



STATE OF MICHIGAN PROCUREMENT

Michigan Department of Transportation

Van Wagoner Building – 425 West Ottawa Street, Lansing, MI 48933

P.O. Box 30050, Lansing, MI 48909

CONTRACT CHANGE NOTICE

Change Notice Number 1

to

Contract Number 230000001419

CONTRACTOR	DBT Transportation Services, LLC
	1500 CityWest Blvd., Ste 550
	Houston, TX 77042-2355
	Nick Haines
	614-861-1304
	Nick.Haines@adbsafegate.com
	CV0064703

STATE	Program Manager	Michael Soper	MDOT
		517-335-9237	
		SoperM1@michigan.gov	
	Contract Administrator	ReChelle I. Kendrick	MDOT
		517-335-5905	
		KendrickR1@michigan.gov	

CONTRACT SUMMARY				
DESCRIPTION: Michigan Automated Weather Observation System (AWOS) Network Upgrade throughout 41 local airports				
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DATE BEFORE CHANGE(S) NOTED BELOW	
August 21, 2023	August 20, 2028	N/A	August 20, 2028	
PAYMENT TERMS		DELIVERY TIMEFRAME		
1%/Net 15/Net 45				
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING	
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☒ No	
MINIMUM DELIVERY REQUIREMENTS				
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	
\$3,760,770.00		\$107,732.00	\$3,868,502.00	
DESCRIPTION: Upon execution, the contract value has been increased by \$107,732.00 to cover as needed parts for the automated weather observation system upgrade. The original contract was awarded based on low bid, with the original contract value determined by estimated need. All other terms, conditions, and specifications remain the same per Contractor and Agency agreement.				

FOR THE CONTRACTOR:

DBT Transportation Services, LLC
Company Name

E-SIGNED by Nick Haines
on 2025-01-28 10:32:13 EST

Authorized Agent Signature

Nick Haines, CEO
Authorized Agent

FOR THE STATE:

E-SIGNED by Michael Meddaugh
on 2025-01-28 12:32:38 EST

Authorized Agent Signature

For Director

Michigan Department of Transportation
Agency



STATE OF MICHIGAN PROCUREMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION

Van Wagoner Builder - 425 West Ottawa Street
P.O. Box 30050, Lansing, MI 48909

NOTICE OF CONTRACT

NOTICE OF CONTRACT NO. **230000001419**

between

THE STATE OF MICHIGAN

and

CONTRACTOR	DBT Transportation Services, LLC
	1500 CityWest Blvd., Ste 550
	Houston, TX 77042
	Nancy J. Thomsen
	720-534-8197
	NThomsen@dbttranserv.com
	CV0064703

STATE	Program Manager	Michael Soper	MDOT
		517-335-9237	
		SoperM1@michigan.gov	
	Contract Administrator	ReChelle I. Kendrick	MDOT
		517-335-5905	
		KendrickR1@michigan.gov	

CONTRACT SUMMARY			
DESCRIPTION: Michigan Automated Weather Observation System (AWOS) Network Upgrade			
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PAYMENT TERMS		DELIVERY TIMEFRAME	
1%/Net 15/Net 45			
ALTERNATE PAYMENT OPTIONS			EXTENDED PURCHASING
☐ P-card ☐ Payment Request (PRC) ☐ Other			☐ Yes ☒ No
MINIMUM DELIVERY REQUIREMENTS			
MISCELLANEOUS INFORMATION			
The Contract Agreement is awarded on the basis of the inquiry bearing the solicitation number 230000002566.			
ESTIMATED CONTRACT VALUE AT TIME OF EXECUTION			\$3,760,770.00

FOR THE CONTRACTOR:

DBT Transportation Services, LLC
Company Name

E-SIGNED by Nancy Thomsen
on 2023-08-22 09:40:36 EDT

Authorized Agent Signature

Nancy J. Thomsen, CEO/COO
Authorized Agent (Print or Type)

FOR THE STATE:

E-SIGNED by Carol Rademacher
on 2023-08-22 10:16:11 EDT

Signature

Carol Rademacher for Department Director
Name & Title

Michigan Department of Transportation
Agency



STANDARD CONTRACT TERMS

This STANDARD CONTRACT (“**Contract**”) is agreed to between the State of Michigan (the “**State**”) and DBT Transportation Services, LLC (“**Contractor**”), a Texas limited liability company. This Contract is effective on August 21, 2023 (“**Effective Date**”), and unless terminated, will expire on August 20, 2028 (the “**Term**”).

The parties agree as follows:

- 1. Duties of Contractor.** Contractor must perform the services and provide the deliverables (the “**Contract Activities**”) described in a Statement of Work, the initial Statement of Work is attached as Schedule A – Statement of Work. 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 unless otherwise specified in a Statement of Work.

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) 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; (i) comply with all State physical and IT security policies and standards which will be made available upon request; and (j) 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.

- 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:
ReChelle I. Kendrick MDOT- Contract Services Division 425 W. Ottawa Street Lansing, MI 48933 KendrickR1@michigan.gov 517-335-5905	Nancy J. Thomsen, CEO/COO 1500 CityWest Blvd., Ste 550 Houston, TX 77042 NThomsen@dbttranserv.com 720-534-8197

3. **Contract Administrator.** The Contract Administrator, or the individual duly authorized 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:
ReChelle I. Kendrick MDOT- Contract Services Division 425 W. Ottawa Street Lansing, MI 48933 KendrickR1@michigan.gov 517-335-5905	Nancy J. Thomsen, CEO/COO 1500 CityWest Blvd., Ste 550 Houston, TX 77042 NThomsen@dbttranserv.com 720-534-8197

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:
Michael Soper MDOT-Aeronautics 2700 Port Lansing Road Lansing, MI 48906 SoperM1@michigan.gov 517-335-9237	Candace Spillers-Wood 1500 CityWest Blvd., Ste 550 Houston, TX 77042 cspillerswood@DBTTranServ.com 303-648-1263

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 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. With respect to Privacy and Security Liability, Contractor may, at the discretion of the DHHS Contract Administrator, defer coverage up to no more than 30 days prior to beginning any work or deliverables under this Contract. All required insurance must: (a) protect the State from claims that may arise out of, are alleged to arise out of, or otherwise result from Contractor's or a subcontractor's performance; (b) be primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State; and (c) be provided by a company with an A.M. Best rating of "A-" or better, and a financial size of VII or better.

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 20 10 12 19 and CG 20 37 12 19.
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.
If a motor vehicle is used in relation to the Contractor's performance, the Contractor must have vehicle liability insurance on the motor vehicle for bodily injury and property damage as required by law.	
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	

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 insurance 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. Relationship of the Parties. The relationship between the parties is that of independent contractors. 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. Neither party has authority to contract for nor bind the other party in any manner whatsoever.

10. Intellectual Property Rights. If a Statement of Work requires Contractor to create any intellectual property, 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.

11. 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.

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

13. 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 a Statement of Work, 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.

14. 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.

15. Change of Control. Contractor will notify the State, within 30 days of any public announcement or otherwise once legally permitted to do so, 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.

16. Ordering. Contractor is not authorized to begin performance until receipt of authorization as identified in a Statement of Work.

17. 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 a Statement of Work. 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 24, 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.

18. Reserved.

19. Reserved.

20. Reserved.

21. Invoices and 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 provided as specified in a Statement of Work. 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. Notwithstanding the foregoing, all fees 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.

Excluding federal government charges and terms, Contractor warrants and agrees that each of the fees, economic or product terms or warranties granted pursuant to this Contract are comparable to or better than the equivalent fees, economic or product term or warranty being offered to any commercial or government customer (including any public educational institution within the State of Michigan) of Contractor. If Contractor enters into any arrangements with another customer of Contractor to provide the products or services, available under this Contract, under more favorable prices, as the prices may be indicated on Contractor's current U.S. and International price list or comparable document, then this Contract will be deemed amended as of the date of such other arrangements to incorporate those more favorable prices, and Contractor will immediately notify the State of such fee and formally memorialize the new pricing in a change notice.

- 22. Liquidated Damages.** Liquidated damages, if applicable, will be assessed as described in a Statement of Work. The parties understand and agree that any liquidated damages (which includes but is not limited to applicable credits) set forth in this Contract are reasonable estimates of the State's damages in accordance with applicable law. The parties acknowledge and agree that Contractor could incur liquidated damages for more than 1 event. The assessment of liquidated damages will not constitute a waiver or release of any other remedy the State may have under this Contract for Contractor's breach of this Contract, including without limitation, the State's right to terminate this Contract for cause under Section 24 and the State will be entitled in its discretion to recover actual damages caused by Contractor's failure to perform its obligations under this Contract. However, the State will reduce such actual damages by the amounts of liquidated damages received for the same events causing the actual damages. Amounts due the State as liquidated damages may be set off against any fees payable to Contractor under this Contract, or the State may bill Contractor as a separate item and Contractor will promptly make payments on such bills.
- 23. 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.
- 24. Termination for Cause.** (a) The State may terminate this Contract for cause, in whole or in part, if Contractor, as determined by the State: (i) endangers the value, integrity, or security of any facility, data, or personnel; (ii) becomes insolvent, petitions for bankruptcy court proceedings, or has an involuntary bankruptcy proceeding filed against it by any creditor; (iii) engages in any conduct that may expose the State to liability; (iv) breaches any of its material duties or obligations

under this Contract; or (v) fails to cure a breach within the time stated by the State in a notice of breach, if in its sole discretion the State has chosen to provide a time to cure. Any reference to specific breaches being material breaches within this Contract will not be construed to mean that other breaches are not material.

(b) If the State terminates this Contract under this Section, the State will issue a termination notice specifying whether Contractor must: (i) cease performance immediately. Contractor must submit all invoices for Contract Activities accepted by the State within 30 days of the date of termination. Failure to submit an invoice within that timeframe will constitute a waiver by Contractor for any amounts due to Contractor for Contract Activities accepted by the State under this Contract or (ii) 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 25, 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. Contractor must promptly reimburse to the State any fees prepaid by the State prorated to the date of such termination, including any prepaid fees. 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.

25. Termination for Convenience. The State may immediately terminate this Contract in whole or in part without penalty and for any reason or no 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. Contractor must submit all invoices for Contract Activities accepted by the State within 30 days of the date of termination. Failure to submit an invoice within that timeframe will constitute a waiver by Contractor for any amounts due Contractor for Contract Activities accepted by the State under this Contract, or (b) continue to perform the Contract Activities in accordance with Section 26, 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 to the extent the funds are available.

26. 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) transferring title in and delivering to the State, at the State's discretion, all completed or partially completed deliverables prepared under this Contract as of the Contract termination date; and (d) 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.

27. Return of State Property. Upon termination or expiration of this Contract for any reason, Contractor must take 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 the Contractor by any entity, agent, vendor, or employee of the State.

28. 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, at its own cost and expense, if the State deems necessary. Contractor will not, without the State's prior written consent (not to be unreasonably withheld), settle, compromise, or consent to the entry of any judgment in or otherwise seek to terminate any claim, action, or proceeding.

Any litigation activity on behalf of the State, or any of its subdivisions under this Section, 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.

The State is constitutionally prohibited from indemnifying Contractor or any third parties.

- 29. 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.
- 30. 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.
- 31. 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 (3) any complaint filed in a legal or administrative proceeding alleging the Contractor or its subcontractors discriminated against its employees, subcontractors, vendors, or suppliers during the term of this Contract; or (e) a Proceeding involving any license that Contractor is required to possess in order to perform under this Contract.
- 32. State Data.** All data and information provided to Contractor by or on behalf of the State, and all data and information derived therefrom, is the exclusive property of the State ("**State Data**"); this definition is to be construed as broadly as possible. Upon request, Contractor must provide to the State, or a third party designated by the State, all State Data within 10 calendar days of the request and in the format requested by the State. Contractor will assume all costs incurred in compiling and supplying State Data. No State Data may be used for any marketing or commercial purposes.
- 33. Reserved.**

34. 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.

- 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; or, (c) should reasonably be recognized as confidential information of the disclosing party. The term “Confidential Information” does not include any information or documentation that was or is: (a) 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.

35. Reserved.

36. Reserved.

37. Reserved.

38. Records Maintenance, Inspection, Examination, and Audit. Pursuant to MCL 18.1470, 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 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 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.

- 39. Representations and Warranties.** 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 Section is considered a material breach of this Contract, which entitles the State to terminate this Contract under Section 24, Termination for Cause.
- 40. 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.
- 41. Compliance with Laws.** Contractor must comply with all federal, state and local laws, rules and regulations.
- 42. Reserved.**
- 43. Reserved.**

- 44. 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.
- 45. 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.
- 46. Governing Law.** This Contract is governed, construed, and enforced in accordance with Michigan law, excluding choice-of-law principles, and all claims relating to or arising out of this Contract are governed by Michigan law, excluding choice-of-law principles. Any dispute arising from this Contract must be resolved in the Michigan Court of Claims. Complaints against the State must be initiated in Ingham County, Michigan. Contractor waives any objections, such as lack of personal jurisdiction or *forum non conveniens*. Contractor must appoint an agent in Michigan to receive service of process.
- 47. Non-Exclusivity.** Nothing contained in this Contract is intended nor is to be construed as creating any requirements contract with Contractor, nor does it provide Contractor with a right of first refusal for any future work. This Contract does not restrict the State or its agencies from acquiring similar, equal, or like Contract Activities from other sources.
- 48. 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.
- 49. 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.

50. 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 the prior written approval of the State, and then only in accordance with the explicit written instructions of the State.

51. 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:

Document Title	Document Description
Schedule A	Statement of Work
Schedule B	Pricing
Attachment 1 - Excel	On-Site Equipment Inventory
Attachment 2 – AWOS Task Force	Notes

52. Entire Agreement and Order of Precedence. This Contract, which includes Statement of Work, and schedules and exhibits, 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 Statement of Work; (b) second, 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, OR DOCUMENTATION HEREUNDER, EVEN IF ATTACHED TO THE STATE'S DELIVERY OR PURCHASE ORDER, WILL CONSTITUTE A PART OR AMENDMENT OF THIS CONTRACT OR IS BINDING ON THE STATE OR ANY AUTHORIZED USER FOR ANY PURPOSE. ALL SUCH OTHER TERMS AND CONDITIONS HAVE NO FORCE AND EFFECT AND ARE DEEMED REJECTED BY THE STATE AND THE AUTHORIZED USER, EVEN IF ACCESS TO OR USE OF THE CONTRACT ACTIVITIES REQUIRES AFFIRMATIVE ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

53. 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.

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

- 55. Survival.** Any right, obligation or condition that, by its express terms or nature and context is intended to survive, will survive the termination or expiration of this Contract; such rights, obligations, or conditions include, but are not limited to, those related to transition responsibilities; indemnification; disclaimer of damages and limitations of liability; State Data; non-disclosure of Confidential Information; representations and warranties; insurance and bankruptcy.
- 56. 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 No. 230000001419
Michigan AWOS Network Upgrade**

BACKGROUND

The State of Michigan and 41 local airport sponsors co-operate Vaisala Model AW-10 AWOS units across the state. We recognize that these units have or are reaching the end of their useful lives. Parts and support are beginning to dwindle for these units. The State of Michigan intends to procure replacement units with updated technology for a five (5) year upgrade project to update every unit to currently supported technology. Many sites will be also working to provide updated siting criteria vegetation clearing and/or potential site relocation tasks concurrently. Michigan intends for these upgrades to occur quickly to minimize AWOS system outages across the state. The State of Michigan recognizes the impacts of AWOS system outages and is assisting the locals in upgrading these sites.

SCOPE

Contractor shall provide manufacturer specific AWOS upgrade package parts to the State of Michigan in an expeditious manner to minimize outages and support the State's efforts for technology updates. When at all possible, currently utilized sensors that are of current technological design are to remain in operation so long as those sensors are compatible with the upgrading manufacturer. The State of Michigan will order all necessary parts for a site-specific upgrade upon approval of the state's request of Proposed Construction or Alteration (FAA Form 7460-1). The State will coordinate delivery of all components, perform/coordinate the upgrade of each site, and coordinate re-commissioning with the FAA for each site on the sponsors behalf. The intention of this project is to simply upgrade each site with new technology, not add additional capability. Training must be included for the new system (components, sensors, communications protocols, install and maintenance best practices, etc.) for State of Michigan AWOS Technicians to install and maintain the new AWOS sites. Delivery method may be via remote/online training, Computer Based Training (CBT), and/or in-person locally (within the State of Michigan) or remote location. Type and location must be specified in the response.

REQUIREMENTS

1. General Requirements

1.1. Product Specifications

New Federal Aviation Administration (FAA) certified AWOS IIIPT systems capable of generating an automated FAA Meteorological Terminal Aviation Routine Weather report (METAR) syntax output every 5 minutes (or more often). The systems need to conform to the standards required by the FAA for AWOS IIIPT including but not limited to required sensors, sensor resolution, environmental performance, system output connections, etc. This system needs to conform to both "Stand-alone" and "Split" style systems or be adaptable between the two styles. Each system would need to have the

most up to date sensors to measure the following AWOS IIPT required elements: Wind Speed, Wind Direction, Temperature, Dewpoint, Altimeter Setting, Visibility, Precipitation Identification and Intensity, Cloud Height, Precipitation Accumulation, Thunderstorm Location and Intensity. All AWOS system components are to be newly manufactured and not previously used.

The Contractor must provide the following for each site as required:

1. DESCRIPTION

1.1 This item shall consist of furnishing and installing an FAA-approved Automated Weather Observing System (AWOS) in accordance with this specification and FAA [Advisory Circular \(AC\) 150/5220-16](#) (latest revision), Automated Weather Observing Systems (AWOS) for Non-federal Applications. This item shall include the furnishing of all equipment, materials, and incidentals identified in this specification necessary to place the system in operation to the satisfaction of the State of Michigan and ready for commissioning by the Federal Aviation Administration.

2. EQUIPMENT AND MATERIALS

2.1 GENERAL

A. The AWOS and other equipment and material covered by FAA specifications shall have the approval of the Federal Aviation Administration, Washington, D.C., 20591, as listed in [Advisory Circular \(AC\) 150/5345-53](#) (latest edition), prior to installation.

B. All other equipment and materials covered by other referenced specification shall be subject to acceptance through the manufacturer's certification of compliance with the applicable specification.

2.2 AWOS SYSTEM

The Automated Weather Observing System (AWOS) shall be an FAA (type certified) system in accordance with [Advisory Circular \(AC\) 150/5220-16](#) (latest edition) and Order No. 6560.20 (latest edition) prior to installation.

2.3 GENERAL PERFORMANCE STANDARDS

A. Input Power. AWOS equipment shall operate from a 120V AC ($\pm 5\%$), 60 Hz (± 5 Hz), 3-wire single-phase service. The Data Collection Platform (DCP) enclosure shall be mounted to the AWOS tower in accordance with the manufacturer's specifications. The maximum service required shall be 20 amps.

B. Loss of power. The AWOS should return to normal operation without human intervention after a power outage. When power is restored, the AWOS should not output erroneous data. The system shall have the capability of operating from an Uninterruptible Power Supply (UPS) should one be required.

2.4 OPERATING ENVIRONMENT

All AWOS equipment shall meet the requirements for operating in a Class 1 environment, as defined in FAA Advisory Circular 150/5220-16 latest edition.

2.5 AWOS SYSTEM AND SENSOR SPECIFICATIONS

The AWOS provided for this project shall meet the specifications and performance guidelines defined in [AC 150/5220-16](#) (latest edition).

2.5.1 WIND SPEED SENSOR

The wind sensor shall be of ultrasonic sensing technology.

The wind speed sensor shall be an ultrasonic type with an output frequency which is proportional to wind speed. Periodic calibration shall not be required.

Speed:

- a. Range. 0 knots to maximum of 126 knots.
- b. Accuracy. 0.2 knots or 2% of reading, whichever is greater.
- c. Resolution. 1 knot.
- d. Threshold. 2 knots.

2.5.2 WIND DIRECTION SENSOR

This sensor should be aligned to true north and should withstand a wind speed of 85 knots without damage. The Wind sensor shall not require periodic calibration.

- a. Range. 1 degree to 360 degrees in azimuth.
- b. Threshold. 2 knots.
- c. Accuracy. Within 5 degrees Root Mean Square Error (RMSE).
- d. Resolution. Nearest 10 degrees.
- e. Time Constant. Less than 2 seconds

2.5.3 AMBIENT TEMPERATURE SENSOR

The sensor should be thermally isolated to accurately measure the environments below and contain a motorized aspirated shield.

- a. Range. From -35 degrees to +55 degrees C (-30 degrees to +130 degrees F).
- b. Accuracy. One (1) degree F for the entire range of the sensor, with a maximum
- c. error of 2 degrees F.
- d. Resolution. Not greater than 1 degree F
- e. Time Constant. Not greater than 2 minutes

2.5.4 DEWPOINT

A. Dewpoint shall be derived utilizing temperature and relative humidity observations.

B. Resolution. Not greater than 1 degree F.

C. Time Constant. Less than 2 minutes.

D. Accuracy. The accuracy should be as follows (all errors are RMSE):

1. 2 degrees F dewpoint for dry bulb temperatures of +30 degrees to +90 degrees F (80% to 100% relative humidity), with a maximum error of 3 degrees F at any dry bulb temperature.
2. 3 degrees F dewpoint for dry bulb temperatures of +30 degrees to +120 degrees F (15% to 75% relative humidity), with a maximum error of 4 degrees F at any dry bulb temperature.
3. 4 degrees F dewpoint for dry bulb temperatures of -20 degrees to +20 degrees F (25% to 95% relative humidity), with a maximum error of 5 degrees F at any dry bulb temperature. The minimum dewpoint required is -30 degrees F.

2.5.5 PRESSURE SENSOR

A. Design. Two (2) pressure transducer sensors should be provided for the AWOS system. The sensors shall not require heaters. Pressure sensors shall have provision for venting to the outside of the building where required. Each sensor shall

have an independent venting interface.

B. Pressure Range. The sensor should be capable of measuring a pressure range at any fixed location of +1.5 to -3.0 inHg from the standard atmospheric pressure at that location. High pressure should be standard atmospheric pressure at -100 feet plus 1.5 inHg (=31.565 inHg). Low pressure should be standard atmospheric pressure at +10,000 feet minus 3.0 inHg (=17.58 inHg).

C. Accuracy. The accuracy should be 0.01 inHg RMSE at all altitudes from -100 to +10,000 feet mean sea level (MSL), maximum error 0.02 inHg at any one pressure.

D. Resolution. The resolution should not be greater than 0.005 inHg.

E. Differential Accuracy. The sensor should exhibit a differential accuracy of 0.01 inHg or less between a series of two pressure measurements taken from the same sensor 3 hours apart. Ambient temperature over this 3-hour period should not change more than 5 degrees F; ambient pressure should not vary more than 0.1 inHg (RMSE) over the 3-hour period.

F. Maximum Drift with Time. Each sensor should be stable and continuously accurate within 0.01 inHg RMSE for a period of not less than 6 months. The maximum error shall be 0.02 inHg.

2.5.6 VISIBILITY SENSOR – Forward Scatter

A. Range. The visibility sensor should be capable of determining visibilities from less than 1/4 mile to 10 miles. A method of calibration traceable to the FAA approved transmissometer shall be provided.

B. Resolution. In terms of equivalent visibility, the sensor should provide data to report visibility values as follows: less than 1/4, 1/4, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 3-1/2, 4, 5, 7, and 10 miles.

C. Time Constant. The time constant should not exceed 3 minutes.

D. Accuracy. The sensor should agree with the transmissometer standards as follows:

Table 1. Visibility sensor accuracy requirements (all values in statute miles).

Reference Transmissometer Reading	Acceptable Sensor Variance
1/4 through 1.25	: + or - 1/4
1.5 through 1.75	: +1/4, -1/2
2 through 2.5	: + or - 1/2
3 through 3.5	: +1/2, -1
4 and greater than 4	: + or -1

E. Ambient Light Sensor. The visibility sensor should contain an ambient light sensor to measure the ambient luminance within its field of view and to generate a signal to the visibility sensor to indicate whether the ambient light level is day or night. It shall indicate day for increasing illumination between 0.5 and 3 foot-candles (FC) and night for decreasing illumination between 3 and 0.5 FC. This sensor may be exposed to ambient light levels as high as 50 FC.

F. The AWOS system shall measure and store calibration constants on operator command when the visibility calibration is installed.

2.5.7 CLOUD HEIGHT SENSOR

A. Range. The cloud height sensor shall measure cloud heights and the heights of obscuring phenomena aloft to a minimum of 25,000 feet. The sensor should provide an output of three cloud layers representative of the sky conditions when surface visibilities are equal to or greater than 1/4 mile.

B. Accuracy. Under laboratory conditions, the sensor should provide an accuracy of 100 feet or 5 percent, whichever is greater.

C. Resolution. Not greater than: 50 feet surface to 5,500 feet; 250 feet from 5,501 to 10,000 feet; 500 feet above 10,000 feet.

D. Sampling. The sensor should provide an output at least once every 30 seconds. The sampling rate may be reduced to at least one sample every 3 minutes when no hits are detected for the preceding 15 minutes.

E. Detection Performance. Meet or exceed the requirement of AC 150/5220-16 (latest edition).

F. Eye Safety. The cloud height sensor should be designed to conform to ANSI-Z 136.1, Accessible Emission Limits for Laser Radiation, with Class 3b maximum accessible emission level applied to direct viewing without optical instruments (excluding ordinary eyeglasses). Interlock device(s) in the laser power circuit board should be provided to disable the laser when any doors are open or the cover is removed to prevent inadvertent exposure of the laser emission to the eyes of the technician or others.

G. Optics Contamination. An air blower or other device should be used to reduce the contamination of the sensor optics. A signal should be generated to indicate the amount of optics contamination, thereby indicating the need for optics cleaning.

1. Snow. The ceilometer window should demonstrate an ability to remain clear of snow under the condition of snow accumulating at a rate of 2 inches per hour for 1 hour at a temperature of 20 degrees F.
2. Ice. The ceilometer window should remain clear of ice for 60 minutes under conditions of freezing rain with a maximum accretion rate of 1/2 inch per hour radial thickness of clear ice.

2.5.8 PRECIPITATION ACCUMULATION SENSOR

The sensor should be capable of measuring the precipitation amount with a range of 0.01 to 5 inches per hour. Precipitation amount is the liquid equivalent of all precipitation forms, i.e., liquid, freezing, frozen, or combinations thereof. Sensor shall have an optional heated version.

A. Resolution. The resolution shall be 0.01 inches.

B. Accuracy. The accuracy shall be 0.002 inches per hour (RMSE) or 4 percent of actual, whichever is greater.

2.5.9 PRECIPITATION TYPE AND INTENSITY SENSOR

A. The Precipitation Type and Intensity Sensor shall be a combined sensor with the visibility sensor and provide an indication of the type of precipitation occurring and shall report the intensity of the precipitation.

B. This sensor shall have the capability of identifying drizzle, fog, mist, haze, rain, and snow. In the event of combinations of liquid and frozen precipitation, the sensor shall report RZRA, FZDZ, FZFG or "(unknown) precipitation".

C. During occurrences of precipitation, this sensor shall have the capability of reporting a precipitation intensity value. The sensor shall report intensity values as light, moderate, and intense.

2.5.10 THUNDERSTORM SENSOR

This sensor will detect the presence of a thunderstorm in the vicinity of an airport, locate the thunderstorm and provide this data in such a form that the information can be incorporated into the AWOS voice and data weather message. The Data will also be displayed on the operator terminal.

The sensor will meet the following Performance Standards:

- a. Range and direction. Thunderstorms within 30 nautical miles (nm) of the reference point on the airport should be reported. Direction is expressed in compass octants for distances from 10 to 30Nm.
- b. Resolution. The thunderstorm location should be defined within one nm of the location of the actual location of the thunderstorm/lightning.
- c. Accuracy. The standard detects strikes within 30 nm of the reference point.

The thunderstorm/lightning data shall be capable of being graphically displayed at the operator terminal. The graphic display shall be broken down in 0-5 nm, 5-10 nm, and 10-30 nm sectors. Each sector or octant shall be color coded to indicate the presence of thunderstorm/lightning activity. The PC and color video monitor used to support the graphic display shall be made available by the contractor.

2.5.11 AWOS DATA PROCESSOR

The AWOS data processor shall be x86 based, 64-bit, 1.6GHz (or greater), 4 core processor, with 4GB RAM and a 64 GB or greater storage disk and perform the following functions: data acceptance; data reduction; data processing and product dissemination (digital and voice).

A. The processor shall be capable of attaining AWOS IV configuration by adding the requisite sensors and software only. No major upgrade of the data processor will be required.

B. The processor shall provide a computer-generated voice weather observation to a ground-to-air radio for transmission to aircraft.

C. Number of Sensors. The processor shall be able to receive inputs from up to an unlimited number of sensors.

D. The processor shall contain an operating system working in an open system architecture capable of remote software upgrades.

E. Data Reduction. The data reduction function shall preprocess information prior to meteorological algorithm processing. The AWOS data reduction software shall include quality control checks to ensure that the data received is accurate and complete and that the associated equipment is working properly before the weather algorithms are performed. If data from any sensor is erroneous or missing (e.g. sensor power loss, etc.), the parameter and all other parameters derived from the missing parameter shall be reported "missing" in the weather observation. The processor shall continue to sample data, and if the error condition is corrected, the weather parameter shall be reinserted in the AWOS report.

1. The processor shall periodically check reference of calibration points which correspond to the normal operating limits of the sensor.
2. The processor shall set upper and lower limits on the sensor output which correspond to the normal operating limits of the sensor.

F. Weather Algorithms. The system processor shall implement algorithms provided by the FAA to generate the elements of the weather observation. An observation shall be generated each minute.

G. System Output. The system shall generate the outputs: computer generated voice transmitted to pilots; telephone port for dial-up service and software updates; output port for a video display; input/output ports for up to 8 remote display terminals, and an output to the national weather network. The system shall interface with VoIP networking infrastructure to provide voice outputs.

H. Real-Time Clock. The system shall report date and time. This information will be used in system displays, computer-generated voice output, etc. The day shall be expressed in Gregorian Calendar. Hours and minutes shall be indicated numerically from 0000 to 2359. The clock function shall be accurate within 15 seconds a month. The clock shall be backed with a battery which will operate the clock for a minimum of 30 days. The system shall be delivered with the clock set to UTC (Universal Time Constant). The clock shall be synchronized by either GPS time or a Network Based Time Protocol.

I. Power Outage. The system shall return to normal operation without human intervention after a power outage. The system shall not output erroneous data when power is restored.

J. Data Archiving. The processor shall retain 1-year worth of weather reports and system maintenance activity and have download capability to a USB drive, for use by accident investigators. The interval between archived reports shall be 5 minutes or less.

A method shall be provided for the retrieval of archive reports, and the operator shall be able to suspend the updates or archived weather reports to freeze the data until retrieval may be accomplished. In the event of power loss, the archive data shall be retained indefinitely within the processor hard disk.

K. System Constants. The following system constants shall be stored in data files on the hard disk drive.

1. Elevation of the pressure sensors at the installation site Mean Seal Level (MSL).
2. Magnetic variation of the installation site, to the nearest degree.
3. AWOS facility identification.
4. Constants required to convert pressure to altimeter setting.
5. System configuration parameters (sensors, peripherals, interface, port assignments, etc.).

2.5.12 OPERATOR TERMINAL (OT)

A. Product Editing. The Operator Terminal shall have the capability to do product editing. This function allows an authorized observer to initiate or change any observation product. A specific "editing" password shall control access to this function. Manual entries of weather phenomena not automatically observed shall be placed in the remarks section of the observation and will not be included in the voice

message. In the case of sensor failure or an incorrect AWOS output, an operator shall have the capability to replace the incorrect parameter value with a missing symbol. The Operator Terminal shall consist of a video display monitor with keyboard. All necessary interface equipment, video display monitor, detachable keyboard and audio output equipment shall be supplied.

B. Security. The system shall require the operator to enter a security code in response to system queries prior to allowing him to proceed with the entry of data.

C. Telephone Hook-up. The telephone hook-up shall provide an audio output on an assigned dial-up telephone number. The telephone line shall be provided by customer. The phone line shall be terminated at the outdoor data processor location at the AWOS tower site.

D. Voice over IP. The audio output of the system shall be made available via a VoIP interface. This VoIP interface shall play the AWOS generated audio message and with a security code, allow a user to leave a remark for the system. This remark will be played over the ground-to-air radio system and on all system audio output channels.

D. Periodic Data Validation. Where an operator terminal is used to modify the report, all manually entered data shall be automatically time tagged by the system. The data shall be valid until the next hourly or manually entered observation. In order to retain the manually entered data in the system, the operator shall be required to revalidate his entries hourly. The data shall be retained in the observation until the "on-the-hour" observation, when it must be revalidated.

E. Remote Maintenance Monitoring. Remote maintenance monitoring shall be accomplished via the cellular network interface or other internet connection. The Cellular SIM card and service shall be from customer's existing network. The system shall use passwords and/or multi-factor authentication in order to gain access.

2.5.13 VOICE SUBSYSTEM

The voice subsystem shall provide high quality computer-generated speech for output of the AWOS observation. A high-level error-checking scheme shall be incorporated to prevent erroneous outputs. The voice subsystem shall provide the speech for the local ground-air radio broadcast, for telephone dial-up users, and for VoIP audio users. The voice subsystem shall have the capability for the addition of up to one (ninety seconds each) manually input voice messages. The message will be voiced at the end of the computer-generated voice message. The programming of the manual input voice message shall be accomplished using a handset, phone line or VoIP interface. Security access code shall prevent unauthorized use. The system shall automatically play back the recorded message and allow the user to reprogram, delete or accept the messages.

The voice subsystem shall have the following features:

- 1.** The voice signal shall deliver a minimum of 1 milliwatt of power into a balanced 600 ohm line. The output amplitude shall be adjustable to nominal 0 db.
- 2.** The voice message shall be output continuously with approximately a 5-second delay between the completion of one message and the beginning of the next.

3. If the voice message is in process of output when the new AWOS observation is received, the output message will be completed without interruption; voice transmission of the new AWOS observation will begin upon completion of the next delay time.
4. The quality of the automated speech shall provide clear reception from telephone and air-ground radio receivers.
5. The format and sequence of the voice message shall be in accordance with [FAA order 7110.10](#), Flight Services Handbook. When any weather parameter is reported missing due to a disabled or inoperative sensor, as determined by internal AWOS checks, the voice report shall be "(parameter) missing", e.g., "wind speed missing", "cloud height missing", etc. The Coordinated Universal Time (UTC) time of the observation will be given after the location identification.
6. If a valid data update is not received prior to the start of the next voice transmission, the last valid data set received shall be used to compose the voice message. Failure to receive a data update for more than five minutes shall result in the termination of the voice output and generation of a failure message. In this event, the AWOS shall output the message "(station identification) automated weather observing system temporarily inoperative".
7. The system shall contain an automatic telephone-answering device that will permit user access to the voice message via the public telephone system. The incoming call shall be answered prior to completion of the second ring, and the radio signal in progress at the time the call is received shall be placed online. The voice subsystem shall automatically disconnect when the weather observation has been completely transmitted twice.
8. The system shall contain an automatic VoIP telephone-answering service that will permit user access to the voice message via the public telephone system. The incoming call shall be answered prior to completion of the second ring, and the radio signal in progress at the time the call is received shall be placed online. The voice subsystem shall automatically disconnect when the weather observation has been completely transmitted twice.
9. Hook-up for telephone audio output on an assigned dial-up telephone number shall be provided by customer.
10. Hook-up for the Voice over Internet Protocol (VoIP) audio output on an assigned dial-up telephone number shall be provided by a Session Initiation Protocol (SIP) Trunk provider that is provided by customer.
11. The system shall contain a headset or speaker for monitoring the voice output.

2.5.14 VHF TRANSMITTER

It is FAA policy that the output of the AWOS will be transmitted on an existing navigational aid voice outlet whenever practical ex. Very High Frequency Omnidirectional Radio (VOR), or Non-Directional Beacon (NDB). If there is no navigational aid available, then the output will be broadcast via a separate Very High Frequency (VHF) transmitter. The transmitter operates in the 118-137 MHz band. The transmitter shall broadcast from the location of the AWOS processor and must have an FCC type acceptance and have the following operational parameters:

- A. Channel Spacing: 25 KHz
- B. RF Power Output: 10 watts maximum
- C. Frequency Stability: $\pm 0.001\%$ (-30 to +60 degrees C)

D. Emission Type: 6K00A3E

E. Spurious and Harmonic Emissions: 80 db minimum up to 90% modulation

2.6 EQUIPMENT ENCLOSURE

Components used outdoors that are not weatherproof shall be located in a weatherproof enclosure. All outdoor enclosures will be National Electrical Manufacturers Association NEMA-4X enclosures. The enclosures will be stainless steel, aluminum, polycarbonate, or fiberglass. All enclosures shall be tested to withstand the following conditions:

- Wind up to 85 knots
- Hail up to ½ inch in diameter
- Ice Buildup of ½ inch per hour lasting for a period of 1 hour with 40 knot
- wind
- Rain up to 3 inches per hour with 40 knot wind

2.7 CONCRETE

The concrete shall have a minimum twenty-eight (28) days compressive strength of 3,000 PSI, unless higher strengths are recommended by the equipment manufacturer.

2.8 REINFORCING STEEL

Reinforcing steel and bars shall be used in the tower and sensor foundations. AWOS manufacturers shall submit foundation drawings showing the use of these materials in the foundations.

2.9 CONDUIT

Conduit shall be used between the AWOS tower and sensor foundation(s) for both power and signal cables. The conduit shall meet the requirements of the national electrical code and local code.

2.10 WIRE AND CONTROL CABLE

Wire and control cables shall meet the requirements of the national electric code, local electric code, and the AWOS equipment manufacturer's recommendation. Control cables shall be the manufacturer's required number of pairs. All cables are to be individually shielded.

2.11 AWOS DATA COMMUNICATIONS EQUIPMENT

The system shall support the following methods for data transmission depending on the siting conditions for transmitting AWOS data to the operator terminal:

- Single Mode Fiber
- DSL over twisted pair copper wire
- Virtual Private Network (VPN) - VPN to VPN link across a cellular network
- RS-485 over twisted pair copper wire
- UHF data radio

2.13 TOWER

A. A Rohn 45G self-supporting tower or approved equivalent shall be used. The tower shall not exceed the height specified in the project or manufacturer's drawings. The tower shall conform to all AWOS manufacturer's specifications.

B. The tower shall be painted with a six-band marking with alternating bands of aviation surface orange (the top band) and white. The band widths shall be 1/6 of the height of the tower and perpendicular to the vertical axis of the tower. Paint and aviation

colors referred to in the specifications should conform to [Federal Standards FEDSTD-595](#), Colors as follows:

1. Orange Number 12197 (Aviation Surface Orange).
2. White Number 17875 (Aviation White).
3. The tower shall be primed in accordance with the manufacturer's specifications prior to painting.

C. A Dual L-810 obstruction light shall be placed within 5 feet of the top of the tower in accordance with FAA requirements and the manufacturer's plans and specifications. The two lamps on the L-810 shall be wired in parallel on a dedicated circuit.

2.14 TRANSIENT AND LIGHTNING PROTECTION

AWOS equipment should be protected against damage or operational upset due to lightning-induced surges on all sensor input lines, sensor supply lines, and incoming power and data communications lines. Equipment (including electrical circuits and fiber optics modems) and personnel shall be protected from lightning surges and voltages, from power line transients and surges, and from other electromagnetic fields and charges. Lightning protection systems shall be designed and installed in accordance with the Lightning Protection Code, NFPA 780, and the manufacturer's recommendations for all equipment structures.

2.15 NADIN/WMSCR INTERFACE

The AWOS shall be capable of interfacing to the equipment of a vendor that is approved to download information through the National Airspace Data Interchange Network (NADIN) and into the Weather Message Switching Center Replacement (WMSRCR). The second-tier vendors services are not part of this requirement.

2.16 TEST EQUIPMENT

The Contractor shall supply the necessary test equipment to maintain the AWOS weather sensors according to the manufacturer's FAA approved maintenance plan. This test equipment includes all standards as specified in the AWOS manufacturer's Operation and Maintenance Manual.

2.17 SPARE COMPONENTS

The Contractor shall provide the manufacturer's minimum recommended spare components necessary to restore the AWOS to service following a malfunction.

It is The State of Michigan's intention as part of this procurement to reuse all acceptable and satisfactory civil infrastructure already in place at each site. The current installations are of Vaisala VB multi-pad and VC/VD bi-pad installations. The Contractor's response should reflect the ability to adapt their system onto this current infrastructure. Should adaptation not be possible, the Contractor shall state such in their response, and shall state the requirements necessary to install their system along with the associated costs of all manufacturers provided equipment and necessary infrastructure installation materials.

It is the State of Michigan's intention to continue utilizing parts and sensors that are of the most current technology and currently supported by the manufacturer at each site. We recognize the Contractor may or may not have a system that interfaces with these

or other multiple FAA approved sensors/parts of a given type. Attachment A spreadsheet describes current sensor models by installation site. The Contractor shall make it known within this response if they will utilize any currently installed sensors or other system parts, and how this utilization will reflect in cost savings as part of their bid. Of the systems and parts currently installed, the State of Michigan WILL NOT re-purpose the following sensors/parts: Vaisala AW10 components, Vaisala mechanical winds nor WS425 ultrasonic winds, any temperature/relative humidity sensor other than HMP155, any pressure sensors other than the Vaisala PTB330, any cloud height sensor other than the Vaisala CL31, the Vaisala visibility/precipitation type sensor FD12P, any AWOS transmitter other than the VAL AWOS2000, and any precipitation accumulation sensor other than the Texas Electronics TR-525i-HT. The State of Michigan will consider re-purpose of the following sensors/parts: the Vaisala WMT702 ultrasonic wind sensor, the Vaisala PTB330 pressure sensor, the Vaisala HMP155 temperature/relative humidity sensor, the Vaisala CL31 ceilometer, the VAL AWOS2000 transmitter, and the Texas Electronics TR-525i-HT precipitation accumulation sensor.

It is the State of Michigan's intention to provide for as part of this bid the necessary and required training for FAA verification of internal State of Michigan AWOS technicians. The Contractor is required to respond with their training type (CBT, remote online, in-person locally or remotely, etc) and location (locally - within the State of Michigan or remotely – outside of the State of Michigan). Training would need to be provided initially within 90 days of contract award to all current State of Michigan AWOS technicians, and be offered at least annually to any new internal AWOS technicians for the State of Michigan. Bid pricing will be a single cost for each person to be trained for FAA verification on their bid response NON-Fed AWOS system. The State of Michigan will not accept any training for which any contract stipulations are required, and may reject any bid responses that have no training available from the manufacturer.

The State of Michigan may in the future have a need to purchase a whole AWOS IIIP (with optional T) system for use at a future site. It is in the best interest of the State to invest in future AWOS of the same make and model so as to reduce costs associated with additional training, additional stock of spare parts, additional make/model specific test equipment, etc. An optional line item is placed within the bid to include the purchase of an entire new AWOS IIIP system with optional thunderstorm sensor. This system would include all of the Original Equipment Manufacturer (OEM) equipment and materials associated with a new site build.

Minimum Quantity – 42, 41 AWOS site upgrades across the state, 1 bench unit.

Brands or trade names are for identification purposes only and do not limit the Contractor to such brands or trade names.

DBT is proposing to provide our AWOS IIIP model F1STA, which is FAA Certified to the A/C 150/5220 latest version. (see attached FAA Certification letter).

DBT will provide 41 AWOS IIIP systems for replacement of existing AWOS and one MDOT bench unit AWOS with manufacturer recommended spares and test equipment.

The F1STA AWOS will include the Vaisala manufactured barometer, Air Temperature/RH, Visibility/Present Weather and Ceilometer sensors. The proposed

optional Thunderstorm sensor is DBT's own AWI Thunderstorm sensor. See attached datasheets for complete details.

The DBT F1STA system will be installed on and certified reusing the existing AWOS tower and structures and obstruction lights.

DBT is proposing to reuse some of the existing AWOS sensors, based on age and compatibility. Reference the price list for each site and sensors being reused.

Some of the existing sensors we are proposing to replace due to age, can be reprogrammed and held as spares.

DBT is open to further discussions with MDOT regarding existing sensors being reused, in addition to those listed on the price sheet, and the additional cost savings from the proposed prices.

1.2. Warranties

Contractor must explain the process for reporting warranty issues and how the Contractor will handle any repairs or replacements.

The State reserves the right to require additional warranties other than those identified by the Contractor in its response to this RFP.

Contractor must provide detailed information requested below:

Describe any warranties included in the bid (if none, write N/A):
DBT is providing it's standard warranty. See attached DBT Warranty
Provide the length of the warranty:
One year from the commissioning date or two years from ship date. See attached DBT warranty for complete details.
Explain the process for reporting warranty issues: Contact DBT Customer service at cs@dbttranserv.com or 844-343-8328.
Explain how any repairs or replacements are made, including timing, etc.:
Contact DBT Customer Service. Customer service will issue an RMA ticket that must be included in the shipping package with the failed product. The customer is responsible for uninstalling, packaging up and shipping the failed product back to DBT for evaluation. During evaluation, if the Product proves to be defective in workmanship or material within the warranty period, DBT, at its own option, may choose to repair or replace the defective product or part free of charge, according to DBT's Warranty. DBT will contact the customer with the results. The timing of the repair or replacement will depend upon the extent of the repair and/or replacement part(s) availability. The customer is responsible for uninstalling/reinstalling AWOS product and paying all shipping costs.
If the warranty is provided through a third-party or manufacturer, the Contractor must confirm that the manufacturer's warranty passes through to the State:
DBT Transportation Services handles all AWOS system warranties for MDOT.

Provide the name, address, contact name, phone number and email address of the party responsible for the warranty:

DBT Transportation Service, LLC
Customer Service
1500 City West Blvd. Ste 550
Houston, TX 77042
844-343-8328
cs@dbttranserv.com

1.3. Recall Requirements and Procedures

Describe any recall requirements and procedures.

DBT will notify the customer based on serial number issued if and when a recall is identified.

1.4. Quality Assurance Program

Explain Quality Assurance Program(s).

DBT's manufacturing facility (AWI) is ISO 9001:2015 certified. (see attached certificate)
Additionally, each AWOS is bench tested prior to shipping.

1.5. Incentives

Explain any special incentives or services including, but not limited to, return policies, trade-in programs, quantity discounts, etc.

As part of this contract, DBT will provide MDOT with the following services and special incentives:

- Return Policy: AWOS spare parts may be returned un-used, in the original packaging within 30 days of original ship date and a 25% restocking fee applies.
- Quantity Discount: 5% discount on 10 systems delivered within a calendar year.

1.6. Post-Contract Transition

Invoices must be sent within 45 days after expiration of contract. Any invoices received after 45 days will result in a non-payment of invoice.

All shipments and services performed will be prior to the contract expiration date. DBT invoices upon shipment and directly after services are performed, which prevents late invoicing.

2. Service Requirements

2.1. Timeframes & Delivery

All Contract Activities must be delivered within 90 calendar days upon date of order during normal business hours. Delivery will be made at 2700 Port Lansing Rd, Lansing, MI 48906.

DBT will coordinate with MDOT personnel closely on the AWOS systems delivery schedule to ensure proper inventory levels and production lead times align to meet the delivery deadlines.

2.2. Technical Support and Repairs

When providing technical support, the Call Center must resolve the caller's issue within 4 hours. If the caller's issue cannot be resolved within 4 hours, on-site service must be scheduled. The on-site service must be performed within 72 hours of the time the issue was scheduled for service.

DBT will provide telephone technical support to MDOT to assist in resolving AWOS issues within four hours from the time of the call. If the issue cannot be resolved with telephone support, DBT's AWOS technician will be on-site within 72 hours from the time the issue was scheduled for service.

2.3. Training

The Contractor must provide the following training: FAA approved AWOS verification training for all AWOS technicians within Michigan Department of Transportation. Training may be in any format as the manufacturer recommends. Any costs associated with this training shall be as per the pricing item during the entire length of the contract ensuing this RFP.

The Contractor must explain training that is included in its proposal, as well as any additional training capabilities available and related costs, if any.

DBT will provide the Michigan DOT employee AWOS technicians, one AWOS Factory Certified on-site hands-on training during the first AWOS installation in the first year of the contract. Each year of the contract thereafter, DBT will provide one on-site training class annually for new Michigan DOT employee AWOS technicians. Each MDOT employee AWOS technician who successfully completes the course and passes the test administered at the end of the training, will receive a certificate. See attached F1STA Operations & Maintenance Training outline.

2.4. Reporting

DBT will provide an annual utilization report to MDOT that includes the number of AWOS systems by location, the sensors and any training or additional cost from the prior year. The utilization report will be provided within the first two months of the successive year.

2.5. Meetings

The Contractor must attend the following meetings:

- Kick-off Meeting – within 30 days of the contract award
- January planning meeting – each year of the contract length

The State may request other meetings as it deems appropriate.

3. Staffing

3.1. Contractor Representative

The Contractor must appoint an individual 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").

The Contractor must notify the Contract Administrator at least 3 calendar days before removing or assigning a new Contractor Representative.

Contractor Representatives

Candace Spillers-Wood
303-648-1263
cspillerswood@DBTTranServ.com

Linda Veasman
844-343-8328
MIDOT@dbttranserv.com

3.2. Key Personnel

The Contractor must appoint one individual who will be directly responsible for the day-to-day operations of the Contract ("Key Personnel"). Key Personnel must be specifically assigned to the State account, be knowledgeable on the contractual requirements, and respond to State inquiries within 24 hours.

The Contractor may not remove or assign Key Personnel without the prior consent of the State. Prior consent is not required for reassignment for reasons beyond the Contractor's control, including illness, disability, death, leave of absence, personal emergency circumstances, resignation, or termination for cause. The State may request a résumé and conduct an interview before approving a change. The State may require a 30-calendar day training period for replacement personnel.

The Contractor must identify the Key Personnel, indicate where they will be physically located, describe the functions they will perform, and provide current chronological résumés.

Key Personnel

Stephen Scialdone
Travas Burrows
844-343-8328
MIDOT@dbttranserv.com

DBT's key personnel will provide MDOT with technical assistance via telephone support and will be on site for the AWOS equipment delivery and installation immediately following the delivery. DBT key personnel will provide on-site repair service as stated in 2.2 of this RFP response.

3.3. Non-Key Personnel

The Contractor must notify the Contract Administrator at least 10-calendar days before removing or assigning non-key personnel.

3.4. Customer Service Toll-Free Number; Technical Support, Repairs and Maintenance

Contractor has identified 844-343-8328 as its toll-free number for the State to contact the Contractor Representative who must be available for calls during the hours of 8 am to 5 pm EST Monday through Friday, at a minimum, for customer service technical support, repairs, maintenance.

3.5. Disclosure of Subcontractors

No subcontractors may be utilized for this Contract.

Primary contractor must be a FAA certified authorized distributor of AWOS IIPT per the [List of Certified Non-Federal AWOS Systems and Manufacturers document latest revision](#). Credentials for FAA certified authorized distributor must be attached to bid solicitation documents.

3.6. Security

The Contractor's staff may be required to make deliveries to or enter State facilities. The State may require the Contractor's personnel to wear State issued identification badges.

DBT technicians will adhere to all State facility rules and regulations and be badged as necessary upon entering and exiting a State facility. DBT technicians drive company owned trucks with the company logo clearly displayed on the outside of the vehicle and wear a shirt with the company logo.

Background checks on all new DBT employees are done through Clearstar company. At a minimum the background check includes education, employment, personal reference verification and driving record, and may include FIS (Federal Investigative Standard) equivalent background checks.

4. Pricing

4.1. Price Term

Pricing is firm for the entire length of the Contract.

5. Ordering

5.1. Authorizing Document

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

6. Delivery

6.1. Delivery Programs

The Contractor must explain in detail its delivery programs (e.g., standard delivery and quick-ship), including any limitations such as quantity.

The Contractor must explain the transportation method (e.g., UPS, FedEx, Contractor fleet, or other third-party carrier) it intends on utilizing in delivery of the Contract Activities.

DBT's delivery program includes all available methods (standard delivery, ground, two-day, overnight, next-day-air, etc.) and the transportation methods most commonly used include freight carrier, UPS and FedEx. The delivery and transportation methods used depend on the shipment size, timeframe requirements and costs so we can provide our customers with the most cost-efficient shipping to meet the required delivery times.

7. Acceptance

7.1. Acceptance, Inspection and Testing

The State will use proper measures to determine acceptance of the Contract Activities.

7.2. Final Acceptance

Satisfaction of contract activities will be conducted by Program Manager upon visual inspection of each site's satisfactorily operating components AND the FAA's final acceptance by their certification and commissioning of each upgraded site.

8. Invoice and Payment

8.1. Invoice Requirements

All invoices submitted to the State must include: (a) date; (b) purchase order/contract number; (c) quantity; (d) description of the Contract Activities; (e) unit price; (f) shipping cost (if any); (g) vendor-generated invoice number; and (h) total price.

8.2. Payment Methods

The State will only disburse payments under this Contract through Electronic Funds Transfer (EFT).

The Contractor is responsible for ensuring current banking information is entered in the State vendor website: <https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService>.

8.3. Procedure

Invoices submitted for payment must be emailed to the Program Manager within three business days of shipping the order.

9. Licensing Agreement

The Contractor must provide a copy of any applicable licensing agreement.

10. Liquidated Damages

Late or improper completion of the Contract Activities will cause loss and damage to the State and it would be impracticable and extremely difficult to fix the actual damage sustained by the State. Therefore, if there is late or improper completion of the Contract Activities the State is entitled to collect liquidated damages in the amount of \$5,000 and an additional \$1000 per day for each day Contractor fails to remedy the late or improper completion of the Work.

Unauthorized Removal of Key Personnel will interfere with the timely and proper completion of the Contract, to the loss and damage of the State, and it would be impracticable and extremely difficult to fix the actual damage sustained by the State. Therefore, the State may assess liquidated damages against Contractor as specified below.

- The State is entitled to collect \$500 per individual per day for the removal of any Key Personnel without prior approval of the State.
- The State is entitled to collect \$500 per individual per day for an unapproved or untrained key personnel replacement.

11. Additional Requirements

11.1. Environmental and Energy Efficiency Product Standards

The Contractor must identify any energy efficient, bio-based, or otherwise environmentally friendly products used in the products. Contractor must include any relevant third-party certification, including the verification of a United States Department of Agriculture certified bio-based product label. Contractor must describe how products that meet these requirements are identified or otherwise labelled.

11.2. Hazardous Chemical Identification

In accordance with the federal Emergency Planning and Community Right-to-Know Act, 42 USC 11001, *et seq.*, as amended, the Contractor must provide a Material Safety Data Sheet listing any hazardous chemicals as defined in 40 CFR §370.2, to be delivered. Each hazardous chemical must be properly identified, including any applicable identification number, such as a National Stock Number or Special Item Number.

The Contractor must identify any hazardous chemicals that will be provided under any resulting contract.

11.3. Mercury Content

Pursuant to MCL 18.1261d, mercury-free products must be procured when possible. The Contractor must explain if it intends to provide products containing mercury, the amount or concentration of mercury, and whether cost competitive alternatives exist. If a cost competitive alternative does exist, the Contractor must provide justification as to why the particular product is essential. All products containing mercury must be labeled as containing mercury.

11.4. Brominated Flame Retardants

The State prefers to purchase products that do not contain brominated flame retardants (BFRs) whenever possible. The Contractor must disclose whether the products contain BFRs. Contractor must describe how products that meet these requirements are identified or otherwise labelled.

11.5. Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

The Contractor must confirm that the provided products do not intentionally contain PFAS. This consists of all components of the provided products, including product packaging.

Contract No. 230000001419
Michigan AWOS Network Upgrade
Schedule B - Pricing

Inventory of AWOS Site Equipment as of: 2/11/2023

Location	Year installed/ upgrade	Barometer	Ceilometer	Cell Modem	Display	Temp Sensor	Tipping Bucket	Wind Sensor	Xmtr	Site Plan	VC/VD	NOTES	AWOS IIIP		Required	Optional	Salvage	Credit	TOTAL	Re-purpose (Y/N)	List of Re-purposed	
													Upgrade	Upgrade							Sensors	Sensors
Alma	1995/2011	PTB330	CL31A	Yes	Wthr Nex	HMP 45A		WS425	Park Air	Multi-Pad			\$35,305	\$22,988	\$22,250				\$81,743	Y	CL31	
Bad Axe	1996/2010	PTB330	CL31A		Wthr Nex	HMP 155		WS425	Val 760	Multi-Pad			\$35,305	\$22,988	\$22,250				\$81,743	Y	CL31	
Beaver Island	2001	blue	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Bellaire	1995/2010	PTB330	CL31A		Wthr Nex	HMP 45A		WS425	Park Air	multi-pad			\$36,305	\$23,988	\$22,250				\$83,743	Y	CL31	
Big Rapids	1997/2010	PTB330	CL31A		Wthr Nex	HMP 45A	TR-525I-HT	WS425	Park Air	Bi-Pad			\$34,679	\$20,960	\$22,250				\$79,089	Y	CL31, TR-525I-HT	
Cadillac	2000	PTB330	CL31A		Wthr Nex	HMP 155		mechanical	AWOS2000	Bi-Pad			\$30,847	\$23,288	\$22,250				\$77,585	Y	CL31, AWOS2000	
Caro	2004	PTB220	CT25K		Wthr Nex	HMP 155		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Charlevoix	2001	blue	CT25K		Wthr Nex	HMP155		mechanical	Park Air	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Charlotte	2001	blue	CL31A		Wthr Nex	HMP 45A	TR-525I-HT	mechanical	Val 760	Bi-Pad			\$34,679	\$47,397	\$22,250				\$105,526	Y	TR-525I-HT	
Cheboygan	2001	blue	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Coldwater	1996/2011	PTB330	CL31A		Wthr Nex	HMP 45A		WMT702	Park Air	Multi-Pad			\$35,305	\$16,131	\$22,250				\$74,886	Y	CL31, WMT702	
Drummond Island	2005	PTB220	CT25K		Wthr Nex	HMP 45D	TR525HT	mechanical	Val 760	Bi-Pad			\$34,679	\$47,397	\$22,250				\$105,526	Y	TR-525I-HT	
Frankfort	2004	PTB220	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Fremont	2007	PTB220	CL31	Yes	Wthr Nex	HMP155		WS425	AWOS2000	Multi-Pad			\$30,847	\$22,988	\$22,250				\$77,285	Y	CL31, AWOS2000	
Grosse Ile	1995/2016	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WMT702	AWOS2000	Multi-Pad	Split		\$35,850	\$16,131	\$22,250				\$75,431	Y	CL31, TR-525I-HT, WMT702, AWOS2000	
Harbor Springs	2001	blue	CT25K		Wthr Nex	HMP 155		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Hillsdale	1997/2016	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WS425	AWOS2000	Multi-Pad			\$31,473	\$20,960	\$22,250				\$75,883	Y	CL31, TR-525I-HT, AWOS2000	
Howell	2005	PTB220	CL31A		Wthr Nex	HMP 45D	TR-525I-HT	mechanical	Val 760			non-standard site layout	\$36,305	\$20,960	\$22,250				\$80,715	Y	CL31, TR-525I-HT	
Ionia	2009	PTB330	CL31		Wthr Nex	HMP 45A	TR-525I-HT	remote	Val 760	no tower			\$36,305	\$20,960	\$22,250				\$80,715	Y	CL31, TR-525I-HT	
Lambertville	2001	blue	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Lapeer	2012	PTB330	CL31A		Wthr Nex	HMP 45A	TR-525I-HT	WS425	Val 760	Bi-Pad			\$34,679	\$20,960	\$22,250				\$79,089	Y	CL31, TR-525I-HT	
Ludington	1999	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	mechanical	AWOS2000	Bi-Pad			\$30,847	\$20,960	\$22,250				\$75,257	Y	CL31, TR-525I-HT, AWOS2000	
Mackinac Island	1990/2010	PTB330	CL31A		Wthr Nex	HMP 45A	TI-525-HT	WS425, remote	Park Air	no tower		Snow Platform, remote winds	\$36,305	\$20,960	\$22,250				\$80,715	Y	CL31, TR-525I-HT	
Manistique	1997/2013	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WMT702	AWOS2000	Multi-Pad			\$31,473	\$16,131	\$22,250				\$71,054	Y	CL31, TR-525I-HT, WMT702, AWOS2000	
Marquette	2000	PTB330	CL31A	Tstorm	Av/Av/Wn	HMP 45A	TR-525I-HT	mechanical	AWOS2000		ACU/UHF U/G	Snow Platform, Tstorm	\$36,950	\$20,960	\$22,250				\$81,360	Y	CL31, TR-525I-HT, AWOS2000	
Marshall	1996/2013	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WMT702	Park Air				\$35,305	\$16,131	\$22,250				\$74,886	Y	CL31, TR-525I-HT, WMT702	
Mason	1995/2010	PTB330	CL31A		Wthr Nex	HMP155		WS425	Val 760	Multi-Pad			\$35,305	\$22,988	\$22,250				\$81,743	Y	CL31	
Midland	2008	PTB220	CL31		Wthr Nex	HMP 45A	TR-525I-HT	WS425	AWOS2000	Bi-Pad			\$30,847	\$20,960	\$22,250				\$75,257	Y	CL31, TR-525I-HT, AWOS2000	
Monroe	1995/2015	PTB330	CL31A	Yes	Wthr Nex	HMP 155	TR-525I-HT	WS425	AWOS2000	Multi-Pad	Split		\$35,850	\$20,960	\$22,250				\$80,260	Y	CL31, TR-525I-HT, AWOS2000	
Mt Pleasant	1999	blue	CT25K		Wthr Nex	HMP 45A	TR-525-HT	mechanical	AWOS2000	Bi-Pad			\$30,847	\$47,397	\$22,250				\$101,694	Y	TR-525I-HT, AWOS2000	
Newberry	1996/2013	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WS425	AWOS2000	Multi-Pad			\$31,473	\$20,960	\$22,250				\$75,883	Y	CL31, TR-525I-HT, AWOS2000	
Oscoda	1994/2011	PTB330	CL31A		Wthr Nex	HMP 45A	TR-525I-HT	WMT702	Val 760	Bi-Pad	Split		\$39,056	\$16,131	\$22,250				\$78,637	Y	CL31, TR-525I-HT, WMT702	
Owosso	2004	PTB220	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Port Huron	2001	blue	CL31A		Wthr Nex	HMP 45A		mechanical	Park Air	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Rogers City	2004	PTB220	CL31A		Wthr Nex	HMP 45A		mechanical	Val 760	Bi-Pad			\$34,679	\$22,988	\$22,250				\$81,117	Y	CL31	
Saginaw	2000	blue	CT25K		Wthr Nex	HMP 45A		mechanical	Park Air	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
South Haven	2004	PTB220	CT25K		Wthr Nex	HMP155		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Sturgis	1995/2015	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WMT702	AWOS2000	Multi-Pad			\$31,473	\$16,131	\$22,250				\$71,054	Y	CL31, TR-525I-HT, WMT702, AWOS2000	
Three Rivers	2005	PTB220	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760	Bi-Pad			\$34,679	\$49,425	\$22,250				\$107,554	N		
Troy	2004	PTB220	CT25K		Wthr Nex	HMP 155		mech, remote	Val 760	no tower			\$36,305	\$49,425	\$22,250				\$109,180	N		
West Branch	2016	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	ultrasonic	AWOS2000	Bi-Pad			\$30,847	\$20,960	\$22,250				\$75,257	Y	CL31, TR-525I-HT, AWOS2000	
Bench Unit		blue	CT25K		none	HMP45A	none	mechanical	none	shop install			\$26,962	\$47,397	\$22,250				\$97,809	N		

All AWOS IIIP Platform Upgrades include an Outdoor UPS except bench system

Thunderstorm sensor: newer technology available within one to two years at lower price point

File at: Etronics/AWOS/On-Site Equipment Inventory.xlsx

TOTALS	\$1,433,235	\$1,342,635	\$934,500	\$50,400	\$0	\$3,760,770
Grand total				checks	\$3,760,770	

* all sites have FD12P currently - (not to be re-purposed)
** all sites have tilt-over tower unless noted
*** only the following sensors/parts may be considered for re-purposing -
Vaisala WMT702
Vaisala PTB330
Vaisala CL31
Vaisala HMP155
VAL AWOS2000
Texas Electronics TR-525I-HT

Bidder to complete

New System		AWOS IIIP Platform	Required Sensors	Optional Tstorm	S+H	OEM Parts	TOTAL
including New site infrastructure - OEM parts only		\$57,661	\$49,425	\$22,250	\$2,300	\$415	\$132,051
Training		TYPE	Location	TOTAL			
each person		NON-Fed AWOS Verification training by manufacturer	F1STA On-Site MDOT	Training is no additional charge		\$0	

Inventory of AWOS Site Equipment				as of: 2/11/2023							
	Year Install	Barometer	Ceilometer	Cell Modem	Display	Temp Sensor	Tipping Bucket	Wind Sensor	Xmtr	VC/VD	Upgrade Priority
Alma	1995/2011	PTB330	CL31A	Yes	Wthr Nex	HMP 45A		WS425	Park Air		4
Bad Axe	1996/2010	PTB330	CL31A		Wthr Nex	HMP 155		WS425	Val 760		4
Beaver Island	2001	blue	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760		1a
Bellaire	1995/2010	PTB330	CL31A		Wthr Nex	HMP 45A		WS425	Park Air		4
Big Rapids	1997/2010	PTB330	CL31A		Wthr Nex	HMP 45A	TR-525I-HT	WS425	Park Air		4
Cadillac	2000	PTB330	CL31A		Wthr Nex	HMP 155		mechanical	AWOS2000		1b
Caro	2004	PTB220	CT25K		Wthr Nex	HMP 155		mechanical	Val 760		2
Charlevoix	2001	blue	CT25K		Wthr Nex	HMP155		mechanical	Park Air		1a
Charlotte	2001	blue	CL31A		Wthr Nex	HMP 45A	TR-525I-HT	mechanical	Val 760		1a
Cheboygan	2001	blue	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760		1a
Coldwater	1996/2011	PTB330	CL31A		Wthr Nex	HMP 45A		WMT702	Park Air		4
Drummond Island	2005	PTB220	CT25K		Wthr Nex	HMP 45D	TR525HT	mechanical	Val 760		2
Frankfort	2004	PTB220	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760		2
Fremont	2007	PTB220	CL31	Yes	Wthr Nex	HMP155		WS425	AWOS2000		3
Grosse Ile	1995/2016	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WMT702	AWOS2000	Split	4
Harbor Springs	2001	blue	CT25K		Wthr Nex	HMP 155		mechanical	Val 760		1a
Hillsdale	1997/2016	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WS425	AWOS2000		4
Howell	2005	PTB220	CL31A		Wthr Nex	HMP 45D	TR-525I-HT	mechanical	Val 760		2
Ionia	2009	PTB330	CL31		Wthr Nex	HMP 45A	TR-525I-HT	WS425, remote	Val 760		3
Lambertville	2001	blue	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760		1a
Lapeer	2012	PTB330	CL31A		Wthr Nex	HMP 45A	TR-525I-HT	WS425	Val 760		4
Ludington	1999	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	mechanical	AWOS2000		1b
Mackinac Island	1990/2010	PTB330	CL31A		Wthr Nex	HMP 45A	TI-525-HT	WS425, remote	Park Air		4
Manistique	1997/2013	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WMT702	AWOS2000		4
Marquette	2000	PTB330	CL31A	Tstorm	Av/Av/Wn	HMP 45A	TR-525I-HT	mechanical	AWOS2000	ACU/UHF	1b
Marshall	1996/2013	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WMT702	Park Air		4
Mason	1995/2010	PTB330	CL31A		Wthr Nex	HMP155		WS425	Val 760		4
Midland	2008	PTB220	CL31		Wthr Nex	HMP 45A	TR-525I-HT	WS425	AWOS2000		3
Monroe	1995/2015	PTB330	CL31A	Yes	Wthr Nex	HMP 155	TR-525I-HT	WS425	AWOS2000	Split	4
Mt Pleasant	1999	blue	CT25K		Wthr Nex	HMP 45A	TR-525-HT	mechanical	AWOS2000		1a
Newberry	1996/2013	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WS425	AWOS2000		4
Oscoda	1994/2011	PTB330	CL31A		Wthr Nex	HMP 45A	TR-525I-HT	WMT702	Val 760	Split	4
Owosso	2004	PTB220	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760		2
Port Huron	2001	blue	CL31A		Wthr Nex	HMP 45A		mechanical	Park Air		1a
Rogers City	2004	PTB220	CL31A		Wthr Nex	HMP 45A		mechanical	Val 760		2
Saginaw	2000	blue	CT25K		Wthr Nex	HMP 45A		mechanical	Park Air		1a
South Haven	2004	PTB220	CT25K		Wthr Nex	HMP155		mechanical	Val 760		2
Sturgis	1995/2015	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	WMT702	AWOS2000		4
Three Rivers	2005	PTB220	CT25K		Wthr Nex	HMP 45A		mechanical	Val 760		2
Troy	2004	PTB220	CT25K		Wthr Nex	HMP 155		mech, remote	Val 760		2
West Branch	2016	PTB330	CL31A		Wthr Nex	HMP 155	TR-525I-HT	ultrasonic	AWOS2000		4

File at: Etronics/AWOS/On-Site Equipment Inventory.xlsx

* all sites have FD12P currently

1a-	9
1b	3
2	9
3	3
4	17
total	41

AWOS Replacement Items & Schedule

	Upgrade Needs	Projected Year	Completion Date	Funding Means
Alma	Park Air			
Bad Axe	none	-----	-----	-----
Beaver Island	CT25K			
Bellaire	Park Air			
Big Rapids	Park Air			
Cadillac	CT25K & Park Air	2018		state/local
Caro	CT25K			
Charlevoix	CT25K & Park Air			
Charlotte	CT25K	2017	4/18/2017	state/local
Cheboygan	CT25K	2018		state/local
Coldwater	Park Air			
Drummond Island	CT25K			
Frankfort	CT25K			
Fremont	none	-----	-----	-----
Grayling	CT25K			
Grosse Ile	VB system	2016	6/28/2016	state/local
Harbor Springs	CT25K	2017		state/local
Hillsdale	VB system	2016	7/28/2016	state/local
Howell	CT25K	2016	10/4/2016	state/local
Ionia	none	-----	-----	-----
Lambertville	CT25K			
Lapeer	none	-----	-----	-----
Ludington	CT25K & Park Air	2016	7/28/2016	state/local
Mackinac Island	Park Air			
Manistique	none	-----	-----	-----
Marquette	CT25K & Park Air	2017		state/local
Marshall	Park Air			
Mason	none	-----	-----	-----
Midland	none	-----	-----	-----
Monroe	none	-----	-----	-----
Mt Pleasant	CT25K	2018		state/local
Newberry	none	-----	-----	-----
Oscoda	none	-----	-----	-----
Owosso	CT25K			
Port Huron	Park Air			
Rogers City	CT25K	2016	8/17/2016	state/local
Saginaw	CT25K & Park Air			
South Haven	CT25K			
Sturgis	none	-----	-----	-----
Three Rivers	CT25K			
Troy	CT25K			
West Branch	none	-----	-----	-----

CT25K = ceilometer

Park Air = VHF transmitter

File at:

Etronics/AWOS/On-Site Equipment Inventory.xlsx

as of: 8/17/2021

AIRPORT	ID	Original Install/Upgrade	Make/Model	End of Useful Life	Sensor/ Peripheral Needs	Upgrade Cost	Upgrade Labor Cost	Travel Costs	Ancillary Cost	TOTAL UPGRADE	Replace Cost - Vaisala by MDOT	Replace Cost - Vaisala contract	Replace Cost - All Weather INC	Notes	Recommend Upgrade/Replacement
Mackinac Island	MCD	1990 / 2010	VB / VC		2025 T/DP, radio, UPS, ultra winds, Viz	34,200.00	3,190.00	2,000.00	2100	41,490.00	94,400	104,400	151,000	remote winds, snow plat	
Oscoda	OCS	1994 / 2011	VB Split / VD		2026 T/DP, radio, UPS, Viz, Tip Bkt	29,700.00	2,300.00	1,500.00	2100	35,600.00	95,000	105,000	151,000	split/UHF	
Alma	AMN	1995 / 2011	VB / VC		2026 T/DP, radio, UPS, ultra winds, Viz, Tip Bkt	35,400.00	3,520.00	500.00	2100	41,520.00	94,400	104,400	151,000		
Bellaire	ACB	1995 / 2010	VB / VC		2025 T/DP, radio, UPS, ultra winds, Viz, Tip Bkt	35,400.00	3,520.00	1,500.00	2100	42,520.00	94,400	104,400	151,000		
Grosse Ile	ONZ	1995 / 2016	VB Split / VD		2031 UPS, Viz	21,500.00	1,430.00	1,000.00	2100	26,030.00	95,000	105,000	151,000	split/UHF	
Mason	TEW	1995 / 2010	VB / VC		2026 radio, UPS, ultra winds, Viz, Tip Bkt	32,900.00	3,190.00	500.00	2100	38,690.00	94,400	104,000	151,000		
Monroe	TTF	1995 / 2015	VB / VD		2030 ultra winds, UPS, Viz	28,500.00	2,530.00	1,000.00	2100	34,130.00	95,000	105,000	151,000	split/UHF, site leans	
Sturgis	IRS	1995 / 2015	VB / VC		2030 UPS, Viz	21,500.00	1,430.00	1,000.00	2100	26,030.00	91,600	101,600	151,000		
Bad Axe	BAX	1996 / 2010	VB / VC		2025 T/DP, radio, UPS, ultra winds, Viz, Tip Bkt	35,400.00	3,520.00	1,500.00	2100	42,520.00	94,400	104,400	151,000		
Coldwater	OEB	1996 / 2011	VB / VC		2026 T/DP, radio, UPS, Viz, Tip Bkt	29,700.00	2,300.00	500.00	2100	34,600.00	91,600	101,600	151,000		
Marshall	RMY	1996 / 2013	VB / VC		2028 radio, UPS, Viz	24,700.00	1,760.00	500.00	2100	29,060.00	91,600	101,600	151,000		
Newberry	ERY	1996 / 2013	VB / VC		2028 ultra winds, UPS, Viz	28,500.00	2,530.00	2,500.00	2100	35,630.00	94,400	104,400	151,000		
Big Rapids	RQB	1997 / 2010	VB / VC		2026 T/DP, radio, UPS, ultra winds, Viz	34,200.00	3,190.00	1,000.00	2100	40,490.00	94,400	104,400	151,000	twr leans, relocated in 2012	
Hillsdale	JYM	1997 / 2016	VB / VC		2031 ultra winds, UPS, Viz	28,500.00	2,530.00	5,000.00	2100	38,130.00	94,400	104,400	151,000		
Manistique	ISQ	1997 / 2013	VB / VC		2028 UPS, Viz	21,500.00	1,430.00	2,500.00	2100	27,530.00	91,600	101,600	151,000		
Ludington	LDM	1999	VC		2014 ultra winds, UPS, Viz	28,500.00	2,530.00	1,500.00	2100	34,630.00	94,400	104,400	151,000		
Mount Pleasant	MOP	1999	VC		2014 Baro, Celio, T/DP, ultra winds, UPS, Viz	65,000.00	3,520.00	500.00	2100	71,120.00	122,000	132,000	151,000		
Cadillac	CAD	2000	VC		2015 ultra winds, UPS, Viz, Tip Bkt	31,000.00	2,860.00	1,000.00	2100	36,960.00	94,400	104,400	151,000		
Marquette	SAW	2000	VC		2015 T/DP, ultra winds, UPS, Viz	31,000.00	2,860.00	3,000.00	2100	38,960.00	100,400	110,400	151,000	ACU, UG and UHF, snow plat	
Saginaw	HYX	2000	VC		2015 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	70,700.00	4,180.00	1,000.00	2100	77,980.00	122,000	132,000	151,000		
Beaver Island	SJX	2001	VC		2016 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	70,700.00	4,180.00	2,500.00	2100	79,480.00	122,000	132,000	151,000		
Charlevoix	CVX	2001	VC		2016 Baro, Celio, radio, ultra winds, UPS, Viz, Tip Bkt	68,200.00	3,850.00	2,000.00	2100	76,150.00	122,000	132,000	151,000		
Charlotte	FPK	2001	VC		2016 Baro, T/DP, radio, ultra winds, UPS, Viz	38,200.00	3,520.00	500.00	2100	44,320.00	94,400	104,400	151,000		
Cheboygan	SLH	2001	VC		2016 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	70,700.00	4,180.00	1,500.00	2100	78,480.00	122,000	132,000	151,000		
Harbor Springs	MGN	2001	VC		2016 Baro, Celio, radio, ultra winds, UPS, Viz, Tip Bkt	68,200.00	3,850.00	2,000.00	2100	76,150.00	122,000	132,000	151,000		
Lambertville	DUH	2001	VC		2016 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	70,700.00	4,180.00	1,000.00	2100	77,980.00	122,000	132,000	151,000		
Port Huron	PHN	2001	VC		2016 Baro, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	40,700.00	3,850.00	1,000.00	2100	47,650.00	94,400	104,400	151,000	remote comm bridge	
Caro	CFS	2004	VC		2019 Baro, Celio, radio, ultra winds, UPS, Viz, Tip Bkt	68,200.00	3,850.00	1,000.00	2100	75,150.00	122,000	132,000	151,000		
Frankfort	FKS	2004	VC		2019 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	70,700.00	4,180.00	1,500.00	2100	78,480.00	122,000	132,000	151,000		
Owosso	RNP	2004	VC		2019 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	70,700.00	4,180.00	500.00	2100	77,480.00	122,000	132,000	151,000		
Rogers City	PZQ	2004	VC		2019 Baro, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	40,700.00	3,850.00	2,000.00	2100	48,650.00	94,400	104,400	151,000		
South Haven	LWA	2004	VC		2019 Baro, Celio, radio, ultra winds, UPS, Viz, Tip Bkt	68,200.00	3,850.00	1,500.00	2100	75,650.00	122,000	132,000	151,000		
Troy	VLL	2004	VC		2019 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	70,700.00	4,180.00	1,000.00	2100	77,980.00	122,000	132,000	151,000	remote winds	
Drummond Island	DRM	2005	VC		2020 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz	68,200.00	3,850.00	2,000.00	2100	76,150.00	122,000	132,000	151,000		
Howell	OZW	2005	VC		2020 Baro, T/DP, radio, ultra winds, UPS, Viz	38,200.00	3,520.00	500.00	2100	44,320.00	94,400	104,400	151,000	non-std site plan, site leans	
Three Rivers	HAI	2005	VC		2020 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	70,700.00	4,180.00	1,000.00	2100	77,980.00	122,000	132,000	151,000		
Fremont	FFX	2007	VC		2022 Baro, Celio, ultra winds, UPS, Viz, Tip Bkt	65,000.00	3,520.00	1,000.00	2100	71,620.00	122,000	132,000	151,000		
Midland	IKW	2008	VC		2023 Baro, Celio, T/DP, radio, ultra winds, UPS, Viz	68,200.00	3,850.00	1,000.00	2100	75,150.00	122,000	132,000	151,000		
Ionia	Y70	2009	VC		2024 Celio, T/DP, radio, ultra winds, UPS, Viz	64,200.00	3,520.00	500.00	2100	70,320.00	122,000	132,000	151,000	remote winds	
Lapeer	D95	2012	VC		2027 T/DP, radio, ultra winds, UPS, Viz	34,200.00	3,190.00	1,000.00	2100	40,490.00	94,400	104,400	151,000		
West Branch	Y31	2016	VC		2031 ultra winds, UPS, Viz	28,500.00	2,530.00	1,500.00	2100	34,630.00	94,400	104,400	151,000		
AERO Workbench	EFU	all time	VC	anytime	Baro, T/DP, radio, ultra winds, UPS, Viz, Tip Bkt	40,700.00	N/C	N/C		40,700.00	94400	94400	100000		

		OLD Processor - Short Lifespan remaining	→	TOTAL PHASED UPGRADE by MDOT		2,238,580.00	
cillary equipment to replace	cost	NEW Processor - Long Lifespan remaining	→	→	TOTAL VAISALA Replacment by MDOT	4,430,600	
Cabinet door seals,	\$200						
Battery Box	\$700	NEW Processor - Long Lifespan remaining	→	→	TOTAL VAISALA Replacement by Contract	4,840,200	
D/N sensors/mounts	\$200						
Aspirators?	\$1,000	NEW Processor - Long Lifespan remaining	→	→	→	TOTAL All Weather INC replacement by Contract	6,291,000

TOTAL \$2,100

Components	Cost	Labor hrs	Labor Cost	Contract Labor	
Baro, inc vent, iSi	\$4,000	3	330		
Cello, inc iSi	\$30,000	3	330		
Temp/Dewpoint (T/DP), inc harness, iSi	\$2,500	3	330		
Radio - AWOS2000 inc backplane/mount, harness, antenna/coax	\$3,200	3	330		
Ultrasonic Winds - WMT702 inc harness, iSi, mount/crossarm	\$7,000	10	1100		
UPS -Triplite inc harness, battery harness	\$1,500	3	330		
Visibility/Pres Wx (Viz) - inc Harness, mount, iSi	\$20,000	10	1100		
Tipping Bucket - TR-525 inc harness, ancillary, iSi, mount	\$2,500	3	330		
			0		
Whole site Vaisala upgrade, new processor - Est only -	\$85,000	60	6600	9600	
Whole site All Weather INC upgrade, earthwork, new processor - Est only-	\$130,000	120	13200	21000	
Travel costs - \$250/person/day/hr away		1	2	3	4
	500	1000	1500	2000	

CONTRACT NO.: 230000001419
ATTACHMENT 2

**Automated Weather Observation Station
(AWOS) Task Force Recommendations**

Introduction

The Michigan Aeronautics Commission (Commission) and the Office of Aeronautics (Aeronautics) is charged with preserving and promoting a safe and efficient statewide aviation system. To support that mission, the Commission has prioritized all weather accessibility across the Michigan Aviation System. With a robust and resilient network of weather stations and weather dissemination equipment, airports across the State are able to attract and retain airport users during times of inclement weather. With this increased accessibility, local municipalities are able to maintain and grow the over \$20 billion economic impact general aviation provides to Michigan annually through XXXX jobs. As of 2021, the Office of Aeronautics maintains 41 non-federal AWOS Stations supporting the additional federally-operated weather stations at 30 commercial service airports.

The Commission convened the AWOS Task Groups in 2020 to examine the long-term viability of the Michigan AWOS System as component availability decreases, experienced technicians are increasingly sought after, and available resources decline as the aviation community's reliance on Non-Federal AWOS systems continue to grow. During the Task Group's initial meetings, the following goals were established:

1. Reassess the practical impact and level of service provided by the state-supported AWOS network in Michigan.
2. Examine future AWOS needs in order to continue providing pilots with real time aviation weather observations at the airport for pre-flight planning, and while airborne, to enhance the safety of flight operations.
3. Make recommendations to ensure ongoing maintenance and upgrades of the existing Michigan AWOS network.
4. If required, advocate for financial support needed to upgrades the existing Michigan AWOS network.

AWOS Component and System Overview

The FAA has many different designations for AWOS, depending on what all sensors are installed and certified. Early on in MDOT Aero's original All Weather Access Plan, we identified that the AWOS IIIP type was the most cost-efficient system for our aviating public. Included in this installation, are the certified sensors for the following measurements: wind speed and direction, barometric pressure, temperature, relative humidity (reported as dewpoint), visibility, present weather, and cloud height (ceiling). An updated requirement for AWOS III

commissioning is the addition of a precipitation accumulation sensor. While this is not a reportable METAR element, it is included in the remarks section, and helpful to the communities and NWS for hydration tracking. All 41 sites we support are AWOS IIIP. In addition, a handful of stations have the precipitation accumulation sensor and one also includes a thunderstorm sensor (making it an AWOS IIIP/T). Ancillary equipment installed on all station include:

1. VHF radios for local aerial voice broadcast output
2. Onsite battery powered Uninterruptable Power Supply (UPS) for commercial power interruptions
3. UG wiring/UHF radios/terminal building computers for local AWOS weather display, long line dissemination via internet, and remote maintenance access. ,

Our current state supported AWOS model includes an MDOT internal unit of technicians to oversee all facets of AWOS, including scheduled maintenance, unscheduled maintenance, scheduling of and conducting required inspections, and maintaining all required specialized calibrated tooling and spare parts repository.

All of the previously mentioned equipment and processes help to generate weather data, but this speaks nothing to what we do once its generated. The FAA allows us, as non-fed AWOS sponsors, to input our AWOS generated data from all 41 sites into the FAA's Weather Message Switching Center Replacement (WMSCR) system. This can be utilized by pilots who are looking for suitable destinations based on weather, as well as airborne aircraft receiving such data (through SiriusXM, ADS-B In, etc.) for situational awareness. We utilize and have under contract Mackinac Software Inc. to perform many functions on the data end of our AWOS network. Mackinac Software performs and supplies the necessary equipment and processes to:

1. Collect our AWOS data within the airport's terminal building and visually display this data to pilots within the building and via internet web-screen
2. Port our collected AWOS data for long line dissemination through FAA's National Airspace Data Interchange Network (NADIN) to the Weather Message Switching Center Replacement (WMSCR)
3. Analyze output (for missing/bad/stuck/outage data), alert via email, and display via web-screen a system wide map of the current and historical status of all AWOS statewide
4. Provide for remote maintenance connectivity via internet for technicians to analyze and troubleshoot system problems (before site arrival) for possible repair and parts needs
5. Host a secure website to securely access/lockout these functions

All of the above is done at each of the 41 AWOS stations we support.

Buy-n-large, most airports with federally supported AWOS/ASOS systems, have those for one of three reasons:

1. Significant airline service is at that particular airport
2. It has a military (federal) AWOS version already installed
3. The National Weather Service (NWS) has identified that airport as a needed location based on needs for observations for local area weather phenomenon, and potential impacts to forecasting data requirements.

Challenges Facing Current Network

For the past thirty years, the Michigan AWOS network has performed exceedingly well as a result of the dedication of local airport sponsors, MDOT Aeronautics staff, and the Commission for providing support to the network. However, recent changes in the AWOS manufacturing and support community has called into question the long term sustainability of the existing Michigan network as a result of less market competition for component manufacturing and the elimination of support for older legacy systems that exist in Michigan.

Including one site which is not supported by the state at this time (Hart/Shelby has an AWOS A/V installed), **ALL** of Michigan's non-fed AWOS sites are based on 1990's technology, and components for such legacy systems are hard to find, hard to repair, and are mostly no longer supported. Within our existing network, all sites have a combination of certified current and legacy components. An upgrade to any particular site could necessitate a small sensor replacement for longer life. Conversely, a complete system replacement might be required to maximize investment funds for other sites. Because of this current situation, a thorough review of available funds, short and long term strategies for statewide AWOS needs, and availability of replacement parts/costs is required to plan for efficiently operating and improving the current network within our state.

Federal Support for Non-Federal AWOS Systems

Non-federal AWOS systems have been installed in many locations across the nation by forward thinking states and municipalities seeking to provide the highest levels of aviation safety within their communities when federal resources were not available or could not be utilized in certain circumstances.

Today, Federal Aviation Administration Airport Improvement Program (AIP) Funding is available to support AWOS installation under certain circumstances however upgrades of existing systems that have become obsolete generally are not eligible for federal AIP support.

The FAA issued a Memorandum on October 29, 2009, which established policy that required all non-Federal AWOS equipment connections to the Weather Message Switching Center Replacement (WMSCR) be from a certified and commissioned AWOS-III or better, and the equipment must be certified in accordance with Advisory Circular 150/5220-16. The data from an AWOS-II (or lower), could not be disseminated to WMSCR, and that policy still exists today.

On June 18, 2014, the FAA issued Program Guidance Letter (PGL) 14-04, to clarify guidance on the eligibility of airports to qualify for an AIP funded AWOS-III. The basic premise of this PGL, was that an airport must meet a Benefit Cost Analysis ratio of 1.0 or greater to qualify for an AWOS-III or greater. For those airports who could not achieve 1.0 or greater, they could purchase and install up to and including an AIP funded AWOS-II, but there were restrictions. The FAA issued a new Airport Improvement Program (AIP) Handbook, (Order 5100.38D), dated September 30, 2014, which cancelled PGL 14-04. This handbook still requires a BCA ratio of 1.0 or better to qualify for an AWOS-III or greater, but with FAA approval, an airport

can install an AWOS-II, add a ceilometer, present weather sensor, and tipping bucket to make it an AWOS-IIIP. However, the sponsor must pay for all costs to purchase and install these three sensors when they are added.

A recent email to MDOT Aero's State Block Grant Coordinator for the FAA Detroit Airport District Office (ADO) indicated that the BCA requirement has been rescinded within the handbook.

Michigan Aeronautics Commission AWOS Task Group Determinations and Recommendations

1. The state-maintained AWOS network, in conjunction with the federally supported AWOS/ASOS network, continue to provide unparalleled safety benefits to the aviation community in Michigan. With a >99% reliability rate, the 41 non-fed AWOS stations in Michigan allow safe and efficient access to all areas of Michigan – many of which would experience tangible declines in services offered to the general public and reduced economic impact without the benefit of the Michigan AWOS network.
2. The Task Group recommends the Commission to support ongoing efforts of the Office of Aeronautics to train, retain, and preserve the dedicated staff needed to maintain the Michigan AWOS network.
3. In light of aging AWOS infrastructure and limited replacement components for the majority of existing AWOS systems, the Task Group recommends the Commission request the Michigan Legislature consider a one-time appropriation of \$X million to support a phased upgrade of existing AWOS systems over the next 5 years.

Chronology

- 1990 - Aeronautics began a state-local program for the purchase and installation of Automated Weather Observation Systems (AWOS-IIIP) to enhance safety and efficiency of the Michigan Aviation System.
- 1991 - The first non-federal AWOS in Michigan was installed in 1991 at Mackinac Island. This system was a Model V-B manufactured by Artais Weather Check, Inc.
- 1993 - Aeronautics entered into a contract with Pan Am Weather Systems for the purchase and installation of three AWOS. Pan Am subcontracted those systems to Handar, Inc., resulting in Handar systems being installed at Cadillac, Howell, and Port Huron. Maintenance of the systems at all four locations was conducted by Aeronautics technicians, under a cost sharing arrangement with the airport sponsor.
- 1995 - Aeronautics established the Artais AWOS as the standard system for non-federal systems in Michigan, which resulted in the purchase and installation of ten Artais systems.

- 1996 - Artais merged with Vaisala, Inc., which is headquartered in Helsinki, Finland. All subsequent purchases since that year, including the replacements of the three Handar systems, have been systems manufactured by Vaisala. An additional 5 systems purchased and installed
- 1999 – Vaisala unveils new V-C and V-D models. Utilizing state funding only, 13 AWOS systems were installed
- 2004 – As state resources for AWOS installations declined, 10 AWOS Systems were installed using Federal Aviation Administration Airport Improvement Program resources.
- 2007 – With 38 Vaisala AWOS systems active in the State, Vaisala indicated all existing Model V-B, which included 15 AWOS systems in Michigan, have reached the end of their useful life and any component support would cease by 2008. This end-of-life (EOL) announcement ended support for 16 of the 38 AWOS systems in the State.
- 2010 – 2016 Utilizing a variety of funding sources, 16 unsupported AWOS stations were upgraded. Additional purchase and install of 4 AWOS stations.
- 2014 – Vaisala issued end of life notice for CT25K ceilometer and Park Air Model 4004 VHF Transmitter
- 2016 – Vaisala's United States AWOS Program is purchased by DBT Transportation. Along with this change, Vaisala ended production of the V-C and V-D model AWOS. DBT ramped up production of their newly certified AW20 model (an IP based system). Numerous EOL's were issued for older sensors including legacy barometers, temperature and relative humidity, ultrasonic wind, visibility, present weather, thunderstorm, ceilometer sensors, and UHF datalink radios.
- 2020 – MDOT's recent review of current spare stockpiles revealed a need for a longer-term strategy in maintaining current AWOS levels cost efficiently.