALNUT ST., LANSING, MICHIGAN 48933
 P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number **15**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Various	DNR
	Contract Administrator	Sarah Platte	DTMB
		517-219-2406	
		plattes3@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

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DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,048,136.00	\$79,200.00	\$1,127,336.00		

DESCRIPTION

Effective 8/21/2023, the parties add the attached Statement of Work for the purpose of implementing the identified updates to the current system pertaining to efficiencies in system workflows, reporting. Funding in the amount of \$79,200.00.

All other terms, conditions, specifications remain the same. Per Contractor, Agency, DTMB Procurement, and State Administrative Board on 5/24/2022.

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Katherine Armstrong	231-342-9737	ARMSTRONGK@michigan.gov



**MICHIGAN DEPARTMENT OF TECHNOLOGY,
MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK FOR IT CHANGE NOTICES**

Project Title: Enhancements_Phase4	Period of Coverage: 9/1/2023 – 8/31/2024
Requesting Department: Department of Natural Resources (DNR)	Date: 7/13/2023
Agency Project Manager: Katie Armstrong	Phone: 989-732-3541 x5010
DTMB Project Manager: Laura Brancheau	Phone:

BACKGROUND:

Michigan Department of Natural Resources (MDNR) implemented the Timber Cruise data collection software system in 2020. MDNR has identified key items of the system that they would like to update to align and improve system workflows and reporting. The items have been tracked in the JIRA ticketing system, processed to understand level of effort and approved by MDNR for inclusion in this SOW.

PROJECT OBJECTIVE:

The objective of the project is to implement identified updates to the current system pertaining to efficiencies in system workflows, reporting. The following change order details implementation and costing for these items.

SCOPE OF WORK:

SYSTEM ENHANCEMENTS

Requests for updates to the Timber Cruise system were submitted by MDNR via the JIRA ticketing system and approved by MDNR for inclusion in this scope of work. These items are summarized in the table below with their ticket number and a relative effort level, identified as low, moderate, high or extra high. Additional detail, including documentation on discussions with MDNR and potential solutions, is included in the ticketing system.

MB&G will work with MDNR to identify an appropriate solution for each of the items listed below. MDNR will prioritize these items, along with other production support tickets that are currently in the system, to indicate which should be worked first.

Issue key	Summary	Notes	Schedule days after contract execution	Effort Level
MSS-711	MobileMap Tree List Plot Label	Show plot type info on the tree list screen so user doesn't have to go back and forth to the plot.	45 days	L
MSS-777	Update username when person advances status from planned to cruised	Update the username of the person who advanced the status from planned to cruised	45 days	L
MSS-801	Tally Cruise with STRs - Stats Report	Create report to show statistics for tally cruises with STRs	45 days	L
MSS-685	Cancel Button on GPS Averaging screen	Add Cancel Button on GPS screen to stop GPS collection and prevent the need to close out and restart	70 days	L
MSS-750	Saw and Pulp Default Stump Heights	Implement the ability to set a default stump height for pulp sized trees and for saw sized trees rather than a single default for both	70 days	M
MSS-797	Archive Cruising Data	"Archive" data to limit the amount of data that is available in the map in IM and to download to MM	90 days	M
MSS-798	Documentation of Report Calculations and Model Methodology	Develop documents that explain the methodology and formulas for calculating the fields for all the reports in IM.	90 days	M
MSS-808	Update reporting for residuals in stand summary reports	Update reporting in the stand summary reports for BAF+Resid Cruise types to address additional requirements when cruising residuals. This is a follow on to MSS-175 for part 3.	120	H
MSS-751	Create Multipart Polygon Cruise Units	Enable crew to create multi-part polygons completely offline, in the woods, when setting up a cruise so that it doesn't have to be done separately at the desktop. This will focus on creating multi-part polygons but does not include exploding back to singlepart.	180	XH
MSS-769	Download by Geographic Extent	Ability to download by a geographic extent rather than entering download parameters. Dependent on SDK update expected to be released in Q1 2024	220 pending SDK	XH

NOT IN SCOPE

The following items are not considered to be within scope of this change order.

- Product defects – Defects are covered by annual support and maintenance agreements already provided in the original scope of work and are not included in this change order.
- Support of MDNR systems. MDNR is responsible for maintaining MDNR systems in their enterprise environment. For example, MB&G is not responsible for data model publication, promotion of system components between system environments (dev, test prod), or managing users in the system.

DELIVERABLES:

Deliverables will not be considered complete until the Agency Project Manager has formally accepted them.

Deliverables for this project include:

- Completion of each identified item, as per acceptance criteria

PROJECT CONTROL AND REPORTS:

Progress reporting for this project will be completed via our established monthly meeting with review of outstanding tickets and technical items.

PAYMENT SCHEDULE:

Services will be invoiced on a monthly percent complete basis. 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 than monthly. All invoices should reflect actual work completed by payment date.

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

EXPENSES:

The cost for completing the SOW is a firm fixed price of \$79,200.

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

SCHEDULE:

The project schedule will be driven by the prioritization of tickets from MDNR in alignment with other ongoing production support and enhancement efforts. The SOW end date is being set to contract execution date plus one (1) year, however the expectation is that much of the work will be completed prior to that date.

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Katie Armstrong
Department DNR
Area FRD
Building/Floor Traverse City CSC
Address 2122 M-37
City/State/Zip Traverse City, MI 49685
Phone Number 231-342-9737
Email Address armstrongk@michigan.gov

The designated DTMB Project Manager is:

Name Laura Brancheau
Department DTMB
Phone Number 517-335-9737
Email Address brancheaul@michigan.gov

AGENCY RESPONSIBILITIES:

- Submission of all issues via MB&G's ticketing system
- Clarification of requirements
- Identification of acceptance criteria including provision of sample data with results identified for testing purposes
- Review/Acceptance of deliverables

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work from their home office locations in Oregon and Colorado.

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:

Work hours are not to exceed eight (8) hours a day, forty (40) hours a week.

No overtime will be permitted.

This purchase order is a release from Contract Number 171-19000000318. This purchase order, statement of work, and the terms and conditions of Contract Number 171-19000000318 constitute the entire agreement between the State and the Contractor.



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 Department of Technology, Management, and Budget
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CONTRACT CHANGE NOTICE

Change Notice Number **14**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Various	DNR
	Contract Administrator	Sarah Platte	DTMB
		517-219-2406	
		plattes3@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,033,484.00	\$14,652.00	\$1,048,136.00		

DESCRIPTION

Effective 5/9/2023, the parties add the attached Statement of Work to implement updates to the system that pertains to reporting and improved volume calculations. The State adds funding in the amount of \$14,652.00 to support the Statement of Work.

All other terms, conditions, specifications remain the same. Per Contractor, Agency, DTMB Procurement, and State Administrative Board on 5/24/2022.



**MICHIGAN DEPARTMENT OF TECHNOLOGY,
MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK FOR IT CHANGE NOTICES**

Project Title: Enhancements_Phase4	Period of Coverage: 9/1/2023 – 8/31/2024
Requesting Department: Department of Natural Resources (DNR)	Date: 7/13/2023
Agency Project Manager: Katie Armstrong	Phone: 989-732-3541 x5010
DTMB Project Manager: Laura Brancheau	Phone:

BACKGROUND:

Michigan Department of Natural Resources (MDNR) implemented the Timber Cruise data collection software system in 2020. MDNR has identified key items of the system that they would like to update to align and improve system workflows and reporting. The items have been tracked in the JIRA ticketing system, processed to understand level of effort and approved by MDNR for inclusion in this SOW.

PROJECT OBJECTIVE:

The objective of the project is to implement identified updates to the current system pertaining to efficiencies in system workflows, reporting. The following change order details implementation and costing for these items.

SCOPE OF WORK:

SYSTEM ENHANCEMENTS

Requests for updates to the Timber Cruise system were submitted by MDNR via the JIRA ticketing system and approved by MDNR for inclusion in this scope of work. These items are summarized in the table below with their ticket number and a relative effort level, identified as low, moderate, high or extra high. Additional detail, including documentation on discussions with MDNR and potential solutions, is included in the ticketing system.

MB&G will work with MDNR to identify an appropriate solution for each of the items listed below. MDNR will prioritize these items, along with other production support tickets that are currently in the system, to indicate which should be worked first.

Issue key	Summary	Notes	Schedule days after contract execution	Effort Level
MSS-711	MobileMap Tree List Plot Label	Show plot type info on the tree list screen so user doesn't have to go back and forth to the plot.	45 days	L
MSS-777	Update username when person advances status from planned to cruised	Update the username of the person who advanced the status from planned to cruised	45 days	L
MSS-801	Tally Cruise with STRs - Stats Report	Create report to show statistics for tally cruises with STRs	45 days	L
MSS-685	Cancel Button on GPS Averaging screen	Add Cancel Button on GPS screen to stop GPS collection and prevent the need to close out and restart	70 days	L
MSS-750	Saw and Pulp Default Stump Heights	Implement the ability to set a default stump height for pulp sized trees and for saw sized trees rather than a single default for both	70 days	M
MSS-797	Archive Cruising Data	"Archive" data to limit the amount of data that is available in the map in IM and to download to MM	90 days	M
MSS-798	Documentation of Report Calculations and Model Methodology	Develop documents that explain the methodology and formulas for calculating the fields for all the reports in IM.	90 days	M
MSS-808	Update reporting for residuals in stand summary reports	Update reporting in the stand summary reports for BAF+Resid Cruise types to address additional requirements when cruising residuals. This is a follow on to MSS-175 for part 3.	120	H
MSS-751	Create Multipart Polygon Cruise Units	Enable crew to create multi-part polygons completely offline, in the woods, when setting up a cruise so that it doesn't have to be done separately at the desktop. This will focus on creating multi-part polygons but does not include exploding back to singlepart.	180	XH
MSS-769	Download by Geographic Extent	Ability to download by a geographic extent rather than entering download parameters. Dependent on SDK update expected to be released in Q1 2024	220 pending SDK	XH

NOT IN SCOPE

The following items are not considered to be within scope of this change order.

- Product defects – Defects are covered by annual support and maintenance agreements already provided in the original scope of work and are not included in this change order.
- Support of MDNR systems. MDNR is responsible for maintaining MDNR systems in their enterprise environment. For example, MB&G is not responsible for data model publication, promotion of system components between system environments (dev, test prod), or managing users in the system.

DELIVERABLES:

Deliverables will not be considered complete until the Agency Project Manager has formally accepted them.

Deliverables for this project include:

- Completion of each identified item, as per acceptance criteria

PROJECT CONTROL AND REPORTS:

Progress reporting for this project will be completed via our established monthly meeting with review of outstanding tickets and technical items.

PAYMENT SCHEDULE:

Services will be invoiced on a monthly percent complete basis. 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 than monthly. All invoices should reflect actual work completed by payment date.

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

EXPENSES:

The cost for completing the SOW is a firm fixed price of \$79,200.

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

SCHEDULE:

The project schedule will be driven by the prioritization of tickets from MDNR in alignment with other ongoing production support and enhancement efforts. The SOW end date is being set to contract execution date plus one (1) year, however the expectation is that much of the work will be completed prior to that date.

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Katie Armstrong
Department DNR
Area FRD
Building/Floor Traverse City CSC
Address 2122 M-37
City/State/Zip Traverse City, MI 49685
Phone Number 231-342-9737
Email Address armstrongk@michigan.gov

The designated DTMB Project Manager is:

Name Laura Brancheau
Department DTMB
Phone Number 517-335-9737
Email Address brancheaul@michigan.gov

AGENCY RESPONSIBILITIES:

- Submission of all issues via MB&G's ticketing system
- Clarification of requirements
- Identification of acceptance criteria including provision of sample data with results identified for testing purposes
- Review/Acceptance of deliverables

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work from their home office locations in Oregon and Colorado.

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:

Work hours are not to exceed eight (8) hours a day, forty (40) hours a week.

No overtime will be permitted.

This purchase order is a release from Contract Number 171-19000000318. This purchase order, statement of work, and the terms and conditions of Contract Number 171-19000000318 constitute the entire agreement between the State and the Contractor.



STATE OF MICHIGAN
CENTRAL PROCUREMENT SERVICES
 Department of Technology, Management, and Budget
 320 S. WALNUT ST., LANSING, MICHIGAN 48933
 P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number **14**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Various	DNR
	Contract Administrator	Sarah Platte	DTMB
		517-219-2406 plattes3@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,033,484.00	\$14,652.00	\$1,048,136.00		

DESCRIPTION

Effective 5/9/2023, the parties add the attached Statement of Work to implement updates to the system that pertains to reporting and improved volume calculations. The State adds funding in the amount of \$14,652.00 to support the Statement of Work.

All other terms, conditions, specifications remain the same. Per Contractor, Agency, DTMB Procurement, and State Administrative Board on 5/24/2022.

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Katherine Armstrong	231-342-9737	ARMSTRONGK@michigan.gov



**MICHIGAN DEPARTMENT OF TECHNOLOGY,
MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK FOR IT CHANGE NOTICES**

Project Title: Enhancements_Phase3	Period of Coverage: 3/9/2023 – 12/31/2023
Requesting Department: Department of Natural Resources (DNR)	Date: 3/9/2023
Agency Project Manager: Katie Armstrong	Phone: 989-732-3541 x5010
DTMB Project Manager: Laura Brancheau	Phone:

Brief Description of Services to be provided:

BACKGROUND:

Michigan Department of Natural Resources (MDNR) implemented the Timber Cruise data collection software system in 2020. MDNR has identified key items of the system that they would like to update to align and improved calculations and system workflows. The items have been tracked in MB&G's ticketing system, processed to understand level of effort and approved by MDNR for inclusion in this SOW.

PROJECT OBJECTIVE:

The objective of the project is to implement identified updates to the current system pertaining to reporting and implementing improved volume calculations. The following change order details implementation and costing for these items.

SCOPE OF WORK:

SYSTEM ENHANCEMENTS

Requests for updates to the Timber Cruise system were submitted by MDNR via MB&G's ticketing system and approved by MDNR for inclusion in this scope of work. These items are summarized in the table below with their ticket number and a relative effort level, identified as low, moderate, high or extra high. Additional detail, including documentation on discussions with MDNR and potential solutions, is included in the ticketing system.

MB&G will work with MDNR to identify an appropriate solution for each of the items listed below. MDNR will prioritize these items, along with other production support tickets that are currently in the system, to indicate which should be worked first.

Issue key	Summary	Notes	Schedule days after contract execution	Effort Level
MSS-459	Compilation Controls Screen - Pulp and Saw Volume	On the Compilation Controls Screen as well as Excel export file, when user Selects a Stand to Edit Tree Data, the result should show volume broken down by Pulp and Saw volume rather than total volume for each tree.	45 days	M
MSS-473	Standard VDU Report	Create a report like the Standard Cruise Report for individual sale VDUs	45 days	M
MSS-648	Compilation - small, medium and large saw per Fairweather methods	Follow on to MSS-187. Addresses doing a more elaborate compilation of the small, med, lg into All Sawtimber once the new Fairweather calculations and stats are implemented.	65 days	M
MSS-649	Timber Sale Report - Table 2 - Saw and Pulp Volumes per Fairweather method	Follow on to MSS-469. Update the methods implemented in MSS-469 to use the new methods identified by Dr. Steve Fairweather	65 days	M

NOT IN SCOPE

The following items are not considered to be within scope of this change order.

- Product defects – Defects are covered by annual support and maintenance agreements already provided in the original scope of work and are not included in this change order.
- Support of MDNR systems. MDNR is responsible for maintaining MDNR systems in their enterprise environment. For example, MB&G is not responsible for data model publication, promotion of system components between system environments (dev, test prod), or managing users in the system.

DELIVERABLES:

Deliverables will not be considered complete until the Agency Project Manager has formally accepted them.

Deliverables for this project include:

- Completion of each identified item, as per acceptance criteria

PROJECT CONTROL AND REPORTS:

Progress reporting for this project will be completed via our established monthly meeting with review of outstanding tickets and technical items.

PAYMENT SCHEDULE:

Services will be invoiced on a monthly percent complete basis. 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 than monthly. All invoices should reflect actual work completed by payment date.

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

EXPENSES:

The cost for completing the SOW is a firm fixed price of \$14,652.

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

SCHEDULE:

The project schedule will be driven by the prioritization of tickets from MDNR in alignment with other ongoing production support and enhancement efforts. The SOW end date is being set to contract execution date plus one (1) year, however the expectation is that much of the work will be completed prior to that date.

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Katie Armstrong
Department DNR
Area FRD
Building/Floor Traverse City CSC
Address 2122 M-37
City/State/Zip Traverse City, MI 49685
Phone Number 231-342-9737
Fax Number
Email Address Armstrong, Katie (DNR) armstrongk@michigan.gov

AGENCY RESPONSIBILITIES:

- Submission of all issues via MB&G's ticketing system
- Clarification of requirements
- Identification of acceptance criteria including provision of sample data with results identified for testing purposes
- Review/Acceptance of deliverables

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work from their home office locations in Oregon and Colorado.

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:

Work hours are not to exceed eight (8) hours a day, forty (40) hours a week.

No overtime will be permitted.

This purchase order is a release from Contract Number 171-19000000318. This purchase order, statement of work, and the terms and conditions of Contract Number 171-19000000318 constitute the entire agreement between the State and the Contractor.



STATE OF MICHIGAN
CENTRAL PROCUREMENT SERVICES
 Department of Technology, Management, and Budget
 320 S. WALNUT ST., LANSING, MICHIGAN 48933
 P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number **13**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Various	DNR
	Contract Administrator	Sarah Platte	DTMB
		517-219-2406 plattes3@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

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DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,033,484.00	\$0.00	\$1,033,484.00		

DESCRIPTION

Effective 12/15/2022, the Parties add the attached Statement of Work for the purpose of updating the Contract language to remove MSS-155 and replace it with MSS-469. The schedule is also changing, per agreed upon updates between both parties.

All other terms, conditions, specifications remain the same. Per Contractor, Agency, and DTMB Procurement.

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Katherine Armstrong	231-342-9737	ARMSTRONGK@michigan.gov

STATEMENT OF WORK - IT CHANGE NOTICE

Project Title: Reporting Enhancements – Change Request	Period of Coverage: 7/1/2021 – 9/30/2023
Requesting Department: Department of Natural Resources (DNR)	Date: 11/30/2022
Agency Project Manager: Katie Armstrong	Phone: 231-342-9737
DTMB Project Manager: Laura Brancheau	Phone: 517 335 1334

Brief description of services to be provided:

BACKGROUND:

DNR Forest Resources Division is requesting to make the following changes to MA 19*0318 CN 8. This a no cost change notice. All other items remain the same as in MA 19*0318 CN 8

PROJECT OBJECTIVE:

Initial objective remains the same to implement identified updates to the current system pertaining to reporting, navigation and general cruise and plot management to improve current workflows and provide additional functionality for cruise management within the system. The following change order details implementation and costing for these items.

SCOPE OF WORK:

The original scope remains the same excepting the following change:
 Remove MSS-155 and replace it with MSS-469.

Issue key	Summary	Notes	Effort Level
MSS-155 Remove	Enhance MobileMap to support DB versioning	MDNR would like MobileMap to support download via timestamp offset. MDNR will be getting branch versioning sometime in late '21. MDNR suspects that they will not start working on getting MobileMap features set up for versioning until next spring.	L

STATEMENT OF WORK - IT CHANGE NOTICE

MSS-469 Add	Timber Sale Report - Table 2 - Saw and Pulp Volumes	Change sale volume compilation method to use measured trees grouped by species and product to estimate species and product volume per tree.	M
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DELIVERABLES:

No Change

PROJECT CONTROL AND REPORTS:

No Change

PAYMENT SCHEDULE:

The schedule will begin once the order is fully executed by both parties. Deliverables have been grouped into four sets with multiple enhancements to be delivered in each group. MB&G will work with MDNR project manager to set timing for any intermediate deliverables that can be delivered prior to the full group delivery due date. The SOW end date is being set to September 30, 2023.

EXPENSES:

No change

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Katie Armstrong
 Department Michigan DNR, Forest Resources Division
 Area Forest Inventory Specialist
 Building/Floor
 Address Traverse City CSC, 2122 M-37
 City/State/Zip Traverse City, MI 49685
 Phone Number 231-342-9737
 Fax Number
 Email Address ARMSTRONGK@michigan.gov

STATEMENT OF WORK - IT CHANGE NOTICE

The designated DTMB Project Manager is:

Name Laura Brancheau

Department State of Michigan - DTMB – Agency Services

Area Supporting EGLE, DNR, MDARD, & DMVA

Building/Floor Constitution Hall, 1st Floor, North Tower

Address 525 W. Allegan St.

City/State/Zip Lansing, MI 48933

Phone Number 517-335-1334

Fax Number

Email Address brancheaul@michigan.gov

AGENCY RESPONSIBILITIES:

No Change

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

No Change

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:

No Change



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

CONTRACT CHANGE NOTICE

Change Notice Number 12
 to
 Contract Number 19000000318

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DNR
		517-335-1334	
	BrancheauL@michigan.gov		
	Contract Administrator	Sarah Platte	DTMB
(517) 241-7000			
plattes3@michigan.gov			

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,033,484.00	\$0.00	\$1,033,484.00		

DESCRIPTION

Effective 5/17/2022, the parties add the attached Statement of Work for the purpose of adding Woodland Solutions Group as an approved subcontractor on the Contract. The Statement of Work clarifies the responsibilities that will be completed by Woodland Soutions Group going forward.

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

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Katherine Armstrong	231-342-9737	ARMSTRONGK@michigan.gov

STATEMENT OF WORK - IT CHANGE NOTICE

Project Title: Subcontractor Woodland Solution Group	Period of Coverage: Length of contract
Requesting Department: DNR	Date: 04/05/2022
Agency Project Manager: Katherine Armstrong	Phone: 231-342-9737
DTMB Project Manager: Laura Brancheau	Phone: 517-335-1334

The purpose of this Change Notice is to approve Woodland Solutions Group (“WSG”) as subcontractor to Mason Bruce & Girard (“MBG”) to perform Services under Contract # 190000000318.

Now, therefore, the parties agree to the following:

- 1) WSG, acting as a “Permitted Subcontractor” to MBG, will perform the Services as set forth in the attached Statement of Work to this Change Notice.
- 2) MBG represents and warrants to the State it possesses full rights to sublicense the Software and the State may further use the Software, as agreed upon and originally granted to the State under the Contract.

BACKGROUND:

Mason Bruce & Girard has requested to have a subcontractor (Woodland Solutions Group) approved to provide services under this contract.

PROJECT OBJECTIVE:

To add authorization of subcontractor to the Contract and to clarify responsibilities.

PROJECT CONTACTS:

The designated Agency Project Manager is:

Katherine Armstrong
 DNR Forest Resources Division
 231-342-9737
 armstrongk@michigan.gov

The designated DTMB Project Manager is:

Laura Brancheau
 DTMB
 517-335-1334
 BrancheauL@michigan.gov

STATEMENT OF WORK - IT CHANGE NOTICE

PROJECT PLAN:

1. Trademarks

The following table lists trademarks (not registered) that are included in the transfer. These trademarks are used in product user interfaces, IP addresses, user guides, websites, brochures, and other relevant materials describing, supporting, and promoting key products.

Trademark	Type	Context
MobileMap	Product name	Used to describe the MobileMap Android application in a general sense, including the base implementation
MobileMap Road	Product name	Used to describe a specific Android variant of MobileMap used for road management
MobileMap Cruise	Product alias	Used to describe MobileMap functionality when used in the context of forestry and especially timber cruise
MobileMap Harvest	Product alias	Used to describe MobileMap functionality when used in the context of automated mapping of timber harvest activity in cab on machinery used to harvest or perform area treatments. Also used to describe the in-cab MobileMap Harvest hardware and firmware.
InventoryManager	Product name	Used to describe the cloud-hosted SaaS web application used to manage timber inventory data. Includes all aspects of this system including the custom NVEL-based merchandiser and all customizations implemented for clients.
InventoryEDU	Product alias	Used to describe InventoryManager functionality when used in the context of academia (colleges and universities)
Spatial Content Management System	Product name	Used to describe the cloud-hosted SaaS Drupal-based geospatial web application used to manage a range of information including forestry, land/facility management, asset management, emergency response, etc.
Spatial CMS	Product alias	Abbreviated version of Spatial Content Management System

2. Domain Names

The following table lists the domain names included in this transfer.

Domain Name	Registrar	Planned use
mbgapplications.com (including wildcard SSL cert *.mbgapplications.com)	GoDaddy (account 45456955)	Transfer includes ownership of this domain. WSG agrees to only utilize this domain while software are being transitioned to a new domain. WSG agrees to complete the transition to a new domain as soon as possible, or 6 months at the most. After the 6 months, WSG will either return it to MBG, or terminate it at MB&G's direction.

STATEMENT OF WORK - IT CHANGE NOTICE

Domain Name	Registrar	Planned use
mbgmobilemap.com (including EV SSL cert)	Network Solutions (account 28933907)	Transfer includes ownership of this domain. WSG agrees to only utilize this domain while software are being transitioned to a new domain. WSG agrees to complete the transition to a new domain as soon as possible, or 6 months at the most. After the 6 months, WSG will either return it to MBG, or terminate it at MB&G's direction.
timbercruisemanager.com	Network Solutions (account 28933907)	WSG will retain ownership of this domain and registration will be transferred from the MB&G Network Solutions account to the specified GoDaddy account as part of the transfer.

3. Proprietary Software

The following table lists the software (applications, code, scripts, etc.) included in this transfer. For each application, all supporting materials including all source code, repositories, current and historic compiled versions, internal and customer facing documentation.

Application	Type	Details
MobileMap	Mobile app	Includes all source code (Java) stored in source code repository. Provides wide range of mobile, offline GIS data search, access, creation and editing.
MobileMap Cruise	Mobile app	Alias for MobileMap
MobileMap Road	Mobile app	Version of MobileMap that provides specialized functionality for digitizing and managing road centerlines, vegetation management needs and road construction needs.
MobileMap Harvest	Mobile app and hardware	Version of MobileMap and a companion dedicated in-cab hardware solution (Arduino-based) for capturing timber harvest events in feller bunchers using MobileMap.
Spatial CMS	Web app	Includes all source code (PHP, JavaScript, HTML, CSS) stored in Acquia source code repository.
InventoryManager	Web app	Set of Drupal modules that extend Spatial CMS provide forestry-specific functionality including plot layout, business rules, compilation, merchandising, check cruise score calculation, integration with FVS, TCruise, FPS/SPS, SILVAH. Includes source code, working applications, data models, naming conventions, workflows, documentation.
InventoryManager Merchandiser	Web service	Cloud-hosted tree merchandiser web service and associated source code (.NET) stored in Bitbucket and built using the National Volume Estimation Library (NVEL - FORTRAN) and hosted in Azure (volumecalculation.azurewebsites.net). Service called by InventoryManager to provide tree volumes.

STATEMENT OF WORK - IT CHANGE NOTICE

Application	Type	Details
InventoryEDU	Web app	Drupal module that extends the capabilities of InventoryManager to include functionality designed for by forestry education.
Automation and analysis scripts	Scripts written in Python, DOS/PowerShell, bash, R, JavaScript, SQL, PHP, CURL, etc.	All code files and scripts developed by GSG staff that perform data processing, automation, analysis, etc. Examples include Python data modeling or image caching scripts, server scripts for bulk file backup and transfer, R scripts that implement various image and data analysis, etc.



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

CONTRACT CHANGE NOTICE

Change Notice Number 11
 to
 Contract Number 19000000318

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Multi	
	Contract Administrator	Sarah Platte (517) 241-7000 plattes3@michigan.gov	DTMB

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,033,484.00	\$298,500.00	\$1,331,984.00		

DESCRIPTION

Effective 3/23/2022, the parties add the attached Statement of Work to update the Timber Cruise data collection software that will allow for improved system workflows. \$298,500.00 in funding is also being added to support the Statement of Work and production support.

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

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Jason Stephens	231-340-2424	stephensj@michigan.gov



**MICHIGAN DEPARTMENT OF TECHNOLOGY,
MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK FOR IT CHANGE NOTICES**

Project Title: Enhancements_Phase2	Period of Coverage: 4/1/2022 – 6/30/2023
Requesting Department: Department of Natural Resources (DNR)	Date: 2/7/2022
Agency Project Manager: Jason Stephens	Phone: 989-732-3541 x5010
DTMB Project Manager: Laura Brancheau	Phone: 517-335-1334

Brief Description of Services to be provided:

BACKGROUND:

Michigan Department of Natural Resources (MDNR) implemented the Timber Cruise data collection software system in 2020. MDNR has identified key items of the system that they would like to update to align and improve system workflows. The items have been tracked in MB&G's ticketing system, processed to understand level of effort and approved by MDNR for inclusion in this SOW. In addition, MDNR has requested pricing for extended production support for years 2023, 2024 and 2025.

PROJECT OBJECTIVE:

The objective of the project is to implement identified updates to the current system pertaining to the data model, search functionality, MacFarlane model, general cruise and plot management and to improve current workflows and provide additional functionality for cruise management within the system. In addition, production support provides MDNR with access to MB&G staff to support MDNR's implementation of the Timber Curise system. The following change order details implementation and costing for these items.

SCOPE OF WORK:

SYSTEM ENHANCEMENTS

Requests for updates to the Timber Cruise system were submitted by MDNR via MB&G's ticketing system and approved by MDNR for inclusion in this scope of work. These items are summarized in the table below with their ticket number and a relative effort level identified as low, moderate, high or extra high. Additional detail, including documentation on discussions with MDNR and potential solutions, is included in the ticketing system.

MB&G will work with MDNR to identify an appropriate solution for each of the items listed below. MDNR will prioritize these items, along with other production support tickets that are currently in the system, to indicate which should be worked first.

In addition to product enhancements, this SOW includes options for Production Support option years through 2025.

Issue key	Summary	Notes	Schedule days after contract execution	Effort Level
MSS-408	Compilation Controls screen - Sort Order	When compiling the VMS Test Report or the Timber Sale Report, have the default sort order as VDUnum, then Plot_ID, from smallest to largest.	45 days	L
MSS-269	Enhanced 'launch validation' for residual stocking report	This enhancement is to implement enhanced compilation 'launch logic' that would validate all BAF + Resid plots for matching Residual BAF values (while ignoring different or missing Residual BAF values in other plots within the Cruise_Unit which are BAF only plots).	45 days	L
MSS-350	Update MacFarlane Model for softwood branches	Incorporate Macfarlane's update to his model to improve branch volume for large softwoods per equation provided in ticket	45 days	L
MSS-376	Explode, Merge, Validation only for Data Managers	Editing library 2.0 we are wanting the explode, merge and validation tool only exposed to those with the data manager	45 days	L
MSS-291	Observer Initials/Name Setting (Pending SOW)	Instead of a user entering initials into the setting; if MM could instead store the users ESRI username in the settings which could be used to populate the cruiser id field	120 days	M
MSS-351	MacFarlane Model - Large Pulp Tree	This corrects a calculation missed by MDNR in an earlier MacFarlane update to Include a calculation for the sawtimber portion of the tree as Large Pulp or LP	120 days	M
MSS-392	Compilation - VMS Test Report Detail selection: Reorder selection and add VMS column to single VMS table	Updates to ordering, sorting and inclusion of VDU numbers In reporting	120 days	M
MSS-374	MM Phone Optimization-Identify Tool	Addresses text wrapping when using the identify tool	120 days	M
MSS-283	Add Label Configuration to IM	Add the ability to configure label symbology(color, symbol, font...).	120 days	M
MSS-393	Make Fields Read-Only at a Layer Level	add a setting in MM that would either hide fields or make them read-only at the plot level so that someone could not change them.	120 days	M
MSS-371	Remove un-editable layers from picklists	Add a new setting under data collection and editing that would allow a user to opt out of seeing greyed out layers in the picklist for the data collection and editing tools (draw, gps collection, editing, and tracking)	180 days	M
MSS-373	MM Phone Optimization-Actions Menu	get the actions menu to be the full width of the screen similar to the settings menu	180 days	M
MSS-375	MM Phone Optimization-Info banner	Optimize information banner at the top of the MM screen that displays navigation info, location data and measurement data.	180 days	M
MSS-404	Keyboard Offset for Edit Download Parameters	Incorporate keyboard offset logic that applies to the tree list to the Edit Download Parameter screen	180 days	M
MSS-418	Configure Calculated BA Fields on Plots	Wire up Calc Residual BA, Calc Merch BA, Calc Snag BA and Calc Saw BA fields	180 days	M
MSS-367	Search Enhancement: Default Search Fields and Suggested Search Values	Remove compartments from Zoom, enhance search tool to allow zoom-like functionality and add predictive text	300 days	H
MSS-398	Write VDU_ID to Plots when a Timber Sale is Compiled	Add VDU_ID field to the plots layer so that we could easily know what plots are in each sale.	300 days	H

Issue key	Summary	Notes	Schedule days after contract execution	Effort Level
MSS-295	VMS Test report with an Acres Cruise Unit	Update report (and the Export to Timber Cruise) to ignore the acres and stats of VDU's with plot type of 5 when calculating the sale level stats.	300 days	H
MSS-382	Update data model to EGDB standards	Support implementation of EGDB data model standards.	300 days	H
MSS-365	Export Volumes to Timber Cruise (Pending SOW)	Inclusion of VMSProposalID to help support DNRTimberCruise Species_Product_Volume table having 'bad' data that is not replaced when a new Export Volumes to Timber Cruise occurs. This has risk in deletion of records and needs to be well defined and tested	300 days	H
MSS-399	Placeholder for Inventory Workflow	Implementation of new inventory workflow. MDNR added clarifications for this workflow to the ticket however, there are still unknowns and some of the work is still identified as exploratory. To provide an estimate, we have clarified scope in the Assumptions and Deliverables section below. This workflow is dependent on MSS-398 being built first.	300 days	XH

Production Support

Production support provides MDNR with access to MB&G staff to support MDNR's implementation of the Timber Cruise system and is an extension of the six-month, post go-live support provided in the original contract. It includes support for questions regarding system workflows and implementation, review of data model or business rule configurations, as well as addressing minor* enhancements to the system.

We have provided costs below for years 2023, 2024 and 2025 at MDNR's request.

Product	2023 option year	2024 option year	2025 option year
Production Support Services	\$62,210	\$65,320	\$68,580

**Minor enhancements are determined at the discretion of MB&G but, in general, are items that take less than 2-4 hours and involve no coding changes.*

NOT IN SCOPE

The following items are not considered to be within scope of this change order.

- Product defects – Defects are covered by annual support and maintenance agreements already provided in the original scope of work and are not included in this change order.
- Support of MDNR systems. MDNR is responsible for maintaining MDNR systems in their enterprise environment. For example, MB&G is not responsible for data model publication, promotion of system components between system environments (dev, test prod), or managing users in the system.

ASSUMPTIONS:

- MSS-399 – All required fields have been identified in the 'MSS-399 MiFI Integration Details' document added to the ticket.

DELIVERABLES:

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

- Completion of each identified item, as per acceptance criteria

- Deliverables for 4e iii will be aimed at proof of concept and will consist of one bar graph and one pie chart along with documentation or requirements for remaining charts, graphs, maps etc., that could be included in future estimates.
- Production Support services, if opted in

PROJECT CONTROL AND REPORTS:

Progress reporting for this project will be completed via our established monthly meeting with review of outstanding tickets and technical items.

PAYMENT SCHEDULE:

Services will be invoiced on a monthly percent complete basis. 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 than monthly. All invoices should reflect actual work completed by payment date.

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

EXPENSES:

The cost for completing the SOW is a firm fixed price of \$102,390

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

SCHEDULE:

The project schedule will be driven by the prioritization of tickets from MDNR in alignment with other ongoing production support and enhancement efforts. The SOW end date is being set to contract execution date plus one (1) year, however the expectation is that much of the work will be completed prior to that date. If Production Support options are implemented, SOW end date will automatically extend to the end of year opted.

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Jason Stephens
Department DNR
Area FRD
Building/Floor Gaylord Oprs Service Center
Address 1732 M-32
City/State/Zip Gaylord, MI 49735
Phone Number 989-732-3541 x5010
Fax Number
Email Address Stephens, Jason (DNR) stephensj@michigan.gov

The designated DTMB Project Manager is:

Name Laura Brancheau
Department DTMB
Phone Number 517-335-1334
Fax Number
Email Address BrancheauL@michigan.gov

AGENCY RESPONSIBILITIES:

- Submission of all issues via MB&G's ticketing system

- Clarification of requirements
- Identification of acceptance criteria including provision of sample data with results identified for testing purposes
- Review/Acceptance of deliverables

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work from their home office locations in Oregon and Colorado.

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:

Work hours are not to exceed eight (8) hours a day, forty (40) hours a week.

No overtime will be permitted.

This purchase order is a release from Contract Number 171-190000000318. This purchase order, statement of work, and the terms and conditions of Contract Number 171-190000000318 constitute the entire agreement between the State and the Contractor.



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

CONTRACT CHANGE NOTICE

Change Notice Number **10**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DTMB
		517-335-1334	
		BrancheauL@michigan.gov	
	Contract Administrator	Sarah Platte	DTMB
		(517) 241-7000	
		plattes3@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

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DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,033,484.00	\$59,240.00	\$1,092,724.00		

DESCRIPTION

Effective 2/15/2022, the parties agree to add funding in the amount of \$59,240.00, to extend the production support on the Contract, originally added on CN 6, through December 2022.

All other terms, conditions, specification, and pricing remain the same. Per contractor, agency, and DTMB Central Procurement and State Administrative Board approval on 2/15/2022.

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Jason Stephens	231-340-2424	stephensj@michigan.gov



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

CONTRACT CHANGE NOTICE

Change Notice Number **9**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DNR
		517-335-1334	
		BrancheauL@michigan.gov	
	Contract Administrator	Sarah Platte	DTMB
		(517) 241-7000	
		plattes3@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

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DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$1,033,484.00	\$48,800.00	\$1,082,284.00		

DESCRIPTION

Effective 01/17/2021, the State adds \$48,800.00 in funding to support the addition of the attached Statement of Work for additional Remsoft Modeling Assistance.

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

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Jason Stephens	231-340-2424	stephensj@michigan.gov



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

Project Title: Remsoft Modeling Services	Period of Coverage: 9/15/2019 – 9/30/2022
Requesting Department: Natural Resources	Date: 11/17/2021
Agency Project Manager: Daniel Heckman	Phone: (231) 420-9698
DTMB Contract Administrator: Sarah Platte	Phone: 517-249-0493

Brief Description of Services to be provided:

BACKGROUND: The Michigan Department of Natural Resources (MDNR) manages a 4 million acre state forest for provision of many social, economic, and ecological values to the citizens of Michigan. The MDNR is preparing to re-write Regional State Forest Management Plans (RSFMPs), which are 10-year operational plans designed to achieve a desired future condition of state forest resources over a 100-year period of time. RSFMPs are implemented with a tactical and annual compartment review planning process, which includes pre-inventory and pre-review analyses, forest inventory, multidisciplinary review and public input for proposed management actions, and consensus decisions for management prescriptions.

A necessary step in the operational planning process is to model state forest inventory and other data to produce a range of possible statewide harvest levels using multiple priority weights of various forest uses and values. For the first generation of RSFMPs (completed in 2014) the MDNR inventory and planning staff developed and used a Microsoft Excel area regulation model to generate projected harvest levels for a 10-year planning period. Recognizing the practical limits of the Excel platform and the rudimentary nature of the area regulation model, in 2018 MDNR began to prepare for a second generation of RSFMPs, and purchased the Remsoft suite of software in 2018 with an intent to develop in-house timber harvest modeling expertise through a small-scale pilot planning project.

In September of 2018 the MDNR received a final brief on the cause and effect of significant error that was identified in the Excel area regulation model which had resulted in an over-estimation of planned RSFMP harvest levels. This triggered a decision to begin the process to re-write RSFMPs ahead of schedule, and by necessity accelerated the need to develop Remsoft timber harvest models. To provide credibility for new timber harvest models the MDNR now desires to retain professional contract services to assist in compile necessary data, to develop the Remsoft models, and to also develop tactical planning tools necessary to implement RSFMPs through the compartment review process.

The MDNR began development and advertisement of a Request for Proposals to provide to provide a new timber cruising software system in the summer of 2018, and signed a contract with Mason, Bruce and Girard, Inc. (MB&G) in March of 2019 to provide this software system. Serendipitously, MB&G also offers Remsoft modeling services, having recently completed a similar modeling project for the Minnesota DNR. The MDNR consequently directly negotiated with MB&G to provide Remsoft modeling services through a change notice to the timber cruising software system contract.

PROJECT OBJECTIVE: To provide additional planning model outputs for areas of state forest that are managed differently for specific wildlife habitat values that were not specified or included in the first change notice to the timber cruising software system contract.

SCOPE OF WORK and TASKS:

Develop Remsoft Woodstock models for special analysis units (SAUs):

1. All deer wintering complexes located within state forest lands in the upper peninsula.
2. All Kirtland’s warbler essential habitat located on state forest lands in the northern lower peninsula.
3. All Grouse Enhanced Management System areas located on state forest lands in the northern lower and upper peninsulas.
4. Incorporate SAU models into statewide strategic Woodstock model

DELIVERABLES:

Deliverables will not be considered complete until the MDNR Project Manager has formally accepted them. Additional and specific deliverables for this project are:

Deliverable	Description	Due Before
1	Build Remsoft Woodstock models for special analysis units for deer wintering complexes, the Grouse Enhanced Management System and Kirtland’s warbler habitat, and incorporate into statewide strategic Woodstock model.	December 31, 2021

PROJECT CONTROL AND REPORTS:

A bi-weekly progress report must be submitted to the Agency and DTMB Project Managers throughout the life of this project. This report may be submitted with the billing invoice. Each bi-weekly progress report must contain the following:

5. **Percent Work Complete:** Indicate the percentatge complete during the past two weeks, and the cumulative total to date for the project. Also state whether the remaining hours are sufficient to complete the project.
6. **Accomplishments:** Indicate what was worked on and what was completed during the current reporting period.
7. **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, in addition to DTMB standards.

PAYMENT SCHEDULE:

Payment will be made on a ‘Satisfactory acceptance of each Deliverable’ basis, as identified in the below table outlining the MB&G quote for project work. DTMB will pay CONTRACTOR upon receipt of properly completed invoices which shall be submitted to the billing address on the State issued purchase order not more often than monthly. DTMB Contracts area will coordinate obtaining Agency Project Manager and DTMB Project Manager approvals. All invoices should reflect actual work completed by payment date, and must be approved by the Agency Project Manager and DTMB Project Manager prior to payment. The invoices shall describe and document to the State’s satisfaction a description of the work performed, the progress of the project, and fees. When expenses are invoiced, receipts will need to be provided along with a detailed breakdown of each type of expense.

Submittal of invoices for consultation services shall be on a quarterly basis.

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:

Daniel Heckman
DNR – Forest Resources Division
Forest Planning and Modeling Specialist
Gaylord Client Service Center
1732 W M-32
Gaylord, Mi 49749
W- (989) 732-3541 x 5042
C- (231) 420-9698
heckmand@michigan.gov

The designated DTMB Project Manager is:

Laura Brancheau
Michigan Department of Technology, Management and Budget
Agency Services
525 W. Allegan Street
Lansing, MI 48933
517-335-1334
brancheaul@michigan.gov

The DTMB Contract Administrator for this project is:

Sarah Platte
Michigan Department of Technology, Management and Budget
DTMB Purchasing Operations
525 W. Allegan Street
Lansing, MI 48933
517-249-0493
bronzj@michigan.gov

AGENCY RESPONSIBILITIES:

The DNR Project Team will provide the contractor with relevant data and information to use in the analysis.

1. Required information/data: Forest inventory and other data for forest uses and values, stratified into forest stands, compartments, forest management units, year of entry, and ecological sections.
2. ArcGIS Shape files (or other format) for forest stands, compartments, ECS sections, and habitat-focused management areas.

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work at home or local corporate offices, at Constitution Hall in Lansing, Michigan, and other mutually agreed upon locations in 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.

MB&G Deliverable Pricing

Deliverable	Description	Due Before	Cost
1	Develop Special Analysis Unit models	12/31/2021	\$ 24,000.00
2	Additional Consultation Services (160 hrs @ \$155/hr)	9/30/2022	\$ 24,800.00
		MB&G Implementation Cost	\$ 48,800.00

MB&G will provide 160 hours of additional consultation services for the period of 1/1/2022 to 9/30/2022 at a time and material rate of \$155 per hour for the following categories of work:

1. Woodstock model code development
2. Edits to yield tables (New FVS runs, new yield tables)
3. Consultation on scenario development (how to represent a management need in our woodstock model)
4. Troubleshooting model behavior or infeasibilities
5. Understanding model outputs



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

CONTRACT CHANGE NOTICE

Change Notice Number **8**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DNR
		517-335-1334	
	BrancheauL@michigan.gov		
	Contract Administrator	Christopher Martin	DTMB
(517) 643-2833			
martinc20@michigan.gov			

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

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DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$958,438.00	\$75,046.00	\$1,033,484.00		

DESCRIPTION

Effective 7/30/2021, the following amendment for support is incorporated into this Contract per attached the attached SOW. This Contract is increased by \$75,046.00 for DNR use.

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

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Jason Stephens	231-340-2424	stephensj@michigan.gov



**MICHIGAN DEPARTMENT OF TECHNOLOGY,
MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK FOR IT CHANGE NOTICES**

Project Title: Reporting Enhancements	Period of Coverage: 7/1/2021 – 8/31/2022
Requesting Department: Department of Natural Resources (DNR)	Date: 05/27/2020
Agency Project Manager: Jason Stephens	Phone: 989-732-3541 x5010
DTMB Project Manager: Laura Brancheau	Phone: 517-335-1334

Brief Description of Services to be provided:

BACKGROUND:

Michigan Department of Natural Resources (MDNR) implemented the Timber Cruise data collection software system in 2020. MDNR has identified aspects of the reporting functionality, along with other key items of the system, that they would like to update to align and improve system workflows. The items have been tracked in MB&G’s ticketing system, processed to understand level of effort and approved by MDNR for inclusion in this SOW.

PROJECT OBJECTIVE:

Implement identified updates to the current system pertaining to reporting, navigation and general cruise and plot management to improve current workflows and provide additional functionality for cruise management within the system. The following change order details implementation and costing for these items.

SCOPE OF WORK:

Requests for updates to the Timber Cruise system were submitted by MDNR via MB&G’s ticketing system and approved by MDNR for inclusion in this scope of work. These items are summarized in the table below with their ticket number and a relative effort level identified as low, moderate or high. Additional detail, including documentation on discussions with MDNR and potential solutions, is included in the ticketing system.

MB&G will work with MDNR to identify an appropriate solution for each of the items listed below. MDNR will prioritize these items, along with other production support tickets that are currently in the system, to indicate which should be worked first.

Issue key	Summary	Notes	Schedule days after contract execution
MSS-153	Configure Cut Percent Field	This is needed to support a common workflow where MDNR removes every third row from red pine plantations. MDNR would like to be able to do a cruise of all merchantable timber in the cruise unit but have IM calculate the volume being cut as 1/3 of the total.	30 days
MSS-233	Selecting Feature Services	MDNR would like to find a way to make it easier for staff to find and select the feature services they need in MobileMap once the organization shifts to Portal.	30 days
MSS-158	Timber Sales Report - New	MDNR would like a user friendly report that summarizes the information about the timber sale that has been cruised	120 days
MSS-246	VMS Test Report Formatting	MDNR has identified suggested formatting improvements to both the online report and the printed report.	120 days
MSS-124	Create a Tally Cruise Report	Create a report that would be used exclusively for tally cruising to determine volumes. A tally report that dropped a lot of the fields that would not apply and gave us total volume by species and product for the cruise.	120 days
MSS-253	Standard Cruise Report - Relative Distribution of Trees	On the Standard Cruise Report, Table 3 only contains the Measure trees and does not contain the Tally trees. We would like to eliminate the footnote and update the table, extrapolating the measure trees into an estimate of total trees by diameter class. This topic may need more discussion	120 days
MSS-174	Create a new "stats report"	MDNR would like a report that would help inform the cruiser how well they are doing with hitting achieved errors. MDNR would like to also provide achieved errors at the species-product level so we can know if our highest value species product groups are being sampled enough. This report would also give the number of tally vs measure trees in each species product group.	180 days
MSS-223	Tally Cruising on Sale Reports	MDNR would like to update the VMS Test Report and Export Volumes to Timber Cruise to handle volume calculations of Tally cruises differently than plot cruising	180 days
MSS-192	Line navigation and point projection	MDNR would like the ability to navigate along a line and the ability to project points.	300 days
MSS-250	Plot Layout Enhancement	MDNR is looking for a few updates that will improve the plot layout tool in MobileMap including: Create a simpler process for cycling through plot layouts; Add the rest of the plot layout parameters to the tool's screen so that you can adjust them there rather than in the settings; Add a parameter for grid orientation. NOTE: the latter has challenges with the orientation of angles and will need to be discussed further	300 days
MSS-155	Enhance MobileMap to support DB versioning	MDNR would like MobileMap to support download via timestamp offset. MDNR will be getting branch versioning sometime in late '21. MDNR suspects that they will not start working on getting MobileMap features set up for versioning until next spring.	300 days

Issue key	Summary	Notes	Schedule days after contract execution
MSS-169	Batch Delete in MobileMap	MDNR would like a way to delete an entire grid of plots in MobileMap besides clicking on each one and deleting it	300 days
MSS-187	Enhancement - small, medium and large saw	A cruiser should be able to set a sampling ratio for small, medium and large saw.	300 days
MSS-175	Improve Baf+resid cruising in MobileMap	Improve performance of MobileMap when doing a baf+residual cruise.	300 days

MB&G will provide intermediate deliverables for some listed issues prior to scheduled due date to support testing and operations as appropriate.

DELIVERABLES:

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

- Completion of each identified item above as per acceptance criteria

PROJECT CONTROL AND REPORTS:

Progress reporting for this project will be completed via our established monthly meeting with review of outstanding tickets and technical items.

PAYMENT SCHEDULE:

Services will be invoiced on a monthly percent complete basis. 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 than monthly. All invoices should reflect actual work completed by payment date.

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

EXPENSES:

The cost for completing the SOW is a firm fixed price of \$75,046.

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

SCHEDULE:

The schedule will begin once the order is fully executed by both parties. Deliverables have been grouped into four sets with multiple enhancements to be delivered in each group. MB&G will work with MDNR project manager to set timing for any intermediate deliverables that can be delivered prior to the full group delivery due date. Due to expectations that ticket MSS-155 will not be workable until spring of 2022, the SOW end date is being set to August 31, 2022.

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Jason Stephens
 Department DNR
 Area FRD

Building/Floor Gaylord Oprs Service Center
Address 1732 M-32
City/State/Zip Gaylord, MI 49735
Phone Number 989-732-3541 x5010
Fax Number
Email Address Stephens, Jason (DNR) stephensj@michigan.gov

AGENCY RESPONSIBILITIES:

- Submission of all issues via MB&G's ticketing system
- Clarification of requirements
- Identification of acceptance criteria including provision of sample data with results identified for testing purposes
- Review/Acceptance of deliverables

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work from their home office locations in Oregon and Colorado.

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:

Work hours are not to exceed eight (8) hours a day, forty (40) hours a week.

No overtime will be permitted.

This purchase order is a release from Contract Number 171-190000000318. This purchase order, statement of work, and the terms and conditions of Contract Number 171-190000000318 constitute the entire agreement between the State and the Contractor.



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

CONTRACT CHANGE NOTICE

Change Notice Number 7
 to
 Contract Number 190000000318

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Various	MULTI
Contract Administrator	Christopher Martin	DTMB	
	(517) 643-2833		
	martinc20@michigan.gov		

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card	<input type="checkbox"/> PRC	<input type="checkbox"/> Other	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

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DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$929,681.00	\$28,757.00	\$958,438.00		

DESCRIPTION

Effective 5/13/2021, The State is exercising the second six month period of support. This Contract is increased by \$28,757.00 for DNR use.

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

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Jason Stephens	231-340-2424	stephensj@michigan.gov



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

CONTRACT CHANGE NOTICE

Change Notice Number **6**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Various	MULTI
	Contract Administrator	Christopher Martin	DTMB
		(517) 643-2833	
		martinc20@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE				
OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$900,923.00	\$28,758.00	\$929,681.00		

DESCRIPTION

Effective 2/24/2021, the following amendment for support is incorporated into this Contract per attached the attached SOW. The State is exercising the first six month period, further periods may be added at a later date. This Contract is increased by \$28,758.00 for DNR use.

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

**Program Managers
for
Multi-Agency and Statewide Contracts**

AGENCY	NAME	PHONE	EMAIL
DTMB	Laura Brancheau	517-335-1334	BrancheauL@michigan.gov
DNR	Jason Stephens	231-340-2424	stephensj@michigan.gov



**MICHIGAN DEPARTMENT OF TECHNOLOGY,
MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK FOR IT CHANGE NOTICES**

Project Title: Production Support Services for 2021	Period of Coverage: 1/1/2021 – 12/31/2021
Requesting Department: Department of Natural Resources (DNR)	Date: 12/20/2020
Agency Project Manager: Jason Stephens	Phone: 989-732-3541 x5010; 231-340-2424 (cell)
DTMB Project Manager: Laura Brancheau	Phone: 517-335-1334

Brief Description of Services to be provided:

BACKGROUND:

Michigan Department of Natural Resources (MDNR) implemented the Timber Cruise data collection software system in 2020 and would like to continue support services with Mason, Bruce & Girard (MB&G) through 2021.

PROJECT OBJECTIVE:

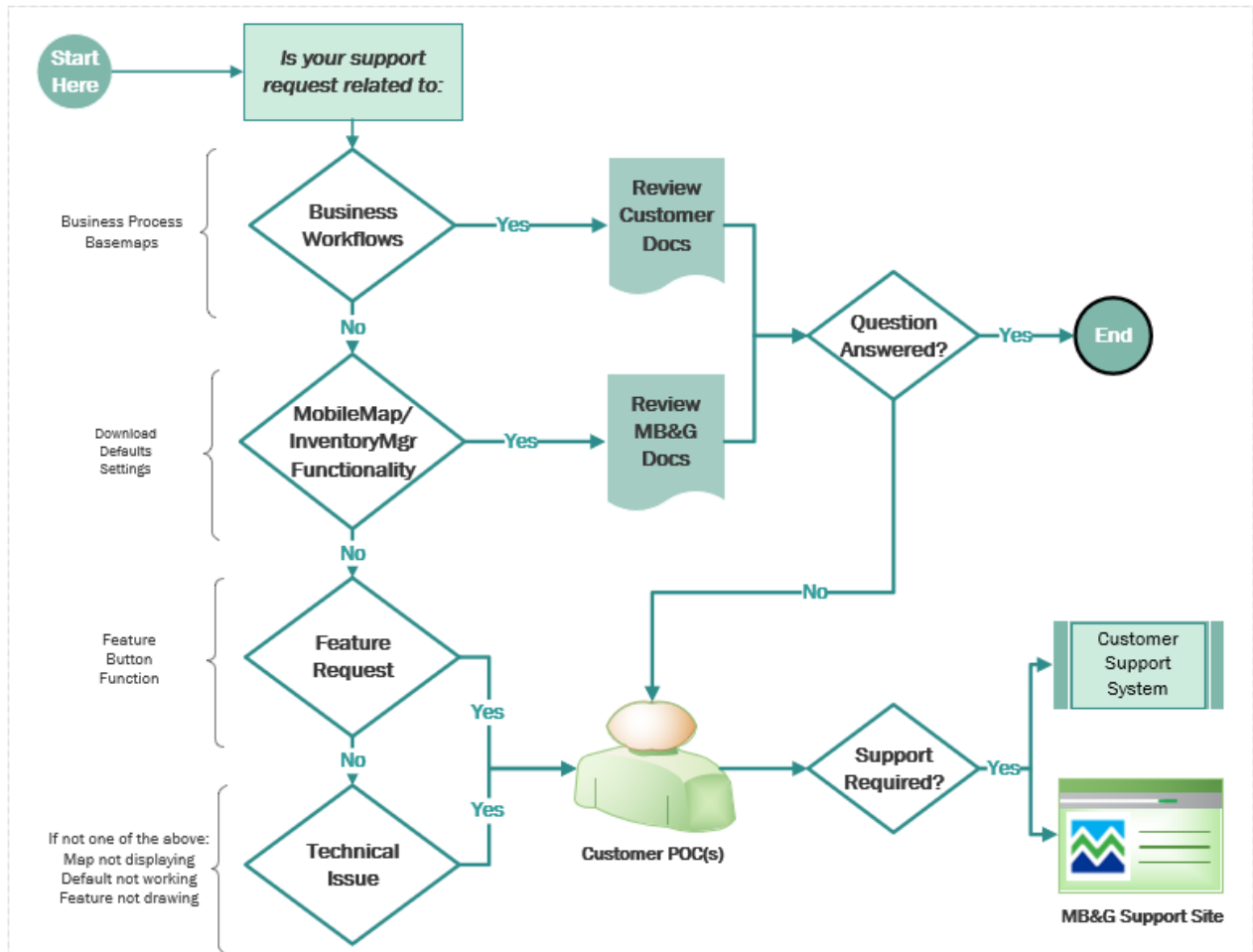
MDNR has a requirement to maintain production support services for the Timber Cruise application and would like to continue production support into 2021.

Support for product defects (bugs) is included in licensing and hosting costs already provided under the initial contract and are not part of this change notice.

SCOPE OF WORK:

Support Process

Support for the Timber Cruise system is provided via MB&G's ticketing system and follows the process indicated in the diagram below. Points of contact as identified by MDNR are authorized to submit tickets, approve work to proceed on a ticket and validate completion of a ticket (the deliverable). Tickets are categorized in review with MDNR to be either defects (bugs), enhancement (new features), or support requests (issues).



Production Support

Production support provides MDNR with access to MB&G staff to support MDNR's implementation of the Timber Cruise system and is an extension of the six-month, post go-live support provided in the original contract. The primary purpose of production support is to assist MDNR with transitioning to more independent management of the system. It includes support for questions regarding system workflows and implementation, review of data model or business rule configurations, as well as addressing minor* enhancements to the system.

This support is available in annual or six month increments. We have provided costs below for years 2021 and 2022, as well as the six month increment thru June 30, 2021.

Product	Thru June 30,2021	2021	2022 option year
Production Support Services (option 1)	\$ 28,758		
Production Support Services (option 2)		\$ 57,515	\$59,240

**Minor enhancements are determined at the discretion of MB&G but, in general, are items that take less than 2-4 hours and involve no coding changes.*

NOT IN SCOPE

The following items are not considered to be within scope of this change notice.

- Product defects – As noted above, defects are covered by annual support and maintenance agreements already provided in the original scope of work and are not included in this change notice.
- Support of MDNR systems, unless as part of extended support -- MDNR is responsible for maintaining MDNR systems in their enterprise environment. For example, MB&G is not responsible for data model publication, promotion of system components between system environments (dev, test, prod), or managing users in the system.

DELIVERABLES:

Deliverables will not be considered complete until the Agency Project Manager has formally accepted them.

PROJECT CONTROL AND REPORTS:

Progress reporting for this project will be completed on a monthly basis per meeting to review outstanding tickets and technical items as well as status of set aside budget.

PAYMENT SCHEDULE:

Production Support costs will be invoiced in full upon execution of this change notice.

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

EXPENSES:

See cost breakdown by item in Project Plan section below.

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

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Jason Stephens
 Department DNR
 Area FRD
 Building/Floor Gaylord Oprs Service Center
 Address 1732 M-32
 City/State/Zip Gaylord, MI 49735
 Phone Number 989-732-3541 x5010; 231-340-2424 (cell)
 Fax Number
 Email Address Stephens, Jason (DNR) stephensj@michigan.gov

The designated DTMB Project Manager is:

Name Laura Brancheau
 Department DTMB
 Area Agency Services

Building/Floor Constitution Hall, First Floor, North Tower
Address 525 W. Allegan
City/State/Zip Lansing, MI 48933
Phone Number (517)335-1334
Fax Number
Email Address brancheaul@michigan.gov

AGENCY RESPONSIBILITIES:

- Submission of all issues via MB&G's ticketing system

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work from their home office locations in Oregon and Colorado.

EXPECTED CONTRACTOR WORK HOURS AND CONDITIONS:

Work hours are not to exceed eight (8) hours a day, forty (40) hours a week.

No overtime will be permitted.

PROJECT PLAN:

The project plan is dependent on the option(s) selected.

Option	Product	Term	Rate	Cost
1	Production Support	thru 6/2021	NA	\$ 28,758
2	Production Support	2021 with 2022 option year	NA	\$ 57,515 plus \$ 59,240 (option year)



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

CONTRACT CHANGE NOTICE

Change Notice Number **5**
to
Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DNR
		517-335-1334	
	BrancheauL@michigan.gov		
	Contract Administrator	Christopher Martin	DTMB
(517) 643-2833			
martinc20@michigan.gov			

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
NET 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE				
OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$900,923.00	\$0.00	\$900,923.00		

DESCRIPTION
Effective 7/21/2020, the State is authorizing the Contractor to resume work on Change Notice 1 to complete deliverables 4 through 9.
All other terms, conditions, specifications and pricing remain the same. Per contractor and agency agreement, and DTMB Central Procurement Services approval



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

CONTRACT CHANGE NOTICE

Change Notice Number **4**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DNR
		517-335-1334	
	BrancheauL@michigan.gov		
	Contract Administrator	Christopher Martin	DTMB
(517) 643-2833			
martinc20@michigan.gov			

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
Net 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE				
OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$918,563.00	(\$17,640.00)	\$900,923.00		

DESCRIPTION

Effective 5/29/2020, the following amendments are incorporated into this Contract. Contractor to complete the remaining development work, provide software licenses, and support in FY 20 per the original agreement. The roll-out training scheduled for October of 2020 is cancelled, a net reduction of \$17,640.00.

For CN 1, a Stop Work Order is issued upon completion of deliverable number three - growth and yield curve development. Within 45 calendar days of the date above, the State will determine whether to extend the Stop Work Order, continue, or cancel.

Please note the Contract Administrator has been changed to Christopher Martin.

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



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

CONTRACT CHANGE NOTICE

Change Notice Number **3**
 to
 Contract Number **19000000318**

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DNR
		517-335-1334	
	BrancheauL@michigan.gov		
	Contract Administrator	Jordan Sherlock	DTMB
517-243-5556			
sherlockj@michigan.gov			

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card	<input type="checkbox"/> PRC	<input type="checkbox"/> Other	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE				
OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$898,743.00	\$19,820.00	\$918,563.00		

DESCRIPTION

Effective 11/15/2019, the following amendment is hereby incorporated into the contract per the attached SOW. This change includes the following; additional scope to add functionality for compiling volumes and generating reports for sub-sampling methods. The contract is also hereby increased by \$19,820.00 for DNR Forestry Division use.

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



**MICHIGAN DEPARTMENT OF TECHNOLOGY,
MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK FOR IT CHANGE NOTICES**

Project Title: Incorporation of sub-sampling compilation capabilities into InventoryManager	Period of Coverage: 11/1/19 – 12/31/19
Requesting Department: Department of Natural Resources (DNR)	Date: 10/25/2019
Agency Project Manager: Jason Stephens	Phone: 989-732-3541 x5010
DTMB Project Manager: Robin Krzciok	Phone: 517-335-3211

Brief Description of Services to be provided:

BACKGROUND:

Michigan Department of Natural Resources (MDNR) is implementing a new Timber Cruise data collection software system. Standard compilation reporting within the system only supports plots with 100% measure trees but does not support plots in which sub-sampling is used. Sub-sampling methods, such as First Tree North and Sample Tree Ratio, are supported in the data model and in the field data collection software (MobileMap) and MDNR would like to add functionality for compiling volumes and generating reports for these sub-sampling methods.

PROJECT OBJECTIVE:

MDNR would like to provide their foresters and staff with the capability to compile cruise data for plots that utilize sub-sampling within InventoryManager.

SCOPE OF WORK:

MB&G will configure additional functionality within InventoryManager to support compilation of sub-sampled plots. This functionality will include compilation for the following sub-sampling methods:

- First Tree North (FTN)
- Sample Tree Ratio (STR)
- Point Count Measure (PCM) – including Count (PCMC) and Measure (PCMM) plots
- Big BAF (BB)

Sub-sampling compilation support will be added to the existing compilation and reporting capabilities and the result will be that the standard reporting tables will produce the correct result when sub-sampling is used.

Not in Scope

The following items are not considered to be within scope of this effort:

- Development of additional reporting tables or attributes beyond those in standard reporting (no new reports or data model changes are included as a part of this work)
- Reading or writing data directly to or from MIFi, VMS or other MDNR systems. The compilation results are expected to be accessed in the same manner as the standard reports (on-screen reports, printed reports, PDF reports, or reporting data saved to the existing VMS reports tables in the Cruise feature service).
- Support for sub-sampling calculations in offline reports within MobileMap. Offline reports in MobileMap will continue to support BA and TPA calculations as these are possible as-is with sub-sampling methodology. No support exists for offline volume calculations and thus offline support for sub-sampling is not needed or included.

TASKS:

Technical support is required to assist with the following tasks:

1. Methods Development

MB&G will develop the methods required for compilation of sub-sampled plots. MB&G has inventory and biometrics subject matter experts in-house to support development of these equations and will vet final methods through Dr. Steve Fairweather, a former MB&G owner and SME in forest biometrics and applied statistics for natural resource assessment and management.

2. Software Development

MB&G will configure the sub-sampling compilation method into InventoryManager and incorporate into the reporting tables that have already been defined and are currently being developed. Results will be verified by MB&G SME prior to delivery to MDNR.

Sub-Tasks:

- Developing and verifying methods for sub-sampling compilation
- Implimenting methods for sub-sampling compilation into InventoryManager
- Integrating sub-sampling compilation method into InventoryManager reports
- Testing and verification of results (MB&G internal)

3. Implementation

MB&G will release sub-sampling compilation functionality to the DEV/QA/PROD environment and support MDNR with testing and debugging as per the same processes being implemented in the main contract.

DELIVERABLES:

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

- Methods Development
- Software Development - release into DEV for sub-sampling compilation functionality
- MDNR testing support in DEV

ACCEPTANCE CRITERIA:

Deliverable	Acceptance Criteria
Methods Development	Team Review of methodology
Software Development	Release of functionality to MDNR
MDNR DEV testing support	DEV testing identifies successful implementation of sub-sampling compilation

PROJECT CONTROL AND REPORTS:

Progress reporting for this project is being completed on a weekly basis.

PAYMENT SCHEDULE:

Payment will be made on a Satisfactory Acceptance of each deliverable basis. 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 DTMB within forty-five (45) days after receipt of properly completed invoices.

EXPENSES:

See cost breakdown by task in Project Plan section below.

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

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Jason Stephens
Department DNR
Area FRD
Building/Floor Gaylord Oprs Service Center
Address 1732 M-32
City/State/Zip Gaylord, MI 49735
Phone Number 989-732-3541 x5010
Fax Number
Email Address Stephens, Jason (DNR) <stephensj@michigan.gov>

The designated DTMB Project Manager is:

Name Robin Krzciok
Department DTMB PMO
Area ePMO
Building/Floor Constitution Hall, Atrium, South Tower, C6
Address 525 W. Allegan
City/State/Zip 525 W. Allegan, Lansing, MI 48933
Phone Number (517)335-3211
Fax Number
Email Address krzciokr@michigan.gov

AGENCY RESPONSIBILITIES:

- Review/Acceptance of deliverables

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work from their home office locations in Oregon and Colorado.

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.

This purchase order is a release from Contract Number 171-19000000318. This purchase order, statement of work, and the terms and conditions of Contract Number 171-19000000318 constitute the entire agreement between the State and the Contractor.



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

CONTRACT CHANGE NOTICE

Change Notice Number 2
 to
 Contract Number 190000000318

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DNR
		517-335-1334	
		BrancheauL@michigan.gov	
	Contract Administrator	Jordan Sherlock	DTMB
		517-243-5556	
		sherlockj@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card	<input type="checkbox"/> PRC	<input type="checkbox"/> Other	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

DESCRIPTION OF CHANGE NOTICE				
OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$887,243.00	\$11,500.00	\$898,743.00		

DESCRIPTION

Effective 10/28/2019, the following amendment is hereby incorporated into the contract per the attached SOW. This change includes the following; additional scope to add a basic statistics for foresters class to help with rollout and implementation of the Timber Cruise Software. The contract is also hereby increased by \$11,500.00 for DNR Forestry Division use.

Please note that he Contract Administrator has been updated to Jordan Sherlock.

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



**MICHIGAN DEPARTMENT OF TECHNOLOGY,
MANAGEMENT AND BUDGET
IT SERVICES
STATEMENT OF WORK FOR IT CHANGE NOTICES**

Project Title: Timber Cruise Basic Statistics for Foresters to Support Cruise Design and Accuracy for the Michigan DNR	Period of Coverage: 12/1/19 – 2/19/20
Requesting Department: Department of Natural Resources (DNR)	Date: 9/30/2019
Agency Project Manager: Jason Stephens	Phone: 989-732-3541 x5010
DTMB Project Manager: Robin Krzciok	Phone: 517-335-3211

Brief Description of Services to be provided:

BACKGROUND:

Michigan Department of Natural Resources (MDNR) is implementing a new Timber Cruise data collection software system that includes new methodologies for timber cruising. MDNR has determined that a Basic Statistics for Foresters course will help with the rollout and implementation of this new Timber Cruising Software and methodologies.

PROJECT OBJECTIVE:

MDNR would like to provide their foresters with a basic statistics training course to ensure they have a fundamental understanding of the methods being implemented in the new Timber Cruising Software system.

SCOPE OF WORK:

MB&G will provide two, 1-day courses to MDNR, one each in the Upper and Lower Peninsula. MB&G will team with Dr. Steve Fairweather from Fairweather Biometrics to deliver the courses. Additional instructors will include Dr. Dave MacFarlane, who developed the MacFarlane model being utilized in the new timber cruise system, and one or two additional MDNR statisticians.

TASKS:

Technical support is required to assist with the following tasks:

1 Plan Agenda

The MB&G team will meet with MDNR to define the goals of the training, determine training topics and identify teaching assignments for each instructor. Instructors will take the lead on developing materials for their assignment with support and review of materials provided by the team. Planning meetings will be held via an online conference call system.

2 Preparation of Teaching Materials

The MB&G Team, in coordination with other team members, will prepare materials to support each of the course topics. These will include PowerPoint slides as well as simulation results to illustrate key points. Course handouts will be developed for the students to use as reference during sessions.

3 Course Presentation

The MB&G Team will travel to Michigan to present two 1-day courses. Dates, times and locations of the courses are still to be determined but one course each will be held in the Lower Peninsula and the other in the Upper Peninsula. MB&G assumes courses will be held within one to two days of each other. (e.g. Tues/Weds or Tues/Thurs)

MB&G will work with MDNR on logistics for each of the courses but it is expected that each location will have WiFi and a screen (smart screen or projection system) for presenting to a large audience. MB&G expects there will be 40-50 attendees per course.

DELIVERABLES:

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

- Planning Meetings to prepare for training courses
- Agenda/Syllabus
- Presentation Materials
- Student handouts
- Two 1-day instructor-led training courses
 - Lower Peninsula location
 - Upper Peninsula location

ACCEPTANCE CRITERIA:

Deliverable	Acceptance Criteria
Planning Meetings	Course content is planned, instructors have assignments
Agenda/Syllabus for courses	Syllabus developed and approved
Presentation Materials	Instructor slides/demos/simulations completed, reviewed and approved
Student Handouts	Student handouts are reviewed, approved and printed
Lower Peninsula Course	Course completed
Upper Peninsula Course	Course completed

PROJECT CONTROL AND REPORTS:

Progress reporting for this project is being completed on a weekly basis.

PAYMENT SCHEDULE:

Payment will be made on a Satisfactory Acceptance of each deliverable basis. 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 DTMB within forty-five (45) days after receipt of properly completed invoices.

EXPENSES:

See cost breakdown by task in Project Plan section below.

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

PROJECT CONTACTS:

The designated Agency Project Manager is:

Name Jason Stephens
Department DNR
Area FRD
Building/Floor Gaylord Oprs Service Center
Address 1732 M-32
City/State/Zip Gaylord, MI 49735
Phone Number 989-732-3541 x5010
Fax Number
Email Address Stephens, Jason (DNR) <stephensj@michigan.gov>

The designated DTMB Project Manager is:

Name Robin Krzciok
Department DTMB PMO
Area ePMO
Building/Floor Constitution Hall, Atrium, South Tower, C6
Address 525 W. Allegan
City/State/Zip 525 W. Allegan, Lansing, MI 48933
Phone Number (517)335-3211
Fax Number
Email Address krzciokr@michigan.gov

AGENCY RESPONSIBILITIES:**LOCATION OF WHERE THE WORK IS TO BE PERFORMED:**

Consultants will work from their home office locations in Oregon and Colorado and at the course locations, still to be determined, in the Lower and Upper Peninsulas.

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.

This purchase order is a release from Contract Number 171-190000000318. This purchase order, statement of work, and the terms and conditions of Contract Number 171-190000000318 constitute the entire agreement between the State and the Contractor.

**STATE OF MICHIGAN
CENTRAL PROCUREMENT SERVICES**

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



CONTRACT CHANGE NOTICE

Change Notice Number 1
to
Contract Number 171-19000000318

CONTRACTOR	MASON, BRUCE & GIRARD, INC.
	707 SW Washington , Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DTMB
		517-335-1334	
		BrancheauL@michigan.gov	
	Contract Administrator	Jennifer Bronz	DTMB
		(517) 249-0493	
		bronzj@michigan.gov	

CONTRACT SUMMARY

DNR TIMBER CRUISE SOFTWARE SYSTEM			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE
March 12, 2019	March 12, 2024	5 - 1 Year	March 12, 2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-Card <input type="checkbox"/> PRC <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

MINIMUM DELIVERY REQUIREMENTS

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DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
<input type="checkbox"/>		<input type="checkbox"/>		March 12, 2024
CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE		
\$522,243.00	\$365,000.00	\$887,243.00		

DESCRIPTION

Effective 8/27/2019, the following amendment is hereby incorporated into the contract per the attached SOW. This change includes the following; additional scope for Remsoft Modeling development for Timber Cruise System. The contract is also hereby increased by \$365,000.00 for DNR Forestry Division use. All other terms, conditions, specifications, and pricing remain the same. Per DTMB Contractor and agency agreement, DTMB Procurement Services approval, and State Administrative Board approval on 08/27/2019.



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

Project Title: Remsoft Modeling Services	Period of Coverage: 9/15/2019 – 10/1/2021
Requesting Department: Natural Resources	Date: 08/27/2019
Agency Project Manager: Daniel Heckman	Phone: (989) 732-3541 x 5042
DTMB Contract Administrator: Jennifer Bronz	Phone: 517-249-0493

Brief Description of Services to be provided:

BACKGROUND: The Michigan Department of Natural Resources (MDNR) manages a 4 million acre state forest for provision of many social, economic, and ecological values to the citizens of Michigan. The MDNR is preparing to re-write Regional State Forest Management Plans (RSFMPs), which are 10-year operational plans designed to achieve a desired future condition of state forest resources over a 100-year period of time. RSFMPs are implemented with a tactical and annual compartment review planning process, which includes pre-inventory and pre-review analyses, forest inventory, multidisciplinary review and public input for proposed management actions, and consensus decisions for management prescriptions.

A necessary step in the operational planning process is to model state forest inventory and other data to produce a range of possible statewide harvest levels using multiple priority weights of various forest uses and values. For the first generation of RSFMPs (completed in 2014) the MDNR inventory and planning staff developed and used a Microsoft Excel area regulation model to generate projected harvest levels for a 10-year planning period. Recognizing the practical limits of the Excel platform and the rudimentary nature of the area regulation model, in 2018 MDNR began to prepare for a second generation of RSFMPs, and purchased the Remsoft suite of software in 2018 with an intent to develop in-house timber harvest modeling expertise through a small-scale pilot planning project.

In September of 2018 the MDNR received a final brief on the cause and effect of significant error that was identified in the Excel area regulation model which had resulted in an over-estimation of planned RSFMP harvest levels. This triggered a decision to begin the process to re-write RSFMPs ahead of schedule, and by necessity accelerated the need to develop Remsoft timber harvest models. To provide credibility for new timber harvest models the MDNR now desires to retain professional contract services to assist in compile necessary data, to develop the Remsoft models, and to also develop tactical planning tools necessary to implement RSFMPs through the compartment review process.

The MDNR began development and advertisement of a Request for Proposals to provide to provide a new timber cruising software system in the summer of 2018, and signed a contract with Mason, Bruce and Girard, Inc. (MB&G) in March of 2019 to provide this software system. Serendipitously, MB&G also offers Remsoft modeling services, having recently completed a similar modeling project for the Minnesota DNR. The MDNR consequently desires to directly negotiate with MB&G to provide Remsoft modeling services through a change notice to the timber cruising software system contract.

PROJECT OBJECTIVE: To provide planning model outputs for various combinations of forest uses and values, sufficient for evaluation, comparison and selection of a preferred option for sustainable timber harvest and habitat levels to be used in re-writing Regional State Forest Management Plans. Also to provide RSFMP tactical implementation tools for use in the compartment review process.

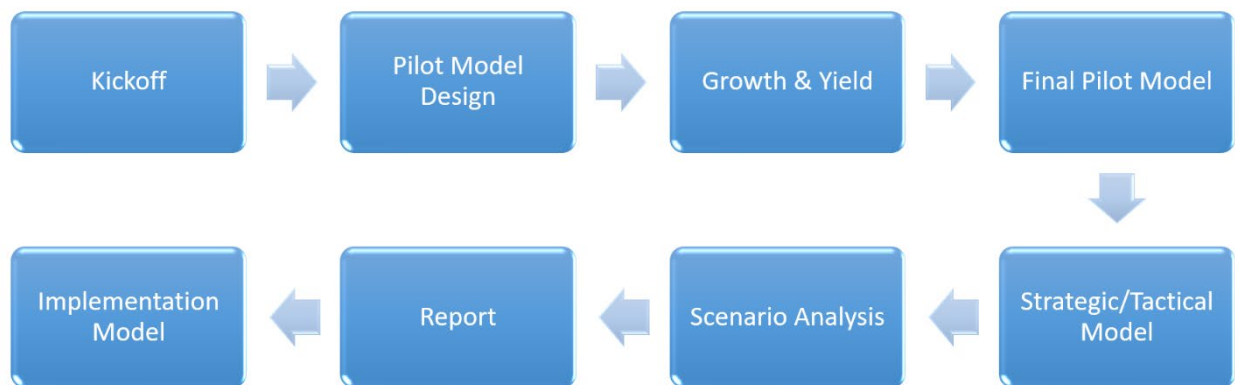
SCOPE OF WORK:

The analysis must address and incorporate the following components:

1. 4 million acres of MDNR-managed state forest lands;
2. Short (e.g., 10 years) and long (100 years) temporal scales;
3. Statewide spatial extent, with results optimized and summarized by ECS (Ecological Classification System) sections and DNR management areas;
4. Growth and yield tables and curves for forest types that are present in the Michigan state forest;
5. Varying acreages, spatial distributions, and rotations lengths for different forest types, including but not limited to: timberland, High Conservation Value Areas, specific wildlife habitat areas, and forest recreation infrastructure;
6. Assessment of tradeoffs among multiple forest resources values, including, but not limited to, timber productivity, wildlife habitat, biodiversity, water quality, forest health, and economics, across DNR-administered lands and in consideration of other ownerships.

TASKS:

Proposed Scope and Major Tasks



Contractor support is required to assist with the following tasks:

1. Project Kick-off

- a. Hold onsite project kick-off meeting with MB&G and MDNR planning staff (1 Day)
- b. Participate in field tour on the state forest (1-2 Days)
- c. Determine schedule for weekly/biweekly progress conference call meetings, and provision of regular written project status reports and other ad-hoc reports as needed and requested.
- d. Identify any modeling requirements.
- e. Compile inventory and other data sets necessary for modeling.
- f. Provide brief on the modeling process for initial meetings of a stakeholder advisory group.

2. Pilot Model Design

- a. Develop a pilot planning model in collaboration with the MDNR Project Team using the Remsoft Woodstock Optimization System, Spatial Optimizer, and Analyst for Excel.
- b. Develop cover type structure for creation of a management regime matrix.
- c. Work with the MDNR Project Team to identify harvest scenarios for more in-depth spatial analyses and to assess quantitative and qualitative tradeoffs between multiple forest resource values across state forest lands. Forest resource values include:
 - i. Timber production;
 - ii. Wildlife habitat;
 - iii. Recreation infrastructure;
 - iv. High conservation value areas;

- d. Evaluate the importance and sensitivity of key model parameters and assumptions, including, but not limited to:
 - i. Availability as determined by MDNR site condition coding
 - ii. Defining management area polygons and extents
 - iii. Rotation ages and desired age class distributions
 - iv. Growth and yield tables and curves
 - v. Even-flow of timber production
 - vi. Desired forest type conversions
 - vii. Acreage of high conservation value areas
 - viii. Varying levels of risk and uncertainty, including climate change adaptation, associated with different resources and/or data sets.
 - ix. Carbon Inventory reporting (pools / sinks)
 - e. Conduct sensitivity analyses of model parameters, incorporating uncertainty in modeling parameters and results to allow for an assessment of inherent risks.
 - f. Define model outputs for both strategic and implementation models (stratum vs stand level)
 - g. Provide a summary report of pilot model design work
- 3. Develop Growth and Yield Curves**
- a. Develop and calibrate growth and yield tables and curves for northern Michigan forest species and/or forest types utilizing Michigan FIA plot data for trees species and growth. Coordinate calibration efforts with other sources (i.e. MN DNR, U.S. Forest Service, Weyerhaeuser Corp., MTU, MSU, etc.)
 - b. Provide a summary report of growth and yield curve development.
- 4. Develop Final Pilot Model**
- a. Work iteratively with the Project Team to plan, develop a scenario matrix to assess the sustainable harvest level from state forest timber lands. Initial scenarios should include, but are not limited to, the following:
 - i. Minimizing constraints to harvest
 - ii. Maximizing conservation of non-timber resources
 - iii. Preparation of about one million cords per year
 - iv. Area Regulation
 - v. 3-4 other possible scenarios
 - b. Develop harvest volume projections over time by species and/or covertype, landscape planning units, and by MDNR districts / Forest Management Units.
 - c. Provide a summary report of the final pilot model.
- 5. Develop a Strategic Model**
- a. Obtain and incorporate stakeholder input to refine the final pilot model into a strategic model
 - b. Run model for multiple scenarios at the scale of ecological sections.
 - c. Provide a summary report of strategic model outputs.
- 6. Scenario Analysis**
- a. Ensure that an appropriate and rigorous analysis is achieved, with defensible assumptions, parameters and appropriate quality assurance and quality control (QA/QC).
 - b. Provide model outputs for the Project Team and Stakeholder Group (SG) to review via presentations and reports, and assist the Project Team and SG in interpreting model outputs and results.
- 7. Production of final model outputs and reports**
- a. Provide outputs for each ecological section analysis for public review, including documenting methods, assumptions, and results.
 - b. Provide a report containing metadata on how the model was built (for replacement of content in Appendix D of current RSFMPs)
- 8. Develop Implementation Model**
- a. Development of tools for integrating the preferred model scenario into RSFMPs and for plan implementation through the compartment review process.
 - b. Provide training for MDNR planning staff on the use of the model

DELIVERABLES:

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

1. By September 15, 2019 hold a 2-3 day project kick-off meeting in Michigan (location TBD).
2. By December 1, 2019 provide a pilot model design document.
3. By December 1, 2019, Produce growth and yield curves for state forest covertypes and/or species.
4. By April 1, 2020, conduct pilot harvest scenario modeling for state forest lands.
 - a. Submit a written report describing the preliminary results to date from the initial harvest scenarios, including as many of the following components as possible:
 - i. Age class distributions over time by covertype, landscape planning unit, district, and forest management unit.
 - ii. Harvest volume and area projections over time by species and/or covertype, landscape planning unit, district, forest management unit.
 - iii. QA/QC metrics
 - iv. Statistical report on model outputs and scenarios.
 - b. Submit 'accessible versions' of electronic copies:
 - i. Excel tables and charts of the results.
 - ii. Word document detailing model parameters, restrictions, and assumptions used.
 - iii. Tabular and spatial model outputs, and programming files used in analyses
5. By May 1, 2020, complete development of strategic model
6. Complete analyses on a range of harvest scenarios from an iterative process involving the DNR Project Team with input from the SG. This must include quantitative and qualitative tradeoffs between multiple forest resources on state forest lands.
 - a. By August 1, 2020 submit a preliminary written report for review by the SG and the public that addresses all tasks identified in the Project Tasks section. Provide at least two presentations of preliminary results to the SG.
 - b. By October 1, 2020, submit a final written report that addresses substantive comments/revisions from the SG and the public, including revised outputs as needed.
7. By October 1, 2020 provide final Remsoft Woodstock model outputs and reports.
 - a. Provide the Project Team with all final tabular and spatial data, and code/programming files used to conduct the analyses.
8. By October 1, 2021 develop RSFMP tactical implementation tools for use in the compartment review process, and provide training to MI DNR on the use of the Remsoft Woodstock model and tools.
9. For the period of October 1, 2020 to October 1, 2021 remain available for consultation during DNR decision-making process and/or contingencies.

Deliverable	Description	Due Before
1	Project Kick-off Meeting	September 15, 2019
2	Pilot model design document	December 1, 2019
3	Growth and yield curves	December 1, 2019
4a	A written report documenting initial harvest scenario modeling.	April 1, 2020
4b	Tabular and spatial model outputs, and code/programming files used to conduct the initial analyses.	April 1, 2020
5	Complete work on strategic model for all lands	May 1, 2020
6	A preliminary written report for public review that assesses the effects of a range of harvest scenarios on multiple forest resources.	August 1, 2020
6a	A final written report that addresses substantive comments/revisions from the SG and the public, including revised outputs as needed.	October 1, 2020
7	All final tabular and spatial data, and code/programming files used to conduct the analyses.	October 1, 2020
8	RSFMP tactical implementation tools for use in the compartment review process and provide training to DNR staff	October 1, 2021

9	Remain available for consultation during DNR decision-making process and/or contingencies	October 1, 2020 – October 1, 2021
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ACCEPTANCE CRITERIA:

MDNR has had extensive discussions with the Minnesota Department of Natural Resources (MN DNR) regarding similar modeling services that were contracted with Mason, Bruce and Girard (MB&G) in 2017. Given that MNDNR was satisfied with the modeling services provided by MB&G; and given that MDNR has an existing contract with MB&G to provide IT services related to a new MDNR Timber Cruise Software System; the MDNR desires to negotiate an amendment to the existing contract to provide for Remsoft modeling services, contingent upon MB&G agreeing to provide such services as outlined in this statement of work at a reasonable cost.

PROJECT CONTROL AND REPORTS:

A bi-weekly progress report must be submitted to the Agency and DTMB Project Managers throughout the life of this project. This report may be submitted with the billing invoice. Each bi-weekly progress report must contain the following:

1. **Percent Work Complete:** Indicate the percentatge complete during the past two weeks, and the cumulative total to date for the project. Also state whether the remaining hours are sufficient to complete 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, in addition to DTMB standards.

PAYMENT SCHEDULE:

Payment will be made on a 'Satisfactory acceptance of each Deliverable' basis, as identified in the below table outlining the MB&G quote for project work. DTMB will pay CONTRACTOR upon receipt of properly completed invoices which shall be submitted to the billing address on the State issued purchase order not more often than monthly. DTMB Contracts area will coordinate obtaining Agency Project Manager and DTMB Project Manager approvals. All invoices should reflect actual work completed by payment date, and must be approved by the Agency Project Manager and DTMB Project Manager prior to payment. The invoices shall describe and document to the State's satisfaction a description of the work performed, the progress of the project, and fees. When expenses are invoiced, receipts will need to be provided along with a detailed breakdown of each type of expense.

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:

Daniel Heckman
DNR – Forest Resources Division
Forest Planning and Modeling Specialist
Gaylord Client Service Center
1732 W M-32
Gaylord, Mi 49749
W- (989) 732-3541 x 5042
C- (231) 420-9698
heckmand@michigan.gov

The designated DTMB Project Manager is:

Laura Brancheau
Michigan Department of Technology, Management and Budget
Agency Services
525 W. Allegan Street
Lansing, MI 48933
517-335-1334
brancheaul@michigan.gov

The DTMB Contract Administrator for this project is:

Jennifer Bronz
Michigan Department of Technology, Management and Budget
DTMB Purchasing Operations
525 W. Allegan Street
Lansing, MI 48933
517-249-0493
bronzj@michigan.gov

AGENCY RESPONSIBILITIES:

The DNR Project Team will provide the contractor with relevant data and information to use in the analysis.

1. Required information/data: Forest inventory and other data for forest uses and values, stratified into forest stands, compartments, forest management units, year of entry, and ecological sections.
2. ArcGIS Shape files (or other format) for forest stands, compartments, ECS sections, wildlife management areas, rare features (including endangered, threatened, and special concern species), recreational infrastructure, and special management areas (including habitat-focused management areas, and high conservation value forests);
3. ArcGIS shapefiles of auxiliary data relevant to modeling needs (eg. major mill locations, road networks, streams, lakes, and rivers, etc).
4. Examples of additional information/data available upon request:
 - a. DNR policies, guidelines and practices (e.g. forest certification work instruction, rotation ages);
 - b. Previous sustainable harvest analyses conducted by MDNR.

LOCATION OF WHERE THE WORK IS TO BE PERFORMED:

Consultants will work at home or local corporate offices, at Constitution Hall in Lansing, Michigan, and other mutually agreed upon locations in 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.

MB&G Pricing

Deliverable	Description	Due Before	Cost
1	Project Kickoff Meeting		\$ 22,000.00
	<i>2-3 day meeting in MI</i>	09/15/2019	\$ -
2	Pilot model design		\$ 27,000.00
	<i>Pilot model design document</i>	12/01/2019	\$ -
3	Develop growth and yield curves		\$ 60,000.00
	<i>Growth and yield curves</i>	12/01/2019	\$ -
4	Develop final pilot model		\$ 48,000.00
	<i>A written report documenting initial harvest scenario modeling</i>	04/01/2020	\$ -
	<i>Tabular and spatial model outputs, and code/programming files used to conduct the initial analysis</i>	04/01/2020	\$ -
5	Develop strategic model		\$ 54,000.00
	<i>Complete work on strategic model for all lands</i>	05/01/2020	\$ -
6	Scenario analysis		\$ 48,000.00
	<i>A preliminary written report for public review that assesses the effects of a range of harvest scenarios on multiple forest resources</i>	08/01/2020	\$ -
	<i>A final written report that addresses substantive comments/revisions from the SG and the public, including revised outputs as needed.</i>	10/01/2020	\$ -
7	Production of final model outputs and reports		\$ 18,000.00
	<i>All final tabular and spatial data, and code/programming files used to conduct the analyses</i>	10/01/2020	\$ -
8	Develop Implementation model		\$ 60,000.00
	<i>RSFMP tactical implementation tools for use in the compartment review process and provide training to DNR staff</i>	10/01/2021	\$ -
			\$ 30,000.00.00
9	Remain available for consultation during DNR decision-making process/Contingencies	10/1/2020-10/1/2021	\$ -
			\$ 367,000.00
		MB&G Implementation Cost	\$365,000.00



STATE OF MICHIGAN ENTERPRISE PROCUREMENT

DTMB – Department of Technology, Management & Budget
525 West Allegan Street
P.O. Box 30017
Lansing, MI 48909

NOTICE OF CONTRACT

NOTICE OF CONTRACT NO. **171-19000000318**
between
THE STATE OF MICHIGAN
and

CONTRACTOR	Mason, Bruce & Girard, Inc.
	707 SW Washington, Suite 1300
	Portland, OR 97205
	Mike Lester
	503-224-3445
	mlester@masonbruce.com
	VS0053501

STATE	Program Manager	Laura Brancheau	DTMB
		517-335-1334	
	BrancheauL@michigan.gov		
	Contract Administrator	Jennifer Bronz	DTMB
517-249-0493			
bronzj@michigan.com			

CONTRACT SUMMARY			
DESCRIPTION: DNR Timber Cruise Software System			
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
3/12/2019	3/12/2024	5 – 1-year	3/12/2024
PAYMENT TERMS		DELIVERY TIMEFRAME	
Net 45		N/A	
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
<input type="checkbox"/> P-card <input type="checkbox"/> Direct Voucher (DV) <input type="checkbox"/> Other			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
MINIMUM DELIVERY REQUIREMENTS			
N/A			
MISCELLANEOUS INFORMATION			
This contract is established from Request for Proposal 171-180000003164			
ESTIMATED CONTRACT VALUE AT TIME OF EXECUTION			\$522,243.00

FOR THE CONTRACTOR:

MASON, BRUCE & GIRARD, INC.,
Company Name

Michael Lester
Authorized Agent Signature

MICHAEL L. LESTER
Authorized Agent (Print or Type)

2/12/19
Date

FOR THE STATE:

Jennifer Bronz
Signature

Jennifer Bronz – Senior Category Analyst
Name & Title

DTMB – Central Procurement Services
Agency

3/12/2019
Date



STATE OF MICHIGAN

CONTRACT TERMS

SaaS Software Contract

This Software Contract (this “**Contract**”) is agreed to between the State of Michigan (the “**State**”) and Mason, Bruce & Girard, Inc. (“**Contractor**” or “**MB&G**”), an OREGON CORPORATION. This Contract is effective on March 12, 2019 (“**Effective Date**”), and unless earlier terminated, will expire on March 12, 2024 (the “**Term**”).

This Contract may be renewed for up to 5 additional 1-year periods. Renewal must be by written notice from the State at least 30 days before the expiration of the current Term (to the extent practicable) and will automatically extend the Term of this Contract.

1. Definitions. For the purposes of this Contract, the following terms have the following meanings:

“**Acceptance**” has the meaning set forth in **Section 12.5**.

“**Acceptance Tests**” means such tests as may be conducted in accordance with **Section 12** and the Statement of Work to determine whether the Software meets the requirements of this Contract and the Documentation.

“**Affiliate**” of a Person means any other Person that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such Person. For purposes of this definition, the term “control” (including the terms “controlled by” and “under common control with”) means the direct or indirect ownership of more than fifty percent (50%) of the voting securities of a Person.

“**Allegedly Infringing Materials**” has the meaning set forth in **Section 25.3(b)(ii)**.

“**API**” means all Application Programming Interfaces and associated API Documentation provided by Contractor, and as updated from time to time, to allow the Software to integrate with various State and Third Party Software.

“**Approved Open-Source Components**” means Open-Source Components that may be included in or used in connection with the Software and are specifically identified in an exhibit to the Statement of Work, and approved by the State.

“**Authorized Users**” means all Persons authorized by the State to access and use the Software under this Contract, subject to the maximum number of users specified in the applicable Statement of Work.

“Business Day” means a day other than a Saturday, Sunday or other day on which the State is authorized or required by Law to be closed for business.

“Business Owner” is the individual appointed by the agency buyer to (a) act as the agency’s representative in all matters relating to the Contract, and (b) co-sign off on notice of Acceptance for the Software. The Business Owner will be identified in the Statement of Work.

“Business Requirements Specification” means the initial specification setting forth the State’s business requirements regarding the features and functionality of the Software, as set forth in the Statement of Work.

“Change” has the meaning set forth in **Section 2.2**.

“Change Notice” has the meaning set forth in **Section 2.2(b)**.

“Change Proposal” has the meaning set forth in **Section 2.2(a)**.

“Change Request” has the meaning set forth in **Section 2.2**.

“Confidential Information” has the meaning set forth in **Section 20.1**.

“Configuration” means State-specific changes made to the Software without Source Code or structural data model changes occurring.

“Contract” has the meaning set forth in the preamble.

“Contract Administrator” is the individual appointed by each party to (a) administer the terms of this Contract, and (b) approve any Change Notices under this Contract. Each party’s Contract Administrator will be identified in the Statement of Work.

“Contractor” has the meaning set forth in the preamble.

“Contractor’s Bid Response” means the Contractor’s proposal submitted in response to the RFP.

“Contractor Personnel” means all employees of Contractor or any Permitted Subcontractors involved in the performance of Services hereunder.

“Contractor’s Test Package” has the meaning set forth in **Section 11.2**.

“Deliverables” means the Software, and all other documents and other materials that Contractor is required to or otherwise does provide to the State under this Contract and otherwise in connection with any Services, including all items specifically identified as Deliverables in the Statement of Work.

“Dispute Resolution Procedure” has the meaning set forth in **Section 30.1**.

“Documentation” means all user manuals, operating manuals, technical manuals and any other instructions, specifications, documents or materials, in any form or media, that describe the functionality, installation, testing, operation, use, maintenance, support, technical or other components, features or requirements of the Software.

“DTMB” means the Michigan Department of Technology, Management and Budget.

“Effective Date” has the meaning set forth in the preamble.

“Fees” means collectively, the License Fees, Implementation Fees, and Support Services Fees.

“Financial Audit Period” has the meaning set forth in **Section 28.1**.

“Force Majeure” has the meaning set forth in **Section 31.1**.

“Harmful Code” means any: (a) virus, trojan horse, worm, backdoor or other software or hardware devices the effect of which is to permit unauthorized access to, or to disable, erase, or otherwise harm, any computer, systems or software; or (b) time bomb, drop dead device, or other software or hardware device designed to disable a computer program automatically with the passage of time or under the positive control of any Person, or otherwise prevent, restrict or impede the State's or any Authorized User's use of such software.

“Implementation Fees” has the meaning set forth in **Section 16.2**.

“Implementation Plan” means the schedule included in the Statement of Work setting forth the sequence of events for the performance of Services under the Statement of Work, including the Milestones and Milestone Dates.

“Integration Testing” has the meaning set forth in **Section 12.1(c)**.

“Intellectual Property Rights” means all or any of the following: (a) patents, patent disclosures, and inventions (whether patentable or not); (b) trademarks, service marks, trade dress, trade names, logos, corporate names, and domain names, together with all of the associated goodwill; (c) copyrights and copyrightable works (including computer programs), mask works and rights in data and databases; (d) trade secrets, know-how and other confidential information; and (e) all other intellectual property rights, in each case whether registered or unregistered and including all applications for, and renewals or extensions of, such rights, and all similar or equivalent rights or forms of protection provided by applicable Law in any jurisdiction throughout the world.

“Key Personnel” means any Contractor Personnel identified as key personnel in the Statement of Work.

“Law” means any statute, law, ordinance, regulation, rule, code, order, constitution, treaty, common law, judgment, decree or other requirement or rule of any federal, state, local or foreign government or political subdivision thereof, or any arbitrator, court or tribunal of competent jurisdiction.

“License Agreement” has the meaning set forth in **Section 3**.

“License Fee” has the meaning set forth in **Section 16.1**.

“Loss or Losses” means all losses, damages, liabilities, deficiencies, claims, actions, judgments, settlements, interest, awards, penalties, fines, costs or expenses of whatever kind, including reasonable attorneys' fees and the costs of enforcing any right to indemnification hereunder and the cost of pursuing any insurance providers.

“Maintenance and Support Schedule” means, if applicable, the schedule attached as **Schedule B**, setting forth the Support Services Contractor will provide to the State, and the parties' additional rights and obligations with respect thereto.

“Maintenance Release” means any update, upgrade, release or other adaptation or modification of the Software, including any updated Documentation, that Contractor may generally provide to its licensees from time to time during the Term, which may contain, among other things, error corrections, enhancements, improvements or other changes to the user interface, functionality, compatibility, capabilities, performance, efficiency or quality of the Software.

“Milestone” means an event or task described in the Implementation Plan under the Statement of Work that must be completed by the corresponding Milestone Date.

“Milestone Date” means the date by which a particular Milestone must be completed as set forth in the Implementation Plan under the Statement of Work.

“New Version” means any new version of the Software that the Contractor may from time to time introduce and market generally as a distinct licensed product, as may be indicated by Contractor's designation of a new version number.

“Nonconformity” or **“Nonconformities”** means any failure or failures of the Software to conform to the requirements of this Contract, including any applicable Documentation.

“Open-Source Components” means any software component that is subject to any open-source copyright license agreement, including any GNU General Public License or GNU Library or Lesser Public License, or other obligation, restriction or license agreement that substantially conforms to the Open Source Definition as prescribed by the Open Source Initiative or otherwise may require disclosure or licensing to any third party of any source code with which such software component is used or compiled.

“Open-Source License” has the meaning set forth in **Section 4**.

“Operating Environment” means, collectively, the platform, environment and conditions on, in or under which the Software is intended to be installed and operate, as set forth in the Statement of Work, including such structural, functional and other features, conditions and components as hardware, operating software and system architecture and configuration.

“Permitted Subcontractor” has the meaning set forth in **Section 9.4**.

“Person” means an individual, corporation, partnership, joint venture, limited liability company, governmental authority, unincorporated organization, trust, association or other entity.

“Pricing” means any and all fees, rates and prices payable under this Contract, including pursuant to any Schedule or Exhibit hereto.

“Pricing Schedule” means the schedule attached as **Schedule D**, setting forth the License Fees, Implementation Fees, Support Services Fees, and any other fees, rates and prices payable under this Contract.

“Project Manager” is the individual appointed by each party to (a) monitor and coordinate the day-to-day activities of this Contract, and (b) for the State, to co-sign off on its notice of Acceptance for the Software. Each party’s Project Manager will be identified in the Statement of Work.

“Representatives” means a party’s employees, officers, directors, partners, shareholders, agents, attorneys, successors and permitted assigns.

“RFP” means the State’s request for proposal designed to solicit responses for Services under this Contract.

“Services” means any of the services Contractor is required to or otherwise does provide under this Contract, the Statement of Work, the Maintenance and Support Schedule (if applicable), or the Service Level Agreement (if applicable).

“Service Level Agreement” means, if applicable, the service level agreement attached as **Schedule E** to this Contract, setting forth Contractor’s obligations with respect to the hosting, management and operation of the Software.

“Site” means the physical location designated by the State in, or in accordance with, this Contract or the Statement of Work for delivery and installation of the Software.

“Software” means Contractor’s software set forth in the Statement of Work, and any Maintenance Releases or New Versions provided to the State and any Configurations made by or for the State pursuant to this Contract, and all copies of the foregoing permitted under this Contract and the License Agreement.

“Source Code” means the human readable source code of the Software to which it relates, in the programming language in which the Software was written, together with all related flow charts and technical documentation, including a description of the procedure for generating object code, all of a level sufficient to enable a programmer reasonably fluent in such programming language to understand, build, operate, support, maintain and develop modifications, upgrades, updates, adaptations, enhancements, new versions and other derivative works and improvements of, and to develop computer programs compatible with, the Software.

“Specifications” means, for the Software, the specifications collectively set forth in the Business Requirements Specification, Technical Specification, Documentation, RFP or Contractor’s Bid Response, if any, for such Software, or elsewhere in the Statement of Work.

“State” means the State of Michigan.

“State Data” has the meaning set forth in **Section 19.1**.

“State Materials” means all materials and information, including documents, data, know-how, ideas, methodologies, specifications, software, content and technology, in any form or media, directly or indirectly provided or made available to Contractor by or on behalf of the State in connection with this Contract.

“State Resources” has the meaning set forth in **Section 10.1**.

“Statement of Work” means any statement of work entered into by the parties and attached as a schedule to this Contract. The initial Statement of Work is attached as **Schedule A**, and subsequent Statements of Work shall be sequentially identified and attached as Schedules A-1, A-2, A-3, etc.

“Stop Work Order” has the meaning set forth in **Section 23**.

“Support Services” means the software maintenance and support services Contractor is required to or otherwise does provide to the State under the Maintenance and Support Schedule (if applicable) or the Service Level Agreement (if applicable).

“Support Services Commencement Date” means, with respect to the Software, the date on which the Warranty Period for the Software expires or such other date as may be set forth in the Statement of Work.

“Support Services Fees” has the meaning set forth in **Section 16.3**.

“Technical Specification” means, with respect to any Software, the document setting forth the technical specifications for such Software and included in the Statement of Work.

“Term” has the meaning set forth in the preamble.

“Test Data” has the meaning set forth in **Section 11.2**.

“Test Estimates” has the meaning set forth in **Section 11.2**.

“Testing Period” has the meaning set forth in **Section 12.1(b)**.

“Third Party” means any Person other than the State or Contractor.

“Transition Period” has the meaning set forth in **Section 22.4**

“Transition Responsibilities” has the meaning set forth in **Section 22.4**.

“Unauthorized Removal” has the meaning set forth in **Section 9.3(b)**.

“User Data” means all data, information and other content of any type and in any format, medium or form, whether audio, visual, digital, screen, GUI or other, that is input, uploaded to, placed into or collected, stored, processed, generated or output by any device, system or network by or on behalf of the State, including any and all works, inventions, data, analyses and other information and materials resulting from any use of the Software by or on behalf of the State under this Contract, except that User Data does not include the Software or data, information or content, including any GUI, audio, visual or digital or other display or output, that is generated automatically upon executing the Software without additional user input.

“Warranty Period” means the one-year period commencing on the date of the State's Acceptance of the Software.

“Work Product” means all State-specific deliverables that Contractor is required to, or otherwise does, provide to the State under this Contract including but not limited to computer scripts, macros, user

interfaces, reports, project management documents, forms, templates, and other State-specific documents and related materials together with all ideas, concepts, processes, and methodologies developed in connection with this Contract whether or not embodied in this Contract.

2. Statements of Work. Contractor shall provide Services and Deliverables pursuant to Statements of Work entered into under this Contract. No Statement of Work shall be effective unless signed by each party's Contract Administrator. The term of each Statement of Work shall commence on the parties' full execution of the Statement of Work and terminate when the parties have fully performed their obligations. The terms and conditions of this Contract will apply at all times to any Statements of Work entered into by the parties and attached as a schedule to this Contract. The State shall have the right to terminate such Statement of Work as set forth in **Section 22**. Contractor acknowledges that time is of the essence with respect to Contractor's obligations under each Statement of Work and agrees that prompt and timely performance of all such obligations in accordance with this Contract and the Statements of Work (including the Implementation Plan and all Milestone Dates) is strictly required.

2.1 Statement of Work Requirements. Each Statement of Work will include the following:

(a) names and contact information for Contractor's Contract Administrator, Project Manager and Key Personnel;

(b) names and contact information for the State's Contract Administrator, Project Manager and Business Owner;

(c) a detailed description of the Services to be provided under this Contract, including any training obligations of Contractor;

(d) a detailed description of the Software to be provided under this Contract, including the:

(i) version and release number of the Software;

(ii) Business Requirements Specification;

(iii) Technical Specification; and

(iv) a description of the Documentation to be provided;

(e) an Implementation Plan, including all Milestones, the corresponding Milestone Dates and the parties' respective responsibilities under the Implementation Plan;

(f) the due dates for payment of Fees and any invoicing requirements, including any Milestones on which any such Fees are conditioned, and such other information as the parties deem necessary;

(g) disclosure of all Open-Source Components (each identified on a separate exhibit to the Statement of Work), in each case accompanied by such related documents as may be required by this Contract;

(h) description of all liquidated damages associated with this Contract, to the extent applicable; and

(i) a detailed description of all State Resources required to complete the Implementation Plan.

2.2 Change Control Process. The State may at any time request in writing (each, a “**Change Request**”) changes to the Statement of Work, including changes to the Services and Implementation Plan (each, a “**Change**”). Upon the State’s submission of a Change Request, the parties will evaluate and implement all Changes in accordance with this **Section 2.2**.

(a) As soon as reasonably practicable, and in any case within twenty (20) Business Days following receipt of a Change Request, Contractor will provide the State with a written proposal for implementing the requested Change (“**Change Proposal**”), setting forth:

- (i) a written description of the proposed Changes to any Services or Deliverables;
- (ii) an amended Implementation Plan reflecting: (A) the schedule for commencing and completing any additional or modified Services or Deliverables; and (B) the effect of such Changes, if any, on completing any other Services under the Statement of Work;
- (iii) any additional State Resources Contractor deems necessary to carry out such Changes; and
- (iv) any increase or decrease in Fees resulting from the proposed Changes, which increase or decrease will reflect only the increase or decrease in time and expenses Contractor requires to carry out the Change.

(b) Within thirty (30) Business Days following the State’s receipt of a Change Proposal, the State will by written notice to Contractor, approve, reject, or propose modifications to such Change Proposal. If the State proposes modifications, Contractor must modify and re-deliver the Change Proposal reflecting such modifications, or notify the State of any disagreement, in which event the parties will negotiate in good faith to resolve their disagreement. Upon the State’s approval of the Change Proposal or the parties’ agreement on all proposed modifications, as the case may be, the parties will execute a written agreement to the Change Proposal (“**Change Notice**”), which Change Notice will be signed by the State’s Contract Administrator and will constitute an amendment to the Statement of Work to which it relates; and

(c) If the parties fail to enter into a Change Notice within fifteen (15) Business Days following the State’s response to a Change Proposal, the State may, in its discretion:

- (i) require Contractor to perform the Services under the Statement of Work without the Change;
- (ii) require Contractor to continue to negotiate a Change Notice;
- (iii) initiate a Dispute Resolution Procedure; or
- (iv) notwithstanding any provision to the contrary in the Statement of Work, terminate this Contract under **Section 22.2**.

(d) No Change will be effective until the parties have executed a Change Notice. Except as the State may request in its Change Request or otherwise in writing, Contractor must continue to perform its obligations in accordance with the Statement of Work pending negotiation and execution of a Change Notice. Contractor will use its best efforts to limit any delays or Fee increases from any Change to those necessary to perform the Change in accordance with the applicable Change Notice. Each party is

responsible for its own costs and expenses of preparing, evaluating, negotiating, and otherwise processing any Change Request, Change Proposal, and Change Notice.

(e) The performance of any functions, activities, tasks, obligations, roles and responsibilities comprising the Services as described in this Contract are considered part of the Services and, thus, will not be considered a Change. This includes the delivery of all Deliverables in accordance with their respective Specifications, and the diagnosis and correction of Non-Conformities discovered in Deliverables prior to their Acceptance by the State or, subsequent to their Acceptance by the State, as necessary for Contractor to fulfill its associated warranty requirements and its Support Services under this Contract.

(f) Contractor may, on its own initiative and at its own expense, prepare and submit its own Change Request to the State. However, the State will be under no obligation to approve or otherwise respond to a Change Request initiated by Contractor.

3. Software License. Contractor hereby grants to the State and its Authorized Users the right and license to use the Software and Documentation in accordance with the terms and conditions of this Contract and the License Agreement set forth in **Schedule C** (the "**License Agreement**").

4. Open-Source Licenses. Any use hereunder of Open-Source Components shall be governed by, and subject to, the terms and conditions of the applicable open-source license ("**Open-Source License**"). Contractor shall identify and describe in an exhibit to the Statement of Work each of the Approved Open-Source Components of the Software, and include an exhibit attaching all applicable Open-Source Software Licenses or identifying the URL where these licenses are publicly available.

5. Software Implementation.

5.1 Implementation. Contractor will configure, integrate, and otherwise provide access to and make fully operational the Software on or prior to the applicable Milestone Date in accordance with the criteria set forth in the Statement of Work.

5.2 Site Preparation. Unless otherwise set forth in the Statement of Work, Contractor is responsible for ensuring the relevant Operating Environment is set up and in working order to allow Contractor to provide access to and make fully operational the Software on or prior to the applicable Milestone Date.

6. Hosting. Contractor will maintain the Availability Requirement and the Support Service Level Requirement set forth in the Service Level Agreement attached as **Schedule E** to this Contract.

7. Support Services

7.1 Support Services for Externally Hosted Software. Contractor shall provide the State with the Support Services described in the Service Level Agreement attached as **Schedule E** to this Contract. Such Support Services shall be provided:

(a) Free of charge during the Warranty Period, it being acknowledged and agreed that the License Fee includes full consideration for such Services during such period.

(b) Thereafter, for so long as the State elects to receive Support Services for the Software, in consideration of the State's payment of Support Services Fees in accordance with **Section 16** and the rates set forth in the Pricing Schedule.

8. Data Privacy and Information Security.

8.1 Undertaking by Contractor. Without limiting Contractor's obligation of confidentiality as further described, Contractor is responsible for establishing and maintaining a data privacy and information security program, including physical, technical, administrative, and organizational safeguards, that is designed to: (a) ensure the security and confidentiality of the State Data; (b) protect against any anticipated threats or hazards to the security or integrity of the State Data; (c) protect against unauthorized disclosure, access to, or use of the State Data; (d) ensure the proper disposal of State Data; and (e) ensure that all Contractor Representatives comply with all of the foregoing. In no case will the safeguards of Contractor's data privacy and information security program be less stringent than the safeguards used by the State, and Contractor must at all times comply with all applicable State IT policies and standards, which are available at http://www.michigan.gov/dtmb/0,4568,7-150-56355_56579_56755--,00.html.

8.2 To the extent that Contractor has access to the State's computer system, Contractor must comply with the State's Acceptable Use Policy, see http://michigan.gov/cybersecurity/0,1607,7-217-34395_34476--,00.html. All Contractor Personnel will 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 Contractor's access to the State's system if a violation occurs.

8.3 Right of Audit by the State. Without limiting any other audit rights of the State, the State has the right to review Contractor's data privacy and information security program prior to the commencement of Services and from time to time during the term of this Contract. During the providing of Services, on an ongoing basis from time to time and without notice, the State, at its own expense, is entitled to perform, or to have performed, an on-site audit of Contractor's data privacy and information security program. Such audit will be conducted in a manner designed to minimize disruption of Contractor's normal business operations and that complies with the terms and conditions of all data confidentiality, ownership, privacy, security and restricted use provisions of the Contract. In lieu of an on-site audit, upon request by the State, Contractor agrees to complete, within forty-five (45) calendar days of receipt, an audit questionnaire provided by the State regarding Contractor's data privacy and information security program.

8.4 Audit Findings. With respect to State Data, Contractor must implement any required safeguards as identified by the State or by any audit of Contractor's data privacy and information security program.

8.5 State's Right to Termination for Deficiencies. The State reserves the right, at its sole election, to immediately terminate this Contract or the Statement of Work without limitation and without liability if the State determines that Contractor fails or has failed to meet its obligations under this **Section 8**.

8.6 Security Requirements for Externally Hosted Software. If the Operating Environment for the Software is externally hosted by Contractor or a subcontractor, Contractor shall comply with the security requirements set forth in **Schedule F** to this Contract.

9. Performance of Services. Contractor will provide all Services and Deliverables in a timely, professional and workmanlike manner and in accordance with the terms, conditions, and Specifications set forth in this Contract and the Statement of Work.

9.1 Contractor Personnel.

(a) Contractor is solely responsible for all Contractor Personnel and for the payment of their compensation, including, if applicable, withholding of income taxes, and the payment and withholding of

social security and other payroll taxes, unemployment insurance, workers' compensation insurance payments and disability benefits.

- (b) Prior to any Contractor Personnel performing any Services, Contractor will:
 - (i) ensure that such Contractor Personnel have the legal right to work in the United States;
 - (ii) upon request, require such Contractor Personnel to execute written agreements, in form and substance acceptable to the State, that bind such Contractor Personnel to confidentiality provisions that are at least as protective of the State's information (including all Confidential Information) as those contained in this Contract; and
 - (iii) upon request, perform background checks on all Contractor Personnel prior to their assignment. The scope is at the discretion of the State and documentation must be provided as requested. Contractor is responsible for all costs associated with the requested background checks. The State, in its sole discretion, may also perform background checks on Contractor Personnel.

(c) Contractor and all Contractor Personnel will comply with all rules, regulations, and policies of the State that are communicated to Contractor in writing, including security procedures concerning systems and data and remote access, building security procedures, including the restriction of access by the State to certain areas of its premises or systems, and general health and safety practices and procedures.

(d) The State reserves the right to require the removal of any Contractor Personnel found, in the reasonable judgment of the State, to be unacceptable. The State's request must be written with reasonable detail outlining the reasons for the removal request. Replacement personnel for the removed person must be fully qualified for the position. If the State exercises this right, and Contractor cannot immediately replace the removed personnel, the State agrees to negotiate an equitable adjustment in schedule or other terms that may be affected by the State's required removal.

9.2 Contractor's Project Manager. Throughout the Term of this Contract, Contractor must maintain a Contractor employee acceptable to the State to serve as Contractor's Project Manager, who will be considered Key Personnel of Contractor. Contractor's Project Manager will be identified in the Statement of Work.

- (a) Contractor's Project Manager must:
 - (i) have the requisite authority, and necessary skill, experience, and qualifications, to perform in such capacity;
 - (ii) be responsible for overall management and supervision of Contractor's performance under this Contract; and
 - (iii) be the State's primary point of contact for communications with respect to this Contract, including with respect to giving and receiving all day-to-day approvals and consents.

(b) Contractor's Project Manager must attend all regularly scheduled meetings as set forth in the Implementation Plan, and will otherwise be available as set forth in the Statement of Work.

(c) Contractor will maintain the same Project Manager throughout the Term of this Contract, unless:

- (i) the State requests in writing the removal of Contractor's Project Manager;
- (ii) the State consents in writing to any removal requested by Contractor in writing;
- (iii) Contractor's Project Manager ceases to be employed by Contractor, whether by resignation, involuntary termination or otherwise.

(d) Contractor will promptly replace its Project Manager on the occurrence of any event set forth in **Section 9.2(c)**. Such replacement will be subject to the State's prior written approval.

9.3 Contractor's Key Personnel.

(a) The State has the right to recommend and approve in writing the initial assignment, as well as any proposed reassignment or replacement, of any Key Personnel. Before assigning an individual to any Key Personnel position, Contractor will notify the State of the proposed assignment, introduce the individual to the State's Project Manager, and 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.

(b) Contractor will not remove any Key Personnel from their assigned roles on this Contract without the prior written consent of the State. The Contractor's removal of Key Personnel without the prior written consent of the State is an unauthorized removal ("**Unauthorized Removal**"). An Unauthorized Removal does not include replacing Key Personnel for reasons beyond the reasonable control of Contractor, including illness, disability, leave of absence, personal emergency circumstances, resignation, or for cause termination of the Key Personnel's employment. Any Unauthorized Removal may be considered by the State to be a material breach of this Contract, in respect of which the State may elect to terminate this Contract for cause under **Section 22.1**.

9.4 Subcontractors. Contractor will not, without the prior written approval of the State, which consent may be given or withheld in the State's sole discretion, engage any Third Party to perform Services. The State's approval of any such Third Party (each approved Third Party, a "**Permitted Subcontractor**") does not relieve Contractor of its representations, warranties or obligations under this Contract. Without limiting the foregoing, Contractor will:

(a) be responsible and liable for the acts and omissions of each such Permitted Subcontractor (including such Permitted Subcontractor's employees who, to the extent providing Services or Deliverables, shall be deemed Contractor Personnel) to the same extent as if such acts or omissions were by Contractor or its employees;

(b) name the State a third party beneficiary under Contractor's Contract with each Permitted Subcontractor with respect to the Services;

(c) be responsible for all fees and expenses payable to, by or on behalf of each Permitted Subcontractor in connection with this Contract, including, if applicable, withholding of income taxes, and

the payment and withholding of social security and other payroll taxes, unemployment insurance, workers' compensation insurance payments and disability benefits; and

(d) notify the State of the location of the Permitted Subcontractor and indicate if it is located within the continental United States.

10. State Obligations.

10.1 State Resources and Access. The State is responsible for providing the State Materials and such other resources as may be specified in the Statement of Work (collectively, "**State Resources**"); and

10.2 State Project Manager. Throughout the Term of this Contract, the State will maintain a State employee to serve as the State's Project Manager under this Contract. The State's Project Manager will be identified in the Statement of Work. The State's Project Manager will be available as set forth in the Statement of Work.

11. Pre-Access Testing.

11.1 Testing By Contractor. Before providing access to the Software, Contractor must:

(a) test the Software to confirm that it is fully operable, meets all applicable Specifications and will function in accordance with the Specifications and Documentation when properly installed in the Operating Environment;

(b) scan the Software using industry standard scanning software and definitions to confirm it is free of Harmful Code; and

(c) remedy any Non-Conformity or Harmful Code identified and retest and rescan the Software.

11.2 Test Data and Estimates. Unless otherwise specified in the Statement of Work, Contractor shall provide to the State all test data and testing scripts used by Contractor for its pre-access testing ("**Test Data**"), together with the results Contractor expects to be achieved by processing the Test Data using the Software ("**Test Estimates**," and together with Test Data, "**Contractor's Test Package**").

12. Acceptance Testing.

12.1 Acceptance Testing.

(a) Unless otherwise specified in the Statement of Work, upon provision of access to the Software, Acceptance Tests will be conducted as set forth in this **Section 12** to ensure the Software conforms to the requirements of this Contract, including the applicable Specifications and Documentation. The State may, but is not obligated, to perform its own pretest on the Software utilizing Contractor's Test Package. If the State does perform a pretest, and Contractor's Test Package does not successfully pass the Test Data or Test Estimate scripts as described by Contractor, the State, at its discretion, is not obligated to move into the formal Acceptance Tests set forth in this Section. The State may elect to send Contractor's Test Package back to Contractor to correct any problems encountered with the Test Data or Test Estimates.

(b) All Acceptance Tests will take place in the Operating Environment described in the Statement of Work, commence on the Business Day following provision of access to the Software and be

conducted diligently for up to thirty (30) Business Days, or such other period as may be set forth in the Statement of Work (the “**Testing Period**”). Acceptance Tests will be conducted by the party responsible as set forth in the Statement of Work or, if the Statement of Work does not specify, the State, provided that:

- (i) for Acceptance Tests conducted by the State, if requested by the State, Contractor will make suitable Contractor Personnel available to observe or participate remotely in such Acceptance Tests; and
- (ii) for Acceptance Tests conducted by Contractor, the State has the right to observe or participate in all or any part of such Acceptance Tests.

Contractor is solely responsible for all costs and expenses related to Contractor’s performance of and participation in Acceptance Testing.

(c) Upon installation of any API, Configuration or Customization to the Software under the Statement of Work, additional Acceptance Tests will be performed on the modified Software as a whole to ensure full operability, integration, and compatibility among all elements of the Software (“**Integration Testing**”). Integration Testing is subject to all procedural and other terms and conditions set forth in **Section 12.1**, **Section 12.3**, and **Section 12.4**.

(d) The State may suspend Acceptance Tests and the corresponding Testing Period by written notice to Contractor if the State discovers a material Non-Conformity in the tested Software or part or feature of the Software. In such event, Contractor will immediately, and in any case within ten (10) Business Days, correct such Non-Conformity, whereupon the Acceptance Tests and Testing Period will resume for the balance of the Testing Period.

12.2 Notices of Completion, Non-Conformities, and Acceptance. Within fifteen (15) Business Days following the completion of any Acceptance Tests, including any Integration Testing, the party responsible for conducting the tests will prepare and provide to the other party written notice of the completion of the tests. Such notice must include a report describing in reasonable detail the tests conducted and the results of such tests, including any uncorrected Non-Conformity in the tested Software.

(a) If such notice is provided by either party and identifies any Non-Conformities, the parties’ rights, remedies, and obligations will be as set forth in **Section 12.3** and **Section 12.4**.

(b) If such notice is provided by the State, is signed by the State’s Business Owner and Project Manager, and identifies no Non-Conformities, such notice constitutes the State’s Acceptance of such Software.

(c) If such notice is provided by Contractor and identifies no Non-Conformities, the State will have thirty (30) Business Days to use the Software in the Operating Environment and determine, in the exercise of its sole discretion, whether it is satisfied that the Software contains no Non-Conformities, on the completion of which the State will, as appropriate:

- (i) notify Contractor in writing of Non-Conformities the State has observed in the Software and of the State’s non-acceptance thereof, whereupon the parties’ rights, remedies and obligations will be as set forth in **Section 12.3** and **Section 12.4**; or

- (ii) provide Contractor with a written notice of its Acceptance of such Software, which must be signed by the State's Business Owner and Project Manager.

12.3 Failure of Acceptance Tests. If Acceptance Tests identify any Non-Conformities, Contractor, at Contractor's sole cost and expense, will remedy all such Non-Conformities in accordance with the requirements set forth in the Statement of Work. Remedy of Non-Conformities will occur as promptly as commercially possible and, in any case, within thirty (30) Business Days following, as applicable, Contractor's:

- (a) completion of such Acceptance Tests, in the case of Acceptance Tests conducted by Contractor; or

- (b) receipt of the State's notice under **Section 12.1(a)** or **Section 12.2(c)(i)**, identifying any Non-Conformities.

12.4 Repeated Failure of Acceptance Tests. If Acceptance Tests identify any Non-Conformity in the Software after a second or subsequent delivery of the Software, or Contractor fails to correct the Non-Conformities on a timely basis, the State may, in its sole discretion, by written notice to Contractor:

- (a) continue the process set forth in this **Section 12**;

- (b) accept the Software as a nonconforming deliverable; or

- (c) deem the failure to be a non-curable material breach of this Contract and the Statement of Work and terminate this Contract for cause in accordance with **Section 22.1**.

12.5 Acceptance. Acceptance ("**Acceptance**") of the Software (subject, where applicable, to the State's right to Integration Testing) will occur on the date that is the earliest of the State's delivery of a notice accepting the Software under **Section 12.2(b)**, **Section 12.2(c)(ii)**, or **Section 12.4(b)**.

13. Training. Contractor shall provide, at no additional charge, training on all uses of the Software permitted hereunder in accordance with the times, locations and other terms set forth in the Statement of Work. Upon the State's request, Contractor shall timely provide training for additional Authorized Users or other additional training on all uses of the Software for which the State requests such training, at such reasonable times and locations and pursuant to such rates and other terms as are set forth in the Pricing Schedule.

14. Maintenance Releases; New Versions

14.1 Maintenance Releases. Provided that the State is current on its Support Services Fees, during the Term, Contractor shall provide the State, at no additional charge, with all Maintenance Releases, each of which will constitute Software and be subject to the terms and conditions of this Contract.

14.2 Use of Maintenance Releases. The State has no obligation to use any Maintenance Release. If the State wishes to use any Maintenance Release, Contractor shall provide the State, at no additional charge, adequate Documentation for the Maintenance Release, which has been developed and tested by Contractor and Accepted by the State. The State's decision not to use a Maintenance Release of the Software will not affect its right to receive Support Services throughout the Term of this Contract.

15. Source Code Escrow

15.1 Escrow Contract. The parties may enter into a separate intellectual property escrow agreement. Such escrow agreement will govern all aspects of Source Code escrow and release.

16. Fees

16.1 License Fee. In consideration of, and as payment in full for, the rights and license to use the Software and Documentation as provided in this Contract and the License Agreement, the State shall pay to Contractor the license fees (the “**License Fee**”) set forth on the Pricing Schedule, subject to and in accordance with the terms and conditions of this Contract and the License Agreement, including the applicable timetable and other provisions of the Statement of Work and this **Section 16**.

16.2 Implementation Fees. In consideration of, and as payment in full for, Contractor’s provision of implementation services as provided in this Contract and the Statement of Work, the State shall pay to Contractor the implementation fees (the “**Implementation Fees**”) set forth on the Pricing Schedule, subject to and in accordance with the terms and conditions of this Contract, including the applicable timetable and other provisions of the Statement of Work and this **Section 16**.

16.3 Support Service Fees. In consideration of Contractor providing the Support Services as required under the Maintenance and Support Schedule (as applicable) or the Service Level Agreement (as applicable), the State shall pay to Contractor the Support Services fees (the “**Support Service Fees**”) set forth in the Pricing Schedule, subject to and in accordance with the terms and conditions of this Contract, including the applicable provisions of the Maintenance and Support Schedule (as applicable) or the Service Level Agreement (as applicable) and this **Section 16**.

16.4 Firm Pricing/Fee Changes. All Pricing set forth in this Contract is firm and will not be increased, except as otherwise expressly provided in this **Section 16.4**.

(a) The License Fee will not be increased at any time except for the addition of additional licenses, the fees for which licenses will also remain firm in accordance with the Pricing set forth in the Pricing Schedule.

17. Invoices and Payment.

17.1 Invoices. Contractor will invoice the State for Fees in accordance with the requirements set forth in the Statement of Work, including any requirements that condition the rendering of invoices and the payment of Fees upon the successful completion of Milestones. Contractor must submit each invoice in both hard copy and electronic format, via such delivery means and to such address as are specified by the State in the Statement of Work. Each separate invoice must:

(a) clearly identify the Contract and purchase order number to which it relates, in such manner as is required by the State;

(b) list each Fee item separately;

(c) include sufficient detail for each line item to enable the State to satisfy its accounting and charge-back requirements;

(d) for Fees determined on a time and materials basis, report details regarding the number of hours performed during the billing period, the skill or labor category for such Contractor Personnel and the applicable hourly billing rates;

(e) include such other information as may be required by the State as set forth in the Statement of Work; and

(f) Itemized invoices must be submitted to DTMB-Accounts-Payable@michigan.gov.

17.2 Payment. Invoices are due and payable by the State, in accordance with the State's standard payment procedures as specified in 1984 Public Act no. 279, MCL 17.51, et seq., within forty-five (45) calendar days after receipt, provided the State determines that the invoice was properly rendered. The State will only disburse payments under this Contract through Electronic Funds Transfer (EFT). Contractor must register with the State at <http://www.michigan.gov/SIGMAVSS> to receive electronic fund transfer payments. If Contractor does not register, the State is not liable for failure to provide payment

17.3 Taxes. The State is exempt from State sales tax for direct purchases and may be exempt from federal excise tax, if Services or Deliverables purchased under this Contract are for the State's exclusive use. Notwithstanding the foregoing, all Fees are inclusive of taxes, and Contractor is responsible for all sales, use and excise taxes, and any other similar taxes, duties and charges of any kind imposed by any federal, state, or local governmental entity on any amounts payable by the State under this Contract.

17.4 Payment Disputes. The State may withhold from payment any and all payments and amounts the State disputes in good faith, pending resolution of such dispute, provided that the State:

- (a) timely renders all payments and amounts that are not in dispute;
- (b) notifies Contractor of the dispute prior to the due date for payment, specifying in such notice:
 - (i) the amount in dispute; and
 - (ii) the reason for the dispute set out in sufficient detail to facilitate investigation by Contractor and resolution by the parties;
- (c) works with Contractor in good faith to resolve the dispute promptly; and
- (d) promptly pays any amount determined to be payable by resolution of the dispute.

Contractor shall not withhold any Services or fail to perform any obligation hereunder by reason of the State's good faith withholding of any payment or amount in accordance with this **Section 17.4** or any dispute arising therefrom.

17.5 Right of Setoff. Without prejudice to any other right or remedy it may have, the State reserves the right to set off at any time any amount owing to it by Contractor against any amount payable by the State to Contractor under this Contract.

18. Intellectual Property Rights

18.1 Ownership Rights in Software

(a) Subject to the rights and licenses granted by Contractor in this Contract and the License Agreement, and the provisions of **Section 18.1(b)**:

- (i) Contractor reserves and retains its entire right, title and interest in and to all Intellectual Property Rights arising out of or relating to the Software; and
- (ii) none of the State or Authorized Users acquire any ownership of Intellectual Property Rights in or to the Software or Documentation as a result of this Contract.

(b) As between the State, on the one hand, and Contractor, on the other hand, the State has, reserves and retains, sole and exclusive ownership of all right, title and interest in and to User Data, including all Intellectual Property Rights arising therefrom or relating thereto.

18.2 Rights in Open-Source Components. Ownership of all Intellectual Property Rights in Open-Source Components shall remain with the respective owners thereof, subject to the State's rights under the applicable Open-Source Licenses.

18.3 The State is and will be the sole and exclusive owner of all right, title, and interest in and to all API and Work Product developed exclusively for the State under this Contract, including all Intellectual Property Rights. In furtherance of the foregoing:

(a) Contractor will create all API and Work Product as work made for hire as defined in Section 101 of the Copyright Act of 1976; and

(b) to the extent any API, Work Product, or Intellectual Property Rights do not qualify as, or otherwise fails to be, work made for hire, Contractor hereby:

- (i) assigns, transfers, and otherwise conveys to the State, irrevocably and in perpetuity, throughout the universe, all right, title, and interest in and to such API or Work Product, including all Intellectual Property Rights; and
- (ii) irrevocably waives any and all claims Contractor may now or hereafter have in any jurisdiction to so-called "moral rights" or rights of *droit moral* with respect to the API or Work Product.

18.4 License. The State grants Contractor a license to use all API and Work Product developed exclusively for the State under this Contract solely for the purpose of providing the Services under this Agreement.

19. State Data.

19.1 Ownership. The State's data ("**State Data**"), which will be treated by Contractor as Confidential Information, includes: (a) User Data; and (b) any other data collected, used, processed, stored, or generated by the State in connection with the Services, including but not limited to personally identifiable information ("**PII**") collected, used, processed, stored, or generated as the result of the Services, including, without limitation, any information that identifies an individual, such as an individual's social security number or other government-issued identification number, date of birth, address, telephone number, biometric data, mother's maiden name, email address, credit card information, or an individual's name in combination with any other of the elements here listed. The State Data provided to Contractor will not contain any personal health information ("**PHI**"). State Data is and will remain the sole and exclusive property of the State and all right, title, and interest in the same is reserved by the State. This **Section** 19.1 survives termination or expiration of this Contract.

19.2 Contractor Use of State Data. Contractor is provided a limited license to State Data for the sole and exclusive purpose of providing the Services, including a license to collect, process, store, generate, and display State Data only to the extent necessary in the provision of the Services. Contractor must: (a) keep and maintain State Data in strict confidence, using such degree of care as is appropriate and consistent with its obligations as further described in this Contract and applicable law to avoid unauthorized access, use, disclosure, or loss; (b) use and disclose State Data solely and exclusively for the purpose of providing the Services, such use and disclosure being in accordance with this Contract, any applicable Statement of Work, and applicable law; and (c) not use, sell, rent, transfer, distribute, or otherwise disclose or make available State Data for Contractor's own purposes or for the benefit of anyone other than the State without the State's prior written consent. This **Section 19.2** survives termination or expiration of this Contract.

19.3 Loss or Compromise of Data. In the event of any act, error or omission, negligence, misconduct, or breach on the part of Contractor that compromises or is suspected to compromise the security, confidentiality, or integrity of State Data or the physical, technical, administrative, or organizational safeguards put in place by Contractor that relate to the protection of the security, confidentiality, or integrity of State Data, Contractor must, as applicable: (a) notify the State as soon as practicable but no later than twenty-four (24) hours of becoming aware of such occurrence; (b) cooperate with the State in investigating the occurrence, including making available all relevant records, logs, files, data reporting, and other materials required to comply with applicable law or as otherwise required by the State; (c) in the case of PII, at the State's sole election, (i) with approval and assistance from the State, notify the affected individuals who comprise the PII as soon as practicable but no later than is required to comply with applicable law, or, in the absence of any legally required notification period, within five (5) calendar days of the occurrence; or (ii) reimburse the State for any costs in notifying the affected individuals; (d) in the case of PII, provide third-party credit and identity monitoring services to each of the affected individuals who comprise the PII for the period, if any, required to comply with applicable law; (e) perform or take any other actions required to comply with applicable law as a result of the occurrence; (f) pay for any costs associated with the occurrence, including but not limited to any costs incurred by the State in investigating and resolving the occurrence, including reasonable attorney's fees associated with such investigation and resolution; (g) without limiting Contractor's obligations of indemnification as further described in this Contract, indemnify, defend, and hold harmless the State for any and all claims, including reasonable attorneys' fees, costs, and incidental expenses, which may be suffered by, accrued against, charged to, or recoverable from the State in connection with the occurrence; (h) be responsible for recreating lost State Data in the manner and on the schedule set by the State without charge to the State; and (i) provide to the State a detailed plan within ten (10) calendar days of the occurrence describing the measures Contractor will undertake to prevent a future occurrence. Notification to affected individuals, as described above, must comply with applicable law, be written in plain language, not be tangentially used for any solicitation purposes, and contain, at a minimum: name and contact information of Contractor's representative; a description of the nature of the loss; a list of the types of data involved; the known or approximate date of the loss; how such loss may affect the affected individual; what steps Contractor has taken to protect the affected individual; what steps the affected individual can take to protect himself or herself; contact information for major credit card reporting agencies; and, information regarding the credit and identity monitoring services to be provided by Contractor, if any. The State will have the option to review and approve any notification sent to affected individuals prior to its delivery. Notification to any other party, including but not limited to public media outlets, must be reviewed and approved by the State in writing prior to its dissemination. This **Section 19.3** survives termination or expiration of this Contract.

20. Confidential Information. Each party acknowledges that it may be exposed to or acquire communication or data of the other party that is confidential in nature and is not intended to be disclosed to third parties. This **Section 20** survives termination or expiration of this Contract.

20.1 Meaning of Confidential Information. The term “**Confidential Information**” means all information and documentation of a party that: (a) has been marked “confidential” or with words of similar meaning, at the time of disclosure by such party; (b) if disclosed orally or not marked “confidential” or with words of similar meaning, was subsequently summarized in writing by the disclosing party and marked “confidential” or with words of similar meaning; and, (c) should reasonably be recognized as confidential information of the disclosing party. The term “Confidential Information” does not include any information or documentation that was or is: (a) in the possession of the State and subject to disclosure under the Michigan Freedom of Information Act (FOIA); (b) already in the possession of the receiving party without an obligation of confidentiality; (c) developed independently by the receiving party, as demonstrated by the receiving party, without violating the disclosing party’s proprietary rights; (d) obtained from a source other than the disclosing party without an obligation of confidentiality; or, (e) publicly available when received, or thereafter became publicly available (other than through any unauthorized disclosure by, through, or on behalf of, the receiving party). Notwithstanding the above, in all cases and for all matters, State Data is deemed to be Confidential Information.

20.2 Obligation of Confidentiality. The parties agree to hold all Confidential Information in strict confidence and not to copy, reproduce, sell, transfer, or otherwise dispose of, give or disclose such Confidential Information to third parties other than employees, agents, or subcontractors of a party who have a need to know in connection with this Contract or to use such Confidential Information for any purposes whatsoever other than the performance of this Contract. The parties agree to advise and require their respective employees, agents, and subcontractors of their obligations to keep all Confidential Information confidential. Disclosure to the Contractor’s subcontractor is permissible where: (a) the subcontractor is a Permitted Subcontractor; (b) the disclosure is necessary or otherwise naturally occurs in connection with work that is within the Permitted Subcontractor’s responsibilities; and (c) Contractor obligates the Permitted Subcontractor in a written contract to maintain the State’s Confidential Information in confidence. At the State’s request, any of the Contractor’s Representatives may be required to execute a separate agreement to be bound by the provisions of this **Section 20.2**.

20.3 Cooperation to Prevent Disclosure of Confidential Information. Each party must use its best efforts to assist the other party in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limiting the foregoing, each party must advise the other party immediately in the event either party learns or has reason to believe that any person who has had access to Confidential Information has violated or intends to violate the terms of this Contract. Each party will cooperate with the other party in seeking injunctive or other equitable relief against any such person.

20.4 Remedies for Breach of Obligation of Confidentiality. Each party acknowledges that breach of its obligation of confidentiality may give rise to irreparable injury to the other party, which damage may be inadequately compensable in the form of monetary damages. Accordingly, a party may seek and obtain injunctive relief against the breach of the foregoing undertakings, in addition to any other legal remedies which may be available, to include, in the case of the State, at the sole election of the State, the immediate termination, without liability to the State, of this Contract or any Statement of Work corresponding to the breach.

20.5 Surrender of Confidential Information upon Termination. Upon termination or expiration of this Contract or a Statement of Work, in whole or in part, each party must, within five (5) Business Days from

the date of termination, return to the other party any and all Confidential Information received from the other party, or created or received by a party on behalf of the other party, which are in such party's possession, custody, or control. If Contractor or the State determine that the return of any Confidential Information is not feasible, such party must destroy the Confidential Information and certify the same in writing within five (5) Business Days from the date of termination to the other party.

21. ADA Compliance. The State is required to comply with the Americans with Disabilities Act of 1990 (ADA), and has adopted a formal policy regarding accessibility requirements for websites and software applications. Contractor's Service Software must comply, where relevant, with level AA of the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0.

22. Termination, Expiration, Transition. The parties may terminate this Contract, the Support Services, or any Statement of Work, in accordance with the following:

22.1 Termination for Cause. In addition to any right of termination set forth elsewhere in this Contract:

(a) The State may terminate this Contract for cause, in whole or in part, if Contractor, as determined by the State: (i) endangers the value, integrity, or security of State Systems, State Data, or the State's facilities or personnel; (ii) becomes insolvent, petitions for bankruptcy court proceedings, or has an involuntary bankruptcy proceeding filed against it by any creditor; or (iii) breaches any of its material duties or obligations under this Contract. Any reference to specific breaches being material breaches within this Contract will not be construed to mean that other breaches are not material.

(b) If the State terminates this Contract under this **Section 22.1**, the State will issue a termination notice specifying whether Contractor must: (a) cease performance immediately, or (b) continue to perform for a specified period. If it is later determined that Contractor was not in breach of this Contract, the termination will be deemed to have been a termination for convenience, effective as of the same date, and the rights and obligations of the parties will be limited to those provided in **Section 22.2**.

(c) The State will only pay for amounts due to Contractor for Services accepted by the State on or before the date of termination, subject to the State's right to set off any amounts owed by the Contractor for the State's reasonable costs in terminating this Contract. Contractor must promptly reimburse to the State any Fees prepaid by the State prorated to the date of such termination, including any prepaid Support Services Fees. Further, Contractor must pay all reasonable costs incurred by the State in terminating this Contract for cause, including administrative costs, attorneys' fees, court costs, and transition costs.

22.2 Termination for Convenience. The State may immediately terminate this Contract in whole or in part, without penalty and for any reason, including but not limited to, appropriation or budget shortfalls. The termination notice will specify whether Contractor must: (a) cease performance immediately, or (b) continue to perform in accordance with **Section 22.4**. If the State terminates this Contract for convenience, the State will pay all reasonable costs, as determined by the State, for State approved Transition Responsibilities to the extent the funds are available.

22.3 Termination by Contractor. Contractor may terminate this Contract, including all associated Statements of Work, only if the following requirements are met: (a) Contractor does not receive payment from the State pursuant to Section 17 of this Contract; (b) the Parties have completed the Dispute Resolution Process outlined in Section 30 of this Contract; (c) Contractor provides forty-five (45) days

written notice of its intention to terminate should the State not resolve Contractor's concerns ("State's Notice and Right to Cure Period"); and (d) the State does not resolve Contractor's concerns prior to expiration of the State's Notice and Right to Cure Period.

22.4 Transition Responsibilities. Upon termination or expiration of this Contract for any reason, Contractor must, for a period of time specified by the State (not to exceed 90 calendar days; the "**Transition Period**"), provide all reasonable transition assistance requested by the State, to allow for the expired or terminated portion of the Contract to continue without interruption or adverse effect, and to facilitate the orderly transfer of the Services to the State or its designees. Such transition assistance may include but is not limited to: (a) continuing to perform the Services at the established Contract rates; (b) taking all reasonable and necessary measures to transition performance of the work, including all applicable Services to the State or the State's designee; (c) taking all necessary and appropriate steps, or such other action as the State may direct, to preserve, maintain, protect, or return to the State all State Data; and (d) preparing an accurate accounting from which the State and Contractor may reconcile all outstanding accounts (collectively, the "**Transition Responsibilities**"). The Term of this Contract is automatically extended through the end of the Transition Period.

22.5 Survival. This **Section 22** survives termination or expiration of this Contract.

23. Stop Work Order. The State may, at any time, order the Services of Contractor fully or partially stopped for its own convenience for up to forty-five (45) calendar days at no additional cost to the State. The State will provide Contractor a written notice detailing such suspension (a "**Stop Work Order**"). Contractor must comply with the Stop Work Order upon receipt. Within 45 days, or any longer period agreed to by Contractor, the State will either: (a) issue a notice authorizing Contractor to resume work, or (b) terminate this Contract. The State will not pay for any Services, Contractor's lost profits, or any additional compensation during a stop work period.

24. Contractor Representations and Warranties.

24.1 Authority. Contractor represents and warrants to the State that:

(a) It is duly organized, validly existing, and in good standing as a corporation or other entity as represented under this Contract under the laws and regulations of its jurisdiction of incorporation, organization, or chartering;

(b) It has the full right, power, and authority to enter into this Contract, to grant the rights and licenses granted under this Contract, and to perform its contractual obligations;

(c) The execution of this Contract by its Representative has been duly authorized by all necessary organizational action; and

(d) When executed and delivered by Contractor, this Contract will constitute the legal, valid, and binding obligation of Contractor, enforceable against Contractor in accordance with its terms.

24.2 Bid Response. Contractor represents and warrants to the State that:

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

made by Contractor to induce any other Person to submit or not submit a proposal for the purpose of restricting competition;

(b) All written information furnished to the State by or for Contractor in connection with this Contract, including Contractor's Bid Response, is true, accurate, and complete, and contains no untrue statement of material fact or omits any material fact necessary to make the information not misleading;

(c) Contractor is not in material default or breach of any other contract or agreement that it may have with the State or any of its departments, commissions, boards, or agencies. Contractor further represents and warrants that it has not been a party to any contract with the State or any of its departments that was terminated by the State within the previous five (5) years for the reason that Contractor failed to perform or otherwise breached an obligation of the contract; and

(d) If any of the certifications, representations, or disclosures made in Contractor's Bid Response change after contract award, the Contractor is required to report those changes immediately to the Contract Administrator.

24.3 Software Representations and Warranties. Contractor further represents and warrants to the State that:

(a) it is the legal and beneficial owner of the entire right, title and interest in and to the Software, including all Intellectual Property Rights relating thereto;

(b) it has, and throughout the license term, will retain the unconditional and irrevocable right, power and authority to grant and perform the license hereunder;

(c) the Software, and the State's use thereof, is and throughout the license term will be free and clear of all encumbrances, liens and security interests of any kind;

(d) neither its grant of the license, nor its performance under this Contract does or to its knowledge will at any time:

(i) conflict with or violate any applicable Law;

(ii) require the consent, approval or authorization of any governmental or regulatory authority or other third party; or

(iii) require the provision of any payment or other consideration to any third party;

(e) when used by the State or any Authorized User in accordance with this Contract and the Documentation, the Software or Documentation as delivered or installed by Contractor does not or will not:

(i) infringe, misappropriate or otherwise violate any Intellectual Property Right or other right of any third party; or

(ii) fail to comply with any applicable Law;

(f) as provided by Contractor, the Software does not or will not at any time during the license term contain any:

- (i) Harmful Code; or
- (ii) Open-Source Components or operate in such a way that it is developed or compiled with or linked to any Open-Source Components, other than Approved Open-Source Components specifically described in the Statement of Work.

(g) all Documentation is and will be complete and accurate in all material respects when provided to the State such that at no time during the license term will the Software have any material undocumented feature; and

(h) it will perform all Services in a timely, skillful, professional and workmanlike manner in accordance with commercially reasonable industry standards and practices for similar services, using personnel with the requisite skill, experience and qualifications, and will devote adequate resources to meet its obligations under this Contract.

(i) when used in the Operating Environment (or any successor thereto) in accordance with the Documentation, all Software as provided by Contractor, will be fully operable, meet all applicable specifications, and function in all respects, in conformity with this Contract and the Documentation; and

(j) no Maintenance Release or New Version, when properly installed in accordance with this Contract, will have a material adverse effect on the functionality or operability of the Software.

24.4 Disclaimer. EXCEPT FOR THE EXPRESS WARRANTIES SET FORTH IN THIS AGREEMENT, CONTRACTOR HEREBY DISCLAIMS ALL WARRANTIES, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, WITH RESPECT TO THIS CONTRACT.

25. Indemnification

25.1 General Indemnification. Contractor must defend, indemnify and hold the State, its departments, divisions, agencies, offices, commissions, officers, and employees harmless, without limitation, from and against any and all actions, claims, losses, liabilities, damages, costs, attorney fees, and expenses (including those required to establish the right to indemnification), arising out of or relating to: (a) any breach by Contractor (or any of Contractor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable) of any of the promises, agreements, representations, warranties, or insurance requirements contained in this Contract; (b) any infringement, misappropriation, or other violation of any Intellectual Property Right or other right of any Third Party; and (c) any bodily injury, death, or damage to real or tangible personal property occurring wholly or in part due to action or inaction by Contractor (or any of Contractor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable).

25.2 Indemnification Procedure. The State will notify Contractor in writing if indemnification is sought; however, failure to do so will not relieve Contractor, except to the extent that Contractor is materially prejudiced. Contractor must, to the satisfaction of the State, demonstrate its financial ability to carry out these obligations. The State is entitled to: (i) regular updates on proceeding status; (ii) participate in the defense of the proceeding; (iii) employ its own counsel; and to (iv) retain control of the defense, at its own cost and expense, if the State deems necessary. Contractor will not, without the State's prior written consent (not to be unreasonably withheld), settle, compromise, or consent to the entry of any judgment in or otherwise seek to terminate any claim, action, or proceeding. Any litigation activity on behalf of the State or any of its subdivisions, under this **Section 25**, must be coordinated with

the Department of Attorney General. An attorney designated to represent the State may not do so until approved by the Michigan Attorney General and appointed as a Special Assistant Attorney General.

25.3 Infringement Remedies.

(a) The remedies set forth in this **Section 25.3** are in addition to, and not in lieu of, all other remedies that may be available to the State under this Contract or otherwise, including the State's right to be indemnified for such actions.

(b) If any Software or any component thereof, other than State Materials, is finally adjudicated to be infringing or if any use of any Software or any component thereof is enjoined, Contractor must, at Contractor's sole cost and expense:

- (i) procure for the State the right to continue to use such Software or component thereof to the full extent contemplated by this Contract; or
- (ii) modify or replace the materials that are finally adjudicated as infringing or are enjoined ("**Allegedly Infringing Materials**") to make the Software and all of its components non-infringing while providing fully equivalent features and functionality.

(c) If neither of the foregoing is possible notwithstanding Contractor's best efforts, then Contractor may direct the State to cease any use of any materials that have been enjoined or finally adjudicated as infringing, provided that Contractor will:

- (i) refund to the State all amounts paid by the State in respect of such Allegedly Infringing Materials and any other aspects of the Software provided under the Statement of Work for the Allegedly Infringing Materials that the State cannot reasonably use as intended under this Contract; and
- (ii) in any case, at its sole cost and expense, secure the right for the State to continue using the Allegedly Infringing Materials for a transition period of up to six (6) months to allow the State to replace the affected features of the Software without disruption.

(d) If Contractor directs the State to cease using any Software under **subsection (c)**, the State may terminate this Contract for cause under **Section 22.1**.

(e) Contractor will have no liability for any claim of infringement arising solely from:

- (i) Contractor's compliance with any designs, specifications, or instructions of the State; or
- (ii) modification of the Software by the State without the prior knowledge and approval of Contractor;

unless the claim arose against the Software independently of any of the above specified actions.

26. Liquidated Damages.

26.1 To the extent applicable and as set forth in a Statement of Work, the parties agree that any delay or failure by Contractor to timely perform its obligations in accordance with the Implementation Plan

and Milestone Dates agreed to by the parties will interfere with the proper and timely implementation of the Software, to the loss and damage of the State. Further, the State will incur major costs to perform the obligations that would have otherwise been performed by Contractor. The parties understand and agree that any liquidated damages Contractor must pay to the State as a result of such nonperformance are described in the Statement of Work, and that these amounts are reasonable estimates of the State's damages in accordance with applicable Law.

26.2 The parties acknowledge and agree that Contractor could incur liquidated damages for more than one event if Contractor fails to timely perform its obligations by each Milestone Date.

26.3 The assessment of liquidated damages will not constitute a waiver or release of any other remedy the State may have under this Contract for Contractor's breach of this Contract, including without limitation, the State's right to terminate this Contract for cause under **Section 22.1**, and the State will be entitled in its discretion to recover actual damages caused by Contractor's failure to perform its obligations under this Contract. However, the State will reduce such actual damages by the amounts of liquidated damages received for the same events causing the actual damages.

26.4 Amounts due the State as liquidated damages may be set off against any Fees payable to Contractor under this Contract, or the State may bill Contractor as a separate item and Contractor will promptly make payments on such bills.

27. Damages Disclaimers and Limitations.

27.1 Disclaimer of Damages. NEITHER PARTY WILL BE LIABLE, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR BY STATUTE OR OTHERWISE, FOR ANY CLAIM RELATED TO OR ARISING UNDER THIS CONTRACT FOR CONSEQUENTIAL, INCIDENTAL, INDIRECT, OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION LOST PROFITS AND LOST BUSINESS OPPORTUNITIES.

27.2 Limitation of Liability. EXCEPT FOR CONTRACTOR'S INDEMNIFICATION OBLIGATIONS UNDER SECTION 26.1(b) AND OBLIGATIONS RELATED TO THE LOSS OF STATE DATA IN SECTION 19.3, IN NO EVENT WILL EITHER PARTY'S AGGREGATE LIABILITY TO THE OTHER PARTY UNDER THIS CONTRACT, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR BY STATUTE OR OTHERWISE, FOR ANY CLAIM RELATED TO OR ARISING UNDER THIS CONTRACT, EXCEED THE MAXIMUM AMOUNT OF FEES PAYABLE UNDER THIS CONTRACT.

28. Records Maintenance, Inspection, Examination, and Audit.

28.1 Right of Audit. The State or its designee may audit Contractor to verify compliance with this Contract. Contractor must retain, and provide to the State or its designee and the auditor general upon request, all financial and accounting records related to this Contract through the Term of this Contract and for three (3) years after the latter of termination, expiration, or final payment under this Contract or any extension ("**Financial Audit Period**"). If an audit, litigation, or other action involving the records is initiated before the end of the Financial Audit Period, Contractor must retain the records until all issues are resolved.

28.2 Right of Inspection. Within ten (10) calendar days of providing notice, the State and its authorized representatives or designees have the right to enter and inspect Contractor's premises or any other places where Services are being performed, and examine, copy, and audit all records related to this

Contract. Contractor must cooperate and provide reasonable assistance. If financial errors are revealed, the amount in error must be reflected as a credit or debit on subsequent invoices until the amount is paid or refunded. Any remaining balance at the end of this Contract must be paid or refunded within forty-five (45) calendar days.

28.3 Application. This **Section 28** applies to Contractor, any Affiliate, and any Permitted Subcontractor that performs Services in connection with this Contract.

29. Insurance

29.1 Required Coverage.

(a) **Insurance Requirements.** Contractor must maintain the insurances identified below and is responsible for all deductibles. All required insurance must: (a) protect the State from claims that may arise out of, are alleged to arise out of, or result from Contractor's or a subcontractor's performance; (b) be primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State; and (c) be provided by a company with an A.M. Best rating of "A" or better and a financial size of VII or better.

Insurance Type	Additional Requirements
Commercial General Liability Insurance	
<p><u>Minimal Limits:</u> \$1,000,000 Each Occurrence Limit \$1,000,000 Personal & Advertising Injury Limit \$2,000,000 General Aggregate Limit \$2,000,000 Products/Completed Operations</p> <p><u>Deductible Maximum:</u> \$50,000 Each Occurrence</p>	<p>Contractor must have their policy endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds using endorsement CG 20 10 11 85, or both CG 2010 07 04 and CG 2037 07 0.</p>
Umbrella or Excess Liability Insurance	
<p><u>Minimal Limits:</u> \$5,000,000 General Aggregate</p>	<p>Contractor must have their policy endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds.</p>
Automobile Liability Insurance	
<p><u>Minimal Limits:</u></p>	

\$1,000,000 Per Occurrence	
Workers' Compensation Insurance	
<u>Minimal Limits:</u> Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.
Employers Liability Insurance	
<u>Minimal Limits:</u> \$500,000 Each Accident \$500,000 Each Employee by Disease \$500,000 Aggregate Disease.	
Privacy and Security Liability (Cyber Liability) Insurance	
<u>Minimal Limits:</u> \$1,000,000 Each Occurrence \$1,000,000 Annual Aggregate	Contractor must have their policy: (1) endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds; and (2) cover information security and privacy liability, privacy notification costs, regulatory defense and penalties, and website media content liability.

(b) If Contractor's policy contains limits higher than the minimum limits, the State is entitled to coverage to the extent of the higher limits. The minimum limits are not intended, and may not be construed to limit any liability or indemnity of Contractor to any indemnified party or other persons.

(c) If any of the required policies provide claim-made coverage, the Contractor must: (a) provide coverage with a retroactive date before the effective date of the contract or the beginning of contract work; (b) maintain coverage and provide evidence of coverage for at least three (3) years after completion of the contract of work; and (c) if coverage is canceled or not renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective date, Contractor must purchase extended reporting coverage for a minimum of three (3) years after completion of work.

(d) Contractor must: (a) provide insurance certificates to the Contract Administrator, containing the agreement or purchase order number, at Contract formation and within 20 calendar days of the expiration date of the applicable policies; (b) require that subcontractors maintain the required insurances contained in this Section; (c) notify the Contract Administrator within 5 business days if any insurance is cancelled; and (d) waive all rights against the State for damages covered by insurance. Failure to maintain the required insurance does not limit this waiver.

29.2 Non-waiver. This **Section 29** is not intended to and is not be construed in any manner as waiving, restricting or limiting the liability of either party for any obligations under this Contract (including any provisions hereof requiring Contractor to indemnify, defend and hold harmless the State).

30. Dispute Resolution.

30.1 Unless otherwise specified in the Statement of Work, the parties will endeavor to resolve any Contract dispute in accordance with **Section 30** (the “**Dispute Resolution Procedure**”). The initiating party will reduce its description of the dispute to writing (including all supporting documentation) and deliver it to the responding party’s Project Manager. The responding party’s Project Manager must respond in writing within five (5) Business Days. The initiating party has five (5) Business Days to review the response. If after such review resolution cannot be reached, both parties will have an additional five (5) Business Days to negotiate in good faith to resolve the dispute. If the dispute cannot be resolved within a total of fifteen (15) Business Days, the parties must submit the dispute to the parties’ Contract Administrators. The parties will continue performing while a dispute is being resolved, unless the dispute precludes performance. A dispute involving payment does not preclude performance.

30.2 Litigation to resolve the dispute will not be instituted until after the dispute has been elevated to the parties’ Contract Administrators, and either Contract Administrator concludes that resolution is unlikely, or fails to respond within fifteen (15) Business Days. The parties are not prohibited from instituting formal proceedings: (a) to avoid the expiration of statute of limitations period; (b) to preserve a superior position with respect to creditors; or (c) where a party makes a determination that a temporary restraining order or other injunctive relief is the only adequate remedy. This **Section 30** does not limit the State’s right to terminate this Contract.

31. General Provisions

31.1 Force Majeure.

(a) Force Majeure Events. Subject to **Subsection (b)** below, neither party will be liable or responsible to the other party, or be deemed to have defaulted under or breached this Contract, for any failure or delay in fulfilling or performing any term hereof, when and to the extent such failure or delay is caused by: acts of God, flood, fire or explosion, war, terrorism, invasion, riot or other civil unrest, embargoes or blockades in effect on or after the date of this Contract, national or regional emergency, or any passage of law or governmental order, rule, regulation or direction, or any action taken by a governmental or public authority, including imposing an embargo, export or import restriction, quota or other restriction or prohibition (each of the foregoing, a “**Force Majeure**”), in each case provided that: (a) such event is outside the reasonable control of the affected party; (b) the affected party gives prompt written notice to the other party, stating the period of time the occurrence is expected to continue; (c) the affected party uses diligent efforts to end the failure or delay and minimize the effects of such Force Majeure Event.

(b) State Performance; Termination. In the event of a Force Majeure Event affecting Contractor’s performance under this Contract, the State may suspend its performance hereunder until such time as Contractor resumes performance. The State may terminate this Contract by written notice to Contractor if a Force Majeure Event affecting Contractor’s performance hereunder continues substantially uninterrupted for a period of five (5) Business Days or more. Unless the State terminates this Contract pursuant to the preceding sentence, any date specifically designated for Contractor’s

performance under this Contract will automatically be extended for a period up to the duration of the Force Majeure Event.

31.2 Further Assurances. Each party will, upon the reasonable request of the other party, execute such documents and perform such acts as may be necessary to give full effect to the terms of this Contract.

31.3 Relationship of the Parties. The relationship between the parties is that of independent contractors. Nothing contained in this Contract is to be construed as creating any agency, partnership, joint venture or other form of joint enterprise, employment or fiduciary relationship between the parties, and neither party has authority to contract for or bind the other party in any manner whatsoever.

31.4 Media Releases. News releases (including promotional literature and commercial advertisements) pertaining to this Contract or project to which it relates must not be made without the prior written approval of the State, and then only in accordance with the explicit written instructions of the State.

31.5 Notices. All notices, requests, consents, claims, demands, waivers and other communications under this Contract must be in writing and addressed to the parties as follows (or as otherwise specified by a party in a notice given in accordance with this **Section 31.5**):

If to Contractor:	707 SW Washington St. #1300
	Portland, Oregon 97205
	Email: mlester@masonbruce.com
	Attention: Michael L. Lester, Corporate Secretary
If to State:	525 West Allegan Street
	Lansing, MI 48909
	Email: BronzJ@michigan.gov
	Attention: Jennifer Bronz – Senior Category Analyst

Notices sent in accordance with this **Section 31.5** will be deemed effectively given: (a) when received, if delivered by hand (with written confirmation of receipt); (b) when received, if sent by a nationally recognized overnight courier (receipt requested); (c) on the date sent by e-mail (with confirmation of transmission), if sent during normal business hours of the recipient, and on the next Business Day, if sent after normal business hours of the recipient; or (d) on the fifth (5th) day after the date mailed, by certified or registered mail, return receipt requested, postage prepaid.

31.6 Headings. The headings in this Contract are for reference only and do not affect the interpretation of this Contract.

31.7 Assignment. Contractor may not assign or otherwise transfer any of its rights, or delegate or otherwise transfer any of its obligations or performance, under this Contract, in each case whether voluntarily, involuntarily, by operation of law or otherwise, without the State's prior written consent. Notwithstanding the foregoing, Contractor may assign its rights and obligations hereunder to an entity controlling, controlled by or under common control with Contractor or to any successor in interest to all or substantially all of the assets and business of Contractor, without the prior consent or approval of the State which will not be unreasonably withheld. The State has the right to terminate this Contract in its entirety or any Services or Statements of Work hereunder, pursuant to **Section 22.1**, if Contractor delegates or otherwise transfers any of its obligations or performance hereunder, except as expressly provided for in this Section, whether voluntarily, involuntarily, by operation of law or otherwise, and no such delegation or other transfer will relieve Contractor of any of such obligations or performance. Any purported assignment, delegation, or transfer in violation of this **Section 31.7** is void.

31.8 No Third-party Beneficiaries. This Contract is for the sole benefit of the parties and their respective successors and permitted assigns. Nothing herein, express or implied, is intended to or will confer on any other person or entity any legal or equitable right, benefit or remedy of any nature whatsoever under or by reason of this Contract.

31.9 Amendment and Modification; Waiver. No amendment to or modification of this Contract is effective unless it is in writing, identified as an amendment to this Contract and signed by both parties Contract Administrator. Further, certain amendments to this Contract may require State Administrative Board Approval. No waiver by any party of any of the provisions of this Contract will be effective unless explicitly set forth in writing and signed by the party so waiving. Except as otherwise set forth in this Contract, no failure to exercise, or delay in exercising, any right, remedy, power, or privilege arising from this Contract will operate or be construed as a waiver. Nor will any single or partial exercise of any right, remedy, power or privilege under this Contract preclude the exercise of any other right, remedy, power or privilege.

31.10 Severability. If any term or provision of this Contract is invalid, illegal or unenforceable in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other term or provision of this Contract or invalidate or render unenforceable such term or provision in any other jurisdiction. Upon such determination that any term or other provision is invalid, illegal or unenforceable, the parties hereto will negotiate in good faith to modify this Contract so as to effect the original intent of the parties as closely as possible in a mutually acceptable manner in order that the transactions contemplated hereby be consummated as originally contemplated to the greatest extent possible.

31.11 Governing Law. This Contract is governed, construed, and enforced in accordance with Michigan law, excluding choice-of-law principles, and all claims relating to or arising out of this Contract are governed by Michigan law, excluding choice-of-law principles. Any dispute arising from this Contract must be resolved in the Michigan Court of Claims. Complaints against the State must be initiated in Ingham County, Michigan. Contractor waives any objections, such as lack of personal jurisdiction or forum non conveniens. Contractor must appoint agents in Michigan to receive service of process.

31.12 Equitable Relief. Each party to this Contract acknowledges and agrees that (a) a breach or threatened breach by such party of any of its obligations under this Contract may give rise to irreparable harm to the other party for which monetary damages would not be an adequate remedy and (b) in the event of a breach or a threatened breach by such party of any such obligations, the other party hereto is, in addition to any and all other rights and remedies that may be available to such party at law, at equity or otherwise in respect of such breach, entitled to seek equitable relief, including a temporary

restraining order, an injunction, specific performance and any other relief that may be available from a court of competent jurisdiction, without any requirement to post a bond or other security, and without any requirement to prove actual damages or that monetary damages will not afford an adequate remedy.

31.13 Nondiscrimination. Under the Elliott-Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, et seq., the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, et seq., and Executive Directive 2019-09, Contractor and its subcontractors agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex (as defined in Executive Directive 2019-09), height, weight, marital status, partisan considerations, any mental or physical disability, or genetic information that is unrelated to the person's ability to perform the duties of a particular job or position. Breach of this covenant is a material breach of this Contract.

31.14 Unfair Labor Practice. Under MCL 423.324, the State may void any Contract with a Contractor or Permitted Subcontractor who appears on the Unfair Labor Practice register compiled under MCL 423.322.

31.15 Schedules All Schedules that are referenced herein and attached hereto are hereby incorporated by reference.

31.16 Counterparts. This Contract may be executed in counterparts, each of which will be deemed an original, but all of which together are deemed to be one and the same agreement and will become effective and binding upon the parties as of the Effective Date at such time as all the signatories hereto have signed a counterpart of this Contract. A signed copy of this Contract delivered by facsimile, e-mail or other means of electronic transmission (to which a signed copy is attached) is deemed to have the same legal effect as delivery of an original signed copy of this Contract.

31.17 Effect of Contractor Bankruptcy. All rights and licenses granted by Contractor under this Contract are and will be deemed to be rights and licenses to "intellectual property," and all Software and Deliverables are and will be deemed to be "embodiments" of "intellectual property," for purposes of, and as such terms are used in and interpreted under, Section 365(n) of the United States Bankruptcy Code (the "**Code**"). If Contractor or its estate becomes subject to any bankruptcy or similar proceeding, the State retains and has the right to fully exercise all rights, licenses, elections, and protections under this Contract, the Code and all other applicable bankruptcy, insolvency, and similar Laws with respect to all Software and other Deliverables. Without limiting the generality of the foregoing, Contractor acknowledges and agrees that, if Contractor or its estate shall become subject to any bankruptcy or similar proceeding:

(a) all rights and licenses granted to the State under this Contract will continue subject to the terms and conditions of this Contract, and will not be affected, even by Contractor's rejection of this Contract; and

(b) the State will be entitled to a complete duplicate of (or complete access to, as appropriate) all such intellectual property and embodiments of intellectual property comprising or relating to any Software or other Deliverables, and the same, if not already in the State's possession, will be promptly delivered to the State, unless Contractor elects to and does in fact continue to perform all of its obligations under this Contract.

31.18 Compliance with Laws. Contractor and its Representatives must comply with all Laws in connection with this Contract.

31.19 Non-Exclusivity. Nothing contained in this Contract is intended nor is to be construed as creating any requirements contract with Contractor. This Contract does not restrict the State or its agencies from acquiring similar, equal, or like Services from other sources, and it does not restrict Contractor from providing similar, equal, or like Services to other clients or customers.

31.20 Entire Agreement. This Contract, together with all Schedules, Exhibits, and the Statement of Work constitutes the sole and entire agreement of the parties to this Contract with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings and agreements, representations and warranties, both written and oral, with respect to such subject matter. In the event of any inconsistency between the statements made in the body of this Contract, the Schedules, Exhibits, and the Statement of Work, the following order of precedence governs: (a) first, this Contract, excluding its Exhibits and Schedules, and the Statement of Work; and (b) second, the Statement of Work as of the Effective Date; and (c) third, the Exhibits and Schedules to this Contract as of the Effective Date. NO TERMS ON CONTRACTORS INVOICES, WEBSITE, BROWSE-WRAP, SHRINK-WRAP, CLICK-WRAP, CLICK-THROUGH OR OTHER NON-NEGOTIATED TERMS AND CONDITIONS PROVIDED WITH ANY OF THE SERVICES, OR DOCUMENTATION HEREUNDER WILL CONSTITUTE A PART OR AMENDMENT OF THIS CONTRACT OR IS BINDING ON THE STATE OR ANY AUTHORIZED USER FOR ANY PURPOSE. ALL SUCH OTHER TERMS AND CONDITIONS HAVE NO FORCE AND EFFECT AND ARE DEEMED REJECTED BY THE STATE AND THE AUTHORIZED USER, EVEN IF ACCESS TO OR USE OF SUCH SERVICE OR DOCUMENTATION REQUIRES AFFIRMATIVE ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

STATE OF MICHIGAN

Contract No. 171-19000000318
DNR Timber Cruise Software Solution

Schedule A STATEMENT OF WORK

This Schedule identifies the requirement of the Contract.

1. DEFINITIONS

The following terms have the meanings set forth below. All initial capitalized terms that are not defined below shall have the respective meanings given to them in Section 1 of the Contract Terms and Conditions. "Solution" means the Commercial-Off-the-Shelf (COTS) solution with customization that the State is seeking under this Contract.

Term	Definition
BAF	Basal Area Factor
ESRI	Environmental Systems Research Institute
FIA	Forest Inventory and Analysis
FRD	Forest Resource Division
FTN	First Tree North (related to sub sampling)
GPS	Global Positioning System
MDNR	Michigan Department of Natural Resources
MFT	Merchantable Form Type
MiFI	Michigan Forest Inventory (System)
QA/QC	Quality Assurance/Quality Control
STR	Sample Tree Ratio (related to sub sampling)
TSALE	Timber Sale software developed and maintained by DTMB to support the MDNR FRD timber sales.
VMS	Vegetative Management System

Term	Definition
VRSS	Variable Radius Sub-Sampling – The shorthand name for the standard style of cruising MDNR is moving to with this protocol. It is closely based on a method used by the USDA Forest Service, where point cruising is done, and the cruise can be designed in a way where each species/product group (e.g. red pine sawtimber) can have a sampling interval assigned to it (e.g. 1 in 10 trees) or systematically subsampled (e.g. first tree in a species/product group clockwise from zero azimuth).
WGS 1984	World Geodetic System 1984

2. BACKGROUND

The Michigan Department of Natural Resources is committed to the conservation, protection, management, use and enjoyment of the State's natural resources for current and future generations. In carrying out this mission, there is a need to gather information on trees for the purpose of inventorying the condition of the forest, and to determine cubic volume of potential forest products to conduct forest planning and facilitate the sale of timber on State managed lands in accordance with those plans. Over the last several years, Timber Sales have generated over \$45 million dollars of revenue for the Forest Development Fund, the fund that powers almost 90% of the Forest Resource Division of the DNR's budget.

In recent years, many issues have been raised regarding the Forest Resource Division's tree measurement methodologies. A Timber Management Technical Team (TMTT) was formed several years ago and was asked to work with Dr. Dave MacFarlane of Michigan State University to address many of these issues. In 2016, a subcommittee of the TMTT was charged with providing a recommendation that addresses the following:

- Because of the age and base technology (DOS) of TSALE, MDNR has pushed the limits of the capabilities and stability of the existing TSALE system. The current system is at risk of failing, jeopardizing the MDNR's ability to manage timber sales.
- MDNR produces an inconsistent product (volumes) for its timber sale customers.
- The collection of sale volume formulas in the TSALE program produce inaccurate results, in some cases grossly underestimating volume in a given tree.
- MDNR has inadequate basal area data for stands in the inventory that are managed based on density, preventing MDNR from creating future harvest projections that MDNR has confidence in providing to customers. MDNR Regional State Forest Management Plan 'scorecard' points out that the largest gaps in meeting the goals of the plan come from projections of partial harvests.
- MDNR Quality Assurance / Quality Control (QAQC) process for checking its own staff is flawed.

The following recommendations were made to and approved by the DNR-FRD Management Team in April 2017:

1. Adopt a variable radius plot sub-sampling (VRSS) protocol that utilizes taper models to determine volumes of measured trees and allows for sub-sampling of diameters and heights. This protocol is flexible with several variations, allowing MDNR to match the intensity of the measurements to the value of the volume being calculated. One variation of VRSS requires the cruiser to only record diameter and merchantable height for every tree on a predetermined interval (every 5th, 10th, 20th, 50th, etc.). Another variation is to record diameter and height for the first 'in' tree (clockwise from north) for a given species. DNR-FRD management Team recommend adopting this technique for cruising and deploying a system that allows for use of as many of these variations as feasible.

2. Charge this team with developing a request for proposal (RFP) to purchase a solution that includes a field data collection software (while supporting a low-tech 'paper' option as a back-up) and has an office component that allows individual cruisers to generate data, reports, and files that can be imported into VMS and MiFI that satisfy the objectives stated above. It should also support protocols for 'mark & tally' of merchantable trees, and regeneration monitoring plots.
3. Develop and implement a quality control (QAQC) process that replaces certification of MDNR staff for cruising with random spot checks, more closely resembling how MDNR check its contractors. The DNR staff would flag all cruise plot centers and expect that any plot could be checked. This process should be rolled out in parallel with any change to the cruise protocol.

In support of meeting these recommendations, Dr. MacFarlane is in the process of finalizing the model with data recently collected from the State forest. The model should be completed by Fall 2018. The main model will be similar in its basic form to the original Clark et al (1991) model¹. As shown in the Clark et al (1991) report (Table 13), the solution must look up coefficients by species, but additional coefficients will be needed by Merchantable Form Types (MFTs) for each model. The paper "A new method for capturing stem taper variation for trees of diverse morphological types" by MacFarlane and Weiskittel (2016)² is a preliminary introduction to the expected model.

In addition, there will be a companion branch model. When completed, it will be similar to the one Neil Ver Planck and MacFarlane (2014)³ worked on for a cooperative project with the US Forest Service, Forest Inventory and Analysis (FIA): "Modelling vertical allocation of tree stem and branch volume for hardwoods." A similar model was constructed for total tree biomass (Ver Planck and MacFarlane 2015)⁴: "A vertically integrated whole-tree biomass model."

The final model system will likely combine the approach in MacFarlane and Weiskittel (2016) using the method of Ver Planck and MacFarlane (2014) to get the branch volume as a cumulative function of whole tree volume, taking into account species and MFT.

3. PURPOSE

The State is contracting for an externally hosted COTS solution with customization ("Solution") that will support the following timber cruising practices:

- (a) Variable Radius Plot
 - a. Basal Area Factor (BAF)
 - b. Sub Sampling
 - i. First Tree North (FTN)
 - ii. Sample Tree Ratio (STR)
 1. Random
 2. Systematic
- (b) Tree Tally
 - a. 100%
 - b. Sample Interval (Ratio)
 - i. Random
 - ii. Systematic
- (c) Fixed Radius Plot
 - a. Regeneration
 - b. Timber

¹ Clark, Alexander, III; Souter, Ray A., Schlaegel, Bryce E. 1991. Stem Profile for Southern Equations for Southern Tree Species. Res. Pap. SE-282. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 117 p.

² Can. J. For. Res. 46: 804–815 (2016) dx.doi.org/10.1139/cjfr-2016-0018

³ Forestry 2014; 00, 1–11, doi:10.1093/forestry/cpu007

⁴ Trees (2015) 29:449–460 DOI 10.1007/s00468-014-1123-x

MDNR is reliant on flexible workflows for its staff and contractors, specifically the ability to design and carry-out a cruise while 'offline', and later associate it with cruise polygons for the purpose of inventory reporting, or timber sale volume determination. Often times staff paint in a boundary of a cruise unit, then conduct the cruise before returning to the office and associating the newly created boundary with the cruise plot/tree data that was gathered. Some of the workflows follow the traditional design of a cruise for a known polygon while in the office, but other situations call for the non-traditional sequence above. See the requirements section of this request for more information on what the specific needs are to support this workflow.

4. CONTRACT TERM

The contract term is set forth in the preamble of the Contract.

5. SPECIFIC STANDARDS

IT Policies, Standards and Procedures (PSP)

Contractors are advised that the State has methods, policies, standards and procedures that have been developed over the years. Contractors are expected to conform to State IT policies and standards. All services and products provided as a result of this Contract must comply with all applicable State IT policies and standards. Contractor is required to review all applicable links provided below and state compliance in their response. Contractor must also demonstrate they will maintain and keep up to date on all SOM standards.

IT Policies, Standards and Procedures (PSP): http://www.michigan.gov/dtmb/0,4568,7-150-56355_56579_56755---,00.html

Acceptable Use Policy

To the extent that Contractor has access to the State's computer system, Contractor must comply with the State's Acceptable Use Policy, see http://michigan.gov/dtmb/0,4568,7-150-56355_56579_56755---,00.html. All Contractor Personnel will 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 Contractor's access to the State's system if a violation occurs.

Look and Feel Standard

All software items provided by the Contractor must adhere to the State of Michigan Application/Site standards which can be found at www.michigan.gov/standards.

Mobile Responsiveness

The Contractor Solution must utilize responsive design practices to ensure the application is accessible via a mobile device.

ADA Compliance

The State is required to comply with the Americans with Disabilities Act of 1990 (ADA), and has adopted a formal policy regarding accessibility requirements for websites and software applications. The State is requiring that Contractor Solution, where relevant, to level AA of the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0. Contractor may consider, where relevant, the W3C's Guidance on Applying WCAG 2.0 to Non-Web Information and Communications Technologies (WCAG2ICT) for non-web software and content. The State may require that Contractor complete a Voluntary Product Accessibility Template for WCAG 2.0 (WCAG 2.0 VPAT) or other comparable document for the proposed Solution.

http://www.michigan.gov/documents/dmb/1650.00_209567_7.pdf?20151026134621

6. USER TYPE AND CAPACITY

Type of User	Access Type	Number of Users	Number of Concurrent Users
State Employees	Write Access	250	150
State Employees	Admin Access	30	30
Trusted Third Parties	Write Access	30	30

Contractor must be able to meet the expected number of concurrent Users. Contractor must support the expected number of concurrent Users.

Contractor must provide details regarding latency response time for (i.e., Generate Page Load, standardized reporting, ad hoc reporting). The Contractor must identify what network connectivity or equipment will the State be required to have to meet the expected latency response time.

7. ACCESS CONTROL AND AUDIT

Contractor's Solution must support State standard federated single sign on for end user access. The Solution must support multi-factor authentication for privileged/administrative access.

Contractor Solution must support Identity Federation/Single Sign-on (SSO) capabilities using Security Assertion Markup Language (SAML) or comparable mechanisms. The Contractor must already have this configured and running. Contractor to explain how long it will take to integrate this feature to the SOM Single Sign On Solution

Contractor must comply with any Web-based management capability to manage users and data.

Contractor must comply with what and how Audit Log Data are captured as well as how and by whom it can be accessed within specific User Groups. The Audit logs must be in a human readable format.

8. DATA RETENTION

Contractor must meet its capabilities for data retention (storage limitations, duration, etc.).

9. SECURITY

Externally Hosted

Contractor must describe how it will comply with the following and provide supporting evidence as part of their proposal:

The Solution will be storing public data.

Contractor must meet the Data Security Plan set forth in **Schedule F – Data Security Requirements** that adequately protects the State's data requirements.

- Must be encrypted in transit and at rest using AES 128 bit or higher encryption.
- Must remain compliant with FISMA and the NIST Special Publication 800.53 (most recent version) LOW controls using minimum control values as established in the applicable PSP.
- Must maintain an annual SSAE 16 SOC 2 Type 2 audit for the Solution.

- PII is primarily defined as pieces of computerized data that can be used to distinguish or trace an individual's identity. In Michigan, this data includes a person's first name or first initial along with last name used in conjunction with:
 - Address and telephone number
 - Driver's license or state personal identification card number
 - Social Security Number (SSN)
 - Place of employment
 - Employee identification number
 - Employer or taxpayer identification number
 - Government passport number
 - Health insurance identification number
 - Mother's maiden name
 - Demand deposit account number
 - Savings account number
 - Financial transaction device account number or the individual's account password
 - Stock or other security certificate or account number
 - Credit card account number
 - vital record
 - Medical records or information

- Additionally, personal information of a Michigan resident includes an individual's first name or first initial along with last name linked to one or more of the following:
 - SSN
 - Driver's license or state personal identification card number demand deposit or other financial account number, or credit card or debit card number in conjunction with any required security code, access code, or password that would permit access to any of the individual's financial accounts

- For this Statement of Work, Contractor will not be receiving PII from the State as PII is defined in this Section 9.

10. END USER OPERATING ENVIRONMENT

Browser requirements can be found in the Digital Standards document located at https://www.michigan.gov/documents/som/State_of_Michigan_Digital_Standards_-eMi_team_052218_624467_7.pdf

Specifically, the Technical section of the document on page 4. Below is the language.

TECHNICAL BROWSER MINIMUM REQUIREMENTS

Development teams must accommodate the latest browser versions as well as some pre-existing browsers. To ensure that users with older browsers are still able to access online services, applications must, at a minimum, display and function correctly in standards-compliant browsers and the state standard browser without the use of special plugins or extensions. The rules used to base the minimum browser requirements include:

- Over 2% of site traffic, measured using Sessions or Visitors (or)
- The current browser identified and approved as the State of Michigan standard

Please use the most recent calendar quarter to determine browser statistics.

Contractor must:

- Comply with any State system access requirements that are necessary for the Bidder to perform its obligations on a timely basis, including but not limited to, physical or remote access to State networks, servers, or individual workstations.
- Must comply with the current environment and how it intends to comply with any future changes to the user environment. And if not, describe what end user operating environment its Solution supports.
- Must support the original environment throughout the term of the contract.
- Must communicate changes to its roadmaps.
- Identify any plug-ins necessary for the proposed Solution to meet the system requirements of this Contract.
- Contractor must communicate how customers collaborate with your organization in the decision-making process for upgrades, maintenance, and change control.

11. SOFTWARE

Contractor must comply with description of the Solution to be provided under this Contract including, but not limited to, a detailed description of the proposed Software (name, type, version, release number, etc.), its functionality, optional add-on modules, Contractor's services and the Solution ability to be rapidly configured or scaled as the State's business or technical demands change. If Contractor is using any open source or third-party products in connection with the proposed Solution the Contractor must identify these in this contract. (including identifying any associated cost in **Schedule D - Pricing**).

Contractor must comply with License Agreement for the Solution, and label as **Schedule C – License Agreement** in this contract. Contractor should refer to **Schedule D – Pricing** with respect to proposing a term-based license. The License Agreement should only include licensing terms and should not include any terms that conflict with the **COTS Contract Terms** (e.g. payment terms). Contractor License Agreement should include full use of the Solution by the State's Authorized Users, and there should not be any separate end-user license agreement that will be required to access and use such products.

12. SOLUTION REQUIREMENTS

Contractor must comply with each section in this **Schedule A – Statement of Work** and must comply with the attached **Exhibit 1 - Business Specification Worksheet**.

Contractor must meet proposed approach to validate each requirement to ensure that the Solution meets the specifications set forth in this Contract.

Contractor must comply with any configuration changes or customization modifications that will need to be made to the Solution to meet the specifications set forth in **Exhibit 1 - Business Specification Worksheet** and where applicable in each section of this Contract.

Configuration is referred to as a change to the Solution that must be completed by the Contractor prior to Go-Live but allows an IT or non-IT end user to maintain or modify thereafter (i.e. no source code or structural data model modifications occurring).

Customization is referred to as a modification to the Solution's underlying source code, which can be completed as part of the initial implementation.

All configurations or customizations made during the term of the contract must be forward-compatible with future releases and be fully supported by the Contractor without additional costs.

13. INTEGRATION

Contractor must integrate the Solution with the systems listed in the Integration List provided by the State below:

- Vegetative Management System (VMS) 1,000-2,000 cruises annually
- Michigan Forest Inventory (MiFI) 1,000-2,000 cruises annually

14. MIGRATION

There are no migration services needed at this time, however the State may need migration services in the future.

15. TESTING SERVICES AND ACCEPTANCE

Contractor must comply with **Section 11. Pre-Delivery Testing and Section 12. Acceptance Testing, of the COTS Contract Terms.**

16. TRAINING SERVICES

See **Exhibit 1 – Business Specification Worksheet.**

The Contractor must comply with administration and end-user training for implementation, go-live support, and transition to customer self-sufficiency. The Contractor must comply with available training options and include details such as: typical class size, materials to be provided, class duration, on-site or web based. The Contractor must comply with the training plan for go-live support and transition to self-support, including options and details such as the number of dedicated personnel, staff location, hours available and duration of go-live support.

Contractor must comply with details on, and examples of, clearly written instructions and documentation to enable State administrators and end-users to successfully operate the Solution without needing to bring in additional Contractor support.

17. HOSTING

Externally Hosted

Contractor must comply with its standard Service Level Agreement (SLA). **Schedule E – Service Level Agreement**

18. SUPPORT AND OPERATIONS

Externally Hosted

Contractor must comply with its standard Service Level Agreement (SLA). **Schedule E – Service Level Agreement**

Support-Hours

The State requires the Contractor to provide Support Hours as 24x7x365, but overnight downtime could be negotiated if needed.

19. DOCUMENTATION

Contractor must provide all user manuals, operating manuals, technical manuals and any other instructions, specifications, documents or materials, in any form or media, that describe the functionality, installation, testing, operation, use, maintenance, support, technical or other components, features or requirements of the Software.

Contractor must develop and submit for State approval complete, accurate, and timely Solution documentation to support all users, and will update any discrepancies, or errors through the life of the contract.

The Contractor's user documentation must provide detailed information about all software features and functionality, enabling the State to resolve common questions and issues prior to initiating formal support requests.

Contractor must comply with details on, and examples of, documentation to meet the requirements set forth in this section.

20. TRANSITION SERVICES

Upon termination or expiration of the agreement, Contractor must, for a period of time specified by the State (not to exceed 90 calendar days), provide all reasonable transition assistance requested by the State, to allow for the expired or terminated portion of the agreement to continue without interruption or adverse effect, and to facilitate the orderly transfer of the services to the State or its designees. Such transition assistance may include but is not limited to: (a) continuing to perform the services at the established rates; (b) taking all reasonable and necessary measures to transition performance of the work, including all applicable services to the State or the State's designee; (c) taking all necessary and appropriate steps, or such other action as the State may direct, to preserve, maintain, protect, or return (in a format specified by the State) to the State all data stored in the solution; and (d) preparing an accurate accounting from which the State and Contractor may reconcile all outstanding accounts.

Contractor must comply with the detailed transition-in and transition-out plan, including any roles or responsibilities expected of the State. The plan must adequately demonstrate the steps to migrate between Contractor's Solution and third-party Solutions.

21. PRODUCTS AND SERVICES

Contractor must describe additional Solution functionality, products or services that the State specifications do not address but are necessary to implement and support this solution.

22. LIQUIDATED DAMAGES. For this Statement of Work, Liquidated Damages are \$0.

23. CONTRACTOR KEY PERSONNEL

Contractor must identify all Contractor resources and responsibilities required for the successful implementation and ongoing support of this Contract.

Contractor Contract Administrator. Contractor must identify the individual appointed by it to (a) administer the terms of this Contract, and (b) approve and execute any Change Notices under this Contract.

Contractor – Contract Administrator	
Name	Mike Lester
Address	707 SW Washington, Suite 1300, Portland, OR, 97205
Phone	503-224-3445
Email	mlester@masonbruce.com

Contractor Project Manager. Contractor must identify the Contractor Project Manager who will serve as the primary contact with regard to services who will have the authority to act on behalf of the Contractor in matters pertaining to the implementation services.

Contractor – Project Manager	
Name	Janet Hoyt
Address	707 SW Washington, Suite 1300, Portland, OR, 97205
Phone	503-417-5414
Email	jhoyt@masonbruce.com

Contractor Service Manager. Contractor to provide name of individual to serve as primary contact with respect to the Services, who will have the authority to act on behalf of Contractor in matters pertaining to the receipt and processing of Support Requests and the Support Services.

Contractor – Service Manager	
Name	Dr. Kerry Halligan
Address	707 SW Washington, Suite 1300, Portland, OR, 97205
Phone	503-417-5428
Email	khalligan@masonbruce.com

Contractor Forester. Contractor to provide name of individual to serve as the forester subject matter expert supporting this initiative.

Contractor - Forester	
Name	Donald Gagliasso
Address	707 SW Washington, Suite 1300, Portland, OR, 97205
Phone	503-417-5427
Email	dgagliasso@masonbruce.com

Contractor Statistician. Contractor to provide name of individual to serve as the statistician subject matter expert supporting this initiative

Contractor - Statistician	
Name	Steve Fairweather
Address	P.O. Box 1023, Welches, OR, 97067
Phone	503-622-4454
Email	steve@fairweatherbiometrics.com

Contractor Program Manager. Contractor has identified an additional Contractor Key Personnel category, Program Manager. The Program Manager will provide executive oversight; senior quality assurance, and ensure the full corporate resources of Mason Bruce and Girard, Inc. are brought to bear to ensure successful execution and implementation of the MDNR Timber Cruise Software Solution. Contractor's Program Manager is one of MB&G's Principals and has worked with Contractor's Project Manager for over twenty- five years.

Contractor – Program Manager	
Name	James Schriever
Address	18401 E Hwy 24, Suite 207, Woodland Park, CO 80863
Phone	503-417-5440
Email:	jschriever@masonbruce.com

24. CONTRACTOR PERSONNEL REQUIREMENTS

Contractor must present certifications evidencing satisfactory Michigan State Police Background checks ICHAT and drug tests for all staff identified for assignment to this project.

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

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

25. STATE RESOURCES/RESPONSIBILITIES

The State will provide the following resources as part of the implementation and ongoing support of the Solution.

State Contract Administrator. The State Contract Administrator is the individual appointed by the State to (a) administer the terms of this Contract, and (b) approve and execute any Change Notices under this Contract.

State Project Manager. The State Project Manager will serve as the primary contact with regard to implementation Services who will have the authority to act on behalf of the State in approving Deliverables, and day to day activities.

Agency Business Owner. The Agency Business Owner will serve as the primary contact for the business area with regard to business advisement who will have the authority to act on behalf of the State in matters pertaining to the business Specifications.

State Technical Lead. The State Technical Lead will serve as the primary contact with regard to implementation technical advisement.

State Project Contacts

Role	Name	Title
State Contract Administrator	Jennifer Bronz	IT Category Analyst
State Project/Service Manager	TBD	
Agency Business Owner	Jason Stephens	State Forest Inventory Specialist
State Technical Lead	Laura Brancheau	Quality Assurance Manager

The Contractor must attend the following meetings at no additional cost to the State.

At start of the engagement, the Contractor Project Manager must facilitate a project kick off meeting with the support from the State's Project Manager and the identified State resources to review the approach to accomplishing the project, schedule tasks and identify related timing, and identify any risks or issues related to the planned approach. From project kick-off until final acceptance and go-live, Contractor Project Manager must facilitate weekly meetings (or more if determined necessary by the parties) to provide updates on implementation progress. Following go-live, Contractor must facilitate monthly meetings (or more or less if determined necessary by the parties) to ensure ongoing support success.

If Contractor has an alternative planned approach for project meetings provide details, including purpose, roles and responsibilities, and proposed frequency, must be approved by the State.

26. PROJECT REPORTS

Once the Project Kick-Off meeting has occurred, the Contractor Project Manager will monitor project implementation progress and report on a weekly basis to the State's Project Manager the following:

- Progress to complete milestones, comparing forecasted completion dates to planned and actual completion dates
- Accomplishments during the reporting period
- Tasks planned for the next reporting period
- Identify any existing issues which are impacting the project and the steps being taken to address those issues
- Identify any new risks and describe progress in mitigating high impact/high probability risks previously identified

Contractor must describe specific reports the Contractor will provide after contract execution and during the lifecycle of the contract, including all required scheduled reporting and details around the how and when metrics are captured/validated.

27. MILESTONES AND DELIVERABLES

The State's proposed milestone schedule and associated deliverables are set forth below. Days below are representative of calendar days.

Milestone Event	Associated Milestone Deliverable(s)	Schedule
Project Planning	Project Kickoff	Contract Execution + 14 days
MacFarlane Model Implementation	MacFarlane Model: <ul style="list-style-type: none"> • Specifications • Development (integration into the bidder solution) • UAT • Implementation 	Execution + 45 days
Cruise Design Functionality	Cruise Design Functionality: <ul style="list-style-type: none"> • Specifications • Development (integration into the bidder solution) • UAT • Implementation 	Execution + 60 days
VMS Integration	VMS: <ul style="list-style-type: none"> • Specification • Development • UAT • Implementation 	Execution + 90 days
MiFI Integration	MiFI: <ul style="list-style-type: none"> • Specification • Development • UAT • Implementation 	Execution + 90 days
Pilot Roll-Out	<ul style="list-style-type: none"> • Training • Installation • Pilot Execution 	Execution + 120 days
Full Roll-Out (Implementation Go-Live)	<ul style="list-style-type: none"> • Training • Installation/Implementation • Go-Live 	Available window: Oct 15, 2019 – April 1, 2020
Post Production Warranty	Maintenance and Support (free of charge) for 1 Year	Production + 365 days
Production Support Services	Ongoing after Final Acceptance.	Ongoing

Contractor may offer alternative timeframes and deliverables, but Contractor must provide an explanation as to why the State's schedule and associated deliverables is not feasible.

Contractor must provide a Work Breakdown Structure (WBS) that corresponds with the milestone dates set forth above (or with Contractor's alternatively proposed schedule). The WBS must be detailed enough to identify all State and Contractor responsibilities.

The Contractor Project Manager will be responsible for maintaining an MS Project schedule (or approved alternative) identifying tasks, durations, forecasted dates and resources – both Contractor and State - required to meet the timeframes as agreed to by both parties.

Changes to scope, schedule or cost must be addressed through a formal change request process with the State and the Contractor to ensure understanding, agreement and approval of authorized parties to the change and clearly identify the impact to the overall project.

SUITE Documentation

In managing its obligation to meet the above milestones and deliverables, the Contractor is required to utilize the applicable State Unified Information Technology Environment (SUITE) methodologies, or an equivalent methodology proposed by the Contractor.

SUITE's primary goal is the delivery of on-time, on-budget, quality systems that meet customer expectations. SUITE is based on industry best practices, including those identified in the Project Management Institute's PMBoK and the Capability Maturity Model Integration for Development. It was designed and implemented to standardize methodologies, processes, procedures, training, and tools for project management and systems development lifecycle management. It offers guidance for efficient, effective improvement across multiple process disciplines in the organization, improvements to best practices incorporated from earlier models, and a common, integrated vision of improvement for all project and system related elements.

While applying the SUITE framework through its methodologies is required, SUITE was not designed to add layers of complexity to project execution. There should be no additional costs from the Contractor, since it is expected that they are already following industry best practices which are at least similar to those that form SUITE's foundation.

SUITE's companion templates are used to document project progress or deliverables. In some cases, Contractors may have in place their own set of templates for similar use. Because SUITE can be tailored to fit specific projects, project teams and State project managers may decide to use the Contractor's provided templates, as long as they demonstrate fulfillment of the SUITE methodologies.

The Contractor is required to review <http://www.michigan.gov/suite> and demonstrate how each PMM/SEM requirement will be met. Contractor wishing to use their own documents must submit an example of the document that will be substituted. If the Contractor deems a document to be non-applicable, please provide reasons for the determination. The State reserves the right to give final approval of substituted documents and items marked as non-applicable.

Bidder must describe how they will meet the requirements set forth above and note any exceptions for successful implementation and ongoing support of the Solution.

28. PRICING

Contractor must comply with **Schedule D - Pricing** a detailed description of all costs associated with implementing, maintaining and supporting the Solution, including all requested services set forth in this Contract.

If Contractor reduces its prices for any of the software or services during the term of this Contract, the State shall have the immediate benefit of such lower prices for new purchases. Contractor shall send notice to the State's Contract Administrator with the reduced prices within fifteen (15) Business Days of the reduction taking effect.

Travel and Expenses

The State does not pay for overtime or travel expenses.

29. SUB SAMPLING FOR FIXED RADIUS PLOT REGENERATION AND TIMBER

Contractor must comply with their solution capabilities, methodology and calculations for sub sampling for fixed radius plot regeneration and timber.

30. CHECK CRUISES

Contractor must comply with their methodology and solution capabilities for conducting check cruises.

31. ADDITIONAL INFORMATION

The State reserves the right to purchase any additional services or products from the Contractor during the duration of the Contract.

STATE OF MICHIGAN

Contract No.190000000318
DNR Timber Cruise Software Solution

EXHIBIT 1

Requirements

BUSINESS SPECIFICATION WORKSHEET

Referenced User Roles

Role	Description
System Configuration Administrator	Authorized user with the responsibility of maintaining the configurable values in the system per determined policy. This person will be a State Employee.
Cruiser	Authorized user with the responsibility of completing cruise designs, completing timber cruises, and conducting check cruises. This person can be either a State Employee or contractor (trusted third party).
System Administrator	Authorized user with the ability to administer system maintenance functionalities (system notifications, system settings, etc.). This person will be a State Employee.
User Administrator	Authorized user with the responsibility of maintaining user access. This person will be a State Employee.

A Business Specification Number	B Business Specification	C Priority	D					E Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	
MANDATORY MINIMUM								
1.0	Supported mobile platforms must include either iOS or Android.	N/A	X					Our mobile solution, MobileMap Cruise, is currently available for Android Lollipop (Android 5.0) or higher.
2.0	The solution must support offline (not actively connected to a network) functionality for the collection of data in the field using mobile devices(s).	N/A	X					MobileMap Cruise is optimized for offline collection of data in the field using mobile devices. It supports synchronization of data to ArcGIS Feature Services when online, but all data access, collection and editing can be done when offline.
2.1	Offline data collection functionality must include: (a) Initiation of the cruise design (b) Capturing of x/y coordinates (c) Data field entry validations (d) Data field value population using reference table data in dropdowns, etc.	N/A	X					<p>(a) Initiation of the cruise design – MobileMap Cruise meets or exceeds all requirements listed in the response to question 20 of the Bidder Questions & Responses. Specifically, MobileMap Cruise will allow a cruiser in the field to design a cruise, including providing the ability to specify the number of plots and the spatial layout (X:Y) ratio, plot density, rectangular vs. diamond pattern, stand boundary buffer, etc. It supports the ability to search for stands using any attribute field, including unique ID and stand name. It supports standardized data models in which users specify cruise specific parameters such as BAF, and standardized lists for attributes such as tree species. Standardized lists of allowed values are maintained within an Esri data model using Coded Value Domains and can be configured by data managers without the need for code changes to the software.</p> <p>(b) Capturing of x/y coordinates – MobileMap Cruise supports mapping of stand boundaries and plot locations. Mapping can be done via 'heads-up digitizing' by drawing shapes on the screen or tapping out vertices (for polygons and lines), and by using a device's built in GPS or external Bluetooth connected GPS. X/Y coordinates are stored as point features on the mobile device and are synchronized with an Esri Feature Service where they can be accessed via desktop GIS, the InventoryManager web application, or exported as a tabular dataset in CSV or Excel format.</p>

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								<p>(c) Data field entry validations – MobileMap Cruise supports data field entry validations at the field level and at the ‘among-fields’ level. Field level validations are implemented in an Esri data model and stored in the Feature Service definition. These include the field data type, the allowed values (Range Domains and Coded Value Domains) and whether a field is required or not (nullable). Among-Fields validations, also known as ‘if/then’ validations, are implemented via a custom data model component called the ‘Rules Table’. The rules table stores validation rules that involve more than one attribute field. An example is “If a tree has a broken top, then it must have a height to broken top recorded”.</p> <p>(d) Data field value population using reference table data in dropdowns, etc. – MobileMap Cruise uses Esri Coded Value Domains to implement lists of allowed values for all relevant fields. In MobileMap Cruise, these are displayed using dropdown lists in which the values are presented in the same sort order as they are listed in the Coded Value Domain.</p>
2.1.1	<p>The initiation of the cruise design must minimally support the following:</p> <ul style="list-style-type: none"> (a) Strata (b) Sample Groups (c) Sampling Methodology (d) Basal Area Factor (BAF) 	N/A	X					<p>MobileMap Cruise can support multiple cruise designs including strata, sample groups, sampling methodology and BAF. The user has the flexibility to design an inventory that meets their specifications which includes selecting individual or groups of stands to cruise as well as placing a large grid of plots across an entire management unit. Once the plots are created MobileMap Cruise supports a wide variety of sampling methodology including BAF plots and fixed area plots. A MobileMap Cruise cruise data model can support any attribute fields that are needed. The fields listed in this business specification can all be easily supported: strata, sample groups, sampling methodology and basal area factor (BAF). Typically, cruise data models incorporate Esri Coded Value Domains for maintaining lists of allowed values for each of these parameters. This means that field users can simply select an appropriate value from a dropdown of allowed values. To speed data</p>

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								entry, MobileMap Cruise also supports both Esri field defaults and a concept called Configurable Defaults, where a user defined default value can be provided. For example, if all plots in a stand will use the same BAF, the user can set the BAF value once, and the BAF field for each plot will automatically be set to that value when the plot is created. The user can override Configurable Defaults when creating or editing the feature.
2.2	The solution must be successfully implemented and in production use more than a year by a minimum of 3 other organizations.	N/A	N/A	N/A	N/A	N/A	N/A	The core software framework being proposed has been in production internally at MB&G as well as with some of our clients for more than two years. Our solution has been successfully implemented and in production for at least one year by Hancock Natural Resources Group, Stimson Lumber Company, Pacific Gas & Electric (PG&E), Rayonier, Hampton Lumber, Coalition for the Upper South Platte, and Barnes and Associates. It was also recently implemented (less than a year) in production with Pennsylvania Game Commission.
REQUIRED								
	Training							
3.0	The Vendor must provide training for implementation and each major release thereafter for the duration of the contract.	Low	N/A	N/A	N/A	N/A	N/A	MB&G has experience in delivering both in-person and web conference training for pilot roll-outs, production roll-outs and major releases. We provide well organized training events that include a clear agenda, a step by step guide for installation, configuration and use, and detailed user and data manager guides. We outline our training plan in section 16 above.
3.1	Training must include train the trainer and in-person classroom training.	Low	N/A	N/A	N/A	N/A	N/A	MB&G has experience with both train the trainer and in-person classroom training. We detail the train the trainer approach above in section 16. As stated above it will be critical for MDNR to provide at least three trainers to participate in this training prior to pilot rollout. These trainers should be part of UAT team and are expected to support the roll out training and six-month Go-Live support phase.

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3.1.1	Training must be provided at a minimum of two locations to be determined by the State.	Low	N/A	N/A	N/A	N/A	N/A	We propose providing on-site training at one location for the pilot roll-out and at up to three locations for the production Go-Live roll-out. We believe this is consistent with the response to question 6 of the Bidder Questions and Answers in which it states that "The Pilot Roll-Out is a testing and training period, where bugs and procedures are worked out. A limited number of employees will be involved."
3.1.1.1	Locations are expected to be central to each of the lower and upper Michigan peninsulas.	Low	N/A	N/A	N/A	N/A	N/A	The pilot and production roll-out trainings will be conducted at three locations chosen by the State.
3.1.2	The Vendor must develop and produce training materials.	Low	N/A	N/A	N/A	N/A	N/A	MB&G has experience developing high quality training materials and while we will develop and produce all materials for the training events we expect feedback and support from MDNR staff identified as trainers.
<i>Cruise Design</i>								
4.0	The solution must allow a Cruiser to enter a cruise design.	High	X					See answers to 4.1 – 4.22 below
4.1	The solution must allow a Cruiser to enter the cruise design for more than one cruise at a time.	High	X					If a cruiser designs a cruise in the office, the spatial and attribute information is saved to the Esri Feature Service where it is available to all cruisers who have access to that service. If a cruiser designs the cruise in the field using MobileMap Cruise, they can synchronize the cruise design with the Esri Feature Service once they are online. At that point, all other cruisers who have access to that Esri Feature Service can download that cruise design and be ready to begin offline field data collection.
4.1.1	The cruise design must include (see Attachment A – Cruise Card Example): (a) Cruise Method (b) Sampling Method (c) Sampling Ratio (if applicable)	High	X					MobileMap Cruise has a flexible, data driven design which can include any cruise design parameters. In the implementation phase of this project we will work with the State to define the data model(s) to be used for cruising. This data model(s) will include Cruise Method, Sampling Method, Sampling Ratio and BAF. Fields such as Sampling Ratio and BAF will be set to accept values were applicable and can be

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	(d) BAF (if applicable)							set up to use complex among fields or if/then validation if needed to ensure these fields are populated when required.
4.2	The solution must support two workflows for cruise design.	High	X					See answers to 4.2.1 and 4.2.2 below
4.2.1	The solution must allow a Cruiser to complete the cruise design in the office and execute the cruise in the field.	High	X					In the office, a user can search for and select a stand(s) for cruising, or heads-up digitize a new stand using InventoryManager or using desktop GIS (ArcMap or ArcGIS Pro). Once a stand has been defined, the user can select the appropriate cruise method (e.g., fixed radius, point, 100% tally), sampling method (e.g. First Tree North, Sample Tree Ratio) and sampling ratio (e.g., 1:20). The user can create plots using a plot layout tool and specifying the plot density (in terms of plots per acre), minimum and maximum number of plots, layout pattern (rectangular vs. diamond), XY ratio (e.g., 4:5) and an optional stand boundary buffer (to avoid edge plots). Once the stand has been defined and attributed, plots can be laid out using the Plot Layout tool in InventoryManager, or by manual layout in InventoryManager or desktop GIS, or using existing tools (e.g., Python script) in desktop GIS. Stands and plots created in the office are saved to an Esri Feature Service and synchronized with mobile devices so that cruisers receive all stand and plot information, including their spatial location information and any attributes that have been defined, including cruise design parameters such as cruise method, sampling method and sampling ratio. At that point, field users can go offline and begin to collect data in disconnected environments.
4.2.2	The solution must allow a Cruiser to complete the cruise design in the field and execute the cruise in the field.	High	X					In the field, MobileMap Cruise allows a Cruiser to enter a cruise design by selecting an existing stand(s) (and using search if needed to find an appropriate stand(s) by stand ID, stand name, or other attribute), or by delineating a new stand(s) via heads-up digitizing or by GPS data capture. Once a stand has been defined, the user can select the appropriate cruise method (e.g., fixed radius, point, 100% tally), sampling method (e.g. First Tree North, Sample Tree Ratio) and sampling ratio (e.g., 1:20). The user can create plots using a plot

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								layout tool and specifying the plot density (in terms of plots per acre), minimum and maximum number of plots, layout pattern (rectangular vs. diamond), XY ratio (e.g., 4:5) and an optional stand boundary buffer (to avoid edge plots). Alternatively, the cruiser can manually create plots via heads-up digitizing the desired location or via GPS data capture at the plot location. If plot locations are pre-defined, they can be adjusted to their true sample location via GPS during data collection if desired.
	Data Collection							
5.0	<p>The solution must support the following offline data collection activities:</p> <ul style="list-style-type: none"> (a) Summary statistics and calculations based on collected sampling data (b) GPS data to include a point, line or polygon and configurable attributes associated with that GPS data (i.e. a survey corner location and its type, etc.) 	Low		X				<p>(a) MobileMap Cruise currently supports summary statistics and calculations based on collected sampling data, including:</p> <ul style="list-style-type: none"> • Basal area and Trees Per Acre (TPA) by species <p>During the course of this work, MobileMap Cruise will be customized to support:</p> <ul style="list-style-type: none"> • Total achieved error and confidence interval for the mean basal area for given cruise. <p>(b) MobileMap Cruise currently supports GPS data including points, lines and polygons and configurable attributes associated with that GPS data. MobileMap Cruise is built from the ground up on Esri's mobile technology, specifically the ArcGIS Runtime SDK and have very strong support for GPS data collection. It can use a device's onboard GPS or connect to external Bluetooth GPS. It supports advanced GPS capabilities including point averaging, recording of</p>

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			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
								the number of points averaged and RMSE, optional GPS tracking to record travel paths and optional proximity alerts to notify cruisers when they reach plot center (or any other feature). MobileMap Cruise data models typically include a polygon stand layer and a point plot layer but can also include any number of spatial layers for recording travel paths, gates, culverts, streams or any other features that might be captured using GPS in the field. Typically, generic point, line and polygon layers are included in the data model to support ad hoc GPS data collection as well.
6.0	The solution must support the ability to preload GIS data to the mobile devices in support of data collection.	Low	X					MobileMap Cruise supports a wide range of GIS data types and workflows for pre-loading data. MobileMap Cruise supports base map data in several formats including Esri's CompactTileCache and Tile Package formats, as well as the Open Source MBTiles format. Each of these formats provide raster data support, including aerial photos, satellite imagery, topo maps or other image-based datasets (e.g., lidar-derived digital elevation models). MobileMap Cruise also supports read-only vector data in Shapefile format. The primary format for data collection is Esri Feature Service format, where data are stored in ArcGIS Server, Portal for ArcGIS or ArcGIS Online and synchronized with mobile devices running MobileMap Cruise. A typical workflow for pre-loading GIS data is to package and load high resolution base maps (e.g., imagery and topo maps) onto a mobile device using a microSD card, then copy stand data from an existing stand layer into a cruise Feature Service and synchronize the stand data to the mobile device using a Wi-Fi connection. There are other workflows which can be used for both base map and operational data. For example, base maps can be downloaded directly from Esri's base map services to MobileMap Cruise using a Wi-Fi connection. Stand data can be copied while offline from a stands Shapefile to the cruise stand layer while in the field. Plots can be created in the office and loaded into the

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								Esri Feature Service to be downloaded by mobile devices, or created in the field when offline and later uploaded into the Feature Service.
6.1	GIS data will include point, line and polygon data in ESRI format.	Low	X					MobileMap Cruise and InventoryManager both support Esri point, line and polygon data.
7.0	The solution must support practices followed by MDNR to conduct its timber cruising business.	High	X					Our Solution supports practices followed by MDNR to conduct its timber cruising business, see responses to specific requirements below for more details.
7.1	The solution must be able to support the following types of stratified sampling: (a) Geographic Strata Groups (b) Sample Groups	High			X			<p>Our Solution currently supports:</p> <p>(a) Geographic Strata Groups – In MobileMap Cruise, strata names are typically defined in the Esri Data Model using Coded Value Domains to provide consistency throughout a cruise. As an alternative, the Strata field can be implemented as a text field without a domain. A typical process for applying a geographic strata group in the solution would be to use InventoryManager to search for all stands (or VDUs) that meet certain characteristics. For example, a forester might search for stands that are within a specific geographic area AND of type ‘Aspen’ AND where the QMD for DBH is within a certain range AND where basal area is within a certain range. Once these stands or VDUs are identified, they can be assigned a stratum using a predefined name (e.g., Mature Aspen). When mobile users download data via MobileMap Cruise to conduct the cruise, they can search for stands within that strata. They can even apply filters so that they only download stands within that strata.</p> <p>During the course of this work, our Solution will be customized to support:</p>

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								(b) Sample Groups – Sample groups, or species/product combinations used for the tree tally and measurement, will be supported via a new user interface in InventoryManager which allows users to define specific combinations of species and products which should be assigned sampling ratios for the Sample Tree Ratio (STR) Sub Sampling approach. For a given cruise, a forester will be able to define the default STR (e.g., 1:10) and a set of specific sample groups and their associated STR. Sample groups can be defined by species, product or both (e.g., all species pulp 1:10, red pine all products 1:5, sugar maple sawtimber 1:1). See responses to 7.2.2, 7.2.2.2.1, 7.4, etc. for more tails on how STR Sub Sampling will be supported.
7.2	The solution must support the Variable Radius Plot cruising.	High	X					Our solution supports Variable Radius Plot cruising. In MobileMap Cruise, the standard approach to implementing Variable Radius Plot cruising is to include a single field that contains the cruise method, and allows a cruiser to select either the fixed radius plot size or the variable radius plot BAF. For example, the allowed values of this field might include BAF5, BAF10, BAF20, ... FIX200 (for 1/200 th acre fixed radius plot), FIX100, FIX50, FIX20, etc. This design is flexible, however, and the proposed solution for the State is to include several attribute fields to store the required information. The proposed fields include: Cruise Method (e.g., fixed radius, point, 100% tally), Sampling Method (e.g. First Tree North, Sample Tree Ratio) and BAF (e.g., 5, 10). Actual field names could be different than proposed here, and would be configurable in case they needed to change for any reason in the future. Fields such as Sampling Method and BAF would be optional (nullable in the Esri data model) but would be enforced via Rules (e.g., "If Cruise Method set to point, then Sampling Method is required").

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7.2.1	The solution must support BAF sampling as part of Variable Radius Plot cruising.	High	X					See answer to 7.2 above
7.2.1.1	The solution must support the Basal Area Factor (BAF) value defined in the cruise design for that cruise.	High	X					In MobileMap Cruise the set of allowed values for attributes like BAF are typically defined in the Esri data model using Coded Value Domains, where they are available to all authorized users in MobileMap Cruise, InventoryManager and desktop GIS (e.g., ArcMap and ArcGIS Pro) The BAF attribute is typically stored at the stand level. There are two approaches to assigning the BAF for stands that will be measured via point sampling (e.g., not fixed radius or 100% tally). One is to assign the BAF when designing the cruise. In this case, all cruisers receive this information when they download the data to their mobile device via Wi-Fi prior to going offline during field data collection. A different approach is to have cruisers assign the BAF based on the results of their first plot (or first few plots) in order to optimize the sampling effort (using the largest BAF possible while still measuring a sufficient number of trees). Regardless of when the BAF is assigned to the stand, MobileMap Cruise will have the same list of BAF values and thus will support the BAF value defined in the cruise design. The full set of BAF values will be supported both for data collection as well as during calculations of summary statistics such as basal area, trees per acre, etc. InventoryManager will also support the same set of BAF values.
7.2.2	The solution must support Sub Sampling as part of Variable Radius Plot cruising.	High			X			MobileMap Cruise currently does not provide a mechanism to notify the cruiser when a tree must be measured using either FTN or STR methods. This is a key customization which will be implemented to MobileMap Cruise in support of this project.
7.2.2.1	The solution must support FTN Sub Sampling.	High			X			MobileMap Cruise will be customized as a part of this work to support FTN Sub Sampling. When the FTN method is selected in the Sampling Method field for a plot, MobileMap Cruise will notify the cruiser when a tree must be measured because it is the first tree of a given species/product. While the exact requirements will be

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								determined during phase I of this project, it is anticipated that Species and Product will be separate fields in the data model, that they will both be required and will include Coded Value Domains with a list of the allowed values. When MobileMap Cruise validates a tree record, it will check to see if this tree is the first instance of the combined species and product codes and if it is, it will notify the user with one or more of the following: an audible alert (or beep), a visual cue (e.g., red highlight on columns that require values), a popup message informing the user of what measurements are needed on which tree(s).
7.2.2.2	The solution must support STR Sub Sampling.	High			X			Similar to the response to 7.2.2.1 above, MobileMap Cruise will be customized as a part of this work to support STR Sub Sampling. When the STR method is selected in the Sampling Method field for a plot, MobileMap Cruise will notify users when a tree must be measured because it is the n th tree in that species/product group.
7.2.2.2.1	The solution must support defining the sampling interval in the cruise design (i.e., 1:10).	High	X					For a given cruise, a forester will be able to define the default STR (e.g., 1:10) and a set of specific sample groups and their associated STR. Sample groups can be defined by species, product or both (e.g., all species pulp 1:10, red pine all products 1:5, sugar maple sawtimber 1:1). Within MobileMap Cruise, if STR is being used while cruising a stand, these sample groups will be used to maintain a running tally of the number of trees that have been collected in each sample group and to alert the cruiser when a tree needs to be measured rather than tallied.
7.2.2.2.2	The solution must support Random sampling methods in the cruise design.	Low			X			During the course of this work MobileMap Cruise will be customized to support random sampling methods. Requirements for random sampling will be documented during the requirements gathering phase of this work and implemented during the development phase.
7.2.2.2.3	The solution must support Systematic sampling methods in the cruise design.	High			X			During the course of this work MobileMap Cruise will be customized to support systematic sampling methods. Systematic sampling methods may include the implementations for FTN and STR as well as other workflows. Requirements for systematic sampling will be documented

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								during the requirements gathering phase of this work and implemented during the development phase.
7.2.2.2.4	The solution must notify the cruiser when a tree must be measured.	High			X			As described above, MobileMap Cruise will notify the cruiser with one or more of the following: an audible alert (or beep), a visual cue (e.g., red highlight on columns that require values), a popup message informing the user of what measurements are needed on which tree(s).
7.2.2.3	The solution must support tallying the sample trees that are not measured	High	X					MobileMap Cruise supports tallying trees in two different ways. Tree rows can be entered one per tree with a tally (or quantity) value of 1. In this approach, there is a one-to-one match between tree rows in the tree list and trees on the plot. Alternatively, a single tree row can be entered for each species/product group and the tally (or quantity) field can contain the total number of trees that that this single row represents.
7.3	The solution must support Tree Tally cruising	High	X					MobileMap Cruise supports Tree Tally cruising.
7.3.1	The solution must support 100% Tree Tally Sampling	High	X					MobileMap Cruise supports 100% Tree Tally Sampling.
7.3.2	The solution must support Sample Tree Tally	High	X					The solution must support Sample Tree Tally
7.3.2.1	The solution must support defining the sampling interval in the cruise design (i.e., 1:10).	High			X			See response to 7.2.2.2.1 above.
7.3.2.2	The solution must support Random sampling methods in the cruise design.	Low			X			See response to 7.2.2.2.2 above.
7.3.2.3	The solution must support Systematic sampling methods in the cruise design.	High			X			See response to 7.2.2.2.3 above.
7.4	The solution must notify the cruiser when a tree must be measured.	Low			X			See response to 7.2.2.2.4 above.

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			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
7.5	The solution must support Fixed Radius Plot cruising	Low	X					Our Solution supports Fixed Radius Plot cruising. In the Esri data model, the Cruise Method is used to select Fixed Radius to indicate it is a fixed radius plot. Typically, data models also include a field that is used to store the fixed radius plot area or plot radius. This value can be stored in the same field as the BAF (e.g. BAF5, BAF10, ... FIX200, FIX100) or these columns can be unique, with one column for BAF (if applicable) and another for fixed radius plot area or radius (if applicable). Trees will be recorded in a similar fashion to variable radius plots, and the system will use the plot area to calculate basal area, TPA, when calculating summary statistics and in InventoryManager when performing all.
7.5.1	The solution must support Regeneration cruising as part of Fixed Radius Plot.	Low	X					MobileMap Cruise supports regeneration cruising using fixed radius plots.
7.5.1.1	The solution must support Timber cruising as part of Fixed Radius Plot.	Low	X					MobileMap Cruise supports timber cruising using fixed radius plots.
8.0	The solution must support data entry of data collected outside the system (i.e., collected on paper forms).	High	X					Our Solution supports data entry of data collected outside the system (i.e., collected on paper forms). Data entry can be performed three different ways. One way is to use MobileMap Cruise to enter in the data that was recorded on paper forms. This approach may be the preferred approach to users who are using MobileMap Cruise for other data collection, but were unable to do so in the field due to lost or damaged equipment. A second approach to data entry is to use a spreadsheet (e.g., Excel) to enter in data and then import the spreadsheet file into InventoryManager using the import tool and a configuration file which maps between the columns of the spreadsheet and the Esri data model. This is the most flexible way to ingest data from outside systems, as it can be used to support a wide range of incoming data models and third-party system integration. The third way to perform data entry of data collected outside the system is to use the editing tools in InventoryManager to create new stand, plot and

A Business Specification Number	B Business Specification	C Priority	D					E
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
								tree records. Typically stands that have already been measured are created in the map interface by heads-up digitizing in a stand boundary using background imagery, roads, and topography to define the boundaries. Typically plots that have already been measured are created in the map by heads up digitizing in plot locations from a hard copy map, or by entering in plot coordinates from a GPS unit. Tree data are typically entered using a tabular interface in which a user uses a keyboard and mouse to enter in data. Where allowed values have been defined using Coded Value Domains, users are presented with dropdown lists to ensure consistent data input.
8.1	Supported forms must include the Cruise Card (see Attachment A – Cruise Card Example)	High			X			As a part of this project, the data entry forms of InventoryManager will be customized to more closely match the format of the example Cruise Card included with this RFP. Specifically, a tighter integration will be made between plot level and tree level data so that they can more easily be entered at the same time as they are when completing a Cruise Card.
8.1.1	The solution must support data entry of GPS data related to the cruise card.	High			X			See response to 8.1 above. InventoryManager will be modified to support easy data entry of GPS data when entering data from a cruise card.
8.1.1.2	GPS data must include x/y data associated with cruise data	High		X				Our system maintains spatial data (X, Y and optionally Z) for all plots, which can be collected in the field using MobileMap Cruise, can be generated (X/Y) via the Plot Layout tools in MobileMap Cruise or InventoryManager and can be manually entered along with other plot data using GPS data associated with cruise data that were collected via a cruise card or other method.
9.0	The solution must maintain the hierarchy relationship of data associated with a cruise.	High		X				Our system maintains the hierarchy relationship of data associated with a cruise, including the relationship between trees and their parent plot and between plots and their parent stand. These relationships are maintained by the software and stored using globally unique IDs in order to avoid possible conflicts of duplicates in plot or stand name or ID fields.

A Business Specification Number	B Business Specification	C Priority	D					E Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	
9.1	Hierarchy relationship must include: (a) A stand can have one or more plots (b) A plot can have one or more trees	High	X					See answer to 9.0 above.
10.0	The solution must support nested cruises of multiple methods.	High	X					Our Solution supports nested cruises including Variable Radius Plots, Fixed Radius Plots, Residual Stocking Plots and Tally Trees.
10.1	Multiple methods must include: (a) Variable Radius Plot (b) Fixed Radius Plot (c) Residual Stocking Plot (d) Tally Trees	High	X					See response to 10.0 above
Reporting								
11.0	The solution must support the generation of a canned cruise report based on collected sampling data (see Attachment B – Cruise Summary Example)	High			X			Our solution supports canned cruise reports based on collected sampling data. During the course of this work, this canned cruise report will be modified to match the Cruise Summary example provided in this RFP, or the updated requirements that emerge from the requirements gathering phase of this work.
11.1	The solution must support the generation of the canned cruise report offline using sampling data collected offline.	Low			X			MobileMap Cruise supports simple offline reports that summarize 1) basal area by species, 2) trees per acre by species. During the course of this project MobileMap Cruise will be customized to support total achieved error and confidence intervals for mean basal area. Each of these calculations are made for a selected stand and are not available for the whole cruise (unless the cruise is a single stand). Offline reports do not include volume calculations or summaries at this time and based on the Bidder Questions and Answers response for this item (Question 29) we do not propose adding this functionality for this project.

A Business Specification Number	B Business Specification	C Priority	D					E Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	
	Data Analysis/Calculations							
12.0	The solution must calculate timber volumes for a cruise	High			X			Our Solution will support calculation of timber volumes for online users via InventoryManager application. Although InventoryManager currently supports calculation of timber volumes, customization will be required to support the specific volume equations being developed by Dr. MacFarlane of Michigan State University (see response to 12.4 below). Based on the response to question 30 of the Bidder Questions and Answers, we are not proposing that timber volume calculations be supported for offline users or within MobileMap Cruise.
12.1	The solution must use the maintained list of Michigan tree species for the calculations.	High	X					Our Solution will use the maintained list of Michigan tree species for the calculations. This list will be maintained as a Coded Value Domain for use in the mobile (MobileMap Cruise) and web (InventoryManager) environments in order to maintain a consistent single reference for the species list.
12.2	The solution must use the MDNR taper models maintained in the system for the calculations.	High			X			Our Solution will use the MDNR taper models maintained in the system for the calculations. See also the response to 12.4 below.
12.2.1	Taper models will be determined at time of implementation and needed changes managed via system enhancements.	High			X			We understand that the taper models will be determined at time of implementation and that needed changes will be managed via system enhancements. See also the response to 12.4 below.
12.3	The solution must use administratively maintained variables for the calculations.	High			X			Our Solution uses administratively maintained variables for the calculations. There will be a user interface that allows administrators to display the taper models and variables, and to add, edit and delete these variables. While we understand that the taper models and variables will not be available until the time of implementation, we have assumed for costing purposes that they will generally follow the format of Equation 3 and Table 6 of MacFarlane and Weiskittel (2016).

A Business Specification Number	B Business Specification	C Priority	D					E
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
12.3.1	Variables values will be determined at time of implementation and needed changes managed via system enhancements.	High			X			We understand that the variables values will be determined at time of implementation and that needed changes will be managed via system enhancements. See also the response to 12.4 below.
12.4	The solution must use a model being developed by Dr. David MacFarlane of Michigan State University for timber volume calculations.	High			X			Our Solution will use the model for timber volume calculations being developed by Dr. David MacFarlane.
13.0	The system must allow an authorized cruiser to adjust the stand boundaries of a completed cruise.	Low			X			During the course of this work, InventoryManager will be updated to support this functionality. When a cruiser edits a cruise polygon's spatial feature, the system will update the stand acreage then perform a calculation in which any plots that were within the stand, but are now outside of the stand, will have their hierarchical data model parameters updated to exclude them from that stand. Similarly, any plots that were previously outside of the stand, but which are now inside of it, will be updated to include this hierarchical relationship. Finally, the system will recalculate the cruise for all affected stands based on the new acreage(s), and with the new set(s) of plots.
13.1	The system must recalculate the timber volumes based on the adjustment to the stand boundary or acres.	High			X			See response to 13.0 above
14.0	The solution must support merging multiple cruises.	High			X			In the Bidder Questions and Answers response for this item (Question 32) two scenarios are presented. The solution already supports scenario 1, where a single stand is cruised by more than one cruiser and the data are merged into one cruise. This is accomplished by using a common data store, so that as each cruiser uploads their data they go into the common database which stores the relationship between the trees, plots and stands. In scenario 2, some customization will be performed in the course of this work.

A Business Specification Number	B Business Specification	C Priority	D					E Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	
								Specifically, the system will be modified to support geometry editing as described in the response to 13.0 above. In this task, the system will be further modified to include the ability to merge adjacent polygons if they share a common cruise design.
14.1	The system must recalculate the timber volumes based on the merged cruises.	High			X			See response to 13.0 above
14.2	The system must limit merging cruises to those with a common cruise design.	High			X			See response to 14.0 above
15.0	The system must allow MDNR to specify the standard forestry units of measure used for volumes.	High	X					Our Solution will allow MDNR to specify the standard forestry units of measure used for volumes.
15.1	Standard forestry units of measure must include: (a) Cords (b) Log rules (International Quarter, Scriber Decimal C, and Doyle) (c) Cubic Feet of Pulp and Cubic Feet of Saw Timber	High		X				Our Solution will include at a minimum the following units: Cords, Log rules (International Quarter, Scriber Decimal C, and Doyle), and Cubic Feet of Pulp and Cubic Feet of Saw Timber.
15.2	The system must default to using cubic feet unless otherwise specified.	High		X				Our solution will default to using cubic feet unless otherwise specified.
16.0	The system must use the following business rule when calculating the total volume of a	High			X			Our Solution will use this provided business rule when calculating the total volume of a nested cruise of tally trees and variable radius plots.

A Business Specification Number	B Business Specification	C Priority	D					E Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	
	nested cruise of tally trees and variable radius plots: X = Variable Radius Plot Sampling Y = Talled Volume of Green-Trees Z = Total Volume Z = X-Y							
	Quality Assurance/Quality Control							
17.0	The solution must support Check Cruise / Quality Assurance/Quality Control (QA/QC practices).	High	X					<p>Our Solution includes a number of Check Cruise and QA/QC practices. QC practices include the use of appropriate data types, required fields, Range Domains and Coded Value Domains in order to limit data entry to the specific values which are desired and ensure that required fields are populated. Our custom Rules table further ensures data integrity by defining if/then validation rules to enforce logic among fields. Our Configurable Defaults and auto-calculated fields help to ensure data consistency by pre-populating appropriate fields and thus avoiding mistakes created by manual data entry. Once data are synchronized to the Esri Feature Service they are available for review in InventoryManager. The map interface provides visual QA as stand and plot status and other parameters can be used to control the shape, size and color of features. For example, stands might be yellow before being cruised and cyan once cruised allowing a user to quickly validate that stands have been cruised and the data properly uploaded. Likewise, plots use different shapes (e.g., circle vs. square) to indicate the sample type or other parameter and color to indicate status. InventoryManager includes built in data QA tests, such as displaying a height-to-diameter ratio and flagging any trees that exceed a pre-defined threshold. InventoryManager also includes check cruise scoring, in which a series of data checks can be made between original cruise data and check cruise data to assign a numerical score</p>

A Business Specification Number	B Business Specification	C Priority	D					E Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	
								for each tree, plot and stand. Finally, MobileMap Cruise supports check cruising to allow check cruisers to easily take cruise data back into the field and to support collection of check cruise measurements.
17.1	The solution must support reviewing a historical cruise in the field according to the cruise method used (AKA "Check Cruise".	High	X					Our Solution supports two main modes for cruising – standard cruising and check cruising. For both modes, cruisers can review historical data in the field. If the data were collected by them, on their mobile device, then the data will still be available on their device if they return to the field to review a historical cruise. If the data were collected by another cruiser, they can download that cruiser's data via Wi-Fi then take those data offline to review in the field. If they are in cruise mode, they can review and optionally edit the original data. A typical scenario might be a cruiser returning to a plot the day after it was measured to check the diameter or species on a tree that appears to be a significant outlier in the data. Alternatively, the cruiser can use check cruise mode to review another cruiser's data and record independent check cruise data for any plot. When in check cruise mode, the cruiser collects a unique tree record for each tree on the plot so that these records can be compared side by side in the database when calculating a check cruise score.
17.1.1	The solution must support identifying and reviewing: (a) Cruise design (b) Plot information (c) Cruise method (d) Cruise method sampling data collection and location	High	X					MobileMap Cruise supports the full range of check cruise functionality, allowing check cruisers to identify and review cruise design, plot information, cruise method, sampling method, location and tree level measurements. Check cruisers can either enter in the check cruise tree measurements manually or optionally copy the list of cruise trees and then edit these with the check cruise values.
17.1.2	The solution must support completing the review offline.	High	X					MobileMap Cruise supports offline cruising by allowing check cruisers the ability to synchronize their mobile device via Wi-Fi before going into the field to download all of the stand, plot and tree data for a cruise. The check cruiser can then access all previously collected data

A Business Specification Number	B Business Specification	C Priority	D					E
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
								on their device, and collect check cruise data, all while offline. When they complete their field work, they can connect to Wi-Fi and upload their measurements to the Esri Feature Service then use InventoryManager to run more advance analysis such as calculating check cruise scores.
	System Integration							
18.0	The solution must support data integration with the existing MDNR Vegetation Management System (VMS). Integration specifications are in the Integration List.	High			X			Based on the Bidder Questions and Responses (Question 39) our Solution will support data integration with the existing MDNR Vegetation Management System (VMS) using either a text-based export (e.g., XML file export like current system) or via a RESTful web service approach using where VMS could authenticate with and query our System for the data that is needed and receive the information in the industry standard JavaScript Object Notation (JSON) format.
19.0	The solution must support data integration with the existing MDNR Michigan Forest Inventory System (MiFi). Integration specifications are in the Integration List.	High			X			Based on the Bidder Questions and Responses (Question 40) our Solution will support data integration with the existing MDNR Michigan Forest Inventory System (MiFi) using either a text-based export (e.g., XML file export like current VMS integration approach) or via a RESTful web service approach using where MiFi could authenticate with and query our System for the data that is needed and receive the information in the industry standard JavaScript Object Notation (JSON) format.
	Administration							
20.0	The solution must allow an authorized System Administrator to maintain list item values.	High	X					Our system supports the management of most list item values via Esri Coded Value Domains. This allows authorized System Administrators to use desktop or enterprise GIS tools and workflows to maintain these list item values. For example, tree species lists are typically stored as Coded Value Domains which are applied to the species column in the tree table. Authorized System Administrators can use desktop GIS tools like ArcMap or ArcGIS Pro to modify these and republish the Feature Service, or they can use enterprise GIS tools to modify these values in an existing published Feature Service.

A Business Specification Number	B Business Specification	C Priority	D					E
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
21.0	The solution must allow an authorized user administrator to create and manage user roles and system access.	High	X					Our system supports two complimentary systems for managing user roles and system access. Since the core data and logic of the system are stored in an Esri data model and published via ArcGIS Feature Services, user roles and data access are primarily controlled via ArcGIS Server (including ArcGIS Server, Portal for ArcGIS, ArcGIS Online). Using ArcGIS roles and groups, users can be provided access to specific Feature Services. To add additional control, InventoryManager can extend these capabilities by enabling certain functionality for groups of users that can be independent of the ArcGIS groups and roles. This provides complete flexibility to authorized user administrators to manage user roles and system access.
22.0	The solution must allow an authorized document manager to review, logically delete, and purge content.	High	X					As described above the flexibility of the user and role management system supports enabling authorized document managers to review, logically delete, and purge content.
23.0	The solution must allow authorized configuration administrator to maintain a list of tree species and their associated calculations.	High			X			As described in 20.0, authorized configuration administrators can maintain a list of tree species. In the course of this work we will customize InventoryManager to enable authorized configuration administrators to maintain the calculations associated with each species.
Technical Requirements								
24.0	The solution must use geospatial-based data associated with locations.	High	X					Our Solution is built from the ground up on the ArcGIS Platform using Esri technologies including ArcGIS Server (including ArcGIS Server, Portal for ArcGIS or ArcGIS Online), using the ArcGIS Runtime SDK for our mobile application and using the REST API and the Esri-Leaflet map viewer for our web solution. It supports a wide range of Esri spatial data formats including Tile Packages (TPK), Shapefiles and ArcGIS REST web services (Feature Services).
25.0	The solution must maintain audit logs on content changes	High	X					See response in 26.1 below

A Business Specification Number	B Business Specification	C Priority	D					E
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
26.1	The audit logs must maintain the following information about the most recent change: (a) Date and time of change (b) System user that completed the change	High	X					Our system uses ArcGIS Editor Tracking to maintain the date, time and user that made the most recent change to every database record including all stand, plot and tree records.
27.0	The solution must use geospatial data compatible with the State of Michigan's GIS framework.	Low	X					As described in the response to 24.0 above, our Solution is built on Esri's ArcGIS technology. Based on our understanding of Michigan's GIS framework and our discussions as Esri business partners with our contacts at Esri, we believe our Solution is completely compatible with the State of Michigan's GIS framework.
28.0	The solution must be a responsive design.	High	X					Our system uses responsive design that accommodates a range of screen sizes, ratios and pixel densities. We have read the IT standards including the SOM Digital Standards, the SOM Application/Site Standards and the Look and Feel Standards and will comply with them. We use the same technologies as the SOM Look and Feel Standard templates (JavaScript 5, CSS, Bootstrap, jQuery) and will incorporate design elements from these templates as appropriate based on the final requirements of the system.
29.0	The solution must allow data entry of list items by entering a numeric code associated with the list item.	Low	X					Our Solution utilizes Esri Coded Value Domains to maintain list items. Coded Value Domains easily support entry of numeric codes associated with list items.
OPTIONAL								
30.0	The solution must support practices followed by MDNR to conduct its timber cruising business.	N/A	X					See response to 30.1

A Business Specification Number	B Business Specification	C Priority	D					E Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	
30.1	Supported practices followed by MDNR must include: (a) Variable Radius Plot a. Big BAF b. Point Count Tree Measure	N/A		X	X			Based on our understanding of the proposed Big BAF and 'Measure' vs. 'Count' plots from the PDF document titled 'Introduction to Variable Radius Sub-Sampling', we believe MobileMap Cruise supports both of these practices. For Big BAF, the cruise design would simply need one additional field in the data model to record the BAF that should be used for Big BAF. Similarly, for 'Measure' vs. 'Count' plots, a new field in the data model would record the frequency of measure plots to count plots at the Stand level as all other functionality is already supported through variable radius plots and tally plots. While MobileMap Cruise's existing functionality will allow it to be configured to support both Big BAF and Point Count Tree Measure methods, our current compilation capabilities in InventoryManager do not yet support these approaches. Given that this was listed as an optional business specification, we did not include costs for any modifications to the compilation routine which may be needed to support these methods.
31.0	The solution must be compatible with Windows Mobile.	N/A					X	Our mobile solution, MobileMap Cruise, is currently not compatible with Windows Mobile. At this time, we do not have plans to port MobileMap Cruise to Windows Mobile given the end-of-life dates for this OS (6/2018 for Windows Embedded CE 6.0, 6/2019 for Windows Embedded 8.1 Handheld and 1/2020 for Windows Embedded Handheld 6.5) as well as the popularity and device availability of the Android OS.
32.0	The system must support data entry via voice recognition.	N/A	X					MobileMap Cruise supports voice recognition currently in the sense that many devices on which MobileMap Cruise runs can use voice to text to populate user interface controls. For example, if using popular consumer-grade devices such as Samsung tablets, users can select the microphone icon on the keyboard during data entry and speak into their device. The device will use voice recognition to convert their speech into text and populate the text input in the currently selected input with the words they have spoken. This functionality does not enable navigation between user interface controls and thus does not

A Business Specification Number	B Business Specification	C Priority	D					E
			Current Capability	Requires Configuration	Customizations to Software Required	Future Enhancement	Not Available	Bidder to explain how they will deliver the business Specification. Explain the details of any configuration/customization and the impacted risk that may be caused if configured/customized to meet the business specification.
								support voice-controlled data entry. The current capability does help user who need to populate notes fields and find it faster to speak rather than type in descriptions using the software keyboard. Note that some popular rugged devices, such as Juniper's Mesa ² Android tablet, do not yet support voice recognition during data entry.
33.0	The solution must support transferring data via Bluetooth for Haglof field measurement tools.	N/A			X			MobileMap Cruise does not currently support transferring data via Bluetooth for Haglof field measurement tools such as DMEs or digital calipers. MobileMap Cruise does support transferring data via Bluetooth from other devices (MobileMap Harvest module) and this functionality could be added as a customization. Given that this business specification is listed as Optional, we have not included this requirement in the proposal or its costs. If the state were to be interested in adding this customization it would require additional costs to implement.

SCHEDULE B
Intentionally Omitted

SCHEDULE C
Licensing Agreement

MBG Mobile Map SOFTWARE LICENSE AGREEMENT

This Agreement is made by and between MASON, BRUCE & GIRARD, INC., an Oregon Corporation (herein "**MB&G**") and the Department of Natural Resources (DNR), a State of Michigan Department, (**Licensee**), each being identified and having a place of business as given on Attachment A.

1. DEFINITIONS

- 1.1 "Software Products" shall mean the MBG MobileMap application as provided by MB&G, together with other products subsequently licensed to Licensee by MB&G, and all updates of the same provided to Licensee by MB&G.
- 1.2 "Technical Data" shall mean manuals, specifications and other written materials and verbal or written communication via FAX, telephone, electronic or other methods provided to Licensee by MB&G in connection with the Software Products.

2. LICENSE GRANT

- 2.1 MB&G hereby grants to Licensee, and Licensee hereby accepts from MB&G, a non-exclusive license, without right to sublicense, to use the Software Products and Technical Data; provided, however, that use of each of the Software Products shall be limited to use on a single Licensee android tablet and provided that Licensee is current on payment of all license fees.
- 2.2 Licensee shall not allow the use of the Software Products except on equipment owned or leased by Licensee for Licensee's business purposes. Licensee shall not allow the use of the Software Products by any users not authorized under this Agreement without first notifying MB&G and paying any additional charges pursuant to MB&G's then current price list.

3. OWNERSHIP

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4. PROPRIETARY NOTICES

- 4.1 Licensee shall not remove or alter MB&G's ownership, trademark, copyright, or other proprietary notices on Software Products or Technical Data.
- 4.2 Where applicable, the Software Products and Technical Data shall be marked with an appropriate legend under the Federal Acquisition Regulations (FAR) or other similar regulations.

5. USE RESTRICTIONS

5.1 Licensee shall not modify, adapt, translate, reverse engineer, decompile, or disassemble Software Products. Licensee agrees not to develop derivative works which are intended to be functionally equivalent substitutes for the Software Products or any part thereof.

5.2 Upon termination of the entirety of Contract No. 171-190000000318 for any reason, all licenses granted hereunder shall terminate, and Licensee shall immediately cease use of and shall return to MB&G all copies of the Software Products and Technical Data.

6. GENERAL

6.1 This Agreement may not be assigned by Licensee without the prior written permission of MB&G unless required by law or Executive Order.

**SCHEDULE D
Pricing**

Implementation Costs/Schedule:

Phase	Task Name	Total Costs
Project Planning	Project Kickoff	\$16,864.00
MacFarlane Model Implementation	Specifications	\$5,680.00
	Development	\$14,922.00
	UAT	\$3,140.00
	Implementation	\$3,760.00
Cruise Design Functionality	Specifications	\$5,420.00
	Development	\$36,969.00
	UAT	\$8,320.00
	Implementation	\$5,520.00
VMS Integration	Specifications	\$2,900.00
	Development	\$3,760.00
	UAT	\$1,260.00
	Implementation	\$880.00
MiFI Integration	Specifications	\$2,900.00
	Development	\$3,760.00
	UAT	\$1,260.00
	Implementation	\$880.00
Pilot Roll-Out	Training	\$12,960.00
	Installation	\$6,640.00
	Pilot Execution	\$3,040.00
Full Roll-Out (Go-Live)	Training	\$17,640.00
	Installation/Implementation	\$11,728.00
	Go-Live	\$8,960.00
Post Production Warranty	SLA warranty included in Annual Support and Maintenance paid at Go-Live	\$0
Production Support Services	Six months post Go-Live	\$27,920.00
Totals		\$207,083.00

***Monthly invoices will be accepted and payment will be released for any task completed and accepted by the DNR as of the last business day of the month.**

Licensing, Support & Maintenance

MDNR Annual Acquisitions Profile Breakdown

Product	Items	Item Charges	Total Annual Subscription Years 1-5
MobileMap	310	\$97.20	\$30,132.00
InventoryManager Cloud Enterprise (Annual Hosting and Support up to 20 users)	1	\$18,400.00	\$18,400.00
InventoryManager Enterprise – additional users	290	\$50.00	\$14,500.00
Total			\$63,032.00

MobileMap Volume Pricing

Volume	Monthly EUA Unit Cost	#Units	Monthly Cost
1-9 Units	\$25.00	1	\$25.00
10-25 Units	\$19.50	10	\$195.00
26-49 Units	\$16.50	26	\$429.00

50-74 Units	\$15.00	50	\$750.00
75-99 Units	\$13.50	75	\$1,012.00
100-124 Units	\$12.00	100	\$1,200.00
125-149 Units	\$10.50	125	\$1,312.00
150-199 Units	\$9.80	150	\$1,462.50
200-299 Units	\$9.00	200	\$1,800.00
300-499 Units	\$8.10	300	\$2,430.00
500+ Units	Ask for Quote		Ask for Quote

InventoryManager Pricing

Volume	Annual Per User Cost
1-20 User	Included in Base Subscription
21-100 Users	\$150
100-150 Users	\$125
151-200 Users	\$100
201-250 Users	\$85
251-300 Users	\$70
300+ Users	\$50

Hourly Labor Rates for Professional Services

Classification	Rates
Level 5 Scientist	\$197
Level 4 Scientist	\$152
Level 3 Scientist	\$122
Level 2 Scientist	\$106
Level 1 Scientist	\$91
Forester 5	\$197
Forester 4	\$153
Forester 3	\$122
Forester 2	\$106
Forester 1	\$91
Admin 2	\$84
Admin 1	\$69
Principal	\$202
Associate – Senior Staff	\$197
GIS Analyst III	\$152
GIS Analyst II	\$130
GIS Analyst I	\$118
Software Architect	\$197
Software Developer III	\$152
Software Developer II	\$130
Software Developer I	\$122
Technician III	\$108
Technician II	\$96
Technician I	\$85

Labor Rate Increases will not increase more than 3% annually.

Fixed-Price Fee refresher training for InventoryManager or MobileMap after Go-Live

On Site Training

Timber Cruise Software – Full day	\$5,000.00
Up to three full day Timber Cruise Software classes in one week	\$3,500.00 each

Web Based Online Training

2-4 hour MobileMap; InventoryManager Modules

\$500/hr

SCHEDULE E
Service Level Agreement

Service Level Agreement (SLA)
for *Michigan Department of Natural Resources*

by

Mason, Bruce, and Girard, Inc.

Document Owner:	Mason, Bruce, and Girard, Inc.
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Version

Version	Date	Description	Author
1.0	09-24-2018	Service Level Agreement	James Schriever
1.1	12-11-2018	Service Level Agreement - BAFO	James Schriever/Kerry Halligan

1. Agreement Overview

This Agreement represents a Service Level Agreement (“SLA” or “Agreement”) between *Mason Bruce and Girard Inc.* (MB&G) and [MI Department of Natural Resources \(MI DNR\)](#) for the provisioning of services required to support and sustain [the Timber Cruise Software Solution](#).

This Agreement remains valid until superseded by a revised agreement mutually endorsed by the stakeholders.

This Agreement outlines the parameters of all services covered as they are mutually understood by the primary stakeholders. This Agreement does not supersede current processes and procedures unless explicitly stated herein.

2. Goals & Objectives

The **purpose** of this Agreement is to ensure that the proper elements and commitments are in place to provide consistent service support and delivery to MI DNR by MB&G.

The **goal** of this Agreement is to obtain mutual agreement for service provision between the MB&G and MI DNR.

The **objectives** of this Agreement are to:

- Provide clear reference to service ownership, accountability, roles and/or responsibilities.
- Present a clear, concise and measurable description of service provision to the customer.
- Match perceptions of expected service provision with actual service support & delivery.

3. Stakeholders

The following Service Provider(s) and Customer(s) will be used as the basis of the Agreement and represent the **primary stakeholders** associated with this SLA:

IT Service Provider(s): [MB&G](#). (“Provider”)

IT Customer(s): [MI DNR](#) (“Customer”)

4. Periodic Review

This Agreement is valid from the **Effective Date** outlined herein and is valid until further notice. This Agreement should be reviewed at a minimum once

per fiscal year; however, in lieu of a review during any period specified, the current Agreement will remain in effect.

The **Business Relationship Manager** (“Document Owner”) is responsible for facilitating regular reviews of this document. Contents of this document may be amended as required, provided mutual agreement is obtained from the primary stakeholders and communicated to all affected parties. The Document Owner will incorporate all subsequent revisions and obtain mutual agreements / approvals as required.

Business Relationship Manager: [James Schriever](#)

Review Period:

[Yearly \(12 months\)](#)

Previous

Review Date:

[02-11-2019](#)

Next Review

Date: [April 1, 2020](#)

5. [Service Agreement](#)

The following detailed service parameters are the responsibility of the Service Provider in the ongoing support of this Agreement.

5.1. [Service Scope](#)

The following Services are covered by this Agreement;

- Manned telephone support
- Monitored email support
- Remote assistance using Remote Desktop and Mobile Tablet Networking where available
- Planned or Emergency Onsite assistance (extra costs apply)
- Monthly system health check

5.2. [Customer Requirements](#)

Customer responsibilities and/or requirements in support of this Agreement include:

- Payment for all support costs at the agreed interval.
- Reasonable availability of customer representative(s) when resolving a service related incident or request.

5.3. [Service Provider Requirements](#)

Service Provider responsibilities and/or requirements in support of this Agreement include:

- Meeting response times associated with service related incidents.

- Appropriate notification to Customer for all scheduled maintenance.

5.4. Service Assumptions

Assumptions related to in-scope services and/or components include:

This section describes the scope of the standard MB&G Support and Maintenance Agreement as well as a brief overview of two optional support items that MB&G can provide on either a fixed fee or time and materials basis. This section covers the scope of the following items:

- Standard Maintenance and Support
- Implementation Services
- Custom Enhancement Services
- Up to 50GB of storage

A description of these services is provided below.

MB&G's maintenance plan follows a standard annual maintenance agreement model. Under this plan customer will obtain the following maintenance and technical support services:

1. **InventoryManager Hosting.** MB&G uses Acquia Inc. as our Infrastructure as a Service (IaaS) provider for hosting our InventoryManager and other SaaS industry offerings. As an Acquia Cloud customer we have access to a complete infrastructure to support application deployment workflow processes from development and staging through production and full deployment. Acquia Cloud includes broad developer UIs and APIs, secure server access using SSH, and automated deployment from a version-controlled code repository. Historically, InventoryManager was hosted on Acquia Cloud Professional, Acquia's mid-tier product. MB&G is currently planning a transition to Acquia Cloud Enterprise, Acquia's top-tier product, which will be used for this contract. Acquia Cloud Enterprise includes the following:

- **Infrastructure** – Acquia uses Amazon Web Services (AWS) as their Infrastructure as a Service (IaaS) provider. By leveraging AWS, Acquia is able to provide a customizable, highly available cluster of multiple web servers and database servers, spanning at least two availability zones.
- **Environments** - Acquia Cloud subscriptions include three deployment environments for managing the entire application development lifecycle: Development, Staging, and Production.
- **Uptime** - Guaranteed 99.95% uptime through the use of redundant servers. Acquia Cloud Enterprise applications will not experience downtime when servers are rebooted for system security updates, scheduled maintenance, or server resizing.
- **Security** – Acquia provides full support for HTTPS for in-

transit encryption and full disk 256-bit AES encryption using Amazon Elastic Block Store (EBS) volumes for at-rest encryption. AWS is certified with dozens of security compliance programs including SOC 2, FISMA and NIST (<https://aws.amazon.com/compliance/programs/>)

- **Tools and add-ons** - Acquia provides powerful tools and add-ons including developer tools (integrated development environment, source control) and extensive application and platform monitoring.
2. **InventoryManager Updates.** Updates will include software version updates as well as application patches to address reported issues. All defects and feature requests will follow a predefined workflow of verification of details, classification by severity, and prioritization. The status of defects and feature requests will be reported on an established web-based issue tracking system. Application version updates may provide support for priority feature requests. new releases of 3rd party applications (e.g., ArcGIS Online, Portal, Sever), etc. Feature requests which are not addressed within the standard application roadmap can be implemented via custom enhancements under a separate time and materials or fixed-price contract using MB&G standard rates.
 3. **Management of the InventoryManager Issues List.** The InventoryManager application includes an issue tracking tab for documenting issues. This issues list provides a convenient common location for system maintainers to document all InventoryManager issues and feature requests, and provides tracking and accountability for issue resolution and enhancement requests. MB&G will monitor this issue list regularly, and will update the status of all issues in a timely fashion.

The issue list will be used to clarify specific issues through status updates and comments and file uploads attached to issues.

4. **Technical Support** MB&G will provide customer with several modes of technical support as described below. If additional technical support is required it can be supported and billed using MB&G standard rates.
 - a. **Email Support:** While MB&G will provide a standard support email address, the primary mechanism for reporting and tracking issues will be via the issue tracking system supported in the InventoryManager website. When support is requested via email, acknowledgement will be provided and the request will be logged into the InventoryManager issue tracking system (within 3 business days) in order to maintain status including resolution.
 - b. **Phone Support:** Support will also be provided via phone using a standard support phone number for questions regarding use of InventoryManager. Phone support is appropriate for questions from staff regarding procedural use of the software, and resolving issues or bugs, etc. All phone support calls will include MBG staff documenting issues and posting to the InventoryManager issue list. If a live support representative is not available, phone acknowledgement for all messages will be provided within business hours 9:00 – 5:00 PST, Monday to

Friday with a target of resolving issues as outlined below.

- c. **InventoryManager Issue Resolution Process.** MBG will maintain the issue tracking system in as described above. The issue tracking system will be the primary mechanism for users to obtain status regarding issues submitted as well as application and documentation updates. The issue tracking system serves as a single point for reporting and tracking issues including questions regarding the use of InventoryManager including procedural usage, bug reports and feature requests. Acknowledgment of issue receipt will be provided along with an issue ID. The following process shall be followed for all issues submitted by customer managers:
- i. Review issue report for completeness and clarity
 - ii. If reported issue is a defect (rather than feature request), verify defect and assess severity
 - iii. Request additional details if needed
 - iv. Investigate and propose technical solutions
 - v. If issue warrants application update, it will be integrated into the InventoryManager system after development and testing is complete. Training or user guide updates will be completed as appropriate and system administrators will be notified of such updates.

6. Service Management

Effective support of in-scope services is a result of maintaining consistent service levels. The following sections provide relevant details on service availability, monitoring of in-scope services and related components.

6.1. Service Availability

Coverage parameters specific to the service(s) covered in this Agreement are as follows:

- Telephone support: 9:00 A.M. to 5:00 P.M. ET, Monday – Friday
 - Calls received out of office hours will be forwarded to a mobile phone and best efforts will be made to answer / action the call, however there will be a backup answer phone service
- Email support: Monitored 9:00 A.M. to 5:00 P.M. ET, Monday – Friday
 - Emails received outside of office hours will be collected, however no action can be guaranteed until the next working day
- MB&G understands MDNR requires MB&G to provide Support Hours as 24x7x365. MB&G will provide but reserves the right to negotiate overnight and holiday downtime if needed.