

**ARKANSAS STATE HIGHWAY COMMISSION
 ARDOT - EQUIPMENT AND PROCUREMENT DIVISION
 BID INVITATION**

Bid Number: M-20-002P

BID OPENING LOCATION:
 ARDOT Equipment and
 Procurement Division
 11302 West Baseline Road
 Little Rock, AR 72209

MAIL TO:
 ARDOT Equipment and
 Procurement Division
 P.O. Box 2261
 Little Rock, AR 72203

DELIVER TO:
 ARDOT Equipment and
 Procurement Division
 11302 West Baseline Road
 Little Rock, AR 72209

Bid Opening Date: July 16, 2019 Time: 11:00 a.m.

Sealed bids for furnishing the commodities and/or services described below, subject to the Standard Bid Conditions of this Bid Invitation will be received at the above-noted mail and delivery locations until the above-noted bid opening date and time, and then publicly opened at the above-noted bid opening location. **Bids must be submitted on this form, with attachments when appropriate, or bids will be rejected. Late bids and unsigned bids will not be considered.**

In compliance with this Bid Invitation and subject to all the Conditions thereof, the undersigned offers and agrees to furnish any and all items upon which prices are quoted, at the price set opposite each item.

Company Name: _____

Name (Type or Print): _____

Address: _____

Title: _____

Phone: _____ Fax: _____

City: _____ State: _____ Zip: _____

E-mail Address: _____

Federal Tax ID or Social Security No.: _____

Signature: _____

Signature must be legible, original (not photocopied) and in ink. Unsigned bids will be rejected.

Item No.	Description	Quantity	Unit	Unit Price	Amount
1.	Pavement Performance Data Collection Vehicle and all supporting hardware, software and equipment. To meet the requirements of Arkansas Department of Transportation Specifications attached to and made a part of this bid. FOB: ARDOT – Equipment & Procurement Division 11302 W. Baseline Rd., Little Rock, AR 72209 Contact Person for Technical Questions: Sarah Tamayo (501-569-2007) Data Collection Vehicle proposed to furnish: Make _____ Model _____ Warranty _____ All bidders should complete and return the Eligible Bidder Certification (Attachment A), Disclosure Form (see Page 2 of Standard Bid Conditions – Item 18), Restriction of Boycott of Israel Certification and Illegal Immigrant Certification (see Page 2 of Standard Bid Conditions – Item 17) issued with this bid. If any literature and/or specifications of items conflict with ARDOT specifications, the conflict(s) shall be specifically noted, corrected and submitted with the bid. Bid Bond in the amount of 5% of total bid price required of all bidders at time of bid opening or bid will be rejected. Personal and company checks are not acceptable as Bid Bonds. See Condition 4 on Page 1 of Standard Bid Conditions. Performance Bond in the amount of 5% of total bid price will be required of successful bidder prior to providing goods/services. Personal and company checks are not acceptable as Performance Bonds. See Condition 4 on Page 1 of Standard Bid Conditions. The successful bidder will be required to complete delivery within 120 days after award. Bids and Specifications are available on-line by going to the ARDOT Web Site – www.ardot.gov and clicking on “Commodities and Services Bids/Contracts Information”. Tabulations will also be available at this site after award of bid/contract. If you have any questions, call this office at 501-569-2667.	1	Ea.		
(53-1000)				TOTAL BID	

ARDOT - STANDARD BID CONDITIONS

1. **GENERAL:** Any special terms and conditions included in the invitation for bid override these standard terms and conditions. The standard terms and conditions and any special terms and conditions become part of any contract entered into if any or all parts of the bid are accepted by the Arkansas Department of Transportation (ARDOT).
2. **ACCEPTANCE AND REJECTION:** ARDOT reserves the right to reject any or all bids, to accept bids in whole or in part (unless otherwise indicated by bidder), to waive any informalities in bids received, to accept bids on materials or equipment with variations from specifications where efficiency of operation will not be impaired, and to award bids to best serve the interest of the State.
3. **PRICES:** Unless otherwise stated in the Bid Invitation, the following will apply: (1) unit prices shall be bid, (2) prices should be stated in units of quantity specified (feet, each, lbs., etc.), (3) prices must be F.O.B. destination specified in bid, (4) prices must be firm and not subject to escalation, (5) bid must be firm for acceptance for 30 days from bid opening date. In case of errors in extension, unit prices shall govern. Discounts from bid price will not be considered in making awards.
4. **BID BONDS AND PERFORMANCE BONDS:** If required, a **Bid Bond** in the form of a cashier's check, certified check, or surety bond issued by a surety company, in an amount stated in the Bid Invitation, must accompany bid. Personal and company checks are not acceptable as Bid Bonds. Failure to submit a Bid Bond as required will cause a bid to be rejected. The Bid Bond will be forfeited as liquidated damages if the successful bidder fails to provide a required Performance Bond within the period stipulated by ARDOT or fails to honor their bid. When a bidder claims and can show clear and convincing evidence that a material mistake was made in the bid and was not the bid intended, the bidder may be permitted to withdraw their bid prior to award without forfeiture of bid bond. Cashier's checks and certified checks submitted as Bid Bonds will be returned to unsuccessful bidders; surety bonds will be retained. The successful bidder will be required to furnish a **Performance Bond** in an amount stated in the Bid Invitation and in the form of a cashier's check, certified check, or surety bond issued by a surety company, unless otherwise stated in the Bid Invitation, as a guarantee of delivery of goods/services in accordance with the specifications and within the time established in the bid. Personal and company checks are not acceptable as Performance Bonds. In some cases, a cashier's check or certified check submitted as a Bid Bond will be held as the Performance Bond of the successful bidder. Cashier's checks or certified checks submitted as Performance Bonds will be refunded shortly after payment has been made to the successful bidder for completion of all terms of the bid; surety bonds will be retained. Surety bonds must be issued by a surety company that is authorized to do business in the State of Arkansas and that is listed on the current United States Department of the Treasury Listing of Approved Sureties. Surety bonds must be executed by a resident or non-resident agent who is licensed by the Arkansas State Insurance Commissioner to represent the surety company executing the bond, and the resident or non-resident agent shall file with the bond the power of attorney of the agent to act on behalf of the bonding company. Certain bids involving labor will require Performance Bonds in the form of surety bonds only (no checks of any kind allowed). These bonds shall not only serve to guarantee the completion of the work, but also to guarantee the excellence of both workmanship and material until the work is finally accepted and the provisions of the Plans, Specifications, and Special Provisions fulfilled. In such cases, the company issuing the surety bond must comply with all stipulations herein and must be named in the U. S. Treasury listing of companies holding Certificates of Authority as acceptable sureties on Federal Bonds and as acceptable reinsuring companies. Any excess between the face amount of the bond and the underwriting limitation of the bonding company shall be protected by reinsurance provided by an acceptable reinsuring company. Annual Bid and Performance Bonds on file with E & P Division must have sufficient unencumbered funds to meet current bonding requirements, or the bid will be rejected, unless the balance is submitted as set forth above, prior to bid opening.
5. **TAXES:** The ARDOT is not exempt from Arkansas State Sales and Use Taxes, or local option city/county sales taxes, when applicable, and bidders are responsible to the State Revenue Department for such taxes. These taxes should not be included in bid prices, but where required by law, will be paid by the ARDOT as an addition thereto, and should be added to the billing to the ARDOT. The ARDOT is exempt from Federal Excise Taxes on all commodities except motor fuels; and excise taxes should not be included in bid prices except for motor fuels. Where applicable, tax exemption certificates will be furnished by the ARDOT.
6. **"ALL OR NONE" BIDS:** Bidders who wish to bid "All or None" on two or more items shall so stipulate on the face of bid sheet; otherwise, bid may be awarded on an individual item basis.
7. **SPECIFICATIONS:** Complete specifications should be attached for any substitution or alternate offered, or where amplification is necessary. Bidder's name must be placed on all attachments to the bid.
8. **EXCEPTIONS TO SPECIFICATIONS:** Any exceptions to the bid specifications must be stated in the bid. Any exceptions to manufacturer's published literature must be stated in the bid, or it will be assumed that bidder is bidding exactly as stated in the literature.
9. **BRAND NAME REFERENCES:** All brand name references in bid specifications refer to that commodity or its equivalent, unless otherwise stated in Bid Invitation. Bidder should state brand or trade name of item being bid, if such name exists.
10. **FREIGHT:** All freight charges should be included in bid price. Any change in common carrier rates authorized by the Interstate Commerce Commission will be adjusted if such change occurs after the bid opening date. Receipted common carrier bills that reflect ICC authorized rate changes must be furnished.

11. **SAMPLES, LITERATURE, DEMONSTRATIONS:** Samples and technical literature must be provided free of any charge within 14 days of ARDOT request, and free demonstrations within 30 days, unless ARDOT extends time. Failure to provide as requested within this period may cause bid to be rejected. Samples, literature and demonstrations must be substantially the same as the item(s) being bid, unless otherwise agreed to by ARDOT. Samples that are not destroyed will be returned upon request at bidders expense. Samples from successful bidders may be retained for comparison with items actually furnished.
12. **GUARANTY:** Unless otherwise indicated in Bid Invitation, it is understood and agreed that any item offered or shipped on this bid shall be newly manufactured, latest model and design, and in first class condition; and that all containers shall be new, suitable for storage or shipment and in compliance with all applicable laws relating to construction, packaging, labeling and registration.
13. **BACKORDERS OR DELAY IN DELIVERY:** Backorders or failure to deliver within the time required may constitute default. Vendor must give written notice to the ARDOT, as soon as possible, of the reason for any delay and the expected delivery date. The ARDOT has the right to extend delivery if reasons appear valid. If reason or delivery date is not acceptable, vendor is in default.
14. **DEFAULT:** All commodities furnished will be subject to inspection and acceptance by ARDOT after delivery. Default in promised delivery or failure to meet specifications authorizes the ARDOT to cancel award or any portion of same, to reasonably purchase commodities or services elsewhere and to charge full increase, if any, in cost and handling to defaulting vendor. Applicable bonds may be forfeited.
15. **ETHICS:** *"It shall be a breach of ethical standards for a person to be retained, or to retain a person, to solicit or secure a State contract upon an agreement of understanding for a commission, percentage, brokerage, or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies maintained by the contractor for the purpose of securing business."* (Arkansas Code, Annotated, Section 19-11-708).
16. **NOTICE OF NONDISCRIMINATION:** The Arkansas State Highway Commission, through ARDOT, complies with all civil rights provisions of federal statutes and related authorities that prohibit discrimination in programs and activities receiving federal financial assistance. Therefore, ARDOT does not discriminate on the basis of race, sex, color, age, national origin, religion (not applicable as a protected group under the Federal Motor Carrier Safety Administration Title VI Program), disability, Limited English Proficiency (LEP), or low-income status in the admission, access to and treatment in the ARDOT's programs and activities, as well as the ARDOT's hiring or employment practices. Complaints of alleged discrimination and inquiries regarding the ARDOT's nondiscrimination policies may be directed to Joanna P. McFadden Section Head – EEO/DBE (ADA/504/Title VI Coordinator), P. O. Box 2261, Little Rock, AR 72203, (501)569-2298, (Voice/TTY 711), or the following email address: joanna.mcfadden@ardot.gov. Free language assistance for Limited English Proficient individuals is available upon request. This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.
17. **PROHIBITION OF EMPLOYMENT OF ILLEGAL IMMIGRANTS:** Pursuant to Arkansas Code Annotated 19-11-105, all bidders must certify prior to award of a contract that they **do not** employ or contract with any illegal immigrant(s) in its contract with the state.
18. **DISCLOSURE:** Failure to make any disclosure required by Governor's Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that order, **shall** be a material breach of the terms of this contract. Any contractor, whether an individual or entity, who fails to make the required disclosure or who violates any rule, regulation, or policy **shall** be subject to all legal remedies available to the agency.

ATTACHMENT A

ELIGIBLE BIDDER CERTIFICATION

The Bidder represents and warrants for itself, its employees and its subcontractors and certifies they:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three-year period preceding this Bid been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph two (2) of this Certification;
4. Have not within a one-year period preceding this application/Bid had one or more public transactions (Federal, State, or local) terminated for cause or default; and

The Bidder represents, warrants and acknowledges the understanding that restrictions placed on the employment of labor or on the scale of pay for the work on a contract will be the requirements of the Fair Labor Standards Act (Federal Wage-Hour Law) of 1938, 28 USC §201 et seq., and other applicable labor laws.

The person executing this Certification further represents, warrants and affirms the truthfulness and accuracy of the contents of the statements submitted on or with this Certification and understands that the provisions of 31 USC §3801 et seq. are applicable thereto.

BIDDER NAME

BY: _____

Signature

TITLE: _____

CONTRACT AND GRANT DISCLOSURE AND CERTIFICATION FORM

Failure to complete all of the following information may result in a delay in obtaining a contract, lease, purchase agreement, or grant award with any Arkansas State Agency.

SUBCONTRACTOR: _____ SUBCONTRACTOR NAME: _____
 Yes No

IS THIS FOR:

TAXPAYER ID NAME: _____ Goods? Services? Both?

YOUR LAST NAME: _____ FIRST NAME: _____ M.I.: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____ COUNTY: _____

AS A CONDITION OF OBTAINING, EXTENDING, AMENDING, OR RENEWING A CONTRACT, LEASE, PURCHASE AGREEMENT, OR GRANT AWARD WITH ANY ARKANSAS STATE AGENCY, THE FOLLOWING INFORMATION MUST BE DISCLOSED:

FOR INDIVIDUALS*

Indicate below if: you, your spouse or the brother, sister, parent, or child of you or your spouse is a current or former: member of the General Assembly, Constitutional Officer, State Board or Commission Member, or State Employee:

Position Held	Mark (✓)		Name of Position of Job Held <small>(senator, representative, name of board/ commission, data entry, etc.)</small>	For How Long?		What is the person(s) name and how are they related to you? <small>(i.e., Jane Q. Public, spouse, John Q. Public, Jr., child, etc.)</small>	
	Current	Former		From MM/YY	To MM/YY	Person's Name(s)	Relation
General Assembly							
Constitutional Officer							
State Board or Commission Member							
State Employee							

None of the above applies

FOR AN ENTITY (BUSINESS)*

Indicate below if any of the following persons, current or former, hold any position of control or hold any ownership interest of 10% or greater in the entity: member of the General Assembly, Constitutional Officer, State Board or Commission Member, State Employee, or the spouse, brother, sister, parent, or child of a member of the General Assembly, Constitutional Officer, State Board or Commission Member, or State Employee. Position of control means the power to direct the purchasing policies or influence the management of the entity.

Position Held	Mark (✓)		Name of Position of Job Held <small>(senator, representative, name of board/ commission, data entry, etc.)</small>	For How Long?		What is the person(s) name and what is his/her % of ownership interest and/or what is his/her position of control?		
	Current	Former		From MM/YY	To MM/YY	Person's Name(s)	Ownership Interest (%)	Position of Control
General Assembly								
Constitutional Officer								
State Board or Commission Member								
State Employee								

None of the above applies

Contract and Grant Disclosure and Certification Form

Failure to make any disclosure required by Governor's Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of the terms of this contract. Any contractor, whether an individual or entity, who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the agency.

As an additional condition of obtaining, extending, amending, or renewing a contract with a state agency I agree as follows:

1. Prior to entering into any agreement with any subcontractor, prior or subsequent to the contract date, I will require the subcontractor to complete a **CONTRACT AND GRANT DISCLOSURE AND CERTIFICATION FORM**. Subcontractor shall mean any person or entity with whom I enter an agreement whereby I assign or otherwise delegate to the person or entity, for consideration, all, or any part, of the performance required of me under the terms of my contract with the state agency.

2. I will include the following language as a part of any agreement with a subcontractor:

Failure to make any disclosure required by Governor's Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of the terms of this subcontract. The party who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the contractor.

3. No later than ten (10) days after entering into any agreement with a subcontractor, whether prior or subsequent to the contract date, I will mail a copy of the **CONTRACT AND GRANT DISCLOSURE AND CERTIFICATION FORM** completed by the subcontractor and a statement containing the dollar amount of the subcontract to the state agency.

Signature _____	Title _____	Date _____
Vendor Contact Person _____	Title _____	Phone No. _____

Agency Use Only				
Agency Number _____	Agency Name _____	Agency Contact Person _____	Contact Phone No. _____	Contract or Grant No. _____

RESTRICTION OF BOYCOTT OF ISRAEL CERTIFICATION

Pursuant to Arkansas Code Annotated § 25-1-503, a public entity **shall not** enter into a contract valued at \$1,000 or greater with a company unless the contract includes a written certification that the person or company is not currently engaged in, and agrees for the duration of the contract not to engage in, a boycott of Israel.

By signing below, the Contractor agrees and certifies that they do not currently boycott Israel and will not boycott Israel during any time in which they are entering into, or while in contract, with any public entity as defined in § 25-1-503* If at any time after signing this certification the contractor decides to engage in a boycott of Israel, the contractor must notify the contracting public entity in writing.

If a company does boycott Israel, see Arkansas Code Annotated § 25-1-503.

Name of public entity	Arkansas Department of Transportation
Description of product or service	Pavement Performance Data Collection Vehicle
Contractor name	

Contractor Signature: _____

Date: _____

Signature must be hand written, in ink

“Public Entity” means the State of Arkansas, or a political subdivision of the state, including all boards, commissions, agencies, institutions, authorities, and bodies politic and corporate of the state, created by or in accordance with state law or regulations, and does include colleges, universities, a statewide public employee retirement system, and institutions in Arkansas as well as units of local and municipal government.

ILLEGAL IMMIGRANT CERTIFICATION

Pursuant to Arkansas Code Annotated § 19-11-105, Contractor(s) **shall** certify with OSP that they do not employ or contract with illegal immigrants.

By signing below, the Contractor agrees and certifies that they do not employ illegal immigrants and will not employ illegal immigrants during the remaining aggregate term of the contract.

Bid Number/Contract Number	M-20-002P
AASIS Number	N/A
Description	Pavement Performance Data Collection Vehicle
Contractor name	

Contractor Signature: _____ Date: _____
Signature must be hand written, in ink

Pavement Performance Data Collection Vehicle Specifications

DESCRIPTION: This item shall consist of the acquisition by the Arkansas Department of Transportation (ARDOT) of a Pavement Performance Data Collection Vehicle, hereafter referred to as PPDCV, to be used in the collection of pavement performance data, asset inventory data, and digital right-of-way (ROW) and pavement imagery.

1. GENERAL CLAUSES AND CONDITIONS

ARDOT, hereafter referred to as the Department, currently owns and operates a data collection vehicle provided by Fugro USA Land, Inc. The Department has invested a tremendous amount of time and resources developing and implementing a Pavement Management System and a Highway Information System utilizing the data and imagery collected by the existing PPDCV. The replacement PPDCV must integrate with the Department's existing hardware and software (vendor supplied as well as that developed in house). The PPDCV provided must meet the following minimum specifications with respect to compatibility with the current data collection vehicle owned and operated by the Department:

- 1.1 The equipment furnished under these specifications shall be the latest improved model in current production, as offered to commercial trade, and shall be of quality workmanship and material. The bidder represents that all equipment offered under these specifications shall be new. **USED OR DISCONTINUED MODELS ARE NOT ACCEPTABLE.**

The Department requires a turnkey system which has demonstrated its ability to perform in a highway inventory environment. The bid must include a reference list, with complete names, addresses, and telephone numbers of at least three (3) different active owner/agencies, including their relevant representative(s), in the continental United States who purchased directly from the manufacturer and own a model of the manufacturer's equipment that has a configuration of subsystems comparable to those in this specification, to ascertain quality assurance and to confirm the capacity of the manufacturer to deliver and support this type of equipment exactly to these specifications.

- 1.2 The PPDCV shall be completely assembled, adjusted, and calibrated. All equipment, including standard and supplemental equipment, shall be installed and the PPDCV be made ready for continuous operation.
- 1.3 All parts, not specifically mentioned, which are necessary for the PPDCV to be complete and ready for operation or which are normally furnished as standard equipment shall be furnished by the successful bidder. All parts shall conform in strength, quality and workmanship to the accepted standards of the industry.

- 1.4 The manufacturer of the system shall have essential parts in inventory for all component subsystems. A parts inventory should be provided upon request. All electronic parts that are NOT custom off-the-shelf components (i.e. proprietary computer cards, custom made cables, etc.) or components determined to be prone to obsolescence within two years (i.e. motherboards, memory, etc.) shall be listed in a document with all pertinent information required to locate replacement parts when necessary. The document shall be provided to the Department upon delivery of the PPDCV.
- 1.5 All data collected by the new PPDCV must be output in a format that is compatible with the data provided by the Department's existing data collection platform.
- 1.6 Provide a complete list of extended warranties available from the original equipment manufacturer of major subsystem components.
- 1.7 All digital ROW imagery must be stored in JPEG format.
- 1.8 The new PPDCV's data collection methodology/procedures must be substantially the same as the current system to minimize the amount of staff re-training required.
- 1.9 The data accuracy and repeatability must, at a minimum, be equal to the current system for all measurements. This will be tested during acceptance test procedures. Systems which are not within accepted error tolerances will be rejected by the Department. It is understood that there can be some basic variation in data reporting based on subsystem differences.
- 1.10 It is the sole responsibility of the Vendor to ensure their proposed PPDCV meets the acceptance criteria. The Department will address any questions in this regard prior to bid submission. Responses to questions will be sent to all interested bidders.
- 1.11 The PPDCV shall meet or exceed all Federal and State health, lighting and noise regulations and standards in effect and applicable to equipment furnished at the time of manufacture.
- 1.12 The Department is interested in a PPDCV that is upgradeable and expandable as newer technologies prove themselves and become available. The PPDCV manufacturer must be able to show examples of the ability to upgrade or add entire subsystems.
- 1.13 Any variation from these specifications must be indicated on the bid or on a separate attachment to the bid. This sheet shall be labeled as such.

2. SPECIFICATIONS

2.1 GENERAL SPECIFICATIONS

These specifications cover the fabrication, delivery, and installation of separate, but related, pieces of equipment for non-contact measurement and analysis of pavement surface characteristics and digital ROW and pavement surface imagery acquisition for use in a Pavement Management System and the development of an asset inventory system. The following equipment is specified:

A. PPDCV capable of collecting inventory data at floating traffic speeds from 15 MPH to 65 MPH

Inventory data shall include, but not be limited to:

- Linear distance traveled
- Latitude, longitude and elevation of all data items
- Longitudinal profile (roughness)
- Full lane surface macro-texture
- Fault height
- Vehicle roll, pitch and heading
- Cross slope
- Grade
- Curve radius with location of begin, end and length of curve
- Full Transverse Profile consisting of a minimum of 4,000 transverse data points providing a 1mm transverse resolution
- Rut depth in each wheel path
- Pavement edge drop-off and curb detection
- Digital imaging system with a minimum of four (4) cameras to provide digital ROW images capable of use in asset extraction and dimensioning
- Three-dimensional pavement surface imaging system
- Pavement surface distress (using automated and semi-automated type systems) with the following minimum data attributes: 1) Distress location – linear and geographically referenced 2) Distress type 3) Distress severity 4) Distress extent
- Special features (bridges, railroad crossings, etc.)

B. Analysis software and documentation

C. Training, spare parts, warranty, delivery and documentation requirements

2.1.1 The PPDCV shall be delivered to the ARDOT Equipment and Procurement Division's shop in Little Rock, Arkansas, by the factory or their representative, hereafter referred to as the Vendor, within one-hundred-twenty (120) days after the issue of the purchase order. If not delivered within the aforementioned time frame, the bid will be subject to rejection.

2.2 PPDCV INSPECTION

The Department may inspect the PPDCV at the Vendor's site prior to delivery and will authorize delivery if all specifications are judged as satisfactory. Deliveries will not be accepted by the Department without prior approval. The final inspection and acceptance of the PPDCV shall be at the Department's facilities.

2.3 MANUALS

The Vendor shall provide electronic documentation for vehicle operation, all subsystems, the vehicle chassis and all operating and processing software. The following should be provided in addition to electronic copies of manuals:

- A. Two (2) sets of vehicle parts manuals, bound or in binders.
- B. Two (2) sets of complete vehicle shop repair (factory service) manuals, bound or in binders.
- C. Two (2) sets of complete electronics manuals, i.e. parts, repair, operation, and schematics, bound or in binders.
- D. Three (3) sets of complete vehicle operation and routine maintenance manuals bound or in binders.
- E. Three (3) sets of complete operator manuals, bound or in binders, for all supplied software.
- F. Three (3) sets of Technical Reference manuals describing the technical aspects and calculations used to provide the data reported by each subsystem.

The Vendor shall review the contents of all the above materials to ensure that each item is complete and understandable by the end users.

2.4 TRAINING

Complete instructions on the operation and maintenance of the PPDCV and a demonstration on the operation of the PPDCV shall be given by the Vendor upon delivery at the Department. This demonstration shall be a formal training session of no less than two (2) weeks. (Minimum of one (1) week training on vehicle operations and software and a minimum of one (1) week on data processing software.) Training should be available to a minimum of five (5) Department employees.

A detailed training schedule shall be made available within four (4) weeks of anticipated delivery of the PPDCV to ensure adequate time is allotted for training in vehicle operations and software, as well as office processing and analysis software.

All processing software shall be installed on Department computers before delivery of the new PPDCV to insure software compatibility issues will be resolved and the software will be ready for use before any training is to begin.

All training shall be carried out on data and imagery provided by the delivered PPDCV.

All costs associated with this training shall be considered part of this bid.

2.5 WARRANTY

The Vendor guarantees that the PPDCV and all its component parts shall perform its functions to its stated specifications, and shall operate successfully without undue wear or vibration. The Vendor shall replace and install, at their cost, any part that may malfunction or fail by reason of defective material or workmanship within the warranty periods described below.

Vehicle Chassis.....	Manufacturer's standard
Electronic Systems.....	Twelve (12) months
Data Acquisition System.....	Twelve (12) months
Vendor Installed Equipment.....	Twelve (12) months

Any trips by the Vendor to the purchaser's facility, which are necessary for warranty-covered repairs, shall be at the expense of the Vendor.

The Vendor further guarantees that the PPDCV shall perform in terms of its stated specifications of operation and output to the satisfaction of the Department for a period of **one (1) year** from the time of acceptance.

Successful bidder shall furnish manufacturer's warranty to the Equipment and Procurement Division at the time of delivery.

The performance requirement consists of, but is not limited to, the continuous ability of the PPDCV to record, transmit, process, analyze, store and summarize into report-type formats all road inventory data, and to record, transmit, process and store all digital imagery.

The Vendor must be responsive to equipment problems, Monday through Friday, within a 24 hour response time.

In the event the PPDCV is returned to the Vendor for warranty repair, the warranty period is extended by the amount of time from when the vehicle leaves the Department until it is returned to the Department.

Warranty periods on all items supplied as part of this contract shall begin upon acceptance of the PPDCV by the Department.

In case of warranty expiration on any piece of equipment or products prior to one year after acceptance of the PPDCV, the Vendor shall become responsible for the warranty repair.

2.6 BRAND NAMES

Brand names have been eliminated from the specification wherever possible, but if a brand name is given, the term “or approved equal” is considered to follow the name. Wherever a brand name is used, it is meant to denote the minimum level of quality and performance. Any item supplied as an “equal” must be approved by the Department.

It should be understood that specifying a brand name, components and/or equipment in this specification shall not relieve the supplier from its responsibility to produce the product in accordance with the performance warranty and contractual requirements.

2.7 SAFETY EQUIPMENT

2.7.1 Amber colored flashing strobe lights are to be installed in the front and rear of the PPDCV in a position that makes them visible to the motoring public but does not interfere with the image capture subsystem. All strobe lights should be controllable from the driver’s position.

2.7.2 Two (2) 5 lb. capacity U.L. approved Carbon Dioxide (CO₂) fire extinguishers are to be provided. The extinguishers should be mounted in an easily accessible location with one (1) inside the front operating compartment and one (1) inside the rear access compartment of the vehicle.

2.8 VEHICLE CHASSIS CLASSIFICATION

It is the intent of this section of the specification to describe and govern the base vehicle to be a 2019 Mercedes-Benz Sprinter 2500 cargo van or equivalent.

Minimum chassis specifications:

- A. 144-inch wheelbase with High Roof
- B. Interior standing height of 79.1 in.
- C. Color of Arctic White
- D. Gross Vehicle Weight Rating (GVWR) of 9,050 lbs.
- E. Payload of 4,034 lbs.
- F. V6 Turbo Diesel engine
- G. 7-speed automatic transmission
- H. 24.5 gallon (95 liter) capacity fuel tank
- I. LT245/75R16 tires
- J. 6.5 J X 16 steel wheels
- K. Matching full size spare wheel with mounted matching tire

- L. Load adaptive ESP
- M. Keyless entry and start (two (2) additional keyless remotes)
- N. Standard radio
- O. Rear view camera (rear-view mirror display)
- P. Crosswind Assist
- Q. Driver cabin air conditioning
- R. Sliding door, passenger side
- S. Hill Start Assist
- T. Seat belt reminder for co-driver seat
- U. Seat belt reminder for driver
- V. Headlight assistant
- W. Front airbag, driver
- X. Front airbag, co-driver
- Y. Thorax-pelvis side airbag, driver
- Z. Thorax-pelvis side airbag, co-driver
- AA. Window airbag, driver/co-driver
- BB. USB-C outlet, 5 V
- CC. Red diesel filler cap
- DD. 3rd brake light
- EE. Adjustable steering wheel adjustable height
- FF. Without factory partition wall
- GG. Shelf above windshield
- HH. Cup holder front
- II. Interior lights in cargo compartment
- JJ. Manually adjustable driver seat
- KK. Manually adjustable passenger seat
- LL. Armrest for driver seat
- MM. Armrest for co-driver seat
- NN. Hydraulic jack

Chassis customization will include:

- A. The PPDCV should be delivered with overall exterior surfaces in the manufacturer's white color
- B. Industrial PC racking mounted transversely to provide easy access from the front and rear
- C. Prefabricated enclosures or interior mounting locations to house all ROW cameras to provide each camera a climate controlled operating environment
- D. Additional air conditioning to provide cooling for rack mounted electronics
- E. Exterior shore power capable of total system operation
- F. Interior sound insulation

Additional preferred vehicle options:

- A. Multifunction steering wheel
- B. Cruise control
- C. 12-volt power outlet, driver seat base

- D. Electrically folding exterior mirrors
- E. Hinged lid for storage compartment
- F. Attention assist
- G. Heated and electrically adjustable exterior mirrors
- H. Blind spot assist
- I. Dark tinted glass
- J. Security alarm with interior motion sensor
- K. Comfort head restraint, passenger
- L. Comfort overhead control panel
- M. Comfort head restraint, driver
- N. Comfort passenger seat
- O. Lumbar support, driver seat
- P. Comfort driver's seat
- Q. Lumbar support, co-driver's seat
- R. 12-volt rear auxiliary power outlet
- S. 115-volt socket
- T. Backup alarm
- U. Engine oil level display at cold start
- V. Driver suspension seat, comfort version
- W. Passenger suspension seat, comfort version

2.9 PPDCV EQUIPMENT

2.9.1 DISTANCE MEASURING INSTRUMENT (DMI) utilizing an optical encoder mounted on driver's side rear wheel. The DMI must meet ASTM E950 requirements.

2.9.2 CENTRAL COMPUTER SYSTEM to manage all PPDCV subsystems. The minimum characteristics of the central computer are as follows:

- A. Intel Core i7 Extreme Processor 3.33GHz, 8 Core, HyperThreading
- B. Industrial computer case with solid state system drives (minimum Class 50)
- C. Mounted in industrial rack enclosure
- D. Vibration resistant (shock mounted) with the ability to withstand the required tolerances for vibration, shock and acceleration
- E. Function under anticipated fluctuations of temperature, dust and humidity of the PPDCV
- F. Two (2) 1 TB SSD (minimum Class 50) drives and swappable hard drive bays
- G. Minimum of 24 GB RAM
- H. Gigabit network adapter

2.9.3 CENTRAL COMPUTER SYSTEM OPERATING SOFTWARE must provide a user interface for all system calibration and diagnostic tests as well as data collection operations. The software should, at a minimum, allow the user to:

- A. Change data collection parameters
- B. Change data collection intervals
- C. Monitor data collection and compare it to ranges input by the user
- D. Perform diagnostics on sensors and other hardware
- E. Monitor and warn the user if data storage is nearing capacity
- F. Calibrate the DMI
- G. Tag user definable events such as railroad crossings, bridge ends and pavement surface changes with the keyboard

2.9.4 DATA REVIEW AND PROCESSING SOFTWARE to analyze data.

The software should, at a minimum, allow the user to:

- A. View data reports from all subsystems in a user definable output format
- B. Report data in detailed tabular format as well as a summary format
- C. View data in graphical formats
- D. Output reports to a formatted text file or printer

2.9.5 SYSTEM OPERATING STATION should be a front operating station.

The front station should allow the operator to operate all vehicle data collection activities from the passenger seat. It should include at a minimum a computer monitor, keyboard and a trackball pointing device.

2.9.6 SPARE PARTS KIT should provide an assortment of spare parts for the replacement of damaged or worn-out components.

2.10 PPDCV SUBSYSTEMS

2.10.1 LONGITUDINAL PROFILE subsystem should provide longitudinal profile measurement and calculation of the International Roughness Index (IRI) as well as Half-car Roughness Index (HRI). It should also provide a Ride Number (RN) calculation and a fault height measurement for joint faulting of jointed concrete pavements.

The system should be a laser-based non-contact inertial profiling system using wide footprint (i.e. Gocator™) sensors in each wheelpath. It should provide all calculated values for both wheelpaths.

- A. The system must meet the definition of a Class II profiler as defined in the Highway Performance Monitoring System (HPMS) Field Manual.
- B. It must also meet the requirements of the ASTM E950-09 definition of a Class 1 profiler.
- C. AASHTO R56 “Certification of Profiling Systems”
- D. AASHTO R43 “Quantifying Roughness of Pavements”
- E. AASHTO R57 “Operational Inertial Profiling Systems”
- F. AASHTO Standard M328

- G. ASTM E1926-08: “Standard Practice for Computing International Roughness Index of Roads from Longitudinal Profile Measurements”
- H. NCHRP 20-24 (37B): “Comparative Performance Measurement: Pavement Smoothness”
- I. World Bank Technical Paper Number 46: “Guidelines for Conduction and Calibration Road Roughness Measurements”
- J. Texas Transportation Institute (TTI) Certification
- K. The analysis software must calculate a RN in accordance with ASTM E1489-96.

The longitudinal profile system should provide accurate longitudinal profile and roughness data at speeds ranging from 15 mph (~24 km/h) to 65 mph (~105 km/h).

Roughness data reporting software should allow accurate reporting of roughness indices at a minimum reporting interval of five (5) meters.

Roughness data reporting software should allow for the creation of an ERD file compatible for import into ProVAL™ for each unique collection section.

Longitudinal profile measurements should be accurate to within +/- 10% of reference profile measurements (i.e. walking profiler).

Repeat run measurements of the IRI should be repeatable with a standard deviation within +/- 5% of the mean IRI for each run.

The longitudinal profile system should also measure joint fault height with a vertical accuracy of ± 1 mm on jointed concrete pavements.

Fault height measurements should be collected in accordance with AASHTO approved methods.

Fault reporting software must allow a user definable threshold for minimum fault height.

2.10.2 THREE-DIMENSIONAL PAVEMENT SURFACE AND IMAGERY COLLECTION subsystem should utilize the Pavemetrics™ Laser Crack Measurement System (LCMS™-2). A minimum pixel resolution of one (1) mm should be provided to allow automatic detection of cracks in the pavement surface. The system should allow pavement image collection at any time of the day without interference of shadows from external light, i.e. sunlight.

The system should be capable of providing, at a minimum, crack detection for use in crack classification and rating, full transverse pavement macro-texture (MPD and MTD in the five AASHTO bands),

full transverse pavement profile for calculation of rut depths and determination of pavement edge drop-off, and the location of joints in concrete pavements.

The images and/or data should be captured to two (2) solid state drives (minimum Class 50 with a minimum capacity of 1 TB) arrayed to mirror capture to provide a backup of all pavement images for the camera system.

The solid state drives should be easily removable to allow transport to the office for downloading images and/or data.

The solid state drives should be able to interface with standard Windows-based desktop computers in the office through a common interface (i.e. USB 3.0, Thunderbolt, eSATA).

Any additional office hardware or software that will be required to access/transfer the data from the solid state drives is to be provided.

An additional set of two (2) solid state drives (minimum Class 50 with a minimum capacity of 1 TB) should be provided for each camera to allow for the swapping of solid state drives when full.

The Vendor must include a reference list, with complete names, addresses, and telephone numbers of at least three (3) different active owner/agencies, including their relevant representative(s), in the continental United States to demonstrate the fact that the proposed pavement imaging system has been successfully delivered and implemented elsewhere and is not a prototype.

2.10.3 PAVEMENT SURFACE TEXTURE should be calculated utilizing the LCMSTM-2 subsystem. The macro-texture should be provided in both MPD and MTD according to AASHTO and ASTM standards and be able to produce macro-texture values across the five AASHTO established bands.

The MPD should be calculated according to the ISO 13473-1:2019 standard.

The macro-texture data should correlate within +/- 5% of the macro-texture provided by standard ASTM tests such as the Digital Sand Patch Model (ASTM E965).

2.10.4 TRANSVERSE PROFILE AND RUT MEASUREMENT should be calculated utilizing the LCMSTM-2 subsystem to provide rut depths and transverse pavement profiles.

The subsystem should provide transverse pavement profiles approximately four (4) meters in width with a lateral resolution of a minimum of 4,000 points, each point representing one millimeter at the pavement surface.

The sampling frequency should allow a profile sample to be provided at a minimum interval of 0.001 meters at 100 km/hr.

Maximum rut depths should be calculated for left and right wheelpaths to within ± 1 mm as compared with ground truth measurements collected with a straightedge or rod and level surveys.

Rut depth reporting software should allow accurate reporting of rut depths at a minimum reporting interval of five (5) meters.

Rut depths should be calculated and reported according to both AASHTO and ASTM standards for the measurement of pavement rut depths.

The subsystem should calculate the pavement crossfall to an accuracy of $\pm 0.5\%$ at a minimum reporting interval of five (5) meters.

The subsystem should provide a full seamless transverse profile of the pavement surface at a minimum reporting interval of five (5) meters.

2.10.5 PAVEMENT EDGE DROP-OFF DETECTION should be calculated utilizing the LCMSTM-2 subsystem to detect the presence of pavement edge drop-off.

Software should be provided to display the results of pavement edge drop-off.

Pavement edge drop-off software should allow reporting of edge drop-off at a minimum reporting interval of five (5) meters.

2.10.6 POSITIONING AND GEOMETRICS subsystem should include a GPS unit that combines a GPS receiver, a beacon differential receiver and a satellite differential receiver in the same housing. A one-year subscription to the OmniSTARTM correction service should also be included.

An inertial navigation system should be included to provide accurate location data when GPS outages occur. The minimum accuracy of the inertial navigation system shall be less than 0.020 degrees pitch and roll and less than 0.050 degrees heading.

2.10.7 RIGHT-OF-WAY IMAGE COLLECTION subsystem should include the following components:

A. A minimum of four (4) digital cameras with a minimum 1,920 x 1,080 pixel resolution, with a minimum of 16:9 aspect ratio, arranged as follows:

- a. Minimum of two (2) forward facing cameras arranged to provide a panoramic near 180 degree view.
- b. Two (2) rear facing cameras – one (1) camera oriented toward the right shoulder and one (1) camera oriented toward the left shoulder.

The cameras should provide true color, progressive scan images with a minimum horizontal field of view of 90 degrees.

- B. The cameras should be controlled by a central computer that allows the operator to perform common image quality adjustments in real time.
- C. Capable of image capture at five (5) meter intervals.
- D. Each camera should capture images to two (2) solid state drives (minimum Class 50 with a minimum capacity of 1 TB) arrayed to mirror capture; this will provide a backup of all images for each camera.
- E. The solid state drives should be easily removable to allow transport to the office for downloading images.
- F. The solid state drives should be able to interface with standard Windows-based desktop computers in the office through a common interface (i.e. USB 3.0, Thunderbolt, eSATA).
- G. Any additional office hardware or software that will be required to access/transfer the data from the solid state drives (minimum Class 50) is to be provided.
- H. An additional set of two (2) solid state drives (minimum Class 50 with a minimum capacity of 1 TB) should be provided for each camera to allow for the swapping of solid state drives when full.
- I. Each camera should be calibrated and a unique calibration file provided for use with the asset inventory collection subsystem described in section 2.10.8.
- J. All equipment and training required to perform a camera calibration should also be provided.
- K. The set-up of a calibration site at the Department will be included.
- L. Imagery and file tree structure must be compatible with the Department's existing right-of-way video log system.

2.10.8 ASSET INVENTORY COLLECTION subsystem should provide asset inventory data in a format that integrates seamlessly with the Department's current asset inventory software – SURVEYOR 2.3.3

The Vendor must propose an asset inventory solution that has been in full production use to provide asset information and location of asset items located within a typical state highway ROW. The Vendor must provide documentation verifying the asset inventory collection system has been

used to collect asset inventory data on a minimum of 15,000 lane miles of roadway for a minimum of two (2) Departments of Transportation. (Contact information should be provided for each Department of Transportation.)

- A. A site license of the asset inventory software should be provided.
- B. A minimum of three (3) complete bound sets of User's manuals should be provided along with a complete digital version.
- C. A minimum of one (1) week of training on the use and implementation of the asset inventory software should be provided at the Department upon system delivery.
 - a. The training should be available to a minimum of six (6) Department employees.
 - b. A software license should be provided for each trainee for the duration of the training period by the Vendor.
 - c. The training should utilize imagery and camera calibrations from the delivered PPDCV.
- D. Each of the minimum four (4) cameras should be calibrated for use with the asset inventory software and be ready to provide imagery.
- E. The imagery from each of the minimum four (4) calibrated ROW cameras must allow users of the asset inventory software to collect roadway assets.
- F. The software must be able to access and utilize the ROW images provided from each of the minimum four (4) calibrated ROW cameras.
- G. The software should allow users to locate and collect roadway assets from the imagery from each of the minimum four (4) calibrated ROW cameras to a relational database that categorizes and classifies these assets.
- H. The software should allow assets to be measured dimensionally, if required, from the corresponding ROW image.
- I. The software should provide the longitudinal offset distance and the geographic location of each selected asset item from the corresponding ROW image.
- J. The relational database should allow the asset items to be easily displayed in the Department's Geographic Information System (GIS) software, ArcGIS Pro.

2.10.9 PAVEMENT GRADE subsystem should provide the longitudinal grade of the road.

The subsystem should calculate the pavement grade to an accuracy of +/- 0.1%.

Pavement grade reporting software should allow accurate reporting of grade data at a minimum reporting interval of five (5) meters.

2.11 ANALYSIS SOFTWARE

2.11.1 AUTOMATED CRACK DETECTION SOFTWARE

The Vendor shall propose a system that has been in full production use. The Vendor shall provide documentation verifying the automated crack detection system has been used in the processing of a minimum of 30,000 lane miles of pavement distress data annually.

The automated crack detection system shall have been used to provide pavement distress data for a minimum of five (5) Departments of Transportation (contact information should be provided for each Department of Transportation).

The automated crack detection system shall have been in production use for not less than five (5) years. Prototype or research-level solutions will not be accepted.

The Vendor shall also demonstrate their past experience (dating at least five (5) years) using the solution to rate pavement condition on asphalt surface types of varying conditions (good, fair, poor) and by way of variety of protocols (AASHTO and SHRP minimum). The Vendor shall supply at least two (2) customer references including project summaries to this end.

The cracking analysis software shall allow for the capability to report cracking according to its location in the roadway (i.e. left shoulder/edge/joint, left wheelpath, between wheelpath, right wheelpath and right shoulder/edge/joint). The detail and summary-level reporting shall indicate the total quantity of each distress type, at each defined severity level, present in each analyzed section.

The software should automatically identify, detect, measure, classify and quantify pavement cracking according to standard protocols, specifically AASHTO and SHRP, and user defined protocols.

The software should utilize the pavement imagery (2.10.2) to locate cracks as small as one (1) mm in width.

The software should produce a “crack map” of the distresses located and allow it to be displayed as an overlay in its true location on the pavement image.

All distresses should be quantified and reported in an output file that shows the location, extent, width, and orientation of each distress.

All ancillary hardware required to utilize the software on a Windows-based personal computer should be provided for a minimum of ten (10) workstations.

A minimum of ten (10) automated crack detection software license should be provided.

A minimum of five (5) bound complete sets of User's Manuals should be provided along with a complete digital version.

Three (3) days of training on the use and implementation of the automated crack detection software should be provided at the Department campus upon system delivery.

The training should be available to a minimum of five (5) Department employees.

A software license should be provided for each trainee for the duration of the training period by the Vendor.

The training should utilize pavement imagery from the delivered PPDCV.

2.11.2 NON-AUTOMATED CRACK DETECTION SOFTWARE

If automated crack detection software does not identify all user defined distresses, a semi-automated software solution should also be provided.

The software shall allow the user to identify, measure, classify and quantify distresses not identified by the automated crack detection software.

The software should allow the user to identify, measure, classify and quantify pavement cracking according to standard protocols, specifically AASHTO and SHRP, and user defined protocols.

The software shall allow the user to measure linear features such as bridge decks.

All ancillary hardware required to utilize the software on a Windows-based personal computer should be provided for a minimum of ten (10) workstations.

A minimum of ten (10) non-automated crack detection software licenses shall be provided.

A minimum of five (5) bound complete sets of User's Manuals should be provided along with a complete digital version.

A minimum of two (2) days of training on the use and implementation of the non-automated crack detection software should be provided at the Department campus upon system delivery.

The training shall be available to a minimum of five (5) Department employees.

A software license shall be provided for each trainee for the duration of the training period by the Vendor.

The training shall utilize pavement imagery from the delivered PPDCV.