Contract Change Notice

State of Michigan Procurement

Michigan Department of Transportation
425 W Ottawa St, Lansing, MI 48933
PO Box 30050, Lansing, MI 48909

Change Notice Number 12
to
Contract Number 210000001068

Contractor	State	
Parsons Transportation Group, Inc.	**Program Manager**	
3577 Parkway Lane, Suite 100	James Roath	MDOT
Peachtree Corners, GA 30092	517-230-5361	
Russ Brookshire	RoathJ1@michigan.gov	
Director, Intelligent Hardware	**Contract Administrator**	
678-733-7433	Anna Swanson	MDOT
Russ.Brookshire@parsons.com	517-230-2063	
VS0185196	Swansona1@michigan.gov	

Contract Summary

Description: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for Winter Maintenance Trucks (WMT's) and light fleet operational management solutions; Michigan Department of Transportation (MDOT).

Initial Effective Date	Initial Expiration Date	Initial Options Available	Expiration Date Before Change(s) Noted Below
August 9, 2021	August 8, 2026	3 one-year options	August 8, 2026

Payment Terms	Delivery Timeframe
Net 45	N/A
Alternate Payment Options	**Extended Purchasing**
N/A	No

Minimum Delivery Requirements
N/A

Description of Change Notice

Option	Length of Option	Extension	Length of Extension	Revised Exp. Date
Yes	One (1) year	No	N/A	August 8, 2027

Current Value	Value of Change Notice	Estimated Aggregate Contract Value
$5,250,602.78	$1,500,000.00	$6,750,602.78

Change Notice Summary
Description: Effective August 6, 2026, this contract is exercising the first option year, is increased by $1,500,000.00, and prices on selected items are increased per the attached Schedule B Pricing Updated Pricing. Effective August 22, 2026, prices on other selected items are increased per the attached Schedule B Pricing Updated Pricing. All other specifications, pricing, terms, and conditions remain the same. Per contractor and agency agreement and State Administrative Board approval on August 4, 2026.

Contract Number 210000001068 Change Notice 12
Schedule B Pricing Updated Pricing

Effective August 6, 2026				
Commodity Code	**Item**	**Unit of Measure**	**Current Unit Price**	**New Unit Price**
05535	WMT AVL Package	EA	$2,464.39	$3,768.00
05535	Non-WMT AVL Package	EA	$275.46	$289.25
22043	WMT AVL Reinstall Kit	EA	$765.85	$827.36
84064	Tablet Reinstall Kit	EA	$325.60	$333.15
84064	In-Cab Display Screens (Active 5) Kit	EA	New Item	$931.00
84069	Video Camera Recorders (Cameras)	EA	$121.90	$137.73
76561	Misc Supplies (Wing Plow Blade Sensor)	EA	$287.80	$388.00
76561	Misc Supplies (Underbody Hydraulic Plow Blade Sensor)	EA	$142.83	$142.83
45037	VESA Mount (RAM-2461U) 3890	EA	$17.01	$21.74
45037	Round Base (Ram-202U) 3892	EA	$11.97	$16.33
45037	Arm, long (Ram-201-D) 3952	EA	$35.85	$48.87
45037	Arm, med (Ram-201U) 3891	EA	$20.54	$26.89
45037	RAM Mount (Ram-B-138U)	EA	$29.95	$30.93
45037	U-shaped Mounting Bracket for 10-inch Touchscreen Monitor	EA	New item	$45.55
91575	High Cellular (Winter Months/WMTs)	MO	$20.80	$21.63
91575	Low Cellular (Non-Winter Months/WMTs)	MO	$11.56	$12.02
96188	Weather Forecasting Services	MO	$25,025.15	$26,026.00
92435	Annual MDSS Training (Virtual)	EA	$1,380.00	$1,380.00
92435	Annual MDSS Training (On-site)	EA	$12,822.50	$21,045.00

96188	Winter Weekly Videos	EA	$530.77	$552.00
96188	Winter Weekly Videos-Superior and North	EA	$442.31	$460.00
9II25	MDSS Route Configuration	EA	$295.76	$322.00
ITH25	Monthly MDSS Website Management	EA	$23.00	$24.70
9II25	Project Management	MO	$5,795.50	$6,085.28
92435	AVL Website Training	EA	$995.00	$1,187.00
92022	AVL Data Storage	MO	$7,181.33	$7,540.40

Effective August 22, 2026				
Commodity Code	**Item**	**Unit of Measure**	**Current Unit Price**	**New Unit Price**
96246	Tier 1 Labor	HR	$106.30	$111.57
96246	Tier 2 Labor	HR	$180.20	$189.28
	Mileage	EA	$55.65	$66.79
9IM25	Technical Assistance Service	MO	$4,898.00	$5,142.90

STATE OF MICHIGAN PROCUREMENT

Michigan Department of Transportation
425 W Ottawa St, Lansing, MI 48933
PO Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **11**
to
Contract Number **210000001068**

CONTRACTOR	
	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	678-733-7433
	Russ.Brookshire@parsons.com
	VS0185196

STATE			
	Program Manager	James Roath	MDOT
		517-230-5361	
		RoathJ1@michigan.gov	
	Contract Administrator	Anna Swanson	MDOT
		517-230-2063	
		Swansona1@michigan.gov	

CONTRACT SUMMARY			
DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for Winter Maintenance Trucks (WMT's) and light fleet operational management solution; Michigan Department of Transportation (MDOT).			
INITIAL EFFECTIVE DATE	**INITIAL EXPIRATION DATE**	**INITIAL AVAILABLE OPTIONS**	**EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW**
August 9, 2021	August 8, 2026	3 one-year options	August 8, 2026
PAYMENT TERMS		**DELIVERY TIMEFRAME**	
Net 45		N/A	
ALTERNATE PAYMENT OPTIONS			**EXTENDED PURCHASING**
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☒ No
MINIMUM DELIVERY REQUIREMENTS			
N/A			

DESCRIPTION OF CHANGE NOTICE				
OPTION	**LENGTH OF OPTION**	**EXTENSION**	**LENGTH OF EXTENSION**	**REVISED EXP. DATE**
☐		☐		No Change
CURRENT VALUE	**VALUE OF CHANGE NOTICE**	**ESTIMATED AGGREGATE CONTRACT VALUE**		
$5,250,602.78	$0.00	$5,250,602.78		

DESCRIPTION: Upon execution, Schedule B Pricing has been modified to add an additional line item, see attached Schedule B Pricing Additional Items. All other specifications, pricing, terms, and conditions remain the same. Per contractor and agency agreement.

Contract Number 210000001068 Change Notice 11
Schedule B Pricing Additional Items

Item	**Quantity**	**Unit of Measure**	**Unit Price**	**Total Price**
MDC-006 Kit *(Herbicide Kits)*	27	Each	$2,730.00	$73,710.00
10-inch Touchscreen Kit (VESA RAM only) *(Herbicide Kits)*	30	Each	$830.00	$24,900.00
Camera (no RAM Mounts) *(Herbicide Kits)*	27	Each	$137.73	$3,718.71
Antenna, Cell x2, WiFi, GPS, w/15 foot harness	1	Each	$278.00	$278.00
Video Camera-Recorders, Accessories and Parts (cameras) (No RAM Mounts)	5	Each	$137.73	$688.65
Engine Monitor, VNA-USB	1	Each	$135.00	$135.00
Engine Monitor Cable, J-1939 Type 2 (grn), Screw-Type	1	Each	$34.00	$34.00

STATE OF MICHIGAN PROCUREMENT

Michigan Department of Transportation
425 W Ottawa St, Lansing, MI 48933
PO Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **10**
to
Contract Number **210000001068**

CONTRACTOR	
	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	678-733-7433
	Russ.Brookshire@parsons.com
	VS0185196

STATE			
	Program Manager	James Roath	MDOT
		517-230-5361	
		RoathJ1@michigan.gov	
	Contract Administrator	Anna Swanson	MDOT
		517-230-2063	
		Swansona1@michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for Winter Maintenance Trucks (WMT's) and light fleet operational management solution; Michigan Department of Transportation (MDOT).

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 9, 2021	August 8, 2026	3 one-year options	August 8, 2026

PAYMENT TERMS	DELIVERY TIMEFRAME
Net 45	N/A

ALTERNATE PAYMENT OPTIONS	EXTENDED PURCHASING
☐ P-card ☐ Payment Request (PRC) ☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☐		☐		No Change

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,250,602.78	$0.00	$5,250,602.78

DESCRIPTION: Upon execution, Schedule B Pricing has been modified to add an additional line item, see attached Schedule B Pricing Additional Items. All other specifications, pricing, terms, and conditions remain the same. Per contractor and agency agreement.

Contract Number 210000001068 Change Notice 10
Schedule B Pricing Additional Items

Item	Current Price	New Price
Tier 1 Labor, per hour	$101.20	$106.30
Tier 2 Labor, per hour	$171.60	$180.20
Mileage, per hour	$50.60	$55.65
Technical Assistance Service, per month	$4,778.00	$4,898.00

STATE OF MICHIGAN PROCUREMENT

Michigan Department of Transportation
425 W Ottawa St, Lansing, MI 48933
PO Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **9**
to
Contract Number **210000001068**

CONTRACTOR	
	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	678-733-7433
	Russ.Brookshire@parsons.com
	VS0185196

STATE			
	Program Manager	James Roath	MDOT
		517-230-5361	
		RoathJ1@michigan.gov	
	Contract Administrator	Anna Swanson	MDOT
		517-230-2063	
		Swansona1@michigan.gov	

CONTRACT SUMMARY			
DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for Winter Maintenance Trucks (WMT's) and light fleet operational management solution; Michigan Department of Transportation (MDOT).			
INITIAL EFFECTIVE DATE	**INITIAL EXPIRATION DATE**	**INITIAL AVAILABLE OPTIONS**	**EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW**
August 9, 2021	August 8, 2026	3 one-year options	August 8, 2026
PAYMENT TERMS		**DELIVERY TIMEFRAME**	
Net 45 Days		N/A	
ALTERNATE PAYMENT OPTIONS			**EXTENDED PURCHASING**
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☒ No
MINIMUM DELIVERY REQUIREMENTS			
N/A			

DESCRIPTION OF CHANGE NOTICE				
OPTION	**LENGTH OF OPTION**	**EXTENSION**	**LENGTH OF EXTENSION**	**REVISED EXP. DATE**
☐		☐		No Change
CURRENT VALUE		**VALUE OF CHANGE NOTICE**	**ESTIMATED AGGREGATE CONTRACT VALUE**	
$5,250,602.78		$0.00	$5,250,602.78	
DESCRIPTION: Upon execution, Schedule B Pricing has been modified to add an additional line item, see attached Schedule B Pricing Additional Items. All other specifications, pricing, terms, and conditions remain the same. Per contractor and agency agreement.				

Contract Number 210000001068 Change Notice 9
Schedule B Pricing Additional Items

Product	**Quantity**	**Unit of Measure**	**Unit Price**	**Total**
Winter AVL Reinstall Kit	30	Each	$765.85	$22,975.50
Tablet Reinstall Kit	30	Each	$325.60	$9,768.00
Wing Plow Blade Sensor Kit – angled (stock)	15	Each	$282.65	$4,239.75
Wing Plow Blade Sensor Kit – straight (stock)	5	Each	$282.65	$1,413.25
MDC-007B – Battery Powered Equipment Tracker	20	Each	$275.46	$5,509.20
Low Cellular Use – Equipment Tracker (each/month)	20	Each	$8.00	$160.00

STATE OF MICHIGAN PROCUREMENT

Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **8**
to
Contract Number **591M210000001068**

CONTRACTOR	
	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.Brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 230-5361	
		RoathJ1@michigan.gov	
	Contract Administrator	Anna Swanson	MDOT
		(517) 230-2063	
		SwansonA1@michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 9, 2021	August 8, 2026	3 one-year options	August 8, 2026

PAYMENT TERMS	DELIVERY TIMEFRAME
Net 45 Days	N/A

ALTERNATE PAYMENT OPTIONS	EXTENDED PURCHASING
☐ P-card ☐ Payment Request (PRC) ☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☐		☐		

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,250,602.78	$0.00	$5,250,602.78

DESCRIPTION: Upon execution, the Contract Administrator has changed to Anna Swanson for as-needed Automated Vehicle Location (AVL).

The original Contract was based on best value, with the original contract value determined by estimated need.
All other terms, conditions, and specifications remain the same per contractor and agency agreement.

STATE OF MICHIGAN PROCUREMENT

Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **7**
to
Contract Number **591M210000001068**

CONTRACTOR	
	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.Brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 230-5361	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		Harrist@michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 9, 2021	August 8, 2026	3 one-year options	August 8, 2026

PAYMENT TERMS	DELIVERY TIMEFRAME
Net 45 Days	N/A

ALTERNATE PAYMENT OPTIONS	EXTENDED PURCHASING
☐ P-card ☐ Payment Request (PRC) ☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☐		☐		

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,205,967.78	$44,635.00	$5,250,602.78

DESCRIPTION: Upon execution, the Contract is adding the following new line items and increasing price $44,635.00 for as-needed Automated Vehicle Location (AVL) equipment listed below.

Software Development Herbicide update: Quantity 1, $28,487.00 each, $28,487.00 Total
Herbicide: MDC-006 Kit: Quantity 5, $2,296.00 each, $11,480.00 Total
Herbicide 10-inch touchscreen Kit (No Ram Mount): Quantity 6, $778.00 each, $4,668.00 Total

The original Contract was based on best value, with the original contract value determined by estimated need.
All other terms, conditions, and specifications remain the same per contractor and agency agreement.

STATE OF MICHIGAN PROCUREMENT

Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **6**
to
Contract Number **591M210000001068**

CONTRACTOR	
	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.Brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 230-5361	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		Harrist @michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 9, 2021	August 8, 2026	3 one-year options	

PAYMENT TERMS	DELIVERY TIMEFRAME
Net 45 Days	N/A

ALTERNATE PAYMENT OPTIONS	EXTENDED PURCHASING
☐ P-card ☐ Payment Request (PRC) ☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☐		☐		

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,205,967.78	$0.00	$5,205,967.78

DESCRIPTION: Upon execution, the Contract is adding the following new line items and updated prices for as-needed Automated Vehicle Location (AVL) equipment listed below. No increase in contract value is needed for this year.

WMT AVL Reinstall Kit: Quantity 20, $754.70 each, $15,094.00 Total
Tablet Reinstall Kit: Quantity 20, $325.60 each, $6,512.00 Total
Wing Plow Blade Sensor Kit: Quantity 20, $287.80 each, $5,756.00 Total

The original Contract was based on low bid, with the original contract value determined by estimated need.
All other terms, conditions, specifications, and pricing remain the same per contractor and agency agreement.

STATE OF MICHIGAN PROCUREMENT

Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **5**
to
Contract Number **591M210000001068**

CONTRACTOR	
	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.Brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 230-5361	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		Harrist@michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 9, 2021	August 8, 2026	3 one-year options	

PAYMENT TERMS	DELIVERY TIMEFRAME
Net 45 Days	N/A

ALTERNATE PAYMENT OPTIONS	EXTENDED PURCHASING
☐ P-card ☐ Payment Request (PRC) ☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☐		☐		No Change

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,191,674.78	$14,293.00	$5,205,967.78

DESCRIPTION: Upon execution, the Contract value is increasing by $14,293.00 for updates to the operation of the Driver Vehicle Inspection Record functionality of the Parsons AVL system per attached quote #2024-012. All other terms, conditions, specifications remain the same. Per contractor and agency agreement.

PARSONS

3577 Parkway Lane, Suite 100, Peachtree Corners, Georgia 30092

June 13, 2024

James Roath
Maintenance Field Services Section
Michigan Department of Transportation
Via e-mail: RoathJ1@michigan.gov

Quote 2024-012: DVIR Update2 – Rev 1

Dear James,

Per feedback and review of the implemented DVIR Update, Michigan DOT requested the following updates to the operation of the Driver Vehicle Inspection Record functionality of the Parsons AVL system. The functionality once updated is to be as follows:

1. Tablet Interface Updates
    a. Pre-Trip sections – isolate sections to prevent "Group" buttons from being accidentally selected.
    b. Pre-Trip Sections – add a checkbox for each Pre-Trip section, causing all items of that section to be selected as 'Yes', but then allowing individual items to be selected as 'No'.
    c. Hopper/Salter/Blades and Trailer sections – add 'Yes' and 'N/A' master checkboxes.
    d. Highlighting: If selection is NO, change description text color to RED. If submitted and any entries are NOT yet selected, change description text color to YELLOW.
    e. When certifying, indicate on tablet the name of the operator who is currently logged in.
    f. Change 'SEE LAST REPORT' button to 'SEE LAST PRE-TRIP REPORT' button.
    g. Add 'SEE LAST POST-TRIP' button to allow operator to review previous Post-Trip report.
    h. Change 'SKIP' button to 'CONTINUE SHIFT' button.
    i. Add 'MAINTENANCE' option to pull-down menu.
    j. Post-Trip: update to match layout of Pre-Trip, with Yes/No/N-A.
    k. Add an "Equipment Issue" checkbox and a required comment field.
2. Notification Updates
    a. As part of the initial DVIR updates, Pre- and Post-Trip reports can be run from Jasper Reports on demand, and reports can be scheduled to be e-mailed each night to one or more garage contacts. This update will allow iNET® to send e-mails to one or more garage contacts when a Pre- or Post-Trip report is submitted with items flagged as being in error. Format of the e-mail is to be HTML conforming as near as possible to the format of the Jasper Reports format – see draft attached. Michigan DOT is to provide list of contacts and e-mails linked to garages.
3. Reports
    a. For the DVIR report, add engine hours start and end, along with odometer start and end.
    b. Create new report indicating failure to fill out DVIR based on "no DVIR when odometer indicates 5 miles have been driven."

Separately, a bug was found where the trailer number cannot be deleted, only overwritten. This will be corrected at no cost.

Exclusions

- Any on-site work

ITEM	QUANTITY	EACH	TOTAL
1. Tablet Interface Updates	1	$7,684.00	$7,684.00
2. Notification Updates	1	$3,291.00	$3,291.00
3. Reports	1	$3,318.00	$3,318.00

Terms and Conditions:

- Work can be completed in 3 weeks from receipt of Task Order.
- Prices are good for 180 days from date above.
- Pricing is in United States Dollars and excludes any applicable shipping, taxes, tariffs and/or other fees.
- Payment is per existing contract terms and conditions.
- Warranty provisions are as given below.

Sincerely,

Russ Brookshire
Director, Intelligent Hardware
russ.brookshire@parsons.com
678.730.7433

WARRANTY

Parsons warrants all controller cards to be free from manufacturing defects for a period of one (1) year from the date of shipment from our facility. This warranty covers only defects in materials and workmanship. This warranty does not cover corrosion due to water intrusion, or physical or electrical damage incurred due to improper installation or abuse. This warranty is void if controller has been modified in any way.

Should any card be found to suffer from a defect, please contact the Repair Department at (678) 730-7334 or via e-mail at iot.support@parsons.com to receive a Return Material Authorization (RMA) number. Return the controller in proper packaging along with an indication of the reason for return.

Parsons will repair or replace, at its discretion, the controller at no cost during the warranty period.

Parsons warrants all software modifications to be free from defects for a period of one (1) year from the date of acceptance. This warranty covers only defects to the modified portions of code, or any defects introduced by the modifications. The warranty does not cover defects in other sections of the code.

This warranty is in lieu of all other warranties, expressed or implied, including any warranty as to fitness for a particular purpose. Parsons shall not be responsible for any damages, loss of use or downtime, loss of profit or goodwill, or any incidental or consequential damages under this warranty. Should purchaser resell this product, the purchaser is not authorized to make any commitments or assume any liability on behalf of Parsons beyond those expressed in this warranty.

STATE OF MICHIGAN PROCUREMENT

Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **4**
to
Contract Number **591M210000001068**

CONTRACTOR	
	Parson Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.Brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 599-5770	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		Harrist@michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 9, 2021	August 8, 2026	3 one-year options	August 8, 2026

PAYMENT TERMS	DELIVERY TIMEFRAME
Net 45 Days	N/A

ALTERNATE PAYMENT OPTIONS	EXTENDED PURCHASING
☐ P-card ☐ Payment Request (PRC) ☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☐		☐		

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,158,460.03	$33,214.75	$5,191,674.78

DESCRIPTION: Upon execution, the Contract is increased for as-needed Automated Vehicle Location (AVL) equipment per Attachment 1. All other terms, conditions, specifications remain the same.

Contract Number 591M210000001068
Change Notice 4
Attachment 1

Schedule B, Pricing is modified to include the following items:

Item	Unit of Measure	Quantity	Price	Total
RAM-B138U	Each	25	$29.95	$748.75
Development and implementation of updates to existing table GUI per PER2023-03	Each	1	$12,966.00	12,966.00
Development and implementation of updates to existing DVIR functionality	Each	1	$19,500.00	$19,500.00

Total Cost :$33,214.75

STATE OF MICHIGAN PROCUREMENT

Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **3**
to
Contract Number **591M210000001068**

CONTRACTOR	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.Brookshire@parsons.com

STATE	Program Manager	James Roath	MDOT
		(517) 599-5770	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		Harrist@michigan.gov	

CONTRACT SUMMARY			
DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)			
INITIAL EFFECTIVE DATE	**INITIAL EXPIRATION DATE**	**INITIAL AVAILABLE OPTIONS**	**EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW**
August 9, 2021	August 8, 2026	3 one-year options	August 8, 2026
PAYMENT TERMS		**DELIVERY TIMEFRAME**	
Net 45 Days		N/A	
ALTERNATE PAYMENT OPTIONS			**EXTENDED PURCHASING**
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☒ No
MINIMUM DELIVERY REQUIREMENTS			
N/A			

DESCRIPTION OF CHANGE NOTICE				
OPTION	**LENGTH OF OPTION**	**EXTENSION**	**LENGTH OF EXTENSION**	**REVISED EXP. DATE**
☐		☐		

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,158,460.03		$5,158,460.03

DESCRIPTION: Upon execution, the Contract is amended per attachment replacing four (4) line items and prices. All other terms, conditions, specifications, and pricing remain the same.

PARSONS

April 17, 2023

James Roath
Roadway Operations Engineer
Maintenance Field Services Section
Michigan Department of Transportation
Email: RoathJ1@michigan.gov

Dear James:

We have received a request from our install subcontractor, Tele-Rad, for an increase in their rates. We are submitting this request in accordance with Schedule A, Section 6 – Pricing, of the contract.

Per Tele-Rad:

> Increases to the cost of living, as well as widespread labor shortages, have required us to raise employee wages across the board to attract and retain qualified talent. In addition, we've all experienced unforeseen inflation, as well as rising fuel prices and vehicle costs, which affect our costs associated with this project. Although we always anticipate changes of this nature, the increases to our cost of doing business have been unprecedented.

The requested rate increases are as shown in the table below:

Items	Original	New
Tier 1 Labor, per hour	$92.00	$101.20
Tier 2 Labor, per hour	$156.00	$171.60
Mileage, per hour	$46.00	$50.60
Technical Assistance Service, per month	$4,673.73	$4,778.00

Per Section 6.1, new prices "take effect no earlier than the next Pricing Period", which I believe starts in July, 2023.

Sincerely,

Russ Brookshire
Director, Intelligent Hardware
russ.brookshire@parsons.com
Direct: 678.730.7433

STATE OF MICHIGAN PROCUREMENT

Michigan Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **02**
to
Contract Number **210000001068**

CONTRACTOR	
	Parsons Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	678-733-7433
	Russ.Brookshire@parsons.com
	VS0185196

STATE			
	Program Manager	James Roath	MDOT
		517-230-5361	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		517-249-0870	
		Harrist@michigan.gov	

CONTRACT SUMMARY

DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)

INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW
August 9, 2021 ~~July 12, 2021~~	August 8, 2026 ~~July 11, 2026~~	3 one-year options	August 8, 2026 ~~July 11, 2026~~

PAYMENT TERMS	DELIVERY TIMEFRAME
Net 45 Days	N/A

ALTERNATE PAYMENT OPTIONS	EXTENDED PURCHASING
☐ P-card ☐ Payment Request (PRC) ☐ Other	☐ Yes ☒ No

MINIMUM DELIVERY REQUIREMENTS

N/A

DESCRIPTION OF CHANGE NOTICE

OPTION	LENGTH OF OPTION	EXTENSION	LENGTH OF EXTENSION	REVISED EXP. DATE
☐		☐		

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,158,460.03		$5,158,460.03

DESCRIPTION: Upon execution, the following changes were made to this Contract:
1. Amended to add a line item for weekly winter weather videos for the Superior and North Regions.

All other terms, conditions, specifications, and pricing remain the same per vendor and agency agreement.

Description	Commodity Code	Estimated Quantity	Unit	Estimated Quantity 5yrs	Unit Price
Winter Weekly Weather Outlook Videos- Superior/North Regions (Nov 1-Apr 30)	96188	N/A	Each	104	$442.31

STATE OF MICHIGAN PROCUREMENT

Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **1**
to
Contract Number **591M210000001068**

CONTRACTOR	
	Parson Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.Brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 599-5770	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		Harrist@michigan.gov	

CONTRACT SUMMARY			
DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)			
INITIAL EFFECTIVE DATE	**INITIAL EXPIRATION DATE**	**INITIAL AVAILABLE OPTIONS**	**EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW**
August 9, 2021 ~~July 12, 2021~~	August 8, 2026 ~~July 11, 2026~~	3 one-year options	
PAYMENT TERMS		**DELIVERY TIMEFRAME**	
Net 45 Days		N/A	
ALTERNATE PAYMENT OPTIONS			**EXTENDED PURCHASING**
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☒ No
MINIMUM DELIVERY REQUIREMENTS			
N/A			

DESCRIPTION OF CHANGE NOTICE				
OPTION	**LENGTH OF OPTION**	**EXTENSION**	**LENGTH OF EXTENSION**	**REVISED EXP. DATE**
☐		☐		

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,158,460.03		$5,158,460.03

DESCRIPTION: Change Notice #1 of this contract is amended to add four (4) line items. All other terms, conditions, specifications, and pricing remain the same. Per vendor and agency agreement.

Change Notice #1 Amended to add four-line items (Parts)

Description	Commodity Codes	Estimated Quantity	Unit	Estimated Quantity 5yrs	Unit Price
VESA Mount (Ram-2461U) 3890	05040	N/A	Each	N/A	$17.01
Round Base (Ram-202U) 3892	05040	N/A	Each	N/A	$11.97
Arm, long (Ram-201-D) 3952	05040	N/A	Each	N/A	$35.85
Arm, Med (Ram-201U) 3891	05040	N/A	Each	N/A	$20.54

STATE OF MICHIGAN PROCUREMENT

Purchasing Unit
Department of Transportation
425 W. Ottawa St., Lansing, Michigan 48909
P.O. Box 30050, Lansing, Michigan 48933

NOTICE OF CONTRACT

NOTICE OF CONTRACT NO. **591M210000001068**
between
THE STATE OF MICHIGAN
and

CONTRACTOR	
	Parsons Transportation Group Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 599-5770	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		HarrisT@michigan.gov	

CONTRACT SUMMARY			
DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for Winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)			
INITIAL EFFECTIVE DATE	**INITIAL EXPIRATION DATE**	**INITIAL AVAILABLE OPTIONS**	**EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW**
July 12, 2021	July 11, 2026	3-one year option	
PAYMENT TERMS		**DELIVERY TIMEFRAME**	
Net 45		N/A	
ALTERNATE PAYMENT OPTIONS			**EXTENDED PURCHASING**
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☐ No
MINIMUM DELIVERY REQUIREMENTS			
N/A			
MISCELLANEOUS INFORMATION			
The Contract Agreement is awarded on the basis of the inquiry bearing the solicitation number 210000001577			
ESTIMATED CONTRACT VALUE AT TIME OF EXECUTION		**$5,158,460.03**	

STANDARD CONTRACT TERMS

This STANDARD CONTRACT ("**Contract**") is agreed to between the State of Michigan (the "**State**") and Parsons Transportation Group Inc. ("**Contractor**"), a Michigan corporation. This Contract is effective on July 12, 2021 ("**Effective Date**"), and unless terminated, expires on July 11, 2026.

This Contract may be renewed for up to three (3) additional one (1) year period(s). Renewal is at the sole discretion of the State and will automatically extend the Term of this Contract. The State will document its exercise of renewal options via Contract Change Notice.

The parties agree as follows:

1. **Duties of Contractor.** Contractor must perform the services and provide the deliverables described in **Schedule A – Statement of Work** (the "**Contract Activities**"). An obligation to provide delivery of any commodity is considered a service and is a Contract Activity.

   Contractor must furnish all labor, equipment, materials, and supplies necessary for the performance of the Contract Activities, and meet operational standards, unless otherwise specified in Schedule A.

   Contractor must: (a) perform the Contract Activities in a timely, professional, safe, and workmanlike manner consistent with standards in the trade, profession, or industry; (b) meet or exceed the performance and operational standards, and specifications of the Contract; (c) provide all Contract Activities in good quality, with no material defects; (d) not interfere with the State's operations; (e) obtain and maintain all necessary licenses, permits or other authorizations necessary for the performance of the Contract; (f) cooperate with the State, including the State's quality assurance personnel, and any third party to achieve the objectives of the Contract; (g) return to the State any State-furnished equipment or other resources in the same condition as when provided when no longer required for the Contract; (h) not make any media releases without prior written authorization from the State; (i) assign to the State any claims resulting from state or federal antitrust violations to the extent that those violations concern materials or services supplied by third parties toward fulfillment of the Contract; (j) comply with all State physical and IT security policies and standards which will be made available upon request; and (k) provide the State priority in performance of the Contract except as mandated by federal disaster response requirements. Any breach under this paragraph is considered a material breach.

   Contractor must also be clearly identifiable while on State property by wearing identification issued by the State, and clearly identify themselves whenever making contact with the State.

STANDARD CONTRACT TERMS

2. Notices. All notices and other communications required or permitted under this Contract must be in writing and will be considered given and received: (a) when verified by written receipt if sent by courier; (b) when actually received if sent by mail without verification of receipt; or (c) when verified by automated receipt or electronic logs if sent by facsimile or email.

If to State:	If to Contractor:
Terry Harris 425 W. Ottawa Street Lansing, MI 48909 HarrisT@michigan.gov 517-335-2507	Russ Brookshire 3577 Parkway Lane, Suite 100 Peachtree Corners, GA 30092 Russ.brookshire@parsons.com (678) 733-7433

3. Contract Administrator. The Contract Administrator for each party is the only person authorized to modify any terms of this Contract, and approve and execute any change under this Contract (each a "**Contract Administrator**"):

State:	Contractor:
Terry Harris 425 W. Ottawa Street Lansing, MI 48909 HarrisT@michigan.gov 517-335-2507	Russ Brookshire 3577 Parkway Lane, Suite 100 Peachtree Corners, GA 30092 Russ.brookshire@parsons.com (678) 733-7433

4. Program Manager. The Program Manager for each party will monitor and coordinate the day-to-day activities of the Contract (each a "**Program Manager**"):

State:	Contractor:
James Roath 6333 Lansing Road Lansing, MI, 48917 RoathJ1@michigan.gov 517-599-5770	Russ Brookshire 3577 Parkway Lane, Suite 100 Peachtree Corners, GA 30092 Russ.brookshire@parsons.com (678) 733-7433

5. Performance Guarantee. Contractor must at all times have financial resources sufficient, in the opinion of the State, to ensure performance of the Contract and must provide proof upon request. The State may require a performance bond (as specified in Schedule A – Statement of Work) if, in the opinion of the State, it will ensure performance of the Contract.

6. Insurance Requirements. Contractor, at its sole expense, must maintain the insurance coverage identified below. 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

STANDARD CONTRACT TERMS

provided by a company with an A.M. Best rating of "A-" or better, and a financial size of VII or better.

Required Limits	Additional Requirements
Commercial General Liability Insurance	
Minimum Limits: $1,000,000 Each Occurrence $1,000,000 Personal & Advertising Injury $2,000,000 Products/Completed Operations $2,000,000 General Aggregate	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 04.
Automobile Liability Insurance	
Minimum Limits: $1,000,000 Per Accident	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) include Hired and Non-Owned Automobile coverage.
Workers' Compensation Insurance	
Minimum Limits: Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.
Employers Liability Insurance	
Minimum Limits: $500,000 Each Accident $500,000 Each Employee by Disease $500,000 Aggregate Disease	
Privacy and Security Liability (Cyber Liability) Insurance	
Minimum Limits: $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.

If any of the required policies provide **claims-made** coverage, the Contractor must: (a) provide coverage with a retroactive date before the Effective Date of the Contract or the beginning of Contract Activities; (b) maintain coverage and provide evidence of coverage for at least three (3) years after completion of the Contract Activities; and (c) if coverage is cancelled 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.

Contractor must: (a) provide insurance certificates to the Contract Administrator, containing the agreement or delivery order number, at Contract formation and within twenty (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 five (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.

This Section is not intended to and is not to 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).

7. Reserved.

8. Reserved.

9. Independent Contractor. Contractor is an independent contractor and assumes all rights, obligations and liabilities set forth in this Contract. Contractor, its employees, and agents will not be considered employees of the State. No partnership or joint venture relationship is created by virtue of this Contract. Contractor, and not the State, is responsible for the payment of wages, benefits and taxes of Contractor's employees and any subcontractors. Prior performance does not modify Contractor's status as an independent contractor.

Contractor hereby acknowledges that the State is and will be the sole and exclusive owner of all right, title, and interest in the Contract Activities and all associated intellectual property rights, if any. Such Contract Activities are works made for hire as defined in Section 101 of the Copyright Act of 1976. To the extent any Contract Activities and related intellectual property do not qualify as works made for hire under the Copyright Act, Contractor will, and hereby does, immediately on its creation, assign, transfer and otherwise convey to the State, irrevocably and in perpetuity, throughout the universe, all right, title and interest in and to the Contract Activities, including all intellectual property rights therein.

10. Subcontracting. Contractor may not delegate any of its obligations under the Contract without the prior written approval of the State. Contractor must notify the State at least 90 calendar days before the proposed delegation and provide the State any information it requests to determine whether the delegation is in its best interest. If approved, Contractor must: (a) be the sole point of contact regarding all contractual matters, including payment and charges for all Contract Activities; (b) make all payments to the subcontractor; and (c) incorporate the terms and conditions contained in this Contract in any subcontract with a subcontractor. Contractor remains responsible for the completion of the Contract Activities, compliance with the terms of this Contract,

and the acts and omissions of the subcontractor. The State, in its sole discretion, may require the replacement of any subcontractor.

11. Staffing. The State's Contract Administrator may require Contractor to remove or reassign personnel by providing a notice to Contractor.

12. Background Checks. Pursuant to Michigan law, all agencies subject to IRS Pub. 1075 are required to ask the Michigan State Police to perform fingerprint background checks on all employees, including Contractor and Subcontractor employees, who may have access to any database of information maintained by the federal government that contains confidential or personal information, including, but not limited to, federal tax information. Further, pursuant to Michigan law, any agency described above is prohibited from providing Contractors or Subcontractors with the result of such background check. For more information, please see Michigan Public Act 427 of 2018. Upon request, or as may be specified in Schedule A, Contractor must perform background checks on all employees and subcontractors and its employees 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.

13. Assignment. Contractor may not assign this Contract to any other party without the prior approval of the State. Upon notice to Contractor, the State, in its sole discretion, may assign in whole or in part, its rights or responsibilities under this Contract to any other party. If the State determines that a novation of the Contract to a third party is necessary, Contractor will agree to the novation and provide all necessary documentation and signatures.

14. Change of Control. Contractor will notify within 30 days of any public announcement or otherwise once legally permitted to do so, the State of a change in Contractor's organizational structure or ownership. For purposes of this Contract, a change in control means any of the following: (a) a sale of more than 50% of Contractor's stock; (b) a sale of substantially all of Contractor's assets; (c) a change in a majority of Contractor's board members; (d) consummation of a merger or consolidation of Contractor with any other entity; (e) a change in ownership through a transaction or series of transactions; (f) or the board (or the stockholders) approves a plan of complete liquidation. A change of control does not include any consolidation or merger effected exclusively to change the domicile of Contractor, or any transaction or series of transactions principally for bona fide equity financing purposes.

In the event of a change of control, Contractor must require the successor to assume this Contract and all of its obligations under this Contract.

15. Ordering. Contractor is not authorized to begin performance until receipt of authorization as identified in Schedule A. (Delivery Order through Sigma)

STANDARD CONTRACT TERMS

16. Acceptance. Contract Activities are subject to inspection and testing by the State within 30 calendar days of the State's receipt of them ("**State Review Period**"), unless otherwise provided in Schedule A. If the Contract Activities are not fully accepted by the State, the State will notify Contractor by the end of the State Review Period that either: (a) the Contract Activities are accepted but noted deficiencies must be corrected; or (b) the Contract Activities are rejected. If the State finds material deficiencies, it may: (i) reject the Contract Activities without performing any further inspections; (ii) demand performance at no additional cost; or (iii) terminate this Contract in accordance with Section 23, Termination for Cause.

Within 10 business days from the date of Contractor's receipt of notification of acceptance with deficiencies or rejection of any Contract Activities, Contractor must cure, at no additional cost, the deficiency and deliver unequivocally acceptable Contract Activities to the State. If acceptance with deficiencies or rejection of the Contract Activities impacts the content or delivery of other non-completed Contract Activities, the parties' respective Program Managers must determine an agreed to number of days for re-submission that minimizes the overall impact to the Contract. However, nothing herein affects, alters, or relieves Contractor of its obligations to correct deficiencies in accordance with the time response standards set forth in this Contract.

If Contractor is unable or refuses to correct the deficiency within the time response standards set forth in this Contract, the State may cancel the order in whole or in part. The State, or a third party identified by the State, may perform the Contract Activities and recover the difference between the cost to cure and the Contract price plus an additional 10% administrative fee.

17. Delivery. Contractor must deliver all Contract Activities F.O.B. destination, within the State premises with transportation and handling charges paid by Contractor, unless otherwise specified in Schedule A. All containers and packaging become the State's exclusive property upon acceptance.

18. Risk of Loss and Title. Until final acceptance, title and risk of loss or damage to Contract Activities remains with Contractor. Contractor is responsible for filing, processing, and collecting all damage claims. The State will record and report to Contractor any evidence of visible damage. If the State rejects the Contract Activities, Contractor must remove them from the premises within 10 calendar days after notification of rejection. The risk of loss of rejected or non-conforming Contract Activities remains with Contractor. Rejected Contract Activities not removed by Contractor within 10 calendar days will be deemed abandoned by Contractor, and the State will have the right to dispose of it as its own property. Contractor must reimburse the State for costs and expenses incurred in storing or effecting removal or disposition of rejected Contract Activities.

19. Warranty Period. The warranty period, if applicable, for Contract Activities is a fixed period commencing on the date specified in Schedule A. If the Contract Activities do not

function as warranted during the warranty period, the State may return such non-conforming Contract Activities to the Contractor for a full refund.

20. Terms of Payment. Invoices must conform to the requirements communicated from time-to-time by the State. All undisputed amounts are payable within 45 days of the State's receipt. Contractor may only charge for Contract Activities performed as specified in Schedule A. Invoices must include an itemized statement of all charges. The State is exempt from State sales tax for direct purchases and may be exempt from federal excise tax, if Services purchased under this Agreement are for the State's exclusive use. All prices are exclusive 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.

The State has the right to withhold payment of any disputed amounts until the parties agree as to the validity of the disputed amount. The State will notify Contractor of any dispute within a reasonable time. Payment by the State will not constitute a waiver of any rights as to Contractor's continuing obligations, including claims for deficiencies or substandard Contract Activities. Contractor's acceptance of final payment by the State constitutes a waiver of all claims by Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still disputed.

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

21. Service Level Agreements. Service Level Agreement penalties, if applicable, will be assessed as described in Schedule A.

22. Stop Work Order. The State may suspend any or all activities under the Contract at any time. The State will provide Contractor a written stop work order detailing the suspension. Contractor must comply with the stop work order upon receipt. Within 90 calendar 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 the Contract or delivery order. The State will not pay for Contract Activities, Contractor's lost profits, or any additional compensation during a stop work period.

23. Termination for Cause. The State may terminate this Contract for cause, in whole or in part, if Contractor, as determined by the State: (a) endangers the value, integrity, or security of any location, data, or personnel; (b) becomes insolvent, petitions for bankruptcy court proceedings, or has an involuntary bankruptcy proceeding filed against

it by any creditor; (c) engages in any conduct that may expose the State to liability; (d) breaches any of its material duties or obligations; or (e) fails to cure a breach within the time stated in a notice of breach. Any reference to specific breaches being material breaches within this Contract will not be construed to mean that other breaches are not material.

If the State terminates this Contract under this Section, 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 the 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 24, Termination for Convenience.

The State will only pay for amounts due to Contractor for Contract Activities 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. The Contractor must pay all reasonable costs incurred by the State in terminating this Contract for cause, including administrative costs, attorneys' fees, court costs, transition costs, and any costs the State incurs to procure the Contract Activities from other sources.

24. 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 of the Contract Activities immediately, or (b) continue to perform the Contract Activities in accordance with Section 25, Transition Responsibilities. 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.

25. 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), provide all reasonable transition assistance requested by the State, to allow for the expired or terminated portion of the Contract Activities to continue without interruption or adverse effect, and to facilitate the orderly transfer of such Contract Activities to the State or its designees. Such transition assistance may include, but is not limited to: (a) continuing to perform the Contract Activities at the established Contract rates; (b) taking all reasonable and necessary measures to transition performance of the work, including all applicable Contract Activities, training, equipment, software, leases, reports and other documentation, 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 materials, data, property, and confidential information provided directly or indirectly to Contractor by any entity, agent, vendor, or employee of the State; (d) transferring title in and delivering to the

STANDARD CONTRACT TERMS

State, at the State's discretion, all completed or partially completed deliverables prepared under this Contract as of the Contract termination date; and (e) preparing an accurate accounting from which the State and Contractor may reconcile all outstanding accounts (collectively, "**Transition Responsibilities**"). This Contract will automatically be extended through the end of the transition period.

26. 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; (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); and (d) any acts or omissions of Contractor (or any of Contractor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable).

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 if the State deems necessary. Contractor will not, without the State's 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. To the extent that any State employee, official, or law may be involved or challenged, the State may, at its own expense, control the defense of that portion of the claim.

Any litigation activity on behalf of the State, or any of its subdivisions under this Section, must be coordinated with the Department of Attorney General. 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.

27. Infringement Remedies. If, in either party's opinion, any piece of equipment, software, commodity, or service supplied by Contractor or its subcontractors, or its operation, use or reproduction, is likely to become the subject of a copyright, patent, trademark, or trade secret infringement claim, Contractor must, at its expense: (a) procure for the State the right to continue using the equipment, software, commodity, or service, or if this option is not reasonably available to Contractor, (b) replace or modify

the same so that it becomes non-infringing; or (c) accept its return by the State with appropriate credits to the State against Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

28. Limitation of Liability and Disclaimer of Damages. IN NO EVENT WILL THE STATE'S AGGREGATE LIABILITY TO CONTRACTOR 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. The State is not liable for consequential, incidental, indirect, or special damages, regardless of the nature of the action.

29. Disclosure of Litigation, or Other Proceeding. Contractor must notify the State within 14 calendar days of receiving notice of any litigation, investigation, arbitration, or other proceeding (collectively, "**Proceeding**") involving Contractor, a subcontractor, or an officer or director of Contractor or subcontractor, that arises during the term of the Contract, including: (a) a criminal Proceeding; (b) a parole or probation Proceeding; (c) a Proceeding under the Sarbanes-Oxley Act; (d) a civil Proceeding involving: (1) a claim that might reasonably be expected to adversely affect Contractor's viability or financial stability; or (2) a governmental or public entity's claim or written allegation of fraud; or (e) a Proceeding involving any license that Contractor is required to possess in order to perform under this Contract.

30. State Data.

a. **Ownership**. The State's data ("**State Data**," which will be treated by Contractor as Confidential Information) includes: (a) the State's data collected, used, processed, stored, or generated as the result of the Contract Activities; (b) personally identifiable information ("**PII**") collected, used, processed, stored, or generated as the result of the Contract Activities, 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; and, (c) personal health information ("**PHI**") collected, used, processed, stored, or generated as the result of the Contract Activities, which is defined under the Health Insurance Portability and Accountability Act (HIPAA) and its related rules and regulations. 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 survives the termination of this Contract. Please refer to Schedule F Data Security Requirements for additional information.

b. **Contractor Use of State Data**. Contractor is provided a limited license to State Data for the sole and exclusive purpose of providing the Contract Activities,

including a license to collect, process, store, generate, and display State Data only to the extent necessary in the provision of the Contract Activities. 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 Contract Activities, 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 survives the termination of this Contract.

c. **Extraction of State Data**. Contractor must, within five (5) business days of the State's request, provide the State, without charge and without any conditions or contingencies whatsoever (including but not limited to the payment of any fees due to Contractor), an extract of the State Data in the format specified by the State.

d. **Backup and Recovery of State Data**. Unless otherwise specified in Schedule A, Contractor is responsible for maintaining a backup of State Data and for an orderly and timely recovery of such data. Unless otherwise described in Schedule A, Contractor must maintain a contemporaneous backup of State Data that can be recovered within two (2) hours at any point in time.

e. **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 or PHI, at the State's sole election, (i) with approval and assistance from the State, notify the affected individuals who comprise the PII or PHI 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 required to comply with applicable law, or, in the absence of any legally required monitoring services, for no less than twenty-four (24) months following the date of notification to such individuals; (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. 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. The parties agree that any damages relating to a breach of this **Section 30** are to be considered direct damages and not consequential damages. This section survives termination or expiration of this Contract.

f. **State's Governance, Risk and Compliance (GRC) platform**. Contractor is required to assist the State with its security accreditation process through the development, completion and ongoing updating of a system security plan using the State's automated GRC platform and implement any required safeguards or remediate any security vulnerabilities as identified by the results of the security accreditation process.

31. Non-Disclosure of Confidential Information. The parties acknowledge that each party may be exposed to or acquire communication or data of the other party that is confidential, privileged communication not intended to be disclosed to third parties. The provisions of this Section survive the termination of this Contract.

a. **Meaning of Confidential Information**. For the purposes of this Contract, 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: (a) 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). For purposes of this Contract, in all cases and for all matters, State Data is deemed to be Confidential Information.

b. **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 a subcontractor is permissible where: (a) use of a subcontractor is authorized under this Contract; (b) the disclosure is necessary or otherwise naturally occurs in connection with work that is within the subcontractor's responsibilities; and (c) Contractor obligates the subcontractor in a written contract to maintain the State's Confidential Information in confidence. At the State's request, any employee of Contractor or any subcontractor may be required to execute a separate agreement to be bound by the provisions of this Section.

c. **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 and each party will cooperate with the other party in seeking injunctive or other equitable relief against any such person.

d. **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 or threatened 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 or threatened breach.

e. **Surrender of Confidential Information upon Termination**. Upon termination of this Contract or a Statement of Work, in whole or in part, each party must, within 5 calendar 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; provided, however, that Contractor must return State Data to the State following the timeframe and procedure described further in this Contract. Should Contractor or the State determine that the return of any Confidential Information is not feasible, such party must destroy the Confidential Information and must certify the same in writing within 5 calendar days from the date of termination to the other party. However, the State's legal ability to destroy Contractor data may be restricted by its retention and disposal schedule, in which case Contractor's Confidential Information will be destroyed after the retention period expires.

Data Privacy and Information Security.

f. **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 employees, agents, and subcontractors of Contractor, if any, 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 to Contractor upon request.

g. **Audit by Contractor**. No less than annually, Contractor must conduct a comprehensive independent third-party audit of its data privacy and information security program and provide such audit findings to the State.

h. **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 Contract Activities and from time to time during the term of this Contract. During the providing of the Contract Activities, 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. In lieu of an on-site audit, upon request by the State, Contractor agrees to complete, within 45 calendar days of receipt, an audit questionnaire provided by the State regarding Contractor's data privacy and information security program.

i. **Audit Findings**. Contractor must implement any required safeguards as identified by the State or by any audit of Contractor's data privacy and information security program.

STANDARD CONTRACT TERMS

j. **State's Right to Termination for Deficiencies**. The State reserves the right, at its sole election, to immediately terminate this Contract or a 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.

32. Records Maintenance, Inspection, Examination, and 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 the Contract through the term of the Contract and for 4 years after the latter of termination, expiration, or final payment under this Contract or any extension ("**Audit Period**"). If an audit, litigation, or other action involving the records is initiated before the end of the Audit Period, Contractor must retain the records until all issues are resolved.

Within 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 Contract Activities are being performed, and examine, copy, and audit all records related to this Contract. Contractor must cooperate and provide reasonable assistance. If any 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 the Contract must be paid or refunded within 45 calendar days.

This Section applies to Contractor, any parent, affiliate, or subsidiary organization of Contractor, and any subcontractor that performs Contract Activities in connection with this Contract.

33. Warranties and Representations. Contractor represents and warrants: (a) Contractor is the owner or licensee of any Contract Activities that it licenses, sells, or develops and Contractor has the rights necessary to convey title, ownership rights, or licensed use; (b) all Contract Activities are delivered free from any security interest, lien, or encumbrance and will continue in that respect; (c) the Contract Activities will not infringe the patent, trademark, copyright, trade secret, or other proprietary rights of any third party; (d) Contractor must assign or otherwise transfer to the State or its designee any manufacturer's warranty for the Contract Activities; (e) the Contract Activities are merchantable and fit for the specific purposes identified in the Contract; (f) the Contract signatory has the authority to enter into this Contract; (g) all information furnished by Contractor in connection with the Contract fairly and accurately represents Contractor's business, properties, finances, and operations as of the dates covered by the information, and Contractor will inform the State of any material adverse changes;(h) all information furnished and representations made in connection with the award of this Contract is true, accurate, and complete, and contains no false statements or omits any fact that would make the information misleading; and that (i) Contractor is neither currently engaged in nor will engage in the boycott of a person based in or doing business with a strategic partner as described in 22 USC 8601 to 8606. A breach of this

STANDARD CONTRACT TERMS

Section is considered a material breach of this Contract, which entitles the State to terminate this Contract under Section 23, Termination for Cause.

34. Conflicts and Ethics. Contractor will uphold high ethical standards and is prohibited from: (a) holding or acquiring an interest that would conflict with this Contract; (b) doing anything that creates an appearance of impropriety with respect to the award or performance of the Contract; (c) attempting to influence or appearing to influence any State employee by the direct or indirect offer of anything of value; or (d) paying or agreeing to pay any person, other than employees and consultants working for Contractor, any consideration contingent upon the award of the Contract. Contractor must immediately notify the State of any violation or potential violation of these standards. This Section applies to Contractor, any parent, affiliate, or subsidiary organization of Contractor, and any subcontractor that performs Contract Activities in connection with this Contract.

35. Compliance with Laws. Contractor must comply with all federal, state and local laws, rules and regulations.

36. 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.

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

38. 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 Michigan Court of Claims. Contractor consents to venue in Ingham County, and waives any objections, such as lack of personal jurisdiction or *forum non conveniens*. Contractor must appoint agents in Michigan to receive service of process.

39. Non-Exclusivity. Nothing contained in this Contract is intended nor will 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 Contract Activities from other sources.

STANDARD CONTRACT TERMS

40. Force Majeure. Neither party will be in breach of this Contract because of any failure arising from any disaster or acts of god that are beyond their control and without their fault or negligence. Each party will use commercially reasonable efforts to resume performance. Contractor will not be relieved of a breach or delay caused by its subcontractors. If immediate performance is necessary to ensure public health and safety, the State may immediately contract with a third party.

41. Dispute Resolution. The parties will endeavor to resolve any Contract dispute in accordance with this provision. The dispute will be referred to the parties' respective Contract Administrators or Program Managers. Such referral must include a description of the issues and all supporting documentation. The parties must submit the dispute to a senior executive if unable to resolve the dispute within 15 business days. The parties will continue performing while a dispute is being resolved, unless the dispute precludes performance. A dispute involving payment does not preclude performance.

Litigation to resolve the dispute will not be instituted until after the dispute has been elevated to the parties' senior executive and either concludes that resolution is unlikely or fails to respond within 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 does not limit the State's right to terminate the Contract.

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

43. Website Incorporation. The State is not bound by any content on Contractor's website unless expressly incorporated directly into this Contract.

44. Schedules. All Schedules and Exhibits that are referenced herein and attached hereto are hereby incorporated by reference. The following Schedules are attached hereto and incorporated herein:

Schedule A	Statement of Work
Schedule B	Pricing
Schedule C	MDOT AVL-GPS System Requirements
Schedule D	M5 Standard Meter Interface Directions
Schedule E	MDSS Requirements
Schedule F	Data Security Requirements

STANDARD CONTRACT TERMS

45. Entire Agreement and Order of Precedence. This Contract, which includes Schedule A – Statement of Work, and schedules and exhibits which are hereby expressly incorporated, is the entire agreement of the parties related to the Contract Activities. This Contract supersedes and replaces all previous understandings and agreements between the parties for the Contract Activities. If there is a conflict between documents, the order of precedence is: (a) first, this Contract, excluding its schedules, exhibits, and Schedule A – Statement of Work; (b) second, Schedule A – Statement of Work as of the Effective Date; and (c) third, schedules expressly incorporated into this Contract as of the Effective Date. NO TERMS ON CONTRACTOR'S INVOICES, ORDERING DOCUMENTS, WEBSITE, BROWSE-WRAP, SHRINK-WRAP, CLICK-WRAP, CLICK-THROUGH OR OTHER NON-NEGOTIATED TERMS AND CONDITIONS PROVIDED WITH ANY OF THE CONTRACT ACTIVITIES WILL CONSTITUTE A PART OR AMENDMENT OF THIS CONTRACT OR IS BINDING ON THE STATE FOR ANY PURPOSE. ALL SUCH OTHER TERMS AND CONDITIONS HAVE NO FORCE AND EFFECT AND ARE DEEMED REJECTED BY THE STATE, EVEN IF ACCESS TO OR USE OF THE CONTRACT ACTIVITIES REQUIRES AFFIRMATIVE ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

46. Severability. If any part of this Contract is held invalid or unenforceable, by any court of competent jurisdiction, that part will be deemed deleted from this Contract and the severed part will be replaced by agreed upon language that achieves the same or similar objectives. The remaining Contract will continue in full force and effect.

47. Waiver. Failure to enforce any provision of this Contract will not constitute a waiver.

48. Survival. The provisions of this Contract that impose continuing obligations, including warranties and representations, termination, transition, insurance coverage, indemnification, and confidentiality, will survive the expiration or termination of this Contract.

49. Contract Modification. This Contract may not be amended except by signed agreement between the parties (a "**Contract Change Notice**"). Notwithstanding the foregoing, no subsequent Statement of Work or Contract Change Notice executed after the Effective Date will be construed to amend this Contract unless it specifically states its intent to do so and cites the section or sections amended.

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

Contract Number: 591M210000001068
Automated Vehicle Location (AVL)/GPS and MDSS Operational Management Solution for the Michigan Department of Transportation

BACKGROUND

This is a Contract for a comprehensive Automated Vehicle Location (AVL)/Global Positioning System (GPS) fleet tracking system for the Michigan Department of Transportation (MDOT). The Contractor will utilize any existing AVL equipment as deemed possible by the Contractor and as accepted by the MDOT. This Contract is all encompassing: including but not limited to; the necessary removal of previous AVL/GPS hardware in trucks, firmware, software, installation of new AVL/GPS hardware, firmware, software, communication/data transfer, training support, secure website for displaying mapped assets in near real-time, data management, data reporting and data storage, and ongoing technical support for implementing an AVL/GPS fleet tracking solution on the Departments fleet. All data collected through this Contract is to be stored on non-state-owned servers provided by the contractor. AVL Data should be stored for 5 years and be able to be recalled at any point during that time span. The Contractor will be responsible for being able to work with and communicate with the Statewide Maintenance Decision Support System (MDSS) tool for the Departments maintenance garages and fleet of winter maintenance trucks (WMTs). The MDSS is a web-based solution available to all MDOTs maintenance facilities for providing weather forecasts, pavement condition forecasts, and maintenance treatment recommendations. The MDSS can provide treatment recommendations and local radar and weather information to the operator of a WMT (with the in-cab display screen). RWIS Data collected in MDSS should be stored for 5 years and be able to be recalled at any point during that time span. This is a formal request to prospective Contractors to solicit bids or price quotations. Contractors must submit written proposals according to the instructions contained within this document, discussing how they will meet the specific requirements.

SCOPE

The Michigan Department of Transportation (MDOT) currently utilizes AVL technology to automatically report vehicle miles driven and engine hours. By monitoring and collecting data from the material controllers and other on-board equipment on the WMTs, additional time and potential error can be eliminated by

automatically collecting and reporting winter material usage and displaying in near real-time the location, material application rates, plow position, current air and pavement temperature of the Departments fleet of WMTs. Also, by communicating this additional operational data from the WMTs to a MDSS provider and receiving maintenance treatment recommendations back from the provider, efficiencies in maintenance operations can be increased.

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

The MDOT owns and operates 345 Winter Maintenance Trucks and around 2,000 vehicles/equipment assets. The vehicle/equipment inventory below is current as of September 28, 2020 but subject to change. The MDOT has grouped the assets into two levels of implementation as described below. The MDOT's initial goal will be to update instrumentation and continue to collect data from all WMTs located throughout the state. The Contractor will utilize any existing AVL equipment as deemed possible by the Contractor and as accepted by the MDOT. It will be up to the discretion of the MDOT when and if the assets in the second group are installed. The non-WMT assets will be instrumented as funding becomes available within the duration of the contract. The numbers of assets listed in the scope are estimates only and the MDOT cannot guarantee that it will purchase these quantities.

1) **Winter Maintenance Trucks** (WMTs) shall receive AVL/GPS equipment and services and must be configured to record and report on the vehicle's operating engine hours, miles driven, and engine idle time. The WMTs will require additional features, such as an interface to the WMTs material application controllers, (Dickey John Control Point, Certified Power, Gresen) to collect material application rates and other operational data, an in-cab display screen and the ability to interface and collect data from other on-board devices such as an air and pavement temperature sensor, and mobile friction sensor/ Mobile RWIS. The MDOT may require the Contractor to perform the removal of existing and installations of new AVL/GPS equipment in all WMTs.

- 345 Winter Maintenance Trucks (WMTs), Currently 340 are equipped with AVL/GPS.

2) **All other assets listed (light, medium, other heavy-duty trucks, and large equipment)** requested by the MDOT shall receive AVL/GPS equipment and services capable of providing the assets operating engine hours, miles driven, engine idle time and location. The non-WMT assets will be instrumented as funding becomes available within the duration of the contract. The numbers of assets listed in the scope are estimates only and the MDOT cannot guarantee that it will purchase these quantities. There is currently no AVL/GPS equipment installed on the assets listed below

- 326 Medium Duty vehicles (1 ton)

- 661 Light Duty cars vans and trucks (under 1 ton)

-151 Other Heavy-Duty Trucks (Miscellaneous large trucks)

-917 Large Equipment (trailers, chippers, graders, etc.)

1. Requirements

1.1. General Requirements

Prior to the Contract being awarded, the pool of responses will be narrowed down to three (3) Contractors. Those Contractors will then be required to perform a

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

demonstration on a WMT to show that their system will meet requirements in the contract.

The Contractor will provide an implementation plan of what equipment could be reused from the existing system and what would need to be replaced. The Contractor should include proposed replacement cycle times for the installed equipment.

Provide the necessary hardware and software package for each vehicle (the numbers listed in the scope are estimates only.) The awarded Contractor will be required to provide pricing for the removal of all current obsolete AVL equipment in the vehicles and installation of all new AVL/GPS equipment. The Contractor will utilize any existing AVL equipment as deemed possible by the Contractor and as accepted by the MDOT. A representative from the MDOT will be on site to assist in the coordination with garage locations. The initial outfit group will include 20 WMTs between two different locations. The Contractor will provide installation plans for all WMT configurations for MDOT approval and will maintain consistency with installations across the state.

The initial 20 WMT AVL packages are to be installed within 15 business days of contract execution. Half (173) of the WMT AVL equipment packages must be installed by August 30th, 2021. The MDOT requests that all 345 WMTs be installed by October 15th, 2021. MDOT will provide the Contractor a priority list of the WMT installation sights. Required data must be collected from WMTs and displayed on website by contractor within 5 days of the installation of the equipment packages.

The non-WMT assets will be instrumented as funding becomes available within the duration of the contract. The numbers of assets listed in the scope are estimates only and the MDOT cannot guarantee that it will purchase these quantities. The Maintenance Decision Support System (MDSS) component of the Contract must be fully operational by October 15th, 2021. The MDSS must display WMTs and their data within 5 days of the installation of the equipment packages. The MDSS must display RWIS data within 5 days of the notification of data flowing from the third part vendor. The MDSS is expected to be used at all 30 MDOT maintenance garages. The MDSS is to be web based along with a mobile application. A secure login must be provided. It is anticipated that up to 500 staff statewide will utilize the MDSS.

RWIS/ESS DATA COLLECTION REQUIREMENTS

The Contractor shall collect and store all data and information generated by the RWIS system and the data shall be the sole property of the State of Michigan to use and distribute. Any secondary distribution of the data and information shall be at the sole discretion of the State. ESS infrastructure is currently installed or planned to be installed in all 7 MDOT Regions.These ESS collect a variety of data that may include: pavement temperature (in-pavement and non-invasive), atmospheric, frost depth, snow depth, traffic, cameras, and/or visibility. Transportation authority's use data from these sensors, additional weather information, and forecasts provided under this contract to make

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

decisions on deploying maintenance crews and determining appropriate pavement treatments. These actions, based on accurate weather forecasts, are critically important to public safety, the State's economy, and the environment. Contractor must meet the requirements of the RWIS/ESS Data Collection section in Schedule C.

The Contractor must provide a secure website with unlimited unique login IDs to display asset current location and previous location (breadcrumb trail), speed, material application rates, plow position for multiple plow types (Front, Underbody, left/right wing, tow plows, etc.) pavement/air temperature readings, dashboard/backup/other potential camera images, liquid application rates, geofencing, logged pre/post trip inspections. The AVL website should also be a Responsive Web Design (RWD), allowing for users to access the site using different devices other than a desktop computer. The Contractor is responsible for data storage, reporting capabilities, and alert capabilities as defined in Schedule C-AVL GPS System Requirements. Website shall be fully operational with all WMTs being displayed and data reporting in accordance with the specifications within 5 business days of installation.

1.2. Training

The Contractor must provide the following training:

1.2.1 General Training Requirements

The first year of the Contract, Contractor is required to provide in-person training for all 7 regions. The requirements of the trainings are listed below. Starting the second year of the contract, the Contractor will provide in-person training at the request of the MDOT. The Contractor will, at minimum, provide training recordings annually that will include topics listed in the below requirements.

a. Contractor shall submit training materials to MDOT project manager for approval at least two (2) weeks in advance of first session.

b. Contractor shall provide training sessions for MDOT technical personnel offering a complete overview of the hardware and software for the AVL, and detailed procedures for troubleshooting problems.

c. Contractor shall provide training for the following seven (7) Region locations:

- Superior Region
- North Region
- Grand Region
- Bay Region
- Southwest Region
- University Region

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- Metro Region

d. The year 1 Annual Training shall be provided at each location after 100% of AVL units for that corresponding Region have been installed.

e. Each training session shall be 6-8 hours in duration, including hands-on troubleshooting.

f. Training shall include hands-on work with the AVL hardware.

g. Contractor provided training shall include review of the operational service manual information.

h. Training shall include access to GUI with demonstrations of fully functioning AVL displaying data, and any applicable troubleshooting procedures.

i. Online reference materials, presentations and videos shall be available to all users.

j. Contractor shall have all attendees sign in on a roster. A copy of the roster will be provided to the MDOT Project Manager within one (1) week of each training session.

1.2.2 Annual AVL GUI & Touchscreen Training (Basic User Level)

a. MDOT will request training and the training shall be approximately three (3) hours in length and shall be provided at least once in each MDOT Region, either in person or virtually, on an annual basis.

b. Classes will be limited to 30-40 participants

c. A video demonstrating and explaining the proper use of the tablets shall be provided

- The video will be no more than thirty minutes in length.
- The video should include a demonstration of the Pre/Post Trip Inspections
- The video will be approved by the MDOT Project Manager.
- The video will be available within 90 days of the tenth (10th) touchscreen installation.
- MDOT will be allowed to make unlimited copies and post on video websites such as YouTube or Vimeo for our own use.

d. A User Guide will be provided and referenced throughout the training.

e. GUI Training will cover:

- AVL and camera image viewing
- How to use menus and tools to view AVL data
- How to do pre/post trip vehicle inspections

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1.2.3 Annual AVL Advanced Training (Supervisors and Superintendents)

a. MDOT will request training and the training shall follow the Basic User Level Training be approximately three (3) hours in length and shall be provided at least once in each MDOT Region, either in person or virtually, on an annual basis.

b. Training will cover:

- AVL and camera image viewing
- How to generate, customize and view reports
- How to customize the GUI for preferred viewing
- Play back historical events
- All functionality that is made available to the MDOT through the Contractor's GUI.
- Any updates to the systems.
- Future version status updates

1.2.4 Annual MDSS Advanced Training (Supervisors and Superintendents)

a. MDOT will request training and the training shall follow the Basic User Level Training be approximately three (3) hours in length and shall be provided at least once in each MDOT Region, either in person or virtually, on an annual basis.

b. Training will cover:

- AVL and camera image viewing
- RWIS data and image viewing
- Truck list views
- Understanding recommendations and forecasting of the system
- How to generate, customize and view reports
- How to customize the website and application for preferred viewing
- Play back historical events
- All functionality that is made available to the MDOT through the Contractor's website or application.
- Any updates to the systems.
- Future version status updates

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1.2.5 Training Demonstration Program

a. The Contractor shall provide three (3) training units and/or software licenses giving the MDOT trainers the ability to perform internal trainings. This program will be a simulation b. Demonstration Program should include every screen that is included in the in-cab display:

- Login screen
- Pre/Post Trip Inspections
- Maintenance Materials
- Radars
- Diagnostics
- Vehicle Data Screens
- MDSS Recommendations, Weather Displays, Operator input, etc.
- General Trouble shooting of the tablets

The Contractor must explain its training capabilities and any training that is included in its proposal. The Contractor must provide documentation and training materials.

2. Services Levels

2.1. Timeframes

All equipment orders must be delivered within 10 business days from receipt of order. The receipt of order date is pursuant to the **Notices** section of the Standard Contract Terms.

2.2. Delivery

Delivery of equipment orders will be expected in full within 10 business days upon date of order. Delivery will be made at Lansing OFS Building, 6333 Lansing Road Lansing, MI, 48917.

3. Acceptance

3.1. Acceptance, Inspection and Testing

The following criteria will be used by the State to determine Acceptance of the Services and Deliverables provided:

The GPS/AVL hardware packages will not be considered accepted until MDOT can verify that all requested data is being transmitted to, processed, and displayed by the contractor on the AVL and MDSS secure web portals.

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MDSS services will be accepted once it is operational and meets the requirements defined in this Contract.

Training and other vendor services will be accepted after completion and all requested materials are delivered to Department staff.

Contractor shall provide additional acceptance criteria as part of their response.

4.Staffing

4.1 Contractor Representative

The Contractor must appoint a Project Manager and list of individuals involved in Staff Support for both in the field and in the office. Individuals, specifically assigned to State of Michigan accounts, who will respond to State inquiries regarding the Contract Activities, answer questions related to ordering and delivery, etc. (the "Contractor Representative"). Bidder must identify its **Contractor Representative**.

The Contractor must notify the Contract Administrator at least 7 calendar days before removing or assigning a new Contractor Representative.

4.2 Customer Service Toll-Free Number

The Contractor must specify its toll-free number for the State to make contact with the Contractor Representative. The Contractor Representative must be available for calls during the hours of 8:00 AM to 5 PM EST.

4.3 Technical Support, Repairs and Maintenance

The Contractor must specify its toll-free number for the State to make contact with the Contractor for technical support, repairs and maintenance. The Contractor must be available for standard calls and service during the hours of 7 am to 6 pm EST beginning November 1st thru April 30th. From May 1st thru October 31st, Contractor must be available for standard calls and service during the hours of 8am to 5pm EST.

When providing technical support, the Call Center must resolve the caller's issue within 30 minutes. If the caller's issue cannot be resolved within 8 hours, on-site service may be scheduled per the MDOT's request. The on-site service must be performed within 48 hours of the time the issue was scheduled for service.

4.4 Work Hours

The Contractor must provide Contract Activities during the State's normal working hours Monday – Friday, 7:00 am to 6:00 pm EST and possible night and weekend hours depending on the requirements of the project.

4.5 Key Personnel

The Contractor must appoint individuals who will be directly responsible for the day-to-day operations of the Contract ("Key Personnel"). Key Personnel must be specifically

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assigned to the State account, be knowledgeable on the contractual requirements, and respond to State inquiries within 8 hours.

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. The State may require a 30-calendar day training period for replacement personnel.

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 the **Termination for Cause** section of the Standard Contract Terms. It is further acknowledged that an Unauthorized Removal will interfere with the timely and proper completion of this Contract, to the loss and damage of the State, and that it would be impracticable and extremely difficult to fix the actual damage sustained by the State as a result of any Unauthorized Removal. Therefore, Contractor and the State agree that in the case of any Unauthorized Removal in respect of which the State does not elect to exercise its rights under Termination for Cause, Contractor will issue to the State the corresponding credits set forth below (each, an "Unauthorized Removal Credit"):

(i) For the Unauthorized Removal of any Key Personnel designated in the applicable Statement of Work, the credit amount will be $25,000.00 per individual if Contractor identifies a replacement approved by the State and assigns the replacement to shadow the Key Personnel who is leaving for a period of at least 30-calendar days before the Key Personnel's removal.

(ii) If Contractor fails to assign a replacement to shadow the removed Key Personnel for at least 30-calendar days, in addition to the $25,000.00 credit specified above, Contractor will credit the State $833.33 per calendar day for each day of the 30-calendar day shadow period that the replacement Key Personnel does not shadow the removed Key Personnel, up to $25,000.00 maximum per individual. The total Unauthorized Removal Credits that may be assessed per Unauthorized Removal and

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failure to provide 30-calendar days of shadowing will not exceed $50,000.00 per individual.

Contractor acknowledges and agrees that each of the Unauthorized Removal Credits assessed above: (i) is a reasonable estimate of and compensation for the anticipated or actual harm to the State that may arise from the Unauthorized Removal, which would be impossible or very difficult to accurately estimate; and (ii) may, at the State's option, be credited or set off against any fees or other charges payable to Contractor under this Contract. 4.5.1 The Contractor must identify all Key Personnel that will be assigned to this contract and include the following:

1. Name and title of staff that will be designated as Key Personnel.

2. Key Personnel years of experience in the current classification.

3. Identify which of the required key personnel positions they are fulfilling.

4. Key Personnel's roles and responsibilities, as they relate to this Contract, if the Contractor is successful in being awarded the Contract. Descriptions of roles should be functional and not just by title.

5. Identify if each Key Personnel is a direct, subcontract, or contract employee.

6. Identify if each Key Personnel staff member is employed full-time (FT), part-time (PT) or temporary (T), including consultants used for the purpose of providing information for the proposal.

7. List each Key Personnel staff member's length of employment or affiliation with the Contractor's organization.

8. Identify each Key Personnel's percentage of work time devoted to this Contract.

9. Identify where each Key Personnel staff member will be physically located (city and state) during the Contract performance.

4.5.2 The Contractor must provide **detailed, chronological resumes** of all proposed Key Personnel, including a description of their work experience relevant to their purposed role as it relates to the Contract.

Qualifications will be measured by education and experience with particular reference to experience on projects similar to that described in the Contract.

4.6 Organizational Chart

The Contractor must provide an overall organizational chart that details staff members, by name and title, and subcontractors.

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4.7 Disclosure of Subcontractors

If the Contractor intends to utilize subcontractors, the Contractor must disclose the following:

4.7.1The legal business name; address; telephone number; a description of subcontractor's organization and the services it will provide; and information concerning subcontractor's ability to provide the Contract Activities.

4.7.2 The relationship of the subcontractor to the Contractor.

4.7.3 Whether the Contractor has a previous working experience with the subcontractor. If yes, provide the details of that previous relationship.

4.7.4 A complete description of the Contract Activities that will be performed or provided by the subcontractor.

4.8 Security

The Contractor will be subject the following security procedures:

The Contractor must explain any additional security measures in place to ensure the security of State facilities. The State may require the Contractor's personnel to wear State issued identification badges.

The Contractor's staff may be required to make deliveries to or enter State facilities. The Contractor must: (a) explain how it intends to ensure the security of State facilities, (b) whether it uses uniforms and ID badges, etc., (c) identify the company that will perform background checks, and (d) the scope of the background checks.

4.9 Access to Tax Information

The Contractor must comply with the requirements of *IRS Publication 1075* (including *Exhibit 7 Safeguarding Contract Language*) and *Michigan Department of Treasury Safeguard Requirements of Confidential Tax Data*.

5 Project Management

5.1 Project Plan

The Contactor will provide a project implementation and equipment plan. This plan should include options, such as if the Contractor determines that portions of the existing AVL system can be reused and how that would change the removal and installation timelines.

5.1.1. Implementation Plan-The Contractor provide as an attachment to their proposal a detailed plan on how they will assemble and establish the resources necessary to meet the requirements of this CONTRACT starting on the first day of Contract execution. The plan addresses the Contractors available resources as well as planned activities to provide the necessary resources including, but not limited to equipment,

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materials, staffing, and facilities needed to successfully meet all Contract requirements. Included in the implementation plan specifically address how the Contractor will meet instrumentation and data reporting criteria in section 1.1 General Requirements. Implementation plan must also describe if the contractor proposes use of any existing AVL equipment along with a proposed schedule on when contractor recommends all WMTs should be instrumented with new (Contractor) equipment. Implementation plan must also detail the contractors proposed AVL and sensor components including expected service life for each component and replacement schedule for each. MDOT reserves the rights to reject all or any portions of the contactor implementation plan. The Contractor implementation plan must also state that the contractor is capable of providing all new equipment for instrumentation and data reporting criteria listed in section 1.1 General Requirements. Schedule G – Parsons Draft Project Implementation Plan has been added to the end of this Contract.

5.1.2. System Maintenance and Operations Plan-The Contractor provide as an attachment to their proposal a detailed maintenance and operations plan that serves as the overall work plan for the Contractor to meet the performance requirements for all equipment and services under contract. The plan will detail resources and processes employed to resolve any data reporting or display issues for any vehicle's AVL equipment. Plan should include monitoring and reporting of all data elements for each vehicle's AVL setup, as well as steps contractor will take to correct gaps in data reporting and system display. The plan also demonstrates the Contractors understanding and acceptance to the Service Level agreements as evaluated by MDOT.

The Contractor will carry out this project under the direction and control of the Program Manager. Within 30 calendar days of the Effective Date, the Contractor must submit a project plan to the Program Manager for final approval. The plan must include: (a) the Contractor's organizational chart with names and title of personnel assigned to the project, which must align with the staffing stated in accepted proposals; and (b) the project breakdown showing sub-projects, tasks, and resources required. Schedule H – Parsons Draft Project Management Plan has been added to the end of this Contract.

5.2 Meetings

The Contractor must attend the following meetings:

- Kickoff meeting
- Progress Report meetings (first 20 installs, halfway, etc.)
- Bi-Weekly Project Meetings between the MDOT and the Contractor and its Subcontractors (AVL and MDSS providers)

The State may request other meetings, as it deems appropriate.

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5.3 Reporting

The Contractor must explain its reporting capabilities and any reporting that is included in its proposal. In addition, provide samples of required reports as attachments to this Contract.

6 Pricing

6.1 Price Term

Pricing is firm for a 365-day period ("Pricing Period"). The first pricing period begins on the Effective Date. Adjustments may be requested, in writing, by either party and will take effect no earlier than the next Pricing Period.

6.2 Price Changes

Adjustments will be based on changes in actual Contractor costs. Any request must be supported by written evidence documenting the change in costs. The State may consider sources, such as the Consumer Price Index; Producer Price Index; other pricing indices as needed; economic and industry data; manufacturer or supplier letters noting the increase in pricing; and any other data the State deems relevant.

Following the presentation of supporting documentation, both parties will have 30 days to review the information and prepare a written response. If the review reveals no need for modifications, pricing will remain unchanged unless mutually agreed to by the parties. If the review reveals that changes are needed, both parties will negotiate such changes, for no longer than 30 days, unless extended by mutual agreement.

The Contractor remains responsible for Contract Activities at the current price for all orders received before the mutual execution of a Change Notice indicating the start date of the new Pricing Period.

7 Ordering

7.1 Authorizing Document

The appropriate authorizing document for the Contract will be a Delivery Order through Sigma.

8 Invoice and Payment

8.1 Invoice Requirements

All invoices submitted to the State must include and each page: (a) date; (b) Service Dates of Invoice (c) Contractor and MDOT addresses (d) Invoice and Contract Number (e) quantity; (f) description of the Contract Activities (including correct Commodity

codes); (g) unit price; and (h) total price. Overtime, holiday pay, and travel expenses will not be paid.

8.2 Payment Methods

The State will make payment for Contract Activities using EFT or, if approved by the Chief Procurement Officer, P-Card.

8.3 Reserved

9. Service-Level Agreements (SLAs)

A. The Contractor will be held accountable to meet the requirements and the service level requirements established in this Contract.

B. The State reserves the right to reconsider or amend SLA amounts for split awards should they occur.

C. **Please Note**: Should Contractors have any questions or requirement clarification with regard to the SLAs, they should submit them during the *Question-and-Answer Period* of this solicitation, please see the **Proposal Instructions** for the timeline.

Service Level Agreements for this Contract will be as follows:

SLA Metric 1. Timely Deliveries	
Definition and Purpose	All equipment orders must be delivered within 10 business days of receipt of order. The Contractor must ensure that items and quantities delivered are exactly the items, brands, and quantities on the Order Confirmation. No substitutions will be allowed without prior written permission by Program Manager and a Change Notice executed by the Contract Administrator. The entire order will be received on the same day unless a partial delivery has been approved in advance by the Program Manager.
Acceptable Standard	1. All deliveries must occur in accordance with the approved delivery schedule for each Facility and Facility Receiving hours. See Standard Contract Terms Section 17 and Schedule A Section 2 Service Levels.

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SLA Metric 1. Timely Deliveries	
	2. Contractor must follow delivery practices from their approved Implementation plan, unless otherwise approved by MDOT. 3. Extenuating circumstances must be communicated by the Contractor to the Program Manager prior to the scheduled delivery date and time. 4. Items, brands, and quantities delivered will match the Order Confirmation exactly. 5. Signed and dated packing slips will be provided to the MDOT at the time of delivery. 6. The entire order must be delivered on the same day unless a partial delivery has been approved in advance by the Program Manager. 7. It is not the intent of the MDOT to place large quantity orders and hold the entire order to the 10-business day metric. It is however expected that the Contractor maintains on hand inventory to better ensure delivery time can be met for smaller orders. 8. Orders not received in their entirety, as determined by a review of the Data Sources, will be considered inaccurate. The acceptable standard is 100% compliance
Credit Due for Failing to Meet the Service Level Agreements	1. $500.00 may be assessed for each order that does not meet the above criteria. 2. $100.00 may be assessed for each additional business day beginning on the 11th business day. Extenuating circumstances will be reviewed by the Program Manager before any Service Credits are assessed. At the discretion of the State, these credits may be applied toward any payable due to the Contractor or be payable directly to the State. Payments made directly to the state will be completed within 10 days of notice of assessment.

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SLA Metric 2. Data Integrity	
Definition and Purpose	Ongoing Data integrity is data accuracy and consistency over its entire life cycle. The Contractor must ensure that data is being transmitted properly and meets the requirements of the Contract. The Contractor must provide equipment and software that is capable of reporting data and meets the requirements of the Contract.
Acceptable Standard	1. The Contractor is responsible of ensuring that the system is capable of meeting the desired requirements of the Contract. 2. System requirements refer to both the reporting and display of required information to the entire system, as well as complete reporting and display of all required data for each vehicle. 3. Extenuating circumstances must be communicated by the Contractor to the Program Manager if solution cannot be reached within the desired timeframe. 4. All software and its updates must be in working order. (Upgrades to sensors, GPS, Cell, Spreader Controller, etc) 5. Contractor is responsible for monitoring data flow and recognizing when there is an issue. Upon recognition of a software issue, by the Contractor or by the MDOT, the Contractor must resolve the issue within 5 business days. 6. If it is determined that equipment must be returned to the contractor for updates or repairs, replacement equipment should be provided to MDOT at no cost, in order to maintain data integrity for each vehicle. Data integrity issues are not resolved until vehicle is reporting complete data on system. 7. Contractor must remedy data integrity issues according to their Maintenance and Operations plan, unless otherwise approved by MDOT. The acceptable standard is 98% compliance (of total WMTs) during winter months and 95% compliance (of total WMTs) during the summer months. (Winter and Summer month timeframes defined in Schedule C Category 2.6)
Credit Due for Failing to Meet the	1. $100.00 may be assessed for each vehicle occurrence that does not meet the above criteria.

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SLA Metric 2. Data Integrity	
Service Level Agreements	2. $50.00 may be assessed for each vehicle occurrence for each additional business day beginning on the 6th business day. Extenuating circumstances will be reviewed by the Program Manager before any Service Credits are assessed. At the discretion of the State, these credits may be applied toward any payable due to the Contractor or be payable directly to the State. Payments made directly to the state will be completed within 10 days of notice of assessment.

10 Data Security Requirements

10.1 Data Security Requirements

The State has established Information Technology (IT) PSPs (Policies, Standards and Procedures) to protect IT resources under the authority outlined in the overarching State 1305.00 Enterprise IT Policy. 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 public and non-public State IT policies and standards. Please Refer to Schedule F, Data Security Requirements.

Schedule B- Pricing

	Description	Estimated Contract Quantity	Unit	Estimated Contract Quantity (5 yr)	Unit Price	Extended Price (5 yr)	Note
	Estimated Annual Contract						
1	Old Unit Removal by Contractor Tier 1 Locations (Assuming 1 hour per truck)	NA	HR	NA	$92.00		The removal of previous system equipment that cannot be reused by the Contractor for the new system. Must meet the requirements of the Contract.
2	New Unit Installation by Contractor Tier 1 Locations (Assuming 4 hours per truck)	NA	HR	NA	$92.00		The installation of new system by the Contractor, per the request of the MDOT. Must meet the requirements of the Contract.
4	Old Unit Removal by Contractor Tier 2 Locations (Assuming 1 hour per truck)	NA	HR	NA	$156.00		The removal of previous system equipment that cannot be reused by the Contractor for the new system. Must meet the requirements of the Contract.
5	New Unit Installation by Contractor Tier 2 Locations (Assuming 4 hours per truck)	NA	HR	NA	$156.00		The installation of new system by the Contractor, per the request of the MDOT. Must meet the requirements of the Contract.
6	WMT AVL Package	345	EA	NA	$2,464.39	$850,214.55	For Winter Maintenance Trucks (WMT's). Larger AVL controller with modem with larger onboard storage capacity and more sensor ports. Also includes sensors and wiring harness, miles, air and pavement temp., blade configurations up/down, gate/flow meter, spreader controller/material type/rate. Must be capable of accepting sensors for additional metrics in the future. Must meet the requirements of the Contract.
7	Non-WMT AVL Package	2000	EA	NA	$275.46	$550,920.00	For Non-Winter Maintenance Trucks (WMT's). Includes smaller AVL controller with modem and on board storage. Also includes sensors and wiring to monitor engine hours and miles traveled. Must be capable of accepting sensors for additional metrics in the future. Must meet the requirements of the Contract.
8	In cab display screens (Tablets - 8-inch, Samsung Tab Active 3)	NA	EA	NA	$881.09		Optional touch screen, wiring, and harness for WMT's. Must meet the requirements of the Contract.
9	In cab display screens (Tablets - 8-inch, Samsung Tab Active 2)	345	EA	NA	$781.59	$269,648.55	Optional touch screen, wiring, and harness for WMT's. Must meet the requirements of the Contract.
10	In cab display screens (10" Tablets)	NA	EA	NA	$967.34		Optional touch screen, wiring, and harness for WMT's. Must meet the requirements of the Contract.
11	Video Camera Recorders (Cameras)	345	EA	NA	$121.90	$42,055.50	Optional front view camera and wiring for WMT's with ability to mount camera in different locations (rear/wing facing). Must meet the requirements of the Contract.
12	Wing Plow Blade Sensor	1	EA	NA	$258.24		Optional Wing plow blade sensor to track blade usage (up/down). Must meet the requirements of the Contract.
13	Underbody Hydraulic Plow Blade Sensor	1	EA	NA	$142.83		Optional Underbody plow blade sensor to track blade usage (up/down). Must meet the requirements of the Contract.
	Communications						
14	High Cellular Use (Winter Months/WMTs)	2,070	MO	10,350	$20.80	$215,280.00	For WMT's during the winter months (345 WMT * 6 month = 2070). To keep website and MDSS within 1 minute of real-time conditions. Data provider invoices

15	Low Cellular Use (Non-Winter Months/WMTs)	2,070	MO	10,350	$11.56	$119,646.00	For WMT's during the non-winter months (345 WMT * 6 month = 2070). To keep website and MDSS within 1 minute of real-time conditions. Data provider invoices
16	Low Cellular Use (Non-WMTs)	24,000	MO	120,000	$11.56	$1,387,200.00	For Non-WMT's year round (2000 Non-WMT * 12 month = 2070). To keep website and MDSS within 1 minute of real-time conditions. Data provider invoices
	MDSS						
17	Weather Forecasting Services	12	MO	60	$25,025.15	$1,501,509.00	Forecasting, Decision support tools, license fees, etc.
18	Annual MDSS Website/App Usage Training Virtual	1	EA	35	$1,380.00	$48,300.00	Must meet the training requirements of the Contract
19	Annual MDSS Website/App Usage Training - In Person (1 Trainer for 7 days)	1	EA	NA	$12,822.50	$12,822.50	Must meet the training requirements of the Contract. Price is for one trainer for seven days.
20	Winter Weekly Weather Outlook Videos	26	EA	130	$530.77	$69,000.10	Weekly Weekend outlooks for the Regions. Should be provided by close of business every Thursday from November 1st.
21	MDSS Route Configuration	226	EA	NA	$295.76	$66,841.76	One time set up of maintenance route parameters to represent adjacent routes. It is aniticpated that 5-15 primary routes will be required per MDOT garage location/geographical region (routes will be determined by the MDOT). MDSS routes must be configured for the MDSS to be considered functional.
22	Monthly MDSS Webside Management Per Truck	2,070	MO	10,350	$23.00	$238,050.00	For WMT's in winter months. To proivide treatment recommendations and monitor parameters for each WMT (345 WMT * 6 month = 2,070)
	Vendor Services						
23	Project Management	12	MO	60	$5,795.50	$347,730.00	Monthly fee for managing aspects of the contract including reports, orders, monitoring system, and invoices.
24	Technical Assistance Service	12	MO	60	$4,673.73	$280,423.80	Monthly fee for troubleshooting issues with website(s), equipment, data needs, etc. Remote assitance within one hour of problem detected. On-Site support when needed in accordance with the requirements of the Contract.
25	AVL Website Training	1	EA	35	$995.00	$34,825.00	Training program software and yearly trainings in accordance with the requirements of the Contract.
26	AVL Data Storage	12	MO	60	$7,181.33	$430,879.80	Monthly fee for storing all requested data off MDOT vehicles, on Vendor Servers. Unlimited data capacity is included in this item. Must meet the data storage requirements of the Contract.
27	RWIS Data Services System Management and Enhancements	12	MO	60			Monthly fee for program management and enhancements of storing all requested data off RWIS, on Vendor Servers. Unlimited data capacity is included in this item. Must meet the data storage requirements of the Contract.
28	RWIS Data Services and Storage	12	MO	60	$6,066.25	$363,975.00	Monthly fee for storing all requested data off RWIS, on Vendor Servers. Unlimited data capacity is included in this item. Must meet the data storage requirements of the Contract.

Notes:

List of Tier 1 and 2 Garages included in Listings below

Line 1, Old Unit Removal: Price is for Tier 1 Locations and hourly work charge only. Extra half hours are $46. Mileage is $46 per hour portal to portal.

Line 2, New Unit Installation: Price is for Tier 1 Locations and hourly work charge only. Extra half hours are $46. Mileage is $46 per hour portal to portal.

Line 3, Old Unit Removal: Price is for Tier 2 Locations and hourly work charge only. Extra half hours are $78. Mileage is $46 per hour portal to portal.

Line 4, New Unit Installation: Price is for Tier 2 Locations and hourly work charge only. Extra half hours are $78. Mileage is $46 per hour portal to portal.

Line 12, Wing Plow Blade Sensor: minimum purchase quantity is 10.

Line 13, Underbody Hydraulic Plow Blade Sensor: minimum purchase quantity is 40.

Line 17, Weather Forecasting Services: This includes pricing for operation of 400 routes as required in the Contract, support 500 individual users within WebMDSS.

Line 18, Annual MDSS Website/App Usage Training: On site training quote will be provided upon request, but this price is for virtual training. $1380 for each virtual session for 7 districts = $9660.

Line 21, MDSS Route Configuration: 174 routes are currently set up in MDSS and this charge would be to configure new routes, not all routes will need to be newly configured esimating 226 (400-174)

Line 25, AVL Website Training: On site training quote will be provided upon request, but this price is for virtual training. $995 for each virtual session for 7 districts = $6,965.

Line 27, RWIS Data Services System Management: pricing included in line 28.

Line 28, RWIS Data Services and Storage: support for 150 RWIS.

Truck Listing

Bay Region	**Tier 2**
Mt. Pleasant	12
Saginaw East	19
Saginaw West	12
Blue Water Bridge	6
	49
Grand Region	**Tier 1**
Reed City	9
Marion	5
Hastings	11
Plainwell	10
Fennville	11
	46
Metro Region	**Tier 2**
Detroit	17
	17
North Region	**Tier 1**
Kalkaska	8
Atlanta	6
Mio	8
	22
Superior Region	**Tier 2**
L'Anse	10
Houghton	10
St. Ignace	14
Engadine	5
	39

Trucks	
Contingency Trucks	53
Permanent Trucks	292
TOTAL	345
Spreader Controllers	
Control Point	216
FR4110064	1
Gresen	5
ICS2000	10
Certified Power	111
Other	2
TOTAL	345
Snowplow Blades	
Underbody Blades	345
Wing Blades	311
TOTAL	656

Southwest Region	**Tier 1**
Marshall	5
Kalamazoo	15
Coloma	20
Jones	11
South Haven	8
Niles	15
Sawyer	9
	83
University Region	**Tier 2**
Grand Ledge	22
Williamston	15
Charlotte	13
Mason	9
Brighton	19
Adrian	11
	89

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

Requirements listed below are minimum specifications for the AVL-GPS System and Services

Category 1	Equipment
	General
C.1.1	Vehicle Mounted Hardware – All equipment must be solid state with no moving parts such as fans and all communication hardware shall be fully integrated into the housing with no openings. The unit will be enclosed by a ruggedized case.
C.1.2	All equipment must be “off the shelf” and currently used by other agencies/ groups for AVL.
C.1.3	All equipment shall be uniform within the two asset classifications (WMT and Non-WMT) and must be operational across all vehicle types.
C.1.4	System Data Storage - The system must support at least 1 GB flash memory for storage of data over extended periods of power loss or 48 hours of observations whichever is greater. (This allows for storing all readings until 802.11 b/g or GPRS coverage is re-established then transmitting the stored data to provide an updated history of the vehicle.)
C.1.5	Delayed Data Transmission - The system must provide *Store and Forward* capabilities capable of storing over 1 GB of information while out of cellular communications coverage and automatically forwarding the same when back in coverage. (System collects vehicle activity data and geo-stamp data and stores onboard until data can be securely transmitted to provide a detailed historical record of activity while in the field.)
C.1.6	Power Loss - The system must provide ability to detect and report previous power loss if unit is disconnected then reconnected. (This report is if someone were to disable the system during their shift whether inadvertent or intentional.)
C.1.7	Power – The unit shall run off the vehicles power system.
C.1.8	Upon vehicle ignition, the vehicle will automatically report to the system. No operator interface will be necessary to begin transmitting position and sensor data. All information on vehicle status shall be stored and accessible on through an online database
C.1.9	AVL control unit must feature a power management feature or “sleep mode” and/or “Charge guard”. This is to ensure that the

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	vehicle battery is not discharged, after the vehicle is turned off. The current draw (Amps) of the AVL package must be minimal and allow for vehicles to sit unused for up to 2 months without discharging battery.
C.1.10	Power Surge/Failure – Unit shall have built in protection from low and high voltages.
C.1.11	System Operation - System must meet SAE J1455 environmental specifications and provide +/- 25g shock rating (Provides a ruggedized solution in the high abuse environment that system will be used in.) Operating temperature shall be in the range from -40 F to 150 F and operating humidity up to 95%.
C.1.12	The unit will produce low heat and have a low power consuming processer with a minimum processing speed of 1 Ghz.
C.1.13	GPS unit shall be satellite based GPS with WAAS enhanced accuracy. There will be a 12-parallel channel, Wide Area Augmentation System (WAAS) enabled GPS receiver.
C.1.14	GPS receiver must be accurate to less than 2 meters.
C.1.15	GPS output interval shall be programmable as determined by the Department with collection intervals at least once every second. The ability to remotely configure collection intervals on GPS units shall be available.
C.1.16	Remote Updates - System must support over-the-air firmware updates. (This allows for updating the system without the need to physically connect to each unit to manually update them.)
C.1.17	GPS and Cell Antenna – The antenna shall be external to the system. Newly installed Antennas will utilize existing modifications (holes, etc.) that previously installed equipment used. Any new/additional modifications required must receive MDOT approval.
C.1.18	Universal Time – System will synchronize both the unit and database to the universal time clock and time stamp all data collected.
C.1.19	System Operation – The system shall transmit from all integrated sensors simultaneously with the timestamp.
C.1.20	All connections between sensors and equipment must be hard-wire ruggedized connections.
C.1.21	System must not interfere with Original Equipment Manufacturer (OEM) electronics

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.1.22	Sensor Output – Capable of sending sensor data in its original format for data integrity and/or processing controller, camera and/or other data for in vehicle display and other purposes.
C.1.23	The system must be able to interface to on-board discrete sensor inputs and 3rd party data logging systems simultaneously.
C.1.24	The AVL control unit must be able to communicate with on-board equipment sensors installed on the vehicle to report their present status and changes to their status in real-time. The sensors, such as proximity switches, infrared, magnetic read switches, micro limit switches or equivalent must be able to communicate their present status to the equipment with necessary cabling connected to onboard equipment when required.
C.1.25	The AVL system shall be programmable in common full programming language such as JAVA, to accept input from sensors provided by the contractor, or third party.
C.1.26	Additional Software – The system will be capable of carrying additional VPN software at the department's discretion.
C.1.27	Troubleshooting – the system shall have self-diagnostic capabilities to facilitate troubleshooting and maintenance activities.
C.1.28	Warranty – The system shall be warranted for a two-year period following installation and final acceptance of each package as defined in the Contract
C.1.29	The system must allow for future enhancements that can allow for easy configuration, expansion, and scalability. (examples include additional sensors, control units, hardware)
C.1.30	System Transfer – The AVL system must allow for transferal to replacement vehicles with minimal reprogramming and downtime. If a memory chip is used, there must be easy access to it should its replacement or reprogramming be necessary.
	Non-WMT Package Only
C.1.31	*Non-WMT Package AVL Control Unit*: Simple Tracking unit must at a minimum be able to interface to two (2) inputs.
	WMT Package Only
C.1.32	*WMT Package AVL Control Unit (with on-board systems integration functionality)*: AVL control unit must at a minimum be able to interface at least 16 digital sensor inputs, four (4) analog to digital input, four (4) dedicated outputs, two (2) RS232 communication Ports, two (2) USB Ports, and an Ethernet port.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.1.33	System Display Screen – Internally configured to support an in-vehicle display screen, whether screen is used or not.
C.1.34	The display screen shall be sized a minimum of 6 x 8 inches.
C.1.35	In cab display system controls- Any operator controls for the display screen must only be allowed to function when the vehicle is stopped or traveling less than 3 mph.
C.1.36	The AVL system shall include sensors able to collect data from the spreader controller or other supplemental equipment for the following data:
a.	Plow Sensor (front plow, wing, underbody, tow plow)
b.	Pavement Temperature and Ambient Sensor
c.	Auger Feedback Sensor
d.	Gate Sensor
e.	Hydraulic Flow Meter Sensor
f.	Material Flow Meter Sensor (to monitor if material is dispensing from WMT and to verify spreader controller).
C.1.37	For all salt spreader controls, the data should be collected, stored and reported whenever a change to any of the following fields occurs: solid material type (e.g. salt/sand), solid material spread rate, solid material spread width, gate setting, blast on/off, pause on/off, liquid material spread rate, prewet on/off, and error status – depending on the availability for the particular spreader controller.
C.1.38	The system shall be capable of interfacing to the vehicle's on-board computer to collect engine data available via OBDII and the SAE standard J1708/1587, CANBUS, and J1939 networks. Such information may include but not be limited to: • Engine Speed; • RPM; • Coolant Temperature; • Fuel Level; • Trip Fuel; • Oil Pressure; and • Battery Voltage.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.1.39	If Engine Hours and Odometer values are unavailable from the vehicle's on-board computer, the system must be able to calculate virtual Odometer and Engine Hours based on the reporting of the vehicle and GPS distance. However, the system must provide user-configurable odometer and hour meter synching to the vehicle's actual odometer and hour meter. On board odometer and hour meter takes precedence over any virtual data.
C.1.40	Spreader Controller Integration – The system must integrate with Dickey John Control Point and Certified Power controllers and the AVL modem. Any modification to the system is at the expense of the contractor.
C.1.41	The system shall allow for an optional front mount camera to be powered from the AVL. The system should also allow for the potential addition of a rear facing camera or backup camera be displayed in the cab.
C1.42	The system should store truck images at a rate of 1 per minute and for a period of at least 24 hours.

Category 2	**Communications**
C.2.1	Communications – The communications technology that is dual mode – functional on 802.11 b/g and 4G network (as well as backwards compatibility with 3G and flexibility to scale up to 5G when it becomes the network standard). System must include all necessary hardware items, processors, antennas, etc. (This provides the flexibility to use either 802.11 b/g wireless or GPRS to do automatic data downloads if necessary.)
C.2.2	Data Transfer – Unit shall transmit data using the TCP/IP protocol. All services used shall be RFC compliant.
C.2.3	Cellular communications – The unit shall be able to operate on multiple major cellular carriers and or private networks, in different parts of the state, with the simple replacement of the communications module. If the unit is no longer able to communicate properly due to being "out of date" or obsolete, the necessary equipment shall be replaced at the cost of the Contractor.
C.2.4	Cellular Coverage - The AVL system must be able to transmit data from at least 90% of the MDOT roadway network across the state.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.2.5	Non-WMT Communications– The Cellular data plan must allow for data transmittal to the mapping website at least once per day for non-WMTs from January 1st thru December 31st
C.2.6	WMT Communications– The Cellular data plan must allow for data transmittal to the mapping website at least once per day for WMTs during non-winter months, defined as being from April 30th to October 31st. The cellular data plan must allow for data transmittal to the MDSS provider and the mapping website(s) to be at least 60 seconds within real time conditions for WMTs during winter months, which is defined as being from November 1st thru April 30th. The definition of winter, and non-winter months is subject to change by the MDOT.
C.2.7	Communications – Capable of using and changing carriers by changing carrier connection card or module without changing or replacing unit or other equipment.
C.2.8	Communications – Capable of migrating to next generation communication technologies with change of connection card or module without changing or replacing unit or other equipment. If the unit is no longer able to communicate properly due to being "out of date" or obsolete, the necessary equipment shall be replaced at the cost of the Contractor.
C.2.9	Vehicle remote configuration must be web browser based, which is capable of logging into the AVL control unit to: • Set distance and time reporting intervals • Set destinations for data communications • Detect Sensor status changes and expansion of devices
C.2.10	2-way communication capabilities – provide capability to send messages and images to the vehicle as well as receive data and images from the vehicle when 2-way communication equipment is installed in vehicle.
C.2.11	Individual vs. Group/Fleet messaging – When 2-way communication is set up with vehicle it will provide messaging capabilities for one, all or groups of trucks, without use or additional cost of "text messaging".
C.2.12	The data from the equipment to the database shall include the following near real- time as well as recorded historical information, a) Vehicle speed, direction and location, b) Engine on or off, c) Engine idling vs. running time comparisons, d) Time and distance by each monitored sensor, e) Stop time data.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

Category 3	MDSS (also refer to Schedule E-MDSS System Requirements)
C.3.1	MDSS Integration
C.3.1.1	In vehicle mobile data collection units with integrated maintenance decision support systems, in accordance with these Specifications – The unit shall be of such design and construction as to comply with the requirement hereinafter stated and any parts or attachments necessary to form a complete, functioning unit must be furnished, whether specifically mention herein or not.
C.3.1.2	MDSS should display all truck sensor information including but not limited to, plow up/down, temperature, spreader controller, camera, etc.
C.3.1.3	Required NTCIP Compliance – All equipment and software must be compliant with the latest NTCIP standard 1204.
C.3.1.4	All costs to enable proper communication between the MDSS and weather forecasting provider and the optional in vehicle display screen will be borne by the contractor. The in-vehicle display screen shall display local radar, short term weather forecast and recommended maintenance treatment.
C.3.1.5	The MDSS shall also conform to specifications detailed in Schedule E
C.3.1.6	Provide Truck camera image historical data available at 5 min intervals.
C.3.2	a. The Contractor shall demonstrate an understanding of Michigan weather b. and climatology, as well as a thorough knowledge of winter weather patterns and the variations within the State. The Contractor shall demonstrate an understanding of MDOT's trunk line system and its winter maintenance practices. c. The weather forecasting system shall include integrated MDSS functionality to support appropriate road maintenance actions that result in optimal road surface results with efficient use of resources for specific weather conditions. Treatment recommendations shall be provided for each hour of the forecast when indicated by the current and future pavement and weather forecast parameters.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	d. The system shall support the FHWA Pavement Recommendation Rules of Practice regime as the default treatment recommendations for specific weather situations. It shall also allow users to incorporate their own customized treatment plan recommendations to reflect individual best practices in chemical application, timing, type, and rate as well as plowing actions. Users must also be able to select the appropriate route cycle times or times for their routes. Treatment recommendations must be provided for the next 48 hours to indicate required actions prior to, during, and after a storm.
C.3.3	All forecasts provided by the Contractor will become the property of the Department. The Department may, at its discretion, share the forecast with other agencies as appropriate. A unique forecast shall be provided for each Region. The Contractor will provide a weekly 3-5 minute forecast video, showcasing functions from the MDSS service and describing weather impacts to state road network. Secure video links to be distributed by vendor through a list serve to all MDSS users. The video should provide a weekly weekend outlook, from November 1st thru April 30th, and showcase the weather forecast and potential route recommendations in each Region. The video clip should be sent to the MDOT users list no later than close of business on Thursdays.
C.3.4	Maintenance Decision Support tools including road treatment recommendations will be required November 1st through April 30th, unless otherwise instructed by the MDOT.
C.3.5	Short-Term Forecasts Nov 1 to April 30 only- Shall be provided in accordance with Attachment E-MDSS System Requirements.
C.3.6	Long-Term Forecast shall be provided once daily and shall cover a period of 1 to 10 days. The long-term forecast shall be provided year-round.
C.3.7	A system shall be provided that allows a user to obtain all forecast and treatment data, both in the office and at home, through an internet connection always.
C.3.8	Forecasting parameters shall be selectable enabling each one to be turned on or off.
C.3.9	Forecasts shall be displayed hourly for 48 hours and daily for 10 days.
C.3.10	Users shall be able to select customizable alerts for specific weather data or sensor data. Limits shall be selectable for each

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	alert. Users will have the option of getting alerts via text, phone, or email
C.3.11	RWIS/ESS DATA COLLECTION a. System shall be capable of collecting data for up to 150 ESS within the State of Michigan via an API. These sites may be owned by MDOT or another road authority. These sites may contain equipment from various vendors. b. System shall be flexible or open enough to permit upgrades to future devices to NTCIP interface standards. c. Data and archived data shall be exportable to a spreadsheet or database that is accessible by MDOT. d. All data and information derived from that data generated by the RWIS system shall be the sole property of the State of Michigan to use and distribute. Any secondary distribution of the data and information shall be at the sole discretion of the State.
C.3.12	RWIS DISPLAY a. MDOT will supply access to the Remote Processing Unit (RPU) Internet Protocol (IP) addresses at all ESS sites. b. The following parameters shall be displayed: **Parameter Units**

Parameter	Units
Pavement Temperature	°F
Bridge Deck Temperature	°F
Pavement Condition	Note[1]
Probability of frost	%
Air Temperature	°F
Dew Point Temperature	°F
Relative Humidity	%
Barometric Pressure in Hg	in Hg

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

		Wind Direction	Cardinal pts. or degrees
		Wind Speed	Mph
		Wind Gust Speed	Mph
		Wind Gust Direction	Cardinal pts. or degrees
		Precipitation Type	Note[2]
		Precipitation Rate in/hr	
		Last Precipitation start and end times	time
		Precipitation Accumulation (at least 6 ranges from 10 min to 24 hrs.)	Inches
		Traffic Speeds (at least 6 ranges from 0 mph to 100 mph)	Mph
		Traffic Volumes	
		Traffic Classification (at least 6 ranges from 0 to 70 ft.)	
		Visibility	Miles
		Depth of Frost	Inches

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	Note[1] – Pavement Conditions MDOT requires at a minimum include: DRY, WET, SNOW, ICE, SLUSH, FROST, DAMP, TRACE MOISTURE Note[2] – Precipitation Type MDOT requires at a minimum include: RAIN, SNOW, FOG, FREEZING RAIN/SLEET, HAIL, DRIZZLE c. Accuracy and resolution of all data shall be similar to that of the sensor collecting the data. d. The user shall be able to display each of the parameters listed in section 2) b) ii) as overlays on top of background map features. The geographic background map shall include state boundaries, MDOT Region boundaries, Transportation Service Center (TSC) boundaries, county boundaries, and all state highways. Major local roads may also be displayed. e. The user shall be able to select which parameters to be displayed on the background map. An 'all parameters' option shall be available to select. f. All ESS sites shall be shown at their approximate location. The icons shall provide the capability to access site control and data viewing directly from the map for sites selected by the user, using a mouse. g. The user shall be able to view select parameters including but not limited to pavement temperature, air temperature, and surface condition, in a graphical format. Graphs shall display a 24 hour period and be selectable.
C.3.13	RWIS DATA STORAGE a. Historical data shall be available twelve months back. Data older than twelve months may be archived. b. Archived data shall be easily accessible and retrievable. Display features available shall be similar to the current data view. Archive data shall have sort features that allow the user to search for specific data sets. User shall be able to create and view historical trend graphs of any reported data and save data and reports to a data file containing time-stamped information from all reporting devices in ASCII format. c. Archived data shall be provided by the 15th of each month for the previous month. All archived data shall be able to be added or imported into the real-time RWIS system.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	d. Camera images shall be archived at the rate of one image per half hour and shall be easily retrievable.
C.3.14	RWIS TRANSFER OF DATA a. System shall be capable of managing data push/pull with the MDOT Advanced Traffic Management System (ATMS) software or third-party Meteorological Service Providers. Data shall be transferred to ATMS via a standard data format as specified by MDOT. b. System shall be capable of transferring data to external agencies such as the National Oceanic and Atmospheric Administration (NOAA), which supports the Binary Universal Form for the Representation of Meteorological Data (BUFR) standard. Data shall meet applicable BUFR standards. c. System shall allow for data transfer to external agencies that do not support the BUFR standard. System shall interface via Extensible Mark-up Language (XML) or Comma-separated Values (CSV) file transfer, using appropriate National Transportation Communications for ITS Protocol (NTCIP) Management Information Base (MIB) encoding. Any mutually agreed upon transfer method may also be acceptable.
C.3.15	RWIS STATION CAMERA IMAGES a. Each location shall be capable of displaying a minimum of eight images. Provide one summary page that shall display all cameras within one MDOT Region. b. At each site, the user shall have the option to view each camera image independently or view all images simultaneously. c. Each independent camera image shall have the capability to be viewed through a continuous loop through the past 1 ½ hours. d. All camera images shall be the sole property of the State of Michigan to use and distribute. Any secondary distribution of the data and information shall be at the sole discretion of the Department.
C.3.16	Provide ESS historical data available at 5 min intervals.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.3.17	Shall provide a summary page that will display all sensor readings of each ESS within a Region on a single table, with capability to filter by Region.

Category 4	**Vendor Services**
C.4.1	As it pertains to this contract Business days are defined as 8:00 a.m. to 5:00 p.m. Eastern Standard Time, Monday thru Friday.
C.4.2	WMT Installation – A minimum of 10 AVL/GPS WMT packages, at two locations (total of 20 equipment packages), shall be installed by the Contractor in the presence of the MDOT representatives (mechanics, garage employees, TSMO, etc.). A detailed installation manual must be provided to the MDOT before installation.
C.4.3	The Contractor shall provide an AVL training program/unit that can be used by the MDOT for in person trainings more frequently and when the Contractor cannot be present physically.
C.4.4	The Contractor will fulfill the requirements listed in Schedule A 1.2 Training. Training materials shall be given as hard copy and available electronically. Site to be determined by the MDOT
C.4.5	Specialty Installation Tools – The contractor shall provide all specialty tools required to perform the installations.
C.4.6	User Training – At the request of the MDOT, the contractor shall provide at least one annual training session on how to use all furnished software.
C.4.7	Collected data shall be accessible to Department staff on-line for a period of up to five (5) years from date of collection. Data beyond the 5-year period may be archived but shall be reinstated online and available to the users upon request by the Department. Data shall be archived indefinitely.
C.4.8	Archived Data – All data collected on behalf of the MDOT shall be stored by the vendor for the entire life of the contract and must be readily accessible on website within 2 business days of a request.
C.4.9	All data collected is the property of the MDOT and shall be turned over to the MDOT at the end of the contract.
C.4.10	Technical Support – The contractor shall provide support via telephone and email for maintenance problems regarding the AVL system hardware or software and provide remote assistance within one hour of problem detected. On-site support must occur within 2 business days if requested by the MDOT.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.4.11	Single Contact – The contractor shall provide a single point of contact for technical support for the entire AVL system, except for non-contractor furnished sensors and communications.
C.4.12	Software, User Interface, Firmware, and Hardware Edition or Version – At the MDOT's discretion, the software, user Interface, firmware, and hardware must be the latest edition or version offered.
C.4.13	Spares – The contractor shall have a sufficient amount of replacement AVL equipment packages on hand to provide Department replacement packages within 2 business days of being notified of defective/non-functioning equipment to provide a consistent level of service.
C.4.14	Preventative Maintenance – Documentation on preventative maintenance of hardware will be included with AVL Equipment Packages and be required to occur no more than twice a year.
C.4.15	AVL Data Management and Access – the AVL information collection, storage, and mapping website shall be designed, owned and operated by the contractor at a location of the contractor's choice, outside of the Department network and accessible to the Department and other agencies via the internet, using a standard web-browser.
C.4.16	The contractor server must receive data from all vehicles with AVL purchased to be processed on a secure website.
Category 5	**Website, Mapping, and Reports**
C.5.1	User Website - The system must be a web-hosted solution accessible from any web browser with the appropriate Username and Login credentials. The AVL website should also be a Responsive Web Design (RWD), allowing for users to access the site using different devices other than a desktop computer.
C.5.2	User Logins – The system must provide unlimited usernames and unlimited access. It is expected that potentially 500 Department staff statewide will require usernames and passwords.
C.5.3	Multiple users shall be able to access the information simultaneously from multiple locations.
C.5.4	User privileges shall be based on assigned username and password. System shall allow modification of the number of vehicles to be monitored, sensors to be monitored and monitor characteristics. User access levels shall be configurable for type of

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	user (i.e. administrator, management, various office/agency level), as defined by the Program Manager.
C.5.5	Database – The AVL database system must have the ability to be in continuous operation 24 hours per day, 365 days per year and must be capable of handling year-end changes and daylight savings changes with no impact to the system.
C.5.6	Database Backup/Recovery – The AVL database system must provide for automatic recovery after any type of network failure. System must allow a means of automatic data archival and backup without system interruption.
C.5.7	Database Access – Data can be accessed, stored, and archived by the Department in a relational database. Database should be designed to preserve the integrity of collected data, include a dictionary and relationship diagram for translation, and facilitate access and integration into other systems and applications.
C.5.8	Website – Data must be on-line at all times. Contractor must take precautions to prevent downtime.
C.5.9	User interface shall utilize point and click features as much as possible to increase ease of use and limit input user error.
C.5.10	Website - Color coded icons for at-a-glance status will be used.
C.5.11	Data Access - The system must include a web services Application Programming Interface (API) to allow read only secured access for raw data retrieval for use in other relational database applications at the MDOT's discretion (such as GIS mapping or other customer uses).
	Mapping
C.5.12	Users shall be able to view the position of their fleet vehicles at any point of time via a standard web browser on from a computer, tablet, and/or smartphone. The primary display shall be a map view of fleet vehicles and indicate the status of vehicles on when it last reported.
C.5.13	Each vehicle on the map should have a unique identifier, such as license plate, as determined by the MDOT. Vehicles should also be broken down by Garage and Region.
C.5.14	The system must provide a minimum of the following mapping and reporting information: a. Last known asset location map view – fleet wide view

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	b. Dispatch map (full screen "live" view) c. Asset last location relative to home (pre-determined address) d. Asset Odometer readings e. Total engine hours f. Last time asset reported in g. Last known location (individual asset map view) h. Historical trip report (individual asset map view) i. Raw data report showing exact data string as it was sent from spreader control (required for analyzing reports) i. Speed ii. Idling iii. Operating during "off" hours iv. Power v. Geo fence (in/out) vi. Temperature (custom attention required) j. View Maintenance History/Update Maintenance Record k. Ping Asset (Short Message Service (SMS) report) n. Distance measurement tool within the fleet-wide map view
C.5.15	The system must also provide the following mapping and reporting information: a. Vehicle Identifier (required) This should be an identifier that is unique to the organization from which the data is being collected. b. Time (required) This should be a complete description of the date and time of the report to within 1 second of accuracy. It can be in the form of a string (e.g., "12/20/2013 3:43 AM EST" or "1-20-2005 9:43 UTC") or numeric (such as a Unix timestamp, which is a count of seconds since a certain point in history). The form of string representations of the date & time is flexible, but should include at least the year, month, day, hour, minute, second and time zone of the observation (Eastern Standard Time). c. Location (required)

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	Location information should be provided in the form of a GPS latitude and longitude associated with the vehicle's location at the time of the report. Three or more decimals of accuracy are required. d. Maintenance Data I. Plow Position (required) II. Scraper/Underbody Position (required) III. Wing Position (required) IV. Material Applied (required) V. Material Form (required) VI. Application Rate (required) VII. Application Rate Units (required) VIII. Road Temperature (required) IX. Air Temperature (required) X. Camera Feed (required) Programmed to collect a time stamped forward camera image when option is installed. Also, should have the option to display a rear facing camera or a backup camera.
C.5.16	The map display shall be such that vehicle position and status automatically update on screen without any input form the end-user, additionally, end-users shall be able to view the status of monitored on-board vehicle equipment.
C.5.17	The system shall allow viewing of a vehicle in motion leaving tracks or "breadcrumbs" as it travels with arrow indicators for direction and showing all operations (GPS & Telematic data) as they occur including exact street location. Users shall be able to view the above-mentioned data for their entire fleet or select a specific vehicle(s) for a login session using a Filter Tool.
C.5.18	User shall be able to toggle back and forth between mapping interface and other features without having to close screens.
C.5.19	The System shall have the capability to enter an address or select a landmark to display at a minimum the 5 closest vehicles to that location including vehicle ID & distance to the specified location.
C.5.20	The system must have the capability to create, edit, and delete landmarks and/or geofences to be displayed on the map. In addition, the landmark/geofence shall be identified in the reports.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.5.21	The system must have an easy 'intuitive' navigation sequence (i.e. navigator bar and/or tabs for easy access to various functional screens). Tools shall include but not be limited to: • Map navigational tools (zoom in/out, center, pan, etc.) • Automatic Vehicle Location Tool • Breadcrumbs • Filter Tool • Historical Data; and Reports.
C.5.22	User shall have options to select from different map views of the map to accommodate varying business requirements, desktop equipment performance and Internet connectivity.
C.5.23	The system shall include a playback feature allowing users to review historical data for selected vehicle(s), date(s), and timeframe. This data shall be made outputted via map based (graphical) and/or text-based report. When reviewing the data graphically, the playback feature shall have pause, fast forward and rewind capabilities for ease of use.
C.5.24	Playback history shall include the ability to leave tracks or "breadcrumbs" depicting progress and direction along a roadway. This function shall enable the user to view data that has been collected from the vehicle (GPS and telematic data). Users should be able to select up to as many trucks as they need to and run the breadcrumbs. Example: A User from the Grand Ledge Garage, in the University Region, should be able to run breadcrumbs on the entire fleet for that garage at once.
C.5.25	Maps – fully licensed maps included. Maps must also integrate with the Department's GIS framework which includes all route, mile marker identifications, and point locations (bridges, asset locations, etc.)
C.5.26	Reports shall be available for users by interactively selecting an area using the map interface.
	Reports
C.5.27	Data Exports – Reports must be exportable to Microsoft Excel, Microsoft Word, .csv format, and other relational databases. Sharing of reports must be simple and reliable between users and with a larger group.
C.5.28	Vehicle Usage Report - The system must provide Daily, Weekly, Monthly and Custom usage reports to accurately display vehicle

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	utilization as well as hourly usage reports to reflect how many minutes in each hour a vehicle was in use.
C.5.29	M5 Vehicle Usage Reports - The system must also be capable of formatting the data for vehicle usage according to Schedule D, “M5 Standard Meter Interface Directions”.
C.5.30	Vehicle Mileage Report **(All Vehicles)** – The system must provide a vehicle mileage report with user selectable date ranges showing miles traveled per day and first start/last stop times for each day in the selected date range.
C.5.31	Vehicle Hours Report **(All Vehicles)** – The system must provide an engine hour report with user selectable date ranges showing engine hour usage per day and first start/last stop times for each day in the selected date range.
C.5.32	Custom Reports **(WMT Fleet only)** – The system must provide a custom input usage report with user selectable date ranges showing usage of monitored auxiliary equipment such as underbody blades, temperature sensors, and additional components. Report must be able to show all activity or be run on a single auxiliary equipment input such as plow position.
C.5.33	Material Usage Report **(WMT Fleet only)** - System must provide material usage reports to accurately track the amount of granular material, pre-wet and/or direct liquid that was applied to a predefined section of roadway, or “zone”. (for spreader integrated equipment only).
C.5.34	Vendor must be able to provide data from all salt spreader controllers into one report. Users shall be able to select all, multiple, or individual vehicles and date(s) and timeframe for each report. Report shall output at a minimum vehicle ID, date/time, vehicle spreading time/distance, deadheading time/distance, vehicle total travel time/distance, dry material usage (pounds / lane mile), liquid material usage, avg. application rate.
C.5.35	The system shall provide easy to use reporting tools to provide all reported data. Reports should have the option of exporting to Excel, .CSV or other relational databases.
C.5.36	The system shall be able to generate summary reports based on the user’s input parameters. Each user shall have the ability to configure the parameters included in a report
C.5.37	Reports shall be configured to select either a single vehicle or group of vehicles.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.5.38	It must be possible to generate additional user defined reports. These include, but are not limited to:
a.	Zone/Route report
b.	Fleet Start/Stop Report
c.	Individual Vehicle Mileage Report
d.	Daily/Weekly/Monthly Asset Usage Report
e.	Custom Asset Usage Report
f.	Custom Input Usage Report (6 discreet inputs)
g.	Asset Distance Report
h.	Exception Reports
C.5.39	In addition to standard reports, the system must be capable of generating exception reports for parameters such as • Stop times • Speed • Idle time • Zones • Input based exceptions (i.e. Panic buttons, PTO times, etc.) • Data logging exceptions (i.e. mileage, odometer value, etc.) • Exception reports • Sensor Diagnostic Report
C.5.40	Exception reports shall be configurable by each user and the capability to generate an exception report from a combination of 2 or more parameters must be possible. i.e. it must be possible for a user to create an exception report for WMTs that are applying material and traveling above a requested speed. This report will be defined as a material application speed compliance report and will utilize information acquired from the MDOT Salt Bounce and Scatter Study.
C.5.41	All exception report shall have the capability to be displayed on the website and as well as being sent automatically to specified users via email and or text message (as defined by the user).
C.5.42	The system shall provide an easy to use reporting tool to provide ESS, vehicle and material information such as date, time started, time completed, total miles traveled, total miles spread, total dead

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	head miles, material usage (Ton), application rate, Liquid usage (gal), liquid application rate, and totals of the above information per snow event/storm.

SCHEDULE D: M5 STANDARD METER INTERFACE DIRECTIONS

Overview

The purpose of this interface is to provide a standard meter interface to update a unit's primary meter and meter date and meter2 information as required.

Implementation

The data required for this interface consists of these data elements:

Unit Number

Meter (the primary meter, registered engine hours)

Meter Date (the primary meter date)

Meter 2 (registered vehicle miles)

Meter 2 Date

If both meters are sent, the comma delimited text file would look like this:

Unit,meter,meter_date,meter2,meter2_date

If only the primary meter is sent

Unit,meter1,meter1_date,,

If only meter two is sent

Unit,,meter2,mter2_date

File Format

The inbound data file must be a comma, delimited text file. The file layout is shown below. All FleetFocus fields will reside in the Meter Journal (meter_jnl) table unless otherwise noted.

SCHEDULE D: M5 STANDARD METER INTERFACE DIRECTIONS

Field Name	Type	FleetFocus Field	Processing Decisions
Vehicle No	Varchar2 - 10	Unit_No	Must be a valid M5 Unit Number
Meter	Numeric	Meter	Validation based expected period usage of the MCC for that Unit done by the MAXIMUS API
Meter TimeStamp	Date	Meter_Dt	Must be a valid date format - M/DD/YYYY 24HH:MM:SS
Meter 2	Numeric	Meter2	Validation based expected period usage of the MCC for that Unit done by the MAXIMUS API
Meter 2 TimeStamp	Date	Meter2	Must be a valid date format - M/DD/YYYY 24HH:MM:SS

Validations

1. Unit Number must be a unit number in M5. If the unit is not valid, the transaction will be written the Interface Reject File for reprocessing.

2. Meter entered will be validated based on M5's current meter validation component. The meter will have to pass meter update rules defined by the expected period usage on the MCC code of the related vehicle. Meter type, size and expected period usage (Min Usage, Max Usage) are all established on MCC frame. System Flag 1053 - Meter rollover limit % is used to check for a meter rollover condition.

   There is a parameter on the interface that will permit the meter to be overwritten based on the current M5 processing logic. If the parameter is set to Y, it will set meter on unit_dept_comp_main and meter_jnl. The override_meter_fl will be set to Y and meter_upd_udcm_fl will be set to Y.

   If the parameter is set to N, meters that don't pass M5's meter validation, the transaction will be written the Interface Reject File for reprocessing.

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The MDSS ("System") shall detect, diagnose, forecast, and display surface transportation weather phenomena, road condition information, and winter maintenance treatment recommendations (described herein) for supporting winter road maintenance operations (e.g., snow plowing, deicing, anti-icing, etc.).

The System shall include the capability to selectively archive data and display archived data and products. The System shall include the capability to routinely monitor the system status. The System shall be fault tolerant with high reliability. The System shall be designed in accordance with standard commercial practices for software development. The System shall be designed to make reasonable allowance for expansion of computing power. The System software shall be designed to ensure that it can run on commercial-off-the-shelf hardware commonly available; that is, no special hardware development will be necessary. The System shall be designed to ensure that it can incorporate weather and road data from disparate sources (e.g., National Weather Service (NWS), Department AVL/GPS, Department Connected Vehicle projects, mesonetworks, RWIS, AWOS, etc.). The System (including all servers and displays) shall be synchronized using a time standard. The System shall include the capability to playback historical data for demonstration, training, and analysis purposes. The System shall use Local Time (LT) for all displays.

The System displays shall be implemented in English with English units as the default setting. The System shall integrate environmental (weather), road condition and transportation operational data in a manner that allows it to provide predictions of pavement conditions (e.g., pavement temperature, precipitation accumulation, anti-icing chemical effectiveness, etc.) associated with winter road maintenance.

Using the pavement condition and environmental prediction information, the System shall provide decision support guidance to winter road maintenance practitioners and the guidance shall include information related to treatment options (e.g., plow, deice, anti-ice, etc.), timing of application, location of application, and amount of application) based on current and predicted weather conditions. The System shall notify users when data updates (e.g., new forecasts) are available and the updates shall be loaded when the user selects to do so.

MDSS Coverage Area

The System shall be designed to operate (via configurable files) in any user-defined region (e.g., state, city, county, etc.) that has input data necessary to support its operations. The System shall generate weather forecasts for zones or regions around the State as identified by the user (e.g., forecast zones, maintenance zones,

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

etc.). The System shall provide weather and road condition products (via configurable files) for road routes (maintenance routes) identified by the user. The System shall be configured to provide weather and road condition products for user identified road maintenance routes.

Weather Forecast Products

Weather forecast products refer to weather elements above the ground. Weather forecast products shall be provided out to at least 48 hours. Weather forecast products shall have a temporal resolution of at least one hour. Weather forecast products shall be updated no less than every three hours; that is, a new 48-hour forecast shall be provided every three hours.

The following weather forecast products shall be provided 2 meters above ground level (AGL), unless otherwise noted:

a) Surface air temperature

b) Surface dew point

c) Surface relative humidity

d) Surface wind speed & direction

e) Surface wind gust

f) Precipitation type

g) Precipitation rate

h) Snowfall accumulation (e.g., 3-hr total, 6-hr total, and total accumulation during the forecast period)

i) NWS watches, warnings and advisories

The weather forecast products shall be geo-referenced to the DOT domain using map overlays that include roads, road designators, political boundaries, etc.

Surface Air Temperature Forecast Product

The output (content) of the Surface Air Temperature Forecast Product on the display shall have the following characteristics:

a) The surface air temperature shall be provided in degrees Fahrenheit

b) Time series information (text and graphical formats) of the surface air temperature shall be provided.

c). Reference lines (configurable) associated with frequent thresholds (e.g., freezing) shall be provided.

Surface Dew Point Temperature Forecast Product

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The output (content) of the Surface Dew Point Temperature Forecast Product on the display shall have the following characteristics: a) The surface dew point temperature shall be provided in degrees Fahrenheit b) Time series information (text and graphical formats) of the surface dew point temperature shall be provided.

Surface Wind Speed & Direction Forecast Product

The output (content) of the Surface Wind Speed & Direction Forecast Product on the display shall have the following characteristics:

a) The wind speed shall be provided in statute miles per hour by default
b) The wind direction shall be provided in degrees with respect to true north.
c) Time series information (text and graphical formats) of the wind speed and direction

Surface Wind Gust Forecast Product

The output (content) of the Surface Wind Gust Forecast Product on the display shall have the following characteristics: a) The wind gust speed shall be provided in statute miles per hour. c) Time series information (text and graphical formats) of the wind gust speed shall be provided.

Conditional Probability of Precipitation Type Forecast Product

The conditional probability of precipitation type is a product that describes the probability that a particular precipitation type (e.g., rain, snow, freezing rain, etc.) will occur if there is any precipitation at all.

The Precipitation Type Forecast Product shall include the conditional probability of precipitation type. That is, the user shall be able to view the probability of each type of precipitation as well as the predominant type.

a. The precipitation type shall be provided for at least the following:
    a. Rain
    b. Snow
    c. Ice
    d. Mixed (rain, snow, ice)
b. The predominant precipitation type (the type that the model selects as the most likely kind that will occur) shall be identified.
c. Time series information (text and graphical formats) of the predominant precipitation type shall be provided.

Precipitation Rate Forecast Product

The output (content) of the Precipitation Rate Forecast Product on the display shall have the following characteristics:

a. The liquid equivalent precipitation rate shall be provided in inches per hour (to a precision of a hundredth of an inch).

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

b. The snowfall precipitation rate shall be provided in inches per hour (to a precision of a tenth of an inch).

c. Time series information (text and graphical formats) of the precipitation rate shall be provided.

Snowfall Accumulation Forecast Product

The Snowfall Accumulation Product shall indicate the amount of snow that is expected to reach the surface (ground) over a specified period. Melting of precipitation due to warm surface conditions is not considered in this product.

The output (content) of the Snowfall Accumulation Forecast Product on the display shall have the following characteristics:

a. The snowfall accumulation shall be provided in inches (to a precision of a tenth of an inch).

b. Time series information (text and graphical formats) of the snowfall accumulation shall be provided.

c. Snowfall accumulation shall be provided at user-defined temporal increments out to 48 hours (e.g., 3-hour, 6-hour, 12-hour accumulation, etc.).

Weather Observation Products

Weather observation products shall be provided by the System. The weather observations products shall be geo-referenced to the DOT domain using map overlays that include roads, road designators, political boundaries, etc.

Weather observation products shall include, but not be limited to, observations from the following sources: NWS, DOT, FAA, RWIS, and other sources as available.

Weather observation products shall include the following parameters, where available:

a. Air temperature (degrees F)

b. Relative humidity (percent)

c. Dew point (degrees F)

d. Wind speed & wind direction (miles per hour & degrees with respect to true north)

e. Radar Imagery

The weather observation products shall update as new data arrive. The output (content) of the weather observation products on the display shall have the following characteristics:

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

a. The surface observation data shall expire off the screen after a configurable number of minutes.

b. The expiration time shall be independently configurable for each observation product.

c. Time series (text and graphical formats) shall be provided.

d. Animation of the observations shall be provided.

Radar Product

The radar product shall be based on data provided by NOAA. Other radar data sources may be used if applicable (e.g., FAA Terminal Doppler Weather Radar, local media owned radars). The radar product shall be based on the reflectivity (intensity) field. The radar product shall update as new data arrive.

The output (content) of the radar product on the display shall have the following characteristics:

- The radar reflectivity (intensity) field shall be displayed (plus color legend).
- Radar products shall be provided for user-defined domains.

NWS Watch, Warnings and Advisories Product

NWS watch, warnings and advisories for the DOT domain shall be provided.

The NWS watch, warnings and advisories shall include, but not limited to:

a. Winter storm watches and warnings

b. Flood watches and warnings

c. Flash flood watches and warnings

d. Severe thunderstorm watches and warnings

e. Tornado watches and warnings

f. High wind watches and warnings

g. Special weather statement

h. Freeze watches and warnings

i. Winter weather advisories

j. Dense fog advisories

k. Snow advisories

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The NWS watch, warning and advisory product shall be provided in text format. Graphical depictions of NWS watches and warnings may be provided, where applicable.

When an NWS watch, warning or advisory is in effect for an area (configurable) that covers the DOT domain, the display shall provide an indicator (e.g., highlighted button).

Road Condition Observation Products

Road condition observation products shall be provided and shown on the display.

Road condition observation products may include, but not be limited to, observations or measurements from the following sources:

a. Environmental Surface Stations (ESS)
b. Road Weather Information Systems (RWIS)
c. GPS/AVL data and Connected Vehicle data from Department fleet

(The CCI will decide which sources are used, and how).

Road condition observation products shall include the following parameters, where available

a. Road temperature (degrees F)
b. Subsurface temperature (degrees F)
c. Chemical concentration on road (percent by weight)
d. Freeze point temperature (degrees F)
e. Pavement condition as: Wet, Dry, or Chemically Wet
f. Snow, frost, and ice depth (inches
g. Blowing snow (yes/no)
h. Visibility (miles or fractions of miles)

The road condition observation products shall update as new data arrive. The output (content) of the road condition observation products on the display shall have the following characteristics:

a. The surface observation data shall expire off the screen after a configurable number of minutes
b. The expiration time shall be independently configurable for each observation product.

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c. Viewing of the product shall be user selectable.

d. Time series (text or graphical formats) of the observations shall be provided.

e. Animations of the road condition products shall be provided.

Road Condition Prediction Products

The road condition prediction products shall be provided out to at least 48 hours. The road condition prediction products shall have a temporal resolution of at least one hour. The road condition prediction products shall be updated every three hours; that is, a new 48-hour forecast shall be provided no less than every three hours.

The following road condition prediction products shall be provided:

a. Road temperature

b. Road chemical concentration

c. Snow depth on road

d. Blowing snow potential

e. Pavement frost potential

f. Pavement condition

Road Temperature Prediction Product

The Road Temperature Prediction Product shall be provided at predefined (configurable) locations associated with each DOT maintenance route. The Road Temperature Prediction Product shall be based on a thermal energy balance model and/or empirically based model.

The output (content) of the Road Temperature Prediction Product on the display shall have the following characteristics:

a. The road temperature shall be provided in degrees F

b. The road temperature shall be presented graphically at each forecast location within the chosen (configurable) maintenance routes.

c. Time series information (text and graphical formats) shall be provided.

Road Snow Depth Prediction Product

The Road Snow Depth Prediction Product shall provide information that describes the amount of snow that is predicted to accumulate on a road surface without traffic and for specific winter maintenance treatments

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

Calculation of the Road Snow Depth Prediction Product shall take into account (at a minimum) the forecasted precipitation type and rate, and road temperature to estimate the amount of snow that will accumulate on the road surface.

The Snow Depth Prediction Product shall be provided at predefined (configurable) locations within each DOT maintenance route.

Calculation of the Snow Depth Prediction Product shall take into account treatment options including the amount of snow expected to accumulate on the road when; a) no treatment is performed, b) the recommended treatment is performed, and c) a user-defined treatment is performed.

The output (content) of the Snow Depth Product on the display shall have the following characteristics:

a. The snow/ice amount shall be given in inches by default (to a tenth of an inch)
b. The snow depth shall be shown for various treatment options including: no treatment, recommended treatment, and user-defined treatment.
c. The road snow depth shall be presented graphically at each forecast location associated with the chosen (configurable) maintenance routes.
d. Time series information (text and graphical formats) of the road contamination accumulation shall be provided.

Blowing Snow Potential Product

The Blowing Snow Potential Product shall provide information that describes the likelihood for blowing snow (e.g., low, medium, high). Calculation of the Blowing Snow Potential Product shall take into account (at a minimum) recent snowfall characteristics, the forecasted precipitation type and rate, predicted wind speed, local topography, and predicted air temperature. The Blowing Snow Potential Product shall be provided at predefined (configurable) locations within each DOT maintenance route.

The output (content) of the Blowing Snow Potential Product on the display shall have the following characteristics:

a. The likelihood value for blowing snow (e.g., low, medium, high or as a percentage)
b. Likelihood values shall be provided at hourly increments.
c. Likelihood values shall be provided at hourly increments.
d. Time series information (text and graphical formats) shall be provided

Pavement Frost Potential Product

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The Pavement Frost Potential Product shall provide information that describes the likelihood for frost on the pavement surface (road and/or bridges) (e.g., low, medium, high or as a percentage). Calculation of the Pavement Frost Potential Product shall take into account (at a minimum) predicted pavement temperature, predicted precipitation type and rate, predicted wind speed, predicted relative humidity (considerations of dew point/frost point), and predicted air temperature. The Pavement Frost Potential Product shall be provided at predefined (configurable) locations within each DOT maintenance route.

The output (content) of the Pavement Frost Potential Product on the display shall have the following characteristics:

a. The likelihood value for pavement frost (e.g., low, medium, high or as a percentage)
b. Likelihood values shall be provided at hourly increments
c. Likelihood values shall be provided for each road forecast segment (e.g., plow route).
d. Time series information (text and graphical formats) shall be provided.

Pavement Condition Prediction Product

The Pavement Condition Prediction Product shall provide information on the predicted state of the pavement and include:

a. Wet
b. Dry
c. Chemical wet
d. Percent coverage of snow and
e. Snow, frost, and ice depth (inches)

The output (content) of the Pavement Condition Prediction Product on the display shall have the following characteristics:

a. The pavement condition shall be presented in text format indicating the pavement condition (e.g., wet, dry, chemical wet, etc.) for each road forecast location (e.g., plow routes).
b. Time series information (text and graphical formats) shall be provided.

Calculation of the Pavement Condition Prediction Product shall take into account the pavement condition when; a) no treatment is performed, b) the recommended treatment is performed, and c) a user-defined treatment is performed.

Forecast Confidence Product

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

A measure of confidence shall be provided for the following weather forecast and road condition prediction products:

a. Snow accumulation
b. Precipitation type
c. Road temperature

The calculation of prediction confidence shall take into account recent statistical performance of each parameter and other appropriate metrics.

The output (content) of the Prediction Confidence Product on the display shall have the following characteristics:

a. The prediction confidence shall be given as a percentage and shall be able to be displayed graphically.
b. Error statistics shall be calculated that reflect recent skill.
c. Time series information of the prediction confidence or error statistics shall be provided for the above-mentioned products.

Generation of Treatment Recommendation Predictions

The System shall provide treatment recommendation predictions for winter road maintenance at user defined (configurable) locations (e.g., plow routes).

The System shall provide treatment recommendation predictions out to no less than 24 hours into the future.

The winter maintenance rules of practice used in the System shall be based on the Manual of Practice for Effective Anti-Icing Program and NCHRP report #526 - Snow & Ice Control: Guidelines for Materials and Methods, and be configurable, as necessary, to reflect local DOT practices.

Treatment recommendations shall include the following for each user defined route:

a. Recommended initial treatment start time
b. Recommended subsequent treatment start time
c. Recommended treatment type (e.g., chemical, abrasives, plow)
d. Recommended chemical type based on available chemicals as identified by the Department
e. Recommended material rate (e.g., amount per lane mile)

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

f. Recommended pre-treatment type (solid or liquid), where applicable

The System shall have a capability to incorporate constraints (configurable) for each route so that irrelevant treatment recommendations are not provided. For example, the use of NaCl should not be recommended if the user does not use that chemical. Constraints may include:

a. Available materials (e.g., NaCl, MgCl2, CaCl2, abrasives etc.)

b. Application rate limits (based on truck spreading limits)

c. Route cycle limits (minimum turn around time to repeat treatments)

Treatment recommendations shall be calculated, to the greatest extent possible, using a combination of current observational data on the state of the roadway and predicted weather and road conditions.

Treatment recommendation calculations should consider, to the greatest extent possible, factors that impact treatment effectiveness (e.g., chemical scatter, splatter, traffic impacts, spreader characteristics, etc.).

System Alert Function

The System shall provide a capability to alert the user when specific data thresholds (configurable) have been exceeded. Users shall be able to query the System and view the information related to an alert.

The System shall indicate that an alert is active by one or more of the following methods: a) Highlighting an alert button b) Changing the color of an alert button c) Flashing an alert button d) Audible alert (finite series of beeps or tones) The System shall include a capability to send e-mail or text message notices or cell phone calls (to a configurable list of aliases) when specific alerts (configurable) are generated.

Display

The display shall have the following general capabilities:

a. Ability to view plan-view graphics

b. Ability to view time-series information

c. Animation

d. Time selection whereby the user can select the time period for data viewing

e. Print function

f. Alert function

g. Ability to review historical data

h. Ability to select viewing area

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

i. Ability to select products for viewing
j. Help function
k. Ability to combine data on time series plots
l. Ability to configure data ranges (scale) for each time series plot
m. Ability to overlay and combine graphical products

In vehicle display:

a. Ability to view plan view graphics
b. Ability to view local radar
c. Ability to view route specific treatment recommendations
d. Ability to view route specific weather and pavement forecast

Map Overlays

The System shall make it straightforward (e.g., via configuration files) to incorporate new map data.

Map overlays shall be available for the following:

a. Roads (State and local highways and secondary roads)
b. Road designators (e.g., route numbers, etc.)
c. Road Control section and mile marker identification.
d. Political boundaries (e.g., States, counties, maintenance zones, MDOT region and TSC area, etc.)
e. Cities

f. Weather and road condition observation sites

Data Archive and Historical Data Review

The System shall include a short and long-term data storage capability. The process of saving data shall not interfere with the normal operation of the System.

Short-Term Archive

The short-term archive shall consist of the latest fourteen (14) days of data. The oldest stored data shall be routinely (scrubbed) overwritten by new incoming data, such that the integrity of incoming data is preserved. Data within the short-term archive shall be viewable by selecting the date and time of interest from the display interface. Including but not limited to Environmental Sensor Station data.

Long-Term Archive

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The long-term archive shall consist of data sets specifically saved by the user. The System shall not delete (scrub) data within the long-term archive. The user shall have the capability to select the date, time, and filename for the long-term archive. The System shall provide a capability for the user to review data from the long-term archive. This review shall not interfere with the operation of the real-time system. This requirement could be met by having a separate System available to view data from the historical archive. Including but not limited to Environmental Sensor Station data.

Historical Data Viewer

The system shall have a capability to view (recent) historical weather and road condition prediction products together with actual observational data to give the user an indication of the performance of the weather and road condition predictions.

Users shall have the ability to select any of the forecasts from the previous 24-hour period. For example, the user shall be able to select a forecast 6 hours previous and compare the predicted conditions to the actual conditions.

Security

Means shall be provided to prevent the unauthorized use or misuse of the facilities provided in the System. This particularly applies to those functions that can be used to reconfigure or change the operating status of the System or subsystems.

Security shall be provided (e.g., password protection) to ensure that the System cannot be accidentally disabled from any display device or network system.

SCHEDULE F: DATA SECURITY REQUIREMENTS

Definitions. For purposes of this Schedule, the following terms have the meanings set forth below. All initial capitalized terms in this Schedule that are not defined in this **Schedule** shall have the respective meanings given to them in the Contract.

"**Contractor Security Officer**" has the meaning set forth in **Section 2** of this Schedule.

"**FedRAMP**" means the Federal Risk and Authorization Management Program, which is a federally approved risk management program that provides a standardized approach for assessing and monitoring the security of cloud products and services.

"**FISMA**" means The Federal Information Security Modernization Act of 2014 (Pub.L. No. 113-283 (Dec. 18, 2014.).

"Hosting Provider" means any Permitted Subcontractor that is providing any or all of the Hosted Services under this Contract.

"**NIST**" means the National Institute of Standards and Technology.

"**PCI**" means the Payment Card Industry.

"**PSP**" or **"PSPs"** means the State's IT Policies, Standards and Procedures.

"**SSAE**" means Statement on Standards for Attestation Engagements.

"**Security Accreditation Process**" has the meaning set forth in **Section 6** of this Schedule

2. Security Officer. Contractor will appoint a Contractor employee to respond to the State's inquiries regarding the security of the Hosted Services who has sufficient knowledge of the security of the Hosted Services and the authority to act on behalf of Contractor in matters pertaining thereto ("**Contractor Security Officer**").

3. Contractor Responsibilities. 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;

1. protect against unauthorized disclosure, access to, or use of the State Data;
2. ensure the proper disposal of any State Data in Contractor's or its subcontractor's possession; and
3. ensure that all Contractor Representatives comply with the foregoing.

SCHEDULE F: DATA SECURITY REQUIREMENTS

The State has established Information Technology (IT) PSPs to protect IT resources under the authority outlined in the overarching State 1305.00 Enterprise IT Policy. 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 public and non-public State IT policies and standards, of which the publicly available ones are at https://www.michigan.gov/dtmb/0,5552,7-358-82547_56579_56755---,00.html.

This responsibility also extends to all service providers and subcontractors with access to State Data or an ability to impact the contracted solution. Contractor responsibilities are determined from the PSPs based on the services being provided to the State, the type of IT solution, and the applicable laws and regulations.

4. Acceptable Use Policy. To the extent that Contractor has access to the State's IT environment, Contractor must comply with the State's Acceptable Use Policy, see https://www.michigan.gov/documents/dtmb/1340.00.01_Acceptable_Use_of_Information_Technology_Standard_458958_7.pdf. All Contractor Personnel will be required, in writing, to agree to the State's Acceptable Use Policy before accessing State systems. The State reserves the right to terminate Contractor's and/or subcontractor(s) or any Contractor Personnel's access to State systems if the State determines a violation has occurred.

5. Protection of State's Information. Throughout the Term and at all times in connection with its actual or required performance of the Services, Contractor will:

5.1 If Hosted Services are provided by a Hosting Provider, ensure each Hosting Provider maintains FedRAMP authorization for all Hosted Services environments throughout the Term, and in the event a Hosting Provider is unable to maintain FedRAMP authorization, the State, at its sole discretion, may either a) require the Contractor to move the Software and State Data to an alternative Hosting Provider selected and approved by the State at Contractor's sole cost and expense without any increase in Fees, or b) immediately terminate this Contract for cause pursuant to **Section 23** of the Contract;

5.2 For Hosted Services provided by the Contractor, maintain either a FedRAMP authorization or an annual SSAE 18 SOC 2 Type II audit based on State required NIST Special Publication 800-53 MOD Controls using identified controls and minimum values as established in applicable State PSPs.

5.3 Ensure that the Software and State Data is securely hosted, supported, administered, accessed, and backed up in a data center(s) that resides in the continental United States, and minimally meets Uptime Institute Tier 3 standards (www.uptimeinstitute.com), or its equivalent;

SCHEDULE F: DATA SECURITY REQUIREMENTS

5.4 Maintain and enforce an information security program including safety and physical and technical security policies and procedures with respect to its Processing of the State Data that complies with the requirements of the State's data security policies as set forth in this Contract, and must, at a minimum, remain compliant with FISMA and NIST Special Publication 800-53 MOD Controls using identified controls and minimum values as established in applicable State PSPs;

5.5 Provide technical and organizational safeguards against accidental, unlawful or unauthorized access to or use, destruction, loss, alteration, disclosure, encryption, transfer, commingling or processing of such information that ensure a level of security appropriate to the risks presented by the processing of State Data and the nature of such State Data, consistent with best industry practice and applicable standards (including, but not limited to, compliance with FISMA, NIST, CMS, IRS, FBI, SSA, HIPAA, FERPA and PCI requirements as applicable);

5.6 Take all reasonable measures to:

(a) secure and defend all locations, equipment, systems and other materials and facilities employed in connection with the Services against "malicious actors" and others who may seek, without authorization, to destroy, disrupt, damage, encrypt, modify, copy, access or otherwise use Hosted Services or the information found therein; and

(b) Prevent (i) the State and its Authorized Users from having access to the data of other customers or such other customer's users of the Services; (ii) State Data from being commingled with or contaminated by the data of other customers or their users of the Services; and (iii) unauthorized access to any of the State Data;

5.7 Ensure that State Data is encrypted in transit and at rest using FIPS validated AES encryption modules and a key size of 128 bits or higher;

5.8 ensure the Hosted Services support Identity Federation/Single Sign-on (SSO) capabilities using Security Assertion Markup Language (SAML), Open Authentication (OAuth) or comparable State approved mechanisms;

5.9 ensure the Hosted Services implements NIST compliant multi-factor authentication for privileged/administrative and other identified access.

6. Security Accreditation Process. Throughout the Term, Contractor will assist the State, at no additional cost, with its **Security Accreditation Process**, which includes the development, completion and on-going maintenance of a system security plan (SSP) using the State's automated governance, risk and compliance (GRC) platform, which requires Contractor to submit evidence, upon request from the State, in order to validate Contractor's security controls within two weeks of the State's request. On an annual basis, or as otherwise required by the State such as for significant changes, re-

assessment of the system's controls will be required to receive and maintain authority to operate (ATO). All identified risks from the SSP will be remediated through a Plan of Action and Milestones (POAM) process with remediation time frames based on the risk level of the identified risk. For all findings associated with the Contractor's solution, at no additional cost, Contractor will be required to create or assist with the creation of State approved POAMs and perform related remediation activities. The State will make any decisions on acceptable risk, Contractor may request risk acceptance, supported by compensating controls, however only the State may formally accept risk. Failure to comply with this section will be deemed a material breach of the Contract.

7. Unauthorized Access. Contractor may not access, and shall not permit any access to, State systems, in whole or in part, whether through the Hosted Services or otherwise, without the State's express prior written authorization. Such authorization may be revoked by the State in writing at any time in its sole discretion. Any access to State systems must be solely in accordance with the Contract and this Schedule, and in no case exceed the scope of the State's authorization pursuant to this Section. All State-authorized connectivity or attempted connectivity to State systems shall be only through the State's security gateways and firewalls and in compliance with the State's security policies set forth in the Contract as the same may be supplemented or amended by the State and provided to Contractor from time to time.

8. Security Audits.

8.1 During the Term, Contractor will maintain complete and accurate records of its data protection practices, IT security controls, and the security logs relating to State Data, including but not limited to any backup, disaster recovery or other policies, practices or procedures relating to the State Data and any other information relevant to its compliance with this Contract.

8.2 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. 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. If the State chooses to perform an on-site audit, Contractor will, make all such records, appropriate personnel and relevant materials available during normal business hours for inspection and audit by the State or an independent data security expert that is reasonably acceptable to Contractor, provided that the State: (i) gives Contractor at least five (5) Business Days prior notice of any such audit; (ii) undertakes such audit no more than once per calendar year, except for good cause shown; and (iii) conducts or causes to be conducted such audit 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. The State may, but is not obligated to, perform such security audits, which shall, at the State's

option and request, include penetration and security tests, of any and all Hosted Services and their housing facilities and operating environments.

8.3 During the Term, Contractor will, when requested by the State, provide a copy of Contractor's or Hosting Provider's FedRAMP System Security Plan(s) or SOC 2 Type 2 report(s) to the State within two weeks of the State's request. The System Security Plan and SSAE audit reports will be recognized as Contractor's Confidential Information.

8.4 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 The State reserves the right, at its sole election, to immediately terminate this Contract or a 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.**

9. Application Scanning. During the Term, Contractor must, at its sole cost and expense, scan all Contractor provided applications, and must analyze, remediate and validate all vulnerabilities identified by the scans as required by the State Secure Web Application and other applicable PSPs.

Contractor's application scanning and remediation must include each of the following types of scans and activities:

9.1 Dynamic Application Security Testing (DAST) – Scanning interactive application for vulnerabilities, analysis, remediation, and validation (may include Interactive Application Security Testing (IAST).

(a) Contractor must either a) grant the State the right to dynamically scan a deployed version of the Software; or b) in lieu of the State performing the scan, Contractor must dynamically scan a deployed version of the Software using a State approved application scanning tool, and provide the State a vulnerabilities assessment after Contractor has completed such scan. These scans and assessments i) must be completed and provided to the State quarterly (dates to be provided by the State) and for each major release; and ii) scans must be completed in a non-production environment with verifiable matching source code and supporting infrastructure configurations or the actual production environment.

9.2 Static Application Security Testing (SAST) - Scanning Source Code for vulnerabilities, analysis, remediation, and validation.

(a) For Contractor provided applications, Contractor, at its sole expense, must provide resources to complete static application source code scanning, including the analysis, remediation and validation of vulnerabilities identified by application Source Code scans. These scans must be completed for all Source Code initially, for all updated Source Code, and for all Source Code for each major release and Contractor

must provide the State a vulnerability assessment after Contractor has completed the required scans.

9.3 Software Composition Analysis (SCA) – Third Party and/or Open Source Scanning for vulnerabilities, analysis, remediation, and validation.

(a) For Software that includes third party and open source software, all included third party and open source software must be documented and the source supplier must be monitored by the Contractor for notification of identified vulnerabilities and remediation. SCA scans may be included as part of SAST and DAST scanning or employ the use of an SCA tool to meet the scanning requirements. These scans must be completed for all third party and open source software initially, for all updated third party and open source software, and for all third party and open source software in each major release and Contractor must provide the State a vulnerability assessment after Contractor has completed the required scans if not provided as part of SAST and/or DAST reporting.

9.4 In addition, application scanning and remediation may include the following types of scans and activities if required by regulatory or industry requirements, data classification or otherwise identified by the State.

(a) If provided as part of the solution, all native mobile application software must meet these scanning requirements including any interaction with an application programing interface (API).

(b) Penetration Testing – Simulated attack on the application and infrastructure to identify security weaknesses.

10. Infrastructure Scanning.

10.1 For Hosted Services, Contractor must ensure the infrastructure and applications are scanned using an approved scanning tool (Qualys, Tenable, or other PCI Approved Vulnerability Scanning Tool) at least monthly and provide the scan's assessments to the State in a format that is specified by the State and used to track the remediation. Contractor will ensure the remediation of issues identified in the scan according to the remediation time requirements documented in the State's PSPs.

11. Nonexclusive Remedy for Security Breach.

11.1 Any failure of the Services to meet the requirements of this Schedule with respect to the security of any State Data or other Confidential Information of the State, including any related backup, disaster recovery or other policies, practices or procedures, is a material breach of the Contract for which the State, at its option, may terminate the Contract immediately upon written notice to Contractor without any notice or cure period, and Contractor must promptly reimburse to the State any Fees prepaid by the State prorated to the date of such termination.

PRELIMINARY

PROJECT IMPLEMENTATION PLAN

Automatic Vehicle Location (AVL)/GPS Operational Management Solution

Parsons Job No: xxx

Date: xxx

SCHEDULE G: PARSONS DRAFT PROJECT IMPLEMENTATION PLAN

MDOT Proposed Implementation Plan

1.0verview

Introduction

As requested in section 5.1.1. Implementation Plan, in the RFP, Parsons has created a draft implementation plan which is enclosed in this document. This plan is preliminary and, while fully executable, it is expected to be modified prior to final approval by MDOT. Upon Notice to Proceed from MDOT, Parsons will schedule a project kick-off meeting. In this meeting details of existing units and plans to upgrade or replace will be determined and a specific plan will be created to meet MDOT's requirements.

Parsons pulled a report from the Parsons ATMS showing 327 current vehicles reporting. The RFP states that MDOT has 345 vehicles, so there is a discrepancy in the numbers shown in this plan. The intent is to provide MDOT with the confidence that Parsons can manage large deployments in a professional and efficient method. In fact, Parsons managed to deploy over 1,100 MDC devices in Indiana over the past year amongst the worst pandemic to affect our country in decades. We work with our install and service contractors to create deployment plans that are attainable and manageable. Depending upon the install requirements, we provide multiple reminders to field supervisors to ensure they are aware of when the installers arrive. They also know the date and time to have specific trucks available. The intent is to schedule trucks to minimize out of service time yet, ensure they installers are not idle awaiting arrival of vehicles.

Parsons Subcontractors

DTN

Parsons works closely with DTN (formerly Iteris) supporting MDSS deployments in South Dakota, Nebraska, Connecticut, Indiana as well as our current contract with Michigan. Like our current agreement with Michigan, DTN is a subcontractor to Parsons in Connecticut and Nebraska. In other states, the DOT has a direct contract with DTN, but Parsons works hand in hand with DTN to ensure the client receives the data they expect.

TELE-RAD

Tele-Rad is a Motorola Platinum Channel Partner that delivers communication solutions to businesses, organizations, and public safety agencies throughout Michigan. They are headquartered in Holland and have additional locations in Benton Harbor, Muskegon, Grand Rapids and Traverse City. Tele-Rad has assessed current MDOT equipment deployments and, with the exception of the upper peninsula, has technical personnel within 2 ½ hours of all MDOT supported locations.

Deployment Plan

The deployment plan presented below is based upon deploying 20 MDC-006 units on a date mutually agreed upon by MDOT and Parsons. For this schedule, Parsons made several assumptions. First, we propose having the Install Contractor 'validate" every unit throughout the state to confirm that it is properly configured and functioning properly. All this will be performed prior to the next snow season. Parsons will migrate MDOT to the new iNET™ R11 as well as apply any updates from DTN with the system fully functional for the 2021-2022 snow season. Starting in May of 2022, Parson will begin installing the MDC-006 units in remaining MDOT vehicles.

SCHEDULE G: PARSONS DRAFT PROJECT IMPLEMENTATION PLAN

As described earlier, this plan is for information only.

The plan below has all new equipment in snowplows installed and functional within a year from the project start date.

Date	Task	Location	District	Days from Start	# of Trucks
7/12/2021	Contract Executed			0	
7/13/2021	Project Kickoff Meeting	Lansing			
TBD	Confirm site for 20 installs				
7/20/2021	Weekly Status Meeting				
TBD	Installs Day 1 - 2				
TBD	Installs Day 2 - 3				
7/27/2021	Weekly Status Meeting				
TBD	Installs Day 3 - 5				
TBD	Installs Day 4 - 5				
TBD	Installs Day 5 - 5				
8/3/2021	Weekly Status Meeting			22	
8/10/2021	Validation of Hardware	Houghton	Superior	29	8
	Weekly Status Meeting				
8/11/2021	Validation of Hardware	L'Anse	Superior	30	10
8/12/2021	Validation of Hardware	Engadine	Superior	31	7
8/13/2021	Validation of Hardware	St. Ignace	Superior	32	10
8/16/2021	Validation of Hardware	Mio	North	35	6
8/17/2021	Validation of Hardware	Atlanta	North	36	7
	Weekly Status Meeting				
8/18/2021	Validation of Hardware	Kalkaska	North	37	9
8/19/2021	Validation of Hardware	Marion/ Reed City	Grand	38	8
8/20/2021	Validation of Hardware	Reed City/Grand Rapids	Grand	39	6
8/23/2021	Validation of Hardware	Fennville	Grand	42	8
8/24/2021	Validation of Hardware	Plainwell	Grand	43	8
	Weekly Status Meeting				
8/25/2021	Validation of Hardware	Plainwell/Hastings	Grand	44	8
8/26/2021	Validation of Hardware	Hastings/ Charlotte	Grand/University	45	9
8/27/2021	Validation of Hardware	Charlotte	University	46	9
8/30/2021	Validation of Hardware	Mt Pleasant	Bay	49	10
8/31/2021	Validation of Hardware	Saginaw Eastside	Bay	50	10
	Weekly Status Meeting				
9/1/2021	Validation of Hardware	Saginaw Eastside /Saginaw	Bay	51	9
9/2/2021	Validation of Hardware	Saginaw Westside	Bay	52	10

SCHEDULE G: PARSONS DRAFT PROJECT IMPLEMENTATION PLAN

9/3/2021	Validation of Hardware	Reserved	Bay	53	5
	Validation of Hardware	Two People going forward			
9/7/2021	Validation of Hardware	Sawyer/Southhaven	Southwest	57	17
	Weekly Status Meeting				
9/8/2021	Validation of Hardware	Coloma	Southwest	58	20
9/9/2021	Validation of Hardware	Jones/Niles	Southwest	59	24
9/10/2021	Validation of Hardware	Southhaven	Southwest	60	9
9/13/2021	Validation of Hardware	Marshall/Grand Ledge	Southwest/University	63	20
9/14/2021	Validation of Hardware	Jackson/Adrian/Mason	University	64	21
	Weekly Status Meeting				
9/15/2021	Validation of Hardware	Williamson/Brighton	University	65	23
9/16/2021	Validation of Hardware	Brighton/Auburn Hills/	University / Metro	66	19
9/17/2021	Validation of Hardware	Charlotte	University	67	14
9/20/2021	Validation of Hardware	Monroe County	Monroe	70	10
9/21/2021	Weekly Status Meeting			71	
9/27/2021	Training	Location TBD	Superior	77	
9/29/2010	Training	Location TBD	North		
10/1/2021	Training	Location TBD	Bay	81	
10/4/2021	Training	Location TBD	Grand	84	
10/5/2021	Training	Location TBD	Southwest	85	
10/6/2021	Training	Location TBD	University/Monroe	86	
10/7/2021	Training	Location TBD	Metro	87	
10/8/2021	Project Review Meeting	Location TBD	Location TBD	88	
10/12/2021	Weekly Status Meeting			92	
10/19/2021	Weekly Status Meeting			99	
10/26/2021	Weekly Status Meeting			106	
11/2/2021	Weekly Status Meeting			113	
11/9/2021	Weekly Status Meeting			120	
11/16/2021	Weekly Status Meeting			127	
11/23/2021	Weekly Status Meeting			134	
11/30/2021	Weekly Status Meeting			141	
12/7/2021	Weekly Status Meeting			148	
12/14/2021	Weekly Status Meeting			155	
12/21/2021	Weekly Status Meeting			162	
12/28/2021	Weekly Status Meeting			169	
5/2/2022	Install MDC-06	Superior District	TBD	294	35
5/3/2022	Weekly Status Meeting			295	
5/6/2022	Complete Install	Superior District		298	
5/9/2022	Install MDC-06	North District	TBD	301	22
5/10/2022	Weekly Status Meeting			302	
5/12/2022	Complete Install	North District		304	

SCHEDULE G: PARSONS DRAFT PROJECT IMPLEMENTATION PLAN

5/13/2022	Install MDC-06	Grand District	TBD	305	42
5/17/2022	Weekly Status Meeting			309	
5/23/2022	Complete Install	Grand District		315	
5/24/2022	Install MDC-06	Southwest District	TBD	316	79
5/24/2022	Weekly Status Meeting			316	
6/7/2022	Complete Install	Southwest District		330	
6/8/2022	Install MDC-06	University District	TBD	331	80
6/14/2022	Weekly Status Meeting			337	
6/21/2022	Complete Install			344	
6/21/2022	Weekly Status Meeting			344	
6/22/2022	Install MDC-06	Metro District	TBD	345	15
6/23/2022	Complete Install			346	
6/24/2022	Install MDC-06	Monroe County	TBD	347	10
6/27/2022	All installs complete			350	
6/28/2022	Weekly Status Meeting			351	
7/5/2022	Weekly Status Meeting			358	
7/12/2022	Weekly Status Meeting			365	
7/19/2022	Weekly Status Meeting			372	
7/26/2022	Weekly Status Meeting			379	
8/2/2022	Weekly Status Meeting			386	
8/9/2022	Weekly Status Meeting			393	
8/16/2022	Weekly Status Meeting			400	
8/23/2022	Weekly Status Meeting			407	
8/30/2022	Weekly Status Meeting			414	
9/6/2022	Weekly Status Meeting			421	
9/13/2022	Weekly Status Meeting			428	
9/20/2022	Weekly Status Meeting			435	
9/27/2022	Year 2 Annual Training			442	
	Ongoing Annual Training				

Due to the rapid pace of implementing this system. Parsons recommends weekly meetings between Parsons and MDOT personnel. This model provides for weekly meeting for the first year. Upon mutual agreement with MDOT and Parsons, the meeting frequency may be altered.

Initial training the end of September will be in person. A day is allocated at each location to ensure that all aspects of training is addressed. Parsons will work with MDOT to determine the location where training will occur. Ongoing, after the initial in person training, Parsons will conduct training via a web conference link.

MDOT requires that all hardware be shipped to MDOT at the designated Lansing address. Parsons may recommend that all hardware be shipped to Install Contractor. Working with INDOT, Parsons had all hardware shipped directly to the installer. They provide warehousing for Parsons equipment which enables them to deliver equipment in their trucks to the install site. This prevents MDOT for having to manage getting material from Lansing to the install site prior to the installer arriving. Also, enabling the installer to

warehouse the equipment makes it much easier for addressing service calls. The installer can simply grab parts that may be needed prior to making a service call.

Parsons Expertise in Complex Installs

As described earlier, Parsons will create a detailed deployment plan based upon the results of the MDOT/Parsons Project Planning meeting. The schedule below is an example of the detailed plan that Parsons creates. Indiana DOT had two types of units installed. In older trucks they had a basic GPS/AVL unit as an interim unit until the truck was retired. All late model trucks have the full-blown MDC-006 installed. Additionally, INDOT required upgrades to certain Certified Power spreaders to enable them to communicate with the Parsons solution. Numbers under the day is the estimated number of hours to complete each install. Installs each day were based upon the number of installers available and the total projected install hours. Parsons created this detailed plan with installs starting in July and completing all installs in January. Allowances were made for holidays.

WEEK	Week 3			
HOURS	19.1	20.15	23.6	27
MDC-006	5	5	6	7
MDC-007	2	3	2	0
Freedom 2	1	1	2	1
Freedom XDS	1	2	2	3
PHASE	Phase 1	Phase 1	Phase 1	Phase 1
SEQUENCE	3-1	3-2	3-3	3-4
LOCATION	Ft Wayne	Ft Wayne	Ft Wayne	Ft Wayne
DATE	July 27	July 28	July 29	July 30

DISTRICT	SUB-DIST	UNIT	TRUCK #	YEAR	MAKE	MODEL	SPREADER	Inst	INSTALL LOCATION	Day 1	Day 2	Day 3	Day 4
Fort Wayne	Fort Wayne	Fort Wayne	62601	2008	International	SA1	Muncie E	7/27	Fort Wayne	0.3			
Fort Wayne	Fort Wayne	Angola	62051	2009	International	4300	Muncie E	7/27	Fort Wayne	0.3			
Fort Wayne	Fort Wayne	New Haven	62446	2019	Freightliner	108SD	Muncie Advantage	7/27	Fort Wayne	3.5			
Fort Wayne	Fort Wayne	Waterloo	62438	2020	Freightliner	108SD	Muncie Advantage	7/27	Fort Wayne	3.5			
Fort Wayne	Fort Wayne	New Haven	62256	2018	Freightliner	108SD	Muncie Advantage	7/27	Fort Wayne	3.5			
Fort Wayne	Fort Wayne	Angola	62018	2013	Freightliner	108SD	CP Freedom 2	7/27	Fort Wayne	3.75			
Fort Wayne	Fort Wayne	Fort Wayne	62299	2014	Freightliner	114SD	CP Freedom 2	7/27	Fort Wayne	4.25			
Fort Wayne	Fort Wayne	Fort Wayne	62339	2007	International	7400	Muncie E	7/28	Fort Wayne		0.3		
Fort Wayne	Fort Wayne	Angola	62245	2006	Sterling	L7500 Serie	Muncie E	7/28	Fort Wayne		0.3		
Fort Wayne	Fort Wayne	Fort Wayne	62057	2009	International	4300	Muncie E	7/28	Fort Wayne		0.3		
Fort Wayne	Fort Wayne	Waterloo	62459	2020	Freightliner	108SD	Muncie Advantage	7/29	Fort Wayne		3.5		
Fort Wayne	Fort Wayne	Angola	62125	2016	Freightliner	108SD	Muncie Advantage	7/28	Fort Wayne		3.5		
Fort Wayne	Fort Wayne	Waterloo	62452	2012	Kenworth	T470	CP Freedom 2	7/28	Fort Wayne		3.75		
Fort Wayne	Fort Wayne	Fort Wayne	62507	2017	Freightliner	108SD		7/26	Fort Wayne		4.25		
Fort Wayne	Fort Wayne	Fort Wayne	62457	2017	Freightliner	108SD		7/28	Fort Wayne		4.25		
Fort Wayne	Fort Wayne	Angola	62456	2020	Freightliner	108SD	Muncie Advantage	7/31	Fort Wayne				3.5
Fort Wayne	Fort Wayne	Angola	62254	2018	Freightliner	108SD	Muncie Advantage	7/31	Fort Wayne				3.5
Fort Wayne	Fort Wayne	Fort Wayne	62128	2016	Freightliner	108SD		8/4	Fort Wayne				3.5
Fort Wayne	Fort Wayne	Waterloo	62879	2012	Kenworth	T470	CP Freedom 2	7/30	Fort Wayne				3.75
Fort Wayne	Fort Wayne	New Haven	66188	2017	Freightliner	114SD	CP Freedom 2	8/3	Fort Wayne				4.25
Fort Wayne	Fort Wayne	New Haven	62728	2017	Freightliner	114SD	CP Freedom 2	7/27	Fort Wayne				4.25
Fort Wayne	Fort Wayne	Waterloo	62620	2017	Freightliner	108SD	CP Freedom 2	8/4	Fort Wayne				4.25

While Indiana installs were conducted at each subdistrict location, Nebraska requested installs be conducted at the garage level. To ensure that everyone was fully aware of the date of the install, the trucks that were to be installed, the hours for install and other variables, a similar matrix was created. Since garage level personnel were responsible for ensuring all vehicles were available, multiple reminders were sent to the garage supervisor and their supervisor. An email was sent two weeks in advance of the install providing the truck numbers, times and all the details of the install process along with the expectations for garage personnel to prepare for the installs. A follow-up email was sent one week in advance of the install and a final email sent the day prior to the install. After the install was completed, a follow-up email was sent seeking feedback on how Parsons and our subcontractors could improve the process. We continually improved the process based upon feedback from the field. Through this method, the install process worked well.

PRELIMINARY

PROJECT MANAGEMENT PLAN

Type of Services

Automatic Vehicle Location (AVL)/GPS Operational Management Solution

Parsons Job No: xxx

Date: xxx

APPROVALS

PM's Signature	Date
Sector Manager's Signature	Date
Division Manager's Signature	Date
Quality Manager's Signature	Date
Other Manager's Signature	Date

(Note: Insert N/A as applicable)

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

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ACRONYMS OR ABBREVIATIONS

AVL	Automatic Vehicle Location
CAPA	Corrective and Preventive Actions
COI	Certificate of Insurance
GSS	Global Shared Services (Parsons)
I/O	Input/Output
IMO	Integrated Mobile Observations
MDC	Mobile Data Collector
MDSS	Maintenance Decision Support System
MDOT	Michigan Department of Transportation
PM	Project Manager
PMP	Project Management Plan
PSHEP	Project Safety, Health, and Environment Plan
PWP	Paid when Paid
QA	Quality Assurance
OBU	On-Board Unit – Parsons MDC-006 or MDC-004
QC	Quality Control
OSS	Operations Shared Services (Parsons)
POC	Point of Contact
RAM	Responsibility Accountability Matrix
SHSO	Site Health and Safety Officer
SHSP	Site Health and Safety Plan
SSHEPS	Subcontractor Safety, Health, and Environment Plans
WBS	Work Breakdown Structure
WIP	Work in Progress
WMT	Winter Maintenance Truck – Michigan Snow Plow

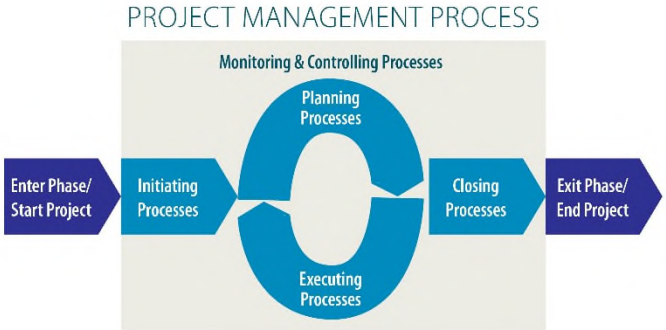
MDC/AVL WITH MDOT SNOW PLOWS

Executive Summary

Introduction

The Parsons Team has generated a comprehensive Project Management Plan (PMP) to deliver the results the project was designed to achieve. The approach focuses on the creation of a PMP framework for the Michigan DOT Automatic Vehicle Location (AVL) project that is grounded in the Project Management Institute (PMI) standards. This approach ensures a quality framework as to how the project should be conducted and how the decisions are made during the course of the project. This PMP is designed to connect the stakeholders in the project to the project work and deliver a strategy to monitor changes and track performance across the project. The PMP also reduces the potential blurred boundaries between different entities, as each entity has a clear idea about their responsibilities, authorities, and domain of influence.

This PMP describes in detail the deliverables, safety plan, quality plan, how the project is managed, and how the project is prepared and delivered to the MDOT. Critical elements of managing the project are addressed in the PMP. It serves as the guide or a roadmap of the project and is updated as needed as the project work advances.



PMP Revision

Revision History (Example)

Revision	Changes	Approved	Date

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix A – Contract/Statement of Work

The scope of the contract for the Michigan Department of Transportation is shown as follows:

Effective Dates of Contract:

Contract Term. This contract is effective for the period of July 12, 2021 until July 11, 2026.

Expiration Date:

This contract expires five (5) years from the effective date on July 11, 2026.

Renewals:

This contract may be renewed for three (3) additional one (1)-year periods when mutually agreeable to the Contractor and the Michigan Department of Transportation (MDOT).

Extension Period:

The State reserves the right and sole discretion to extend this contract beyond the expiration date.

Scope of the Contract:

This is an RFP for a comprehensive Automated Vehicle Location (AVL)/Global Positioning System (GPS) fleet tracking system for the Michigan Department of Transportation (MDOT). The Contractor will utilize any existing AVL equipment as deemed possible by the Contractor and as accepted by the MDOT. This RFP is all encompassing: including but not limited to; the necessary removal of previous AVL/GPS hardware in trucks, firmware, software, installation of new AVL/GPS hardware, firmware, software, communication/data transfer, training support, secure website for displaying mapped assets in near real-time, data management, data reporting and data storage, and ongoing technical support for implementing an AVL/GPS fleet tracking solution on the Departments fleet. All data collected through this RFP is to be stored on non-state-owned servers provided by the contractor. AVL Data should be stored for 5 years and be able to be recalled at any point during that time span. The Contractor will be responsible for being able to work with and communicate with the Statewide Maintenance Decision Support System (MDSS) tool for the Departments maintenance garages and fleet of winter maintenance trucks (WMTs). The MDSS is a web-based solution available to all MDOTs maintenance facilities for providing weather forecasts, pavement condition forecasts, and maintenance treatment recommendations. The MDSS can provide treatment recommendations and local radar and weather information to the operator of a WMT (with the in-cab display screen). RWIS Data collected in MDSS should be stored for 5 years and be able to be recalled at any point during that time span.

Contract Pricing

Pricing from the contract will be inserted here.

Change Management

1. **Change Management Process**

The Contractor may submit Change Orders that fall under change management as described herein. An hourly rate for Change Management must be included on the Cost Proposal Bid Sheet. The Change Order must be acknowledged and accepted in writing by MDOT before any additional work is undertaken. Each Change Order Request submitted by the Contractor includes:

A. Provide a clear description of what is included in each change request.

B. Incorporate multiple levels of priority for change requests (e.g., critical, must-have, desired, etc.).

C. Support the Change Management Process by estimating impacts, investigating solutions, identifying alternatives, participating in the decision-making process, and implementing the agreed-upon solution.

2. Fixed Hourly Rates

MDOT requires the following pricing approach be used when addressing Change Management tasks and activities:

A. An hourly rate for Change Management must be included on the Cost Proposal Bid Sheet.

B. Invoices must clearly identify the change project, the staff involved, and the hourly rate established in the RFP response.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix B – Project Safety Plan

Safety is an integral part of the Parsons culture. Health and safety management is required for every contract conducted by Parsons. The type of work for this contract consists of business consulting and software development, which requires office work as well as business travel to and from client office sites. The following is the complete Safety Plan to support this project:

Automated Vehicle Location (AVL)/GPS Operational Management Solution for the Michigan Department of Transportation

Project Safety, Health, and Environmental Plan

PARSONS

OWN ZERO

Date

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Section 1 – Introduction

1.1 Parsons Safety, Health & Environment Policy

EXHIBIT A.1: PARSONS CORPORATE SH&E POLICY

PARSONS

Corporate Safety, Health & Environment Policy Statement

As an industry-leading engineering, construction, and technical services firm, Parsons is firmly committed to maintaining a safe, healthy, and environmentally compliant workplace at all its offices and project facilities, guided by the following tenets:

- Safety, Health and Environment (SH&E) is a core value.
- Executive management will lead the SH&E process.
- SH&E will be a responsibility shared by all.
- SH&E performance will be a key business performance indicator.
- SH&E performance will be communicated openly.
- Employees will be given the knowledge and skills necessary to perform their jobs in a high-performance SH&E manner.
- We will extend our SH&E efforts beyond the workplace to include travel, homes, and communities.
- We will continually strive to improve our SH&E processes.

To meet our SH&E objectives, all employees are expected to be actively engaged with regard to SH&E issues. This requires the combined efforts of a concerned management, responsible and knowledgeable supervision, and conscientious, well-trained employees.

Parsons will meet or exceed the applicable SH&E legal and other requirements and will continuously monitor and improve operations, procedures, technologies, and programs that are conducive to maintaining a safe, healthy, and environmentally compliant workplace.

Charles L. Harrington

Chairman and Chief Executive Officer

1.2 The Project Safety, Health, and Environmental Plan (PSHEP)

Parsons' goal is zero incidents using control measures designed to minimize or eliminate hazards to personnel, processes, equipment, the public, and the environment. This PSHEP outlines safety, health, and environment (SH&E) requirements and guidelines developed by Parsons for project work. When implemented, these requirements will help protect site personnel, visitors, the public, and the environment from incidents caused due to SH&E hazards. Parsons employees should never perform a task that may endanger their own safety and health, the safety and health of coworkers or the public, or damage the environment.

This plan should be updated as conditions change or situations change, usually by addenda to the PSHEP. All Parsons personnel must understand and implement the PSHEP and any addenda. Parsons documents this process by having employees sign an acknowledgement form stating that they understand the PSHEP and its requirements. The Peachtree Corners Office's "Office SH&E Plan" is included in this plan by reference, and a copy can be found on the MDOT Project website.

1.3 Sub-contractor Safety, Health, and Environmental Plans (SSHEPS)

All initial sub-contract will be required to provide a SAFETY, HEALTH, AND ENVIRONMENTAL PLAN (SSHEPS).

Section 2 – Scope of Work

2.1 Scope of Work

This project consists of providing all installation labor, hardware, software, applications, related equipment, and components for a fully functioning and operational Maintenance Decision Support System (MDSS) and Automatic Vehicle Location (AVL) System & Services, thereby upgrading winter maintenance vehicle operations throughout the six (6) districts within the MDOT, as specified in RFP 210000001577.

2.2 Project Safety, Health, and Environmental Plan Application

This PSHEP and its referenced documents apply to all locations, facilities, operations, and projects associated with contract work performed by Parsons and its subcontractors. Locations/sites covered under this contract include the Peachtree Corners offices and MDOT project sites.

Section 3 – Project SH&E Management Responsibilities and Authority

3.1 SH&E Responsibility Matrix

Exhibit 3-1 summarizes the responsibilities of selected roles related to the primary SH&E activities identified in the PSHEP.

EXHIBIT A.2: PRIMARY SH&E ACTIVITIES IDENTIFIED IN THE PSHEP.

Project Responsibility Matrix		Project												GBU						Corporate					
Phases	Work Elements	Project Manager	Safety & Health	Environmental	Construction/Site	Engineering	First Line Supervision	Facilities and Maintenance	Training	Contracts/Procurement	Security	Sustainability	Quality	President is this correct	Operations/Risk Management	Division Management	Sector Management	Safety, Health, & Environment	Quality	CEO	Operations/Risk Management	Safety, Health, & Environment	Security	Workers' Compensation	Insurance
Introduction to ESHARP for Project	1. Environment, Safety, Health, and Risk Management Program (ESHARP) Project Management	R	D	D	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P
Startup	3. Initial Hazard Analysis and Planning	A	R	D	P	P					D							P				P	P		
	4. Project Safety, Health, and Environmental Plan (PSHEP)	A	D	D	P										P	P	P	R				P	P		
	5. Stakeholder PSHEP Alignment Meeting	A	D	D	P													R							
Closeout	23. Lessons Learned and Final SH&E Report	A	D	D	P											P	P	R	P			P			
	24. Records Retention	A	P	P					P		D		P					R	P			P			

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

R – Responsible and accountable for ensuring the project develops and implements the work element. D – Develops the plan, tool, training, document, or other item needed for the work element.

P – Participates by providing advice, assisting in the implementation or development, reviewing, and providing comments, or otherwise supporting the development or implementation effort. A – Approval at the management level with responsibility for the project; establishes requirements for the project or serves as sponsor for the item.

Section 4 – Administrative Phase

4.1 Project Safety, Health, & Environment (SH&E) Committee

The project must have an SH&E Committee that includes representation from all project stakeholders. The SH&E Committee meets at times and locations to be determined and posted by the chairperson on the safety bulletin board at least one week in advance.

For this project, which runs through end of 2023, SH&E Committee members include:

Peachtree Corners Office Safety Committee: Trevor Moore and Stephanie Sale

Charter of the SH&E Committee: The SH&E Committee represents the mutual interests of all project participants in completing the work with zero injuries. The Committee meets at a minimum, biannually to consider recent near misses or injuries, potential unsafe conditions, training programs, safety awareness, audit results, and related issues. The Committee advises the Project Manager, who retains sole decision-making authority.

The Chairperson schedules the meetings, develops the agenda, and files meeting minutes in the Project Directory. Employees may submit suggestions and topics for discussion to the Chairperson at any time.

4.2 Employee Orientation

The Talent Management Department has a comprehensive employee orientation program for new Parsons employees. The project SH&E personnel meet with new employees on the project to review office procedures and requirements. All new employees on a project, including new hires and transfers, must review the PSH&E Plan and the Peachtree Corners Office Safety Plan on their first day and sign an acknowledgment form indicating their review. Any employee who is unsure of any information presented in the orientation must request clarification. Employees who do not participate in the orientation or refuse to sign the acknowledgment form cannot work on the project.

4.3 Awareness Campaign

The project awareness program relies on the Parsons Peachtree Corners office SH&E awareness campaign and its various elements (e.g., signs, posters, banners, and focus briefings). This program promotes employee awareness of SH&E goals and daily risks, hazards, and exposures in the field. In addition to topics selected by Corporate Safety each month, the project will supplement the awareness program with information specifically applicable to the scope of work.

The SH&E bulletin board maintained by the Office SH&E Manager is the primary information point for the project awareness campaign. Bulletin boards are in the lunchroom area of the Peachtree Corners office. The Project SH&E Committee chairperson may also provide training, presentations, or informational materials as part of the awareness campaign

4.4 Stakeholder PSHEP Alignment Meeting

Not applicable

4.5 Training

All employees receive a general orientation upon assignment to the project. All office-based employees also receive specialized office training through online courses, including the following topics:

- Proper lifting techniques

- Ergonomics
- Housekeeping
- Common office hazards and environmental risks (if any)
- Office emergencies
- Other relevant topics

Field-based employees and office employees who spend a significant portion of their time in the field also receive field training as described in Section 7 of this PSHEP.

4.6 Audits and Inspections

The Project SH&E Manager will audit the implementation of this plan. The Peachtree Corners Office Safety Committee performs routine audits of the office.

4.7 SH&E Meetings

All project meetings that include five or more people must begin with an SH&E moment. The meeting chairperson may present the SH&E topic or ask for a volunteer to open the discussion. In general, these "SH&E moments" are brief, perhaps a minute or two, and should be directly relevant to the work of the day or applicable to most employees outside the workplace.

All hands SH&E meetings will be held as necessary to review critical safety procedures, discuss safety incidents, and celebrate safety milestones. The Project SH&E Manager announces the time and schedule of these meetings at least one week in advance.

4.8 Rewards and Recognition

Not Applicable

4.9 Measurement and Reporting

2.4.9.1 Emergencies

4.9.1.1 WorkCare – For Domestic Use Only

For domestic project use only, Parsons and WorkCare have partnered together to promote Incident Intervention™, a resource designed to provide Parsons employees with immediate access to qualified medical clinicians who are able to provide our employees with prompt medical assessment in the event of non-life threatening, non-medical emergency work related injury or illness. Through this process, Parsons can leverage clinical expert resources to coordinate appropriate treatment care. WorkCare serves as a "medical advocate" for the employee, the WorkCare clinician provides responsive evaluation of the incident, assists the employee/employer in determining the most appropriate course of action, and consults with the treating physician.

4.9.1.2 Work-Related Injury Procedures

For emergencies, call 911!

If the incident that occurred is serious/life threatening or requires emergency response, first summon medical attention before contacting your GBU Safety Director, filing the IndustrySafe Online Incident Report, or involving WorkCare.

To coordinate the WorkCare triage process, it is imperative that Parsons employees report all work-related injuries immediately to their supervisors.

For work-related injuries or illnesses that may require physician direction on appropriate treatment, Parsons employees should then promptly contact WorkCare, ideally before seeking medical care, as this will provide the greatest opportunity for appropriate intervention.

If an injured employee requires medical care for a work-related injury/illness, the Order for Treatment of Work-Related Injury or Illness MUST be sent with the injured worker and/or faxed to the occupational medicine clinic at the time of the initial evaluation. Here is the link to the document on ParShare: Order for Treatment of Work-Related Injury or Illness.

WorkCare's Incident Intervention is available 24 hours a day, 7 days a week (24/7), and 365 days per year.

WorkCare contact number is 1-888-449-7787. Be prepared to provide the following:

1. Injured employee's name
2. Injured employee's contact number
3. Injured employee's location (at a minimum, include the city and state)
4. Employee ID number
5. Employee's GBU
6. Employee's project or office location
7. Functional manager's name

3.4.9.2 Measurement and Compliance

N/A

4.4.9.3 Incident Reporting

Employees involved in or witnessing an injury, worker exposure, environmental incident, or near miss must immediately report it to the Parsons Project SH&E Director, **Trevor Moore (678) 969-2385.** No supervisor may decline to accept or relay a report of a n SH&E incident or significant near miss from a subordinate.

The Project Manager must ensure that all SH&E incidents are reported to the GBU SH&E Director and other management personnel (as required) within four hours. The Project SH&E Manager (who has been trained on Parsons's reporting requirements and IndustrySafe Online SH&E Reporting System) prepares and submits SH&E reports. The online SH&E reporting system includes an accident investigation form. This page can only be viewed by system administrators, designated managers, and the assigned investigator. The GBU SH&E Director serves as the default investigator and may assign that role on a case-by-case basis.

The Incident Investigation Form is on ParShare; use this link: Incident/Accident Report Form. Procedures for investigating workplace accidents and hazardous exposures include the following: Emergency Response Team responds to the accident scene as soon as possible.

Report all injuries to the Parsons Workers' Compensation Claims Analyst. For access to all Workers' Compensation related information and forms, use this ParShare link: Workers' Compensation Information and Forms.

- Report on PWeb using the online IndustrySafe Reporting System.
- Report to appropriate client point of contact in accordance with contractual requirements. Interview injured workers and witnesses.
- Have employee complete the Employee Accident Report and the Individual Statement Report within 24 hours. If the employee is unable to complete the statement, the functional manager must complete the form.
- Report to the Parsons SH&E Manager (or Parsons Project Manager) immediately.
- Examine the workplace for factors associated with the accident/exposure. Determine the cause of the accident/exposure.
- Take corrective action to prevent the accident/exposure from recurring.

- Record the findings and corrective actions taken.

The Project SH&E Manager must notify the local OSHA office and/or regional, municipal, and/or local regulations office in writing within 8 hours if an accident involves the death of an employee or hospitalization of *three or more* workers.

4.10 Incident Investigations

All accidents, worker overexposures, environmental incidents, and significant near misses are investigated by an individual or team with training in incident investigation and root cause analysis.

At Parsons, the GBU SH&E Director investigates or assigns an investigator to each significant incident. The investigator submits a final investigation report using the online safety reporting system within 72 hours of the incident. The Project SH&E Manager maintains the investigation file.

4.11 Responsibility/Identification of Key Line Personnel

For project responsibility and identification of key personnel

EXHIBIT A.3: PROJECT KEY PERSONNEL

Project Office:	Peachtree Corners, GA	
Address:	3577 Parkway Lane, Suite 1 Peachtree Corners, GA 30092	
Telephone	**Fax**	**Email**
678-969-3385	404-320-1099	trevor.moore@parsons.com
Company Executive responsible for project		**Contact No.**
Roberto Perez		678-730-7404
Project Manager		**Contact No.**
Russ Brookshire		678-730-7433
Deputy Project Manager		**Contact No.**
Larry Simmons		678-730-7405
SH&E VP, PTG		**Contact No.**
John Baker		704-558-4309 Email: john.baker@parsons.com
Peachtree Corners Office Safety Committee Contact		**Contact No.**
Trevor Moore		678-969-2386 Email: trevor.moore@parsons.com
MDOT Project Management POC		**Contact No.**

The personnel listed above have the authority and responsibility for implementing the provisions of this project.

4.12 Medical Requirements and Workers' Compensation

In accordance with corporate requirements, the Project SH&E Manager has established and implemented the following medical requirements for the project:

5.4.12.1 Functional Capacity Evaluations (FCEs)

N/A

6.4.12.2 Substance Abuse Tests

The Talent Management Department administers required substance abuse tests. For the Corporate Substance Abuse Policy, go to the PWeb, Policies and Practices, Corporate Policies folder.

7.4.12.3 On-site Medical Services and Panel of Physicians

N/A

8.4.12.4 Emergency Response

The following is a list of local emergency telephone numbers and locations of emergency facilities:

Peachtree Corners Office:

- Fire: 911
- Police: 911

9.4.12.5 Workers' Compensation Program

The Corporate Risk Management Department establishes the workers' compensation carrier. If a workers' compensation loss occurs, the Corporate Workers' Compensation Analyst handles all communication with the workers' compensation carrier.

For access to all Workers' Compensation related information and forms, use this ParShare link: Workers' Compensation Information and Forms.

10.4.12.6 Medical Monitoring

N/A

Section 5 – Preconstruction

Not Applicable

Section 6 – Construction

Not Applicable

Section 7 - Project Safety Orientation

The Parsons Project Manager or Project Safety Manager conducts office and site-specific orientation (if applicable) for all project staff. Orientation includes applicable owner and Parsons, reference material, including this PSH&E Plan and the Peachtree Corners office Safety Plan.

This orientation should be documented using the Initial Employee Training Acknowledgement (Exhibit 7-1). The Project Safety Manager maintains orientation documents and acknowledgement forms.

7.1 Zero Incident Techniques/Start Training

Consistent with Parsons corporate initiatives in safety, all managers, and supervisors, must complete START training.

7.2 Daily Huddle

Daily Huddles are not applicable for this project. Exhibit 7-2 should be used when applicable.

EXHIBIT A.4: INITIAL SUBCONTRACTOR EMPLOYEE TRAININGACKNOWLEDGEMENT

Parsons

Initial Employee Training Acknowledgment

Name of Trainer: _____

Training Subject _____

Training materials used: _____

Name of employee: _____

Date of hire/assignment: _____

I, hereby certify that I have received training as described above in the following areas:

- The potential occupational hazards in general in the work area and associated with my job assignment.
- General SH&E requirements indicate the safe work conditions, safe work practices, personal protective equipment, and environmental requirements required for my work.
- The hazards of any chemicals to which I may be exposed and my right to information contained on material safety data sheets for those chemicals, and how to understand this information.
- My right to ask questions, or provide any information to the employer on safety, health, or environment either directly or anonymously without any fear of reprisal.
- Disciplinary procedures the employer will use to enforce compliance with general safety requirements.
- I understand this training and agree to comply with general safety requirements for my work area.

_____ _____

Employee Date

ParShare link: Initial Subcontractor Employee Training Acknowledgement

EXHIBIT A.5: TAKE 5 CARD

Parsons

Safety - The first thing you do!

Date: _____

Project/Task: _____

Your Name: _____

Before you begin any new task pause for 30 seconds and ask yourself the following questions. Take corrective actions as necessary prior to beginning work.

- ☐ Do I know exactly what I am doing?
- ☐ Have I reviewed the AHA for this task? Do I have all the right people involved?
- ☐ Is there any potential that I or my coworkers could get hurt?
- ☐ Are there any questions I should be asking fellow employees?
- ☐ Should I talk to my supervisor?
- ☐ Have I read the Work Plan and fully understand the procedures relating to this job?
- ☐ Am I using the proper tools?
- ☐ Do I have the proper PPE?
- ☐ Will I be working as safely as I know how?
- ☐ Do I see anything that just doesn't look quite right?
- ☐ Am I in a hurry?
- ☐ Would I be safer if I slowed down?

Each of these questions should be answered to your full satisfaction before you proceed with the work. Remember, no job is so important that you must jeopardize your safety.

Job Hazards? (List direct hazard of job duties)

1. Hazards:
   Mitigation:
2. Hazards:
   Mitigation:
3. Hazards:
   Mitigation:

Work Area	Yes	No
Work Area Clean	☐	☐
Permits Attained	☐	☐
Standard PPE (Hard hat, vest, glasses, gloves, safety boots)	☐	☐
Additional PPE needed:		

Briefly review hazards and mitigations again after lunch.

ParShare file: Take 5 Card

7.4 Weekly Toolbox SH&E Meetings

Not applicable

7.5 Activity Hazards Analysis Training

When the Activity Hazards Analysis is complete, the Parsons supervisor conducts a training session with all employees involved with the task. The training may be informal and at the site where the task is performed. Employees should be given an opportunity to provide input regarding task steps, hazards identified, and appropriate control measures.

The Project Safety Manager documents and maintains the Activity Hazards Analyses.

7.6 Regulatory Training Programs

Not applicable

7.7 Outreach Programs

Not applicable

7.8 Specialized Training and Orientations

Installers have completed safety training through Great Plains Health and Safety, which is performed through the University of Nebraska at Kearney. Training included work site safety focused on the use of power tools, ladders, confined spaces, vehicle, and chemical hazards.

7.9 Driver Safety Training

Add the project-specific program here: N/A

Add the Employee Acknowledgement for Vehicle Use here: N/A

The Corporate Policy Links are shown below:

- Corporate Vehicle Safety Policy
- Corporate Safety Policy for Fleet Drivers
- Corporate Safety Inspection Form

Section 8 – Recordkeeping and Posting

Parsons must comply with the recordkeeping requirements of Parsons Corporation and this PSHEP, including:

Medical treatment and follow-up training
Inspections
Audits
Others, as required

Parsons Talent Management and the Project SH&E Manager are the official recordkeepers for files relating to Parsons employees. Each subcontractor maintains its own files.

Section 9 – Safety and Health Requirements

Exhibit 9-1 represents regional, municipal, local, and/or OSHA regulations, owner, and Parsons corporate regulations and requirements applicable to the project. Based on the most recent risk assessments, the Parsons Project Manager and Project Safety Manager update the listed topics periodically. Training and other requirements are updated in this PSHEP as required by changes to Exhibit 9-1, Competent Person and Activity Hazards Analysis Requirements.

Parsons and its subcontractors are individually responsible for training their respective employees and for complying with all project requirements. Failure to comply could lead to disciplinary actions against Parsons employees and subcontractors or their employees. Further guidance is available in the Parsons Corporate Safety and Health Manual; ParShare link is as follows: Corporate Safety and Health Manual.

EXHIBIT A.5: COMPETENT PERSON AND ACTIVITY HAZARDS ANALYSIS REQUIREMENTS

Safety and Health Requirement	Parsons Safety, Health, and Environmental Manual	OSHA Regulation	EM 385-1-1 Regulation	Competent/ Qualified Person	Training Required	Written Plan and AHA Required
General Safety and Health		1926.20	01.A	Yes	Yes	Yes
Safety Training		1926.21	01.B.01	Yes	Yes	Yes
Confined Spaces	15	1926.21, 1910.147	06.01	N/A	N/A	N/A
Confined Space Permit System	15	See above	06.01	N/A	N/A	N/A
First Aid and Medical	2	1926.23, 50	03.A	N/A	N/A	N/A
Fire Protection and Prevention	12	1926.24, 150 155, 352	09.A	N/A	N/A	N/A
Housekeeping	4	1926.25	14.C	N/A	N/A	N/A
Illumination	4	1926.26, 56	07.A	N/A	N/A	N/A
Sanitation	4	1926.27, 51	02.A	N/A	N/A	N/A
Personal Protective Equipment	6	1926.28, 95-98, 100-107	05.A	Yes	Yes	Yes
Acceptable Certifications		1926.29		Yes	Yes	Yes
Incorporation by Reference		1926.31	Preamble	N/A	N/A	N/A
Emergency Employee Action Plans	11	1926.35	01.E	Recommended	Yes	Yes
Noise Exposure	7	1926.52	05.C	N/A	N/A	N/A
Radiation Protection	9	1926.53, 54	06. E&F; 28. A.02	N/A	N/A	N/A
Gases, Vapors, Dusts and Mists	9	1926.1926.55		N/A	N/A	N/A
Ventilation	37	1926.57, 353		N/A	N/A	N/A
Hazard Communication	10	1926.59	1.B.06	Yes	Yes	Yes
Process Safety Management	14	1926.64 1910.119		N/A	N/A	N/A
Hazardous Waste Operations and Emergency Response	13	1926.65 1910.120	28.A	N/A	N/A	N/A
Accident Prevention Signs and Tags	16	1926.200	08.A	N/A	N/A	N/A
Signaling	16	1926.201	08.B	N/A	N/A	N/A

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Safety and Health Requirement	Parsons Safety, Health, and Environmental Manual	OSHA Regulation	EM 385-1-1 Regulation	Competent/ Qualified Person	Training Required	Written Plan and AHA Required
Barricades	16	1926.202		N/A	N/A	N/A
Material Storage	17	1926.250	14.B	N/A	N/A	N/A
Rigging	26	1926.251	15.A	N/A	N/A	N/A
Waste Disposal		1926.252	14.D	N/A	N/A	N/A
Tools	29	1926.300-307	13.A	N/A	N/A	Yes
Gas Welding and Cutting	28	1926.350	10.A	N/A	N/A	N/A
Arc Welding	28	1926.351	10.E	N/A	N/A	N/A
Electrical	24	1926.400-415	11.E	N/A	N/A	N/A
General Electrical	24	1926.416	11.A	N/A	N/A	N/A
Lockout Tagout	23	1926.417, 1910.147	12.A	N/A	N/A	N/A
Lockout Tagout Permit System	23	See above	12.A	N/A	N/A	N/A
Maintenance of Electrical Equipment		1926.431	11A	N/A	N/A	N/A
Environmental Deterioration of Electrical Equipment	24	1926.432		N/A	N/A	N/A
Batteries/Battery Charging Equipment	24	1926.441	11.E	N/A	N/A	N/A
Scaffolding	20	1926.450-454	22.A	N/A	N/A	N/A
Aerial Lifts	21	1926.453	22.J and K	Yes	Yes	Yes
Fall Protection	22	1926.500-503	21.A	Yes	Yes	Yes
Cranes, Derricks, Hoists, Elevators, and Conveyors	26	1926.550	16.A	N/A	N/A	N/A
Motor Vehicles, Mechanized Equipment	25	1926.600-603	18.A	N/A	N/A	N/A
Powered Industrial Trucks (forklifts)	25	1910.178		N/A	N/A	N/A
Site Clearing	32	1926.604	31.A	N/A	N/A	N/A
Marine Operations and Equipment		1926.606	16.F	N/A	N/A	N/A
Excavations	33	1926.650-652	25.A	N/A	N/A	N/A
Excavation Permit	33	N/A	N/A	N/A	N/A	N/A
Concrete and Masonry Construction	4	1926.700-706	27.A	N/A	N/A	N/A
Steel Erection	34	1926.750-761 and SENRAC		N/A	N/A	N/A
Underground Construction	30	1926.800	26.A	N/A	N/A	N/A
Caissons		1926.801	26.H	N/A	N/A	N/A
Cofferdams		1926.802		N/A	N/A	N/A
Compressed Air	30	1926.803	26.I	N/A	N/A	N/A
Demolition	32	1926.850-860 inclusive	23.A	N/A	N/A	N/A
Power Transmission and Distribution		1926.950-960 inclusive	11.H	N/A	N/A	N/A

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Safety and Health Requirement	Parsons Safety, Health, and Environmental Manual	OSHA Regulation	EM 385-1-1 Regulation	Competent/ Qualified Person	Training Required	Written Plan and AHA Required
Rollover Protective Structures; Overhead Protection	25	1926.1000-1003 inclusive		N/A	N/A	N/A
Stairways and Ladders Scope	18	1926.1050	21.A	N/A	N/A	N/A
Stairway/Ladder General Requirements	18	1926.1051		N/A	N/A	N/A
Stairways	18	1926.1052	21.E	N/A	N/A	N/A
Ladders	19	1926.1053	21.D	N/A	N/A	N/A
Ladder/Stair Training	19	1926.1060		N/A	N/A	N/A
Diving Scope		1926.1071-1072	30.A	N/A	N/A	N/A
Dive Team Quals		1926.1076	30.A.08	N/A	N/A	N/A
Dive Safe Practices Manual		1926.1080	30.A.16	N/A	N/A	N/A
Pre-dive Procedures		1926.1081		N/A	N/A	N/A
Procedures During Dive		1926.1082	30.A.15	N/A	N/A	N/A
Post=Dive Procedures		1926.1083	30.A.22	N/A	N/A	N/A
SCUBA Diving		1926.1084	30.B	N/A	N/A	N/A
Surface-Supplied Air Diving		1926.1085	30.A.04	N/A	N/A	N/A
Mixed-gas Diving		1926.1086	30.D	N/A	N/A	N/A
Liveboating		1926.1087	30.A.05	N/A	N/A	N/A
Diving Equipment		1926.1090	30.E	N/A	N/A	N/A
Diving Recordkeeping Requirements		1926.1092	30.A.06	N/A	N/A	N/A
Internal Traffic Control	16	N/A	8.D	N/A	N/A	N/A
Traffic Movement Restriction Times	16	N/A	8.C	N/A	N/A	N/A
Line Breaking	23	1910.119 and 1926.54		N/A	N/A	N/A
Major Material Movements	17	N/A	N/A	N/A	N/A	N/A
Right-of-way Restrictions	16	N/A	N/A	N/A	N/A	N/A
Bicycles/Golf Carts		N/A	18.D	N/A	N/A	N/A
IIPP/SSPP		Cal 3203	Cal 3203	N/A	N/A	N/A

ParShare link: Competent Person and Activity Hazards Analysis Requirements

Appendix C – Risk Management Plan

Parsons has created a risk management plan that utilizes a risk register to monitor the potential risks that may occur prior to the beginning of the project and during the lifecycle of the project. The risk register becomes the center point to log the identification of the risks, monitor the status, assign an owner to the risk, develop a risk mitigation plan, and monitor the risk throughout the project. The risk register consists of the following columns:

Column for the status of the risk identified by red, yellow, and green

- Red indicates critical to the project outcome.
- Yellow indicates that the risk is not an immediate threat to the project outcome but needs to be monitored.
- Green indicates the risk was mitigated and the threat is at a low level but still being monitored.

Risk ID number generated by the system.

Detailed description of the identified risk.

Project team member name of the assigned risk owner of the risk.

Potential impact (high, medium, or low) of the risk to the outcome of the project.

Response and mitigation plan for the identified risk.

General comments on the risks such as updates to the mitigation plan.

The risk register is a "living document" that is continuously reviewed and updated throughout the project lifecycle to ensure that risks are constantly identified and managed, to keep the project on track, and to ensure project success. The project manager is responsible for the risk mitigation plan and oversees the plan throughout the project.

As part of the risk identification process, a risk issue can be submitted by anyone - Parsons, Installer, and MDOT project team members. Simply email the RISK to the project manager, who will enter the risk into the RISK Register (Below).

MDOT Risk Register

STATUS	RISK ID NUMBER	IDENTIFIED RISK	OWNER	IMPACT®	RESPONSE -MITIGATION PLAN	COM
	1					
	2					
	3					
	4					
	5					
	6					
	7					

Once the risk is under control, it is continually tracked and monitored throughout the project and entered into the "Lessons Learned Log" to be part of the planning process for future projects.

Appendix D – Change Order Management Plan

From time to time, a need for work not originally specifically delineated in this RFP but considered within the scope of work as it relates to technology may occur. This additional work may stem from legislative mandates, emerging technologies, and/or other situations not known at the time the RFP was prepared. The Change Order Management Plan provides a process with which to address these occurrences.

Change Management Process

Parsons may submit Change Orders that fall under change management as described herein. The Change Order must be acknowledged and accepted in writing by MDOT before any additional work is undertaken. Each Change Order Request submitted by Parsons includes:

- Provide a clear description of what is included in each change request.
- Incorporate multiple levels of priority for change requests (e.g., critical, must-have, desired, etc.).
- Support the Change Management Process by estimating impacts, investigating solutions, identifying alternatives, participating in the decision-making process, and implementing the agreed-upon solution.

11. Parsons Change Management Request Log

The above change management plan requires a change request to be completed and move through a change board process for approval. In order to facilitate this process, Parsons has created a change management log of any change request that is originated for this project. The Change Management Process log will be maintained on a shared drive with access by MDOT and Parsons personnel.

A sample of the Change Order Request Log can be found below:

EXHIBIT D.1: MDOT CHANGE ORDER REQUEST FORM

Row ID	Change Request Description	Estimate of Level of Effort in Dollars	Change Request Approver	Approved Y/N

Appendix E – Quality Management Plan

Parsons uses a standard quality assurance and testing methodology in order to develop and deploy the Intelligent NETworks® (iNET) ATMS software and MDC-006 in-vehicle solution. There are several steps to implement quality assurance and testing that have been identified. These steps form the basis for a good quality control system which, when combined with solid test procedures, should prevent any significant deployment issues.

The Parsons Team has implemented a standard software development and testing approach. The development of software is managed by an Agile Assets tool called Jira that helps manage the various development Sprints or releases that a project or product undertakes. Sprints are assigned via Jira every two weeks and all development staff must check in their software using Jira. This tool helps to manage change, configuration, bug fixes, deployment, and maturity of the software.

Our approach has three primary objectives:

1. To ensure that all delivered software meets or exceeds the desired functional and operational specifications.
2. To ensure that all delivered software meets or exceeds the system reliability and system “up-time” metrics.
3. To ensure that all delivered software is developed in a structured, standardized manner such that it can be easily maintained and modified for future enhancements.

Execution of the Quality Management Plan

The execution of the MDOT Quality Plan includes a strict compliance of the policies of the Parsons "Quality Assurance Procedures (QMP) Manual." The QMP includes a detailed description of the QA/QC procedures to be followed for every task element at every submittal level. Quality Control is a continuous process to be implemented at every stage of development and at the completion of all tasks.

Prior to the start of the quality checking, clear assignments will be made for personnel responsible for each phase of the review process and for each discipline of the project implementation. A formal tracking document procedure will be utilized that will include standard deliverable product checklists specific to this project. Checklists will be developed by discipline for every element of the work and will be used to assess the technical correctness, level of completion, and any measures taken to correct or improve a task.

The key elements of the Quality Management Plan are described in the following paragraphs:

12. Approach to Quality

The project management team has established measurable goals and objectives for the project, including performing work in a technically competent and professional manner that is responsive to client comments and is considered to be a value-added product or service by the client, as measured by client evaluation scores that consistently reach “Exceeded Expectations” or “Met Expectations Consistently” levels; and meeting or exceeding agreed-upon project milestones, as measured by timely professional completion of all products against the mutually agreed-to schedule requirements. The PM monitors and measures performance relative to the established goals and objectives and takes the appropriate corrective measures to improve performance. Project personnel are encouraged to identify opportunities for improvement and make suggestions to management to improve performance.

13. Scope

The QMP applies to all personnel and activities for the program. Control of work activities affecting quality will be maintained as necessary throughout the project to ensure that quality objectives are met.

14. Quality Control Processes

Quality is the responsibility of all individuals performing work for this project. The QMP will implement all applicable Parsons quality policies, standards, and procedures. In addition, the QMP will work to ensure the implementation of the most current industry standards and procedures. The assigned PM has the authority to identify problems, initiate nonconformance reports, recommend solutions, and verify implementation of corrective action. The PM ensures that quality is achieved and fully supports the verification efforts by independent personnel, subcontractors, or contractors.

15. Procedures

The PM and the technical teams will further define project-specific procedures, as necessary, at the planning stages of each subtask based on the requirements outlined in the scope of work and in requirement discussions with the client. Within Jira, a 'Story' is created that is broken into Sprints. Sprints are created to be completed within two weeks. As Sprints are completed, the next Sprint occurs, which ultimately completes the Story.

16. Corrective and Preventive Actions

The QMP at Parsons hinges upon the feedback from audits, assessments, employees, interfacing organizations, and the client. The PM reports the analysis of the data gathered, as well as continuous improvement opportunities for the project, to management during project reviews. The resulting feedback from these reviews will help initiate corrective and preventive actions.

Corrective actions may be implemented as a result of a nonconformance to prevent recurrence. Customer complaints may be handled in the same manner, depending on severity. Corrective actions will be appropriate to the effects of the non-conformance or customer complaint encountered. Preventative actions may be implemented as a result of management recommendations following a program performance review or of continual improvement recommendations from the program and project teams. The Project Manager will verify their implementation and monitor their impact on program performance. The monitoring results and the effectiveness of preventative actions will be discussed during follow-up management reviews or team meetings. Success stories will be included as part of periodic project meetings to discuss lessons learned and successful corrective and preventive measures that improved the overall effectiveness of the program management.

17. Quality Assurance Records

Control of quality records ensures identification, collection, retrieval, and maintenance of those records. QA records include but are not limited to this QMP, procedures written specifically for this project, and other documents that provide traceable evidence to the required quality of items or activities. QA records must be legible, accurate, and appropriately complete for the work accomplished. All corrections should be initialed and dated. Records may be originals or reproduced copies. Superseded and canceled documents will be removed from active use but will be controlled as appropriate until final disposition. The project management team has established measurable goals and objectives for the project as described below:

- Performing work in a technically competent and professional manner that is responsive to client comments and is considered to be a value-added product or service by the client, as measured by client evaluation scores that consistently reach "Exceeded Expectations" or "Met Expectations Consistently" levels.
- Meeting or exceeding agreed-upon project milestones, as measured by timely professional completion of all products against the mutually agreed-to schedule requirements. The PM monitors and measures performance relative to the established goals and objectives and takes appropriate corrective measures to improve performance. Project personnel are encouraged to identify opportunities for improvement and make suggestions to management to improve performance.

Identifying quality standards to be followed during the program lifecycle planning and scheduling for reviews and testing (for all the planned iterations), problem reporting and corrective action, records collection, and maintenance.

Identifying tasks and assigning roles for quality management. This includes a review of design, program specifications, test data, test plans, test cases, documentation management, and metrics collection and analysis. This also includes conducting progress meetings, web and/or teleconferences, and other proactive activities to keep the client up to date on progress.

18. Audits

The Parsons Program Management Office (PMO) periodically audits the program plans to ensure they are relevant and that program-specific standards are in place and are being appropriately revised, if required. If this program/project is scheduled for an audit, the QA audit team will verify compliance with project procedural requirements and assess extent of compliance with project requirements. The audit's criteria, scope, frequency, and methods will be defined in the audit schedule and submitted to the Business Unit Operations Manager for approval. Scheduled audits will be performed by a qualified QA Auditor, designated by the Parsons Quality Director. The results of audits will be documented and reported to Sector and Project Management personnel. The PM shall develop corrective actions to eliminate detected deficiencies found during the audit, or surveillance, and will implement them to prevent recurrence. Recovery verification will be performed by the QA auditors to verify implementation of corrective actions taken.

Program reviews are conducted by the PMO periodically. The QMP and procedures used by the program staff form the basis for these reviews. Any deviations identified during these program reviews are documented in our program review log and tracked to closure. Parsons will work with the State or any independent quality assurance monitor appointed to monitor progress and management of the program.

19. Continuous Improvement

Project performance monitoring and client feedback shall be analyzed to identify improvement opportunities, process objectives, and deliverables or services conformance. Implemented improvement shall be monitored by the PM to verify their effectiveness through subsequent measurements and milestones.

20. Deliverable Document Review

Documents/submittals will undergo internal peer review before submission. This review will be conducted by a delegated reviewer to conduct peer review for selected resource areas. The reviewer should not be a major author of the document but should be involved in early planning and scoping for the task order.

Comments from the client will be incorporated into the next submittal of the document. The delegated reviewer will receive a copy of the comments and will verify that an adequate response was recorded. The reviewer will evaluate comments for their applicability to other documents that may be in the process of being prepared for a common client for use as lessons learned.

21. Resources and Training

The PM is responsible for providing the necessary infrastructure, materials, technical information, and resources to his staff in order to obtain the required results. The PM shall determine the necessary competence for personnel performing the work, provide necessary training and orientation in project and quality procedures, evaluate effectiveness of the training, and ensure that the staff is aware of the relevance and importance of their activities. The PM or designate will also ensure that each team member understands that they are responsible for the quality of their own output, as well as that of the team. Training documentation will be maintained as project records.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Parsons' philosophy to training stresses the importance of "Learning by Doing." Wherever possible, training will include hands-on experience with the systems. Lectures will be used minimally; participants will be encouraged to participate during this method of instruction as well. In addition to the concept of "Learning by Doing," we also emphasize a blended learning approach.

Based on the initial analysis, the training team develops training to the appropriate level of need for the different personnel groups. Training is presented in a modular format, making it easier for various personnel to receive training suited to their unique needs, rather than general training suited for all. Categories of training may include installation, maintenance, technical, administrator, operator, and user. Within each category of training, levels of training are provided and can include a "Train-the-Trainer" component.

A complete MDC-006 Rev 4 testing plan will be posted on the MDOT shared drive for access by designated MDOT personnel.

Appendix F – Parsons Project Plan Information

Not applicable for MDOT

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix G – Project Execution Plan

Monitoring the Project

In order to monitor the project and provide oversight and direction to the project in a timely manner, Parsons has implemented a customized version of Salesforce.com. Any feedback, issues, or comments are submitted via email and are attached to the MDOT account. The Parsons Project manager will filter these documents and, where appropriate, place them in the appropriate project file.

The Project Schedule can support the inclusion of attachments such as copies of meeting minutes or work instructions for the task.

The Project Schedule supports and keeps discussions between Parsons and MDOT on project tasks.

Periodic reports are generated and sent based upon the rules defined in the Communications plan.

Documents will be placed in a shared file for access by MDOT and Parsons personnel.

Project Monitoring Dashboard

Parsons will create a "MDOT and AVL Project Management Plan and Dashboard", on the shared drive that will provide all project team members (MDOT, Parsons, and Iteris) with real-time information on the project. The following files will be available on the shared file.

Reports that include:

- MDOT Project Schedule (all active tasks in process)
- Risk Register (updated weekly on status and mitigation plan progress)
- Outstanding Issues (current log of outstanding issues and the progress to resolve the issues)
- Stakeholder Register (includes all active team members and their contact information)

Progress Reports (Real Time)

- Progress Report on Truck Completed (devices installed and working in MDOT trucks)
- Progress Report Project Scheduled Tasks Completed (all tasks that have been completed in the project schedule)
- Progress Report on Training Completed (Locations and employees)
- Progress Report Tasks to Complete (MDOT Project Schedule)

Project Management Plan (Components that make up the PMP)

- Project Schedule
- Risk Management plan and Risk Register
- Issue Management and Resolution Plan
- Stakeholder Management Plan – Stakeholder Register
- Communications Plan
- Monitoring and Controlling Project Execution
- Change Request Plan and Process

Monitoring and Managing Project Issues – Execution of the Issue Management and Resolution Plan

The Issue Management process brings visibility to issues, accountability as to how they are acted upon, and provides updates on their timely resolution. This Parsons Issue Management Plan captures the issues and provides the following approach:

1. Outline the recommended approach for identifying issues and tracking the progress, documentation, and resolution of those issues.
2. Facilitate attention to key issues impacting the program.
3. Ensure all stakeholders are informed and, if applicable, participate in the resolution.
4. Create an audit trail of discussions and resolution of program issues.

Issues are logged by both the MDOT AVL Parsons Team and by MDOT staff, which must be completed on a timely basis. The Project Manager will enter the data to ensure that all data is correctly collected and no information is missing.

The Issues Management and Resolution process is based on a choosing a priority category that is identified as follows:

Urgent – "The project cannot move forward until this issue is resolved."
High – "The project cannot move forward if this issue is not resolved by the due date."
Medium – "The issue may prevent the project from moving forward in the near future."
Low – "This issue is not preventing the project from moving forward."

The management process also has the capability of setting "Process Categories" that are defined as follows:

Open – the initial status assigned when a new issue has been identified and added to the log; typically, this status is used when an owner has not been assigned or the work has not yet started.
In Process – an owner has been assigned and has started working on the issue.
Resolved – the owner has identified a solution to the issue and has taken corrective action to resolve.
Reopened – an issue was previously categorized Resolved, Deferred, or Closed but has been identified again as a continuing issue.
Deferred – the project manager, owner, and issue submitter have decided to postpone addressing the issue to a later time.
Closed – the project manager and issue submitter have validated and accepted the resolution and no longer consider the issue open.

Input and Escalation Rules have been established with a daily monitoring frequency for status updates. The process for using the issues log is as follows:

Project team members on either the Parsons or MDOT project team may enter issues in the Issues log.
The project manager monitors the issues log on a daily basis.
Once an issue has been identified, the project manager assigns one of the Parsons Project Team staff to resolve the issue.
The project manager shall follow the progress of the issue and designate appropriate status codes based on the progress of resolving the issue.
If the issue cannot be resolved within two weeks, the project manager moves the issue from the issues log to the risk register to assess the potential risk and formulates a risk mitigation strategy.

An example of the MDOT Issues Log can be found below:

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

MDOT Issues Log

CTDOT Issues#	Issue	Category L-M-H	Date Identified	Date Due	Comments	Identified By Assigned To	Status	Process Categories	Solutions	Completed by:	Completed	Date Completed
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix H – General Administration

The Project Management activities are overseen by Russ Brookshire, PMP. He is responsible for contract administration, progress reporting, quality assurance, schedule compliance, and budget control. He serves as the primary interface on the contract issues. Russ coordinates all activities to meet the requirements of the project scope of work. These activities include meetings, status reporting, and project management activities. Russ is assisted by Larry Simmons as an alternate Deputy Project Manager, who will be responsible for day-to-day customer interface and ongoing operations of the project.

Appendix I – Sustainability Plan

The Project Manager coordinates with the GSS facility manager for the Peachtree Corners, GA office to incorporate sustainable best practices and initiatives in the work environment. Each project team member participates in the facility's sustainability initiatives and provides suggestions for further improvement.

The following initiatives are considered by the project team for the Peachtree Corners, GA office location, field installation sites, and home offices to help meet the project sustainability goals:

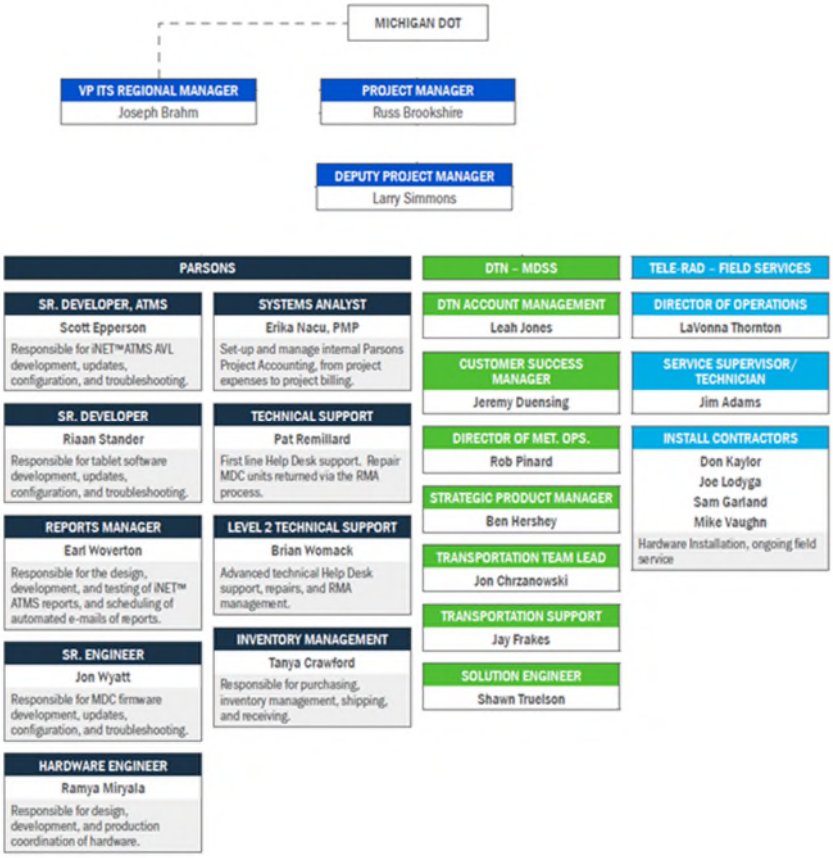
- Recycle project materials whenever possible.
- Use two-sided printing, whenever practical, to cut paper use.
- Plan phone conference calls instead of travel (when practical.)
- Scan documents to computer for storage rather than printing or photocopying.
- Schedule staff time to take advantage of opportunities to minimize commuting time and costs.
- Maximize paperless communications.
- Reduce energy consumption by switching off computers, monitors, printers, and personal lights in the evening.
- Encourage the participation in or formation of "green working groups" to continuously review initiatives in place and develop new sustainability ideas.
- Encourage the use as a best practice of email tag lines such as "Please consider the environment before printing this email."
- Reused and salvage structural elements and specify recycled content in newly manufactured elements.
- Consider carbon dioxide emissions from the processes associated with the extraction, manufacturing, transportation, and construction of structural elements in the built environment.
- Employ structural forms and elements that allow for energy-efficient construction, fabrication, and maintenance.
- Address water use efficiency, storm water control, and pollution facilities.
- Consider renewable energy systems such as photovoltaics, solar thermal systems, bio-fuel systems, passive solar and daylighting strategies, and ground source heat pumps.
- Incorporate technologies for communication and control that reduce the amount of material, such as conduits and wire, and labor during installation and Operations and other applicable technologies.

In addition, the Project Manager or designate will, periodically and near the end of the project period, conduct audits of project activities using the checklists (or facsimiles) found in Appendix E of the Parsons Sustainability Manual to evaluate the contract's progress in meeting its sustainability goals.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix J –Organization Chart & Staffing Plan, Roles/Levels of Authority

Organization Chart: The following is an organization chart for the MDOT IMO project:



MDOT IMO Draft Staffing Plan

THIS SECTION WILL BE ADDED TO THE FINAL MDOT PROJECT PLAN

Role	Team Member	Title	Responsibilities

Roles and Levels of Authority Matrix for Parsons

EXHIBIT J,1: RESPONSIBILITY ASSIGNMENT MATRIX (RAM)

Function	Sponsor	Project Manager	Team Lead	Hardware Lead	Software Lead	Engineer
Project Establishment	A	AR	AR	A	A	C
AVL Integration and Software Development	A	A	A	I	AR	C
System Setup	A	A	A	C	AR	C
Hosting	A	A	A	I	R	C
Training	A	A	A	AR	I	I
Device Installation	A	AR	A	AR	I	I
Device Testing	A	A	A	AR	C	C

Legend: A = Accountable; R = Responsible; C = Consult; I = Inform

Appendix K – Stakeholder Management Plan – Points of Contact (POC)

The Stakeholder Management Plan was created to identify all the MDOT stakeholders by roles and responsibilities as they relate to this project. A stakeholder register was created to understand their assigned roles and responsibilities and establish a plan to:

- Properly and continuously engage the stakeholders (team members) in project activities.
- Apprise the stakeholders of project progress and any impediments that may occur so they can assist in their resolution.

The implementation of the Stakeholder Register provides a management tool to communicate and engage both the client and the team in the overall project plan. The plan is in the form of a spreadsheet with real-time updates performed as required either directly in the sheet by an authorized editor or through an input screen.

The image below presents the input form for all the stakeholders associated with the MDOT IMO Project:

The Stakeholder Management Plan shown below:

FIGURE K.1: MDOT STAKEHOLDER MANAGEMENT PLAN

Name	Title	Role	City	Email	Office Phone	Cell Phone

Appendix L – Work Breakdown Structure (WBS), WBS Dictionary, Responsibility Accountability Matrix (RAM), and Job Numbers

WBS: A Work Breakdown Structure (WBS) is a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables. It organizes and defines the total scope of the project. Parsons has created a Work Breakdown Structure (WBS) that has the work broken down into smaller units to access the proper duration for the tasks and the dependences that must be connected to support the project.

The process deployed by Parsons used a bottom-up estimating methodology that uses actual historical project data and lessons learned from similar projects to identify work task durations, material lead times, and MDOT RFP requirements. The WBS includes a list of the deliverables and their contents (if appropriate). Detailed descriptions of each deliverable may be contained in the detailed Work Breakdown Structure and shown in the WBS Dictionary. The detailed list of deliverables ensures that all persons involved in the project understand what is expected and the dependences are properly identified. The WBS helps project participants to understand what they need to deliver to meet project goals. The MDOT PMP WBS was used as a framework to drive the creation of a realistic project schedule to complete the work on time and within budget.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Work Breakdown Structure

[Will be added during Project Initiation phase]

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

WBS Dictionary: The WBS Dictionary contains all the details of the Work Breakdown Structure that are necessary to successfully complete the project. Most importantly, it contains a definition of each Work Package which can be thought of as a mini scope statement. The following is a complete WBS Dictionary for the work to be performed in the MDOT IMO project.

xxx	xxx	xxx

RAM: The Responsibility Accountability Matrix is TBD

Job Charge Numbers: N/A for MDOT

Appendix M – Negotiated Budget and Assumptions

Fixed Price contract

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix N – Project Schedule

Parsons has created a project schedule for the MDOT project that is being used to manage the project schedule. The development of the project schedule included the process shown below:

- Identification of the major segments of the project so that the work activities are clearly defined.
- Name each work activity specifying deliverables, procurements, or milestones resulting from the work activity.
- Organizing the work sequentially so that it can be scheduled efficiently.
- Identifying the dependencies with other work activities in the Project Schedule.
- Identifying what work activities are assigned to which staff members, assigning them by staff member names in the project schedule.
- Determining what resources are required to complete the work.
- Clarifying the work to do so that it can be clearly communicated to team members.
- Identifying the activities that are critical to produce project objectives.
- Estimating how long it takes to complete those activities.
- Deciding which activities to monitor to ensure that they remain on target.

After the activities are sequenced and an estimate of the duration of each task is made, the Parsons team then determines the expected start and end dates for each activity and for the project. A critical path of activities will be determined and monitored closely to ensure that the project stays on schedule.

Visual representation of the schedule will be incorporated via a Gantt chart providing a quick view of the project status as well as past and upcoming milestones and the dates each was or is projected to be met.

The Project Schedule will be available on the MDOT Shared Drive.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix O – Document Control Plan

The document management process consists of a Parsons external website for storing documents related to the project. The website is maintained by the Parsons Project Management Team and will be updated on a weekly basis with the following types of information:

Scope of Work
- Parsons
- Installer

Project Deliverables

Meeting Minutes
- Kickoff meetings
- Project Management Reviews
- Weekly status call updates

Monthly Progress Reports

Technical Manuals
- MDC-006-Rev4 Installation instructions
- GPS/AVL Basic unit Installation Instructions
- Testing Procedures

Safety Plan

Training Plan

This information will be posted and available to MDOT Personnel on the MDOT shared drive.

Appendix P – Training Plan

The MDOT project requires the contractor to provide the following:

General Training Requirements
Annual AVL GUI and Touchscreen Training – Basic User Level
Annual AVL Advanced Training (Supervisors and Superintendents)
Annual MDSS Training (Supervisors and Superintendents)

The following is the training plan for each area identified above:

General Training Requirements

This is the initial training for all MDOT technical personnel and will be conducted in each of the seven MDOT regions. This will be conducted upon validation of hardware compliance and approval of the MDOT Project Manager. All training materials will be prepared in collaboration with MDOT providing MDOT with more than two weeks advance notice to edit and accept the training materials.

Parsons initial thoughts on the first-year training will address each of the following functional groups. Upon feedback from MDOT this material will be edited as necessary.

Drivers/Foreman/Supervisors – one hour – this session will cover:

Overview of the system
- Purpose
- Benefit to:
  - Driver
  - MDOT
  - Constituents
- Components of the system
  - Touchscreen
  - MDC
  - Camera, if applicable
  - Spreader interface
  - MDSS
- How it all works together

Driver responsibilities
- Enter Road and Weather Conditions
- Validate all components of the system are functioning
  - All icons on the top – information screen is functioning correctly
  - Camera image, if applicable is the current image
  - Confirm correct spreader settings are showing on the screen
  - How to report a malfunctioning item
- End of shift how to report any malfunctions in the system

Foreman/Supervisor Responsibilities
- Understand purpose for how system works and how to assist drivers with issues they may have

Based upon driver shifts, this training may need to occur twice – early AM and late day to catch all drivers

Supervisor/District Personnel – approximately four hours – this session will cover

Overview of the system

- Purpose
- Benefit to:
  - Driver
  - MDOT
  - Constituents
- Components of the system
  - Touchscreen
  - MDC
  - Camera, if applicable
  - Spreader interface
  - MDSS
- How it all works together

How to access the ATMS

- View vehicle information
  - Location/Inventory Information
  - Current Status of vehicle
  - Run Breadcrumb status vehicle(s)
  - How to move vehicles to different districts or garages
  - Mapping options
  - Geofencing

Utilizing Reports

- How to access reports
  - Type of reports
  - What report to use for what purpose
- How to use data from reports to manage the business
- How to use data to identify and recognize outstanding drivers

Expectations

- MDOT expectations from district supervisory personnel regarding managing the system

Mechanics/Technical Personal – approximately two hours – this session will cover:

Purpose of the system

Review the Parsons Technical Manual

- Highlight connections to
  - Spreader
  - Camera
  - ECM
  - Antennas
  - Plow Sensors
  - Other Components

Review Troubleshooting Guidelines

- Power
- Connections
- Communications

Contacting the Help Desk

- Opening a case

- Remote troubleshooting
- Closing a case

Questions and Answers

- Question will be incorporated into a FAQ document that will be updated periodically and distributed to MDOT personnel.

Participants are asked to sign in at the beginning of each class. This roster is provided to MDOT after each class. Additionally, a survey is distributed at the end of the class for participants to make recommendations on how to improve the training. Parsons uses this data to continually improve our training to ensure we meet the expectations of the participants.

Annual AVL GUI and Touchscreen Training (Basic User Level)

After the first year, upon MDOT request, Parsons will assign qualified individuals to travel to Michigan to conduct on-site training on AVL Touchscreen Interface. The training is to be in-person, hands-on training at each district office, as directed by MDOT. Training for MDOT personnel has been developed in a train-the-trainer format. Parsons will submit a syllabus two weeks prior to the scheduled training date per the contract requirements. Parsons will work with MDOT to determine the most effective manner in conducting these sessions and the specific dates and times for each session. Training sessions are expected to be approximately three hours in length.

Or, at the sole request of MDOT, Parsons will provide virtual training to designated MDOT personnel covering the items described above. Virtual sessions will be recorded and provided on a shared drive for access by MDOT personnel on an as needed basis.

Attendance will be collected during training via a sign-in sheet and will be provided to the MDOT project manager. Additionally, a questionnaire seeking participant feedback on the training will be distributed with the results being provided to MDOT.

Parsons will work with MDOT to develop a touchscreen training video. It is assumed that input of road and weather conditions will be required to obtain information to send to the MDSS provider. Parsons will need to work with MDOT to ensure the touchscreen training encompasses the entire end-to-end use of the touchscreen–data input to reviewing weather radar and treatment recommendations received from the MDSS provider.

A preliminary agenda for this training includes:

Introductions
Overview of the AVL/ System
Overview of the AVL Equipment installed in a vehicle
Touchscreen Basic Features
Touchscreen Advanced Features

Annual AVL Advanced Training (Supervisors and Superintendents)

As with the other training modules, Parsons will schedule a training session for Supervisors and Superintendents to learn how to use the ATMS reports to better manage the fleet. While Parsons can create the entire training module to meet the requirements of MDOT, we suggest working with MDOT to understand the expectations of supervisor and superintendents and what fleet information helps them reach a higher level of performance. We would also suggest a meeting with MDOT and the MDSS provider to determine which reports MDOT wants managers and directors to utilize. In certain situations, MDSS and Parsons provide similar reports. To minimize confusion from the field, Parsons suggests the three entities work together to define the training components. Parsons can then develop the complete training package. Once we understand the expectations and needs, we can select certain reports that help these individuals better manage their respective fleet. Parsons suggests the following components:

Introductions

System Overview

- Driver input options
- Supervisor/Operator tools

Discussion on AVL Interaction and impact to Weather Solutions

Overview of Reports and MDOT Expectations

As with the AVL GUI and Touchscreen training, upon authorization by MDOT, Parsons will provide in person training at designated MDOT facilities. Or, Parsons can provide virtual training, recording it for MDOT access.

Final agenda for MDOT approval will be provided within two weeks of commencement of training. A Participant survey will be distributed at the conclusion of training seeking feedback on methods to improve future training sessions. The results will be provided to MDOT.

Annual MDSS Advanced Training (Supervisors and Superintendents)

DTN proposes to provide Michigan DOT users with access to its WebMDSS Weather interface using the website (www.Michigan DOT.WebMDSSweather.com) and mobile app (iOS: https://apps.apple.com/us/app/mdss/id663910124#?platform=iphone , Google Play: https://play.google.com/store/apps/details?id=com.meridian.amdss&hl=en_CA&gl=US)

The following username and password may be used to demo and review the interface and mobile app: Username: MichiganDOTDEMO | Password: MichiganDOTDEMO

DTN's WebMDSS Weather will provide Michigan DOT with the same weather forecast they received from 2013 to 2020 with an easy to navigate map and menu system. An example of the main map view is shown below with pavement temperature turned on and each county has a pavement forecast site on the map. Users should also notice an improved base map that better highlights specific political geography locations such as Interstate highways, US highways, and county boundaries.

Appendix Q – Performance Evaluation

Not Applicable at this time.

Appendix R – Project Closure

The project closure addresses the requirements for closing out projects and task orders. The plan includes an action list for all closeout requirements, both internal and contractual; staffing and other direct cost requirements for the remaining scope; and a closeout schedule. The following items are considered as part of the closing plan:

Closeout Checklist

All work defined by the scope of work is complete.
Document disposition is complete.
Client property disposition is complete.
All purchase order and subcontract releases have been received and procurement files closed.
All other contract obligations have been settled.
Patent releases provided, if applicable.
Royalty releases provided, if applicable.
Release of Performance Bond
Release of claims received.
Final release prepared by contract administrator.
Final release issued to Client.
Final invoice submitted and paid.
Lessons Learned Log

The Lessons Learned Log will be available on the MDOT Shared Drive. This log is a collection of lessons learned throughout the project in order to promote the recurrence of desirable outcomes and preclude the recurrence of undesirable outcomes.

The following is an image of the Lessons Learned Log:

EXHIBIT R.1: LESSONS LEARNED LOG

DATE	EXPERIENCE OR ISSUE LOGGED	IMPACT ON PROJECT	LESSONS LEARNED	BEST PRACTICE TO FOLLOW FOR FUTURE PROJECTS

Appendix S – International Issues

This section is not required for the MDOT PMP.

Appendix T – Communications Plan

Parsons has created an effective communications plan by describing who should be communicated with, who should do the communicating, what should be communicated, why it should be communicated (purpose), when it should be communicated (frequency, timeframe), and how it should be communicated (language, format, method, technology). Parsons conducted an analysis of the communication requirement of the parties involved to identify the type of information to be delivered, the format of the information, and specifying the flow of information. Specific information to be considered include:

- Communication expectations
- Process for communication about project progress
- Status meetings and their attendance
- Stakeholder communication requirements
- Frequency of communication
- Process for escalation of issues that cannot be resolved
- Process for communicating about project changes
- Lessons learned process and documentation
- Glossary of project terminology

The project communication plan will be executed as indicated in the above plan. A document will be placed on the MDOT shared drive and will be updated as needed to support the MDOT Project.

Communication Requirements

EXHIBIT T.1: MDOT COMMUNICATIONS PROJECT PLAN

REQUIRED TIMEFRAME	COMMENT LOG	MDOT TEAM MEMBER(S) REQUIRED TO RECEIVE REPORT	REQUIRED METHOD OF SHARING REPORT	FREQUENCY	PARSONS TEAM MEMBER ASSIGNED TASK
Required Report	Progress Reports				
End of the Month	Work Completed		Email	Monthly	Larry Simmons
Weekly on Friday	Devices installed in Trucks		Email	Weekly	Larry Simmons
Weekly on Monday	Number of CTDOT Employees Trained		Email	Weekly	Larry Simmons
Required Report	Issue log Summary				
Weekly on Friday	List of currrent issues with status of all issues		Email	Weekly	Larry Simmons
Weekly on Friday	Risk Register Report		Email	Weekly	Larry Simmons
Required Report	Submitted Invoices				
End of the Month	New Invoice Submitted		Email	Monthly	Russ Brookshire

Appendix U – Organization Management Change Plan

In order to support an Organizational Change Management Plan, the project manager must keep documents updated and ensure that should a team member leave the project, others can step in and, by reviewing the documents, can quickly get up to speed on the project. Ideally, they can quickly assume the duties they are assigned, and the impact to the project is minimal.

Appendix V– Meeting Plan

The meeting plan should be Scalable to support meeting when necessary, yet not result in too many meetings. Parsons will work with MDOT to ensure that meetings are to the point, valuable to both parties and result in tangible results.

To accomplish this objective several rules are established by Parsons regarding meetings. These rules are:

Only invite those who can contribute, or benefit from the meeting
If possible, email invites will be sent at least 48 hours prior to ad-hoc meetings.
Meetings must have a prepared agenda with a timeframe
Meetings must start on time and end on time
- Open items can be taken off-line if necessary

Minutes from each meeting are kept and distributed to all according to the Communications Plan
- Actions from the meeting minutes will be noted with the person responsible

Meeting Types

Multiple types of meeting may be scheduled. It is expected that ad-hoc meetings will be coordinated among the MDOT and Parsons Project Managers. Below are suggested meeting types:

Meeting Type	Frequency	Method	Attendees
Project Kick-off Meeting	One time	In Person at MDOT – initial thoughts are two hours overview to all MDOT personnel, then rest of day (5 hours) of one on one with project team to lay out plans	Parsons Project Manager and Deputy Project Manager MDOT designated personnel
Project Status Calls	Weekly (Parsons recommends weekly initially, upon mutual agreement by the parties, these may change at certain times)	Teleconference – One Hour	Project Managers as well as other designated individuals
Annual Program Updates	Annual	In Person at MDOT designated location Length TBD	Parsons Project Manager and other Parsons designated individuals. MDOT Project Sponsors and other designated personnel
Ad Hoc	As needed	Teleconference – TBD	These meeting will occur as certain issues are identified that need agreement from the team. The MDOT and Parsons Project Managers should be responsible for scheduling these meetings as well as updating the project notes documents.

STATE OF MICHIGAN PROCUREMENT

Department of Transportation
425 Ottawa Street, Lansing, MI 48933
P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number **1**
to
Contract Number **591M210000001068**

CONTRACTOR	
	Parson Transportation Group, Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.Brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 599-5770	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		Harrist@michigan.gov	

CONTRACT SUMMARY			
DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)			
INITIAL EFFECTIVE DATE	**INITIAL EXPIRATION DATE**	**INITIAL AVAILABLE OPTIONS**	**EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW**
August 9, 2021 ~~July 12, 2021~~	August 8, 2026 ~~July 11, 2026~~	3 one-year options	
PAYMENT TERMS		**DELIVERY TIMEFRAME**	
Net 45 Days		N/A	
ALTERNATE PAYMENT OPTIONS			**EXTENDED PURCHASING**
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☒ No
MINIMUM DELIVERY REQUIREMENTS			
N/A			

DESCRIPTION OF CHANGE NOTICE				
OPTION	**LENGTH OF OPTION**	**EXTENSION**	**LENGTH OF EXTENSION**	**REVISED EXP. DATE**
☐		☐		

CURRENT VALUE	VALUE OF CHANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE
$5,158,460.03		$5,158,460.03

DESCRIPTION: Change Notice #1 of this contract is amended to add four (4) line items. All other terms, conditions, specifications, and pricing remain the same. Per vendor and agency agreement.

Change Notice #1 Amended to add four-line items (Parts)

Description	Commodity Codes	Estimated Quantity	Unit	Estimated Quantity 5yrs	Unit Price
VESA Mount (Ram-2461U) 3890	05040	N/A	Each	N/A	$17.01
Round Base (Ram-202U) 3892	05040	N/A	Each	N/A	$11.97
Arm, long (Ram-201-D) 3952	05040	N/A	Each	N/A	$35.85
Arm, Med (Ram-201U) 3891	05040	N/A	Each	N/A	$20.54

FOR THE CONTRACTOR:

Parsons Transportation Group Inc.
Company Name

Authorized Agent Signature

Russell C. Brookshire
Authorized Agent (Print or Type)

6/3/2022
Date

FOR THE STATE:

Signature

Carol Rademacher, for Department of Transportation
Name & Title

Michigan Department of Transportation
Agency

6/15/2022
Date

STATE OF MICHIGAN PROCUREMENT

Purchasing Unit
Department of Transportation
425 W. Ottawa St., Lansing, Michigan 48909
P.O. Box 30050, Lansing, Michigan 48933

NOTICE OF CONTRACT

NOTICE OF CONTRACT NO. **591M210000001068**
between
THE STATE OF MICHIGAN
and

CONTRACTOR	
	Parsons Transportation Group Inc.
	3577 Parkway Lane, Suite 100
	Peachtree Corners, GA 30092
	Russ Brookshire
	(678) 733-7433
	Russ.brookshire@parsons.com

STATE			
	Program Manager	James Roath	MDOT
		(517) 599-5770	
		RoathJ1@michigan.gov	
	Contract Administrator	Terry Harris	MDOT
		(517) 249-0870	
		HarrisT@michigan.gov	

CONTRACT SUMMARY			
DESCRIPTION: Automated Vehicle Location (AVL) Global Positioning System (GPS) technology services for Winter Maintenance Trucks (WMT's) and Light Fleet Operational Management Solution; Michigan Department of Transportation (MDOT)			
INITIAL EFFECTIVE DATE	**INITIAL EXPIRATION DATE**	**INITIAL AVAILABLE OPTIONS**	**EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW**
July 12, 2021	July 11, 2026	3-one year option	
PAYMENT TERMS		**DELIVERY TIMEFRAME**	
Net 45		N/A	
ALTERNATE PAYMENT OPTIONS			**EXTENDED PURCHASING**
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☐ No
MINIMUM DELIVERY REQUIREMENTS			
N/A			
MISCELLANEOUS INFORMATION			
The Contract Agreement is awarded on the basis of the inquiry bearing the solicitation number 210000001577			
ESTIMATED CONTRACT VALUE AT TIME OF EXECUTION		**$5,158,460.03**	

FOR THE CONTRACTOR:

Parsons Transportation Group Inc.
Company Name

Authorized Agent Signature

Russell C. Brookshire
Authorized Agent (Print or Type)

8/2/2021
Date

FOR THE STATE:

Signature

Carol Rademacher
For Department Director

Michigan Department of Transportation
Agency

8/11/2021
Date

STANDARD CONTRACT TERMS

This STANDARD CONTRACT ("**Contract**") is agreed to between the State of Michigan (the "**State**") and Parsons Transportation Group Inc. ("**Contractor**"), a Michigan corporation. This Contract is effective on July 12, 2021 ("**Effective Date**"), and unless terminated, expires on July 11, 2026.

This Contract may be renewed for up to three (3) additional one (1) year period(s). Renewal is at the sole discretion of the State and will automatically extend the Term of this Contract. The State will document its exercise of renewal options via Contract Change Notice.

The parties agree as follows:

1. **Duties of Contractor.** Contractor must perform the services and provide the deliverables described in **Schedule A – Statement of Work** (the "**Contract Activities**"). An obligation to provide delivery of any commodity is considered a service and is a Contract Activity.

   Contractor must furnish all labor, equipment, materials, and supplies necessary for the performance of the Contract Activities, and meet operational standards, unless otherwise specified in Schedule A.

   Contractor must: (a) perform the Contract Activities in a timely, professional, safe, and workmanlike manner consistent with standards in the trade, profession, or industry; (b) meet or exceed the performance and operational standards, and specifications of the Contract; (c) provide all Contract Activities in good quality, with no material defects; (d) not interfere with the State's operations; (e) obtain and maintain all necessary licenses, permits or other authorizations necessary for the performance of the Contract; (f) cooperate with the State, including the State's quality assurance personnel, and any third party to achieve the objectives of the Contract; (g) return to the State any State-furnished equipment or other resources in the same condition as when provided when no longer required for the Contract; (h) not make any media releases without prior written authorization from the State; (i) assign to the State any claims resulting from state or federal antitrust violations to the extent that those violations concern materials or services supplied by third parties toward fulfillment of the Contract; (j) comply with all State physical and IT security policies and standards which will be made available upon request; and (k) provide the State priority in performance of the Contract except as mandated by federal disaster response requirements. Any breach under this paragraph is considered a material breach.

   Contractor must also be clearly identifiable while on State property by wearing identification issued by the State, and clearly identify themselves whenever making contact with the State.

STANDARD CONTRACT TERMS

2. Notices. All notices and other communications required or permitted under this Contract must be in writing and will be considered given and received: (a) when verified by written receipt if sent by courier; (b) when actually received if sent by mail without verification of receipt; or (c) when verified by automated receipt or electronic logs if sent by facsimile or email.

If to State:	If to Contractor:
Terry Harris 425 W. Ottawa Street Lansing, MI 48909 HarrisT@michigan.gov 517-335-2507	Russ Brookshire 3577 Parkway Lane, Suite 100 Peachtree Corners, GA 30092 Russ.brookshire@parsons.com (678) 733-7433

3. Contract Administrator. The Contract Administrator for each party is the only person authorized to modify any terms of this Contract, and approve and execute any change under this Contract (each a "**Contract Administrator**"):

State:	Contractor:
Terry Harris 425 W. Ottawa Street Lansing, MI 48909 HarrisT@michigan.gov 517-335-2507	Russ Brookshire 3577 Parkway Lane, Suite 100 Peachtree Corners, GA 30092 Russ.brookshire@parsons.com (678) 733-7433

4. Program Manager. The Program Manager for each party will monitor and coordinate the day-to-day activities of the Contract (each a "**Program Manager**"):

State:	Contractor:
James Roath 6333 Lansing Road Lansing, MI, 48917 RoathJ1@michigan.gov 517-599-5770	Russ Brookshire 3577 Parkway Lane, Suite 100 Peachtree Corners, GA 30092 Russ.brookshire@parsons.com (678) 733-7433

5. Performance Guarantee. Contractor must at all times have financial resources sufficient, in the opinion of the State, to ensure performance of the Contract and must provide proof upon request. The State may require a performance bond (as specified in Schedule A – Statement of Work) if, in the opinion of the State, it will ensure performance of the Contract.

6. Insurance Requirements. Contractor, at its sole expense, must maintain the insurance coverage identified below. 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

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provided by a company with an A.M. Best rating of "A-" or better, and a financial size of VII or better.

Required Limits	Additional Requirements
Commercial General Liability Insurance	
Minimum Limits: $1,000,000 Each Occurrence $1,000,000 Personal & Advertising Injury $2,000,000 Products/Completed Operations $2,000,000 General Aggregate	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 04.
Automobile Liability Insurance	
Minimum Limits: $1,000,000 Per Accident	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) include Hired and Non-Owned Automobile coverage.
Workers' Compensation Insurance	
Minimum Limits: Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.
Employers Liability Insurance	
Minimum Limits: $500,000 Each Accident $500,000 Each Employee by Disease $500,000 Aggregate Disease	
Privacy and Security Liability (Cyber Liability) Insurance	
Minimum Limits: $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.

If any of the required policies provide **claims-made** coverage, the Contractor must: (a) provide coverage with a retroactive date before the Effective Date of the Contract or the beginning of Contract Activities; (b) maintain coverage and provide evidence of coverage for at least three (3) years after completion of the Contract Activities; and (c) if coverage is cancelled 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.

Contractor must: (a) provide insurance certificates to the Contract Administrator, containing the agreement or delivery order number, at Contract formation and within twenty (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 five (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.

This Section is not intended to and is not to 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).

7. Reserved.

8. Reserved.

9. Independent Contractor. Contractor is an independent contractor and assumes all rights, obligations and liabilities set forth in this Contract. Contractor, its employees, and agents will not be considered employees of the State. No partnership or joint venture relationship is created by virtue of this Contract. Contractor, and not the State, is responsible for the payment of wages, benefits and taxes of Contractor's employees and any subcontractors. Prior performance does not modify Contractor's status as an independent contractor.

Contractor hereby acknowledges that the State is and will be the sole and exclusive owner of all right, title, and interest in the Contract Activities and all associated intellectual property rights, if any. Such Contract Activities are works made for hire as defined in Section 101 of the Copyright Act of 1976. To the extent any Contract Activities and related intellectual property do not qualify as works made for hire under the Copyright Act, Contractor will, and hereby does, immediately on its creation, assign, transfer and otherwise convey to the State, irrevocably and in perpetuity, throughout the universe, all right, title and interest in and to the Contract Activities, including all intellectual property rights therein.

10. Subcontracting. Contractor may not delegate any of its obligations under the Contract without the prior written approval of the State. Contractor must notify the State at least 90 calendar days before the proposed delegation and provide the State any information it requests to determine whether the delegation is in its best interest. If approved, Contractor must: (a) be the sole point of contact regarding all contractual matters, including payment and charges for all Contract Activities; (b) make all payments to the subcontractor; and (c) incorporate the terms and conditions contained in this Contract in any subcontract with a subcontractor. Contractor remains responsible for the completion of the Contract Activities, compliance with the terms of this Contract,

and the acts and omissions of the subcontractor. The State, in its sole discretion, may require the replacement of any subcontractor.

11. Staffing. The State's Contract Administrator may require Contractor to remove or reassign personnel by providing a notice to Contractor.

12. Background Checks. Pursuant to Michigan law, all agencies subject to IRS Pub. 1075 are required to ask the Michigan State Police to perform fingerprint background checks on all employees, including Contractor and Subcontractor employees, who may have access to any database of information maintained by the federal government that contains confidential or personal information, including, but not limited to, federal tax information. Further, pursuant to Michigan law, any agency described above is prohibited from providing Contractors or Subcontractors with the result of such background check. For more information, please see Michigan Public Act 427 of 2018. Upon request, or as may be specified in Schedule A, Contractor must perform background checks on all employees and subcontractors and its employees 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.

13. Assignment. Contractor may not assign this Contract to any other party without the prior approval of the State. Upon notice to Contractor, the State, in its sole discretion, may assign in whole or in part, its rights or responsibilities under this Contract to any other party. If the State determines that a novation of the Contract to a third party is necessary, Contractor will agree to the novation and provide all necessary documentation and signatures.

14. Change of Control. Contractor will notify within 30 days of any public announcement or otherwise once legally permitted to do so, the State of a change in Contractor's organizational structure or ownership. For purposes of this Contract, a change in control means any of the following: (a) a sale of more than 50% of Contractor's stock; (b) a sale of substantially all of Contractor's assets; (c) a change in a majority of Contractor's board members; (d) consummation of a merger or consolidation of Contractor with any other entity; (e) a change in ownership through a transaction or series of transactions; (f) or the board (or the stockholders) approves a plan of complete liquidation. A change of control does not include any consolidation or merger effected exclusively to change the domicile of Contractor, or any transaction or series of transactions principally for bona fide equity financing purposes.

In the event of a change of control, Contractor must require the successor to assume this Contract and all of its obligations under this Contract.

15. Ordering. Contractor is not authorized to begin performance until receipt of authorization as identified in Schedule A. (Delivery Order through Sigma)

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16. Acceptance. Contract Activities are subject to inspection and testing by the State within 30 calendar days of the State's receipt of them ("**State Review Period**"), unless otherwise provided in Schedule A. If the Contract Activities are not fully accepted by the State, the State will notify Contractor by the end of the State Review Period that either: (a) the Contract Activities are accepted but noted deficiencies must be corrected; or (b) the Contract Activities are rejected. If the State finds material deficiencies, it may: (i) reject the Contract Activities without performing any further inspections; (ii) demand performance at no additional cost; or (iii) terminate this Contract in accordance with Section 23, Termination for Cause.

Within 10 business days from the date of Contractor's receipt of notification of acceptance with deficiencies or rejection of any Contract Activities, Contractor must cure, at no additional cost, the deficiency and deliver unequivocally acceptable Contract Activities to the State. If acceptance with deficiencies or rejection of the Contract Activities impacts the content or delivery of other non-completed Contract Activities, the parties' respective Program Managers must determine an agreed to number of days for re-submission that minimizes the overall impact to the Contract. However, nothing herein affects, alters, or relieves Contractor of its obligations to correct deficiencies in accordance with the time response standards set forth in this Contract.

If Contractor is unable or refuses to correct the deficiency within the time response standards set forth in this Contract, the State may cancel the order in whole or in part. The State, or a third party identified by the State, may perform the Contract Activities and recover the difference between the cost to cure and the Contract price plus an additional 10% administrative fee.

17. Delivery. Contractor must deliver all Contract Activities F.O.B. destination, within the State premises with transportation and handling charges paid by Contractor, unless otherwise specified in Schedule A. All containers and packaging become the State's exclusive property upon acceptance.

18. Risk of Loss and Title. Until final acceptance, title and risk of loss or damage to Contract Activities remains with Contractor. Contractor is responsible for filing, processing, and collecting all damage claims. The State will record and report to Contractor any evidence of visible damage. If the State rejects the Contract Activities, Contractor must remove them from the premises within 10 calendar days after notification of rejection. The risk of loss of rejected or non-conforming Contract Activities remains with Contractor. Rejected Contract Activities not removed by Contractor within 10 calendar days will be deemed abandoned by Contractor, and the State will have the right to dispose of it as its own property. Contractor must reimburse the State for costs and expenses incurred in storing or effecting removal or disposition of rejected Contract Activities.

19. Warranty Period. The warranty period, if applicable, for Contract Activities is a fixed period commencing on the date specified in Schedule A. If the Contract Activities do not

function as warranted during the warranty period, the State may return such non-conforming Contract Activities to the Contractor for a full refund.

20. Terms of Payment. Invoices must conform to the requirements communicated from time-to-time by the State. All undisputed amounts are payable within 45 days of the State's receipt. Contractor may only charge for Contract Activities performed as specified in Schedule A. Invoices must include an itemized statement of all charges. The State is exempt from State sales tax for direct purchases and may be exempt from federal excise tax, if Services purchased under this Agreement are for the State's exclusive use. All prices are exclusive 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.

The State has the right to withhold payment of any disputed amounts until the parties agree as to the validity of the disputed amount. The State will notify Contractor of any dispute within a reasonable time. Payment by the State will not constitute a waiver of any rights as to Contractor's continuing obligations, including claims for deficiencies or substandard Contract Activities. Contractor's acceptance of final payment by the State constitutes a waiver of all claims by Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still disputed.

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

21. Service Level Agreements. Service Level Agreement penalties, if applicable, will be assessed as described in Schedule A.

22. Stop Work Order. The State may suspend any or all activities under the Contract at any time. The State will provide Contractor a written stop work order detailing the suspension. Contractor must comply with the stop work order upon receipt. Within 90 calendar 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 the Contract or delivery order. The State will not pay for Contract Activities, Contractor's lost profits, or any additional compensation during a stop work period.

23. Termination for Cause. The State may terminate this Contract for cause, in whole or in part, if Contractor, as determined by the State: (a) endangers the value, integrity, or security of any location, data, or personnel; (b) becomes insolvent, petitions for bankruptcy court proceedings, or has an involuntary bankruptcy proceeding filed against

it by any creditor; (c) engages in any conduct that may expose the State to liability; (d) breaches any of its material duties or obligations; or (e) fails to cure a breach within the time stated in a notice of breach. Any reference to specific breaches being material breaches within this Contract will not be construed to mean that other breaches are not material.

If the State terminates this Contract under this Section, 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 the 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 24, Termination for Convenience.

The State will only pay for amounts due to Contractor for Contract Activities 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. The Contractor must pay all reasonable costs incurred by the State in terminating this Contract for cause, including administrative costs, attorneys' fees, court costs, transition costs, and any costs the State incurs to procure the Contract Activities from other sources.

24. 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 of the Contract Activities immediately, or (b) continue to perform the Contract Activities in accordance with Section 25, Transition Responsibilities. 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.

25. 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), provide all reasonable transition assistance requested by the State, to allow for the expired or terminated portion of the Contract Activities to continue without interruption or adverse effect, and to facilitate the orderly transfer of such Contract Activities to the State or its designees. Such transition assistance may include, but is not limited to: (a) continuing to perform the Contract Activities at the established Contract rates; (b) taking all reasonable and necessary measures to transition performance of the work, including all applicable Contract Activities, training, equipment, software, leases, reports and other documentation, 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 materials, data, property, and confidential information provided directly or indirectly to Contractor by any entity, agent, vendor, or employee of the State; (d) transferring title in and delivering to the

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State, at the State's discretion, all completed or partially completed deliverables prepared under this Contract as of the Contract termination date; and (e) preparing an accurate accounting from which the State and Contractor may reconcile all outstanding accounts (collectively, "**Transition Responsibilities**"). This Contract will automatically be extended through the end of the transition period.

26. 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; (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); and (d) any acts or omissions of Contractor (or any of Contractor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable).

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 if the State deems necessary. Contractor will not, without the State's 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. To the extent that any State employee, official, or law may be involved or challenged, the State may, at its own expense, control the defense of that portion of the claim.

Any litigation activity on behalf of the State, or any of its subdivisions under this Section, must be coordinated with the Department of Attorney General. 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.

27. Infringement Remedies. If, in either party's opinion, any piece of equipment, software, commodity, or service supplied by Contractor or its subcontractors, or its operation, use or reproduction, is likely to become the subject of a copyright, patent, trademark, or trade secret infringement claim, Contractor must, at its expense: (a) procure for the State the right to continue using the equipment, software, commodity, or service, or if this option is not reasonably available to Contractor, (b) replace or modify

the same so that it becomes non-infringing; or (c) accept its return by the State with appropriate credits to the State against Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

28. Limitation of Liability and Disclaimer of Damages. IN NO EVENT WILL THE STATE'S AGGREGATE LIABILITY TO CONTRACTOR 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. The State is not liable for consequential, incidental, indirect, or special damages, regardless of the nature of the action.

29. Disclosure of Litigation, or Other Proceeding. Contractor must notify the State within 14 calendar days of receiving notice of any litigation, investigation, arbitration, or other proceeding (collectively, "**Proceeding**") involving Contractor, a subcontractor, or an officer or director of Contractor or subcontractor, that arises during the term of the Contract, including: (a) a criminal Proceeding; (b) a parole or probation Proceeding; (c) a Proceeding under the Sarbanes-Oxley Act; (d) a civil Proceeding involving: (1) a claim that might reasonably be expected to adversely affect Contractor's viability or financial stability; or (2) a governmental or public entity's claim or written allegation of fraud; or (e) a Proceeding involving any license that Contractor is required to possess in order to perform under this Contract.

30. State Data.

a. **Ownership**. The State's data ("**State Data**," which will be treated by Contractor as Confidential Information) includes: (a) the State's data collected, used, processed, stored, or generated as the result of the Contract Activities; (b) personally identifiable information ("**PII**") collected, used, processed, stored, or generated as the result of the Contract Activities, 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; and, (c) personal health information ("**PHI**") collected, used, processed, stored, or generated as the result of the Contract Activities, which is defined under the Health Insurance Portability and Accountability Act (HIPAA) and its related rules and regulations. 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 survives the termination of this Contract. Please refer to Schedule F Data Security Requirements for additional information.

b. **Contractor Use of State Data**. Contractor is provided a limited license to State Data for the sole and exclusive purpose of providing the Contract Activities,

including a license to collect, process, store, generate, and display State Data only to the extent necessary in the provision of the Contract Activities. 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 Contract Activities, 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 survives the termination of this Contract.

c. **Extraction of State Data**. Contractor must, within five (5) business days of the State's request, provide the State, without charge and without any conditions or contingencies whatsoever (including but not limited to the payment of any fees due to Contractor), an extract of the State Data in the format specified by the State.

d. **Backup and Recovery of State Data**. Unless otherwise specified in Schedule A, Contractor is responsible for maintaining a backup of State Data and for an orderly and timely recovery of such data. Unless otherwise described in Schedule A, Contractor must maintain a contemporaneous backup of State Data that can be recovered within two (2) hours at any point in time.

e. **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 or PHI, at the State's sole election, (i) with approval and assistance from the State, notify the affected individuals who comprise the PII or PHI 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 required to comply with applicable law, or, in the absence of any legally required monitoring services, for no less than twenty-four (24) months following the date of notification to such individuals; (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. 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. The parties agree that any damages relating to a breach of this **Section 30** are to be considered direct damages and not consequential damages. This section survives termination or expiration of this Contract.

f. **State's Governance, Risk and Compliance (GRC) platform**. Contractor is required to assist the State with its security accreditation process through the development, completion and ongoing updating of a system security plan using the State's automated GRC platform and implement any required safeguards or remediate any security vulnerabilities as identified by the results of the security accreditation process.

31. Non-Disclosure of Confidential Information. The parties acknowledge that each party may be exposed to or acquire communication or data of the other party that is confidential, privileged communication not intended to be disclosed to third parties. The provisions of this Section survive the termination of this Contract.

a. **Meaning of Confidential Information**. For the purposes of this Contract, 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: (a) 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). For purposes of this Contract, in all cases and for all matters, State Data is deemed to be Confidential Information.

b. **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 a subcontractor is permissible where: (a) use of a subcontractor is authorized under this Contract; (b) the disclosure is necessary or otherwise naturally occurs in connection with work that is within the subcontractor's responsibilities; and (c) Contractor obligates the subcontractor in a written contract to maintain the State's Confidential Information in confidence. At the State's request, any employee of Contractor or any subcontractor may be required to execute a separate agreement to be bound by the provisions of this Section.

c. **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 and each party will cooperate with the other party in seeking injunctive or other equitable relief against any such person.

d. **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 or threatened 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 or threatened breach.

e. **Surrender of Confidential Information upon Termination**. Upon termination of this Contract or a Statement of Work, in whole or in part, each party must, within 5 calendar 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; provided, however, that Contractor must return State Data to the State following the timeframe and procedure described further in this Contract. Should Contractor or the State determine that the return of any Confidential Information is not feasible, such party must destroy the Confidential Information and must certify the same in writing within 5 calendar days from the date of termination to the other party. However, the State's legal ability to destroy Contractor data may be restricted by its retention and disposal schedule, in which case Contractor's Confidential Information will be destroyed after the retention period expires.

Data Privacy and Information Security.

f. **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 employees, agents, and subcontractors of Contractor, if any, 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 to Contractor upon request.

g. **Audit by Contractor**. No less than annually, Contractor must conduct a comprehensive independent third-party audit of its data privacy and information security program and provide such audit findings to the State.

h. **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 Contract Activities and from time to time during the term of this Contract. During the providing of the Contract Activities, 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. In lieu of an on-site audit, upon request by the State, Contractor agrees to complete, within 45 calendar days of receipt, an audit questionnaire provided by the State regarding Contractor's data privacy and information security program.

i. **Audit Findings**. Contractor must implement any required safeguards as identified by the State or by any audit of Contractor's data privacy and information security program.

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j. **State's Right to Termination for Deficiencies**. The State reserves the right, at its sole election, to immediately terminate this Contract or a 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.

32. Records Maintenance, Inspection, Examination, and 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 the Contract through the term of the Contract and for 4 years after the latter of termination, expiration, or final payment under this Contract or any extension ("**Audit Period**"). If an audit, litigation, or other action involving the records is initiated before the end of the Audit Period, Contractor must retain the records until all issues are resolved.

Within 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 Contract Activities are being performed, and examine, copy, and audit all records related to this Contract. Contractor must cooperate and provide reasonable assistance. If any 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 the Contract must be paid or refunded within 45 calendar days.

This Section applies to Contractor, any parent, affiliate, or subsidiary organization of Contractor, and any subcontractor that performs Contract Activities in connection with this Contract.

33. Warranties and Representations. Contractor represents and warrants: (a) Contractor is the owner or licensee of any Contract Activities that it licenses, sells, or develops and Contractor has the rights necessary to convey title, ownership rights, or licensed use; (b) all Contract Activities are delivered free from any security interest, lien, or encumbrance and will continue in that respect; (c) the Contract Activities will not infringe the patent, trademark, copyright, trade secret, or other proprietary rights of any third party; (d) Contractor must assign or otherwise transfer to the State or its designee any manufacturer's warranty for the Contract Activities; (e) the Contract Activities are merchantable and fit for the specific purposes identified in the Contract; (f) the Contract signatory has the authority to enter into this Contract; (g) all information furnished by Contractor in connection with the Contract fairly and accurately represents Contractor's business, properties, finances, and operations as of the dates covered by the information, and Contractor will inform the State of any material adverse changes;(h) all information furnished and representations made in connection with the award of this Contract is true, accurate, and complete, and contains no false statements or omits any fact that would make the information misleading; and that (i) Contractor is neither currently engaged in nor will engage in the boycott of a person based in or doing business with a strategic partner as described in 22 USC 8601 to 8606. A breach of this

STANDARD CONTRACT TERMS

Section is considered a material breach of this Contract, which entitles the State to terminate this Contract under Section 23, Termination for Cause.

34. Conflicts and Ethics. Contractor will uphold high ethical standards and is prohibited from: (a) holding or acquiring an interest that would conflict with this Contract; (b) doing anything that creates an appearance of impropriety with respect to the award or performance of the Contract; (c) attempting to influence or appearing to influence any State employee by the direct or indirect offer of anything of value; or (d) paying or agreeing to pay any person, other than employees and consultants working for Contractor, any consideration contingent upon the award of the Contract. Contractor must immediately notify the State of any violation or potential violation of these standards. This Section applies to Contractor, any parent, affiliate, or subsidiary organization of Contractor, and any subcontractor that performs Contract Activities in connection with this Contract.

35. Compliance with Laws. Contractor must comply with all federal, state and local laws, rules and regulations.

36. 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.

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

38. 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 Michigan Court of Claims. Contractor consents to venue in Ingham County, and waives any objections, such as lack of personal jurisdiction or *forum non conveniens*. Contractor must appoint agents in Michigan to receive service of process.

39. Non-Exclusivity. Nothing contained in this Contract is intended nor will 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 Contract Activities from other sources.

STANDARD CONTRACT TERMS

40. Force Majeure. Neither party will be in breach of this Contract because of any failure arising from any disaster or acts of god that are beyond their control and without their fault or negligence. Each party will use commercially reasonable efforts to resume performance. Contractor will not be relieved of a breach or delay caused by its subcontractors. If immediate performance is necessary to ensure public health and safety, the State may immediately contract with a third party.

41. Dispute Resolution. The parties will endeavor to resolve any Contract dispute in accordance with this provision. The dispute will be referred to the parties' respective Contract Administrators or Program Managers. Such referral must include a description of the issues and all supporting documentation. The parties must submit the dispute to a senior executive if unable to resolve the dispute within 15 business days. The parties will continue performing while a dispute is being resolved, unless the dispute precludes performance. A dispute involving payment does not preclude performance.

Litigation to resolve the dispute will not be instituted until after the dispute has been elevated to the parties' senior executive and either concludes that resolution is unlikely or fails to respond within 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 does not limit the State's right to terminate the Contract.

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

43. Website Incorporation. The State is not bound by any content on Contractor's website unless expressly incorporated directly into this Contract.

44. Schedules. All Schedules and Exhibits that are referenced herein and attached hereto are hereby incorporated by reference. The following Schedules are attached hereto and incorporated herein:

Schedule A	Statement of Work
Schedule B	Pricing
Schedule C	MDOT AVL-GPS System Requirements
Schedule D	M5 Standard Meter Interface Directions
Schedule E	MDSS Requirements
Schedule F	Data Security Requirements

STANDARD CONTRACT TERMS

45. Entire Agreement and Order of Precedence. This Contract, which includes Schedule A – Statement of Work, and schedules and exhibits which are hereby expressly incorporated, is the entire agreement of the parties related to the Contract Activities. This Contract supersedes and replaces all previous understandings and agreements between the parties for the Contract Activities. If there is a conflict between documents, the order of precedence is: (a) first, this Contract, excluding its schedules, exhibits, and Schedule A – Statement of Work; (b) second, Schedule A – Statement of Work as of the Effective Date; and (c) third, schedules expressly incorporated into this Contract as of the Effective Date. NO TERMS ON CONTRACTOR'S INVOICES, ORDERING DOCUMENTS, WEBSITE, BROWSE-WRAP, SHRINK-WRAP, CLICK-WRAP, CLICK-THROUGH OR OTHER NON-NEGOTIATED TERMS AND CONDITIONS PROVIDED WITH ANY OF THE CONTRACT ACTIVITIES WILL CONSTITUTE A PART OR AMENDMENT OF THIS CONTRACT OR IS BINDING ON THE STATE FOR ANY PURPOSE. ALL SUCH OTHER TERMS AND CONDITIONS HAVE NO FORCE AND EFFECT AND ARE DEEMED REJECTED BY THE STATE, EVEN IF ACCESS TO OR USE OF THE CONTRACT ACTIVITIES REQUIRES AFFIRMATIVE ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

46. Severability. If any part of this Contract is held invalid or unenforceable, by any court of competent jurisdiction, that part will be deemed deleted from this Contract and the severed part will be replaced by agreed upon language that achieves the same or similar objectives. The remaining Contract will continue in full force and effect.

47. Waiver. Failure to enforce any provision of this Contract will not constitute a waiver.

48. Survival. The provisions of this Contract that impose continuing obligations, including warranties and representations, termination, transition, insurance coverage, indemnification, and confidentiality, will survive the expiration or termination of this Contract.

49. Contract Modification. This Contract may not be amended except by signed agreement between the parties (a "**Contract Change Notice**"). Notwithstanding the foregoing, no subsequent Statement of Work or Contract Change Notice executed after the Effective Date will be construed to amend this Contract unless it specifically states its intent to do so and cites the section or sections amended.

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

Contract Number: 591M210000001068
Automated Vehicle Location (AVL)/GPS and MDSS Operational Management Solution for the Michigan Department of Transportation

BACKGROUND

This is a Contract for a comprehensive Automated Vehicle Location (AVL)/Global Positioning System (GPS) fleet tracking system for the Michigan Department of Transportation (MDOT). The Contractor will utilize any existing AVL equipment as deemed possible by the Contractor and as accepted by the MDOT. This Contract is all encompassing: including but not limited to; the necessary removal of previous AVL/GPS hardware in trucks, firmware, software, installation of new AVL/GPS hardware, firmware, software, communication/data transfer, training support, secure website for displaying mapped assets in near real-time, data management, data reporting and data storage, and ongoing technical support for implementing an AVL/GPS fleet tracking solution on the Departments fleet. All data collected through this Contract is to be stored on non-state-owned servers provided by the contractor. AVL Data should be stored for 5 years and be able to be recalled at any point during that time span. The Contractor will be responsible for being able to work with and communicate with the Statewide Maintenance Decision Support System (MDSS) tool for the Departments maintenance garages and fleet of winter maintenance trucks (WMTs). The MDSS is a web-based solution available to all MDOTs maintenance facilities for providing weather forecasts, pavement condition forecasts, and maintenance treatment recommendations. The MDSS can provide treatment recommendations and local radar and weather information to the operator of a WMT (with the in-cab display screen). RWIS Data collected in MDSS should be stored for 5 years and be able to be recalled at any point during that time span. This is a formal request to prospective Contractors to solicit bids or price quotations. Contractors must submit written proposals according to the instructions contained within this document, discussing how they will meet the specific requirements.

SCOPE

The Michigan Department of Transportation (MDOT) currently utilizes AVL technology to automatically report vehicle miles driven and engine hours. By monitoring and collecting data from the material controllers and other on-board equipment on the WMTs, additional time and potential error can be eliminated by

automatically collecting and reporting winter material usage and displaying in near real-time the location, material application rates, plow position, current air and pavement temperature of the Departments fleet of WMTs. Also, by communicating this additional operational data from the WMTs to a MDSS provider and receiving maintenance treatment recommendations back from the provider, efficiencies in maintenance operations can be increased.

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

The MDOT owns and operates 345 Winter Maintenance Trucks and around 2,000 vehicles/equipment assets. The vehicle/equipment inventory below is current as of September 28, 2020 but subject to change. The MDOT has grouped the assets into two levels of implementation as described below. The MDOT's initial goal will be to update instrumentation and continue to collect data from all WMTs located throughout the state. The Contractor will utilize any existing AVL equipment as deemed possible by the Contractor and as accepted by the MDOT. It will be up to the discretion of the MDOT when and if the assets in the second group are installed. The non-WMT assets will be instrumented as funding becomes available within the duration of the contract. The numbers of assets listed in the scope are estimates only and the MDOT cannot guarantee that it will purchase these quantities.

1) **Winter Maintenance Trucks** (WMTs) shall receive AVL/GPS equipment and services and must be configured to record and report on the vehicle's operating engine hours, miles driven, and engine idle time. The WMTs will require additional features, such as an interface to the WMTs material application controllers, (Dickey John Control Point, Certified Power, Gresen) to collect material application rates and other operational data, an in-cab display screen and the ability to interface and collect data from other on-board devices such as an air and pavement temperature sensor, and mobile friction sensor/ Mobile RWIS. The MDOT may require the Contractor to perform the removal of existing and installations of new AVL/GPS equipment in all WMTs.

- 345 Winter Maintenance Trucks (WMTs), Currently 340 are equipped with AVL/GPS.

2) **All other assets listed (light, medium, other heavy-duty trucks, and large equipment)** requested by the MDOT shall receive AVL/GPS equipment and services capable of providing the assets operating engine hours, miles driven, engine idle time and location. The non-WMT assets will be instrumented as funding becomes available within the duration of the contract. The numbers of assets listed in the scope are estimates only and the MDOT cannot guarantee that it will purchase these quantities. There is currently no AVL/GPS equipment installed on the assets listed below

- 326 Medium Duty vehicles (1 ton)

- 661 Light Duty cars vans and trucks (under 1 ton)

-151 Other Heavy-Duty Trucks (Miscellaneous large trucks)

-917 Large Equipment (trailers, chippers, graders, etc.)

1. Requirements

1.1. General Requirements

Prior to the Contract being awarded, the pool of responses will be narrowed down to three (3) Contractors. Those Contractors will then be required to perform a

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

demonstration on a WMT to show that their system will meet requirements in the contract.

The Contractor will provide an implementation plan of what equipment could be reused from the existing system and what would need to be replaced. The Contractor should include proposed replacement cycle times for the installed equipment.

Provide the necessary hardware and software package for each vehicle (the numbers listed in the scope are estimates only.) The awarded Contractor will be required to provide pricing for the removal of all current obsolete AVL equipment in the vehicles and installation of all new AVL/GPS equipment. The Contractor will utilize any existing AVL equipment as deemed possible by the Contractor and as accepted by the MDOT. A representative from the MDOT will be on site to assist in the coordination with garage locations. The initial outfit group will include 20 WMTs between two different locations. The Contractor will provide installation plans for all WMT configurations for MDOT approval and will maintain consistency with installations across the state.

The initial 20 WMT AVL packages are to be installed within 15 business days of contract execution. Half (173) of the WMT AVL equipment packages must be installed by August 30th, 2021. The MDOT requests that all 345 WMTs be installed by October 15th, 2021. MDOT will provide the Contractor a priority list of the WMT installation sights. Required data must be collected from WMTs and displayed on website by contractor within 5 days of the installation of the equipment packages.

The non-WMT assets will be instrumented as funding becomes available within the duration of the contract. The numbers of assets listed in the scope are estimates only and the MDOT cannot guarantee that it will purchase these quantities. The Maintenance Decision Support System (MDSS) component of the Contract must be fully operational by October 15th, 2021. The MDSS must display WMTs and their data within 5 days of the installation of the equipment packages. The MDSS must display RWIS data within 5 days of the notification of data flowing from the third part vendor. The MDSS is expected to be used at all 30 MDOT maintenance garages. The MDSS is to be web based along with a mobile application. A secure login must be provided. It is anticipated that up to 500 staff statewide will utilize the MDSS.

RWIS/ESS DATA COLLECTION REQUIREMENTS

The Contractor shall collect and store all data and information generated by the RWIS system and the data shall be the sole property of the State of Michigan to use and distribute. Any secondary distribution of the data and information shall be at the sole discretion of the State. ESS infrastructure is currently installed or planned to be installed in all 7 MDOT Regions.These ESS collect a variety of data that may include: pavement temperature (in-pavement and non-invasive), atmospheric, frost depth, snow depth, traffic, cameras, and/or visibility. Transportation authority's use data from these sensors, additional weather information, and forecasts provided under this contract to make

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

decisions on deploying maintenance crews and determining appropriate pavement treatments. These actions, based on accurate weather forecasts, are critically important to public safety, the State's economy, and the environment. Contractor must meet the requirements of the RWIS/ESS Data Collection section in Schedule C.

The Contractor must provide a secure website with unlimited unique login IDs to display asset current location and previous location (breadcrumb trail), speed, material application rates, plow position for multiple plow types (Front, Underbody, left/right wing, tow plows, etc.) pavement/air temperature readings, dashboard/backup/other potential camera images, liquid application rates, geofencing, logged pre/post trip inspections. The AVL website should also be a Responsive Web Design (RWD), allowing for users to access the site using different devices other than a desktop computer. The Contractor is responsible for data storage, reporting capabilities, and alert capabilities as defined in Schedule C-AVL GPS System Requirements. Website shall be fully operational with all WMTs being displayed and data reporting in accordance with the specifications within 5 business days of installation.

1.2. Training

The Contractor must provide the following training:

1.2.1 General Training Requirements

The first year of the Contract, Contractor is required to provide in-person training for all 7 regions. The requirements of the trainings are listed below. Starting the second year of the contract, the Contractor will provide in-person training at the request of the MDOT. The Contractor will, at minimum, provide training recordings annually that will include topics listed in the below requirements.

a. Contractor shall submit training materials to MDOT project manager for approval at least two (2) weeks in advance of first session.

b. Contractor shall provide training sessions for MDOT technical personnel offering a complete overview of the hardware and software for the AVL, and detailed procedures for troubleshooting problems.

c. Contractor shall provide training for the following seven (7) Region locations:

- Superior Region
- North Region
- Grand Region
- Bay Region
- Southwest Region
- University Region

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- Metro Region

d. The year 1 Annual Training shall be provided at each location after 100% of AVL units for that corresponding Region have been installed.

e. Each training session shall be 6-8 hours in duration, including hands-on troubleshooting.

f. Training shall include hands-on work with the AVL hardware.

g. Contractor provided training shall include review of the operational service manual information.

h. Training shall include access to GUI with demonstrations of fully functioning AVL displaying data, and any applicable troubleshooting procedures.

i. Online reference materials, presentations and videos shall be available to all users.

j. Contractor shall have all attendees sign in on a roster. A copy of the roster will be provided to the MDOT Project Manager within one (1) week of each training session.

1.2.2 Annual AVL GUI & Touchscreen Training (Basic User Level)

a. MDOT will request training and the training shall be approximately three (3) hours in length and shall be provided at least once in each MDOT Region, either in person or virtually, on an annual basis.

b. Classes will be limited to 30-40 participants

c. A video demonstrating and explaining the proper use of the tablets shall be provided

- The video will be no more than thirty minutes in length.
- The video should include a demonstration of the Pre/Post Trip Inspections
- The video will be approved by the MDOT Project Manager.
- The video will be available within 90 days of the tenth (10th) touchscreen installation.
- MDOT will be allowed to make unlimited copies and post on video websites such as YouTube or Vimeo for our own use.

d. A User Guide will be provided and referenced throughout the training.

e. GUI Training will cover:

- AVL and camera image viewing
- How to use menus and tools to view AVL data
- How to do pre/post trip vehicle inspections

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

1.2.3 Annual AVL Advanced Training (Supervisors and Superintendents)

a. MDOT will request training and the training shall follow the Basic User Level Training be approximately three (3) hours in length and shall be provided at least once in each MDOT Region, either in person or virtually, on an annual basis.

b. Training will cover:

- AVL and camera image viewing
- How to generate, customize and view reports
- How to customize the GUI for preferred viewing
- Play back historical events
- All functionality that is made available to the MDOT through the Contractor's GUI.
- Any updates to the systems.
- Future version status updates

1.2.4 Annual MDSS Advanced Training (Supervisors and Superintendents)

a. MDOT will request training and the training shall follow the Basic User Level Training be approximately three (3) hours in length and shall be provided at least once in each MDOT Region, either in person or virtually, on an annual basis.

b. Training will cover:

- AVL and camera image viewing
- RWIS data and image viewing
- Truck list views
- Understanding recommendations and forecasting of the system
- How to generate, customize and view reports
- How to customize the website and application for preferred viewing
- Play back historical events
- All functionality that is made available to the MDOT through the Contractor's website or application.
- Any updates to the systems.
- Future version status updates

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

1.2.5 Training Demonstration Program

a. The Contractor shall provide three (3) training units and/or software licenses giving the MDOT trainers the ability to perform internal trainings. This program will be a simulation b. Demonstration Program should include every screen that is included in the in-cab display:

- Login screen
- Pre/Post Trip Inspections
- Maintenance Materials
- Radars
- Diagnostics
- Vehicle Data Screens
- MDSS Recommendations, Weather Displays, Operator input, etc.
- General Trouble shooting of the tablets

The Contractor must explain its training capabilities and any training that is included in its proposal. The Contractor must provide documentation and training materials.

2. Services Levels

2.1. Timeframes

All equipment orders must be delivered within 10 business days from receipt of order. The receipt of order date is pursuant to the **Notices** section of the Standard Contract Terms.

2.2. Delivery

Delivery of equipment orders will be expected in full within 10 business days upon date of order. Delivery will be made at Lansing OFS Building, 6333 Lansing Road Lansing, MI, 48917.

3. Acceptance

3.1. Acceptance, Inspection and Testing

The following criteria will be used by the State to determine Acceptance of the Services and Deliverables provided:

The GPS/AVL hardware packages will not be considered accepted until MDOT can verify that all requested data is being transmitted to, processed, and displayed by the contractor on the AVL and MDSS secure web portals.

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MDSS services will be accepted once it is operational and meets the requirements defined in this Contract.

Training and other vendor services will be accepted after completion and all requested materials are delivered to Department staff.

Contractor shall provide additional acceptance criteria as part of their response.

4.Staffing

4.1 Contractor Representative

The Contractor must appoint a Project Manager and list of individuals involved in Staff Support for both in the field and in the office. Individuals, specifically assigned to State of Michigan accounts, who will respond to State inquiries regarding the Contract Activities, answer questions related to ordering and delivery, etc. (the "Contractor Representative"). Bidder must identify its **Contractor Representative**.

The Contractor must notify the Contract Administrator at least 7 calendar days before removing or assigning a new Contractor Representative.

4.2 Customer Service Toll-Free Number

The Contractor must specify its toll-free number for the State to make contact with the Contractor Representative. The Contractor Representative must be available for calls during the hours of 8:00 AM to 5 PM EST.

4.3 Technical Support, Repairs and Maintenance

The Contractor must specify its toll-free number for the State to make contact with the Contractor for technical support, repairs and maintenance. The Contractor must be available for standard calls and service during the hours of 7 am to 6 pm EST beginning November 1st thru April 30th. From May 1st thru October 31st, Contractor must be available for standard calls and service during the hours of 8am to 5pm EST.

When providing technical support, the Call Center must resolve the caller's issue within 30 minutes. If the caller's issue cannot be resolved within 8 hours, on-site service may be scheduled per the MDOT's request. The on-site service must be performed within 48 hours of the time the issue was scheduled for service.

4.4 Work Hours

The Contractor must provide Contract Activities during the State's normal working hours Monday – Friday, 7:00 am to 6:00 pm EST and possible night and weekend hours depending on the requirements of the project.

4.5 Key Personnel

The Contractor must appoint individuals who will be directly responsible for the day-to-day operations of the Contract ("Key Personnel"). Key Personnel must be specifically

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assigned to the State account, be knowledgeable on the contractual requirements, and respond to State inquiries within 8 hours.

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. The State may require a 30-calendar day training period for replacement personnel.

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 the **Termination for Cause** section of the Standard Contract Terms. It is further acknowledged that an Unauthorized Removal will interfere with the timely and proper completion of this Contract, to the loss and damage of the State, and that it would be impracticable and extremely difficult to fix the actual damage sustained by the State as a result of any Unauthorized Removal. Therefore, Contractor and the State agree that in the case of any Unauthorized Removal in respect of which the State does not elect to exercise its rights under Termination for Cause, Contractor will issue to the State the corresponding credits set forth below (each, an "Unauthorized Removal Credit"):

(i) For the Unauthorized Removal of any Key Personnel designated in the applicable Statement of Work, the credit amount will be $25,000.00 per individual if Contractor identifies a replacement approved by the State and assigns the replacement to shadow the Key Personnel who is leaving for a period of at least 30-calendar days before the Key Personnel's removal.

(ii) If Contractor fails to assign a replacement to shadow the removed Key Personnel for at least 30-calendar days, in addition to the $25,000.00 credit specified above, Contractor will credit the State $833.33 per calendar day for each day of the 30-calendar day shadow period that the replacement Key Personnel does not shadow the removed Key Personnel, up to $25,000.00 maximum per individual. The total Unauthorized Removal Credits that may be assessed per Unauthorized Removal and

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

failure to provide 30-calendar days of shadowing will not exceed $50,000.00 per individual.

Contractor acknowledges and agrees that each of the Unauthorized Removal Credits assessed above: (i) is a reasonable estimate of and compensation for the anticipated or actual harm to the State that may arise from the Unauthorized Removal, which would be impossible or very difficult to accurately estimate; and (ii) may, at the State's option, be credited or set off against any fees or other charges payable to Contractor under this Contract. 4.5.1 The Contractor must identify all Key Personnel that will be assigned to this contract and include the following:

1. Name and title of staff that will be designated as Key Personnel.

2. Key Personnel years of experience in the current classification.

3. Identify which of the required key personnel positions they are fulfilling.

4. Key Personnel's roles and responsibilities, as they relate to this Contract, if the Contractor is successful in being awarded the Contract. Descriptions of roles should be functional and not just by title.

5. Identify if each Key Personnel is a direct, subcontract, or contract employee.

6. Identify if each Key Personnel staff member is employed full-time (FT), part-time (PT) or temporary (T), including consultants used for the purpose of providing information for the proposal.

7. List each Key Personnel staff member's length of employment or affiliation with the Contractor's organization.

8. Identify each Key Personnel's percentage of work time devoted to this Contract.

9. Identify where each Key Personnel staff member will be physically located (city and state) during the Contract performance.

4.5.2 The Contractor must provide **detailed, chronological resumes** of all proposed Key Personnel, including a description of their work experience relevant to their purposed role as it relates to the Contract.

Qualifications will be measured by education and experience with particular reference to experience on projects similar to that described in the Contract.

4.6 Organizational Chart

The Contractor must provide an overall organizational chart that details staff members, by name and title, and subcontractors.

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4.7 Disclosure of Subcontractors

If the Contractor intends to utilize subcontractors, the Contractor must disclose the following:

4.7.1The legal business name; address; telephone number; a description of subcontractor's organization and the services it will provide; and information concerning subcontractor's ability to provide the Contract Activities.

4.7.2 The relationship of the subcontractor to the Contractor.

4.7.3 Whether the Contractor has a previous working experience with the subcontractor. If yes, provide the details of that previous relationship.

4.7.4 A complete description of the Contract Activities that will be performed or provided by the subcontractor.

4.8 Security

The Contractor will be subject the following security procedures:

The Contractor must explain any additional security measures in place to ensure the security of State facilities. The State may require the Contractor's personnel to wear State issued identification badges.

The Contractor's staff may be required to make deliveries to or enter State facilities. The Contractor must: (a) explain how it intends to ensure the security of State facilities, (b) whether it uses uniforms and ID badges, etc., (c) identify the company that will perform background checks, and (d) the scope of the background checks.

4.9 Access to Tax Information

The Contractor must comply with the requirements of *IRS Publication 1075* (including *Exhibit 7 Safeguarding Contract Language*) and *Michigan Department of Treasury Safeguard Requirements of Confidential Tax Data*.

5 Project Management

5.1 Project Plan

The Contactor will provide a project implementation and equipment plan. This plan should include options, such as if the Contractor determines that portions of the existing AVL system can be reused and how that would change the removal and installation timelines.

5.1.1. Implementation Plan-The Contractor provide as an attachment to their proposal a detailed plan on how they will assemble and establish the resources necessary to meet the requirements of this CONTRACT starting on the first day of Contract execution. The plan addresses the Contractors available resources as well as planned activities to provide the necessary resources including, but not limited to equipment,

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

materials, staffing, and facilities needed to successfully meet all Contract requirements. Included in the implementation plan specifically address how the Contractor will meet instrumentation and data reporting criteria in section 1.1 General Requirements. Implementation plan must also describe if the contractor proposes use of any existing AVL equipment along with a proposed schedule on when contractor recommends all WMTs should be instrumented with new (Contractor) equipment. Implementation plan must also detail the contractors proposed AVL and sensor components including expected service life for each component and replacement schedule for each. MDOT reserves the rights to reject all or any portions of the contactor implementation plan. The Contractor implementation plan must also state that the contractor is capable of providing all new equipment for instrumentation and data reporting criteria listed in section 1.1 General Requirements. Schedule G – Parsons Draft Project Implementation Plan has been added to the end of this Contract.

5.1.2. System Maintenance and Operations Plan-The Contractor provide as an attachment to their proposal a detailed maintenance and operations plan that serves as the overall work plan for the Contractor to meet the performance requirements for all equipment and services under contract. The plan will detail resources and processes employed to resolve any data reporting or display issues for any vehicle's AVL equipment. Plan should include monitoring and reporting of all data elements for each vehicle's AVL setup, as well as steps contractor will take to correct gaps in data reporting and system display. The plan also demonstrates the Contractors understanding and acceptance to the Service Level agreements as evaluated by MDOT.

The Contractor will carry out this project under the direction and control of the Program Manager. Within 30 calendar days of the Effective Date, the Contractor must submit a project plan to the Program Manager for final approval. The plan must include: (a) the Contractor's organizational chart with names and title of personnel assigned to the project, which must align with the staffing stated in accepted proposals; and (b) the project breakdown showing sub-projects, tasks, and resources required. Schedule H – Parsons Draft Project Management Plan has been added to the end of this Contract.

5.2 Meetings

The Contractor must attend the following meetings:

- Kickoff meeting
- Progress Report meetings (first 20 installs, halfway, etc.)
- Bi-Weekly Project Meetings between the MDOT and the Contractor and its Subcontractors (AVL and MDSS providers)

The State may request other meetings, as it deems appropriate.

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

5.3 Reporting

The Contractor must explain its reporting capabilities and any reporting that is included in its proposal. In addition, provide samples of required reports as attachments to this Contract.

6 Pricing

6.1 Price Term

Pricing is firm for a 365-day period ("Pricing Period"). The first pricing period begins on the Effective Date. Adjustments may be requested, in writing, by either party and will take effect no earlier than the next Pricing Period.

6.2 Price Changes

Adjustments will be based on changes in actual Contractor costs. Any request must be supported by written evidence documenting the change in costs. The State may consider sources, such as the Consumer Price Index; Producer Price Index; other pricing indices as needed; economic and industry data; manufacturer or supplier letters noting the increase in pricing; and any other data the State deems relevant.

Following the presentation of supporting documentation, both parties will have 30 days to review the information and prepare a written response. If the review reveals no need for modifications, pricing will remain unchanged unless mutually agreed to by the parties. If the review reveals that changes are needed, both parties will negotiate such changes, for no longer than 30 days, unless extended by mutual agreement.

The Contractor remains responsible for Contract Activities at the current price for all orders received before the mutual execution of a Change Notice indicating the start date of the new Pricing Period.

7 Ordering

7.1 Authorizing Document

The appropriate authorizing document for the Contract will be a Delivery Order through Sigma.

8 Invoice and Payment

8.1 Invoice Requirements

All invoices submitted to the State must include and each page: (a) date; (b) Service Dates of Invoice (c) Contractor and MDOT addresses (d) Invoice and Contract Number (e) quantity; (f) description of the Contract Activities (including correct Commodity

codes); (g) unit price; and (h) total price. Overtime, holiday pay, and travel expenses will not be paid.

8.2 Payment Methods

The State will make payment for Contract Activities using EFT or, if approved by the Chief Procurement Officer, P-Card.

8.3 Reserved

9. Service-Level Agreements (SLAs)

A. The Contractor will be held accountable to meet the requirements and the service level requirements established in this Contract.

B. The State reserves the right to reconsider or amend SLA amounts for split awards should they occur.

C. **Please Note**: Should Contractors have any questions or requirement clarification with regard to the SLAs, they should submit them during the *Question-and-Answer Period* of this solicitation, please see the **Proposal Instructions** for the timeline.

Service Level Agreements for this Contract will be as follows:

SLA Metric 1. Timely Deliveries	
Definition and Purpose	All equipment orders must be delivered within 10 business days of receipt of order. The Contractor must ensure that items and quantities delivered are exactly the items, brands, and quantities on the Order Confirmation. No substitutions will be allowed without prior written permission by Program Manager and a Change Notice executed by the Contract Administrator. The entire order will be received on the same day unless a partial delivery has been approved in advance by the Program Manager.
Acceptable Standard	1. All deliveries must occur in accordance with the approved delivery schedule for each Facility and Facility Receiving hours. See Standard Contract Terms Section 17 and Schedule A Section 2 Service Levels.

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

SLA Metric 1. Timely Deliveries	
	2. Contractor must follow delivery practices from their approved Implementation plan, unless otherwise approved by MDOT. 3. Extenuating circumstances must be communicated by the Contractor to the Program Manager prior to the scheduled delivery date and time. 4. Items, brands, and quantities delivered will match the Order Confirmation exactly. 5. Signed and dated packing slips will be provided to the MDOT at the time of delivery. 6. The entire order must be delivered on the same day unless a partial delivery has been approved in advance by the Program Manager. 7. It is not the intent of the MDOT to place large quantity orders and hold the entire order to the 10-business day metric. It is however expected that the Contractor maintains on hand inventory to better ensure delivery time can be met for smaller orders. 8. Orders not received in their entirety, as determined by a review of the Data Sources, will be considered inaccurate. The acceptable standard is 100% compliance
Credit Due for Failing to Meet the Service Level Agreements	1. $500.00 may be assessed for each order that does not meet the above criteria. 2. $100.00 may be assessed for each additional business day beginning on the 11th business day. Extenuating circumstances will be reviewed by the Program Manager before any Service Credits are assessed. At the discretion of the State, these credits may be applied toward any payable due to the Contractor or be payable directly to the State. Payments made directly to the state will be completed within 10 days of notice of assessment.

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

SLA Metric 2. Data Integrity	
Definition and Purpose	Ongoing Data integrity is data accuracy and consistency over its entire life cycle. The Contractor must ensure that data is being transmitted properly and meets the requirements of the Contract. The Contractor must provide equipment and software that is capable of reporting data and meets the requirements of the Contract.
Acceptable Standard	1. The Contractor is responsible of ensuring that the system is capable of meeting the desired requirements of the Contract. 2. System requirements refer to both the reporting and display of required information to the entire system, as well as complete reporting and display of all required data for each vehicle. 3. Extenuating circumstances must be communicated by the Contractor to the Program Manager if solution cannot be reached within the desired timeframe. 4. All software and its updates must be in working order. (Upgrades to sensors, GPS, Cell, Spreader Controller, etc) 5. Contractor is responsible for monitoring data flow and recognizing when there is an issue. Upon recognition of a software issue, by the Contractor or by the MDOT, the Contractor must resolve the issue within 5 business days. 6. If it is determined that equipment must be returned to the contractor for updates or repairs, replacement equipment should be provided to MDOT at no cost, in order to maintain data integrity for each vehicle. Data integrity issues are not resolved until vehicle is reporting complete data on system. 7. Contractor must remedy data integrity issues according to their Maintenance and Operations plan, unless otherwise approved by MDOT. The acceptable standard is 98% compliance (of total WMTs) during winter months and 95% compliance (of total WMTs) during the summer months. (Winter and Summer month timeframes defined in Schedule C Category 2.6)
Credit Due for Failing to Meet the	1. $100.00 may be assessed for each vehicle occurrence that does not meet the above criteria.

SCHEDULE A – STATEMENT OF WORK CONTRACT ACTIVITIES

SLA Metric 2. Data Integrity	
Service Level Agreements	2. $50.00 may be assessed for each vehicle occurrence for each additional business day beginning on the 6th business day. Extenuating circumstances will be reviewed by the Program Manager before any Service Credits are assessed. At the discretion of the State, these credits may be applied toward any payable due to the Contractor or be payable directly to the State. Payments made directly to the state will be completed within 10 days of notice of assessment.

10 Data Security Requirements

10.1 Data Security Requirements

The State has established Information Technology (IT) PSPs (Policies, Standards and Procedures) to protect IT resources under the authority outlined in the overarching State 1305.00 Enterprise IT Policy. 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 public and non-public State IT policies and standards. Please Refer to Schedule F, Data Security Requirements.

Schedule B- Pricing

	Description	Estimated Contract Quantity	Unit	Estimated Contract Quantity (5 yr)	Unit Price	Extended Price (5 yr)	Note
	Estimated Annual Contract						
1	Old Unit Removal by Contractor Tier 1 Locations (Assuming 1 hour per truck)	NA	HR	NA	$92.00		The removal of previous system equipment that cannot be reused by the Contractor for the new system. Must meet the requirements of the Contract.
2	New Unit Installation by Contractor Tier 1 Locations (Assuming 4 hours per truck)	NA	HR	NA	$92.00		The installation of new system by the Contractor, per the request of the MDOT. Must meet the requirements of the Contract.
4	Old Unit Removal by Contractor Tier 2 Locations (Assuming 1 hour per truck)	NA	HR	NA	$156.00		The removal of previous system equipment that cannot be reused by the Contractor for the new system. Must meet the requirements of the Contract.
5	New Unit Installation by Contractor Tier 2 Locations (Assuming 4 hours per truck)	NA	HR	NA	$156.00		The installation of new system by the Contractor, per the request of the MDOT. Must meet the requirements of the Contract.
6	WMT AVL Package	345	EA	NA	$2,464.39	$850,214.55	For Winter Maintenance Trucks (WMT's). Larger AVL controller with modem with larger onboard storage capacity and more sensor ports. Also includes sensors and wiring harness, miles, air and pavement temp., blade configurations up/down, gate/flow meter, spreader controller/material type/rate. Must be capable of accepting sensors for additional metrics in the future. Must meet the requirements of the Contract.
7	Non-WMT AVL Package	2000	EA	NA	$275.46	$550,920.00	For Non-Winter Maintenance Trucks (WMT's). Includes smaller AVL controller with modem and on board storage. Also includes sensors and wiring to monitor engine hours and miles traveled. Must be capable of accepting sensors for additional metrics in the future. Must meet the requirements of the Contract.
8	In cab display screens (Tablets - 8-inch, Samsung Tab Active 3)	NA	EA	NA	$881.09		Optional touch screen, wiring, and harness for WMT's. Must meet the requirements of the Contract.
9	In cab display screens (Tablets - 8-inch, Samsung Tab Active 2)	345	EA	NA	$781.59	$269,648.55	Optional touch screen, wiring, and harness for WMT's. Must meet the requirements of the Contract.
10	In cab display screens (10" Tablets)	NA	EA	NA	$967.34		Optional touch screen, wiring, and harness for WMT's. Must meet the requirements of the Contract.
11	Video Camera Recorders (Cameras)	345	EA	NA	$121.90	$42,055.50	Optional front view camera and wiring for WMT's with ability to mount camera in different locations (rear/wing facing). Must meet the requirements of the Contract.
12	Wing Plow Blade Sensor	1	EA	NA	$258.24		Optional Wing plow blade sensor to track blade usage (up/down). Must meet the requirements of the Contract.
13	Underbody Hydraulic Plow Blade Sensor	1	EA	NA	$142.83		Optional Underbody plow blade sensor to track blade usage (up/down). Must meet the requirements of the Contract.
	Communications						
14	High Cellular Use (Winter Months/WMTs)	2,070	MO	10,350	$20.80	$215,280.00	For WMT's during the winter months (345 WMT * 6 month = 2070). To keep website and MDSS within 1 minute of real-time conditions. Data provider invoices

15	Low Cellular Use (Non-Winter Months/WMTs)	2,070	MO	10,350	$11.56	$119,646.00	For WMT's during the non-winter months (345 WMT * 6 month = 2070). To keep website and MDSS within 1 minute of real-time conditions. Data provider invoices
16	Low Cellular Use (Non-WMTs)	24,000	MO	120,000	$11.56	$1,387,200.00	For Non-WMT's year round (2000 Non-WMT * 12 month = 2070). To keep website and MDSS within 1 minute of real-time conditions. Data provider invoices
	MDSS						
17	Weather Forecasting Services	12	MO	60	$25,025.15	$1,501,509.00	Forecasting, Decision support tools, license fees, etc.
18	Annual MDSS Website/App Usage Training Virtual	1	EA	35	$1,380.00	$48,300.00	Must meet the training requirements of the Contract
19	Annual MDSS Website/App Usage Training - In Person (1 Trainer for 7 days)	1	EA	NA	$12,822.50	$12,822.50	Must meet the training requirements of the Contract. Price is for one trainer for seven days.
20	Winter Weekly Weather Outlook Videos	26	EA	130	$530.77	$69,000.10	Weekly Weekend outlooks for the Regions. Should be provided by close of business every Thursday from November 1st.
21	MDSS Route Configuration	226	EA	NA	$295.76	$66,841.76	One time set up of maintenance route parameters to represent adjacent routes. It is aniticpated that 5-15 primary routes will be required per MDOT garage location/geographical region (routes will be determined by the MDOT). MDSS routes must be configured for the MDSS to be considered functional.
22	Monthly MDSS Webside Management Per Truck	2,070	MO	10,350	$23.00	$238,050.00	For WMT's in winter months. To proivide treatment recommendations and monitor parameters for each WMT (345 WMT * 6 month = 2,070)
	Vendor Services						
23	Project Management	12	MO	60	$5,795.50	$347,730.00	Monthly fee for managing aspects of the contract including reports, orders, monitoring system, and invoices.
24	Technical Assistance Service	12	MO	60	$4,673.73	$280,423.80	Monthly fee for troubleshooting issues with website(s), equipment, data needs, etc. Remote assitance within one hour of problem detected. On-Site support when needed in accordance with the requirements of the Contract.
25	AVL Website Training	1	EA	35	$995.00	$34,825.00	Training program software and yearly trainings in accordance with the requirements of the Contract.
26	AVL Data Storage	12	MO	60	$7,181.33	$430,879.80	Monthly fee for storing all requested data off MDOT vehicles, on Vendor Servers. Unlimited data capacity is included in this item. Must meet the data storage requirements of the Contract.
27	RWIS Data Services System Management and Enhancements	12	MO	60			Monthly fee for program management and enhancements of storing all requested data off RWIS, on Vendor Servers. Unlimited data capacity is included in this item. Must meet the data storage requirements of the Contract.
28	RWIS Data Services and Storage	12	MO	60	$6,066.25	$363,975.00	Monthly fee for storing all requested data off RWIS, on Vendor Servers. Unlimited data capacity is included in this item. Must meet the data storage requirements of the Contract.

Notes:

List of Tier 1 and 2 Garages included in Listings below

Line 1, Old Unit Removal: Price is for Tier 1 Locations and hourly work charge only. Extra half hours are $46. Mileage is $46 per hour portal to portal.

Line 2, New Unit Installation: Price is for Tier 1 Locations and hourly work charge only. Extra half hours are $46. Mileage is $46 per hour portal to portal.

Line 3, Old Unit Removal: Price is for Tier 2 Locations and hourly work charge only. Extra half hours are $78. Mileage is $46 per hour portal to portal.

Line 4, New Unit Installation: Price is for Tier 2 Locations and hourly work charge only. Extra half hours are $78. Mileage is $46 per hour portal to portal.

Line 12, Wing Plow Blade Sensor: minimum purchase quantity is 10.

Line 13, Underbody Hydraulic Plow Blade Sensor: minimum purchase quantity is 40.

Line 17, Weather Forecasting Services: This includes pricing for operation of 400 routes as required in the Contract, support 500 individual users within WebMDSS.

Line 18, Annual MDSS Website/App Usage Training: On site training quote will be provided upon request, but this price is for virtual training. $1380 for each virtual session for 7 districts = $9660.

Line 21, MDSS Route Configuration: 174 routes are currently set up in MDSS and this charge would be to configure new routes, not all routes will need to be newly configured esimating 226 (400-174)

Line 25, AVL Website Training: On site training quote will be provided upon request, but this price is for virtual training. $995 for each virtual session for 7 districts = $6,965.

Line 27, RWIS Data Services System Management: pricing included in line 28.

Line 28, RWIS Data Services and Storage: support for 150 RWIS.

Truck Listing

Bay Region	**Tier 2**
Mt. Pleasant	12
Saginaw East	19
Saginaw West	12
Blue Water Bridge	6
	49
Grand Region	**Tier 1**
Reed City	9
Marion	5
Hastings	11
Plainwell	10
Fennville	11
	46
Metro Region	**Tier 2**
Detroit	17
	17
North Region	**Tier 1**
Kalkaska	8
Atlanta	6
Mio	8
	22
Superior Region	**Tier 2**
L'Anse	10
Houghton	10
St. Ignace	14
Engadine	5
	39

Trucks	
Contingency Trucks	53
Permanent Trucks	292
TOTAL	345
Spreader Controllers	
Control Point	216
FR4110064	1
Gresen	5
ICS2000	10
Certified Power	111
Other	2
TOTAL	345
Snowplow Blades	
Underbody Blades	345
Wing Blades	311
TOTAL	656

Southwest Region	**Tier 1**
Marshall	5
Kalamazoo	15
Coloma	20
Jones	11
South Haven	8
Niles	15
Sawyer	9
	83
University Region	**Tier 2**
Grand Ledge	22
Williamston	15
Charlotte	13
Mason	9
Brighton	19
Adrian	11
	89

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

Requirements listed below are minimum specifications for the AVL-GPS System and Services

Category 1	Equipment
	General
C.1.1	Vehicle Mounted Hardware – All equipment must be solid state with no moving parts such as fans and all communication hardware shall be fully integrated into the housing with no openings. The unit will be enclosed by a ruggedized case.
C.1.2	All equipment must be “off the shelf” and currently used by other agencies/ groups for AVL.
C.1.3	All equipment shall be uniform within the two asset classifications (WMT and Non-WMT) and must be operational across all vehicle types.
C.1.4	System Data Storage - The system must support at least 1 GB flash memory for storage of data over extended periods of power loss or 48 hours of observations whichever is greater. (This allows for storing all readings until 802.11 b/g or GPRS coverage is re-established then transmitting the stored data to provide an updated history of the vehicle.)
C.1.5	Delayed Data Transmission - The system must provide *Store and Forward* capabilities capable of storing over 1 GB of information while out of cellular communications coverage and automatically forwarding the same when back in coverage. (System collects vehicle activity data and geo-stamp data and stores onboard until data can be securely transmitted to provide a detailed historical record of activity while in the field.)
C.1.6	Power Loss - The system must provide ability to detect and report previous power loss if unit is disconnected then reconnected. (This report is if someone were to disable the system during their shift whether inadvertent or intentional.)
C.1.7	Power – The unit shall run off the vehicles power system.
C.1.8	Upon vehicle ignition, the vehicle will automatically report to the system. No operator interface will be necessary to begin transmitting position and sensor data. All information on vehicle status shall be stored and accessible on through an online database
C.1.9	AVL control unit must feature a power management feature or “sleep mode” and/or “Charge guard”. This is to ensure that the

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	vehicle battery is not discharged, after the vehicle is turned off. The current draw (Amps) of the AVL package must be minimal and allow for vehicles to sit unused for up to 2 months without discharging battery.
C.1.10	Power Surge/Failure – Unit shall have built in protection from low and high voltages.
C.1.11	System Operation - System must meet SAE J1455 environmental specifications and provide +/- 25g shock rating (Provides a ruggedized solution in the high abuse environment that system will be used in.) Operating temperature shall be in the range from -40 F to 150 F and operating humidity up to 95%.
C.1.12	The unit will produce low heat and have a low power consuming processer with a minimum processing speed of 1 Ghz.
C.1.13	GPS unit shall be satellite based GPS with WAAS enhanced accuracy. There will be a 12-parallel channel, Wide Area Augmentation System (WAAS) enabled GPS receiver.
C.1.14	GPS receiver must be accurate to less than 2 meters.
C.1.15	GPS output interval shall be programmable as determined by the Department with collection intervals at least once every second. The ability to remotely configure collection intervals on GPS units shall be available.
C.1.16	Remote Updates - System must support over-the-air firmware updates. (This allows for updating the system without the need to physically connect to each unit to manually update them.)
C.1.17	GPS and Cell Antenna – The antenna shall be external to the system. Newly installed Antennas will utilize existing modifications (holes, etc.) that previously installed equipment used. Any new/additional modifications required must receive MDOT approval.
C.1.18	Universal Time – System will synchronize both the unit and database to the universal time clock and time stamp all data collected.
C.1.19	System Operation – The system shall transmit from all integrated sensors simultaneously with the timestamp.
C.1.20	All connections between sensors and equipment must be hard-wire ruggedized connections.
C.1.21	System must not interfere with Original Equipment Manufacturer (OEM) electronics

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.1.22	Sensor Output – Capable of sending sensor data in its original format for data integrity and/or processing controller, camera and/or other data for in vehicle display and other purposes.
C.1.23	The system must be able to interface to on-board discrete sensor inputs and 3rd party data logging systems simultaneously.
C.1.24	The AVL control unit must be able to communicate with on-board equipment sensors installed on the vehicle to report their present status and changes to their status in real-time. The sensors, such as proximity switches, infrared, magnetic read switches, micro limit switches or equivalent must be able to communicate their present status to the equipment with necessary cabling connected to onboard equipment when required.
C.1.25	The AVL system shall be programmable in common full programming language such as JAVA, to accept input from sensors provided by the contractor, or third party.
C.1.26	Additional Software – The system will be capable of carrying additional VPN software at the department's discretion.
C.1.27	Troubleshooting – the system shall have self-diagnostic capabilities to facilitate troubleshooting and maintenance activities.
C.1.28	Warranty – The system shall be warranted for a two-year period following installation and final acceptance of each package as defined in the Contract
C.1.29	The system must allow for future enhancements that can allow for easy configuration, expansion, and scalability. (examples include additional sensors, control units, hardware)
C.1.30	System Transfer – The AVL system must allow for transferal to replacement vehicles with minimal reprogramming and downtime. If a memory chip is used, there must be easy access to it should its replacement or reprogramming be necessary.
	Non-WMT Package Only
C.1.31	*Non-WMT Package AVL Control Unit*: Simple Tracking unit must at a minimum be able to interface to two (2) inputs.
	WMT Package Only
C.1.32	*WMT Package AVL Control Unit (with on-board systems integration functionality)*: AVL control unit must at a minimum be able to interface at least 16 digital sensor inputs, four (4) analog to digital input, four (4) dedicated outputs, two (2) RS232 communication Ports, two (2) USB Ports, and an Ethernet port.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.1.33	System Display Screen – Internally configured to support an in-vehicle display screen, whether screen is used or not.
C.1.34	The display screen shall be sized a minimum of 6 x 8 inches.
C.1.35	In cab display system controls- Any operator controls for the display screen must only be allowed to function when the vehicle is stopped or traveling less than 3 mph.
C.1.36	The AVL system shall include sensors able to collect data from the spreader controller or other supplemental equipment for the following data:
a.	Plow Sensor (front plow, wing, underbody, tow plow)
b.	Pavement Temperature and Ambient Sensor
c.	Auger Feedback Sensor
d.	Gate Sensor
e.	Hydraulic Flow Meter Sensor
f.	Material Flow Meter Sensor (to monitor if material is dispensing from WMT and to verify spreader controller).
C.1.37	For all salt spreader controls, the data should be collected, stored and reported whenever a change to any of the following fields occurs: solid material type (e.g. salt/sand), solid material spread rate, solid material spread width, gate setting, blast on/off, pause on/off, liquid material spread rate, prewet on/off, and error status – depending on the availability for the particular spreader controller.
C.1.38	The system shall be capable of interfacing to the vehicle's on-board computer to collect engine data available via OBDII and the SAE standard J1708/1587, CANBUS, and J1939 networks. Such information may include but not be limited to: • Engine Speed; • RPM; • Coolant Temperature; • Fuel Level; • Trip Fuel; • Oil Pressure; and • Battery Voltage.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.1.39	If Engine Hours and Odometer values are unavailable from the vehicle's on-board computer, the system must be able to calculate virtual Odometer and Engine Hours based on the reporting of the vehicle and GPS distance. However, the system must provide user-configurable odometer and hour meter synching to the vehicle's actual odometer and hour meter. On board odometer and hour meter takes precedence over any virtual data.
C.1.40	Spreader Controller Integration – The system must integrate with Dickey John Control Point and Certified Power controllers and the AVL modem. Any modification to the system is at the expense of the contractor.
C.1.41	The system shall allow for an optional front mount camera to be powered from the AVL. The system should also allow for the potential addition of a rear facing camera or backup camera be displayed in the cab.
C1.42	The system should store truck images at a rate of 1 per minute and for a period of at least 24 hours.

Category 2	**Communications**
C.2.1	Communications – The communications technology that is dual mode – functional on 802.11 b/g and 4G network (as well as backwards compatibility with 3G and flexibility to scale up to 5G when it becomes the network standard). System must include all necessary hardware items, processors, antennas, etc. (This provides the flexibility to use either 802.11 b/g wireless or GPRS to do automatic data downloads if necessary.)
C.2.2	Data Transfer – Unit shall transmit data using the TCP/IP protocol. All services used shall be RFC compliant.
C.2.3	Cellular communications – The unit shall be able to operate on multiple major cellular carriers and or private networks, in different parts of the state, with the simple replacement of the communications module. If the unit is no longer able to communicate properly due to being "out of date" or obsolete, the necessary equipment shall be replaced at the cost of the Contractor.
C.2.4	Cellular Coverage - The AVL system must be able to transmit data from at least 90% of the MDOT roadway network across the state.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.2.5	Non-WMT Communications– The Cellular data plan must allow for data transmittal to the mapping website at least once per day for non-WMTs from January 1st thru December 31st
C.2.6	WMT Communications– The Cellular data plan must allow for data transmittal to the mapping website at least once per day for WMTs during non-winter months, defined as being from April 30th to October 31st. The cellular data plan must allow for data transmittal to the MDSS provider and the mapping website(s) to be at least 60 seconds within real time conditions for WMTs during winter months, which is defined as being from November 1st thru April 30th. The definition of winter, and non-winter months is subject to change by the MDOT.
C.2.7	Communications – Capable of using and changing carriers by changing carrier connection card or module without changing or replacing unit or other equipment.
C.2.8	Communications – Capable of migrating to next generation communication technologies with change of connection card or module without changing or replacing unit or other equipment. If the unit is no longer able to communicate properly due to being "out of date" or obsolete, the necessary equipment shall be replaced at the cost of the Contractor.
C.2.9	Vehicle remote configuration must be web browser based, which is capable of logging into the AVL control unit to: • Set distance and time reporting intervals • Set destinations for data communications • Detect Sensor status changes and expansion of devices
C.2.10	2-way communication capabilities – provide capability to send messages and images to the vehicle as well as receive data and images from the vehicle when 2-way communication equipment is installed in vehicle.
C.2.11	Individual vs. Group/Fleet messaging – When 2-way communication is set up with vehicle it will provide messaging capabilities for one, all or groups of trucks, without use or additional cost of "text messaging".
C.2.12	The data from the equipment to the database shall include the following near real- time as well as recorded historical information, a) Vehicle speed, direction and location, b) Engine on or off, c) Engine idling vs. running time comparisons, d) Time and distance by each monitored sensor, e) Stop time data.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

Category 3	MDSS (also refer to Schedule E-MDSS System Requirements)
C.3.1	MDSS Integration
C.3.1.1	In vehicle mobile data collection units with integrated maintenance decision support systems, in accordance with these Specifications – The unit shall be of such design and construction as to comply with the requirement hereinafter stated and any parts or attachments necessary to form a complete, functioning unit must be furnished, whether specifically mention herein or not.
C.3.1.2	MDSS should display all truck sensor information including but not limited to, plow up/down, temperature, spreader controller, camera, etc.
C.3.1.3	Required NTCIP Compliance – All equipment and software must be compliant with the latest NTCIP standard 1204.
C.3.1.4	All costs to enable proper communication between the MDSS and weather forecasting provider and the optional in vehicle display screen will be borne by the contractor. The in-vehicle display screen shall display local radar, short term weather forecast and recommended maintenance treatment.
C.3.1.5	The MDSS shall also conform to specifications detailed in Schedule E
C.3.1.6	Provide Truck camera image historical data available at 5 min intervals.
C.3.2	a. The Contractor shall demonstrate an understanding of Michigan weather b. and climatology, as well as a thorough knowledge of winter weather patterns and the variations within the State. The Contractor shall demonstrate an understanding of MDOT's trunk line system and its winter maintenance practices. c. The weather forecasting system shall include integrated MDSS functionality to support appropriate road maintenance actions that result in optimal road surface results with efficient use of resources for specific weather conditions. Treatment recommendations shall be provided for each hour of the forecast when indicated by the current and future pavement and weather forecast parameters.

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	d. The system shall support the FHWA Pavement Recommendation Rules of Practice regime as the default treatment recommendations for specific weather situations. It shall also allow users to incorporate their own customized treatment plan recommendations to reflect individual best practices in chemical application, timing, type, and rate as well as plowing actions. Users must also be able to select the appropriate route cycle times or times for their routes. Treatment recommendations must be provided for the next 48 hours to indicate required actions prior to, during, and after a storm.
C.3.3	All forecasts provided by the Contractor will become the property of the Department. The Department may, at its discretion, share the forecast with other agencies as appropriate. A unique forecast shall be provided for each Region. The Contractor will provide a weekly 3-5 minute forecast video, showcasing functions from the MDSS service and describing weather impacts to state road network. Secure video links to be distributed by vendor through a list serve to all MDSS users. The video should provide a weekly weekend outlook, from November 1st thru April 30th, and showcase the weather forecast and potential route recommendations in each Region. The video clip should be sent to the MDOT users list no later than close of business on Thursdays.
C.3.4	Maintenance Decision Support tools including road treatment recommendations will be required November 1st through April 30th, unless otherwise instructed by the MDOT.
C.3.5	Short-Term Forecasts Nov 1 to April 30 only- Shall be provided in accordance with Attachment E-MDSS System Requirements.
C.3.6	Long-Term Forecast shall be provided once daily and shall cover a period of 1 to 10 days. The long-term forecast shall be provided year-round.
C.3.7	A system shall be provided that allows a user to obtain all forecast and treatment data, both in the office and at home, through an internet connection always.
C.3.8	Forecasting parameters shall be selectable enabling each one to be turned on or off.
C.3.9	Forecasts shall be displayed hourly for 48 hours and daily for 10 days.
C.3.10	Users shall be able to select customizable alerts for specific weather data or sensor data. Limits shall be selectable for each

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	alert. Users will have the option of getting alerts via text, phone, or email
C.3.11	RWIS/ESS DATA COLLECTION a. System shall be capable of collecting data for up to 150 ESS within the State of Michigan via an API. These sites may be owned by MDOT or another road authority. These sites may contain equipment from various vendors. b. System shall be flexible or open enough to permit upgrades to future devices to NTCIP interface standards. c. Data and archived data shall be exportable to a spreadsheet or database that is accessible by MDOT. d. All data and information derived from that data generated by the RWIS system shall be the sole property of the State of Michigan to use and distribute. Any secondary distribution of the data and information shall be at the sole discretion of the State.
C.3.12	RWIS DISPLAY a. MDOT will supply access to the Remote Processing Unit (RPU) Internet Protocol (IP) addresses at all ESS sites. b. The following parameters shall be displayed: **Parameter Units**

Parameter	Units
Pavement Temperature	°F
Bridge Deck Temperature	°F
Pavement Condition	Note[1]
Probability of frost	%
Air Temperature	°F
Dew Point Temperature	°F
Relative Humidity	%
Barometric Pressure in Hg	in Hg

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

		Wind Direction	Cardinal pts. or degrees
		Wind Speed	Mph
		Wind Gust Speed	Mph
		Wind Gust Direction	Cardinal pts. or degrees
		Precipitation Type	Note[2]
		Precipitation Rate in/hr	
		Last Precipitation start and end times	time
		Precipitation Accumulation (at least 6 ranges from 10 min to 24 hrs.)	Inches
		Traffic Speeds (at least 6 ranges from 0 mph to 100 mph)	Mph
		Traffic Volumes	
		Traffic Classification (at least 6 ranges from 0 to 70 ft.)	
		Visibility	Miles
		Depth of Frost	Inches

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	Note[1] – Pavement Conditions MDOT requires at a minimum include: DRY, WET, SNOW, ICE, SLUSH, FROST, DAMP, TRACE MOISTURE Note[2] – Precipitation Type MDOT requires at a minimum include: RAIN, SNOW, FOG, FREEZING RAIN/SLEET, HAIL, DRIZZLE c. Accuracy and resolution of all data shall be similar to that of the sensor collecting the data. d. The user shall be able to display each of the parameters listed in section 2) b) ii) as overlays on top of background map features. The geographic background map shall include state boundaries, MDOT Region boundaries, Transportation Service Center (TSC) boundaries, county boundaries, and all state highways. Major local roads may also be displayed. e. The user shall be able to select which parameters to be displayed on the background map. An 'all parameters' option shall be available to select. f. All ESS sites shall be shown at their approximate location. The icons shall provide the capability to access site control and data viewing directly from the map for sites selected by the user, using a mouse. g. The user shall be able to view select parameters including but not limited to pavement temperature, air temperature, and surface condition, in a graphical format. Graphs shall display a 24 hour period and be selectable.
C.3.13	RWIS DATA STORAGE a. Historical data shall be available twelve months back. Data older than twelve months may be archived. b. Archived data shall be easily accessible and retrievable. Display features available shall be similar to the current data view. Archive data shall have sort features that allow the user to search for specific data sets. User shall be able to create and view historical trend graphs of any reported data and save data and reports to a data file containing time-stamped information from all reporting devices in ASCII format. c. Archived data shall be provided by the 15th of each month for the previous month. All archived data shall be able to be added or imported into the real-time RWIS system.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	d. Camera images shall be archived at the rate of one image per half hour and shall be easily retrievable.
C.3.14	RWIS TRANSFER OF DATA a. System shall be capable of managing data push/pull with the MDOT Advanced Traffic Management System (ATMS) software or third-party Meteorological Service Providers. Data shall be transferred to ATMS via a standard data format as specified by MDOT. b. System shall be capable of transferring data to external agencies such as the National Oceanic and Atmospheric Administration (NOAA), which supports the Binary Universal Form for the Representation of Meteorological Data (BUFR) standard. Data shall meet applicable BUFR standards. c. System shall allow for data transfer to external agencies that do not support the BUFR standard. System shall interface via Extensible Mark-up Language (XML) or Comma-separated Values (CSV) file transfer, using appropriate National Transportation Communications for ITS Protocol (NTCIP) Management Information Base (MIB) encoding. Any mutually agreed upon transfer method may also be acceptable.
C.3.15	RWIS STATION CAMERA IMAGES a. Each location shall be capable of displaying a minimum of eight images. Provide one summary page that shall display all cameras within one MDOT Region. b. At each site, the user shall have the option to view each camera image independently or view all images simultaneously. c. Each independent camera image shall have the capability to be viewed through a continuous loop through the past 1 ½ hours. d. All camera images shall be the sole property of the State of Michigan to use and distribute. Any secondary distribution of the data and information shall be at the sole discretion of the Department.
C.3.16	Provide ESS historical data available at 5 min intervals.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.3.17	Shall provide a summary page that will display all sensor readings of each ESS within a Region on a single table, with capability to filter by Region.

Category 4	**Vendor Services**
C.4.1	As it pertains to this contract Business days are defined as 8:00 a.m. to 5:00 p.m. Eastern Standard Time, Monday thru Friday.
C.4.2	WMT Installation – A minimum of 10 AVL/GPS WMT packages, at two locations (total of 20 equipment packages), shall be installed by the Contractor in the presence of the MDOT representatives (mechanics, garage employees, TSMO, etc.). A detailed installation manual must be provided to the MDOT before installation.
C.4.3	The Contractor shall provide an AVL training program/unit that can be used by the MDOT for in person trainings more frequently and when the Contractor cannot be present physically.
C.4.4	The Contractor will fulfill the requirements listed in Schedule A 1.2 Training. Training materials shall be given as hard copy and available electronically. Site to be determined by the MDOT
C.4.5	Specialty Installation Tools – The contractor shall provide all specialty tools required to perform the installations.
C.4.6	User Training – At the request of the MDOT, the contractor shall provide at least one annual training session on how to use all furnished software.
C.4.7	Collected data shall be accessible to Department staff on-line for a period of up to five (5) years from date of collection. Data beyond the 5-year period may be archived but shall be reinstated online and available to the users upon request by the Department. Data shall be archived indefinitely.
C.4.8	Archived Data – All data collected on behalf of the MDOT shall be stored by the vendor for the entire life of the contract and must be readily accessible on website within 2 business days of a request.
C.4.9	All data collected is the property of the MDOT and shall be turned over to the MDOT at the end of the contract.
C.4.10	Technical Support – The contractor shall provide support via telephone and email for maintenance problems regarding the AVL system hardware or software and provide remote assistance within one hour of problem detected. On-site support must occur within 2 business days if requested by the MDOT.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.4.11	Single Contact – The contractor shall provide a single point of contact for technical support for the entire AVL system, except for non-contractor furnished sensors and communications.
C.4.12	Software, User Interface, Firmware, and Hardware Edition or Version – At the MDOT's discretion, the software, user Interface, firmware, and hardware must be the latest edition or version offered.
C.4.13	Spares – The contractor shall have a sufficient amount of replacement AVL equipment packages on hand to provide Department replacement packages within 2 business days of being notified of defective/non-functioning equipment to provide a consistent level of service.
C.4.14	Preventative Maintenance – Documentation on preventative maintenance of hardware will be included with AVL Equipment Packages and be required to occur no more than twice a year.
C.4.15	AVL Data Management and Access – the AVL information collection, storage, and mapping website shall be designed, owned and operated by the contractor at a location of the contractor's choice, outside of the Department network and accessible to the Department and other agencies via the internet, using a standard web-browser.
C.4.16	The contractor server must receive data from all vehicles with AVL purchased to be processed on a secure website.
Category 5	**Website, Mapping, and Reports**
C.5.1	User Website - The system must be a web-hosted solution accessible from any web browser with the appropriate Username and Login credentials. The AVL website should also be a Responsive Web Design (RWD), allowing for users to access the site using different devices other than a desktop computer.
C.5.2	User Logins – The system must provide unlimited usernames and unlimited access. It is expected that potentially 500 Department staff statewide will require usernames and passwords.
C.5.3	Multiple users shall be able to access the information simultaneously from multiple locations.
C.5.4	User privileges shall be based on assigned username and password. System shall allow modification of the number of vehicles to be monitored, sensors to be monitored and monitor characteristics. User access levels shall be configurable for type of

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	user (i.e. administrator, management, various office/agency level), as defined by the Program Manager.
C.5.5	Database – The AVL database system must have the ability to be in continuous operation 24 hours per day, 365 days per year and must be capable of handling year-end changes and daylight savings changes with no impact to the system.
C.5.6	Database Backup/Recovery – The AVL database system must provide for automatic recovery after any type of network failure. System must allow a means of automatic data archival and backup without system interruption.
C.5.7	Database Access – Data can be accessed, stored, and archived by the Department in a relational database. Database should be designed to preserve the integrity of collected data, include a dictionary and relationship diagram for translation, and facilitate access and integration into other systems and applications.
C.5.8	Website – Data must be on-line at all times. Contractor must take precautions to prevent downtime.
C.5.9	User interface shall utilize point and click features as much as possible to increase ease of use and limit input user error.
C.5.10	Website - Color coded icons for at-a-glance status will be used.
C.5.11	Data Access - The system must include a web services Application Programming Interface (API) to allow read only secured access for raw data retrieval for use in other relational database applications at the MDOT's discretion (such as GIS mapping or other customer uses).
	Mapping
C.5.12	Users shall be able to view the position of their fleet vehicles at any point of time via a standard web browser on from a computer, tablet, and/or smartphone. The primary display shall be a map view of fleet vehicles and indicate the status of vehicles on when it last reported.
C.5.13	Each vehicle on the map should have a unique identifier, such as license plate, as determined by the MDOT. Vehicles should also be broken down by Garage and Region.
C.5.14	The system must provide a minimum of the following mapping and reporting information: a. Last known asset location map view – fleet wide view

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	b. Dispatch map (full screen "live" view) c. Asset last location relative to home (pre-determined address) d. Asset Odometer readings e. Total engine hours f. Last time asset reported in g. Last known location (individual asset map view) h. Historical trip report (individual asset map view) i. Raw data report showing exact data string as it was sent from spreader control (required for analyzing reports) i. Speed ii. Idling iii. Operating during "off" hours iv. Power v. Geo fence (in/out) vi. Temperature (custom attention required) j. View Maintenance History/Update Maintenance Record k. Ping Asset (Short Message Service (SMS) report) n. Distance measurement tool within the fleet-wide map view
C.5.15	The system must also provide the following mapping and reporting information: a. Vehicle Identifier (required) This should be an identifier that is unique to the organization from which the data is being collected. b. Time (required) This should be a complete description of the date and time of the report to within 1 second of accuracy. It can be in the form of a string (e.g., "12/20/2013 3:43 AM EST" or "1-20-2005 9:43 UTC") or numeric (such as a Unix timestamp, which is a count of seconds since a certain point in history). The form of string representations of the date & time is flexible, but should include at least the year, month, day, hour, minute, second and time zone of the observation (Eastern Standard Time). c. Location (required)

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	Location information should be provided in the form of a GPS latitude and longitude associated with the vehicle's location at the time of the report. Three or more decimals of accuracy are required. d. Maintenance Data I. Plow Position (required) II. Scraper/Underbody Position (required) III. Wing Position (required) IV. Material Applied (required) V. Material Form (required) VI. Application Rate (required) VII. Application Rate Units (required) VIII. Road Temperature (required) IX. Air Temperature (required) X. Camera Feed (required) Programmed to collect a time stamped forward camera image when option is installed. Also, should have the option to display a rear facing camera or a backup camera.
C.5.16	The map display shall be such that vehicle position and status automatically update on screen without any input form the end-user, additionally, end-users shall be able to view the status of monitored on-board vehicle equipment.
C.5.17	The system shall allow viewing of a vehicle in motion leaving tracks or "breadcrumbs" as it travels with arrow indicators for direction and showing all operations (GPS & Telematic data) as they occur including exact street location. Users shall be able to view the above-mentioned data for their entire fleet or select a specific vehicle(s) for a login session using a Filter Tool.
C.5.18	User shall be able to toggle back and forth between mapping interface and other features without having to close screens.
C.5.19	The System shall have the capability to enter an address or select a landmark to display at a minimum the 5 closest vehicles to that location including vehicle ID & distance to the specified location.
C.5.20	The system must have the capability to create, edit, and delete landmarks and/or geofences to be displayed on the map. In addition, the landmark/geofence shall be identified in the reports.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.5.21	The system must have an easy 'intuitive' navigation sequence (i.e. navigator bar and/or tabs for easy access to various functional screens). Tools shall include but not be limited to: • Map navigational tools (zoom in/out, center, pan, etc.) • Automatic Vehicle Location Tool • Breadcrumbs • Filter Tool • Historical Data; and Reports.
C.5.22	User shall have options to select from different map views of the map to accommodate varying business requirements, desktop equipment performance and Internet connectivity.
C.5.23	The system shall include a playback feature allowing users to review historical data for selected vehicle(s), date(s), and timeframe. This data shall be made outputted via map based (graphical) and/or text-based report. When reviewing the data graphically, the playback feature shall have pause, fast forward and rewind capabilities for ease of use.
C.5.24	Playback history shall include the ability to leave tracks or "breadcrumbs" depicting progress and direction along a roadway. This function shall enable the user to view data that has been collected from the vehicle (GPS and telematic data). Users should be able to select up to as many trucks as they need to and run the breadcrumbs. Example: A User from the Grand Ledge Garage, in the University Region, should be able to run breadcrumbs on the entire fleet for that garage at once.
C.5.25	Maps – fully licensed maps included. Maps must also integrate with the Department's GIS framework which includes all route, mile marker identifications, and point locations (bridges, asset locations, etc.)
C.5.26	Reports shall be available for users by interactively selecting an area using the map interface.
	Reports
C.5.27	Data Exports – Reports must be exportable to Microsoft Excel, Microsoft Word, .csv format, and other relational databases. Sharing of reports must be simple and reliable between users and with a larger group.
C.5.28	Vehicle Usage Report - The system must provide Daily, Weekly, Monthly and Custom usage reports to accurately display vehicle

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	utilization as well as hourly usage reports to reflect how many minutes in each hour a vehicle was in use.
C.5.29	M5 Vehicle Usage Reports - The system must also be capable of formatting the data for vehicle usage according to Schedule D, “M5 Standard Meter Interface Directions”.
C.5.30	Vehicle Mileage Report **(All Vehicles)** – The system must provide a vehicle mileage report with user selectable date ranges showing miles traveled per day and first start/last stop times for each day in the selected date range.
C.5.31	Vehicle Hours Report **(All Vehicles)** – The system must provide an engine hour report with user selectable date ranges showing engine hour usage per day and first start/last stop times for each day in the selected date range.
C.5.32	Custom Reports **(WMT Fleet only)** – The system must provide a custom input usage report with user selectable date ranges showing usage of monitored auxiliary equipment such as underbody blades, temperature sensors, and additional components. Report must be able to show all activity or be run on a single auxiliary equipment input such as plow position.
C.5.33	Material Usage Report **(WMT Fleet only)** - System must provide material usage reports to accurately track the amount of granular material, pre-wet and/or direct liquid that was applied to a predefined section of roadway, or “zone”. (for spreader integrated equipment only).
C.5.34	Vendor must be able to provide data from all salt spreader controllers into one report. Users shall be able to select all, multiple, or individual vehicles and date(s) and timeframe for each report. Report shall output at a minimum vehicle ID, date/time, vehicle spreading time/distance, deadheading time/distance, vehicle total travel time/distance, dry material usage (pounds / lane mile), liquid material usage, avg. application rate.
C.5.35	The system shall provide easy to use reporting tools to provide all reported data. Reports should have the option of exporting to Excel, .CSV or other relational databases.
C.5.36	The system shall be able to generate summary reports based on the user’s input parameters. Each user shall have the ability to configure the parameters included in a report
C.5.37	Reports shall be configured to select either a single vehicle or group of vehicles.

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

C.5.38	It must be possible to generate additional user defined reports. These include, but are not limited to:
a.	Zone/Route report
b.	Fleet Start/Stop Report
c.	Individual Vehicle Mileage Report
d.	Daily/Weekly/Monthly Asset Usage Report
e.	Custom Asset Usage Report
f.	Custom Input Usage Report (6 discreet inputs)
g.	Asset Distance Report
h.	Exception Reports
C.5.39	In addition to standard reports, the system must be capable of generating exception reports for parameters such as • Stop times • Speed • Idle time • Zones • Input based exceptions (i.e. Panic buttons, PTO times, etc.) • Data logging exceptions (i.e. mileage, odometer value, etc.) • Exception reports • Sensor Diagnostic Report
C.5.40	Exception reports shall be configurable by each user and the capability to generate an exception report from a combination of 2 or more parameters must be possible. i.e. it must be possible for a user to create an exception report for WMTs that are applying material and traveling above a requested speed. This report will be defined as a material application speed compliance report and will utilize information acquired from the MDOT Salt Bounce and Scatter Study.
C.5.41	All exception report shall have the capability to be displayed on the website and as well as being sent automatically to specified users via email and or text message (as defined by the user).
C.5.42	The system shall provide an easy to use reporting tool to provide ESS, vehicle and material information such as date, time started, time completed, total miles traveled, total miles spread, total dead

SCHEDULE C – MDOT AVL-GPS SYSTEM REQUIREMENTS

	head miles, material usage (Ton), application rate, Liquid usage (gal), liquid application rate, and totals of the above information per snow event/storm.

SCHEDULE D: M5 STANDARD METER INTERFACE DIRECTIONS

Overview

The purpose of this interface is to provide a standard meter interface to update a unit's primary meter and meter date and meter2 information as required.

Implementation

The data required for this interface consists of these data elements:

Unit Number

Meter (the primary meter, registered engine hours)

Meter Date (the primary meter date)

Meter 2 (registered vehicle miles)

Meter 2 Date

If both meters are sent, the comma delimited text file would look like this:

Unit,meter,meter_date,meter2,meter2_date

If only the primary meter is sent

Unit,meter1,meter1_date,,

If only meter two is sent

Unit,,meter2,mter2_date

File Format

The inbound data file must be a comma, delimited text file. The file layout is shown below. All FleetFocus fields will reside in the Meter Journal (meter_jnl) table unless otherwise noted.

SCHEDULE D: M5 STANDARD METER INTERFACE DIRECTIONS

Field Name	Type	FleetFocus Field	Processing Decisions
Vehicle No	Varchar2 - 10	Unit_No	Must be a valid M5 Unit Number
Meter	Numeric	Meter	Validation based expected period usage of the MCC for that Unit done by the MAXIMUS API
Meter TimeStamp	Date	Meter_Dt	Must be a valid date format - M/DD/YYYY 24HH:MM:SS
Meter 2	Numeric	Meter2	Validation based expected period usage of the MCC for that Unit done by the MAXIMUS API
Meter 2 TimeStamp	Date	Meter2	Must be a valid date format - M/DD/YYYY 24HH:MM:SS

Validations

1. Unit Number must be a unit number in M5. If the unit is not valid, the transaction will be written the Interface Reject File for reprocessing.

2. Meter entered will be validated based on M5's current meter validation component. The meter will have to pass meter update rules defined by the expected period usage on the MCC code of the related vehicle. Meter type, size and expected period usage (Min Usage, Max Usage) are all established on MCC frame. System Flag 1053 - Meter rollover limit % is used to check for a meter rollover condition.

   There is a parameter on the interface that will permit the meter to be overwritten based on the current M5 processing logic. If the parameter is set to Y, it will set meter on unit_dept_comp_main and meter_jnl. The override_meter_fl will be set to Y and meter_upd_udcm_fl will be set to Y.

   If the parameter is set to N, meters that don't pass M5's meter validation, the transaction will be written the Interface Reject File for reprocessing.

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The MDSS ("System") shall detect, diagnose, forecast, and display surface transportation weather phenomena, road condition information, and winter maintenance treatment recommendations (described herein) for supporting winter road maintenance operations (e.g., snow plowing, deicing, anti-icing, etc.).

The System shall include the capability to selectively archive data and display archived data and products. The System shall include the capability to routinely monitor the system status. The System shall be fault tolerant with high reliability. The System shall be designed in accordance with standard commercial practices for software development. The System shall be designed to make reasonable allowance for expansion of computing power. The System software shall be designed to ensure that it can run on commercial-off-the-shelf hardware commonly available; that is, no special hardware development will be necessary. The System shall be designed to ensure that it can incorporate weather and road data from disparate sources (e.g., National Weather Service (NWS), Department AVL/GPS, Department Connected Vehicle projects, mesonetworks, RWIS, AWOS, etc.). The System (including all servers and displays) shall be synchronized using a time standard. The System shall include the capability to playback historical data for demonstration, training, and analysis purposes. The System shall use Local Time (LT) for all displays.

The System displays shall be implemented in English with English units as the default setting. The System shall integrate environmental (weather), road condition and transportation operational data in a manner that allows it to provide predictions of pavement conditions (e.g., pavement temperature, precipitation accumulation, anti-icing chemical effectiveness, etc.) associated with winter road maintenance.

Using the pavement condition and environmental prediction information, the System shall provide decision support guidance to winter road maintenance practitioners and the guidance shall include information related to treatment options (e.g., plow, deice, anti-ice, etc.), timing of application, location of application, and amount of application) based on current and predicted weather conditions. The System shall notify users when data updates (e.g., new forecasts) are available and the updates shall be loaded when the user selects to do so.

MDSS Coverage Area

The System shall be designed to operate (via configurable files) in any user-defined region (e.g., state, city, county, etc.) that has input data necessary to support its operations. The System shall generate weather forecasts for zones or regions around the State as identified by the user (e.g., forecast zones, maintenance zones,

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

etc.). The System shall provide weather and road condition products (via configurable files) for road routes (maintenance routes) identified by the user. The System shall be configured to provide weather and road condition products for user identified road maintenance routes.

Weather Forecast Products

Weather forecast products refer to weather elements above the ground. Weather forecast products shall be provided out to at least 48 hours. Weather forecast products shall have a temporal resolution of at least one hour. Weather forecast products shall be updated no less than every three hours; that is, a new 48-hour forecast shall be provided every three hours.

The following weather forecast products shall be provided 2 meters above ground level (AGL), unless otherwise noted:

a) Surface air temperature

b) Surface dew point

c) Surface relative humidity

d) Surface wind speed & direction

e) Surface wind gust

f) Precipitation type

g) Precipitation rate

h) Snowfall accumulation (e.g., 3-hr total, 6-hr total, and total accumulation during the forecast period)

i) NWS watches, warnings and advisories

The weather forecast products shall be geo-referenced to the DOT domain using map overlays that include roads, road designators, political boundaries, etc.

Surface Air Temperature Forecast Product

The output (content) of the Surface Air Temperature Forecast Product on the display shall have the following characteristics:

a) The surface air temperature shall be provided in degrees Fahrenheit

b) Time series information (text and graphical formats) of the surface air temperature shall be provided.

c). Reference lines (configurable) associated with frequent thresholds (e.g., freezing) shall be provided.

Surface Dew Point Temperature Forecast Product

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The output (content) of the Surface Dew Point Temperature Forecast Product on the display shall have the following characteristics: a) The surface dew point temperature shall be provided in degrees Fahrenheit b) Time series information (text and graphical formats) of the surface dew point temperature shall be provided.

Surface Wind Speed & Direction Forecast Product

The output (content) of the Surface Wind Speed & Direction Forecast Product on the display shall have the following characteristics:

a) The wind speed shall be provided in statute miles per hour by default
b) The wind direction shall be provided in degrees with respect to true north.
c) Time series information (text and graphical formats) of the wind speed and direction

Surface Wind Gust Forecast Product

The output (content) of the Surface Wind Gust Forecast Product on the display shall have the following characteristics: a) The wind gust speed shall be provided in statute miles per hour. c) Time series information (text and graphical formats) of the wind gust speed shall be provided.

Conditional Probability of Precipitation Type Forecast Product

The conditional probability of precipitation type is a product that describes the probability that a particular precipitation type (e.g., rain, snow, freezing rain, etc.) will occur if there is any precipitation at all.

The Precipitation Type Forecast Product shall include the conditional probability of precipitation type. That is, the user shall be able to view the probability of each type of precipitation as well as the predominant type.

a. The precipitation type shall be provided for at least the following:
    a. Rain
    b. Snow
    c. Ice
    d. Mixed (rain, snow, ice)
b. The predominant precipitation type (the type that the model selects as the most likely kind that will occur) shall be identified.
c. Time series information (text and graphical formats) of the predominant precipitation type shall be provided.

Precipitation Rate Forecast Product

The output (content) of the Precipitation Rate Forecast Product on the display shall have the following characteristics:

a. The liquid equivalent precipitation rate shall be provided in inches per hour (to a precision of a hundredth of an inch).

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

b. The snowfall precipitation rate shall be provided in inches per hour (to a precision of a tenth of an inch).

c. Time series information (text and graphical formats) of the precipitation rate shall be provided.

Snowfall Accumulation Forecast Product

The Snowfall Accumulation Product shall indicate the amount of snow that is expected to reach the surface (ground) over a specified period. Melting of precipitation due to warm surface conditions is not considered in this product.

The output (content) of the Snowfall Accumulation Forecast Product on the display shall have the following characteristics:

a. The snowfall accumulation shall be provided in inches (to a precision of a tenth of an inch).

b. Time series information (text and graphical formats) of the snowfall accumulation shall be provided.

c. Snowfall accumulation shall be provided at user-defined temporal increments out to 48 hours (e.g., 3-hour, 6-hour, 12-hour accumulation, etc.).

Weather Observation Products

Weather observation products shall be provided by the System. The weather observations products shall be geo-referenced to the DOT domain using map overlays that include roads, road designators, political boundaries, etc.

Weather observation products shall include, but not be limited to, observations from the following sources: NWS, DOT, FAA, RWIS, and other sources as available.

Weather observation products shall include the following parameters, where available:

a. Air temperature (degrees F)

b. Relative humidity (percent)

c. Dew point (degrees F)

d. Wind speed & wind direction (miles per hour & degrees with respect to true north)

e. Radar Imagery

The weather observation products shall update as new data arrive. The output (content) of the weather observation products on the display shall have the following characteristics:

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

a. The surface observation data shall expire off the screen after a configurable number of minutes.

b. The expiration time shall be independently configurable for each observation product.

c. Time series (text and graphical formats) shall be provided.

d. Animation of the observations shall be provided.

Radar Product

The radar product shall be based on data provided by NOAA. Other radar data sources may be used if applicable (e.g., FAA Terminal Doppler Weather Radar, local media owned radars). The radar product shall be based on the reflectivity (intensity) field. The radar product shall update as new data arrive.

The output (content) of the radar product on the display shall have the following characteristics:

- The radar reflectivity (intensity) field shall be displayed (plus color legend).
- Radar products shall be provided for user-defined domains.

NWS Watch, Warnings and Advisories Product

NWS watch, warnings and advisories for the DOT domain shall be provided.

The NWS watch, warnings and advisories shall include, but not limited to:

a. Winter storm watches and warnings

b. Flood watches and warnings

c. Flash flood watches and warnings

d. Severe thunderstorm watches and warnings

e. Tornado watches and warnings

f. High wind watches and warnings

g. Special weather statement

h. Freeze watches and warnings

i. Winter weather advisories

j. Dense fog advisories

k. Snow advisories

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The NWS watch, warning and advisory product shall be provided in text format. Graphical depictions of NWS watches and warnings may be provided, where applicable.

When an NWS watch, warning or advisory is in effect for an area (configurable) that covers the DOT domain, the display shall provide an indicator (e.g., highlighted button).

Road Condition Observation Products

Road condition observation products shall be provided and shown on the display.

Road condition observation products may include, but not be limited to, observations or measurements from the following sources:

a. Environmental Surface Stations (ESS)
b. Road Weather Information Systems (RWIS)
c. GPS/AVL data and Connected Vehicle data from Department fleet

(The CCI will decide which sources are used, and how).

Road condition observation products shall include the following parameters, where available

a. Road temperature (degrees F)
b. Subsurface temperature (degrees F)
c. Chemical concentration on road (percent by weight)
d. Freeze point temperature (degrees F)
e. Pavement condition as: Wet, Dry, or Chemically Wet
f. Snow, frost, and ice depth (inches
g. Blowing snow (yes/no)
h. Visibility (miles or fractions of miles)

The road condition observation products shall update as new data arrive. The output (content) of the road condition observation products on the display shall have the following characteristics:

a. The surface observation data shall expire off the screen after a configurable number of minutes
b. The expiration time shall be independently configurable for each observation product.

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

c. Viewing of the product shall be user selectable.

d. Time series (text or graphical formats) of the observations shall be provided.

e. Animations of the road condition products shall be provided.

Road Condition Prediction Products

The road condition prediction products shall be provided out to at least 48 hours. The road condition prediction products shall have a temporal resolution of at least one hour. The road condition prediction products shall be updated every three hours; that is, a new 48-hour forecast shall be provided no less than every three hours.

The following road condition prediction products shall be provided:

a. Road temperature

b. Road chemical concentration

c. Snow depth on road

d. Blowing snow potential

e. Pavement frost potential

f. Pavement condition

Road Temperature Prediction Product

The Road Temperature Prediction Product shall be provided at predefined (configurable) locations associated with each DOT maintenance route. The Road Temperature Prediction Product shall be based on a thermal energy balance model and/or empirically based model.

The output (content) of the Road Temperature Prediction Product on the display shall have the following characteristics:

a. The road temperature shall be provided in degrees F

b. The road temperature shall be presented graphically at each forecast location within the chosen (configurable) maintenance routes.

c. Time series information (text and graphical formats) shall be provided.

Road Snow Depth Prediction Product

The Road Snow Depth Prediction Product shall provide information that describes the amount of snow that is predicted to accumulate on a road surface without traffic and for specific winter maintenance treatments

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

Calculation of the Road Snow Depth Prediction Product shall take into account (at a minimum) the forecasted precipitation type and rate, and road temperature to estimate the amount of snow that will accumulate on the road surface.

The Snow Depth Prediction Product shall be provided at predefined (configurable) locations within each DOT maintenance route.

Calculation of the Snow Depth Prediction Product shall take into account treatment options including the amount of snow expected to accumulate on the road when; a) no treatment is performed, b) the recommended treatment is performed, and c) a user-defined treatment is performed.

The output (content) of the Snow Depth Product on the display shall have the following characteristics:

a. The snow/ice amount shall be given in inches by default (to a tenth of an inch)
b. The snow depth shall be shown for various treatment options including: no treatment, recommended treatment, and user-defined treatment.
c. The road snow depth shall be presented graphically at each forecast location associated with the chosen (configurable) maintenance routes.
d. Time series information (text and graphical formats) of the road contamination accumulation shall be provided.

Blowing Snow Potential Product

The Blowing Snow Potential Product shall provide information that describes the likelihood for blowing snow (e.g., low, medium, high). Calculation of the Blowing Snow Potential Product shall take into account (at a minimum) recent snowfall characteristics, the forecasted precipitation type and rate, predicted wind speed, local topography, and predicted air temperature. The Blowing Snow Potential Product shall be provided at predefined (configurable) locations within each DOT maintenance route.

The output (content) of the Blowing Snow Potential Product on the display shall have the following characteristics:

a. The likelihood value for blowing snow (e.g., low, medium, high or as a percentage)
b. Likelihood values shall be provided at hourly increments.
c. Likelihood values shall be provided at hourly increments.
d. Time series information (text and graphical formats) shall be provided

Pavement Frost Potential Product

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The Pavement Frost Potential Product shall provide information that describes the likelihood for frost on the pavement surface (road and/or bridges) (e.g., low, medium, high or as a percentage). Calculation of the Pavement Frost Potential Product shall take into account (at a minimum) predicted pavement temperature, predicted precipitation type and rate, predicted wind speed, predicted relative humidity (considerations of dew point/frost point), and predicted air temperature. The Pavement Frost Potential Product shall be provided at predefined (configurable) locations within each DOT maintenance route.

The output (content) of the Pavement Frost Potential Product on the display shall have the following characteristics:

a. The likelihood value for pavement frost (e.g., low, medium, high or as a percentage)
b. Likelihood values shall be provided at hourly increments
c. Likelihood values shall be provided for each road forecast segment (e.g., plow route).
d. Time series information (text and graphical formats) shall be provided.

Pavement Condition Prediction Product

The Pavement Condition Prediction Product shall provide information on the predicted state of the pavement and include:

a. Wet
b. Dry
c. Chemical wet
d. Percent coverage of snow and
e. Snow, frost, and ice depth (inches)

The output (content) of the Pavement Condition Prediction Product on the display shall have the following characteristics:

a. The pavement condition shall be presented in text format indicating the pavement condition (e.g., wet, dry, chemical wet, etc.) for each road forecast location (e.g., plow routes).
b. Time series information (text and graphical formats) shall be provided.

Calculation of the Pavement Condition Prediction Product shall take into account the pavement condition when; a) no treatment is performed, b) the recommended treatment is performed, and c) a user-defined treatment is performed.

Forecast Confidence Product

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

A measure of confidence shall be provided for the following weather forecast and road condition prediction products:

a. Snow accumulation
b. Precipitation type
c. Road temperature

The calculation of prediction confidence shall take into account recent statistical performance of each parameter and other appropriate metrics.

The output (content) of the Prediction Confidence Product on the display shall have the following characteristics:

a. The prediction confidence shall be given as a percentage and shall be able to be displayed graphically.
b. Error statistics shall be calculated that reflect recent skill.
c. Time series information of the prediction confidence or error statistics shall be provided for the above-mentioned products.

Generation of Treatment Recommendation Predictions

The System shall provide treatment recommendation predictions for winter road maintenance at user defined (configurable) locations (e.g., plow routes).

The System shall provide treatment recommendation predictions out to no less than 24 hours into the future.

The winter maintenance rules of practice used in the System shall be based on the Manual of Practice for Effective Anti-Icing Program and NCHRP report #526 - Snow & Ice Control: Guidelines for Materials and Methods, and be configurable, as necessary, to reflect local DOT practices.

Treatment recommendations shall include the following for each user defined route:

a. Recommended initial treatment start time
b. Recommended subsequent treatment start time
c. Recommended treatment type (e.g., chemical, abrasives, plow)
d. Recommended chemical type based on available chemicals as identified by the Department
e. Recommended material rate (e.g., amount per lane mile)

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

f. Recommended pre-treatment type (solid or liquid), where applicable

The System shall have a capability to incorporate constraints (configurable) for each route so that irrelevant treatment recommendations are not provided. For example, the use of NaCl should not be recommended if the user does not use that chemical. Constraints may include:

a. Available materials (e.g., NaCl, MgCl2, CaCl2, abrasives etc.)

b. Application rate limits (based on truck spreading limits)

c. Route cycle limits (minimum turn around time to repeat treatments)

Treatment recommendations shall be calculated, to the greatest extent possible, using a combination of current observational data on the state of the roadway and predicted weather and road conditions.

Treatment recommendation calculations should consider, to the greatest extent possible, factors that impact treatment effectiveness (e.g., chemical scatter, splatter, traffic impacts, spreader characteristics, etc.).

System Alert Function

The System shall provide a capability to alert the user when specific data thresholds (configurable) have been exceeded. Users shall be able to query the System and view the information related to an alert.

The System shall indicate that an alert is active by one or more of the following methods: a) Highlighting an alert button b) Changing the color of an alert button c) Flashing an alert button d) Audible alert (finite series of beeps or tones) The System shall include a capability to send e-mail or text message notices or cell phone calls (to a configurable list of aliases) when specific alerts (configurable) are generated.

Display

The display shall have the following general capabilities:

a. Ability to view plan-view graphics

b. Ability to view time-series information

c. Animation

d. Time selection whereby the user can select the time period for data viewing

e. Print function

f. Alert function

g. Ability to review historical data

h. Ability to select viewing area

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

i. Ability to select products for viewing
j. Help function
k. Ability to combine data on time series plots
l. Ability to configure data ranges (scale) for each time series plot
m. Ability to overlay and combine graphical products

In vehicle display:

a. Ability to view plan view graphics
b. Ability to view local radar
c. Ability to view route specific treatment recommendations
d. Ability to view route specific weather and pavement forecast

Map Overlays

The System shall make it straightforward (e.g., via configuration files) to incorporate new map data.

Map overlays shall be available for the following:

a. Roads (State and local highways and secondary roads)
b. Road designators (e.g., route numbers, etc.)
c. Road Control section and mile marker identification.
d. Political boundaries (e.g., States, counties, maintenance zones, MDOT region and TSC area, etc.)
e. Cities

f. Weather and road condition observation sites

Data Archive and Historical Data Review

The System shall include a short and long-term data storage capability. The process of saving data shall not interfere with the normal operation of the System.

Short-Term Archive

The short-term archive shall consist of the latest fourteen (14) days of data. The oldest stored data shall be routinely (scrubbed) overwritten by new incoming data, such that the integrity of incoming data is preserved. Data within the short-term archive shall be viewable by selecting the date and time of interest from the display interface. Including but not limited to Environmental Sensor Station data.

Long-Term Archive

SCHEDULE E: MAINTENANCE DECISION SUPPORT SYSTEM (MDSS) REQUIREMENTS

The long-term archive shall consist of data sets specifically saved by the user. The System shall not delete (scrub) data within the long-term archive. The user shall have the capability to select the date, time, and filename for the long-term archive. The System shall provide a capability for the user to review data from the long-term archive. This review shall not interfere with the operation of the real-time system. This requirement could be met by having a separate System available to view data from the historical archive. Including but not limited to Environmental Sensor Station data.

Historical Data Viewer

The system shall have a capability to view (recent) historical weather and road condition prediction products together with actual observational data to give the user an indication of the performance of the weather and road condition predictions.

Users shall have the ability to select any of the forecasts from the previous 24-hour period. For example, the user shall be able to select a forecast 6 hours previous and compare the predicted conditions to the actual conditions.

Security

Means shall be provided to prevent the unauthorized use or misuse of the facilities provided in the System. This particularly applies to those functions that can be used to reconfigure or change the operating status of the System or subsystems.

Security shall be provided (e.g., password protection) to ensure that the System cannot be accidentally disabled from any display device or network system.

SCHEDULE F: DATA SECURITY REQUIREMENTS

Definitions. For purposes of this Schedule, the following terms have the meanings set forth below. All initial capitalized terms in this Schedule that are not defined in this **Schedule** shall have the respective meanings given to them in the Contract.

"**Contractor Security Officer**" has the meaning set forth in **Section 2** of this Schedule.

"**FedRAMP**" means the Federal Risk and Authorization Management Program, which is a federally approved risk management program that provides a standardized approach for assessing and monitoring the security of cloud products and services.

"**FISMA**" means The Federal Information Security Modernization Act of 2014 (Pub.L. No. 113-283 (Dec. 18, 2014.).

"Hosting Provider" means any Permitted Subcontractor that is providing any or all of the Hosted Services under this Contract.

"**NIST**" means the National Institute of Standards and Technology.

"**PCI**" means the Payment Card Industry.

"**PSP**" or **"PSPs"** means the State's IT Policies, Standards and Procedures.

"**SSAE**" means Statement on Standards for Attestation Engagements.

"**Security Accreditation Process**" has the meaning set forth in **Section 6** of this Schedule

2. Security Officer. Contractor will appoint a Contractor employee to respond to the State's inquiries regarding the security of the Hosted Services who has sufficient knowledge of the security of the Hosted Services and the authority to act on behalf of Contractor in matters pertaining thereto ("**Contractor Security Officer**").

3. Contractor Responsibilities. 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;

1. protect against unauthorized disclosure, access to, or use of the State Data;
2. ensure the proper disposal of any State Data in Contractor's or its subcontractor's possession; and
3. ensure that all Contractor Representatives comply with the foregoing.

SCHEDULE F: DATA SECURITY REQUIREMENTS

The State has established Information Technology (IT) PSPs to protect IT resources under the authority outlined in the overarching State 1305.00 Enterprise IT Policy. 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 public and non-public State IT policies and standards, of which the publicly available ones are at https://www.michigan.gov/dtmb/0,5552,7-358-82547_56579_56755---,00.html.

This responsibility also extends to all service providers and subcontractors with access to State Data or an ability to impact the contracted solution. Contractor responsibilities are determined from the PSPs based on the services being provided to the State, the type of IT solution, and the applicable laws and regulations.

4. Acceptable Use Policy. To the extent that Contractor has access to the State's IT environment, Contractor must comply with the State's Acceptable Use Policy, see https://www.michigan.gov/documents/dtmb/1340.00.01_Acceptable_Use_of_Information_Technology_Standard_458958_7.pdf. All Contractor Personnel will be required, in writing, to agree to the State's Acceptable Use Policy before accessing State systems. The State reserves the right to terminate Contractor's and/or subcontractor(s) or any Contractor Personnel's access to State systems if the State determines a violation has occurred.

5. Protection of State's Information. Throughout the Term and at all times in connection with its actual or required performance of the Services, Contractor will:

5.1 If Hosted Services are provided by a Hosting Provider, ensure each Hosting Provider maintains FedRAMP authorization for all Hosted Services environments throughout the Term, and in the event a Hosting Provider is unable to maintain FedRAMP authorization, the State, at its sole discretion, may either a) require the Contractor to move the Software and State Data to an alternative Hosting Provider selected and approved by the State at Contractor's sole cost and expense without any increase in Fees, or b) immediately terminate this Contract for cause pursuant to **Section 23** of the Contract;

5.2 For Hosted Services provided by the Contractor, maintain either a FedRAMP authorization or an annual SSAE 18 SOC 2 Type II audit based on State required NIST Special Publication 800-53 MOD Controls using identified controls and minimum values as established in applicable State PSPs.

5.3 Ensure that the Software and State Data is securely hosted, supported, administered, accessed, and backed up in a data center(s) that resides in the continental United States, and minimally meets Uptime Institute Tier 3 standards (www.uptimeinstitute.com), or its equivalent;

SCHEDULE F: DATA SECURITY REQUIREMENTS

5.4 Maintain and enforce an information security program including safety and physical and technical security policies and procedures with respect to its Processing of the State Data that complies with the requirements of the State's data security policies as set forth in this Contract, and must, at a minimum, remain compliant with FISMA and NIST Special Publication 800-53 MOD Controls using identified controls and minimum values as established in applicable State PSPs;

5.5 Provide technical and organizational safeguards against accidental, unlawful or unauthorized access to or use, destruction, loss, alteration, disclosure, encryption, transfer, commingling or processing of such information that ensure a level of security appropriate to the risks presented by the processing of State Data and the nature of such State Data, consistent with best industry practice and applicable standards (including, but not limited to, compliance with FISMA, NIST, CMS, IRS, FBI, SSA, HIPAA, FERPA and PCI requirements as applicable);

5.6 Take all reasonable measures to:

(a) secure and defend all locations, equipment, systems and other materials and facilities employed in connection with the Services against "malicious actors" and others who may seek, without authorization, to destroy, disrupt, damage, encrypt, modify, copy, access or otherwise use Hosted Services or the information found therein; and

(b) Prevent (i) the State and its Authorized Users from having access to the data of other customers or such other customer's users of the Services; (ii) State Data from being commingled with or contaminated by the data of other customers or their users of the Services; and (iii) unauthorized access to any of the State Data;

5.7 Ensure that State Data is encrypted in transit and at rest using FIPS validated AES encryption modules and a key size of 128 bits or higher;

5.8 ensure the Hosted Services support Identity Federation/Single Sign-on (SSO) capabilities using Security Assertion Markup Language (SAML), Open Authentication (OAuth) or comparable State approved mechanisms;

5.9 ensure the Hosted Services implements NIST compliant multi-factor authentication for privileged/administrative and other identified access.

6. Security Accreditation Process. Throughout the Term, Contractor will assist the State, at no additional cost, with its **Security Accreditation Process**, which includes the development, completion and on-going maintenance of a system security plan (SSP) using the State's automated governance, risk and compliance (GRC) platform, which requires Contractor to submit evidence, upon request from the State, in order to validate Contractor's security controls within two weeks of the State's request. On an annual basis, or as otherwise required by the State such as for significant changes, re-

assessment of the system's controls will be required to receive and maintain authority to operate (ATO). All identified risks from the SSP will be remediated through a Plan of Action and Milestones (POAM) process with remediation time frames based on the risk level of the identified risk. For all findings associated with the Contractor's solution, at no additional cost, Contractor will be required to create or assist with the creation of State approved POAMs and perform related remediation activities. The State will make any decisions on acceptable risk, Contractor may request risk acceptance, supported by compensating controls, however only the State may formally accept risk. Failure to comply with this section will be deemed a material breach of the Contract.

7. Unauthorized Access. Contractor may not access, and shall not permit any access to, State systems, in whole or in part, whether through the Hosted Services or otherwise, without the State's express prior written authorization. Such authorization may be revoked by the State in writing at any time in its sole discretion. Any access to State systems must be solely in accordance with the Contract and this Schedule, and in no case exceed the scope of the State's authorization pursuant to this Section. All State-authorized connectivity or attempted connectivity to State systems shall be only through the State's security gateways and firewalls and in compliance with the State's security policies set forth in the Contract as the same may be supplemented or amended by the State and provided to Contractor from time to time.

8. Security Audits.

8.1 During the Term, Contractor will maintain complete and accurate records of its data protection practices, IT security controls, and the security logs relating to State Data, including but not limited to any backup, disaster recovery or other policies, practices or procedures relating to the State Data and any other information relevant to its compliance with this Contract.

8.2 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. 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. If the State chooses to perform an on-site audit, Contractor will, make all such records, appropriate personnel and relevant materials available during normal business hours for inspection and audit by the State or an independent data security expert that is reasonably acceptable to Contractor, provided that the State: (i) gives Contractor at least five (5) Business Days prior notice of any such audit; (ii) undertakes such audit no more than once per calendar year, except for good cause shown; and (iii) conducts or causes to be conducted such audit 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. The State may, but is not obligated to, perform such security audits, which shall, at the State's

option and request, include penetration and security tests, of any and all Hosted Services and their housing facilities and operating environments.

8.3 During the Term, Contractor will, when requested by the State, provide a copy of Contractor's or Hosting Provider's FedRAMP System Security Plan(s) or SOC 2 Type 2 report(s) to the State within two weeks of the State's request. The System Security Plan and SSAE audit reports will be recognized as Contractor's Confidential Information.

8.4 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 The State reserves the right, at its sole election, to immediately terminate this Contract or a 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.**

9. Application Scanning. During the Term, Contractor must, at its sole cost and expense, scan all Contractor provided applications, and must analyze, remediate and validate all vulnerabilities identified by the scans as required by the State Secure Web Application and other applicable PSPs.

Contractor's application scanning and remediation must include each of the following types of scans and activities:

9.1 Dynamic Application Security Testing (DAST) – Scanning interactive application for vulnerabilities, analysis, remediation, and validation (may include Interactive Application Security Testing (IAST).

(a) Contractor must either a) grant the State the right to dynamically scan a deployed version of the Software; or b) in lieu of the State performing the scan, Contractor must dynamically scan a deployed version of the Software using a State approved application scanning tool, and provide the State a vulnerabilities assessment after Contractor has completed such scan. These scans and assessments i) must be completed and provided to the State quarterly (dates to be provided by the State) and for each major release; and ii) scans must be completed in a non-production environment with verifiable matching source code and supporting infrastructure configurations or the actual production environment.

9.2 Static Application Security Testing (SAST) - Scanning Source Code for vulnerabilities, analysis, remediation, and validation.

(a) For Contractor provided applications, Contractor, at its sole expense, must provide resources to complete static application source code scanning, including the analysis, remediation and validation of vulnerabilities identified by application Source Code scans. These scans must be completed for all Source Code initially, for all updated Source Code, and for all Source Code for each major release and Contractor

must provide the State a vulnerability assessment after Contractor has completed the required scans.

9.3 Software Composition Analysis (SCA) – Third Party and/or Open Source Scanning for vulnerabilities, analysis, remediation, and validation.

(a) For Software that includes third party and open source software, all included third party and open source software must be documented and the source supplier must be monitored by the Contractor for notification of identified vulnerabilities and remediation. SCA scans may be included as part of SAST and DAST scanning or employ the use of an SCA tool to meet the scanning requirements. These scans must be completed for all third party and open source software initially, for all updated third party and open source software, and for all third party and open source software in each major release and Contractor must provide the State a vulnerability assessment after Contractor has completed the required scans if not provided as part of SAST and/or DAST reporting.

9.4 In addition, application scanning and remediation may include the following types of scans and activities if required by regulatory or industry requirements, data classification or otherwise identified by the State.

(a) If provided as part of the solution, all native mobile application software must meet these scanning requirements including any interaction with an application programing interface (API).

(b) Penetration Testing – Simulated attack on the application and infrastructure to identify security weaknesses.

10. Infrastructure Scanning.

10.1 For Hosted Services, Contractor must ensure the infrastructure and applications are scanned using an approved scanning tool (Qualys, Tenable, or other PCI Approved Vulnerability Scanning Tool) at least monthly and provide the scan's assessments to the State in a format that is specified by the State and used to track the remediation. Contractor will ensure the remediation of issues identified in the scan according to the remediation time requirements documented in the State's PSPs.

11. Nonexclusive Remedy for Security Breach.

11.1 Any failure of the Services to meet the requirements of this Schedule with respect to the security of any State Data or other Confidential Information of the State, including any related backup, disaster recovery or other policies, practices or procedures, is a material breach of the Contract for which the State, at its option, may terminate the Contract immediately upon written notice to Contractor without any notice or cure period, and Contractor must promptly reimburse to the State any Fees prepaid by the State prorated to the date of such termination.

PRELIMINARY

PROJECT IMPLEMENTATION PLAN

Automatic Vehicle Location (AVL)/GPS Operational Management Solution

Parsons Job No: xxx

Date: xxx

SCHEDULE G: PARSONS DRAFT PROJECT IMPLEMENTATION PLAN

MDOT Proposed Implementation Plan

1.0verview

Introduction

As requested in section 5.1.1. Implementation Plan, in the RFP, Parsons has created a draft implementation plan which is enclosed in this document. This plan is preliminary and, while fully executable, it is expected to be modified prior to final approval by MDOT. Upon Notice to Proceed from MDOT, Parsons will schedule a project kick-off meeting. In this meeting details of existing units and plans to upgrade or replace will be determined and a specific plan will be created to meet MDOT's requirements.

Parsons pulled a report from the Parsons ATMS showing 327 current vehicles reporting. The RFP states that MDOT has 345 vehicles, so there is a discrepancy in the numbers shown in this plan. The intent is to provide MDOT with the confidence that Parsons can manage large deployments in a professional and efficient method. In fact, Parsons managed to deploy over 1,100 MDC devices in Indiana over the past year amongst the worst pandemic to affect our country in decades. We work with our install and service contractors to create deployment plans that are attainable and manageable. Depending upon the install requirements, we provide multiple reminders to field supervisors to ensure they are aware of when the installers arrive. They also know the date and time to have specific trucks available. The intent is to schedule trucks to minimize out of service time yet, ensure they installers are not idle awaiting arrival of vehicles.

Parsons Subcontractors

DTN

Parsons works closely with DTN (formerly Iteris) supporting MDSS deployments in South Dakota, Nebraska, Connecticut, Indiana as well as our current contract with Michigan. Like our current agreement with Michigan, DTN is a subcontractor to Parsons in Connecticut and Nebraska. In other states, the DOT has a direct contract with DTN, but Parsons works hand in hand with DTN to ensure the client receives the data they expect.

TELE-RAD

Tele-Rad is a Motorola Platinum Channel Partner that delivers communication solutions to businesses, organizations, and public safety agencies throughout Michigan. They are headquartered in Holland and have additional locations in Benton Harbor, Muskegon, Grand Rapids and Traverse City. Tele-Rad has assessed current MDOT equipment deployments and, with the exception of the upper peninsula, has technical personnel within 2 ½ hours of all MDOT supported locations.

Deployment Plan

The deployment plan presented below is based upon deploying 20 MDC-006 units on a date mutually agreed upon by MDOT and Parsons. For this schedule, Parsons made several assumptions. First, we propose having the Install Contractor 'validate" every unit throughout the state to confirm that it is properly configured and functioning properly. All this will be performed prior to the next snow season. Parsons will migrate MDOT to the new iNET™ R11 as well as apply any updates from DTN with the system fully functional for the 2021-2022 snow season. Starting in May of 2022, Parson will begin installing the MDC-006 units in remaining MDOT vehicles.

SCHEDULE G: PARSONS DRAFT PROJECT IMPLEMENTATION PLAN

As described earlier, this plan is for information only.

The plan below has all new equipment in snowplows installed and functional within a year from the project start date.

Date	Task	Location	District	Days from Start	# of Trucks
7/12/2021	Contract Executed			0	
7/13/2021	Project Kickoff Meeting	Lansing			
TBD	Confirm site for 20 installs				
7/20/2021	Weekly Status Meeting				
TBD	Installs Day 1 - 2				
TBD	Installs Day 2 - 3				
7/27/2021	Weekly Status Meeting				
TBD	Installs Day 3 - 5				
TBD	Installs Day 4 - 5				
TBD	Installs Day 5 - 5				
8/3/2021	Weekly Status Meeting			22	
8/10/2021	Validation of Hardware	Houghton	Superior	29	8
	Weekly Status Meeting				
8/11/2021	Validation of Hardware	L'Anse	Superior	30	10
8/12/2021	Validation of Hardware	Engadine	Superior	31	7
8/13/2021	Validation of Hardware	St. Ignace	Superior	32	10
8/16/2021	Validation of Hardware	Mio	North	35	6
8/17/2021	Validation of Hardware	Atlanta	North	36	7
	Weekly Status Meeting				
8/18/2021	Validation of Hardware	Kalkaska	North	37	9
8/19/2021	Validation of Hardware	Marion/ Reed City	Grand	38	8
8/20/2021	Validation of Hardware	Reed City/Grand Rapids	Grand	39	6
8/23/2021	Validation of Hardware	Fennville	Grand	42	8
8/24/2021	Validation of Hardware	Plainwell	Grand	43	8
	Weekly Status Meeting				
8/25/2021	Validation of Hardware	Plainwell/Hastings	Grand	44	8
8/26/2021	Validation of Hardware	Hastings/ Charlotte	Grand/University	45	9
8/27/2021	Validation of Hardware	Charlotte	University	46	9
8/30/2021	Validation of Hardware	Mt Pleasant	Bay	49	10
8/31/2021	Validation of Hardware	Saginaw Eastside	Bay	50	10
	Weekly Status Meeting				
9/1/2021	Validation of Hardware	Saginaw Eastside /Saginaw	Bay	51	9
9/2/2021	Validation of Hardware	Saginaw Westside	Bay	52	10

SCHEDULE G: PARSONS DRAFT PROJECT IMPLEMENTATION PLAN

9/3/2021	Validation of Hardware	Reserved	Bay	53	5
	Validation of Hardware	Two People going forward			
9/7/2021	Validation of Hardware	Sawyer/Southhaven	Southwest	57	17
	Weekly Status Meeting				
9/8/2021	Validation of Hardware	Coloma	Southwest	58	20
9/9/2021	Validation of Hardware	Jones/Niles	Southwest	59	24
9/10/2021	Validation of Hardware	Southhaven	Southwest	60	9
9/13/2021	Validation of Hardware	Marshall/Grand Ledge	Southwest/University	63	20
9/14/2021	Validation of Hardware	Jackson/Adrian/Mason	University	64	21
	Weekly Status Meeting				
9/15/2021	Validation of Hardware	Williamson/Brighton	University	65	23
9/16/2021	Validation of Hardware	Brighton/Auburn Hills/	University / Metro	66	19
9/17/2021	Validation of Hardware	Charlotte	University	67	14
9/20/2021	Validation of Hardware	Monroe County	Monroe	70	10
9/21/2021	Weekly Status Meeting			71	
9/27/2021	Training	Location TBD	Superior	77	
9/29/2010	Training	Location TBD	North		
10/1/2021	Training	Location TBD	Bay	81	
10/4/2021	Training	Location TBD	Grand	84	
10/5/2021	Training	Location TBD	Southwest	85	
10/6/2021	Training	Location TBD	University/Monroe	86	
10/7/2021	Training	Location TBD	Metro	87	
10/8/2021	Project Review Meeting	Location TBD	Location TBD	88	
10/12/2021	Weekly Status Meeting			92	
10/19/2021	Weekly Status Meeting			99	
10/26/2021	Weekly Status Meeting			106	
11/2/2021	Weekly Status Meeting			113	
11/9/2021	Weekly Status Meeting			120	
11/16/2021	Weekly Status Meeting			127	
11/23/2021	Weekly Status Meeting			134	
11/30/2021	Weekly Status Meeting			141	
12/7/2021	Weekly Status Meeting			148	
12/14/2021	Weekly Status Meeting			155	
12/21/2021	Weekly Status Meeting			162	
12/28/2021	Weekly Status Meeting			169	
5/2/2022	Install MDC-06	Superior District	TBD	294	35
5/3/2022	Weekly Status Meeting			295	
5/6/2022	Complete Install	Superior District		298	
5/9/2022	Install MDC-06	North District	TBD	301	22
5/10/2022	Weekly Status Meeting			302	
5/12/2022	Complete Install	North District		304	

SCHEDULE G: PARSONS DRAFT PROJECT IMPLEMENTATION PLAN

5/13/2022	Install MDC-06	Grand District	TBD	305	42
5/17/2022	Weekly Status Meeting			309	
5/23/2022	Complete Install	Grand District		315	
5/24/2022	Install MDC-06	Southwest District	TBD	316	79
5/24/2022	Weekly Status Meeting			316	
6/7/2022	Complete Install	Southwest District		330	
6/8/2022	Install MDC-06	University District	TBD	331	80
6/14/2022	Weekly Status Meeting			337	
6/21/2022	Complete Install			344	
6/21/2022	Weekly Status Meeting			344	
6/22/2022	Install MDC-06	Metro District	TBD	345	15
6/23/2022	Complete Install			346	
6/24/2022	Install MDC-06	Monroe County	TBD	347	10
6/27/2022	All installs complete			350	
6/28/2022	Weekly Status Meeting			351	
7/5/2022	Weekly Status Meeting			358	
7/12/2022	Weekly Status Meeting			365	
7/19/2022	Weekly Status Meeting			372	
7/26/2022	Weekly Status Meeting			379	
8/2/2022	Weekly Status Meeting			386	
8/9/2022	Weekly Status Meeting			393	
8/16/2022	Weekly Status Meeting			400	
8/23/2022	Weekly Status Meeting			407	
8/30/2022	Weekly Status Meeting			414	
9/6/2022	Weekly Status Meeting			421	
9/13/2022	Weekly Status Meeting			428	
9/20/2022	Weekly Status Meeting			435	
9/27/2022	Year 2 Annual Training			442	
	Ongoing Annual Training				

Due to the rapid pace of implementing this system. Parsons recommends weekly meetings between Parsons and MDOT personnel. This model provides for weekly meeting for the first year. Upon mutual agreement with MDOT and Parsons, the meeting frequency may be altered.

Initial training the end of September will be in person. A day is allocated at each location to ensure that all aspects of training is addressed. Parsons will work with MDOT to determine the location where training will occur. Ongoing, after the initial in person training, Parsons will conduct training via a web conference link.

MDOT requires that all hardware be shipped to MDOT at the designated Lansing address. Parsons may recommend that all hardware be shipped to Install Contractor. Working with INDOT, Parsons had all hardware shipped directly to the installer. They provide warehousing for Parsons equipment which enables them to deliver equipment in their trucks to the install site. This prevents MDOT for having to manage getting material from Lansing to the install site prior to the installer arriving. Also, enabling the installer to

warehouse the equipment makes it much easier for addressing service calls. The installer can simply grab parts that may be needed prior to making a service call.

Parsons Expertise in Complex Installs

As described earlier, Parsons will create a detailed deployment plan based upon the results of the MDOT/Parsons Project Planning meeting. The schedule below is an example of the detailed plan that Parsons creates. Indiana DOT had two types of units installed. In older trucks they had a basic GPS/AVL unit as an interim unit until the truck was retired. All late model trucks have the full-blown MDC-006 installed. Additionally, INDOT required upgrades to certain Certified Power spreaders to enable them to communicate with the Parsons solution. Numbers under the day is the estimated number of hours to complete each install. Installs each day were based upon the number of installers available and the total projected install hours. Parsons created this detailed plan with installs starting in July and completing all installs in January. Allowances were made for holidays.

WEEK	Week 3			
HOURS	19.1	20.15	23.6	27
MDC-006	5	5	6	7
MDC-007	2	3	2	0
Freedom 2	1	1	2	1
Freedom XDS	1	2	2	3
PHASE	Phase 1	Phase 1	Phase 1	Phase 1
SEQUENCE	3-1	3-2	3-3	3-4
LOCATION	Ft Wayne	Ft Wayne	Ft Wayne	Ft Wayne
DATE	July 27	July 28	July 29	July 30

DISTRICT	SUB-DIST	UNIT	TRUCK #	YEAR	MAKE	MODEL	SPREADER	Inst	INSTALL LOCATION	Day 1	Day 2	Day 3	Day 4
Fort Wayne	Fort Wayne	Fort Wayne	62601	2008	International	SA1	Muncie E	7/27	Fort Wayne	0.3			
Fort Wayne	Fort Wayne	Angola	62051	2009	International	4300	Muncie E	7/27	Fort Wayne	0.3			
Fort Wayne	Fort Wayne	New Haven	62446	2019	Freightliner	108SD	Muncie Advantage	7/27	Fort Wayne	3.5			
Fort Wayne	Fort Wayne	Waterloo	62438	2020	Freightliner	108SD	Muncie Advantage	7/27	Fort Wayne	3.5			
Fort Wayne	Fort Wayne	New Haven	62256	2018	Freightliner	108SD	Muncie Advantage	7/27	Fort Wayne	3.5			
Fort Wayne	Fort Wayne	Angola	62018	2013	Freightliner	108SD	CP Freedom 2	7/27	Fort Wayne	3.75			
Fort Wayne	Fort Wayne	Fort Wayne	62299	2014	Freightliner	114SD	CP Freedom 2	7/27	Fort Wayne	4.25			
Fort Wayne	Fort Wayne	Fort Wayne	62339	2007	International	7400	Muncie E	7/28	Fort Wayne		0.3		
Fort Wayne	Fort Wayne	Angola	62245	2006	Sterling	L7500 Serie	Muncie E	7/28	Fort Wayne		0.3		
Fort Wayne	Fort Wayne	Fort Wayne	62057	2009	International	4300	Muncie E	7/28	Fort Wayne		0.3		
Fort Wayne	Fort Wayne	Waterloo	62459	2020	Freightliner	108SD	Muncie Advantage	7/29	Fort Wayne		3.5		
Fort Wayne	Fort Wayne	Angola	62125	2016	Freightliner	108SD	Muncie Advantage	7/28	Fort Wayne		3.5		
Fort Wayne	Fort Wayne	Waterloo	62452	2012	Kenworth	T470	CP Freedom 2	7/28	Fort Wayne		3.75		
Fort Wayne	Fort Wayne	Fort Wayne	62507	2017	Freightliner	108SD		7/26	Fort Wayne		4.25		
Fort Wayne	Fort Wayne	Fort Wayne	62457	2017	Freightliner	108SD		7/28	Fort Wayne		4.25		
Fort Wayne	Fort Wayne	Angola	62456	2020	Freightliner	108SD	Muncie Advantage	7/31	Fort Wayne				3.5
Fort Wayne	Fort Wayne	Angola	62254	2018	Freightliner	108SD	Muncie Advantage	7/31	Fort Wayne				3.5
Fort Wayne	Fort Wayne	Fort Wayne	62128	2016	Freightliner	108SD		8/4	Fort Wayne				3.5
Fort Wayne	Fort Wayne	Waterloo	62879	2012	Kenworth	T470	CP Freedom 2	7/30	Fort Wayne				3.75
Fort Wayne	Fort Wayne	New Haven	66188	2017	Freightliner	114SD	CP Freedom 2	8/3	Fort Wayne				4.25
Fort Wayne	Fort Wayne	New Haven	62728	2017	Freightliner	114SD	CP Freedom 2	7/27	Fort Wayne				4.25
Fort Wayne	Fort Wayne	Waterloo	62620	2017	Freightliner	108SD	CP Freedom 2	8/4	Fort Wayne				4.25

While Indiana installs were conducted at each subdistrict location, Nebraska requested installs be conducted at the garage level. To ensure that everyone was fully aware of the date of the install, the trucks that were to be installed, the hours for install and other variables, a similar matrix was created. Since garage level personnel were responsible for ensuring all vehicles were available, multiple reminders were sent to the garage supervisor and their supervisor. An email was sent two weeks in advance of the install providing the truck numbers, times and all the details of the install process along with the expectations for garage personnel to prepare for the installs. A follow-up email was sent one week in advance of the install and a final email sent the day prior to the install. After the install was completed, a follow-up email was sent seeking feedback on how Parsons and our subcontractors could improve the process. We continually improved the process based upon feedback from the field. Through this method, the install process worked well.

PRELIMINARY

PROJECT MANAGEMENT PLAN

Type of Services

Automatic Vehicle Location (AVL)/GPS Operational Management Solution

Parsons Job No: xxx

Date: xxx

APPROVALS

PM's Signature	Date
Sector Manager's Signature	Date
Division Manager's Signature	Date
Quality Manager's Signature	Date
Other Manager's Signature	Date

(Note: Insert N/A as applicable)

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

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ACRONYMS OR ABBREVIATIONS

AVL	Automatic Vehicle Location
CAPA	Corrective and Preventive Actions
COI	Certificate of Insurance
GSS	Global Shared Services (Parsons)
I/O	Input/Output
IMO	Integrated Mobile Observations
MDC	Mobile Data Collector
MDSS	Maintenance Decision Support System
MDOT	Michigan Department of Transportation
PM	Project Manager
PMP	Project Management Plan
PSHEP	Project Safety, Health, and Environment Plan
PWP	Paid when Paid
QA	Quality Assurance
OBU	On-Board Unit – Parsons MDC-006 or MDC-004
QC	Quality Control
OSS	Operations Shared Services (Parsons)
POC	Point of Contact
RAM	Responsibility Accountability Matrix
SHSO	Site Health and Safety Officer
SHSP	Site Health and Safety Plan
SSHEPS	Subcontractor Safety, Health, and Environment Plans
WBS	Work Breakdown Structure
WIP	Work in Progress
WMT	Winter Maintenance Truck – Michigan Snow Plow

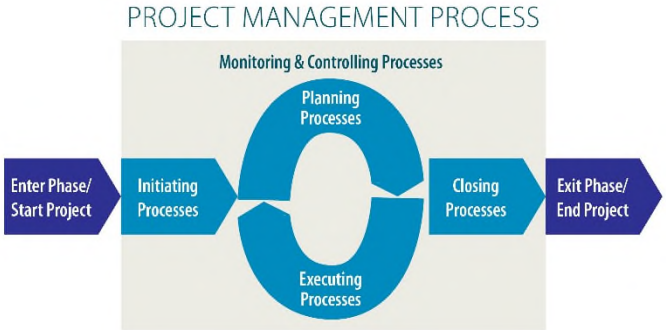
MDC/AVL WITH MDOT SNOW PLOWS

Executive Summary

Introduction

The Parsons Team has generated a comprehensive Project Management Plan (PMP) to deliver the results the project was designed to achieve. The approach focuses on the creation of a PMP framework for the Michigan DOT Automatic Vehicle Location (AVL) project that is grounded in the Project Management Institute (PMI) standards. This approach ensures a quality framework as to how the project should be conducted and how the decisions are made during the course of the project. This PMP is designed to connect the stakeholders in the project to the project work and deliver a strategy to monitor changes and track performance across the project. The PMP also reduces the potential blurred boundaries between different entities, as each entity has a clear idea about their responsibilities, authorities, and domain of influence.

This PMP describes in detail the deliverables, safety plan, quality plan, how the project is managed, and how the project is prepared and delivered to the MDOT. Critical elements of managing the project are addressed in the PMP. It serves as the guide or a roadmap of the project and is updated as needed as the project work advances.



PMP Revision

Revision History (Example)

Revision	Changes	Approved	Date

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix A – Contract/Statement of Work

The scope of the contract for the Michigan Department of Transportation is shown as follows:

Effective Dates of Contract:

Contract Term. This contract is effective for the period of July 12, 2021 until July 11, 2026.

Expiration Date:

This contract expires five (5) years from the effective date on July 11, 2026.

Renewals:

This contract may be renewed for three (3) additional one (1)-year periods when mutually agreeable to the Contractor and the Michigan Department of Transportation (MDOT).

Extension Period:

The State reserves the right and sole discretion to extend this contract beyond the expiration date.

Scope of the Contract:

This is an RFP for a comprehensive Automated Vehicle Location (AVL)/Global Positioning System (GPS) fleet tracking system for the Michigan Department of Transportation (MDOT). The Contractor will utilize any existing AVL equipment as deemed possible by the Contractor and as accepted by the MDOT. This RFP is all encompassing: including but not limited to; the necessary removal of previous AVL/GPS hardware in trucks, firmware, software, installation of new AVL/GPS hardware, firmware, software, communication/data transfer, training support, secure website for displaying mapped assets in near real-time, data management, data reporting and data storage, and ongoing technical support for implementing an AVL/GPS fleet tracking solution on the Departments fleet. All data collected through this RFP is to be stored on non-state-owned servers provided by the contractor. AVL Data should be stored for 5 years and be able to be recalled at any point during that time span. The Contractor will be responsible for being able to work with and communicate with the Statewide Maintenance Decision Support System (MDSS) tool for the Departments maintenance garages and fleet of winter maintenance trucks (WMTs). The MDSS is a web-based solution available to all MDOTs maintenance facilities for providing weather forecasts, pavement condition forecasts, and maintenance treatment recommendations. The MDSS can provide treatment recommendations and local radar and weather information to the operator of a WMT (with the in-cab display screen). RWIS Data collected in MDSS should be stored for 5 years and be able to be recalled at any point during that time span.

Contract Pricing

Pricing from the contract will be inserted here.

Change Management

1. **Change Management Process**

The Contractor may submit Change Orders that fall under change management as described herein. An hourly rate for Change Management must be included on the Cost Proposal Bid Sheet. The Change Order must be acknowledged and accepted in writing by MDOT before any additional work is undertaken. Each Change Order Request submitted by the Contractor includes:

A. Provide a clear description of what is included in each change request.

B. Incorporate multiple levels of priority for change requests (e.g., critical, must-have, desired, etc.).

C. Support the Change Management Process by estimating impacts, investigating solutions, identifying alternatives, participating in the decision-making process, and implementing the agreed-upon solution.

2. Fixed Hourly Rates

MDOT requires the following pricing approach be used when addressing Change Management tasks and activities:

A. An hourly rate for Change Management must be included on the Cost Proposal Bid Sheet.

B. Invoices must clearly identify the change project, the staff involved, and the hourly rate established in the RFP response.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix B – Project Safety Plan

Safety is an integral part of the Parsons culture. Health and safety management is required for every contract conducted by Parsons. The type of work for this contract consists of business consulting and software development, which requires office work as well as business travel to and from client office sites. The following is the complete Safety Plan to support this project:

Automated Vehicle Location (AVL)/GPS Operational Management Solution for the Michigan Department of Transportation

Project Safety, Health, and Environmental Plan

PARSONS

OWN ZERO

Date

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Section 1 – Introduction

1.1 Parsons Safety, Health & Environment Policy

EXHIBIT A.1: PARSONS CORPORATE SH&E POLICY

PARSONS

Corporate Safety, Health & Environment Policy Statement

As an industry-leading engineering, construction, and technical services firm, Parsons is firmly committed to maintaining a safe, healthy, and environmentally compliant workplace at all its offices and project facilities, guided by the following tenets:

- Safety, Health and Environment (SH&E) is a core value.
- Executive management will lead the SH&E process.
- SH&E will be a responsibility shared by all.
- SH&E performance will be a key business performance indicator.
- SH&E performance will be communicated openly.
- Employees will be given the knowledge and skills necessary to perform their jobs in a high-performance SH&E manner.
- We will extend our SH&E efforts beyond the workplace to include travel, homes, and communities.
- We will continually strive to improve our SH&E processes.

To meet our SH&E objectives, all employees are expected to be actively engaged with regard to SH&E issues. This requires the combined efforts of a concerned management, responsible and knowledgeable supervision, and conscientious, well-trained employees.

Parsons will meet or exceed the applicable SH&E legal and other requirements and will continuously monitor and improve operations, procedures, technologies, and programs that are conducive to maintaining a safe, healthy, and environmentally compliant workplace.

Charles L. Harrington

Chairman and Chief Executive Officer

1.2 The Project Safety, Health, and Environmental Plan (PSHEP)

Parsons' goal is zero incidents using control measures designed to minimize or eliminate hazards to personnel, processes, equipment, the public, and the environment. This PSHEP outlines safety, health, and environment (SH&E) requirements and guidelines developed by Parsons for project work. When implemented, these requirements will help protect site personnel, visitors, the public, and the environment from incidents caused due to SH&E hazards. Parsons employees should never perform a task that may endanger their own safety and health, the safety and health of coworkers or the public, or damage the environment.

This plan should be updated as conditions change or situations change, usually by addenda to the PSHEP. All Parsons personnel must understand and implement the PSHEP and any addenda. Parsons documents this process by having employees sign an acknowledgement form stating that they understand the PSHEP and its requirements. The Peachtree Corners Office's "Office SH&E Plan" is included in this plan by reference, and a copy can be found on the MDOT Project website.

1.3 Sub-contractor Safety, Health, and Environmental Plans (SSHEPS)

All initial sub-contract will be required to provide a SAFETY, HEALTH, AND ENVIRONMENTAL PLAN (SSHEPS).

Section 2 – Scope of Work

2.1 Scope of Work

This project consists of providing all installation labor, hardware, software, applications, related equipment, and components for a fully functioning and operational Maintenance Decision Support System (MDSS) and Automatic Vehicle Location (AVL) System & Services, thereby upgrading winter maintenance vehicle operations throughout the six (6) districts within the MDOT, as specified in RFP 210000001577.

2.2 Project Safety, Health, and Environmental Plan Application

This PSHEP and its referenced documents apply to all locations, facilities, operations, and projects associated with contract work performed by Parsons and its subcontractors. Locations/sites covered under this contract include the Peachtree Corners offices and MDOT project sites.

Section 3 – Project SH&E Management Responsibilities and Authority

3.1 SH&E Responsibility Matrix

Exhibit 3-1 summarizes the responsibilities of selected roles related to the primary SH&E activities identified in the PSHEP.

EXHIBIT A.2: PRIMARY SH&E ACTIVITIES IDENTIFIED IN THE PSHEP.

Project Responsibility Matrix		Project												GBU						Corporate					
Phases	Work Elements	Project Manager	Safety & Health	Environmental	Construction/Site	Engineering	First Line Supervision	Facilities and Maintenance	Training	Contracts/Procurement	Security	Sustainability	Quality	President is this correct	Operations/Risk Management	Division Management	Sector Management	Safety, Health, & Environment	Quality	CEO	Operations/Risk Management	Safety, Health, & Environment	Security	Workers' Compensation	Insurance
Introduction to ESHARP for Project	1. Environment, Safety, Health, and Risk Management Program (ESHARP) Project Management	R	D	D	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P
Startup	3. Initial Hazard Analysis and Planning	A	R	D	P	P					D							P				P	P		
	4. Project Safety, Health, and Environmental Plan (PSHEP)	A	D	D	P										P	P	P	R				P	P		
	5. Stakeholder PSHEP Alignment Meeting	A	D	D	P													R							
Closeout	23. Lessons Learned and Final SH&E Report	A	D	D	P											P	P	R	P			P			
	24. Records Retention	A	P	P					P		D		P					R	P			P			

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

R – Responsible and accountable for ensuring the project develops and implements the work element. D – Develops the plan, tool, training, document, or other item needed for the work element.

P – Participates by providing advice, assisting in the implementation or development, reviewing, and providing comments, or otherwise supporting the development or implementation effort. A – Approval at the management level with responsibility for the project; establishes requirements for the project or serves as sponsor for the item.

Section 4 – Administrative Phase

4.1 Project Safety, Health, & Environment (SH&E) Committee

The project must have an SH&E Committee that includes representation from all project stakeholders. The SH&E Committee meets at times and locations to be determined and posted by the chairperson on the safety bulletin board at least one week in advance.

For this project, which runs through end of 2023, SH&E Committee members include:

Peachtree Corners Office Safety Committee: Trevor Moore and Stephanie Sale

Charter of the SH&E Committee: The SH&E Committee represents the mutual interests of all project participants in completing the work with zero injuries. The Committee meets at a minimum, biannually to consider recent near misses or injuries, potential unsafe conditions, training programs, safety awareness, audit results, and related issues. The Committee advises the Project Manager, who retains sole decision-making authority.

The Chairperson schedules the meetings, develops the agenda, and files meeting minutes in the Project Directory. Employees may submit suggestions and topics for discussion to the Chairperson at any time.

4.2 Employee Orientation

The Talent Management Department has a comprehensive employee orientation program for new Parsons employees. The project SH&E personnel meet with new employees on the project to review office procedures and requirements. All new employees on a project, including new hires and transfers, must review the PSH&E Plan and the Peachtree Corners Office Safety Plan on their first day and sign an acknowledgment form indicating their review. Any employee who is unsure of any information presented in the orientation must request clarification. Employees who do not participate in the orientation or refuse to sign the acknowledgment form cannot work on the project.

4.3 Awareness Campaign

The project awareness program relies on the Parsons Peachtree Corners office SH&E awareness campaign and its various elements (e.g., signs, posters, banners, and focus briefings). This program promotes employee awareness of SH&E goals and daily risks, hazards, and exposures in the field. In addition to topics selected by Corporate Safety each month, the project will supplement the awareness program with information specifically applicable to the scope of work.

The SH&E bulletin board maintained by the Office SH&E Manager is the primary information point for the project awareness campaign. Bulletin boards are in the lunchroom area of the Peachtree Corners office. The Project SH&E Committee chairperson may also provide training, presentations, or informational materials as part of the awareness campaign

4.4 Stakeholder PSHEP Alignment Meeting

Not applicable

4.5 Training

All employees receive a general orientation upon assignment to the project. All office-based employees also receive specialized office training through online courses, including the following topics:

- Proper lifting techniques

- Ergonomics
- Housekeeping
- Common office hazards and environmental risks (if any)
- Office emergencies
- Other relevant topics

Field-based employees and office employees who spend a significant portion of their time in the field also receive field training as described in Section 7 of this PSHEP.

4.6 Audits and Inspections

The Project SH&E Manager will audit the implementation of this plan. The Peachtree Corners Office Safety Committee performs routine audits of the office.

4.7 SH&E Meetings

All project meetings that include five or more people must begin with an SH&E moment. The meeting chairperson may present the SH&E topic or ask for a volunteer to open the discussion. In general, these "SH&E moments" are brief, perhaps a minute or two, and should be directly relevant to the work of the day or applicable to most employees outside the workplace.

All hands SH&E meetings will be held as necessary to review critical safety procedures, discuss safety incidents, and celebrate safety milestones. The Project SH&E Manager announces the time and schedule of these meetings at least one week in advance.

4.8 Rewards and Recognition

Not Applicable

4.9 Measurement and Reporting

2.4.9.1 Emergencies

4.9.1.1 WorkCare – For Domestic Use Only

For domestic project use only, Parsons and WorkCare have partnered together to promote Incident Intervention™, a resource designed to provide Parsons employees with immediate access to qualified medical clinicians who are able to provide our employees with prompt medical assessment in the event of non-life threatening, non-medical emergency work related injury or illness. Through this process, Parsons can leverage clinical expert resources to coordinate appropriate treatment care. WorkCare serves as a "medical advocate" for the employee, the WorkCare clinician provides responsive evaluation of the incident, assists the employee/employer in determining the most appropriate course of action, and consults with the treating physician.

4.9.1.2 Work-Related Injury Procedures

For emergencies, call 911!

If the incident that occurred is serious/life threatening or requires emergency response, first summon medical attention before contacting your GBU Safety Director, filing the IndustrySafe Online Incident Report, or involving WorkCare.

To coordinate the WorkCare triage process, it is imperative that Parsons employees report all work-related injuries immediately to their supervisors.

For work-related injuries or illnesses that may require physician direction on appropriate treatment, Parsons employees should then promptly contact WorkCare, ideally before seeking medical care, as this will provide the greatest opportunity for appropriate intervention.

If an injured employee requires medical care for a work-related injury/illness, the Order for Treatment of Work-Related Injury or Illness MUST be sent with the injured worker and/or faxed to the occupational medicine clinic at the time of the initial evaluation. Here is the link to the document on ParShare: Order for Treatment of Work-Related Injury or Illness.

WorkCare's Incident Intervention is available 24 hours a day, 7 days a week (24/7), and 365 days per year.

WorkCare contact number is 1-888-449-7787. Be prepared to provide the following:

1. Injured employee's name
2. Injured employee's contact number
3. Injured employee's location (at a minimum, include the city and state)
4. Employee ID number
5. Employee's GBU
6. Employee's project or office location
7. Functional manager's name

3.4.9.2 Measurement and Compliance

N/A

4.4.9.3 Incident Reporting

Employees involved in or witnessing an injury, worker exposure, environmental incident, or near miss must immediately report it to the Parsons Project SH&E Director, **Trevor Moore (678) 969-2385.** No supervisor may decline to accept or relay a report of a n SH&E incident or significant near miss from a subordinate.

The Project Manager must ensure that all SH&E incidents are reported to the GBU SH&E Director and other management personnel (as required) within four hours. The Project SH&E Manager (who has been trained on Parsons's reporting requirements and IndustrySafe Online SH&E Reporting System) prepares and submits SH&E reports. The online SH&E reporting system includes an accident investigation form. This page can only be viewed by system administrators, designated managers, and the assigned investigator. The GBU SH&E Director serves as the default investigator and may assign that role on a case-by-case basis.

The Incident Investigation Form is on ParShare; use this link: Incident/Accident Report Form. Procedures for investigating workplace accidents and hazardous exposures include the following: Emergency Response Team responds to the accident scene as soon as possible.

Report all injuries to the Parsons Workers' Compensation Claims Analyst. For access to all Workers' Compensation related information and forms, use this ParShare link: Workers' Compensation Information and Forms.

- Report on PWeb using the online IndustrySafe Reporting System.
- Report to appropriate client point of contact in accordance with contractual requirements. Interview injured workers and witnesses.
- Have employee complete the Employee Accident Report and the Individual Statement Report within 24 hours. If the employee is unable to complete the statement, the functional manager must complete the form.
- Report to the Parsons SH&E Manager (or Parsons Project Manager) immediately.
- Examine the workplace for factors associated with the accident/exposure. Determine the cause of the accident/exposure.
- Take corrective action to prevent the accident/exposure from recurring.

- Record the findings and corrective actions taken.

The Project SH&E Manager must notify the local OSHA office and/or regional, municipal, and/or local regulations office in writing within 8 hours if an accident involves the death of an employee or hospitalization of *three or more* workers.

4.10 Incident Investigations

All accidents, worker overexposures, environmental incidents, and significant near misses are investigated by an individual or team with training in incident investigation and root cause analysis.

At Parsons, the GBU SH&E Director investigates or assigns an investigator to each significant incident. The investigator submits a final investigation report using the online safety reporting system within 72 hours of the incident. The Project SH&E Manager maintains the investigation file.

4.11 Responsibility/Identification of Key Line Personnel

For project responsibility and identification of key personnel

EXHIBIT A.3: PROJECT KEY PERSONNEL

Project Office:	Peachtree Corners, GA	
Address:	3577 Parkway Lane, Suite 1 Peachtree Corners, GA 30092	
Telephone	**Fax**	**Email**
678-969-3385	404-320-1099	trevor.moore@parsons.com
Company Executive responsible for project		**Contact No.**
Roberto Perez		678-730-7404
Project Manager		**Contact No.**
Russ Brookshire		678-730-7433
Deputy Project Manager		**Contact No.**
Larry Simmons		678-730-7405
SH&E VP, PTG		**Contact No.**
John Baker		704-558-4309 Email: john.baker@parsons.com
Peachtree Corners Office Safety Committee Contact		**Contact No.**
Trevor Moore		678-969-2386 Email: trevor.moore@parsons.com
MDOT Project Management POC		**Contact No.**

The personnel listed above have the authority and responsibility for implementing the provisions of this project.

4.12 Medical Requirements and Workers' Compensation

In accordance with corporate requirements, the Project SH&E Manager has established and implemented the following medical requirements for the project:

5.4.12.1 Functional Capacity Evaluations (FCEs)

N/A

6.4.12.2 Substance Abuse Tests

The Talent Management Department administers required substance abuse tests. For the Corporate Substance Abuse Policy, go to the PWeb, Policies and Practices, Corporate Policies folder.

7.4.12.3 On-site Medical Services and Panel of Physicians

N/A

8.4.12.4 Emergency Response

The following is a list of local emergency telephone numbers and locations of emergency facilities:

Peachtree Corners Office:

- Fire: 911
- Police: 911

9.4.12.5 Workers' Compensation Program

The Corporate Risk Management Department establishes the workers' compensation carrier. If a workers' compensation loss occurs, the Corporate Workers' Compensation Analyst handles all communication with the workers' compensation carrier.

For access to all Workers' Compensation related information and forms, use this ParShare link: Workers' Compensation Information and Forms.

10.4.12.6 Medical Monitoring

N/A

Section 5 – Preconstruction

Not Applicable

Section 6 – Construction

Not Applicable

Section 7 - Project Safety Orientation

The Parsons Project Manager or Project Safety Manager conducts office and site-specific orientation (if applicable) for all project staff. Orientation includes applicable owner and Parsons, reference material, including this PSH&E Plan and the Peachtree Corners office Safety Plan.

This orientation should be documented using the Initial Employee Training Acknowledgement (Exhibit 7-1). The Project Safety Manager maintains orientation documents and acknowledgement forms.

7.1 Zero Incident Techniques/Start Training

Consistent with Parsons corporate initiatives in safety, all managers, and supervisors, must complete START training.

7.2 Daily Huddle

Daily Huddles are not applicable for this project. Exhibit 7-2 should be used when applicable.

EXHIBIT A.4: INITIAL SUBCONTRACTOR EMPLOYEE TRAININGACKNOWLEDGEMENT

Parsons

Initial Employee Training Acknowledgment

Name of Trainer: _____

Training Subject _____

Training materials used: _____

Name of employee: _____

Date of hire/assignment: _____

I, hereby certify that I have received training as described above in the following areas:

- The potential occupational hazards in general in the work area and associated with my job assignment.
- General SH&E requirements indicate the safe work conditions, safe work practices, personal protective equipment, and environmental requirements required for my work.
- The hazards of any chemicals to which I may be exposed and my right to information contained on material safety data sheets for those chemicals, and how to understand this information.
- My right to ask questions, or provide any information to the employer on safety, health, or environment either directly or anonymously without any fear of reprisal.
- Disciplinary procedures the employer will use to enforce compliance with general safety requirements.
- I understand this training and agree to comply with general safety requirements for my work area.

_____ _____

Employee Date

ParShare link: Initial Subcontractor Employee Training Acknowledgement

EXHIBIT A.5: TAKE 5 CARD

Parsons

Safety - The first thing you do!

Date: _____

Project/Task: _____

Your Name: _____

Before you begin any new task pause for 30 seconds and ask yourself the following questions. Take corrective actions as necessary prior to beginning work.

- ☐ Do I know exactly what I am doing?
- ☐ Have I reviewed the AHA for this task? Do I have all the right people involved?
- ☐ Is there any potential that I or my coworkers could get hurt?
- ☐ Are there any questions I should be asking fellow employees?
- ☐ Should I talk to my supervisor?
- ☐ Have I read the Work Plan and fully understand the procedures relating to this job?
- ☐ Am I using the proper tools?
- ☐ Do I have the proper PPE?
- ☐ Will I be working as safely as I know how?
- ☐ Do I see anything that just doesn't look quite right?
- ☐ Am I in a hurry?
- ☐ Would I be safer if I slowed down?

Each of these questions should be answered to your full satisfaction before you proceed with the work. Remember, no job is so important that you must jeopardize your safety.

Job Hazards? (List direct hazard of job duties)

1. Hazards:
   Mitigation:
2. Hazards:
   Mitigation:
3. Hazards:
   Mitigation:

Work Area	Yes	No
Work Area Clean	☐	☐
Permits Attained	☐	☐
Standard PPE (Hard hat, vest, glasses, gloves, safety boots)	☐	☐
Additional PPE needed:		

Briefly review hazards and mitigations again after lunch.

ParShare file: Take 5 Card

7.4 Weekly Toolbox SH&E Meetings

Not applicable

7.5 Activity Hazards Analysis Training

When the Activity Hazards Analysis is complete, the Parsons supervisor conducts a training session with all employees involved with the task. The training may be informal and at the site where the task is performed. Employees should be given an opportunity to provide input regarding task steps, hazards identified, and appropriate control measures.

The Project Safety Manager documents and maintains the Activity Hazards Analyses.

7.6 Regulatory Training Programs

Not applicable

7.7 Outreach Programs

Not applicable

7.8 Specialized Training and Orientations

Installers have completed safety training through Great Plains Health and Safety, which is performed through the University of Nebraska at Kearney. Training included work site safety focused on the use of power tools, ladders, confined spaces, vehicle, and chemical hazards.

7.9 Driver Safety Training

Add the project-specific program here: N/A

Add the Employee Acknowledgement for Vehicle Use here: N/A

The Corporate Policy Links are shown below:

- Corporate Vehicle Safety Policy
- Corporate Safety Policy for Fleet Drivers
- Corporate Safety Inspection Form

Section 8 – Recordkeeping and Posting

Parsons must comply with the recordkeeping requirements of Parsons Corporation and this PSHEP, including:

Medical treatment and follow-up training
Inspections
Audits
Others, as required

Parsons Talent Management and the Project SH&E Manager are the official recordkeepers for files relating to Parsons employees. Each subcontractor maintains its own files.

Section 9 – Safety and Health Requirements

Exhibit 9-1 represents regional, municipal, local, and/or OSHA regulations, owner, and Parsons corporate regulations and requirements applicable to the project. Based on the most recent risk assessments, the Parsons Project Manager and Project Safety Manager update the listed topics periodically. Training and other requirements are updated in this PSHEP as required by changes to Exhibit 9-1, Competent Person and Activity Hazards Analysis Requirements.

Parsons and its subcontractors are individually responsible for training their respective employees and for complying with all project requirements. Failure to comply could lead to disciplinary actions against Parsons employees and subcontractors or their employees. Further guidance is available in the Parsons Corporate Safety and Health Manual; ParShare link is as follows: Corporate Safety and Health Manual.

EXHIBIT A.5: COMPETENT PERSON AND ACTIVITY HAZARDS ANALYSIS REQUIREMENTS

Safety and Health Requirement	Parsons Safety, Health, and Environmental Manual	OSHA Regulation	EM 385-1-1 Regulation	Competent/ Qualified Person	Training Required	Written Plan and AHA Required
General Safety and Health		1926.20	01.A	Yes	Yes	Yes
Safety Training		1926.21	01.B.01	Yes	Yes	Yes
Confined Spaces	15	1926.21, 1910.147	06.01	N/A	N/A	N/A
Confined Space Permit System	15	See above	06.01	N/A	N/A	N/A
First Aid and Medical	2	1926.23, 50	03.A	N/A	N/A	N/A
Fire Protection and Prevention	12	1926.24, 150 155, 352	09.A	N/A	N/A	N/A
Housekeeping	4	1926.25	14.C	N/A	N/A	N/A
Illumination	4	1926.26, 56	07.A	N/A	N/A	N/A
Sanitation	4	1926.27, 51	02.A	N/A	N/A	N/A
Personal Protective Equipment	6	1926.28, 95-98, 100-107	05.A	Yes	Yes	Yes
Acceptable Certifications		1926.29		Yes	Yes	Yes
Incorporation by Reference		1926.31	Preamble	N/A	N/A	N/A
Emergency Employee Action Plans	11	1926.35	01.E	Recommended	Yes	Yes
Noise Exposure	7	1926.52	05.C	N/A	N/A	N/A
Radiation Protection	9	1926.53, 54	06. E&F; 28. A.02	N/A	N/A	N/A
Gases, Vapors, Dusts and Mists	9	1926.1926.55		N/A	N/A	N/A
Ventilation	37	1926.57, 353		N/A	N/A	N/A
Hazard Communication	10	1926.59	1.B.06	Yes	Yes	Yes
Process Safety Management	14	1926.64 1910.119		N/A	N/A	N/A
Hazardous Waste Operations and Emergency Response	13	1926.65 1910.120	28.A	N/A	N/A	N/A
Accident Prevention Signs and Tags	16	1926.200	08.A	N/A	N/A	N/A
Signaling	16	1926.201	08.B	N/A	N/A	N/A

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Safety and Health Requirement	Parsons Safety, Health, and Environmental Manual	OSHA Regulation	EM 385-1-1 Regulation	Competent/ Qualified Person	Training Required	Written Plan and AHA Required
Barricades	16	1926.202		N/A	N/A	N/A
Material Storage	17	1926.250	14.B	N/A	N/A	N/A
Rigging	26	1926.251	15.A	N/A	N/A	N/A
Waste Disposal		1926.252	14.D	N/A	N/A	N/A
Tools	29	1926.300-307	13.A	N/A	N/A	Yes
Gas Welding and Cutting	28	1926.350	10.A	N/A	N/A	N/A
Arc Welding	28	1926.351	10.E	N/A	N/A	N/A
Electrical	24	1926.400-415	11.E	N/A	N/A	N/A
General Electrical	24	1926.416	11.A	N/A	N/A	N/A
Lockout Tagout	23	1926.417, 1910.147	12.A	N/A	N/A	N/A
Lockout Tagout Permit System	23	See above	12.A	N/A	N/A	N/A
Maintenance of Electrical Equipment		1926.431	11A	N/A	N/A	N/A
Environmental Deterioration of Electrical Equipment	24	1926.432		N/A	N/A	N/A
Batteries/Battery Charging Equipment	24	1926.441	11.E	N/A	N/A	N/A
Scaffolding	20	1926.450-454	22.A	N/A	N/A	N/A
Aerial Lifts	21	1926.453	22.J and K	Yes	Yes	Yes
Fall Protection	22	1926.500-503	21.A	Yes	Yes	Yes
Cranes, Derricks, Hoists, Elevators, and Conveyors	26	1926.550	16.A	N/A	N/A	N/A
Motor Vehicles, Mechanized Equipment	25	1926.600-603	18.A	N/A	N/A	N/A
Powered Industrial Trucks (forklifts)	25	1910.178		N/A	N/A	N/A
Site Clearing	32	1926.604	31.A	N/A	N/A	N/A
Marine Operations and Equipment		1926.606	16.F	N/A	N/A	N/A
Excavations	33	1926.650-652	25.A	N/A	N/A	N/A
Excavation Permit	33	N/A	N/A	N/A	N/A	N/A
Concrete and Masonry Construction	4	1926.700-706	27.A	N/A	N/A	N/A
Steel Erection	34	1926.750-761 and SENRAC		N/A	N/A	N/A
Underground Construction	30	1926.800	26.A	N/A	N/A	N/A
Caissons		1926.801	26.H	N/A	N/A	N/A
Cofferdams		1926.802		N/A	N/A	N/A
Compressed Air	30	1926.803	26.I	N/A	N/A	N/A
Demolition	32	1926.850-860 inclusive	23.A	N/A	N/A	N/A
Power Transmission and Distribution		1926.950-960 inclusive	11.H	N/A	N/A	N/A

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Safety and Health Requirement	Parsons Safety, Health, and Environmental Manual	OSHA Regulation	EM 385-1-1 Regulation	Competent/ Qualified Person	Training Required	Written Plan and AHA Required
Rollover Protective Structures; Overhead Protection	25	1926.1000-1003 inclusive		N/A	N/A	N/A
Stairways and Ladders Scope	18	1926.1050	21.A	N/A	N/A	N/A
Stairway/Ladder General Requirements	18	1926.1051		N/A	N/A	N/A
Stairways	18	1926.1052	21.E	N/A	N/A	N/A
Ladders	19	1926.1053	21.D	N/A	N/A	N/A
Ladder/Stair Training	19	1926.1060		N/A	N/A	N/A
Diving Scope		1926.1071-1072	30.A	N/A	N/A	N/A
Dive Team Quals		1926.1076	30.A.08	N/A	N/A	N/A
Dive Safe Practices Manual		1926.1080	30.A.16	N/A	N/A	N/A
Pre-dive Procedures		1926.1081		N/A	N/A	N/A
Procedures During Dive		1926.1082	30.A.15	N/A	N/A	N/A
Post=Dive Procedures		1926.1083	30.A.22	N/A	N/A	N/A
SCUBA Diving		1926.1084	30.B	N/A	N/A	N/A
Surface-Supplied Air Diving		1926.1085	30.A.04	N/A	N/A	N/A
Mixed-gas Diving		1926.1086	30.D	N/A	N/A	N/A
Liveboating		1926.1087	30.A.05	N/A	N/A	N/A
Diving Equipment		1926.1090	30.E	N/A	N/A	N/A
Diving Recordkeeping Requirements		1926.1092	30.A.06	N/A	N/A	N/A
Internal Traffic Control	16	N/A	8.D	N/A	N/A	N/A
Traffic Movement Restriction Times	16	N/A	8.C	N/A	N/A	N/A
Line Breaking	23	1910.119 and 1926.54		N/A	N/A	N/A
Major Material Movements	17	N/A	N/A	N/A	N/A	N/A
Right-of-way Restrictions	16	N/A	N/A	N/A	N/A	N/A
Bicycles/Golf Carts		N/A	18.D	N/A	N/A	N/A
IIPP/SSPP		Cal 3203	Cal 3203	N/A	N/A	N/A

ParShare link: Competent Person and Activity Hazards Analysis Requirements

Appendix C – Risk Management Plan

Parsons has created a risk management plan that utilizes a risk register to monitor the potential risks that may occur prior to the beginning of the project and during the lifecycle of the project. The risk register becomes the center point to log the identification of the risks, monitor the status, assign an owner to the risk, develop a risk mitigation plan, and monitor the risk throughout the project. The risk register consists of the following columns:

Column for the status of the risk identified by red, yellow, and green

- Red indicates critical to the project outcome.
- Yellow indicates that the risk is not an immediate threat to the project outcome but needs to be monitored.
- Green indicates the risk was mitigated and the threat is at a low level but still being monitored.

Risk ID number generated by the system.

Detailed description of the identified risk.

Project team member name of the assigned risk owner of the risk.

Potential impact (high, medium, or low) of the risk to the outcome of the project.

Response and mitigation plan for the identified risk.

General comments on the risks such as updates to the mitigation plan.

The risk register is a "living document" that is continuously reviewed and updated throughout the project lifecycle to ensure that risks are constantly identified and managed, to keep the project on track, and to ensure project success. The project manager is responsible for the risk mitigation plan and oversees the plan throughout the project.

As part of the risk identification process, a risk issue can be submitted by anyone - Parsons, Installer, and MDOT project team members. Simply email the RISK to the project manager, who will enter the risk into the RISK Register (Below).

MDOT Risk Register

STATUS	RISK ID NUMBER	IDENTIFIED RISK	OWNER	IMPACT®	RESPONSE -MITIGATION PLAN	COM
	1					
	2					
	3					
	4					
	5					
	6					
	7					

Once the risk is under control, it is continually tracked and monitored throughout the project and entered into the "Lessons Learned Log" to be part of the planning process for future projects.

Appendix D – Change Order Management Plan

From time to time, a need for work not originally specifically delineated in this RFP but considered within the scope of work as it relates to technology may occur. This additional work may stem from legislative mandates, emerging technologies, and/or other situations not known at the time the RFP was prepared. The Change Order Management Plan provides a process with which to address these occurrences.

Change Management Process

Parsons may submit Change Orders that fall under change management as described herein. The Change Order must be acknowledged and accepted in writing by MDOT before any additional work is undertaken. Each Change Order Request submitted by Parsons includes:

- Provide a clear description of what is included in each change request.
- Incorporate multiple levels of priority for change requests (e.g., critical, must-have, desired, etc.).
- Support the Change Management Process by estimating impacts, investigating solutions, identifying alternatives, participating in the decision-making process, and implementing the agreed-upon solution.

11. Parsons Change Management Request Log

The above change management plan requires a change request to be completed and move through a change board process for approval. In order to facilitate this process, Parsons has created a change management log of any change request that is originated for this project. The Change Management Process log will be maintained on a shared drive with access by MDOT and Parsons personnel.

A sample of the Change Order Request Log can be found below:

EXHIBIT D.1: MDOT CHANGE ORDER REQUEST FORM

Row ID	Change Request Description	Estimate of Level of Effort in Dollars	Change Request Approver	Approved Y/N

Appendix E – Quality Management Plan

Parsons uses a standard quality assurance and testing methodology in order to develop and deploy the Intelligent NETworks® (iNET) ATMS software and MDC-006 in-vehicle solution. There are several steps to implement quality assurance and testing that have been identified. These steps form the basis for a good quality control system which, when combined with solid test procedures, should prevent any significant deployment issues.

The Parsons Team has implemented a standard software development and testing approach. The development of software is managed by an Agile Assets tool called Jira that helps manage the various development Sprints or releases that a project or product undertakes. Sprints are assigned via Jira every two weeks and all development staff must check in their software using Jira. This tool helps to manage change, configuration, bug fixes, deployment, and maturity of the software.

Our approach has three primary objectives:

1. To ensure that all delivered software meets or exceeds the desired functional and operational specifications.
2. To ensure that all delivered software meets or exceeds the system reliability and system “up-time” metrics.
3. To ensure that all delivered software is developed in a structured, standardized manner such that it can be easily maintained and modified for future enhancements.

Execution of the Quality Management Plan

The execution of the MDOT Quality Plan includes a strict compliance of the policies of the Parsons "Quality Assurance Procedures (QMP) Manual." The QMP includes a detailed description of the QA/QC procedures to be followed for every task element at every submittal level. Quality Control is a continuous process to be implemented at every stage of development and at the completion of all tasks.

Prior to the start of the quality checking, clear assignments will be made for personnel responsible for each phase of the review process and for each discipline of the project implementation. A formal tracking document procedure will be utilized that will include standard deliverable product checklists specific to this project. Checklists will be developed by discipline for every element of the work and will be used to assess the technical correctness, level of completion, and any measures taken to correct or improve a task.

The key elements of the Quality Management Plan are described in the following paragraphs:

12. Approach to Quality

The project management team has established measurable goals and objectives for the project, including performing work in a technically competent and professional manner that is responsive to client comments and is considered to be a value-added product or service by the client, as measured by client evaluation scores that consistently reach “Exceeded Expectations” or “Met Expectations Consistently” levels; and meeting or exceeding agreed-upon project milestones, as measured by timely professional completion of all products against the mutually agreed-to schedule requirements. The PM monitors and measures performance relative to the established goals and objectives and takes the appropriate corrective measures to improve performance. Project personnel are encouraged to identify opportunities for improvement and make suggestions to management to improve performance.

13. Scope

The QMP applies to all personnel and activities for the program. Control of work activities affecting quality will be maintained as necessary throughout the project to ensure that quality objectives are met.

14. Quality Control Processes

Quality is the responsibility of all individuals performing work for this project. The QMP will implement all applicable Parsons quality policies, standards, and procedures. In addition, the QMP will work to ensure the implementation of the most current industry standards and procedures. The assigned PM has the authority to identify problems, initiate nonconformance reports, recommend solutions, and verify implementation of corrective action. The PM ensures that quality is achieved and fully supports the verification efforts by independent personnel, subcontractors, or contractors.

15. Procedures

The PM and the technical teams will further define project-specific procedures, as necessary, at the planning stages of each subtask based on the requirements outlined in the scope of work and in requirement discussions with the client. Within Jira, a 'Story' is created that is broken into Sprints. Sprints are created to be completed within two weeks. As Sprints are completed, the next Sprint occurs, which ultimately completes the Story.

16. Corrective and Preventive Actions

The QMP at Parsons hinges upon the feedback from audits, assessments, employees, interfacing organizations, and the client. The PM reports the analysis of the data gathered, as well as continuous improvement opportunities for the project, to management during project reviews. The resulting feedback from these reviews will help initiate corrective and preventive actions.

Corrective actions may be implemented as a result of a nonconformance to prevent recurrence. Customer complaints may be handled in the same manner, depending on severity. Corrective actions will be appropriate to the effects of the non-conformance or customer complaint encountered. Preventative actions may be implemented as a result of management recommendations following a program performance review or of continual improvement recommendations from the program and project teams. The Project Manager will verify their implementation and monitor their impact on program performance. The monitoring results and the effectiveness of preventative actions will be discussed during follow-up management reviews or team meetings. Success stories will be included as part of periodic project meetings to discuss lessons learned and successful corrective and preventive measures that improved the overall effectiveness of the program management.

17. Quality Assurance Records

Control of quality records ensures identification, collection, retrieval, and maintenance of those records. QA records include but are not limited to this QMP, procedures written specifically for this project, and other documents that provide traceable evidence to the required quality of items or activities. QA records must be legible, accurate, and appropriately complete for the work accomplished. All corrections should be initialed and dated. Records may be originals or reproduced copies. Superseded and canceled documents will be removed from active use but will be controlled as appropriate until final disposition. The project management team has established measurable goals and objectives for the project as described below:

- Performing work in a technically competent and professional manner that is responsive to client comments and is considered to be a value-added product or service by the client, as measured by client evaluation scores that consistently reach "Exceeded Expectations" or "Met Expectations Consistently" levels.
- Meeting or exceeding agreed-upon project milestones, as measured by timely professional completion of all products against the mutually agreed-to schedule requirements. The PM monitors and measures performance relative to the established goals and objectives and takes appropriate corrective measures to improve performance. Project personnel are encouraged to identify opportunities for improvement and make suggestions to management to improve performance.

Identifying quality standards to be followed during the program lifecycle planning and scheduling for reviews and testing (for all the planned iterations), problem reporting and corrective action, records collection, and maintenance.

Identifying tasks and assigning roles for quality management. This includes a review of design, program specifications, test data, test plans, test cases, documentation management, and metrics collection and analysis. This also includes conducting progress meetings, web and/or teleconferences, and other proactive activities to keep the client up to date on progress.

18. Audits

The Parsons Program Management Office (PMO) periodically audits the program plans to ensure they are relevant and that program-specific standards are in place and are being appropriately revised, if required. If this program/project is scheduled for an audit, the QA audit team will verify compliance with project procedural requirements and assess extent of compliance with project requirements. The audit's criteria, scope, frequency, and methods will be defined in the audit schedule and submitted to the Business Unit Operations Manager for approval. Scheduled audits will be performed by a qualified QA Auditor, designated by the Parsons Quality Director. The results of audits will be documented and reported to Sector and Project Management personnel. The PM shall develop corrective actions to eliminate detected deficiencies found during the audit, or surveillance, and will implement them to prevent recurrence. Recovery verification will be performed by the QA auditors to verify implementation of corrective actions taken.

Program reviews are conducted by the PMO periodically. The QMP and procedures used by the program staff form the basis for these reviews. Any deviations identified during these program reviews are documented in our program review log and tracked to closure. Parsons will work with the State or any independent quality assurance monitor appointed to monitor progress and management of the program.

19. Continuous Improvement

Project performance monitoring and client feedback shall be analyzed to identify improvement opportunities, process objectives, and deliverables or services conformance. Implemented improvement shall be monitored by the PM to verify their effectiveness through subsequent measurements and milestones.

20. Deliverable Document Review

Documents/submittals will undergo internal peer review before submission. This review will be conducted by a delegated reviewer to conduct peer review for selected resource areas. The reviewer should not be a major author of the document but should be involved in early planning and scoping for the task order.

Comments from the client will be incorporated into the next submittal of the document. The delegated reviewer will receive a copy of the comments and will verify that an adequate response was recorded. The reviewer will evaluate comments for their applicability to other documents that may be in the process of being prepared for a common client for use as lessons learned.

21. Resources and Training

The PM is responsible for providing the necessary infrastructure, materials, technical information, and resources to his staff in order to obtain the required results. The PM shall determine the necessary competence for personnel performing the work, provide necessary training and orientation in project and quality procedures, evaluate effectiveness of the training, and ensure that the staff is aware of the relevance and importance of their activities. The PM or designate will also ensure that each team member understands that they are responsible for the quality of their own output, as well as that of the team. Training documentation will be maintained as project records.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Parsons' philosophy to training stresses the importance of "Learning by Doing." Wherever possible, training will include hands-on experience with the systems. Lectures will be used minimally; participants will be encouraged to participate during this method of instruction as well. In addition to the concept of "Learning by Doing," we also emphasize a blended learning approach.

Based on the initial analysis, the training team develops training to the appropriate level of need for the different personnel groups. Training is presented in a modular format, making it easier for various personnel to receive training suited to their unique needs, rather than general training suited for all. Categories of training may include installation, maintenance, technical, administrator, operator, and user. Within each category of training, levels of training are provided and can include a "Train-the-Trainer" component.

A complete MDC-006 Rev 4 testing plan will be posted on the MDOT shared drive for access by designated MDOT personnel.

Appendix F – Parsons Project Plan Information

Not applicable for MDOT

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix G – Project Execution Plan

Monitoring the Project

In order to monitor the project and provide oversight and direction to the project in a timely manner, Parsons has implemented a customized version of Salesforce.com. Any feedback, issues, or comments are submitted via email and are attached to the MDOT account. The Parsons Project manager will filter these documents and, where appropriate, place them in the appropriate project file.

The Project Schedule can support the inclusion of attachments such as copies of meeting minutes or work instructions for the task.

The Project Schedule supports and keeps discussions between Parsons and MDOT on project tasks.

Periodic reports are generated and sent based upon the rules defined in the Communications plan.

Documents will be placed in a shared file for access by MDOT and Parsons personnel.

Project Monitoring Dashboard

Parsons will create a "MDOT and AVL Project Management Plan and Dashboard", on the shared drive that will provide all project team members (MDOT, Parsons, and Iteris) with real-time information on the project. The following files will be available on the shared file.

Reports that include:

- MDOT Project Schedule (all active tasks in process)
- Risk Register (updated weekly on status and mitigation plan progress)
- Outstanding Issues (current log of outstanding issues and the progress to resolve the issues)
- Stakeholder Register (includes all active team members and their contact information)

Progress Reports (Real Time)

- Progress Report on Truck Completed (devices installed and working in MDOT trucks)
- Progress Report Project Scheduled Tasks Completed (all tasks that have been completed in the project schedule)
- Progress Report on Training Completed (Locations and employees)
- Progress Report Tasks to Complete (MDOT Project Schedule)

Project Management Plan (Components that make up the PMP)

- Project Schedule
- Risk Management plan and Risk Register
- Issue Management and Resolution Plan
- Stakeholder Management Plan – Stakeholder Register
- Communications Plan
- Monitoring and Controlling Project Execution
- Change Request Plan and Process

Monitoring and Managing Project Issues – Execution of the Issue Management and Resolution Plan

The Issue Management process brings visibility to issues, accountability as to how they are acted upon, and provides updates on their timely resolution. This Parsons Issue Management Plan captures the issues and provides the following approach:

1. Outline the recommended approach for identifying issues and tracking the progress, documentation, and resolution of those issues.
2. Facilitate attention to key issues impacting the program.
3. Ensure all stakeholders are informed and, if applicable, participate in the resolution.
4. Create an audit trail of discussions and resolution of program issues.

Issues are logged by both the MDOT AVL Parsons Team and by MDOT staff, which must be completed on a timely basis. The Project Manager will enter the data to ensure that all data is correctly collected and no information is missing.

The Issues Management and Resolution process is based on a choosing a priority category that is identified as follows:

Urgent – "The project cannot move forward until this issue is resolved."
High – "The project cannot move forward if this issue is not resolved by the due date."
Medium – "The issue may prevent the project from moving forward in the near future."
Low – "This issue is not preventing the project from moving forward."

The management process also has the capability of setting "Process Categories" that are defined as follows:

Open – the initial status assigned when a new issue has been identified and added to the log; typically, this status is used when an owner has not been assigned or the work has not yet started.
In Process – an owner has been assigned and has started working on the issue.
Resolved – the owner has identified a solution to the issue and has taken corrective action to resolve.
Reopened – an issue was previously categorized Resolved, Deferred, or Closed but has been identified again as a continuing issue.
Deferred – the project manager, owner, and issue submitter have decided to postpone addressing the issue to a later time.
Closed – the project manager and issue submitter have validated and accepted the resolution and no longer consider the issue open.

Input and Escalation Rules have been established with a daily monitoring frequency for status updates. The process for using the issues log is as follows:

Project team members on either the Parsons or MDOT project team may enter issues in the Issues log.
The project manager monitors the issues log on a daily basis.
Once an issue has been identified, the project manager assigns one of the Parsons Project Team staff to resolve the issue.
The project manager shall follow the progress of the issue and designate appropriate status codes based on the progress of resolving the issue.
If the issue cannot be resolved within two weeks, the project manager moves the issue from the issues log to the risk register to assess the potential risk and formulates a risk mitigation strategy.

An example of the MDOT Issues Log can be found below:

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

MDOT Issues Log

CTDOT Issues#	Issue	Category L-M-H	Date Identified	Date Due	Comments	Identified By Assigned To	Status	Process Categories	Solutions	Completed by:	Completed	Date Completed
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix H – General Administration

The Project Management activities are overseen by Russ Brookshire, PMP. He is responsible for contract administration, progress reporting, quality assurance, schedule compliance, and budget control. He serves as the primary interface on the contract issues. Russ coordinates all activities to meet the requirements of the project scope of work. These activities include meetings, status reporting, and project management activities. Russ is assisted by Larry Simmons as an alternate Deputy Project Manager, who will be responsible for day-to-day customer interface and ongoing operations of the project.

Appendix I – Sustainability Plan

The Project Manager coordinates with the GSS facility manager for the Peachtree Corners, GA office to incorporate sustainable best practices and initiatives in the work environment. Each project team member participates in the facility's sustainability initiatives and provides suggestions for further improvement.

The following initiatives are considered by the project team for the Peachtree Corners, GA office location, field installation sites, and home offices to help meet the project sustainability goals:

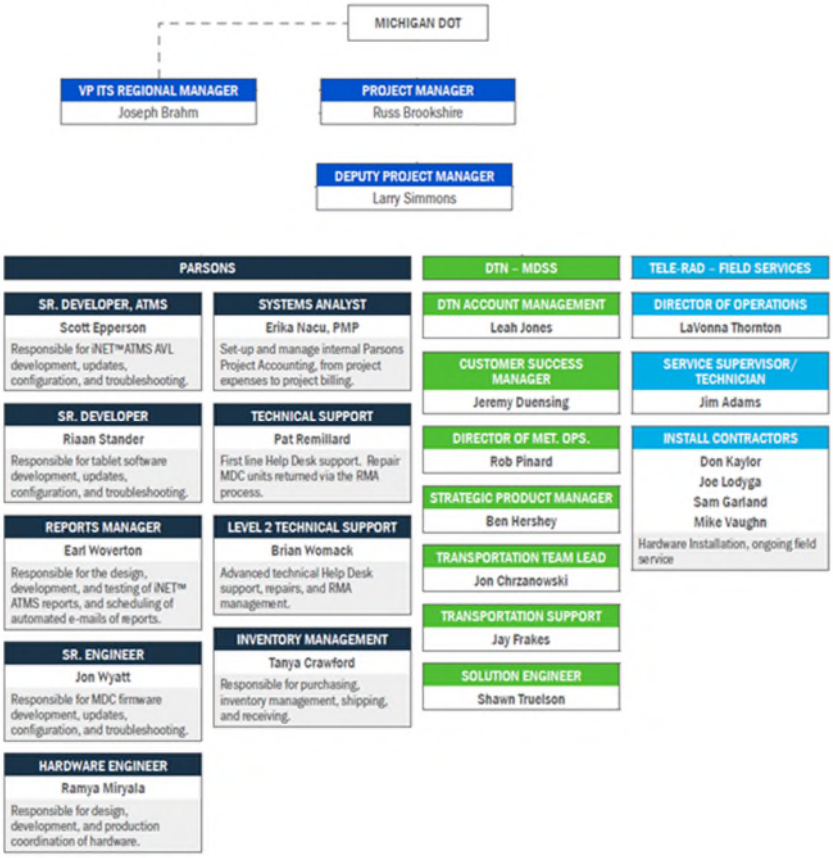
- Recycle project materials whenever possible.
- Use two-sided printing, whenever practical, to cut paper use.
- Plan phone conference calls instead of travel (when practical.)
- Scan documents to computer for storage rather than printing or photocopying.
- Schedule staff time to take advantage of opportunities to minimize commuting time and costs.
- Maximize paperless communications.
- Reduce energy consumption by switching off computers, monitors, printers, and personal lights in the evening.
- Encourage the participation in or formation of "green working groups" to continuously review initiatives in place and develop new sustainability ideas.
- Encourage the use as a best practice of email tag lines such as "Please consider the environment before printing this email."
- Reused and salvage structural elements and specify recycled content in newly manufactured elements.
- Consider carbon dioxide emissions from the processes associated with the extraction, manufacturing, transportation, and construction of structural elements in the built environment.
- Employ structural forms and elements that allow for energy-efficient construction, fabrication, and maintenance.
- Address water use efficiency, storm water control, and pollution facilities.
- Consider renewable energy systems such as photovoltaics, solar thermal systems, bio-fuel systems, passive solar and daylighting strategies, and ground source heat pumps.
- Incorporate technologies for communication and control that reduce the amount of material, such as conduits and wire, and labor during installation and Operations and other applicable technologies.

In addition, the Project Manager or designate will, periodically and near the end of the project period, conduct audits of project activities using the checklists (or facsimiles) found in Appendix E of the Parsons Sustainability Manual to evaluate the contract's progress in meeting its sustainability goals.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix J –Organization Chart & Staffing Plan, Roles/Levels of Authority

Organization Chart: The following is an organization chart for the MDOT IMO project:



MDOT IMO Draft Staffing Plan

THIS SECTION WILL BE ADDED TO THE FINAL MDOT PROJECT PLAN

Role	Team Member	Title	Responsibilities

Roles and Levels of Authority Matrix for Parsons

EXHIBIT J,1: RESPONSIBILITY ASSIGNMENT MATRIX (RAM)

Function	Sponsor	Project Manager	Team Lead	Hardware Lead	Software Lead	Engineer
Project Establishment	A	AR	AR	A	A	C
AVL Integration and Software Development	A	A	A	I	AR	C
System Setup	A	A	A	C	AR	C
Hosting	A	A	A	I	R	C
Training	A	A	A	AR	I	I
Device Installation	A	AR	A	AR	I	I
Device Testing	A	A	A	AR	C	C

Legend: A = Accountable; R = Responsible; C = Consult; I = Inform

Appendix K – Stakeholder Management Plan – Points of Contact (POC)

The Stakeholder Management Plan was created to identify all the MDOT stakeholders by roles and responsibilities as they relate to this project. A stakeholder register was created to understand their assigned roles and responsibilities and establish a plan to:

- Properly and continuously engage the stakeholders (team members) in project activities.
- Apprise the stakeholders of project progress and any impediments that may occur so they can assist in their resolution.

The implementation of the Stakeholder Register provides a management tool to communicate and engage both the client and the team in the overall project plan. The plan is in the form of a spreadsheet with real-time updates performed as required either directly in the sheet by an authorized editor or through an input screen.

The image below presents the input form for all the stakeholders associated with the MDOT IMO Project:

The Stakeholder Management Plan shown below:

FIGURE K.1: MDOT STAKEHOLDER MANAGEMENT PLAN

Name	Title	Role	City	Email	Office Phone	Cell Phone

Appendix L – Work Breakdown Structure (WBS), WBS Dictionary, Responsibility Accountability Matrix (RAM), and Job Numbers

WBS: A Work Breakdown Structure (WBS) is a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables. It organizes and defines the total scope of the project. Parsons has created a Work Breakdown Structure (WBS) that has the work broken down into smaller units to access the proper duration for the tasks and the dependences that must be connected to support the project.

The process deployed by Parsons used a bottom-up estimating methodology that uses actual historical project data and lessons learned from similar projects to identify work task durations, material lead times, and MDOT RFP requirements. The WBS includes a list of the deliverables and their contents (if appropriate). Detailed descriptions of each deliverable may be contained in the detailed Work Breakdown Structure and shown in the WBS Dictionary. The detailed list of deliverables ensures that all persons involved in the project understand what is expected and the dependences are properly identified. The WBS helps project participants to understand what they need to deliver to meet project goals. The MDOT PMP WBS was used as a framework to drive the creation of a realistic project schedule to complete the work on time and within budget.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Work Breakdown Structure

[Will be added during Project Initiation phase]

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

WBS Dictionary: The WBS Dictionary contains all the details of the Work Breakdown Structure that are necessary to successfully complete the project. Most importantly, it contains a definition of each Work Package which can be thought of as a mini scope statement. The following is a complete WBS Dictionary for the work to be performed in the MDOT IMO project.

xxx	xxx	xxx

RAM: The Responsibility Accountability Matrix is TBD

Job Charge Numbers: N/A for MDOT

Appendix M – Negotiated Budget and Assumptions

Fixed Price contract

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix N – Project Schedule

Parsons has created a project schedule for the MDOT project that is being used to manage the project schedule. The development of the project schedule included the process shown below:

- Identification of the major segments of the project so that the work activities are clearly defined.
- Name each work activity specifying deliverables, procurements, or milestones resulting from the work activity.
- Organizing the work sequentially so that it can be scheduled efficiently.
- Identifying the dependencies with other work activities in the Project Schedule.
- Identifying what work activities are assigned to which staff members, assigning them by staff member names in the project schedule.
- Determining what resources are required to complete the work.
- Clarifying the work to do so that it can be clearly communicated to team members.
- Identifying the activities that are critical to produce project objectives.
- Estimating how long it takes to complete those activities.
- Deciding which activities to monitor to ensure that they remain on target.

After the activities are sequenced and an estimate of the duration of each task is made, the Parsons team then determines the expected start and end dates for each activity and for the project. A critical path of activities will be determined and monitored closely to ensure that the project stays on schedule.

Visual representation of the schedule will be incorporated via a Gantt chart providing a quick view of the project status as well as past and upcoming milestones and the dates each was or is projected to be met.

The Project Schedule will be available on the MDOT Shared Drive.

SCHEDULE H: PARSONS DRAFT PROJECT MANAGEMENT PLAN

Appendix O – Document Control Plan

The document management process consists of a Parsons external website for storing documents related to the project. The website is maintained by the Parsons Project Management Team and will be updated on a weekly basis with the following types of information:

Scope of Work
- Parsons
- Installer

Project Deliverables

Meeting Minutes
- Kickoff meetings
- Project Management Reviews
- Weekly status call updates

Monthly Progress Reports

Technical Manuals
- MDC-006-Rev4 Installation instructions
- GPS/AVL Basic unit Installation Instructions
- Testing Procedures

Safety Plan

Training Plan

This information will be posted and available to MDOT Personnel on the MDOT shared drive.

Appendix P – Training Plan

The MDOT project requires the contractor to provide the following:

General Training Requirements
Annual AVL GUI and Touchscreen Training – Basic User Level
Annual AVL Advanced Training (Supervisors and Superintendents)
Annual MDSS Training (Supervisors and Superintendents)

The following is the training plan for each area identified above:

General Training Requirements

This is the initial training for all MDOT technical personnel and will be conducted in each of the seven MDOT regions. This will be conducted upon validation of hardware compliance and approval of the MDOT Project Manager. All training materials will be prepared in collaboration with MDOT providing MDOT with more than two weeks advance notice to edit and accept the training materials.

Parsons initial thoughts on the first-year training will address each of the following functional groups. Upon feedback from MDOT this material will be edited as necessary.

Drivers/Foreman/Supervisors – one hour – this session will cover:

Overview of the system
- Purpose
- Benefit to:
  - Driver
  - MDOT
  - Constituents
- Components of the system
  - Touchscreen
  - MDC
  - Camera, if applicable
  - Spreader interface
  - MDSS
- How it all works together

Driver responsibilities
- Enter Road and Weather Conditions
- Validate all components of the system are functioning
  - All icons on the top – information screen is functioning correctly
  - Camera image, if applicable is the current image
  - Confirm correct spreader settings are showing on the screen
  - How to report a malfunctioning item
- End of shift how to report any malfunctions in the system

Foreman/Supervisor Responsibilities
- Understand purpose for how system works and how to assist drivers with issues they may have

Based upon driver shifts, this training may need to occur twice – early AM and late day to catch all drivers

Supervisor/District Personnel – approximately four hours – this session will cover

Overview of the system

- Purpose
- Benefit to:
  - Driver
  - MDOT
  - Constituents
- Components of the system
  - Touchscreen
  - MDC
  - Camera, if applicable
  - Spreader interface
  - MDSS
- How it all works together

How to access the ATMS

- View vehicle information
  - Location/Inventory Information
  - Current Status of vehicle
  - Run Breadcrumb status vehicle(s)
  - How to move vehicles to different districts or garages
  - Mapping options
  - Geofencing

Utilizing Reports

- How to access reports
  - Type of reports
  - What report to use for what purpose
- How to use data from reports to manage the business
- How to use data to identify and recognize outstanding drivers

Expectations

- MDOT expectations from district supervisory personnel regarding managing the system

Mechanics/Technical Personal – approximately two hours – this session will cover:

Purpose of the system

Review the Parsons Technical Manual

- Highlight connections to
  - Spreader
  - Camera
  - ECM
  - Antennas
  - Plow Sensors
  - Other Components

Review Troubleshooting Guidelines

- Power
- Connections
- Communications

Contacting the Help Desk

- Opening a case

- Remote troubleshooting
- Closing a case

Questions and Answers

- Question will be incorporated into a FAQ document that will be updated periodically and distributed to MDOT personnel.

Participants are asked to sign in at the beginning of each class. This roster is provided to MDOT after each class. Additionally, a survey is distributed at the end of the class for participants to make recommendations on how to improve the training. Parsons uses this data to continually improve our training to ensure we meet the expectations of the participants.

Annual AVL GUI and Touchscreen Training (Basic User Level)

After the first year, upon MDOT request, Parsons will assign qualified individuals to travel to Michigan to conduct on-site training on AVL Touchscreen Interface. The training is to be in-person, hands-on training at each district office, as directed by MDOT. Training for MDOT personnel has been developed in a train-the-trainer format. Parsons will submit a syllabus two weeks prior to the scheduled training date per the contract requirements. Parsons will work with MDOT to determine the most effective manner in conducting these sessions and the specific dates and times for each session. Training sessions are expected to be approximately three hours in length.

Or, at the sole request of MDOT, Parsons will provide virtual training to designated MDOT personnel covering the items described above. Virtual sessions will be recorded and provided on a shared drive for access by MDOT personnel on an as needed basis.

Attendance will be collected during training via a sign-in sheet and will be provided to the MDOT project manager. Additionally, a questionnaire seeking participant feedback on the training will be distributed with the results being provided to MDOT.

Parsons will work with MDOT to develop a touchscreen training video. It is assumed that input of road and weather conditions will be required to obtain information to send to the MDSS provider. Parsons will need to work with MDOT to ensure the touchscreen training encompasses the entire end-to-end use of the touchscreen–data input to reviewing weather radar and treatment recommendations received from the MDSS provider.

A preliminary agenda for this training includes:

Introductions
Overview of the AVL/ System
Overview of the AVL Equipment installed in a vehicle
Touchscreen Basic Features
Touchscreen Advanced Features

Annual AVL Advanced Training (Supervisors and Superintendents)

As with the other training modules, Parsons will schedule a training session for Supervisors and Superintendents to learn how to use the ATMS reports to better manage the fleet. While Parsons can create the entire training module to meet the requirements of MDOT, we suggest working with MDOT to understand the expectations of supervisor and superintendents and what fleet information helps them reach a higher level of performance. We would also suggest a meeting with MDOT and the MDSS provider to determine which reports MDOT wants managers and directors to utilize. In certain situations, MDSS and Parsons provide similar reports. To minimize confusion from the field, Parsons suggests the three entities work together to define the training components. Parsons can then develop the complete training package. Once we understand the expectations and needs, we can select certain reports that help these individuals better manage their respective fleet. Parsons suggests the following components:

Introductions

System Overview

- Driver input options
- Supervisor/Operator tools

Discussion on AVL Interaction and impact to Weather Solutions

Overview of Reports and MDOT Expectations

As with the AVL GUI and Touchscreen training, upon authorization by MDOT, Parsons will provide in person training at designated MDOT facilities. Or, Parsons can provide virtual training, recording it for MDOT access.

Final agenda for MDOT approval will be provided within two weeks of commencement of training. A Participant survey will be distributed at the conclusion of training seeking feedback on methods to improve future training sessions. The results will be provided to MDOT.

Annual MDSS Advanced Training (Supervisors and Superintendents)

DTN proposes to provide Michigan DOT users with access to its WebMDSS Weather interface using the website (www.Michigan DOT.WebMDSSweather.com) and mobile app (iOS: https://apps.apple.com/us/app/mdss/id663910124#?platform=iphone , Google Play: https://play.google.com/store/apps/details?id=com.meridian.amdss&hl=en_CA&gl=US)

The following username and password may be used to demo and review the interface and mobile app: Username: MichiganDOTDEMO | Password: MichiganDOTDEMO

DTN's WebMDSS Weather will provide Michigan DOT with the same weather forecast they received from 2013 to 2020 with an easy to navigate map and menu system. An example of the main map view is shown below with pavement temperature turned on and each county has a pavement forecast site on the map. Users should also notice an improved base map that better highlights specific political geography locations such as Interstate highways, US highways, and county boundaries.

Appendix Q – Performance Evaluation

Not Applicable at this time.

Appendix R – Project Closure

The project closure addresses the requirements for closing out projects and task orders. The plan includes an action list for all closeout requirements, both internal and contractual; staffing and other direct cost requirements for the remaining scope; and a closeout schedule. The following items are considered as part of the closing plan:

Closeout Checklist

All work defined by the scope of work is complete.
Document disposition is complete.
Client property disposition is complete.
All purchase order and subcontract releases have been received and procurement files closed.
All other contract obligations have been settled.
Patent releases provided, if applicable.
Royalty releases provided, if applicable.
Release of Performance Bond
Release of claims received.
Final release prepared by contract administrator.
Final release issued to Client.
Final invoice submitted and paid.
Lessons Learned Log

The Lessons Learned Log will be available on the MDOT Shared Drive. This log is a collection of lessons learned throughout the project in order to promote the recurrence of desirable outcomes and preclude the recurrence of undesirable outcomes.

The following is an image of the Lessons Learned Log:

EXHIBIT R.1: LESSONS LEARNED LOG

DATE	EXPERIENCE OR ISSUE LOGGED	IMPACT ON PROJECT	LESSONS LEARNED	BEST PRACTICE TO FOLLOW FOR FUTURE PROJECTS

Appendix S – International Issues

This section is not required for the MDOT PMP.

Appendix T – Communications Plan

Parsons has created an effective communications plan by describing who should be communicated with, who should do the communicating, what should be communicated, why it should be communicated (purpose), when it should be communicated (frequency, timeframe), and how it should be communicated (language, format, method, technology). Parsons conducted an analysis of the communication requirement of the parties involved to identify the type of information to be delivered, the format of the information, and specifying the flow of information. Specific information to be considered include:

- Communication expectations
- Process for communication about project progress
- Status meetings and their attendance
- Stakeholder communication requirements
- Frequency of communication
- Process for escalation of issues that cannot be resolved
- Process for communicating about project changes
- Lessons learned process and documentation
- Glossary of project terminology

The project communication plan will be executed as indicated in the above plan. A document will be placed on the MDOT shared drive and will be updated as needed to support the MDOT Project.

Communication Requirements

EXHIBIT T.1: MDOT COMMUNICATIONS PROJECT PLAN

REQUIRED TIMEFRAME	COMMENT LOG	MDOT TEAM MEMBER(S) REQUIRED TO RECEIVE REPORT	REQUIRED METHOD OF SHARING REPORT	FREQUENCY	PARSONS TEAM MEMBER ASSIGNED TASK
Required Report	Progress Reports				
End of the Month	Work Completed		Email	Monthly	Larry Simmons
Weekly on Friday	Devices installed in Trucks		Email	Weekly	Larry Simmons
Weekly on Monday	Number of CTDOT Employees Trained		Email	Weekly	Larry Simmons
Required Report	Issue log Summary				
Weekly on Friday	List of currrent issues with status of all issues		Email	Weekly	Larry Simmons
Weekly on Friday	Risk Register Report		Email	Weekly	Larry Simmons
Required Report	Submitted Invoices				
End of the Month	New Invoice Submitted		Email	Monthly	Russ Brookshire

Appendix U – Organization Management Change Plan

In order to support an Organizational Change Management Plan, the project manager must keep documents updated and ensure that should a team member leave the project, others can step in and, by reviewing the documents, can quickly get up to speed on the project. Ideally, they can quickly assume the duties they are assigned, and the impact to the project is minimal.

Appendix V– Meeting Plan

The meeting plan should be Scalable to support meeting when necessary, yet not result in too many meetings. Parsons will work with MDOT to ensure that meetings are to the point, valuable to both parties and result in tangible results.

To accomplish this objective several rules are established by Parsons regarding meetings. These rules are:

Only invite those who can contribute, or benefit from the meeting
If possible, email invites will be sent at least 48 hours prior to ad-hoc meetings.
Meetings must have a prepared agenda with a timeframe
Meetings must start on time and end on time
- Open items can be taken off-line if necessary

Minutes from each meeting are kept and distributed to all according to the Communications Plan
- Actions from the meeting minutes will be noted with the person responsible

Meeting Types

Multiple types of meeting may be scheduled. It is expected that ad-hoc meetings will be coordinated among the MDOT and Parsons Project Managers. Below are suggested meeting types:

Meeting Type	Frequency	Method	Attendees
Project Kick-off Meeting	One time	In Person at MDOT – initial thoughts are two hours overview to all MDOT personnel, then rest of day (5 hours) of one on one with project team to lay out plans	Parsons Project Manager and Deputy Project Manager MDOT designated personnel
Project Status Calls	Weekly (Parsons recommends weekly initially, upon mutual agreement by the parties, these may change at certain times)	Teleconference – One Hour	Project Managers as well as other designated individuals
Annual Program Updates	Annual	In Person at MDOT designated location Length TBD	Parsons Project Manager and other Parsons designated individuals. MDOT Project Sponsors and other designated personnel
Ad Hoc	As needed	Teleconference – TBD	These meeting will occur as certain issues are identified that need agreement from the team. The MDOT and Parsons Project Managers should be responsible for scheduling these meetings as well as updating the project notes documents.