State of Nebraska - INVITATION TO BID
ONE TIME PURCHASE

Return to: State Purchasing Bureau
1526 K Street, Suite 130
Lincoln, NE 68508
OR
P.O. Box 94847
Lincoln, NE 68509-4847
Telephone: 402-471-2401
Fax: 402-471-2089

Date	1/13/14	**Page**	1 of 5
Solicitation Number	4607 OF		
Opening Date and Time	01/31/14 2:00 PM		
Buyer	TERESA FLEMING (AS)		

DESTINATION OF GOODS
DEPT OF ROADS
5001 S 14TH ST
PO BOX 94759
LINCOLN NE 68509-4759

_____ I hereby certify that I am a Resident disabled veteran or business located in a designated enterprise zone in accordance with Neb. Rev. Stat. §73-107 and wish to have preference, if applicable, considered in the award of this contract.

One Time Purchase to supply and deliver Road Profiler Data Collection System to the State of Nebraska as per the attached specifications.

A response to this Solicitation is subject to, but not limited to, the Standard Terms and Conditions. PLEASE READ CAREFULLY!

IT IS THE RESPONSIBILITY OF THE BIDDER TO REFER TO STATE PURCHASING BUREAU' S WEBSITE FOR ALL INFORMATION RELEVANT TO THIS SOLICITATION TO INCLUDE ADDENDA AND/OR AMENDMENTS THAT MAY BE ISSUED PRIOR TO THE OPENING DATE. <http://www.das.ne.us/materiel/purchasing/purchasing.html>

Bid Tabulations are available on the internet at <http://www.das.state.ne.us/materiel/purchasing/bidtabs.htm>

This form is part of the specification package and must be signed and returned, along with all documents, by the opening date and time specifiied.

Any questions regarding this solicitation must be directed to State Purchasing Bureau, to the attention of the buyer. It is preferred that questions be sent via e-mail to as.materielpurchasing@nebraska.gov <mailto:as.materielpurchasing@nebraska.gov>. Questions may also be sent by facsimile to 402-471-2089. Refer to specification for additional information.

No facsimile or email solicitation responses will be accepted on bids $25,000 and over.

The State may request that payment be made electronically instead of by state warrant. ACH/EFT Enrollment Form can be found at: <http://www.das.state.ne.us/accounting/forms/achenrol.pdf>

The Contractor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of employees physically performing services within the State of Nebraska. A federal immigration verification system mean the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Responsibility Act of 1996, 8 U.S.C. 1324a, known as E-Verify Program, or an equivalent federal program designed by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

No Bid Respond: ( ) Remove From Class-Item OR ( ) Keep Active For Class-Item

BIDDER MUST COMPLETE THE FOLLOWING

DISCOUNT PAYMENT TERMS:_____% _____ DAYS

By signing this Invitation to Bid, the bidder agrees to the "Standard Conditions and Terms of Bid Solicitation and Offer" and is committed to provide a drug free work place environment. Vendor will furnish the items requested within_____ days after receipt of order. Failure to enter Delivery Date may cause quotation to be REJECTED.

Sign Here _____
(Authorized Signature MANDATORY - MUST BE SIGNED IN INK)

Enter Contact Information Below

VENDOR# _____
VENDOR: _____
Address: _____

Contact _____
Telephone _____
Facsimile _____
Email _____

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The contractor, by signature to this Invitation to Bid, certifies that the contractor is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any federal department or agency from participating in transactions (debarred). The contractor also agrees to include the above requirements in any and all subcontracts into which it enters. The contractor shall immediately notify the Department if, during the term of this contract, contractor becomes debarred. The Department may immediately terminate this contract by providing contractor written notice if contractor becomes debarred during the term of this contract.

If the Contractor is an individual or sole proprietorship, the following applies:
1. The Contractor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at: <http://das.nebraska.gov/lb403/attestation_form.pdf>
2. If the Contractor indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the US Citizenship and Immigration Services documentation require to verify the Contractor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.
3. The Contractor understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. §4-108.

Proprietary Information - Data contained in the Invitation to Bid response and all documentation provided therein, become the property of the State of Nebraska and the data becomes public information upon opening the Invitation to Bid. If the bidder wishes to have any information withheld from the public, such information must fall within the definition of Proprietary Information contained within Nebraska' s Public Records Statutes. All Proprietary Information the bidder wishes the state to withhold must be submitted in a sealed package, which is separate from the remainder of the bid response. The separate package must be clearly marked PROPRIETARY on the outside of the package. Bidders may not mark their entire Invitation to Bid response as proprietary. Bidders cost may not be marked as proprietary information. Failure of the bidder to follow the instructions for submitting proprietary and copyrighted information may result in the information being viewed by other bidders and the public. Proprietary information is defined as trade secrets, academic and scientific research work which is in progress and unpublished, and other information which if released would give advantage to business competitors and serve no public purpose (see Neb. Rev. Stat. §84-712.05(3)). In accordance with Attorney General Opinions 92068 and 97033, bidders submitting information as proprietatry may be required to prove specific, named competitor(s) would be advantaged by release of the information and the specific advantage the competitor(s) would receive. Although every effort will be made to withhold information that is properly submitted as proprietary and meets the State' s definition of proprietary information, the State is under no obligation to maintain the confidentiality of proprietary information and accepts no liability for the release of such information.

Once bids are opened they become the property of the State of Nebraska and will not be returned.
It is understood by the parties that in the State of Nebraska' s opinion, any limitation on the contractor' s liability is unconstitutional under the Nebraska State Constitution, Article XIII, Section III and that any limitation of liability shall not be binding on the State of Nebraska despite inclusion of such language in documents supplied by the contractor' s bid response.

State Statute 73-107 allows for a preference for a resident disabled veteran or business located in a designated enterprise zone. When a state contract is to be awarded to the lowest responsible bidder, a resident disabled veteran or a business located in a designated enterprise zone under the Enterprise Zone Act shall be allowed a preference over any other resident or nonresident bidder, if all other factors are equal.

Resident disabled veterans means any person (a) who resides in the State of Nebraska, who served in the United States Armed Forces, including any reserve component or the National Guard, who was discharged or otherwise separated with a characterization of honorable or general (under honorable conditions), and who possesses a disability rating letter issued by the United States Department of Veterans Affairs establishing a service-connected disability or a disability determination from the United States Department of Defense and (b)(i) who owns and controls a business or, in the case of a publicly owned business, more than fifty percent of the stock is owned by one or more persons described in subdivision (a) of this subsection and (ii) the management and daily business operations of the business are controlled by one or more persons described in subdivision(a) of this subsection. Any contract entered into without compliance with this section shall be null and void.

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Therefore, if a resident disabled veteran or business located in a designated enterprise zone submits a bid in accordance with Neb. Rev. Stat. §73-107 and has checked " yes" requesting priority/preference to be considered in the award of this contract, the following will need to be submitted by the vendor within 10 business days of request:

a. Documentation from the United States Armed Forces confirming service,
b. Documentation of discharge or otherwise separated characterization of honorable or general (under honorable conditions),
c. Disability rating letter issued by the United States Department of Veterans Affairs establishing a service-connected disability or a disability determination from the United States Department of Defense; and
d. Documentation which shows ownership and control of a business or, in the case of a publicly owned business, more than fifty percent of the stock is owned by one or more persons described in subdivision (a) of this subsection; and the management and daily business operations of the business are controlled by one or more persons described in subdivision (a) of this subsection.

Failure to submit the requested documentation within 10 business days of notice will disqualify the bidder from consideration of the preference.

(bl 01/10/14)
A response to this Solicitation is subject to, but not limited to, the included Standard Conditions and Terms. PLEASE READ CAREFULLY!

IT IS THE RESPONSIBILITY OF THE BIDDER TO REFER TO STATE PURCHASING BUREAU'S WEB SITE FOR ALL INFORMATION RELEVANT TO THIS SOLICITATION TO INCLUDE ADDENDA AND/OR AMENDMENTS THAT MAY BE ISSUED PRIOR TO THE OPENING DATE.
http://www.das.state.ne.us/materiel/purchasing/purchasing.html

Bid Tabulations are available on the internet at http://www.das.state.ne.us/materiel/purchasing/bidtabs.htm

This form is part of the specification package and must be signed and returned, along with all documents, by the opening date and time specified.

Any questions regarding this solicitation must be directed to State Purchasing Bureau, to the attention of the buyer. It is preferred that questions be sent via e-mail to matpurch.dasmat@nebraska.gov. Questions may also be sent by facsimile to 402-471-2089. Refer to specification for additional information.

No facsimile or email solicitation responses will be accepted on bids $25,000 and over.

INVITATION

Line	Description	Quantity	Unit of Measure	Unit Price	Extended Price
1	**ROAD PROFILER DATA COLLECTION** SYSTEM FOR VEHICLE CHASSIS MAKE: _____ MODEL: _____	**2.0000**	**EA**	_____	_____
2	**OPTION: STAND ALONE COMPUTER**	**1.0000**	**EA**	_____	_____

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INVITATION

Line	Description	Quantity	Unit of Measure	Unit Price	Extended Price
	SERVER FOR DATA PROCESSING				
3	**OPTION: REAR VIEW CAMERA TO** CAPTURE LEFT RIGHT-OF-WAY PERSPECTIVE	**2.0000**	**EA**	_____	_____
4	**OPTION: TRADE-IN VALUE FOR OLD** PROFILE VANS SEE ATTACHMENT "A"	**2.0000**	**EA**	_____	_____
5	**OPTION: ONE (1) ADDITIONAL** YEAR WARRANTY AND SERVICE AGREEMENT AFTER INITIAL ONE (1) YEAR WARRANTY PERIOD	**1.0000**	**YR**	_____	_____

STANDARD CONDITIONS AND TERMS OF BID SOLICITATION AND OFFER Invitations to Bid and Contract Awards

It is the responsibility of the bidder to check the website for all information relevant to this solicitation to include addenda and/or amendments issued prior to the opening date. Website address: http://www.das.state.ne.us/materiel/purchasing/purchasing.htm

SCOPE- These standard conditions and terms of bid solicitation and acceptance apply in like force to this inquiry and to any subsequent contract resulting therefrom.

PRICES- Prices quoted shall be net, including transportation and delivery charges fully prepaid by the bidder, F.O.B. destination named in the Invitation to Bid. No additional charges will be allowed for packing, packages or partial delivery costs. When an arithmetic error has been made in the extended total, the unit price will govern.

EXECUTION- Bids must be signed in ink by the bidder on the State of Nebraska's Invitation to Bid form. All bids must be typewritten or in ink on the State of Nebraska's Invitation to Bid form. Erasures and alterations must be initialed by the bidder in ink. No telephone or voice bids will be accepted. Failure to comply with these provisions may result in the rejection of the bid.

FACSIMILE DOCUMENTS- The State Purchasing Bureau will only accept facsimile responses to Invitations to Bid on bids under $25,000 and up to ten (10) pages. **However, two party sealed bids containing facsimile pages are acceptable.** No direct facsimile solicitation responses will be accepted for a commodity contract.

VALID BID TIME- Bids shall be firm for a minimum of sixty (60) calendar days after the opening date, unless otherwise stipulated by either party in the Invitation to Bid.

DISCOUNTS- Prices quoted shall be inclusive of ALL trade discounts. Cash discount terms of less than thirty (30) days will not be considered as part of the bid. Cash discount periods will be computed from the date of receipt of a properly executed claim voucher or the date of completion of delivery of all items in a satisfactory condition, whichever is later.

PAYMENT- Payment will be made by the responsible agency in conjunction with the State of Nebraska Prompt Payment Act 81-2401 through 2408. The State may request that payment be made electronically instead of by state warrant.

COLLUSIVE BIDDING- The bidder guarantees that the prices quoted have been arrived at without collusion with other eligible bidders and without effort to preclude the State of Nebraska from obtaining the lowest possible competitive price.

LUMP SUM OR ALL OR NONE BIDS- The State reserves the right to purchase item-by-item, by groups or as a total when the State may benefit by so doing. Bidders may submit a bid on an "all or none" or "lump sum" basis but should also submit a bid on an item-by-item basis. The term "all or none" means a conditional bid which requires the purchase of all items on which bids are offered and bidder declines to accept award on individual items; a "lump sum" bid is one in which the bidder offers a lower price than the sum of the individual bids if all items are purchased but agrees to deliver individual items at the prices quoted.

SPECIFICATIONS- Any manufacturer's names, trade names, brand names, information and/or catalog numbers listed in a specification are for reference and not intended to limit competition, but will be used as the standard by which equivalent material offered will be judged. The State Purchasing Director will be the sole judge of equivalency. The bidder may offer any brand which meets or exceeds the specification. When a specific product is required, the Invitation to Bid will so state. Any item bid is to be the latest current model under standard production at the time of order. No used or refurbished equipment will be accepted, unless otherwise stated.

ALTERNATE/EQUIVALENT BIDS- Bidder may offer bids which are at variance from the express specifications of the Invitation to Bid. The State reserves the right to consider and accept such bids if, in the judgement of the State Purchasing Director, the bid will result in goods and/or services equivalent to or better than those which would be supplied in the original bid specifications. Bidders must indicate on the Invitation to Bid the manufacturer's name, number and shall submit with their bid, sketches, descriptive literature and/or complete specifications. Reference to literature submitted with a previous bid will not satisfy this provision. Bids which do not comply with these requirements are subject to rejection. In the absence of any stated deviation or exception, the bid will be accepted as in strict compliance with all terms, conditions and specifications, and the bidder shall be held liable therefore.

SAMPLES- When requested, samples shall be furnished at the bidders expense prior to the opening of the bid, unless otherwise specified. Each sample must be labeled clearly and identify the bidders name, the Invitation to Bid number and the item number. Samples submitted must be representative of the commodities or equipment which would be delivered if awarded the bid. The State of Nebraska reserves the right to request samples even though this may not have been set forth in the Invitation to Bid. Samples not destroyed in testing will be returned at bidders expense, if requested, or will be donated to a public institution.

RECYCLING- Preference will be given to items which are manufactured or produced from recycled material or which can be readily reused or recycled after their normal use as per State Statute Section 81-15,159.

LATE BIDS- All bids will be time and date stamped upon receipt by the State Purchasing Bureau, and this shall be the official time and date of receipt. Bids received after the time of the bid opening will be considered late bids and will be returned to the bidder unopened. The State Purchasing Bureau is not responsible for late bids or lost requests due to mail service inadequacies, traffic or other similar reasons.

BID OPENING- Openings shall be public on the date and time specified on the Invitation to Bid form. It is the bidder's responsibility to assure the bid is delivered at the designated date, time and place of the bid opening. Telephone bids are not acceptable. A bid may not be altered after opening of the bids.

NO BID- If not submitting a bid, respond by returning the Invitation to Bid form explaining the reason in the space provided. Failure to respond to an Invitation to Bid may be cause for the removal of the bidder's name from the mailing list. NOTE: To qualify as a respondent, bidder must submit a "NO BID" and it must be received no later than the stated bid opening date and time.

AWARD- All purchases, leases, or contracts which are based on competitive bids will be awarded to the lowest responsible bidder, determined according to the provisions of State Statute Section 81-161, R.R.S. 1943. The State reserves the right to reject any or all bids, wholly or in part and to waive any deviations or errors that are not material, do not invalidate the legitimacy of the bid and do not improve the bidders competitive position. All awards will be made in a manner deemed in the best interest of the State.

BID TABULATIONS- Tabulations will be furnished upon written request. A self-addressed, stamped envelope which must include the agency and solicitation number must be enclosed. Bid tabulations will not be provided by telephone or facsimile. Bid files may be examined during normal working hours by appointment. Bid tabulations are available on the website at: http://www.das.state.ne.us/materiel/purchasing/bidtabs.htm

PERFORMANCE AND DEFAULT- The State reserves the right to require a performance bond from the successful bidder, as provided by law, without expense to the State. Otherwise, in case of default of the contractor, the State may procure the articles from other sources and hold the contractor responsible for any excess cost occasioned thereby.

IN-STATE PREFERENCE- A resident bidder shall be allowed a preference against a nonresident from a state which gives or requires a preference to bidders from that state. The preference shall be equal to the preference given or required by the state of the nonresident bidders. Where the lowest responsible bid from a resident bidder is equal in all respects to one from a nonresident bidder from a state which has no preference law, the resident bidder shall be awarded the contract**.**

NONDISCRIMINATION- The Nebraska Fair Employment Practice Act prohibits contractors of the State of Nebraska, and their subcontractors, from discriminating against any employee or applicant for employment, to be employed in the performance of such contracts, with respect to hire, tenure, terms, conditions or privileges of employment because of race, color, religion, sex, disability, or national origin. (State Statute Sections 48-1101 through 48-1125) The bidder guarantees compliance with the Nebraska Fair Employment Practice Act, and breach of this provision shall be regarded as a material breach of contract. The contractor shall insert a similar provision in all subcontracts for services to be covered by any contract resulting from this Invitation to Bid.

TAXES- Purchases made by the State of Nebraska are exempt from the payment of Federal Excise Taxes, and exemption certificates will be furnished on request. State and local taxes are exempt by State Statute Section 77-2704 (l) (m) R.R.S. 1943 and must not be included in the bid prices. Exemption by statute precludes the furnishing of State exemption certificates.

DRUG POLICY - Bidder certifies that it maintains a drug free work place environment to ensure worker safety and workplace integrity. Contractor agrees to provide a copy of its drug free workplace policy at any time upon request by the State.

NE ACCESS TECHNOLOGY STANDARDS- Vendor agrees to ensure compliance with Nebraska Access Technology Standards. See website at: http:/www.nitc.state.ne.us/standards/accessibility/

Revised: 02/2004

STATE OF NEBRASKA
STATE PURCHASING BUREAU

SCHEDULE OF EVENTS

The State expects to adhere to the tentative procurement schedule shown below. It should be noted, however, that some dates are approximate and subject to change.

	ACTIVITY	DATE/TIME
1	Release Invitation to Bid	January 13, 2014
2	Last Day to Submit Written Questions	January 21, 2014
3	State Responds to Written Questions Through an Addendum to be posted to the internet at: http://www.das.state.ne.us/materiel/purchasing/rfp.htm	January 24, 2014
4	Bid Opening Location: State Purchasing Bureau 1526 K Street, Suite 130 Lincoln, NE 68508	January 31, 2014 2:00 p.m. Central Time

WRITTEN QUESTIONS AND ANSWERS

Any explanation desired by a bidder regarding the meaning or interpretation of any Invitation to Bid provision must be submitted in writing to the State Purchasing Bureau and clearly marked "ITB Number 4607 OF; Road Profiler Data Collection System". It is preferred that questions be sent via e-mail to as.materielpurchasing@nebraska.gov Questions may also be sent by facsimile to 402-471-2089, but must include a cover sheet clearly indicating that the transmission is to the attention of Teresa Fleming, showing the total number of pages transmitted, and clearly marked "ITB Number 4607 OF; Road Profiler Data Collection System".

Written answers will be provided through an addendum to be posted on the internet at http://www.das.state.ne.us/materiel/purchasing/rfp.htm **on or before the date shown in the Schedule of Events.**

STATE OF NEBRASKA
DEPARTMENT OF ROADS

Terms and Conditions for Road Profiler Data Collection System 4607 OF

SCOPE
The Nebraska Department of Roads (NDOR) is requesting sealed bids to supply and deliver two (2) **Road Profiler Data Collection Systems** that meet or exceed specifications listed. The system shall be capable of collecting, processing, reporting, and exporting pavement condition data compatible with the NDOR Pavement Management System.

BUY AMERICA
Bidder(s) should submit with their bid; however, must furnish prior to award, a letter on company letterhead and signed by an officer of the company certifying to the State of Nebraska that documentation is on file and all final assembly of the vehicles to be purchased occurred in the United States of America.

SECRETARY OF STATE
Contract or purchase order awards may be limited to bidders authorized to transact business in the State of Nebraska. All awarded bidders are expected to comply with all Nebraska Secretary of State Registration requirements. It is the responsibility of the bidder to comply with any registration requirements pertaining to types of business entities (e.g. person, partnership, foreign or domestic limited liability company, association, or foreign or domestic corporation or other type of business entity). The bidder who is the expected recipient of an award recommendation will be required to certify that it has so complied and produce a true and exact copy of its current (dated within 90 days), valid Certificate of Good Standing or Letter of Good Standing; or in the case registration is not required, to provide, in writing, the reason as to why none is required. This must be accomplished prior to the award of the contract or purchase order. Further, all bidders shall comply with any and all other applicable Nebraska statutes regarding transacting business in the State of Nebraska. In order to expedite the award process, bidders are encouraged to submit their valid Certificate of Good Standing or Letter of Good Standing with their bid.

NON-COMPLIANCE STATEMENT
Read this specification carefully. Any and all exceptions to this specification must be written on or attached to invitation to bid. Non-compliance can void your bid. It is the responsibility of the Bidders to obtain information and clarifications as provided on the Schedule of Events. The State of Nebraska is not responsible for any erroneous or incomplete understandings or wrongful interpretations of this Invitation to Bid by any Bidder.

BREACH OF CONTRACT
Failure to conform to the Specifications and Terms and Conditions constitutes a breach of this contract, and the State may reject the entire order or any part thereof and may recover the expenses and/or damages of such breach. The State of Nebraska may, also at its discretion, terminate the contract immediately upon written notice to the contractor and/or pay the contractor only for such performance as has been properly completed and is of use to the State and contract for provision of the services required to complete this contract and hold the contractor liable for all expenses incurred in such additional contract over and above the total cost of performance. This provision shall not preclude the pursuit of other remedies for breach of contract as allowable by law.

RIGHTS
The State of Nebraska reserves the right to waive technicalities and reject any or all bids. The State of Nebraska will be the sole judge of equivalence and any decision will be final.

DELIVERY
The vendor shall supply and deliver the Road Profiler F.O.B. Destination as required by the State of Nebraska per attached specifications, terms and conditions. Price quoted shall be net, including transportation and delivery charges fully prepaid by the seller.

Delivery shall be between 9:00 AM and 3:00 PM, daily, except Saturday, Sunday, and holidays. Vendor must notify Fleet Management a minimum of 24 hours prior to delivery on work day basis at (402) 479-4319 or 4323. NDOR's equipment will be delivered to 5001 South 14th Street, Lincoln, Nebraska.

STATE OF NEBRASKA
DEPARTMENT OF ROADS

Specifications for Road Profiler Data Collection System 4607 OF

Bidder instructions:
Bidder must respond to each of the following statements. Specifications listed are minimum conditions that must be met in order for a bidder to qualify for the award.

MEETS SPECIFICATION – Please indicate – (If response is No & Provide Alternative, explain on Notes/Alternative line). "No & Provide Alternative" responses should be used only with a narrative response on comment line explaining in detail any deviation from the bidder's ability to meet the condition, and an explanation of how this would be determined to be an acceptable alternative to meeting the condition. Alternatives must be detailed in such a way that allows such deviations to be fully evaluated. The State of Nebraska shall determine at its sole discretion whether or not the vendor's alternative is an acceptable alternative.

YES	NO	NO & PROVIDE ALTERNATIVE	
_____	_____	_____	**QUALITY** Products must meet or exceed specifications and be of first quality, free of damage and/or defect and must be under standard production by the manufacturer and be of standard design, complete as regularly advertised and marketed and be of proven performance. A guarantee of satisfactory performance of the product, performance of the supplier, and the supplier meeting delivery dates are all considered to be integral parts of the contract resulting from this bid invitation.

Notes/Alternative: _____
_____

YES	NO	NO & PROVIDE ALTERNATIVE	
_____	_____	_____	**PRICE** Prices quoted shall be unit price (each) and shall be firm for 90 (ninety) days from date of an award and are to be net; including transportation and delivery charges fully prepaid by the bidder F.O.B. destination as specified on each Purchase Order or under separate cover with each order. No additional charges will be allowed for packing, handling, or partial delivery costs.

Notes/Alternative: _____
_____

ITEM I. AUTOMATED PAVEMENT CONDITION AND EVALUATION PROFILERS

YES	NO	NO & PROVIDE ALTERNATIVE	A. PROFILER REQUIREMENTS
_____	_____	_____	1. Inertial Road Profiler built to ASTM E950M-09 and AASHTO M328-10 standards[1]
_____	_____	_____	2. Vehicle comes certified as Class I Profiler per AASHTO R56-10
			3. Sensor data collected shall include the following:
_____	_____	_____	a. Longitudinal Profile for International Roughness Index (IRI) using ASTM E950M-09, AASHTO R43M/R43-07 referenced in HPMS Field Manual.
_____	_____	_____	b. Rutting measured from three (3) point rut-bar and laser line scanner using methods in ASTM E1703 and AASHTO R48-10.
_____	_____	_____	c. Transverse Profile collected and measured in accordance with AASHTO PP70-10 and AASHTO PP69-10.
_____	_____	_____	d. Automated crack detection consistent with AASHTO PP68-10 and AASHTO PP67-10.
_____	_____	_____	e. Faulting measured from three (3) point rut bar and laser line scanner using AASHTO R36-12 and NDOR formula.
_____	_____	_____	f. Latitude, longitude and altitude from Global Positioning System (GPS).
_____	_____	_____	g. Pitch, roll, cross slope and heading from Inertial Measurement Unit (IMU).
_____	_____	_____	h. Traveled length measured from Distance Measuring Instrument (DMI).
			4. Images collected shall include the following:
_____	_____	_____	a. High resolution color digital images of the perspective view of the roadway using forward camera.
_____	_____	_____	b. High resolution color digital image of the Right-of-Way (ROW) perspective using right facing camera.
_____	_____	_____	c. All images must be time stamped and reference GPS location in a format compatible with current NDOR network browser.
			5. User interface shall include the following:
_____	_____	_____	a. Windows interface should be in WIN 7 or most current operating system.
_____	_____	_____	b. Display of real time sensor data in legible and visual format for quality assurance during collection.

[1] Appendix A lists the referenced ASTM and AASHTO standards. Vendors should meet the most current standards.

_____	_____	_____	c. Capable of starting and ending road sections on GPS coordinates.
_____	_____	_____	d. Provide voice feedback for operation, navigation, system errors and quality control of sensor data.
_____	_____	_____	e. Import and export NDOR's Integrated Highway Inventory (IHI) database and Geographic Information System (GIS) basemap into vehicle for data collection.
_____	_____	_____	f. Data transfer using hot-swappable removable drives to server.

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**B. VEHICLE REQUIREMENTS (MINIMUMS)**
_____	_____	_____	1. One ton cargo van. Cargo area to have minimum 63 inches headliner height.
_____	_____	_____	2. Gas engine minimum 5.3 liters. Diesel engine would also be acceptable. Diesel engine to be minimum 3.0 liter with turbocharger.
_____	_____	_____	3. Axle ratio between 3.55 and 4.11. State ratio providing_____
_____	_____	_____	4. Electronic 4-speed automatic with overdrive
_____	_____	_____	5. Adequate power supply for continuous data collection
_____	_____	_____	6. Swing-out side and rear cargo door with windows in all doors and push-out windows for rear ventilation
_____	_____	_____	7. White clear-coat free of decals and advertising by vendor. Chassis OEM nameplates are acceptable
_____	_____	_____	8. Power exterior mirrors, windows, and door locks
_____	_____	_____	9. Privacy glass in all windows except front windshield
_____	_____	_____	10. Cruise control
_____	_____	_____	11. Two (2) captain's chairs with lumbar seating with six-way adjustments
_____	_____	_____	12. Side air-bags if available from manufacturer
_____	_____	_____	13. Right side parabolic safety mirror
_____	_____	_____	14. Nitrogen-filled run flat tires with full-size spare and steel rims
_____	_____	_____	15. Standard towing package to include oversized radiator and transmission cooler
_____	_____	_____	16. Running boards
_____	_____	_____	17. Fuel tank capacity to provide 400 miles of cruising range
_____	_____	_____	18. Outside backup alarm

_____	_____	_____	19. Three (3) remote vehicle entry fobs
_____	_____	_____	20. Three (3) vehicle keys
_____	_____	_____	21. High capacity rear air conditioning

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**C. VEHICLE CUSTOMIZATION (MINIMUMS)**
_____	_____	_____	1. High top roof. Minimum 63 inches inside height at headliner.
_____	_____	_____	2. High-Capacity air conditioning for all on-board instruments during data collection.
_____	_____	_____	3. Extra insulation
_____	_____	_____	4. Finished walls, ceiling
_____	_____	_____	5. Ceiling lighting
_____	_____	_____	6. Two (2), 120 AC Outlets with 20 AMP fuses
_____	_____	_____	7. All welded heavy gauge steel shock mounted equipment racks
_____	_____	_____	8. Air conditioning vents inside equipment rack
_____	_____	_____	9. Oversized storage cabinet for tools and emergency equipment
_____	_____	_____	10. Monitor and operational controls should be mounted on height adjustable swivel device to provide convenient use by the driver or front passenger
_____	_____	_____	11. Switches and controls shall be placed in easy reach of operator and front passenger. Operators should not be required to exit the vehicle to turn systems on or off.
_____	_____	_____	12. When installing custom sub-systems of sensors and cameras, vendor shall keep vehicle safety components, frame suspension, vehicle information systems in-tact and functioning. All customized systems shall be secured to vehicle frame with no movable parts during vehicle operation.

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**D. ON-BOARD COMPUTER SYSTEM HARDWARE (MINIMUMS)**
_____	_____	_____	1. Pentium quad-core PC computer
_____	_____	_____	2. Minimum memory: 16 GB RAM
_____	_____	_____	3. Minimum 8 TB of hard disks
_____	_____	_____	4. Hot-swappable removable drives 1TB to accommodate 1000 miles of data collection
_____	_____	_____	5. The on-board computer runs on WIN 7 or most current windows operating system. Vendor must be able to provide software and hardware support for the life of the vehicle, providing software upgrades as necessary.
_____	_____	_____	6. The system includes remote desktop functions such that operators can attain real-time in-field diagnostic support.
_____	_____	_____	7. 1280 x 1024 19” SVGA flat color monitor

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**E. ON-BOARD SOFTWARE (MINIMUMS)**
_____	_____	_____	1. Graphic user interface
_____	_____	_____	2. Real time graphic display of instrument outputs shall include the following: a. Accelerometers and 3-point laser sensors b. Distance Measurement Instrument (DMI) c. Global Positioning System (GPS) d. Inertial Measurement Unit (IMU) e. Laser line scanner f. Camera systems The display allows operator to verify the accuracy of the data collected. The display shows the information in terms of synchronized images, Longitudinal and Transverse Profiles, roughness and rutting values using NDOR’s Linear Referencing System (LRS).
_____	_____	_____	3. Real time display of file name, vehicle speed, traveled distance, post miles, data collection set, GPS location, heading, pitch, roll, using NDOR base map and LRS.
_____	_____	_____	4. Vendor must be able to custom export GPS, distance, IMU data for post-processing. Post-processing is used to generate geometric information, information such as vertical curves, horizontal curves, and super-elevation.
_____	_____	_____	5. Software features shall include the following: a. Loading, saving, editing records of road sections in database b. One-key manual activation of pause and run

c. Menu-driven calibration system for on-board instruments

_____ _____ _____ 6. Voice feedback system that reports the following information:

a. Vehicle's approach to the end of road section and description of the completed road section

b. Activation and deactivation of the data collection system

c. Start and end of tested road section

d. Real time system function errors and failures. Detailed list of errors are in Appendix C.

_____ _____ _____ 7. GPS mapping function must be able to overlay collected data on NDOR basemap and LRS. The GPS map displays real-time GPS location of the vehicle and highlights the start and end points of current road section.

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**F. ON-BOARD LASER-BASED INERTIAL PROFILE SYSTEM (MINIMUMS)**
_____	_____	_____	1. South Dakota type inertial profiler, Class I
_____	_____	_____	2. Computes and validates IRI using ASTM E 950-09/ASTM E 1926 for each wheel path and AASHTO R43-07
_____	_____	_____	3. Longitudinal profile stored at a frequency of 1.5 inch
_____	_____	_____	4. Storage media: real time hard disk with hot-swappable removable drives for backup
_____	_____	_____	5. Collects data up to highway speeds
_____	_____	_____	6. Uses Selcom laser
_____	_____	_____	7. Two (2) accelerometer with computer interface boards
_____	_____	_____	8. The system shall be capable of exporting profile data in the FHWA ProVAL 3.4 software. The .ERD format or .PFF format can be imported into ProVAL without manipulation.
_____	_____	_____	9. Faulting to be calculated for every joint at the left and right wheel path locations. Calculations are consistent with AASHTO R36-12 and NDOR faulting formula in the Pavement Management Manual.

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**G. ON-BOARD DISTANCE MEASUREMENT INSTRUMENT (MINIMUMS)**
_____	_____	_____	1. The Distance Measuring Instrument (DMI) will reference all images, sensor data to the NDOR LRS.
_____	_____	_____	2. The system shall provide viewing of real time DMI and speed.
_____	_____	_____	3. The system shall include automated calibration and validation for the DMI.
_____	_____	_____	4. Calibration constants shall be computed automatically.
_____	_____	_____	5. The operator shall have the option to accept or decline calibration change.
_____	_____	_____	6. The system shall include any physical objects needed to accomplish the calibration.
_____	_____	_____	7. DMI shall accommodate highway speeds without affecting subsystem integrity and measurement quality. DMI operates at the following conditions: a. Wheel-mounted b. Distance interval: 0.75 inches c. Distance accuracy: +/-0.01%

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**H. ON-BOARD GPS SYSTEM (MINIMUMS)**
_____	_____	_____	1. The system shall include a Global Positioning System, DGPS ready. A 12-satellite tracking receiver capable of utilizing satellite-based or beacon-based differential corrections, operating on Frequency L2 and L1.
_____	_____	_____	2. System provides continuous satellite differential corrections
_____	_____	_____	3. Minimum Static Accuracy: Sub-foot
_____	_____	_____	4. Minimum Dynamic Accuracy (accuracy tied to image and linear distance measurements): less than fifteen (15) feet
_____	_____	_____	5. Software to collect latitude, longitude, altitude and synchronize position with digital images and sensor data
_____	_____	_____	6. Please fill in overall system accuracy: [2] a. Latitude accuracy: ±_____degrees and post-processed ±_____degrees b. Longitude accuracy: ±_____degrees and post-processed ±_____degrees c. Elevation accuracy: ±_____feet and post-

[2] NDOR has access to Virtual Reference Stations (VRS) in the Seiler Midwest real-time correction (RTK) network in Nebraska. Rover units are reserved for the operation of the new profilers.

processed ±_____feet

_____ _____ _____ 7. Ability to compensate for loss of GPS signal with other sensor data

_____ _____ _____ 8. System cabling and wiring should be tagged or labeled.

_____ _____ _____ 9. Power supply

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**I. ON-BOARD INERTIAL MEASUREMENT UNIT (MINIMUMS)**
_____	_____	_____	1. Please fill in overall gyroscope system accuracy: a. Processed grade ±_____degree and cross-slope ±_____degrees b. Processed vertical and horizontal curvature
_____	_____	_____	2. GPS with IMU should be capable of reporting the following: a. Real time processed heading and velocity and/or speed b. Real time processed latitude, longitude, and altitude
_____	_____	_____	3. Please provide system capability operating range: a. Operating temp: _____ to _____ Degrees b. Relative humidity: _____ to _____ Percent

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**J. ON-BOARD PERSPECTIVE CAMERAS FOR DIGITAL IMAGES OF ROADWAY (MINIMUMS)**
_____	_____	_____	1. A system of two (2) color cameras generating Integrated forward view of roadway and right view of Right-of-Way (ROW)
_____	_____	_____	2. Minimum native resolution: 2500 x 2000 pixels per camera
_____	_____	_____	3. Power focus: 1m – Infinite
_____	_____	_____	4. Auto iris: F1.9 – F16 with auto adjusting range during data collection for extended operating day for varying light conditions
_____	_____	_____	5. Camera contains corrective filter to reduce glare - minimizing effects of the sunlight and position on image quality
_____	_____	_____	6. The system shall allow low to high image capture rates. The default rate must be 200 images per mile for compatibility with NDOR browser.

_____	_____	_____	7. Images shall be compressed and stored in real time using the standardized Joint Photographic Experts Group JPEG).

Notes/Alternative: _____

YES	NO	NO & PROVIDE ALTERNATIVE	**K. ON-BOARD 3D PAVEMENT SURFACE IMAGING SYSTEM (MINIMUMS)**
_____	_____	_____	1. System uses 3D-laser based camera/cameras, capable of capturing data at highway speeds with no misalignment of images.
_____	_____	_____	2. System captures Transverse Profiles for the entire lane width, continuously.
_____	_____	_____	3. System must capture simultaneously an intensity image and a 3D depth image of the entire lane width of the pavement surface.
_____	_____	_____	4. Capture rate of downward surface Image must be compatible with NDOR browser for a display at 200 color images per mile.
_____	_____	_____	5. Images must not have shadows.
_____	_____	_____	6. 3D System data must be stored to hard disk in real-time using lossless compression. The 3D System should require no more than 1GB of data storage per mile.
_____	_____	_____	7. 3D system capable of detecting cracking with the following criteria: a. Cracking across entire lane width of 13 feet b. Minimum cracking width of 1/10th inch c. Minimum accuracy of crack depth +/- 1/50th inch
_____	_____	_____	8. For safety, system includes an automated laser light shutoff triggered by a motion sensor and blinking LEDs when system is activated.
_____	_____	_____	9. System must include transverse plane calibration object.

Notes/Alternative: _____

YES	NO	NO & PROVIDE ALTERNATIVE	**L. 3D-BASED TRANSVERSE PROFILE AND RUTTING DETECTION**
_____	_____	_____	1. 3D System must display a transverse profile graph synchronized with the 3D depth image.
_____	_____	_____	2. 3D System must display precise rutting depths on both wheel paths.
_____	_____	_____	3. Transverse Profile must be updated as the user moves the mouse over the image.

_____	_____	_____	4. Rutting must be calculated according to ASTM E1703 and AASHTO 69-10 and measured according to AASHTO PP70-10.
_____	_____	_____	5. Virtual six (6) feet straight edge to be displayed over the transverse profile graph.
			6. Software must allow the end user to define intervals for the following:
_____	_____	_____	a. To process, export, and report transverse profile
_____	_____	_____	b. To process, export, and report rutting
_____	_____	_____	c. To measure and identify sections of road with rutting thresholds
_____	_____	_____	d. To store un-processed results in files or hard copies

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**M. 3D-BASED FAULTING DETECTION**
_____	_____	_____	1. 3D System must display a graphical longitudinal profile graph synchronized with the 3D depth image.
_____	_____	_____	2. Longitudinal Profile must be updated as the user hovers the mouse over the image.
_____	_____	_____	3. Faulting to be calculated for every joint at the left and right wheel path locations. Calculations are consistent with AASHTO R36-12 and NDOR faulting formula in the Pavement Management Manual.
_____	_____	_____	4. Software must also allow the end user to process and report faulting in user definable intervals.
_____	_____	_____	5. Faulting Depth Precision: 1 mm

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**N. 3D-BASED AUTOMATED CRACK DETECTION**
_____	_____	_____	1. System must automatically detect lane markings and assign wheel path location for every image.
_____	_____	_____	2. Crack detection must not take more than 10 seconds per image per instance.
_____	_____	_____	3. System must eliminate false positives typical of automated crack detection software.
_____	_____	_____	4. Automated crack detection algorithm should be in line with AASHTO PP68-10 and AASHTO PP67-10.
_____	_____	_____	5. System must capture and identify type of cracking, frequency of cracking, crack depth, width and vertical

			displacement.
_____	_____	_____	6. Crack depth, width, pattern and vertical displacement must be used to estimate crack severity.
_____	_____	_____	7. System must classify severity and extent levels automatically, producing results consistent with the visual rating methods in current Nebraska Pavement Condition Survey Manual.
_____	_____	_____	8. Playback software must allow you to view the road surface in 3D with actual depth of potholes, patches, delamination, etc.
_____	_____	_____	9. The server grade detection application must support network level deployment.

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**O. GENERAL SOFTWARE FEATURES FOR DATA PROCESSING**
_____	_____	_____	1. The software shall display the digital images, process sensor data and allow photo rating of pavement surface distress per NDOR Pavement Distress Manual. The software shall: a. Operate in Win 2008 R2 or the most current Windows version and is compatible with the on-board operating system as defined in Section A.5.a. b. Export data in compatible formats for NDOR systems in Appendix B.
_____	_____	_____	2. Process and store raw sensor data files for profile, roughness, rutting, faulting, texture, geometry, GPS, and other auxiliary sensor data.
_____	_____	_____	3. Display and locate roadway geometrics. The geometrics include vertical curves, horizontal curves, and super-elevation.
_____	_____	_____	4. Display the sensor data using dynamic graphs. User selects the variables such as roughness, rutting, faulting, texture, the distance and the scales of the graph.
_____	_____	_____	5. Display, report and custom export sensor data using user definable criteria. For example, the user can load only the road sections with roughness greater than 3.5 mm/m.
_____	_____	_____	6. Display, report, and custom export sensor results using user defined intervals such as 1/10th of a mile or 1/100th of a mile. Ability to create profile data in (.ERD) format or (.PPF) format used in FHWA's ProVAL 3.4 software.
_____	_____	_____	7. Include database management features that allow the user to open a road section database, save, export/import records, and cut/copy/paste records.

_____	_____	_____	8. Allow playback of digital images forward and backward by pointing and clicking on the desired record.
_____	_____	_____	9. Display location information for each digital image including user definable fields such as highway number, reference posts, distance, direction, lane number, etc. See Appendix B.
_____	_____	_____	10. Display synchronized color intensity image and 3D depth image.
_____	_____	_____	11. Allow users to perform X and Y measurements on the image using digital grids and perform depth measurements between any two points on the image.
_____	_____	_____	12. Ability to edit header/location information of raw data files before processing
_____	_____	_____	13. Ability to store event markers
_____	_____	_____	14. Ability to process data files using: a. Event markers b. User defined intervals for transverse, longitudinal directions

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**P. MISCELLANEOUS (MINIMUMS)**
_____	_____	_____	1. TRAINING – Adequate on-site training sessions at the NDOR's Materials & Research HQ's located in Lincoln, Nebraska to cover the operation and maintenance of the vehicle and data processing equipment as well as other advanced features of the system a. The system shall be delivered at NDOR fully functional and certified prior to the training. b. The training shall include demonstrations of calibrations of all systems for vehicle maintenance c. The training shall include demonstrations of data validation of all on-board systems. d. The training shall include Vendor recommended quality assurance for data processing that is consistent with AASHTO standards in APPENDIX A.
_____	_____	_____	2. DOCUMENTATION - This includes five (5) profiler operating manuals for the data collection including trouble shooting, check lists and online help features. Two (2) sets of engineering grade wiring diagrams with part numbers and listings.

_____ _____ _____ 3. WARRANTY - Provide at least a twelve (12) month full warranty on the profiler equipment and server. Provide an optional extended service agreement at nominal cost.

_____ _____ _____ 4. SUPPORT - Provide free technical assistance via telephone or e-mail and on-line as needed by the user for as long as NDOR owns the profiler.

_____ _____ _____ 5. SOFTWARE UPDATES - Provide free software updates/upgrades that are added from delivery date to life-time of the system.

_____ _____ _____ 6. GENERAL - For the purposes of initial evaluation of the bids, all bidders must provide with their bid, complete, descriptive documentation as to the capabilities of the system being bid.

_____ _____ _____ 7. Upon delivery, the Vendor must produce equipment certification and the calibration verification log for each profiler from one of the FHWA approved centers. The certification demonstrates that the equipment complies with AASHTO R56-10.

_____ _____ _____ 8. The van, customized and complete with all on-board systems shall be delivered and training provided within six (6) months after receipt of the purchase order.

_____ _____ _____ 9. Since the continuous operation of this vehicle is of the utmost importance and sometimes of an emergency nature, it is necessary that the successful bidder be in a position to render prompt parts and service. Parts inventory shall be of sufficient size and variety to offer ninety-five percent (95%) of parts within forty-eight (48) hours from time of notification by NDOR.

_____ _____ _____ 10. Requests for technical support shall be answered within twenty-four (24) hours.

_____ _____ _____ 11. Awarded contractor shall provide a list of Vendors for parts and service availability.

_____ _____ _____ 12. Upgrades to the user manuals, diagrams etc. shall be provided whenever changes are made to such documents.

_____ _____ _____ 13. Shall be new and the most current model of the stated manufacturer, unless otherwise specified by the NDOR.

_____ _____ _____ 14. Shall be assembled, serviced and ready to be placed in service when delivered

_____ _____ _____ 15. The burden of proof rests with the Vendor to prove to the State that products bid are equal to or exceed the quality levels specified. Vendors who make the State the responsible party of determining that the Vendor's products conform to the specifications will be considered non-responsive.

_____ _____ _____ 16. References of where similar equipment to the above requirements has been delivered and made operational

within the past five (5) years shall be supplied by the supplier. The referenced systems shall be from a public entity and have been operational at least six (6) months. References shall be in the United States and not affiliated with the respondent bidder. References shall be submitted at the time of bidding. NDOR reserves the right to contact the provided references.

Reference: _____

_____

Reference: _____

_____

Reference: _____

_____

Notes/Alternative: _____

_____

ITEM II. OPTIONAL SERVER

YES	NO	NO & PROVIDE ALTERNATIVE	**Q. ONE (1) COMPUTER SERVER FOR DATA PROCESSING (MINIMUMS)**
			This is an optional bid item. The server shall be used for data storage and processing, and the hardware shall meet the following minimum requirements:
_____	_____	_____	1. Rackmount server chassis
_____	_____	_____	2. Minimum processors: Two (2) Intel Zeon E5 2.00GHz, 7.2GT/s QPI
_____	_____	_____	3. Minimum memory: 16GB.
_____	_____	_____	4. Minimum HDD: Two (2) 150GB drives
_____	_____	_____	5. Dual hot-plug redundant power supply
_____	_____	_____	6. Dual port 4GB optical fiber channel HBA
_____	_____	_____	7. 1GB network card
_____	_____	_____	8. Internal DVD ROM
_____	_____	_____	9. Rackmount hot swappable drive bay with a minimum of six (6) bays for connection to server
_____	_____	_____	10. A multi user license for server

Notes/Alternative: _____

_____

ITEM III. OPTIONAL REAR VIEW CAMERA

YES	NO	NO & PROVIDE ALTERNATIVE	**R. REAR-VIEW CAMERA TO CAPTURE LEFT RIGHT-OF-WAY (ROW)**
_____	_____	_____	This is an optional bid item. The intent of this specification is to add an additional rear view camera to capture left Right of Way (ROW) while traveling in the opposing direction. At a minimum, the camera should meet the requirements in Section J.1-7.

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**S. PAYMENT**
_____	_____	_____	1. The customized van, all on-board systems and image processing equipment will be paid for on a partial payment basis. Full payment less ten percent (10%) retention will be paid within thirty (30) days after delivery and acceptance of the profiler system. The retention and all other monies due will be paid within thirty (30) working days of verification of specifications, training by Vendor, and successful performance testing of the profiler.
_____	_____	_____	2. The vendor shall estimate the salvage value for NDOR's retired profilers. NDOR reserves the right to reject the estimated salvage value and surplus the profilers in-house. The vendor shall have the first right of refusal to purchase the retired equipment and deduct the salvage value of the equipment from final payment.

Notes/Alternative: _____

_____

YES	NO	NO & PROVIDE ALTERNATIVE	**T. BID COMPLIANCE**
_____	_____	_____	Specifications have been read and fully understood. Any exceptions have been written on the bid or attached.

Notes/Alternative: _____

_____

ACCEPTANCE TESTING

Delivery of a profiler will be accepted only upon successful completion of performance evaluation and vendor proves that delivered equipment is capable of accurately gathering the required data. Prior to acceptance testing, vehicle shall already obtain certification and calibration verification log per AASHTO R56-10. All costs associated with the acceptance field-testing, including proof of liability insurance, shall be borne by the Vendor. It is expected that testing will require two (2) days. Day 1 is setup, calibration and field tests. Day 2 is software and data processing demonstration. The sites for field testing will be located in the Lincoln area on the following routes:

1. State Spur S55A between Reference Post 1 and 2 ascending (westbound).
2. State Highway 033 between Reference Post 22 and 23 ascending (eastbound).

Location 1 is paved with asphalt, and Location 2 is paved with concrete. NDOR reserves the right to change the testing sites. The Vendor will meet at 1400 Highway 2 Lincoln, Nebraska 68509-4759 on the pre-determined delivery date at 8:00 a.m.

The field-testing and evaluation will consist of the following:

a. Calibration of the profilers for data collection.
b. Equipment evaluation shall consist of the following:
   I. Initiate all systems and conduct system checks. Demonstrate voice feedback functions. Show adequate power supply for all systems.
   II. Bring vehicle to maximum collection speed at test location. Use auto-triggering to begin collection.
   III. Display geo-positioning data in real-time, i.e. distance traveled, latitude and longitude, heading and velocity.
   IV. Display rut-bar and 3D sensor data in real-time, showing longitudinal and transverse profiles, rut and fault depths.
   V. Collect pavement images for forward view and left and right ROW perspectives and pavement surface images.
   VI. Transfer data to server.
c. Use software to manipulate and process sensor data into 1/10th and 1/1000th mile averages.
d. Pavement images will be played back and reviewed.
e. Run automated crack detection in line with item 52, 53 of HPMS Field Manual 2012.
f. Export and print reports of collected data in 1/10th mile intervals.

Performance Evaluation

Three (3) runs on the two (2) test sections will be used for performance evaluation. Electronic files of processed data for each test section in tenth (10th) of mile intervals will be submitted to NDOR for review. The IRI and rutting results of the new profilers should fall within the standard deviation of existing NDOR data. Also the electronic files derived from the measurements of all the test sections will be used in FHWA's ProVAL 3.4 Software for repeatability analysis and data validation.

APPENDIX A
REFERENCED STANDARDS

ASTM E950 / E950M - 09 Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference

ASTM E1926 - 08 Standard Practice for Computing International Roughness Index of Roads from Longitudinal Profile Measurements

ASTM E1703/E1703M-10 Standard Test Method for Measuring Rut-Depth of Pavement Surfaces Using a Straightedge

AASHTO R36-12 Standard Practice for Evaluating Faulting of Concrete Pavements[3]

AASHTO R43M/R 43-07 Standard Practice for Quantifying Roughness of Pavements[4]

AASHTO R48-10 Standard Practice for Determining Rut Depth in Pavements[5]

AASHTO R56-10 Standard Practice for Certification of Inertial Profiling Systems[6]

AASHTO PP67-10 Standard Practice for Quantifying Cracks in Asphalt Pavement Surfaces from Collected Images Utilizing Automated Methods[7]

AASHTO PP68-10 Standard Practice for Collecting Images of Pavement Surfaces for Distress Detection[8]

AASHTO PP69-10 Standard Practice for Determining Pavement Deformation Parameters and Cross Slope from Collected Transverse Profiles[9]

AASHTO PP70-10 Standard Practice for Collecting the Transverse Pavement Profile[10]

AASHTO MP328-10 Standard Equipment Specification for Inertial Profiler[11]

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[3] HPMS FIELD MANUAL ITEM 51 – FAULTING; LTPP DISTRESS IDENTIFICATION MANUAL, JUNE 2003.
[4] HPMS FIELD MANUAL ITEM 47 - INTERNATIONAL ROUGHNESS INDEX, MARCH 2012, LTPP DISTRESS IDENTIFICATION MANUAL, JUNE 2003.
[5] HPMS FIELD MANUAL ITEM 50 – RUTTING, MARCH 2012.
[6] HPMS FIELD MANUAL ITEM 47 - INTERNATIONAL ROUGHNESS INDEX, MARCH 2012, LTPP DISTRESS IDENTIFICATION MANUAL, JUNE 2003.
[7] HPMS FIELD MANUAL ITEM 52 – CRACKING PERCENTAGE, MARCH 2012.
[8] HPMS FIELD MANUAL ITEM 52 – CRACKING PERCENTAGE, MARCH 2012.
[9] HPMS FIELD MANUAL ITEM 50 – RUTTING, MARCH 2012.
[10] HPMS FIELD MANUAL ITEM 50 – RUTTING, MARCH 2012.
[11] HPMS FIELD MANUAL ITEM 47 - INTERNATIONAL ROUGHNESS INDEX, MARCH 2012.

APPENDIX B
NDOR SYSTEMS

NDOR will combine the profile data with GIS basemap and Integrated Highway Inventory (IHI).
The following is an anticipated data structure for importing/exporting data into mainframe system

COLNO	NAME	COLTYPE	LENGTH	REMARKS
1	HWY_NUM	CHAR	6	Highway Identifier (Number) used in IHI and GIS.
2	REF_POST_FROM	DECIMAL	6	Reference Post Number used in IHI.
3	REF_POST_TO	DECIMAL	6	Reference Post Number used in IHI.
4	BEG_LOG_MI	DECIMAL	6	Reference Log Mile Number used in GIS.
5	END_LOG_MI	DECIMAL	6	Reference Log Mile Number used in GIS.
6	LANE_DIR_C	CHAR	1	Direction of travel in relation to reference posts.
7	LANE_NUM	DECIMAL	2	Lane number, unique within lane usage and Dir.
8	IRI_RWP_AM	DECIMAL	5	Right Wheel Path IRI 1/10th mile Rut-bar.
9	IRI_LWP_AM	DECIMAL	5	Left Wheel Path IRI 1/10th mile Rut-bar.
10	AVG_RUTD_A	DECIMAL	5	Average Rut Depth Reading at 1/10th mile Rut-bar.
11	SD_RUTD_AM	DECIMAL	5	Std dev of rut depth at 1/10th mile Rut-bar.
12	JC_FLT_DEP_R	DECIMAL	5	Joint Fault Depth, 1/10th mile Rut-bar.
13	JC_FLT_DEP	DECIMAL	5	Joint Fault Depth, 3D System.
14	LWP_AVG_RU	DECIMAL	5	Left Wheel Path, Average Rutting, 3D System.
15	RWP_AVG_RU	DECIMAL	5	Right Wheel Path, Average Rutting, 3D System.
16	LWP_SD_RUT	DECIMAL	5	Left Wheel Path, Standard Deviation, Rutting, 3D System.
17	RWP_SD_RUT	DECIMAL	5	Right Wheel Path, Standard Deviation, Rutting, 3D System.
18	CLC_RUT_DP	DECIMAL	5	Calculated Rut Depth Amount, 3D System.
20	TXR_AMT	DECIMAL	5	Texture Amount/Measure. Identify potential low friction values. road sections with raveling, weathering.
21	LAT_M	DECIMAL	9	Latitude Measurement.
22	LNG_M	DECIMAL	9	Longitude Measurement.
23	ELV_M	DECIMAL	6	Elevation Measurement.
24	MVS_LOG_I	CHAR	7	Operator Logon Identifier.
25	TST_VEH_I	CHAR	5	Test Vehicle ID Number.
26	TST_LANE_D	CHAR	1	Collection Direction.
27	DATE_OF_TEST	CHAR	10	Collection Direction Date.
28	TIME_OF_TEST	CHAR	8	Collection Direction Time.

APPENDIX C
VOICE FEEDBACK

NO	ERROR	MESSAGE
1	IRI	IRI outside of threshold.
2	RUTTING	Rutting out of threshold.
3	FAULTING	Faulting outside of threshold.
4	CRACKING	Cracking number outside of threshold.
5	CAMERA FOCUS	Camera lost focus.
6	CAMERA LIGHT	Inadequate lighting for images.
7	CAMERA STORAGE	Low hard drive storage on downward images.
8	CAMERA STORAGE P	Low hard drive storage on perspective and ROW images.
9	GPS SIGNAL	Lost lock on satellite or beacon signals, compensating.
10	GPS CORR	Activate VRS correction.
11	GPS IMU	Heading and velocity outside of threshold.
12	SYSTEM A	Activating data collection system.
13	SYSTEM D	Deactivating data collection system.
14	SELECT RUN	Run Hwy__ from __ to __ , ___ miles selected.
15	RUN START	Starting run in 500’.
16	RUN INITIATED	Run initiating, target found.
17	RUN END	Ending run in 500’.
18	SYSTEM ERROR 1	Perspective Image no data.
19	SYSTEM ERROR 2	ROW Image no data.
20	SYSTEM ERROR 3	Downward Image no data.
21	SYSTEM ERROR 4	Rut-bar no data.
22	SYSTEM ERROR 5	3D sensors no data.
23	SYSTEM STORAGE 1	Insufficient disk space for the selected run.
24	SYSTEM STORAGE 2	Low storage space on hard drive.
25	SYSTEM STORAGE 3	Low storage space on removable drive.
26	SYSTEM POWER	Inadequate power supply, failure at ___.
27	SYSTEM FAILURE	System failure, initiate support call to vendor.

APPENDIX D
NDOR BROWSER
FOR PAVEMENT VIDEO AND DATA

Vendors will have twelve (12) months from time of contract award to develop compatibility solutions with NDOR browser.

Web Application Metadata

In order for Web Application to make Data Collection Vehicle data available on a network, it needs to create metadata to help optimize performance. This document provides a brief overview of how the metadata must be structured. Throughout the document, the following folder structure may serve as a visual reference:

```
[The Web Application Data Directory]
  -> roads.sdf
  -> maplayers.txt
  -> 001-Cycle A
     -> roads
        -> 1.pweb
        -> 2.pweb
        -> etc...
     -> GPS tiles
        -> I
           -> 5
           -> 6
           -> 7
           -> etc...
        -> D
           -> 5
           -> 6
           -> 7
           -> etc...
  -> 002-Cycle B
     -> roads
        -> etc...
     -> GPS tiles
        -> etc...
  -> etc...
```

Database

The Web Application uses Microsoft SQL Server Compact Edition for its main database. The database file is the roads.sdf file in the root of Web Application's data directory. It contains information regarding cycles, road sections, assets, etc.

Cycles

Web Application data is organized into cycles. Each cycle has a name, and each road section in Web Application belongs to a cycle. The main database contains a table of cycles, and each cycle has a corresponding folder in the root of the Web Application data directory. The cycle folder starts with a 3-

digit ID number (corresponding to the primary key in the database) and the cycle name. For example: 001-Mainline Highways 2013

.PWEB Files

Inside a cycle folder there are two subfolders: 1) roads and 2)GPS tiles. The roads folder contains several .pweb files. Each of these files corresponds to a road section in the main database. Each file is named the same as the primary key for each road section in the database. These files store location information - what images should be displayed at what mile post, IRI information, GPS coordinates for each mile post, etc. This is a binary file that uses a proprietary format.

GPS Tile Files

GPS tiles contain geospatially organized data. Each file in the GPS tiles folder represents one map tile. Each map tile contains information about where road sections are located, mile post data, IRI data, rutting data, etc.

The tiles are organized by direction. The I subfolder contains tiles for increasing road sections, and the D subfolder contains tiles for decreasing road sections. In the direction subfolders, there is another folder structure representing different zoom levels. Each folder is named with a number; the smaller the number, the further out you are zoomed on the GPS map. The higher the number, the closer in you are zoomed.

Inside each zoom level folder you see the actual tile files. These files are named by a simple hash function, such that a hash of a GPS coordinate will reveal the file name that the GPS coordinate belongs to.

Maplayers.txt

The maplayers.txt file is located in the root of the Web Application data directory and specifies which layers should automatically be available on the GPS map when the user first loads the page in his or her browser. It is a simple text file. The syntax of each line in the file is as follows:

TYPE,NAME,URL,VISIBILITY

- TYPE – This tells Web Application if it’s an ArcGIS Server map layer or a KML/KMZ layer. Valid values are either esri or kml. ESRI layers tend to provide better user experience than KML layers, so we recommend using ESRI layers if possible.
- NAME – This is the user-friendly name of the layer which will tell the user what kind of data is on the layer.
- URL – This is the URL to the map layer. It is usually in a form similar to http://[server_name]/ArcGIS/rest/services/[service_name]/MapServer
- VISIBILITY – This controls whether the layer is visible on the map at startup, or if it should remain invisible until the user adds it to the map. Valid values here are true or false. Set it to true if you want your layer to be visible automatically. Set it to false if you want the user to go into the Configure Maps dialog and enable it manually.

You can put as many layers in the file as you want. The order of layers is also important. If you want one layer to be shown on top of another layer, that layer should go first in the file. If you want a layer to be on the bottom, it should be the last one in the file. The following is a valid example of a line in the maplayers.txt file:

esri,Mainline PCR,http://myserver.com/ArcGIS/rest/services/PCR/MapServer,false

ATTACHMENT A

The condition of the used road profilers as of January 7, 2014

Vehicle			45616		45631	
			working	broken	working	broken
Data Collection Systems						
1. Distance measuring instrument		Sick Stegmann DGS34 distance encoder			1	
		Transaxial Different mount DMI	1			
2. Global positioning system		AgGPS 124/132 Receiver	1		1	
3. Profiler - 3 lasers		LMI Selcom 500	3		2	1
4. Laser Rut Measurement System		LRMS - INO 2006	1	1	1	1
5. Cameras	1 perspective color	Sony DFW-SX-910	1		1	seal leaks
	4 downward black/white	Fuji D16 x 7.3 A-M41	2	2 removed	2	2 removed
	4 strobe lights for downward cameras		2	2 removed	2	2 removed
6. Power Management	Inverter		1		1	
	Battery		1		1	
	Battery monitor		1		1	
	Auxilary power supply	Master View Plus 8 port KVM Switch	1		1	
Vehicle	2005 Ford E-350		150,000 miles		160,000 miles	
	condition		fair		fair	
	high roof		1		1	
	alternator		1		1	
	advanced idle		1		1	
Computers	on-board units		CPU	Hard drive	CPU	Hard drive
	profiler		Pentium 4	64 GB	Pentium 4	26 GB
	perspective		Pentium 4	30 GB	Pentium 4	136 GB
	left wheel		Pentium 4	65 GB	Pentium 4	30 GB
	right wheel		Pentium 4	31 GB	Pentium 4	31 GB

Notes:

Vehicle inventory is approximate, additional information is available upon request.

All software for on-board computers will be erased prior to transfer of ownership.

Currently 2 downward cameras and strobe lights per vehicle are removed. These parts may not work and need additional test by purchaser.