

State of Nebraska - INVITATION TO BID CONTRACT

| | | | |
|------------------------------|------------------------|-------------|--------|
| Date | 8/16/23 | Page | 1 of 2 |
| Solicitation Number | 6810 OF | | |
| Opening Date and Time | 09/20/23 | 2:00 pm | |
| Buyer | BRENDA SENSIBAUGH (AS) | | |

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

Per Nebraska's Transparency in Government Procurement Act, DAS is required to collect statistical information regarding the number of contracts awarded to Nebraska contractors. This information is for statistical purposes only and will not be considered for contract award purposes.

____ NEBRASKA CONTRACTOR AFFIDAVIT: Bidder hereby attests that bidder is a Nebraska Contractor. "Nebraska Contractor" shall mean any bidder who has maintained a bona fide place of business and at least one employee within this state for at least the six (6) months immediately preceding the posting date of this ITB.

____ 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.

Contract to supply and deliver Traffic Data Collection Radar to the State of Nebraska as per the attached specifications for a One (1) year period from date of award. The contract may be renewed for four (4) additional One (1) year periods when mutually agreeable to the vendor and the State of Nebraska.

(AM 08/14/23)

INVITATION

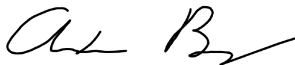
| Line | Description | Quantity | Unit of Measure | Unit Price | Extended Price |
|------|-------------------------------|----------|-----------------|------------|----------------|
| 1 | TRAFFIC DATA COLLECTION RADAR | 4.0000 | EA | \$7,600 | \$30,400 |
| 2 | 10 PIN HARNESS 40' | 4.0000 | EA | \$165 | \$660 |
| 3 | 10 PIN HARNESS 60' | 4.0000 | EA | \$195 | \$780 |

BIDDER MUST COMPLETE THE FOLLOWING

DISCOUNT PAYMENT TERMS: -- % -- DAYS

By signing this Invitation to Bid form, the bidder guarantees compliance with the provisions stated in this Invitation to Bid, agrees to the terms and conditions unless otherwise agreed to and certifies that bidder maintains 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 – Form must be signed manually in ink or by DocuSign)

Enter Contact Information Below

VENDOR#

VENDOR:

Address:

Street Smart Rental

6811 137th Ave NE, Columbus, MN 55025

Contact

Adam Berg

Telephone

651-653-4648

Email

aberg@streetsmartrental.com

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| Line | Description | Quantity | Unit of Measure | Unit Price | Extended Price |
|------|---|----------|-----------------|-----------------|----------------|
| 4 | POWER SUPPLY/UNIT. BRAND _____ MODEL _____ % Discount _____ | | EA | <u>Included</u> | _____ |
| 5 | TERMINAL SERVER BRAND _____ MODEL _____ % Discount _____ | | EA | <u>Included</u> | _____ |
| 6 | SENSOR UNIT 105V BRAND _____ MODEL _____ % Discount _____ | | EA | <u>Included</u> | _____ |
| 7 | SENSOR BRACKETS BRAND _____ MODEL _____ % Discount _____ | | EA | <u>Included</u> | _____ |
| 8 | SURGE PROTECTORS BRAND _____ MODEL _____ % Discount _____ | | EA | <u>Included</u> | _____ |
| 9 | RACK CARDS BRAND _____ MODEL _____ % Discount _____ | | EA | <u>Included</u> | _____ |
| 10 | CONDUCTOR CABLES BRAND _____ MODEL _____ % Discount _____ | | EA | <u>Included</u> | _____ |
| 11 | MOUNTS ASSEMBLY BRAND _____ MODEL _____ % Discount _____ | | EA | <u>Included</u> | _____ |
| 12 | ADDITIONAL CATALOG/ NON CORE ACCESSORIES Percent Discount off regular retail price list/catalog % Discount _____ | | % | _____ | _____ |

**State of Nebraska (State Purchasing Bureau)
INVITATION TO BID FOR COMMODITIES CONTRACT**

| | |
|---|----------------------------|
| INVITATION TO BID NUMBER | RELEASE DATE |
| ITB 6810 OF | August 25, 2023 |
| OPENING DATE AND TIME | PROCUREMENT CONTACT |
| September 20, 2023 2:00 p.m. Central Time | Brenda Sensibaugh |

**PLEASE READ CAREFULLY
SCOPE**

The State of Nebraska (State), Department of Administrative Services (DAS), Materiel Division, State Purchasing Bureau (SPB), is issuing this solicitation for a commodity contract, ITB Number 6810 OF for the purpose of selecting a qualified Contractor to provide **Traffic Data Collection Radar** for the Nebraska Department of Transportation. A more detailed description can be found in Section V. The resulting contract may not be an exclusive contract as the State reserves the right to contract for the same or similar goods from other sources now or in the future.

The term of the contract will be one (1) year commencing upon execution of the contract by the State and the Contractor. The Contract includes the option to renew for four (4) additional one (1) year periods upon mutual agreement of the Parties. The State reserves the right to extend the period of this contract beyond the termination date when mutually agreeable to the Parties.

In the event that a contract with the awarded bidder(s) is cancelled or in the event that the State needs additional contractors to supply the solicited commodities, this ITB may be used to procure the solicited goods for up to eighteen (18) months from the date the Intent to Award is posted, provided that 1) the solicited goods will be provided by a bidder (or a successive owner) who submitted a bid pursuant to this ITB, 2) the bidder's bid was evaluated, and 3) the bidder will honor the bidder's original bid, including the proposed cost, allowing for any price increases that would have otherwise been allowed if the bidder would have received the initial award.

INFORMATION PERTINENT TO THIS INVITATION TO BID CAN BE FOUND ON THE INTERNET AT:
<https://das.nebraska.gov/materiel/bidopps.html>

IMPORTANT NOTICE: Pursuant to Neb. Rev. Stat. § 84-602.04, State contracts in effect as of January 1, 2014, and contracts entered into thereafter must be posted to a public website. The resulting contract, the solicitation and the successful Contractor's bid or response will be posted to a public website managed by DAS, which can be found at: <https://statecontracts.nebraska.gov> and https://www.nebraska.gov/das/materiel/purchasing/contract_search/index.php.

In addition, and in furtherance of the State's public records statute (Neb. Rev. Stat. § 84-712 et seq.) all bids, or responses received regarding this solicitation will be posted to the SPB website.

These postings will include the entire bid or response. Bidders must request that proprietary information be excluded from the posting. The bidder must identify the proprietary information, mark the proprietary information according to state law, and submit the proprietary information in a separate file named conspicuously as "PROPRIETARY INFORMATION." The bidder should submit a detailed written document showing that the release of the proprietary information would give a business advantage to named business competitor(s) and explain how the named business competitor(s) will gain an actual business advantage by disclosure of information. The mere assertion that information is proprietary or that a speculative business advantage might be gained is not sufficient. (See Attorney General Opinion No. 92068, April 27, 1992). **THE BIDDER MAY NOT ASSERT THAT THE ENTIRE BID IS PROPRIETARY. COST WILL NOT BE CONSIDERED PROPRIETARY AND ARE A PUBLIC RECORD IN THE STATE OF NEBRASKA.** The State will determine, in its sole discretion, if the disclosure of the information designated by the Bidder as proprietary would 1) give advantage to business competitors and 2) serve no public purpose. The Bidder will be notified of the State's decision. Absent a determination by the State that the information may be withheld pursuant to Neb. Rev. Stat. § 84-712.05, the State will consider all information a public record subject to disclosure.

If the State determines it is required to release withheld proprietary information, the bidder will be informed. It will be the bidder's responsibility to defend the bidder's asserted interest in non-disclosure.

To facilitate public postings, with the exception of proprietary information, the State of Nebraska reserves a royalty-free, nonexclusive, and irrevocable right to copy, reproduce, publish, post to a website, or otherwise use any contract, bid, or response to this Invitation to Bid for any purpose, and to authorize others to use the documents. Any individual or entity awarded a contract, or who submits a bid or response to this Invitation to Bid, specifically waives any copyright or other protection the contract, bid, or response to the Invitation to Bid may have; and acknowledges that they have the ability and authority to enter into such waiver. This reservation and waiver is a prerequisite for submitting a bid or response to this Invitation to Bid, and award of a contract. Failure to agree to the reservation and waiver will result in the bid or response to the Invitation to Bid being found non-responsive and rejected.

Any entity awarded a contract or submitting a bid or response to the Invitation to Bid agrees not to sue, file a claim, or make a demand of any kind, and will indemnify and hold harmless the State and its employees, volunteers, agents, and its elected and appointed officials from and against any and all claims, liens, demands, damages, liability, actions, causes of action, losses, judgments, costs, and expenses of every nature, including investigation costs and expenses, settlement costs, and attorney fees and expenses, sustained or asserted

against the State, arising out of, resulting from, or attributable to the posting of the contract or the bids and responses to the Invitation to Bid, awards, and other documents.

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GLOSSARY OF TERMS

Acceptance Test Procedure: Benchmarks and other performance criteria, developed by the State or other sources of testing standards, for measuring the effectiveness of products or goods and the means used for testing such performance

Addendum: Something to be added or deleted to an existing document; a supplement

After Receipt of Order (ARO): After Receipt of Order

Agency: Using agencies shall mean and include all officers of the state, departments, bureaus, boards, commissions, councils, and institutions receiving legislative appropriations

Agent/Representative: A person authorized to act on behalf of another

Amend: To alter or change by adding, subtracting, or substituting

Amendment: A written correction or alteration to a document

Appropriation: Legislative authorization to expend public funds for a specific purpose; money set apart for a specific use

Automated Clearing House (ACH): Electronic network for financial transactions in the United States

Award: All purchases, leases, or contracts which are based on competitive bids will be awarded according to the provisions in the solicitation

Best and Final Offer (BAFO): In a competitive bid, the final offer submitted which contains contractor's most favorable terms for price

Bid: An offer, bid, or quote submitted by a contractor in a response to a written solicitation

Bid Bond: An insurance agreement, accompanied by a monetary commitment, by which a third party (the surety) accepts liability and guarantees that the contractor will not withdraw the bid

Bidder: A contractor who submits an offer bid in response to a written solicitation

Breach: Violation of a contractual obligation by failing to perform or repudiation of one's own promise

Business: Any corporation, partnership, individual, sole proprietorship, joint-stock company, joint venture, or any other private legal entity

Business Day: Any weekday, except State-recognized holidays

Calendar Day: Every day shown on the calendar including Saturdays, Sundays, and State/Federal holidays

Cancellation: To call off or revoke a bid, purchase order or contract without expectation of conducting or performing at a later time

Catalog/Non-Core: A printed or electronic list of products a contractor may provide at a discounted rate or discount off list price to the State. Initial contract award(s) is not based on Catalog/Non-Core items

Central Processing Unit (CPU): Any computer or computer system that is used by the State to store, process, or retrieve data or perform other functions using Operating Systems and applications software

Change Order: Document that provides amendments to an executed purchase order

Collusion: An agreement or cooperation between two or more persons or entities to accomplish a fraudulent, deceitful, or unlawful purpose

Commodities: Any equipment, material, supply, or goods; anything movable or tangible that is provided or sold

Commodities Description: Detailed descriptions of the items to be purchased; may include information necessary to obtain the desired quality, type, color, size, shape, or special characteristics necessary to perform the work intended to produce the desired results

Competition: The effort or action of two or more commercial interests to obtain the same business from third parties

Confidential Information: Unless otherwise defined below, "Confidential Information" shall also mean proprietary 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 Nebraska Attorney

General Opinions 92068 and 97033, proof that information is proprietary requires identification of specific, named competitor(s) who would be advantaged by release of the information and the specific advantage the competitor(s) would receive.

Contract: An agreement between two or more parties creating obligations that are enforceable or otherwise recognizable at law; the writing that sets forth such an agreement

Contract Administration: The management of the contract which includes and is not limited to contract signing, contract amendments and any necessary legal actions

Contract Management: The management of day-to-day activities at the agency which includes and is not limited to ensuring deliverables are received, specifications are met, handling meetings, and making payments to the Contractor

Contract Period: The duration of the contract

Contractor: An individual or entity lawfully conducting business in the State, who seeks or agrees to provide goods or services under the terms of a written contract

Cooperative Purchasing: The combining of requirements of two or more political entities to obtain advantages of volume purchases, reduction in administrative expenses or other public benefits

Copyright: A property right in an original work of authorship fixed in any tangible medium of expression, giving the holder the exclusive right to reproduce, adapt and distribute the work

Core List: Items specifically listed on the solicitation upon which a bid is evaluated for award.

Critical Program Error: Any Program Error, whether or not known to the State, which prohibits or significantly impairs use of the Licensed Software as set forth in the documentation and intended in the contract

Customer Service: The process of ensuring customer satisfaction by providing assistance and advice on those products or goods provided by a Contractor

Default: The omission or failure to perform a contractual duty

Deviation: Any proposed change(s) or alteration(s) to either the terms and conditions or deliverables within the scope of the written solicitation or contract

Evaluation: The process of examining an offer after opening to determine the contractor's responsibility, responsiveness to requirements, and to ascertain other characteristics of the offer that relate to determination of the successful award

Evaluation Committee: Committee(s) appointed by the requesting agency that advises and assists the procuring office in the evaluation of bids (offers made in response to written solicitations)

Extension: Continuance of a contract for a specified duration upon the agreement of the parties beyond the original Contract Period; not to be confused with "Renewal Period"

Free on Board (F.O.B.) Destination: The delivery charges are included in the quoted price and prepaid by the contractor. Contractor is responsible for all claims associated with damages during delivery of product.

Free on Board (F.O.B.) Point of Origin: The delivery charges are not included in the quoted price and are the responsibility of the agency. Agency is responsible for all claims associated with damages during delivery of product

Foreign Corporation: A foreign corporation that was organized and chartered under the laws of another state, government, or country

Installation Date: The date when the procedures described in "Installation by Contractor" and "Installation by State" as found in the solicitation or contract are completed

Interested Party: A person acting in their personal capacity or an entity entering into a contract or other agreement creating a legal interest therein

Invalid Bid: A bid that does not meet the requirements of the solicitation or cannot be evaluated against the other bids

Invitation to Bid (ITB): A written solicitation used for obtaining competitive offers for Services or Goods

Late Bid: An offer received after the Opening Date and Time

Licensed Software Documentation: The user manuals and any other materials in any form or medium customarily provided by the Contractor to the users of the Licensed Software which will provide the State with sufficient information to operate, diagnose, and maintain the Licensed Software properly, safely, and efficiently

Mandatory/Must: Required, compulsory, or obligatory

May: Discretionary, permitted; used to express possibility

Module (see System): A collection of routines and data structures that perform a specific function of software

Must: See Mandatory/Must and Shall/Will/Must

National Institute for Governmental Purchasing (NIGP): National Institute of Governmental Purchasing – Source used for assignment of universal commodity codes to goods and services

Non-core: See Catalog

Nonnegotiable: These clauses are controlled by state law and are not subject to negotiation

Open Market Purchase: Authorization may be given to an agency to purchase items above direct purchase authority due to the unique nature, price, quantity, location of the using agency, or time limitations by the AS Materiel Division, State Purchasing Bureau

Opening Date and Time: Specified date and time for the public opening of received, labeled, and sealed formal bids

Operating System: The control program in a computer that provides the interface to the computer hardware and peripheral devices, and the usage and allocation of memory resources, processor resources, input/output resources, and security resources

Outsourcing: The contracting out of a business process that an organization may have previously performed internally or for which an organization has a new need to an independent organization from which the process is purchased back

Payroll & Financial Center (PFC): Electronic procurement system of record

Performance Bond: An insurance agreement accompanied by a monetary commitment by which a third party (the surety) accepts liability and guarantees that the Contractor fulfills any and all obligations under the contract

Platform: A specific hardware and Operating System combination that is different from other hardware and Operating System combinations to the extent that a different version of the Licensed Software product is required to execute properly in the environment established by such hardware and Operating System combination

Point of Contact (POC): The person designated to receive communications and to communicate

Pre-Bid Conference: A meeting scheduled for the purpose of clarifying a written solicitation and related expectations

Product: Something that is distributed commercially for use or consumption and that is usually (1) tangible personal property, (2) the result of fabrication or processing, and (3) an item that has passed through a chain of commercial distribution before ultimate use or consumption

Program Error: Code in Licensed Software that produces unintended results or actions or that produces results or actions other than those described in the specifications. A program error includes, without limitation, any Critical Program Error.

Program Set: The group of programs and products, including the Licensed Software specified in the solicitation, plus any additional programs and products licensed by the State under the contract for use by the State

Project: The total scheme, program, or method worked out for the accomplishment of an objective, including all documentation, commodities, and goods to be provided under the contract

Proprietary Information: Trade secrets, academic and scientific research work that is in progress and unpublished or other information that if released would give advantage to business competitors and service no public purpose. See Neb. Rev. Stat. § 84-712.05(3). In accordance with Attorney General Opinions 92068 and 97033, proof that information is proprietary requires identification of specific named competitor(s) advantaged by release of the information and the demonstrated advantage the named competitor(s) would gain by the release of information.

Protest/Grievance: A complaint about a governmental action or decision related to the solicitation or resultant contract, brought by a contractor who has timely submitted a bid response in connection with the award in question to AS Materiel Division or another designated agency with the intention of achieving a remedial result

Public Bid Opening: The process of opening correctly submitted offers at the time and place specified in the written solicitation and in the presence of anyone who wished to attend

Quote: See Bid

Recommended Hardware Configuration: The data processing hardware (including all terminals, auxiliary storage, communication, and other peripheral devices) to the extent used by the State as recommended by the Contractor

Release Date: The date of public release of the written solicitation to seek offers

Renewal Period: Optional contract periods subsequent to the original Contract Period for a specified duration with previously agreed to terms and conditions; not to be confused with “Extension”

Responsible Contractor: A Contractor who has the capability in all respects to perform fully and lawfully all requirements with integrity and reliability to assure good faith performance

Responsive Contractor: A Contractor who has submitted a bid which conforms to all requirements of the solicitation document

Shall: See Must

Should: Expected; suggested, but not necessarily mandatory

Software License: Legal instrument with or without printed material that governs the use or redistribution of licensed software

Sole Source – Commodity: When an item is available from only one source due to the unique nature of the requirement, its contractor, or market conditions

Sole Source – Service: A service of such a unique nature that the contractor selected is clearly and justifiably the only practical source to provide the service. Determination that the contractor selected is justifiably the sole source is based on either the uniqueness of the service or sole availability at the location required

Specifications: The detailed statement, especially of the measurements, quality, materials, and functional characteristics, or other items to be provided under a contract

Subcontractor: Individual or entity with whom the contractor enters a contract to perform a portion of the work awarded to the contractor

System (see Module): Any collection or aggregation of two (2) or more Modules that is designed to function, or is represented by the Contractor as functioning or being capable of functioning, as an entity

Termination: Occurs when the contract expires or either party, pursuant to a power created by agreement or law, puts an end to the contract prior to the stated expiration date; all obligations that are still executory on both sides are discharged but any right based on prior breach or performance survives

Third-Party: Any person or entity, including but not limited to fiduciaries, shareholders, owners, officers, managers, employees, legally disinterested persons, and subcontractors or agents, and their employees. It shall not include any entity or person who is an interested party to the contract or agreement

Trade Secret: Information, including but not limited to, a drawing, formula, pattern, compilation, program, device, method, technique, code, or process that (a) derives independent economic value, actual or potential, from not being known to, and not being ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and (b) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy (see Neb. Rev. Stat. § 87-502(4))

Trademark: A word, phrase, logo, or other graphic symbol used by a manufacturer or contractor to distinguish its product from those of others, registered with the U.S. Patent and Trademark Office

Upgrade: Any change that improves or alters the basic function of a product of service

Vendor: Inclusive term for any Bidder or Contractor.

Will: See Mandatory/Must/Shall

Work Day: See Business Day

ACRONYM LIST

ARO – After Receipt of Order

ACH – Automated Clearing House

BAFO – Best and Final Offer

COI – Certificate of Insurance

CPU – Central Processing Unit

CTS – Clear to Send

DAS – Department of Administrative Services

F.O.B. – Free on Board

ICT – Information and Communication Technology

ITB – Invitation to Bid

NDOT- Nebraska Department of Transportation

NIGP – National Institute for Governmental Purchasing

PA – Participating Addendum

POC – Point of Contact

RTS – Request to Send

SPB – State Purchasing Bureau

TDCR – Traffic Data Collection Radar

VDC – Volts Direct Current

I. PROCUREMENT PROCEDURE

A. GENERAL INFORMATION

This Invitation to Bid is designed to solicit bids from qualified Contractors who will be responsible for providing **Traffic Data Collection Radar** for the Nebraska Department of Transportation at a competitive and reasonable cost. Terms and Conditions, Project Description and Scope of Work, Bid instructions, and Cost Bid Requirements may be found in Sections II through VI.

Bids shall conform to all instructions, conditions, and requirements included in the solicitation. Prospective Contractors are expected to carefully examine all documents, schedules, and requirements in this solicitation, and respond to each requirement in the format prescribed. Bids may be found non-responsive if they do not conform to the solicitation.

B. PROCURING OFFICE AND COMMUNICATION WITH STATE STAFF AND EVALUATORS

Procurement responsibilities related to this solicitation reside with SPB. The point of contact (POC) for the procurement is as follows:

ITB Number: 6810 OF
Name: Brenda Sensibaugh, Procurement Contracts Officer
Agency: State Purchasing Bureau
Address: 1526 K Street, Suite 130
Lincoln, NE 68508
Telephone: 402-471-6500
E-Mail: as.materielpurchasing@nebraska.gov

From the date the solicitation is issued until the Intent to Award is issued, communication from the Contractor is limited to the POC listed above. After the Intent to Award is issued, the Contractor may communicate with individuals the State has designated as responsible for negotiating the contract on behalf of the State. No member of the State Government, employee of the State, or member of the Evaluation Committee is empowered to make binding statements regarding this solicitation. The POC will issue any answers, clarifications, or amendments regarding this solicitation in writing. Only the SPB or awarding agency can award a contract. Contractors shall not have any communication with or attempt to communicate or influence any evaluator involved in this solicitation.

The following exceptions to these restrictions are permitted:

1. Contact made pursuant to pre-existing contracts or obligations;
2. Contact required by the schedule of events, or an event scheduled later by POC; and
3. Contact required for negotiation and execution of the final contract.

The State reserves the right to reject a contractor's bid, withdraw an Intent to Award, or terminate a contract if the State determines there has been a violation of these procurement procedures.

C. SCHEDULE OF EVENTS

The State expects to adhere to the procurement schedule shown below, but all dates are approximate and subject to change.

| ACTIVITY | | DATE/TIME |
|----------|--|--|
| 1. | Release ITB | August-25-2023 |
| 2. | Last day to submit written questions Upload electronic Questions submissions for OF via ShareFile to: https://nebraska.sharefile.com/r-r65258499816644f082d250a8145481b2 | September 6-2023 |
| 3. | State responds to written questions through a solicitation “Addendum” and/or “Amendment” to be posted to the Internet at: https://das.nebraska.gov/materiel/bidopps.html | September 20-2023 |
| 4. | Electronic Bid Opening via Zoom Meeting Upload electronic Bid submissions for 6810 OF via ShareFile to: https://nebraska.sharefile.com/r-r2cb7a11374d7430ba38b1115f285c32a | October 2, 2023 2:00 PM Central Time |
| 5. | Post “Notification of Intent to Award” to Internet at: http://das.nebraska.gov/materiel/purchasing.html | TBD |
| 6. | Contract award | TBD |

D. WRITTEN QUESTIONS AND ANSWERS

Questions regarding the meaning or interpretation of any solicitation provision must be submitted in writing to SPB and clearly marked “ITB Number 6810 OF; Traffic Data Collection Radar Questions”. POC is not obligated to respond to questions that are received late per the Schedule of Events.

Contractors should present, as questions, any assumptions upon which the Contractor’s bid is or might be developed. Bids will be evaluated without consideration of any known or unknown assumptions of a Contractor. The contract will not incorporate any known or unknown assumptions of a Contractor.

Questions should be uploaded using the ShareFile link provided in the ITB Schedule of Events, Section I.C. It is recommended that Contractors submit questions using the following format.

| Solicitation Section Reference | Solicitation Page Number | Question |
|--------------------------------|--------------------------|----------|
| | | |

Written answers will be posted at <https://das.nebraska.gov/materiel/bidopps.html> per the Schedule of Events.

E. SECRETARY OF STATE/TAX COMMISSIONER REGISTRATION REQUIREMENTS (Nonnegotiable)

All Contractors must be authorized to transact business in the State and comply with all Nebraska Secretary of State Registration requirements. The Contractor who is the recipient of an Intent to Award will be required to certify that it has complied and produce a true and correct copy of its current (within ninety (90) calendar days of the intent to award) Certificate or Letter of Good Standing, or in the case of a sole proprietorship, provide written documentation of sole proprietorship and the United States Citizenship Attestation Form, available on the DAS website at: <http://das.nebraska.gov/materiel/purchasing.html>. This must be accomplished prior to execution of the contract.

F. ETHICS IN PUBLIC CONTRACTING

The State reserves the right to reject bids, withdraw an intent to award or award, or terminate a contract if a Contractor commits or has committed ethical violations, which include, but are not limited to:

1. Offering or giving, directly or indirectly, a bribe, fee, commission, compensation, gift, gratuity, or anything of value to any person or entity in an attempt to influence the bidding process;
2. Using the services of lobbyists, attorneys, political activists, or consultants to influence or subvert the bidding process;
3. Being considered for, presently being, or becoming debarred, suspended, ineligible, or excluded from contracting with any state or federal entity;
4. Submitting a bid on behalf of another party or entity;
5. Colluding with any person or entity to influence the bidding process, submit sham bids, preclude bidding, fix pricing or costs, create an unfair advantage, subvert the bid, or prejudice the State.

The Contractor shall include this clause in any subcontract entered into for the exclusive purpose of performing this contract.

Contractor shall report any violations of this clause throughout the bidding process and throughout the term of this contract for both the successful Contractor and its subcontractors.

G. DEVIATIONS FROM THE INVITATION TO BID

The requirements contained in the solicitation (Sections II through VI) become a part of the terms and conditions of the contract resulting from this solicitation. Any deviations from the solicitation in Sections II through VI must be clearly defined by the bidder in its bid and, if accepted by the State, will become part of the contract. Any specifically defined deviations must not be in conflict with the basic nature of the solicitation, solicitation requirements, or applicable state or federal laws or statutes. The State discourages deviations and reserves the right to reject proposed deviations.

H. SUBMISSION OF BIDS

The State is only accepting electronic responses submitted in accordance with this ITB. The State will not accept bids by mail, email, voice, or telephone, unless otherwise explicitly stated in writing by the State. Bids must be submitted via ShareFile by the date and time of the bid opening per the Schedule of Events. No late bids will be accepted.

Pages may be consecutively numbered for the entire bid or may be numbered consecutively within sections. Figures and tables should be numbered and referenced in the text by that number. They should be placed as close as possible to the referencing text.

It is the responsibility of the bidder to check the website for all information relevant to this ITB to include addenda and/or amendments issued prior to the opening date. The website can be found here: <https://das.nebraska.gov/materiel/bidopps.html>. If the bidder's bid is presented in such a fashion that makes evaluation difficult or overly time consuming the State reserves the right to reject the bid as non-conforming.

Note to bidders: Not all browsers are compatible with ShareFile. Currently Chrome, Internet Explorer and Firefox are compatible. After the bidder clicks the bid submission link, the bidder will be prompted to enter contact information including an e-mail address. By entering an e-mail address, the bidder should receive a confirmation email confirming the successful upload directly from ShareFile.

The ShareFile link for uploading ITB response(s) is provided in the ITB Schedule of Events, Section I.C.

*****UNLESS OTHERWISE NOTED, DO NOT SUBMIT DOCUMENTS THAT CAN ONLY BE ACCESSED WITH A PASSWORD*****

1. The Bid and Proprietary information should be uploaded as separate and distinct files.
 - a. If duplicated bids are submitted, the State will retain only the most recently submitted response.
 - b. If it is the bidder's intent to submit multiple bids, the bidder must clearly identify the separate submissions.
 - c. It is the bidder's responsibility to allow time for electronic uploading. All file uploads must be completed by the Opening date and time per the Schedule of Events. No late bids will be accepted.
2. ELECTRONIC BID FILE NAMES The bidder should clearly identify the uploaded ITB bid files. To assist in identification the bidder should use the following naming convention:
 - a. 6810 OF, **Traffic Data Collection Radar** NAME OF BIDDER Bid
 - b. If multiple files are submitted for one bid, add number of files to file names, e.g.,
 - c. 6810 OF, **Traffic Data Collection Radar** NAME OF BIDDER Bid File 1 of 2;
 - d. 6810 OF, **Traffic Data Collection Radar** NAME OF BIDDER Bid File 2 of 2, etc.

The "Invitation to Bid for Commodities Contract" form must be signed manually in ink or by DocuSign and returned by the bid opening date and time along with the bidder's bid and any other requirements as stated in the Invitation to Bid document in order for the bidder's Invitation to Bid response to be evaluated.

By signing the "Invitation to Bid for Commodities Contract" form, the bidder guarantees compliance with the provisions stated in this Invitation to Bid.

I. BID PREPARATION COSTS

The State shall not incur any liability for any costs incurred by Contractors in replying to this solicitation, including any activity related to bidding on this solicitation.

J. FAILURE TO COMPLY WITH INVITATION TO BID

Violation of the terms and conditions contained in this solicitation or any resultant contract, at any time before or after the award, shall be grounds for action by the State which may include, but is not limited to, the following:

1. Rejection of a Contractor's bid;
2. Withdrawal of the Intent to Award;
3. Withdrawal of the Award;
4. Negative documentation regarding vendor performance;
5. Termination of the resulting contract;
6. Legal action; or,
7. Suspension of the Contractor from further bidding with the State for the period of time relative to the seriousness of the violation, such period to be within the sole discretion of the State.

K. BID CORRECTIONS

A contractor may correct a mistake in a bid prior to the time of opening by giving written notice to the State of intent to withdraw the bid for modification or to withdraw the bid completely. Changing a bid after opening may be permitted if the change is made to correct a minor error that does not affect price, quantity, quality, delivery, or contractual conditions. In case of a mathematical error in extension of price, unit price shall govern.

L. LATE BIDS

Bids received after the time and date of the bid opening will be considered late bids. Late bids will be returned unopened, if requested by the Contractor and at Contractor's expense. The State is not responsible for bids that are late or lost regardless of cause or fault.

M. BID OPENING

Anyone may attend the opening. It is considered a public opening. The Buyer will read the names of the respondents. Depending upon the complexity of the bid for goods, the Buyer may read the bids aloud or allow bids be available for viewing by the public during the bid opening. Once the bid opening has concluded, the bids will not be available for viewing until the Intent to Award has been posted. An initial bid tabulation will be posted to the website as soon as feasible. Information identified as proprietary by the submitting contractor, in accordance with the solicitation and state statute, will not be posted. If the state determines submitted information should not be withheld, in accordance with the [Public Records Act](#), or if ordered to release any withheld information, said information may then be released. The submitting contractor will be notified of the release and it shall be the obligation of the submitting contractor to take further action if it believes the information should not be released.

N. INVITATION TO BID REQUIREMENTS

The bids will first be examined to determine if all requirements listed below have been addressed and whether further evaluation is warranted. Bids not meeting the requirements may be rejected as non-responsive. The requirements are as follows:

1. Original Commodity ITB form signed using an indelible method (electronic signatures approved by the Nebraska Secretary of State are acceptable);
2. Clarity and responsiveness of the bid;
3. Completed Sections II through VI;
4. State's Bid Sheet.

O. EVALUATION OF BIDS

All bids that are responsive to the solicitation will be evaluated based on the following:

1. Neb. Rev. Stat. § 81-161 allows the State to consider a variety of factors, including, but not limited to, the quality of performance of previous contracts to be considered when evaluating responses to competitively bid solicitations in determining the lowest responsible bidder. Information obtained from any Vendor Performance Notice or any Vendor Improvement Request (See Terms & Conditions, Section GI.G) may be used in evaluating responses to solicitations for goods and services to determine the best value for the State.
2. Neb. Rev. Stat. § 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 contractor, 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 contractor, 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.

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 so indicated on the ITB cover page under "Contractor must complete the following" requesting priority/preference to be considered in the award of this contract, the following will need to be submitted by the contractor within ten (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 ten (10) business days of notice will disqualify the contractor from consideration of the preference.

P. BEST AND FINAL OFFER

If best and final offers (BAFO) are requested by the State and submitted by the contractor, they will be evaluated (using the stated BAFO criteria) and ranked by the Evaluation Committee. The State reserves the right to conduct more than one BAFO. The award will then be granted to the lowest responsible contractor. However, a contractor should provide its best offer in its original bid. Contractors should not expect that the State will request a BAFO.

Q. REFERENCE AND CREDIT CHECKS

The State reserves the right to conduct and consider reference and credit checks. The State reserves the right to use third parties to conduct reference and credit checks. By submitting a bid in response to this solicitation, the contractor grants to the State the right to contact or arrange a visit in person with any or all of the contractor's clients. Reference and credit checks may be grounds to reject a bid, withdraw an intent to award, or rescind the award of a contract.

R. AWARD

The State reserves the right to evaluate bids and award contracts in a manner using criteria selected at the State's discretion and in the State's best interest. After evaluation of the bids, or at any point in the solicitation process, the State of Nebraska may take one or more of the following actions:

1. Amend the solicitation;
2. Extend the time of or establish a new bid opening time;
3. Waive deviations or errors in the State's solicitation process and in contractor bids that are not material, do not compromise the solicitation process or a contractor's bid, and do not improve a contractor's competitive position;
4. Accept or reject a portion of or all of a bid;
5. Accept or reject all bids;
6. Withdraw the solicitation;
7. Elect to rebid the solicitation;
8. Award single lines or multiple lines to one or more contractors; or,
9. Award one or more all-inclusive contracts.

The State of Nebraska may consider, but is not limited to considering, one or more of the following award criteria:

1. Price;
2. Location;
3. Quality;
4. Delivery time;
5. Contractor qualifications and capabilities;
6. State contract management requirements and/or costs;

The solicitation does not commit the State to award a contract. Once intent to award decision has been determined, it will be posted to the internet at: <https://das.nebraska.gov/materiel/bidopps.html>

Any protests must be filed by a contractor within ten (10) business days after the intent to award decision is posted to the internet. Grievance and protest procedure is available on the internet at: https://das.nebraska.gov/materiel/docs/pdf/ProtestGrievanceWithGuidance_08042021.pdf

S. 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 Materiel Administrator or his or her designee will be the sole judge of equivalency. The Contractor may offer any brands which meets or exceeds the specification. When a specific product is required, the solicitation 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.

T. SAMPLES

When requested, samples should be furnished at the Contractor's expense prior to the opening of the bid, unless another time is specified. Each sample should be labeled clearly, and identify the Contractor's name, the ITB number, item number, and the brand and model number, if applicable. Samples submitted must be the commodities or equipment which would be delivered if awarded the bid. The State reserves the right to request samples even though this may not have been set forth in the solicitation. Samples may be destroyed in testing. If a sample is not destroyed in testing and a Contractor wishes to have the sample returned, it will be returned at the Contractor's expense upon request. The sample will not be returned until thirty (30) calendar days after any bid protest or, the execution of a contract. The Contractor shall have ten (10) calendar days to arrange for the return of the sample to the Contractor following any of the above dates. If no request from the Contractor is received within the above dates, the State reserves the right to use, donate, or surplus the samples in accordance with the State's policies.

U. CORE LIST AND CATALOG/NON-CORE

The State of Nebraska intends to enter into a Contract(s) for state agencies and/or facilities. The contract(s) will be for a list of common use items identified as a Core List and additional items identified as a Catalog/Non-Core List. Catalog/Non-Core List items shall be represented by a catalog or current manufacturer price list(s) containing items not called out in the Core List, as shown in Attachment B For Traffic Data Collection Radar, 6810 OF, BID SHEET.

1. The Core List shall contain the most repetitively purchased items and will represent those products which the State wishes to establish as standard items based upon their value to the State in terms of quality and price. The Core List shall be subject to a greater discount than the Catalog/Non-Core item list. The State will not accept substitutions on the products listed on the Core List.
2. The Core List identifies the most commonly purchased items but is not a complete list of items purchased by the State, nor does it guarantee future purchase of these products. The State reserves the right to add or remove items from the Core Item list based on usage.
3. Catalog/Non-Core List items are defined as those additional items available from the contractor not listed as part of the Core List. Prices for Catalog/Non-Core items shall be determined by applying the quoted discount for the item(s)/category to the manufacturer's current catalog or manufacturer contractor's price list(s). The discount percentage for the Catalog/Non-Core items shall remain firm for the duration of the contract period.
4. All items not included on the Core List shall be considered Catalog/Non-Core Items.
5. At the request of the State Purchasing Bureau, the contractor shall block availability on certain Catalog/Non-Core items as identified by State Purchasing Bureau (i.e., printing, weapons, furniture, vehicles, micrographic equipment/copiers, mail equipment, and office supplies).
6. Any quantities stated are estimated annual quantities and shall not be construed to be either a minimum or a maximum. The State will not accept substitutions.

7. A manufacturer's model/number has been provided for each item, if requested.
8. In those cases where items may have been more than one brand name, the contractor may submit a bid on either brand. Please indicate which brand was proposed. Contractor must complete 6810 OF ITB Traffic Data Collection Radar. Pay special attention to the unit of measure.
9. Prices for Catalog/Non-Core items shall be determined by applying the quoted discount for the item to the manufacturer's current catalog or price list. The percentage discount for the items shall remain firm for the duration of the contract period. Bidder Contractor must clearly state the date of the catalog or price list used and provide a copy of the catalog to the State Purchasing Bureau upon request.
10. The pricing structure, consisting of all pricing formulas and pertinent information, for all non-core items must be clearly defined and documented for future auditing purposes.
11. The percentage discount rate for Catalog/Non-Core items or categories will not decrease during the life of the contract.
12. A firm percentage rate must be quoted by item or category, but a percentage range will not be considered by item or category.
13. Catalog/Non-Core Categories have been identified as follows
 - a. (Radar Heads for Collecting Traffic Data) (excluding core items)
 - b. (Radar Heads for Collecting Traffic Data Accessories including power supply, surge protectors, rack cards, conductor cables, rotating backplates, and mounts) (excluding core items)
14. After award of the contract(s), the contractor shall supply additional copies of the current catalog or price list used for this solicitation for distribution to any requesting state agency at no charge within ten (10) business days of request.
15. Additional catalogs and/or price lists may be required and shall be provided without charge.
16. Any catalog or price list revisions which occur during the duration of the contract shall be provided upon request and without charge.
17. Usage reports may be requested by the State Purchasing Bureau. The reporting period may be determined based on need and may include the following:
 - a. Fill rate information for Core List and Catalog/Non-Core items, statewide and by agency to include the number of orders received, orders processed, back orders, and partially filled orders.
 - b. Usage reports by agency and statewide indicating the numbers of each Core List and Catalog/Non-Core item sold.
18. Any additional report the State Purchasing Bureau may deem necessary
19. Contractor will not substitute any Core List item that has been awarded without prior written approval of State Purchasing Bureau.

V. ALTERNATE/EQUIVALENT BIDS

Contractor may offer bids which are at variance from the express specifications of the solicitation. The State reserves the right to consider and accept such bids if, in the judgment of SPB, the bid will result in goods and/or services equivalent to or better than those which would be supplied in the original bid specifications. Contractor must indicate on the solicitation 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 specification, and the Contractor shall be held liable, therefore.

W. 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. Contractors 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.

“LUMP SUM” OR “ALL OR NONE” BIDS SHOULD BE CONSPICUOUSLY MARKED ON THE FIRST PAGE OF THE ITB AND BID SHEET (IF APPLICABLE)

X. ALTERNATIVE SUBMISSION METHODS PROHIBITED

SPB will not accept bids by mail, email, voice, or telephone bid **except** for one-time purchases under \$50,000.00.

Y. BID TABULATIONS

Bid tabulations are available on the website at: <https://das.nebraska.gov/materiel/bidopps.html>.

Z. REJECTION OF BIDS

The State reserves the right to reject any or all bids, wholly or in part, in the best interest of the State.

AA. RESIDENT BIDDER

Pursuant to Neb. Rev. Stat. §§ 73-101.01 through 73-101.02, a resident bidder shall be allowed a preference against a non-resident bidder 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. The provision of this preference shall not apply to any contract for any project upon which federal funds would be withheld because of the provisions of this preference.

II. TERMS AND CONDITIONS

By signing the solicitation, Contractor agrees to be legally bound by all the accepted terms and conditions as well as any proposed alternative terms and conditions submitted with the bid. The State reserves the right to negotiate rejected or proposed alternative language. If the State and Contractor fail to agree on the final Terms and Conditions, the State reserves the right to reject the bid. The State is soliciting bids in response to the solicitation. The State reserves the right to reject bids that attempt to substitute the Contractor's commercial contracts and/or documents for this solicitation.

The Contractor should submit with their bid any license, user agreement, service level agreement, or similar documents that the Contractor wants incorporated in the Contract. Upon notice of Intent to Award, the Contractor must submit a copy of these documents in an editable Word format. The State will not consider incorporation of any document not submitted with the Contractor's bid. These documents shall be subject to negotiation and will be incorporated as addendums if agreed to by the Parties.

If a conflict or ambiguity arises after the addendums have been negotiated and agreed to, the addendums shall be interpreted as follows:

1. If only one (1) Party's document has a particular clause, then that clause shall control;
2. If both Party's documents have a similar clause, but the clauses do not conflict, the clauses shall be read together;
3. If both Party's documents have a similar clause, but the clauses conflict, the State's clause shall control.

A. GENERAL

The contract resulting from this solicitation shall incorporate the following documents:

1. Invitation to Bid and Addenda;
2. Amendments to the solicitation;
3. Questions and Answers;
4. Contractor's bid response;
5. The executed Contract and any Addenda, if applicable, and properly submitted documents; and,
6. Amendments to the Contract

These documents constitute the entirety of the contract.

Unless otherwise specifically stated in a future contract amendment, in case of any conflict between the incorporated documents, the documents shall govern in the following order of preference with number one (1) receiving preference over all other documents and with each lower numbered document having preference over any higher numbered document: 1) Amendment to the executed Contract with the most recent dated amendment having the highest priority, 2) executed Contract and any attached Addenda, 3) Amendments to solicitation and any Questions and Answers, 4) the original solicitation document and any Addenda, and 5) the Contractor's submitted Bid.

Any ambiguity or conflict in the contract discovered after its execution, not otherwise addressed herein, shall be resolved in accordance with the rules of contract interpretation as established in the State.

B. NOTIFICATION

Contractor and State shall identify the contract manager who shall serve as the point of contact for the executed contract.

Communications regarding the executed contract shall be in writing and shall be deemed to have been given if delivered personally; electronically, return receipt requested; or mailed, return receipt requested. All notices, requests, or communications shall be deemed effective upon receipt. Either Party may change its address for notification purposes by giving notice of the change and setting forth the new address and an effective date.

C. NOTICE (POC)

The State reserves the right to appoint a Buyer's Representative to manage [or assist the Buyer in managing] the contract on behalf of the State. The Buyer's Representative will be appointed in writing, and the appointment document will specify the extent of the Buyer's Representative authority and responsibilities. If a Buyer's Representative is appointed, the Contractor will be provided a copy of the appointment document and is expected to cooperate accordingly with the Buyer's Representative. The Buyer's Representative has no authority to bind the State to a contract, amendment, addendum, or other change or addition to the contract.

D. GOVERNING LAW (Nonnegotiable)

Notwithstanding any other provision of this contract, or any amendment or addendum(s) entered into contemporaneously or at a later time, the parties understand and agree that, (1) the State of Nebraska is a sovereign state and its authority to contract is therefore subject to limitation by the State's Constitution, statutes, common law, and regulation; (2) this contract will be interpreted and enforced under the laws of the State of Nebraska; (3) any

action to enforce the provisions of this contract must be brought in the State of Nebraska per state law; (4) the person signing this contract on behalf of the State of Nebraska does not have the authority to waive the State's sovereign immunity, statutes, common law, or regulations; (5) the indemnity, limitation of liability, remedy, and other similar provisions of the final contract, if any, are entered into subject to the State's Constitution, statutes, common law, regulations, and sovereign immunity; and, (6) all terms and conditions of the final contract, including but not limited to the clauses concerning third-party use, licenses, warranties, limitations of liability, governing law and venue, usage verification, indemnity, liability, remedy or other similar provisions of the final contract are entered into specifically subject to the State's Constitution, statutes, common law, regulations, and sovereign immunity.

The Parties must comply with all applicable local, state, and federal laws, ordinances, rules, orders, and regulations.

E. AMENDMENT

This Contract may be amended in writing, within scope, upon the agreement of both parties.

F. CHANGE ORDERS OR SUBSTITUTIONS

The State and the Contractor, upon the written agreement, may make changes to the contract within the general scope of the solicitation. Changes may involve specifications, the quantity of work, or such other items as the State may find necessary or desirable. Corrections of any deliverable, service, or work required pursuant to the contract shall not be deemed a change. The Contractor may not claim forfeiture of the contract by reasons of such changes.

The Contractor shall prepare a written description of the work required due to the change and an itemized cost sheet for the change. Changes in work and the amount of compensation to be paid to the Contractor shall be determined in accordance with applicable unit prices if any, a pro-rated value, or through negotiations. The State shall not incur a price increase for changes that should have been included in the Contractor's bid, were foreseeable, or result from difficulties with or failure of the Contractor's bid or performance.

No change shall be implemented by the Contractor until approved by the State, and the Contract is amended to reflect the change and associated costs, if any. If there is a dispute regarding the cost, but both parties agree that immediate implementation is necessary, the change may be implemented, and cost negotiations may continue with both Parties retaining all remedies under the contract and law.

In the event any product is discontinued or replaced upon mutual consent during the contract period or prior to delivery, the State reserves the right to amend the contract or purchase order to include the alternate product at the same price.

*****Contractor will not substitute any item that has been awarded without prior written approval of SPB*****

G. RECORD OF VENDOR PERFORMANCE

The State may document the vendor's performance, which may include, but is not limited to, the customer service provided by the vendor, the ability of the vendor, the skill of the vendor, and any instance(s) of products or services delivered or performed which fail to meet the terms of the purchase order, contract, and/or Invitation to Bid specifications. In addition to other remedies and options available to the State, the State may issue one or more notices to the vendor outlining any issues the State has regarding the vendor's performance for a specific contract ("Vendor Performance Notice"). The State may also document the Vendor's performance in a report, which may or may not be provided to the vendor ("Vendor Improvement Request"). The Vendor shall respond to any Vendor Performance Notice or Vendor Improvement Request in accordance with such notice or request. At the sole discretion of the State, such Vendor Performance Notices and Vendor Improvement Requests may be placed in the State's records regarding the vendor and may be considered by the State and held against the vendor in any future contract or award opportunity.

H. NOTICE OF POTENTIAL CONTRACTOR BREACH

If Contractor breaches the contract or anticipates breaching the contract, the Contractor shall immediately give written notice to the State. The notice shall explain the breach or potential breach, a proposed cure, and may include a request for a waiver of the breach if so desired. The State may, in its discretion, temporarily or permanently waive the breach. By granting a waiver, the State does not forfeit any rights or remedies to which the State is entitled by law or equity, or pursuant to the provisions of the contract. Failure to give immediate notice, however, may be grounds for denial of any request for a waiver of a breach.

I. BREACH

Either Party may terminate the contract, in whole or in part, if the other Party breaches its duty to perform its obligations under the contract in a timely and proper manner. Termination requires written notice of default and a

thirty (30) calendar day (or longer at the non-breaching Party's discretion considering the gravity and nature of the default) cure period. Said notice shall be delivered by email, read-receipt requested; Certified Mail, Return Receipt Requested; or in person with proof of delivery. Allowing time to cure a failure or breach of contract does not waive the right to immediately terminate the contract for the same or different contract breach which may occur at a different time.

In case of breach by the Contractor, the State may, without unreasonable delay, make a good faith effort to make a reasonable purchase or contract to purchased goods in substitution of those due from the contractor. The State may recover from the Contractor as damages the difference between the costs of covering the breach. Notwithstanding any clause to the contrary, the State may also recover the contract price together with any incidental or consequential damages defined in UCC Section 2-715, but less expenses saved in consequence of Contractor's breach. OR In case of default of the Contractor, the State may contract the service from other sources and hold the Contractor responsible for any excess cost occasioned thereby.

The State's failure to make payment shall not be a breach, and the Contractor shall retain all available statutory remedies. (See Indemnity - Self-Insurance and Payment)

J. NON-WAIVER OF BREACH

The acceptance of late performance with or without objection or reservation by a Party shall not waive any rights of the Party nor constitute a waiver of the requirement of timely performance of any obligations remaining to be performed.

K. SEVERABILITY

If any term or condition of the contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and conditions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the contract did not contain the provision held to be invalid or illegal.

L. INDEMNIFICATION

1. GENERAL

The Contractor agrees to defend, indemnify, and hold harmless the State and its employees, volunteers, agents, and its elected and appointed officials ("the indemnified parties") from and against any and all claims, liens, demands, damages, liability, actions, causes of action, losses, judgments, costs, and expenses of every nature, including investigation costs and expenses, settlement costs, and attorney fees and expenses ("the claims"), sustained or asserted against the State for personal injury, death, or property loss or damage, arising out of, resulting from, or attributable to the willful misconduct, negligence, error, or omission of the Contractor, its employees, subcontractors, consultants, representatives, and agents, resulting from this contract, except to the extent such Contractor liability is attenuated by any action of the State which directly and proximately contributed to the claims.

2. INTELLECTUAL PROPERTY

The Contractor agrees it will, at its sole cost and expense, defend, indemnify, and hold harmless the indemnified parties from and against any and all claims, to the extent such claims arise out of, result from, or are attributable to, the actual or alleged infringement or misappropriation of any patent, copyright, trade secret, trademark, or confidential information of any third party by the Contractor or its employees, subcontractors, consultants, representatives, and agents; provided, however, the State gives the Contractor prompt notice in writing of the claim. The Contractor may not settle any infringement claim that will affect the State's use of the Licensed Software without the State's prior written consent, which consent may be withheld for any reason.

If a judgment or settlement is obtained or reasonably anticipated against the State's use of any intellectual property for which the Contractor has indemnified the State, the Contractor shall, at the Contractor's sole cost and expense, promptly modify the item or items which were determined to be infringing, acquire a license or licenses on the State's behalf to provide the necessary rights to the State to eliminate the infringement, or provide the State with a non-infringing substitute that provides the State the same functionality. At the State's election, the actual or anticipated judgment may be treated as a breach of warranty by the Contractor, and the State may receive the remedies provided under this solicitation.

3. SELF-INSURANCE (Statutory)

The State is self-insured for any loss and purchases excess insurance coverage pursuant to Neb. Rev. Stat. § 81-8,239.01. If there is a presumed loss under the provisions of this contract, Contractor may file a claim with the Office of Risk Management pursuant to Neb. Rev. Stat. §§ 81-8,829 through 81-8,306 for review by the State Claims Board. The State retains all rights and immunities under the State Miscellaneous (§ 81-8,294), Tort (§ 81-8,209), and Contract Claim Acts (§ 81-8,302), as outlined in Neb. Rev. Stat. § 81-8,209 et seq. and under any other provisions of law and accepts liability under this contract to the extent provided by law.

M. ATTORNEY'S FEES

In the event of any litigation, appeal, or other legal action to enforce any provision of the contract, the Parties agree to pay all expenses of such action, as permitted by law and if ordered by the court, including attorney's fees and costs, if the other Party prevails.

N. ASSIGNMENT, SALE, OR MERGER

Either Party may assign the contract upon mutual written agreement of the other Party. Such agreement shall not be unreasonably withheld.

The Contractor retains the right to enter into a sale, merger, acquisition, internal reorganization, or similar transaction involving Contractor's business. Contractor agrees to cooperate with the State in executing amendments to the contract to allow for the transaction. If a third party or entity is involved in the transaction, the Contractor will remain responsible for performance of the contract until such time as the person or entity involved in the transaction agrees in writing to be contractually bound by this contract and perform all obligations of the contract.

O. CONTRACTING WITH OTHER POLITICAL SUBDIVISIONS OF THE STATE OR ANOTHER STATE

The Contractor may, but shall not be required to, allow agencies, as defined in Neb. Rev. Stat. § 81-145, to use this contract. The terms and conditions, including price, of the contract may not be amended. The State shall not be contractually obligated or liable for any contract entered into pursuant to this clause.

The Contractor may, but shall not be required to, allow other states, agencies or divisions of other states, or political subdivisions of other states to use this contract. The terms and conditions, including price, of this contract shall apply to any such contract, but may be amended upon mutual consent of the Parties. The State of Nebraska shall not be contractually or otherwise obligated or liable under any contract entered into pursuant to this clause. The State shall be notified if a contract is executed based upon this contract.

P. FORCE MAJEURE

Neither Party shall be liable for any costs or damages, or for default resulting from its inability to perform any of its obligations under the contract due to an unforeseeable natural or man-made event outside the control and not the fault of the affected Party ("Force Majeure Event"). The Party so affected shall immediately make a written request for relief to the other Party, and shall have the burden of proof to justify the request. The other Party may grant the relief requested; relief may not be unreasonably withheld. Labor disputes with the impacted Party's own employees will not be considered a Force Majeure Event.

Q. CONFIDENTIALITY

All materials and information provided by the Parties or acquired by a Party on behalf of the other Party shall be regarded as confidential information. All materials and information provided or acquired shall be handled in accordance with federal and state law, and ethical standards. Should said confidentiality be breached by a Party, the Party shall notify the other Party immediately of said breach and take immediate corrective action.

It is incumbent upon the Parties to inform their officers and employees of the penalties for improper disclosure imposed by the Privacy Act of 1974, 5 U.S.C. 552a. Specifically, 5 U.S.C. 552a (i)(1), which is made applicable by 5 U.S.C. 552a (m)(1), provides that any officer or employee, who by virtue of his/her employment or official position has possession of or access to agency records which contain individually identifiable information, the disclosure of which is prohibited by the Privacy Act or regulations established thereunder, and who knowing that disclosure of the specific material is prohibited, willfully discloses the material in any manner to any person or agency not entitled to receive it, shall be guilty of a misdemeanor and fined not more than \$5,000.

R. EARLY TERMINATION

The contract may be terminated as follows:

1. The State and the Contractor, by mutual written agreement, may terminate the contract at any time.

2. The State, at its sole discretion, may terminate the contract for any reason upon thirty (30) calendar days' written notice to the Contractor. Such termination shall not relieve the Contractor of warranty or other service obligations incurred under the terms of the contract. In the event of termination, the Contractor shall be entitled to payment, determined on a pro rata basis, for products or services satisfactorily performed or provided.
3. The State may terminate the contract immediately for the following reasons:
 - a. if directed to do so by statute;
 - b. Contractor has made an assignment for the benefit of creditors, has admitted in writing its inability to pay debts as they mature, or has ceased operating in the normal course of business;
 - c. a trustee or receiver of the Contractor or of any substantial part of the Contractor's assets has been appointed by a court;
 - d. fraud, misappropriation, embezzlement, malfeasance, misfeasance, or illegal conduct pertaining to performance under the contract by its Contractor, its employees, officers, directors, or shareholders;
 - e. an involuntary proceeding has been commenced by any party against the Contractor under any one of the chapters of Title 11 of the United States Code and (i) the proceeding has been pending for at least sixty (60) calendar days; or (ii) the Contractor has consented, either expressly or by operation of law, to the entry of an order for relief; or (iii) the Contractor has been decreed or adjudged a debtor;
 - f. a voluntary petition has been filed by the Contractor under any of the chapters of Title 11 of the United States Code;
 - g. Contractor intentionally discloses confidential information;
 - h. Contractor has or announces it will discontinue support of the deliverable; and,
 - i. In the event funding is no longer available.

S. CONTRACT CLOSEOUT

Upon termination of the contract for any reason the Contractor shall within thirty (30) days, unless stated otherwise herein:

1. Transfer all completed or partially completed deliverables to the State;
2. Transfer ownership and title to all completed or partially completed deliverables to the State;
3. Return to the State all information and data unless the Contractor is permitted to keep the information or data by contract or rule of law. Contractor may retain one copy of any information or data as required to comply with applicable work product documentation standards or as are automatically retained in the course of Contractor's routine back up procedures;
4. Cooperate with any successor contactor, person, or entity in the assumption of any or all of the obligations of this contract;
5. Cooperate with any successor contactor, person, or entity with the transfer of information or data related to this contract;
6. Return or vacate any state owned real or personal property; and,
7. Return all data in a mutually acceptable format and manner.

Nothing in this section should be construed to require the Contractor to surrender intellectual property, real or person property, or information or data owned by the Contractor for which the State has no legal claim.

III. CONTRACTOR DUTIES

A. INDEPENDENT CONTRACTOR / OBLIGATIONS

It is agreed that the Contractor is an independent contractor and that nothing contained herein is intended or should be construed as creating or establishing a relationship of employment, agency, or a partnership.

The Contractor is solely responsible for fulfilling the contract. The Contractor or the Contractor's representative shall be the sole point of contact regarding all contractual matters.

The Contractor shall secure, at its own expense, all personnel required to perform the services under the contract. The personnel the Contractor uses to fulfill the contract shall have no contractual or other legal relationship with the State; they shall not be considered employees of the State and shall not be entitled to any compensation, rights, or benefits from the State, including but not limited to, tenure rights, medical and hospital care, sick and vacation leave, severance pay, or retirement benefits.

By-name personnel commitments made in the Contractor's bid shall not be changed without the prior written approval of the State. Replacement of these personnel, if approved by the State, shall be with personnel of equal or greater ability and qualifications.

The Contractor warrants that all persons assigned to the project shall be employees of the Contractor or a subcontractor and shall be fully qualified to perform the work required herein. Personnel employed by the Contractor or a subcontractor to fulfill the terms of the contract shall remain under the sole direction and control of the Contractor or the subcontractor respectively.

With respect to its employees, the Contractor agrees to be solely responsible for the following:

1. Any and all pay, benefits, and employment taxes and/or other payroll withholding;
2. Any and all vehicles used by the Contractor's employees, including all insurance required by state law;
3. Damages incurred by Contractor's employees within the scope of their duties under the contract;
4. Maintaining Workers' Compensation and health insurance that complies with state and federal law and submitting any reports on such insurance to the extent required by governing law;
5. Determining the hours to be worked and the duties to be performed by the Contractor's employees; and,
6. All claims on behalf of any person arising out of employment or alleged employment (including without limit claims of discrimination alleged against the Contractor, its officers, agents, or subcontractors or subcontractor's employees).

If the Contractor intends to use any subcontractor, the subcontractor's level of effort, tasks, and time allocation must be clearly defined in the Contractor's bid. The Contractor shall agree that it will not utilize any subcontractors not specifically included in its bid in the performance of the contract without the prior written authorization of the State. If the Contractor subcontracts any of the work, the Contractor agrees to pay any and all subcontractors in accordance with the Contractor's agreement with the respective subcontractor(s).

The State reserves the right to require the Contractor to reassign or remove from the project any Contractor or subcontractor employee.

Contractor shall insure that the terms and conditions contained in any contract with a subcontractor does not conflict with the terms and conditions of this contract.

The Contractor shall include a similar provision, for the protection of the State, in the contract with any subcontractor engaged to perform work on this contract.

B. EMPLOYEE WORK ELIGIBILITY STATUS

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

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 DAS website at https://das.nebraska.gov/materiel/purchase_bureau/vendor-info.html. The completed United States Attestation Form should be submitted with the solicitation response.
2. If the Contractor indicates on the attestation form that he or she is a qualified alien, the Contractor agrees to provide the U.S. Citizenship and Immigration Services documentation required 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.

C. COMPLIANCE WITH CIVIL RIGHTS LAWS AND EQUAL OPPORTUNITY EMPLOYMENT/NONDISCRIMINATION (Statutory)

The Contractor shall comply with all applicable local, state, and federal statutes and regulations regarding civil rights laws and equal opportunity employment. The Nebraska Fair Employment Practice Act prohibits Contractors of the State, and their subcontractors, from discriminating against any employee or applicant for employment, with respect to hire, tenure, terms, conditions, compensation, or privileges of employment because of race, color, religion, sex, disability, marital status, or national origin (Neb. Rev. Stat. §§ 48-1101 through 48-1125). The Contractor 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 goods or services to be covered by any contract resulting from this solicitation.

D. COOPERATION WITH OTHER CONTRACTORS

Contractor may be required to work with or in close proximity to other contractors or individuals that may be working on the same or different projects. The Contractor shall agree to cooperate with such other contractors or individuals and shall not commit or permit any act which may interfere with the performance of work by any other contractor or individual. Contractor is not required to compromise Contractor's intellectual property or proprietary information unless expressly required to do so by this contract.

E. 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.

F. PRICES

Prices quoted shall be net, including transportation and delivery charges fully prepaid by the contractor, F.O.B. destination named in the solicitation. 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.

Prices submitted on the cost bid form shall remain fixed for the first (one hundred eighty days) (180) of the contract. Any request for a price increase subsequent to the first (one hundred eighty) (180) of the contract shall not exceed five percent (5 %) of the previous Contract period. Increases will be cumulative across the remaining periods of the contract. Requests for an increase must be submitted in writing to the State Purchasing Bureau a minimum of 120 days prior to the end of the current contract period. Documentation may be required by the State to support the price increase.

The State reserves the right to deny any requested price increase. No price increases are to be effective or billed to any State Agencies prior to written amendment of the contract by the parties.

The State will be given full proportionate benefit of any decreases for the term of the contract.

G. COST CLARIFICATION

The State reserves the right to review all aspects of cost for reasonableness and to request clarification of any bid where the cost component shows significant and unsupported deviation from industry standards or in areas where detailed pricing is required.

H. PERMITS, REGULATIONS, LAWS

The contract price shall include the cost of all royalties, licenses, permits, and approvals, whether arising from patents, trademarks, copyrights or otherwise, that are in any way involved in the contract. The Contractor shall obtain and

pay for all royalties, licenses, and permits, and approvals necessary for the performance of the contract. The Contractor must guarantee that it has the full legal right to the materials, supplies, equipment, software, and other items used to execute this contract.

I. OWNERSHIP OF INFORMATION AND DATA / DELIVERABLES

The State shall have the unlimited right to publish, duplicate, use, and disclose all information and data developed or obtained by the Contractor on behalf of the State pursuant to this contract.

The State shall own and hold exclusive title to any deliverable developed as a result of this contract. Contractor shall have no ownership interest or title, and shall not patent, license, or copyright, duplicate, transfer, sell, or exchange, the design, specifications, concept, or deliverable.

J. NOTICE OF POTENTIAL CONTRACTOR BREACH

If Contractor breaches the contract or anticipates breaching the contract the Contractor shall immediately give written notice to the State. The notice shall explain the breach or potential breach, and may include a request for a waiver of the breach if so desired. The State may, at its discretion, temporarily or permanently waive the breach. By granting a temporary waiver, the State does not forfeit any rights or remedies to which the State is entitled by law or equity, or pursuant to the provisions of the contract. Failure to give immediate notice, however, may be grounds for denial of any request for a waiver of a breach.

K. ANTITRUST

The Contractor hereby assigns to the State any and all claims for overcharges as to goods and/or services provided in connection with this contract resulting from antitrust violations which arise under antitrust laws of the United States and the antitrust laws of the State.

L. CONFLICT OF INTEREST

By submitting a bid, bidder certifies that no relationship exists between the bidder and any person or entity which either is, or gives the appearance of, a conflict of interest related to this Invitation to Bid or project.

Bidder further certifies that bidder will not employ any individual known by bidder to have a conflict of interest nor shall bidder take any action or acquire any interest, either directly or indirectly, which will conflict in any manner or degree with the performance of its contractual obligations hereunder or which creates an actual or appearance of conflict of interest.

If there is an actual or perceived conflict of interest, bidder shall provide with its bid a full disclosure of the facts describing such actual or perceived conflict of interest and a proposed mitigation plan for consideration. The State will then consider such disclosure and proposed mitigation plan and either approve or reject as part of the overall bid evaluation.

M. SITE RULES AND REGULATIONS

The Contractor shall use its best efforts to ensure that its employees, agents, and subcontractors comply with site rules and regulations while on State premises. If the Contractor must perform on-site work outside of the daily operational hours set forth by the State, it must make arrangements with the State to ensure access to the facility and the equipment has been arranged. No additional payment will be made by the State on the basis of lack of access, unless the State fails to provide access as agreed to in writing between the State and the Contractor.

N. ADVERTISING

The Contractor agrees not to refer to the contract award in advertising in such a manner as to state or imply that the company or its goods and services are endorsed or preferred by the State. Any publicity releases pertaining to the project shall not be issued without prior written approval from the State.

O. DISASTER RECOVERY/BACK UP PLAN

The Contractor shall have a disaster recovery and back-up plan to allow for continued delivery of goods or services under the specifications of the contract in the event of a disaster. The plan should include disaster contingency details related to equipment, personnel, facilities, and transportation. A copy of the disaster recovery and back-up plan should be provided upon request to the State.

P. DRUG POLICY

Contractor certifies it maintains a drug free workplace 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.

Q. WARRANTY

Despite any clause to the contrary, the Contractor represents and warrants that its services hereunder shall be performed by competent personnel and shall be of professional quality consistent with generally accepted industry

standards for the performance of such services and shall comply in all respects with the requirements of this Contract. For any breach of this warranty, the Contractor shall, for a period of ninety (90) days from performance of the service, perform the services again, at no cost to the State, or if Contractor is unable to perform the services as warranted, Contractor shall reimburse the State for all fees paid to Contractor for the unsatisfactory services. The rights and remedies of the parties under this warranty are in addition to any other rights and remedies of the parties provided by law or equity, including, without limitation actual damages, and, as applicable and awarded under the law, to a prevailing Party, reasonable attorneys' fees, and costs.

R. TIME IS OF THE ESSENCE

Time is of the essence with respect to Contractor's performance and deliverables pursuant to this contract.

IV. PAYMENT

A. PROHIBITION AGAINST ADVANCE PAYMENT (Nonnegotiable)

Neb. Rev. Stat. § 81-2403 states, "[n]o goods or services shall be deemed to be received by an agency until all such goods or services are completely delivered and finally accepted by the agency."

B. TAXES (Nonnegotiable)

The State is not required to pay taxes and assumes no such liability as a result of this solicitation. The Contractor may request a copy of the Nebraska Department of Revenue, Nebraska Resale or Exempt Sale Certificate for Sales Tax Exemption, Form 13 for their records. Any property tax payable on the Contractor's equipment which may be installed in a state-owned facility is the responsibility of the Contractor.

C. INVOICES (Nonnegotiable)

Invoices for payments must be submitted by the Contractor to the agency requesting the goods or services with sufficient detail to support payment. The terms and conditions included in the Contractor's invoice shall be deemed to be solely for the convenience of the parties. No terms or conditions of any such invoice shall be binding upon the State, and no action by the State, including without limitation the payment of any such invoice in whole or in part, shall be construed as binding or estopping the State with respect to any such term or condition, unless the invoice term or condition has been previously agreed to by the State as an amendment to the contract. **The State shall have forty-five (45) calendar days to pay after a valid and accurate invoice is received by the State.**

D. INSPECTION AND APPROVAL

Final inspection and approval of all work required under the contract shall be performed by the designated State officials. The State and/or its authorized representatives shall have the right to enter any premises where the Contractor or subcontractor duties under the contract are being performed, and to inspect, monitor or otherwise evaluate the work being performed. All inspections and evaluations shall be at reasonable times and in a manner that will not unreasonably delay work.

E. PAYMENT (Nonnegotiable)

Payment will be made by the responsible agency in compliance with the State of Nebraska Prompt Payment Act. See Neb. Rev. Stat. § 81-2403. The State may require the Contractor to accept payment by electronic means such as ACH deposit. In no event shall the State be responsible or liable to pay for any goods and services provided by the Contractor prior to the effective date of the contract, and the Contractor hereby waives any claim or cause of action for any such services.

F. LATE PAYMENT (Nonnegotiable)

The Contractor may charge the responsible agency interest for late payment in compliance with the State of Nebraska Prompt Payment Act. See Neb. Rev. Stat. §§ 81-2401 through 81-2408.

G. SUBJECT TO FUNDING / FUNDING OUT CLAUSE FOR LOSS OF APPROPRIATIONS (Nonnegotiable)

The State's obligation to pay amounts due on the Contract for a fiscal year following the current fiscal year is contingent upon legislative appropriation of funds. Should funds not be appropriated, the State may terminate the contract with respect to those payments for the fiscal year(s) for which such funds are not appropriated. The State will give the Contractor written notice thirty (30) calendar days prior to the effective date of termination. All obligations of the State to make payments after the termination date will cease. The Contractor shall be entitled to receive just and equitable compensation for any authorized work which has been satisfactorily completed as of the termination date. In no event shall the Contractor be paid for a loss of anticipated profit.

H. RIGHT TO AUDIT (First Paragraph is Nonnegotiable)

The State shall have the right to audit the Contractor's performance of this contract upon a thirty (30) day written notice. Contractor shall use generally accepted accounting principles, and shall maintain the accounting records, and other records and information relevant to the contract (Information) to enable the State to audit the contract. See Neb. Rev. Stat. § 84-304 et seq. The State may audit, and the Contractor shall maintain the information during the term of the contract and for a period of five (5) years after the completion of this contract or until all issues or litigation are resolved, whichever is later. The Contractor shall make the Information available to the State at Contractor's place of business or a location acceptable to both Parties during normal business hours. If this is not practical or the Contractor so elects, the Contractor may provide electronic or paper copies of the Information. The State reserves the right to examine, make copies of, and take notes on any Information relevant to this contract, regardless of the form or the Information, how it is stored, or who possesses the Information. In no circumstances will Contractor be required to create or maintain documents not kept in the ordinary course of Contractor's business operations, nor will Contractor be required to disclose any information, including but not limited to product cost data, which is confidential or proprietary to Contractor.

The Parties shall pay their own costs of the audit unless the audit finds a previously undisclosed overpayment by the State. If a previously undisclosed overpayment exceeds three percent (3%) of the total contract billings, or if fraud, material misrepresentations, or non-performance is discovered on the part of the Contractor, the Contractor shall reimburse the State for the total costs of the audit. Overpayments and audit costs owed to the State shall be paid within ninety (90) days of written notice of the claim. The Contractor agrees to correct any material weaknesses or condition found as a result of the audit.

V. SCOPE OF WORK

The Contractor must provide the following information in response to this solicitation.

A. SCOPE

It is the intent of this bid invitation to establish a contract to supply Traffic Data Collection Radar per the attached specifications from date of award for a period of one (1) year with the option to renew for an additional four (4) one (1) year periods when mutually agreeable to the contractor and the State. The State reserves the right to extend the period of this contract beyond the end date when mutually agreeable to the contractor and the State.

All items proposed shall be of the latest manufacture in production as of the date of the solicitation and be of proven performance and under standard design complete as regularly advertised and marketed. All necessary materials for satisfactory performance of the supplies shall be incorporated into the Traffic Data Collection Radar) whether or not they may be specifically mentioned below.

Complete specifications, manufacturer's current descriptive literature and/or advertising data sheets with cuts or photographs must be included with the bid for the IDENTICAL items proposed. Any information necessary to show compliance with these specifications not given on the manufacturer's descriptive literature and/or advertising data sheets must be supplied in writing on or attached to the bid document. If manufacturer's information necessary to show compliance with these specifications is not attached to the bid document, the Contractor may be required to submit requested information within three (3) business days of a written request. Failure to submit requested descriptive literature or advertising data sheets may be grounds to reject the bid.

VI. TECHNICAL SPECIFICATIONS

A. CONTRACTOR INSTRUCTIONS

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

“YES” response means the Contractor guarantees they can meet this condition.

“NO” response means the Contractor cannot meet this condition and will not be considered.

“NO & PROVIDE ALTERNATIVE” responses should be used only with a narrative response in the NOTES/COMMENTS section explaining in detail any deviation from the Contractor’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 shall determine at its sole discretion whether or not the Contractor’s alternative is an acceptable alternative.

B. NON-COMPLIANCE STATEMENT

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|---|
| ✓ | | | 1. Read these specifications carefully. Any and all exceptions to these specifications must be written on or attached to solicitation response. Any noncompliance may void your bid. Non-compliance to any single specification can void your bid. |
| ✓ | | | 2. It is the responsibility of Contractors to obtain information and clarifications as provided below. The State is not responsible for any erroneous or incomplete understandings or wrongful interpretations of this solicitation by any Contractor. |
| ✓ | | | 3. No interpretation related to the meaning of solicitation specifications or other pre-bid documents will be made orally to any Contractor by the State. Any solicitation interpretation must be put in writing by the Contractor to the State Purchasing Bureau, email questions to SPB. as.materielpurchasing@nebraska.gov by the last day to submit written questions per the Schedule of Events. (Inquiries received after the last day to submit written questions may not be addressed). |
| NOTES/COMMENTS: | | | |

C. TECHNICAL SPECIFICATIONS: Traffic Data Collection Radar

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. The TDCR will use Dual Beam Sidefire radar technology |
| ✓ | | | 2. TDCRs are used exclusively for rapid temporary deployment. When deployed there should be three components: the radar head mounted on a light pole or the mast of a periscope trailer, a Pelican case containing a 12V battery, and the cable that connects them. The connecting cable will also facilitate communication. |
| NOTES/COMMENTS: | | | |

D. TECHNICAL SPECIFICATION: TRAFFIC DATA COLLECTION RADAR

| YES | NO | NO & PROVIDE ALTERNATIVE | TECHNICAL SPECIFICATIONS |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. The TDCR shall provide volume, average speed, classification counts, 85th percentile speed, speed bin counts, and direction counts for user-configurable time intervals for up to 18 lanes of traffic. |
| ✓ | | | 2. The TDCR shall provide up to eight length-based classification bins. |
| ✓ | | | 3. The TDCR shall provide up to 15 speed bins. |
| ✓ | | | 4. The TDCR shall provide speed, length, class, lane assignment, and range data for each vehicle detection. |
| ✓ | | | 5. The TDCR shall provide presence data for up to 18 lanes of traffic. |
| ✓ | | | 6. The TDCR shall be able to collect and report information from 1 to 18 lanes. |
| ✓ | | | 7. The TDCR shall be able to detect and report information in lanes with boundaries as close as 6 ft. (1.8 m) from the base of the pole on which the TDCR is mounted. |
| ✓ | | | 8. The TDCR shall be able to simultaneously detect and report information on all vehicles in all lanes between minimum (6ft) and maximum (250 ft.) range. |
| ✓ | | | 9. The TDCR shall allow any combination of lane and median spacing and width between the minimum offset to the maximum range. Unequally sized or spaced lanes shall be handled so that detections from the lanes meet all performance specifications. |
| ✓ | | | 10. The TDCR shall detect vehicles with the specified accuracy in lanes that are adjacent to a lane barrier when 50% of a sedan is visible over the barrier by the TDCR. |
| ✓ | | | 11. The volume data shall be within 5% of truth for a direction of travel during nominal conditions. Individual lane volume data shall be within 10% of truth during nominal conditions. The percentage of missed detection and the percentage of false detections for each lane shall not exceed 15% during nominal conditions. |
| ✓ | | | 12. The TDCR shall detect a minimum separation of 5.5 ft. (1.67 m) between two vehicles depending on vehicle speed and range. |
| ✓ | | | 13. Average speed data shall be accurate to within 3 mph (5 kph) for any direction of travel. Average speed data for any individual lane shall be accurate to within 3 mph (5 kph) when there are more than five cars per lane in an interval. |
| ✓ | | | 14. The TDCR shall provide per-vehicle speed measurements on 95% of vehicles that are not occluded by other vehicles or by barriers. The TDCR shall provide per-vehicle speed measurements in which 90% of the measurements are within 5 mph (8 kph). |
| ✓ | | | 15. The TDCR shall correctly determine classification for 80% of detected vehicles when the classification bins are at least 10 ft. (3 m) wide and occupancy of all lanes is below 30%. |
| ✓ | | | 16. Documentation verifying compliance with performance requirements listed above will be included with bid submittal. |
| NOTES/COMMENTS: | | | |

E. PERFORMANCE MAINTENANCE

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. The TDCR shall not require cleaning or adjustment to maintain performance. |
| ✓ | | | 2. The TDCR shall not rely on battery backup to store configuration information, thus eliminating any need for battery replacement. |
| ✓ | | | 3. Once the TDCR is calibrated, it shall not require recalibration to maintain performance unless the roadway configuration changes. |
| NOTES/COMMENTS: | | | |

F. PHYSICAL PROPERTIES

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. The TDCR shall not exceed 10 lbs. in weight. |
| ✓ | | | 2. The TDCR physical dimensions shall not exceed 15 in. by 132 in. by 5 in. |
| ✓ | | | 3. The radar head shall be separate from the power source (a single 12V battery) so that the radar head can be mounted 25 to 30 feet up from the ground and connected to the battery on the ground by cable. |
| ✓ | | | 4. All external parts of the TDCR shall be ultraviolet-resistant, corrosion-resistant, and protected from fungus growth and moisture deterioration. |
| ✓ | | | 5. The enclosure shall be classified "f1" outdoor weatherability in accordance with UL 746C. |
| ✓ | | | 6. The TDCR shall be classified watertight according to the NEMA 250 standard. |
| ✓ | | | 7. The TDCR enclosure shall conform to test criteria set forth in the NEMA 250 standard for type 4X enclosures. Test results shall be provided for each of the following type 4X criteria: a. External icing (NEMA 250 clause 5.6) b. Hose-down (NEMA 250 clause 5.7) c. 4X corrosion protection (NEMA 250 clause 5.10) d. Gasket (NEMA 250 clause 5.14) |
| ✓ | | | 8. The TDCR shall be able to withstand a drop of up to 5 ft. (1.5 m) without compromising its functional and structural integrity. |
| ✓ | | | 9. All external connectors on the TDCR enclosure shall meet the MIL-DTL-26482 (formerly MIL-C-26482) specification. The MIL-DTL-26482 connector shall provide contacts for all data and power connections |
| NOTES/COMMENTS: | | | |

G. POWER

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|---|
| ✓ | | | 1. The TDCR shall operate with a DC input between 9 VDC and 18 VDC from an external power source. |
| NOTES/COMMENTS: | | | |

H. COMMUNICATION

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. Direct connection (cabled) or Bluetooth communication must be available for on-site unit configuration and data collection while the radar head is mounted on a pole or radar trailer mast. |
| ✓ | | | 2. Remote access via internal or external wireless modem required for data collection and configuration. |
| ✓ | | | 3. The TDCR shall support the user configuration of the following: <ul style="list-style-type: none"> a. Baud rate b. Response delay c. Data push d. RS-232 flow control (RTS/CTS or none) |
| ✓ | | | 4. The communication ports shall support all of the following baud rates: 9600, 19200, 38400, 57600 and 115200 bps. |
| ✓ | | | 5. To facilitate collection of Per Vehicle Records (PVRs), cabled or Bluetooth communication is required for an external mass data storage device. |
| NOTES/COMMENTS: | | | |

I. DATA PROTOCOLS

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----|----|--------------------------|--|
| ✓ | | | 1. The TDCR shall support three different data protocols for all lanes being monitored: interval (bin) data, event (per vehicle) data, and real-time true presence data. |
| ✓ | | | 2. The TDCR manufacturer shall provide the data protocol document free of charge. |
| ✓ | | | The time interval (bin) data packet protocol shall support: <ul style="list-style-type: none"> a. Sensor ID b. A timestamp that records the year, month, day, hour, minute, and second of the end of time interval c. Total volumes of more than 65536 d. Average speed values in either mph or kph e. Occupancy in 0.1% increments f. Volume in up to eight length-based user-defined vehicle classification bins g. Volume in up to 15 user-defined speed bins (bin by speed) h. Volume for both directions of traffic (bin by direction) i. 85th percentile speed in either mph or kph |

| | | | |
|------------------------|--|--|---|
| ✓ | | | 3. The event (per vehicle) data packet protocol shall support: <ul style="list-style-type: none"> a. Sensor ID b. A timestamp that records the year, month, day, hour, minute, second and millisecond of the time the vehicle left the detection zone c. Lane assignment d. Speed values in either mph or kph e. Vehicle length f. Classification using up to eight user-defined classes g. Range |
| ✓ | | | 4. The real-time true presence data packet protocol shall support: <ul style="list-style-type: none"> a. Sensor ID b. True presence information for each lane being monitored |
| NOTES/COMMENTS: | | | |

J. DATA BUFFERING

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. The TDCR shall store, in non-volatile memory, at least 9,000 interval data packets with the maximum number of lanes and approaches configured and all interval fields enabled. |
| ✓ | | | 2. The TDCR shall timestamp interval data using a real-time clock that maintains accurate time even when power is disconnected from the sensor for extended periods. |
| NOTES/COMMENTS: | | | |

K. RADAR DESIGN

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----|----|--------------------------|--|
| ✓ | | | 1. The TDCR shall store, in non-volatile memory, at least 9,000 interval data packets with the maximum number of lanes and approaches configured and all interval fields enabled. |
| ✓ | | | 2. The circuitry shall be void of any manual tuning elements that could lead to human error and degraded performance over time. |
| ✓ | | | 3. All transmit modulated signals shall be generated by means of digital circuitry, such as a direct digital synthesizer, that is referenced to a frequency source that is at least 50 parts per million (ppm) stable over the specified temperature range, and ages less than 6 ppm per year. Any up conversion of a digitally generated modulated signal shall preserve the phase stability and frequency stability inherent in the digitally generated signal. |
| ✓ | | | 4. The TDCR shall not rely on temperature compensation circuitry to maintain transmit frequency stability. |
| ✓ | | | 5. The bandwidth of the transmit signal of the TDCR shall not vary by more than 1% under all specified operating conditions and over the expected life of the TDCR. |
| ✓ | | | 6. The TDCR antennas shall be designed on printed circuit boards. |
| ✓ | | | 7. The vertical beam width of the TDCR at the 6 dB points of the two-way pattern shall be 65 degrees or greater. |

| | | | | |
|------------------------|--|--|-----|--|
| ✓ | | | 8. | The horizontal beam width of the TDCR at the 6 dB points of the two-way pattern shall be 7 degrees or less. |
| ✓ | | | 9. | The sidelobes in the TDCR two-way antenna pattern shall be -40 dB or less. |
| ✓ | | | 10. | The TDCR shall transmit a signal with a bandwidth of at least 240 MHz. |
| ✓ | | | 11. | The TDCR shall provide at least 4 selectable RF channels so that multiple units can be mounted in the same vicinity without causing interference between them. |
| NOTES/COMMENTS: | | | | |

L. CONFIGURATION

| YES | NO | NO & PROVIDE ALTERNATIVE | | |
|------------------------|----|--------------------------|----|---|
| ✓ | | | 1. | The TDCR shall have a method for automatically defining traffic lanes or detection zones without requiring user intervention. This auto-configuration process shall execute on an internal TDCR processor. |
| ✓ | | | 2. | The auto-configuration process shall automatically define traffic lanes or detection zones by detecting the relative position of vehicles within the TDCR's field of view. |
| ✓ | | | 3. | The TDCR auto-configuration process shall define all lanes within the detectable area of the TDCR, up to the maximum number of lanes, during traffic free-flow conditions. |
| ✓ | | | 4. | The auto-configuration method shall not prohibit the ability of the user to manually define or adjust the TDCR configuration. The TDCR shall support manually configuring lanes or detection zones in 1-ft. (0.3-m) increments. |
| ✓ | | | 5. | The TDCR shall include graphical user interface software that displays all configured lanes and the current traffic pattern using a graphical traffic history representing at least the last 1.5 seconds of detected traffic. This graphical traffic history shall also allow the option of displaying the measured speed or length of a detected vehicle. |
| ✓ | | | 6. | The graphical interface shall operate on Windows Mobile, Windows XP, Windows Vista, and Windows 7 in the .NET framework. |
| ✓ | | | 7. | The software shall support the following functionality: <ul style="list-style-type: none"> a. Automatically find the correct baud rate b. Automatically find the correct serial communication port c. Operate over a TCP/IP connection b. Provide a virtual connection option so that the software can be used without connecting to an actual sensor |
| NOTES/COMMENTS: | | | | |

M. OPERATING CONDITIONS

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|---|
| ✓ | | | 1. The TDCR shall maintain accurate performance in all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light, including direct light on sensor at dawn and dusk. |
| ✓ | | | 2. TDCR operation shall continue in rain up to 2 in. (5.08 cm) per hour. |
| ✓ | | | 3. The TDCR shall be capable of continuous operation over an ambient temperature range of -40°F to 165.2°F (-40°C to 74°C). |
| ✓ | | | 4. The TDCR shall be capable of continuous operation over a relative humidity range of 5% to 95% (non-condensing). |
| NOTES/COMMENTS: | | | |

N. FCC TESTING AND COMPLIANCE

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. Each TDCR shall be certified by the Federal Communications Commission (FCC) under CFR 47, Part 15, section 15.249 as an intentional radiator. Certification documentation will be provided with each TDCR unit. |
| ✓ | | | 2. The FCC certification shall be displayed on an external label on each TDCR according to the rules set forth by the FCC. |
| ✓ | | | 3. The TDCR shall comply with FCC regulations under all specified operating conditions and over the expected life of the TDCR. |
| NOTES/COMMENTS: | | | |

O. NEMA TESTING AND COMPLIANCE

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----|----|--------------------------|---|
| ✓ | | | 1. The TDCR shall comply with the applicable standards stated in the NEMA TS 2-2003 Standard. Third-party test results shall be made available for each of the following tests. |
| ✓ | | | 2. Shock pulses of 10 g, 11 ms half sine wave |
| ✓ | | | 3. Vibration of 0.5 g up to 30 Hz |
| ✓ | | | 4. 300 V positive/negative pulses applied at one pulse per second at minimum and maximum DC supply voltage |
| ✓ | | | 5. Cold temperature storage at -49°F (-45°C) for 24 hours |
| ✓ | | | 6. High temperature storage at 185°F (85°C) for 24 hours |
| ✓ | | | 7. Low temp, low DC supply voltage at -29.2°F (-34°C) and 10.8 VDC |
| ✓ | | | 8. Low temp, high DC supply voltage at -29.2°F (-34°C) and 26.5 VDC |
| ✓ | | | 9. High temp, high DC supply voltage at 165.2°F (74°C) and 26.5 VDC |
| ✓ | | | 10. High temp, low DC supply voltage at 165.2°F (74°C) and 10.8 VDC |
| ✓ | | | 11. Documentation from the testing organization will be included with the bid submittal verifying compliance with the above listed criteria. |

NOTES/COMMENTS:

P. MANUFACTURING

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----------------|----|--------------------------|---|
| ✓ | | | 1. The internal electronics of the TDCR shall utilize automation for surface mount assembly and shall comply with the requirements set forth in IPC-A-610C Class 2, Acceptability of Electronic Assemblies. |
| ✓ | | | 2. All fully assembled TDCR units will be tested in an operational mode for a minimum 48-hour burn-in period prior to delivery. |
| NOTES/COMMENTS: | | | |

Q. SUPPORT

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----------------|----|--------------------------|---|
| ✓ | | | 1. The manufacturer shall provide training sufficient to fully train installers and operators in the installation, configuration, and use of the TDCR to ensure accurate TDCR performance. |
| ✓ | | | 2. Manufacturer-provided technical support shall be available according to contractual agreements, and a technical representative shall be available to assist with the physical installation, alignment, and auto-configuration of the first supplied TDCR unit. Technical support shall be provided thereafter to assist with troubleshooting, maintenance, or replacement of TDCRs should such services be required. |
| NOTES/COMMENTS: | | | |

R. ANNUAL USAGE, ESTIMATED

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----------------|----|--------------------------|--|
| ✓ | | | 1. Annual usage figures provided are estimates and are not to be construed as either a minimum or maximum purchase quantity. |
| ✓ | | | 2. The orders shall be for the actual quantities of each item ordered by or for any agency during the life of the contract |
| ✓ | | | 3. Contractor shall not impose minimum order requirements. |
| ✓ | | | 4. The Estimated Annual Usage for the Traffic Data Collection Smart Sensor HD Radar is four (4) |
| NOTES/COMMENTS: | | | |

S. USAGE REPORT

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----------------|----|--------------------------|---|
| ✓ | | | <p>1. The contractor shall, upon request, provide a usage report of this contract by state agencies and political subdivisions. Information will include agency name, item(s), and dollar amount and shall include the information of the time period requested. Information may be requested at any time by the SPB.</p> |
| NOTES/COMMENTS: | | | |

T. DELIVERY ARO

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----------------|----|--------------------------|---|
| ✓ | | | <p>1. A successful Contractor will maintain sufficient inventory to process and deliver within forty-five (45) calendar days ARO. There will be no minimum order requirements. Deliveries must be clearly marked with the purchase order number. If delays in delivery are anticipated, the Contractor will immediately notify the Nebraska Department of Transportation of the expected delivery date. The order may be canceled if the delivery time is unsatisfactory, and the State may procure item(s) from other sources and the Contractor will be held responsible for any/all excess cost.</p> <p>At the time of delivery, a designated State employee will sign the "invoice/packing slip." This signature will only indicate that the order has been received and that the items actually delivered agree with the delivery invoice. This signature does not indicate all items were received in good condition and/or that there is not possible hidden damage.</p> |
| NOTES/COMMENTS: | | | |

U. DELIVERY LOCATIONS / INSTRUCTIONS (CONTRACTOR AGREES THAT THEY CAN MEET THE DELIVERY LOCATIONS/INSTRUCTIONS)

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. Deliveries will be made between 07:30 A.M and 03:30 P.M Monday through Friday (Excluding State and Federal Holidays and/or as otherwise directed). |
| ✓ | | | 2. If an emergency exists, delivery may be made through prior arrangements with receiving personnel. |
| ✓ | | | 3. If delays in delivery is anticipated, the contractor will immediately notify Nebraska Department of Transportation of the expected delivery date. The order may be cancelled if the delivery time is unsatisfactory, and the State may procure item(s) from other sources and the contractor will be held responsible for any/all excess costs. |
| ✓ | | | 4. Deliveries are to be made to: Nebraska Department of Transportation Building 103, TCS 5001 S 14 th Street Lincoln, NE 68512 |
| NOTES/COMMENTS: | | | |

V. PACKAGING

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|---|
| ✓ | | | 1. Packages are to be clearly marked with size, weight, color, quantity, and the purchase order number. |
| ✓ | | | 2. Packaging must be of suitable size and of sufficient strength to protect the contents during shipping, handling and storage. |
| NOTES/COMMENTS: | | | |

W. ORDERS

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. Orders will be placed either by, phone, e-mail, or Internet (if available and not to the exclusion of the other methods). |
| ✓ | | | 2. All orders must reference a purchase order number and the purchase order number must be referenced on the packing slip, and invoice. Invoices are to be sent to the "Invoice to" address on the purchase order. |
| NOTES/COMMENTS: | | | |

X. QUALITY

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|--|
| ✓ | | | 1. Product quality must meet specifications and be consistent for the term of the contract. All materials must be of first quality, under standard production by the manufacturer and be of standard design, complete as regularly advertised and marketed and be of proven performance. |
| ✓ | | | 2. A guarantee of satisfactory performance by the contractor and meeting delivery dates are considered to be an integral part of the purchase contract resulting from this bid invitation. |
| ✓ | | | 3. Products are to be fully guaranteed and may be returned for full credit or replacement (at the State's option) for any reason during the initial warranty period with no additional charges for shipping or restocking. |
| NOTES/COMMENTS: | | | |

Y. PROHIBITED PRODUCTS

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|---|
| ✓ | | | 1. The State will not accept Gray Market Products for this solicitation. Gray Market is defined as the trade of a commodity through distribution channels which, while legal, are unofficial, unauthorized, or unintended by the original manufacturer. Gray Market items are not designed to be sold in a particular market and cannot be supported by the authorized importer because of various reasons. |
| ✓ | | | 2. The State will not accept any products made by a company owned by the Chinese Communist Party. Furthermore, pursuant to Executive Order No. 23-05, the State will not accept any communications equipment or services developed by organizations on the Federal Communications Commission's Covered List. |
| ✓ | | | 3. The State will not accept goods from countries or persons identified on the Office of Foreign Assets Control Sanctions List. |
| NOTES/COMMENTS: | | | |

Z. AUTHORIZED DEALER & WARRANTY

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|---|
| ✓ | | | 1. To the extent required by the manufacturer, the Contractor shall be an authorized dealer. Contractor may be required to substantiate that he/she is an authorized dealer. Proof, if required, must be submitted to SPB within three (3) business days of the request and prior to the award of any contract. |
| ✓ | | | 2. The terms of the original manufacturer's standard warranty shall apply to all equipment acquired from this solicitation for the entire warranty period. |
| NOTES/COMMENTS: | | | |

AA. WARRANTY

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|------------------------|----|--------------------------|---|
| ✓ | | | <p>1. The Contractor warrants for a period of one (1) year from the date of Acceptance that: (a) the Products perform according to all specific claims that the Contractor made in its response to the solicitation, (b) the Product is suitable for the ordinary purposes for which such Product is used, (c) the Product is suitable for any special purposes identified in the solicitation or for which the State has relied on the Contractor's skill or judgment, (d) the Product is designed and manufactured in a commercially reasonable manner, and (e) the Product is free of defects. Upon breach of the warranty, the Contractor will repair or replace (at no charge to the State) the Product whose nonconformance is discovered and made known to the Contractor. If the repaired and/or replaced Product proves to be inadequate, or fails of its essential purpose, the Contractor will refund the full amount of any payments that have been made. The rights and remedies of the parties under this warranty are in addition to any other rights and remedies of the parties provided by law or equity, including, without limitation actual damages, and, as applicable and awarded under the law, to a prevailing party, reasonable attorneys' fees, and costs.</p> |
| NOTES/COMMENTS: | | | |

BB. SAMPLES

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----|----|--------------------------|---|
| ✓ | | | <p>1. Samples of materials proposed may be required prior to an award, or at any time during the term of the contract.</p> |
| ✓ | | | <p>2. Samples are to be provided within 10 (ten) business days of a written request.</p> |
| ✓ | | | <p>3. Failure to provide samples or samples not meeting the specifications may void the bid or constitute a breach of the contract resulting from this bid invitation.</p> |
| ✓ | | | <p>4. Upon a written request from the State of Nebraska Purchasing Bureau, sample(s) shall be shipped to:</p> <p>Attn: Doug Waldvogel NDOT Traffic Counter Shop 5001 S 14th St Lincoln, NE 68512</p> <p>Receiving hours are between 7:30 A.M. and 3:30 P.M., Monday through Friday. Excluding State holidays and / or as otherwise directed.</p> <p>Samples of materials bid may be required prior to an award. Samples may be included with the bid. If samples are not included with bid, Contractor will have ten (10) business days to provide the samples upon the State's request. Failure to supply samples, and or samples that do not meet specification may be grounds to reject the bid.</p> |

NOTES/COMMENTS:

CC. PERFORMANCE TESTING

| YES | NO | NO & PROVIDE ALTERNATIVE | |
|-----|----|--------------------------|---|
| ✓ | | | 1. Samples of (TDCR), in accordance with the specifications utilizing materials and features as proposed, may be required prior to award. |
| ✓ | | | 2. Samples of (TDCR) shall be provided at no cost to the State and will not be returned to the Contractor upon completion of testing conducted by the (NDOT Traffic Counter Shop). |
| ✓ | | | 3. Contractor shall have ten (10) business days to provide sample(s) upon the State's written request. |
| ✓ | | | 4. Sample (TDCR) is to be of material and construction as bid. Failure to supply samples and/or sample(s) that do not meet specifications and/or fail any of the protocols/tests as outlined below, may be grounds to reject the bid. Bids may be rejected based on the quality of samples provide. d |
| ✓ | | | 5. Upon a written request from the State of Nebraska Purchasing Bureau, sample(s) shall be shipped to: Attn: Doug Waldvogel NDOT Traffic Counter Shop Lincoln, NE 68512 Receiving hours are between 7:30 A.M. and 3:30 P.M., Monday through Friday (excluding State holidays and / or as otherwise directed). |

NOTES/COMMENTS:

Attachment A

Federal Funding Appendix

This contract is funded in whole or in part by federal funding, therefore the following provisions apply. These provisions take precedent over State terms and conditions if they are in conflict.

I. Minority Businesses

The Contractor must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible, including the following affirmative steps. These requirements do not impose an obligation on Contractor to set aside either the solicitation or award of a contract to these types of firms. Rather, the requirement only imposes an obligation on the Contractor to carry out and document the six affirmative steps identified below. These requirements do not preclude the Contractor to undertake additional steps to involve small and minority businesses and women's business enterprises.

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises. This does not authorize breaking down a single project down into smaller components in order to circumvent the micro-purchase or small purchase thresholds so as to utilize streamlined acquisition procedures (e.g. "project splitting");
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and
6. If subcontracts are to be let, to take the affirmative steps listed in paragraphs (1) through (5) of this subparagraph.

II. Domestic Preference

In the performance of this Agreement, Contractor shall, as appropriate and to the greatest extent practicable, purchase, acquire, and/or use goods, products, and materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts.

For purposes of this section: "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

III. Recovered Materials

[This section is applicable for any contract where the purchase price of an item exceeds \$10,000 or where the value of the quantity acquired during the preceding fiscal year exceeded \$10,000]

Pursuant to 2 CFR 200.323, the Contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, 42 U.S.C. § 6962. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

IV. Contract Violations

[This section is applicable only if the contract exceeds the State Simplified Acquisition Threshold, which is \$49,999]

If Contractor breaches the contract or anticipates breaching the contract, the Contractor shall immediately give written notice to the State. The notice shall explain the breach or potential breach, a proposed cure, and may include a request for a waiver of the breach if so desired. The State may, in its discretion, temporarily or permanently waive the breach. By granting a waiver, the State does not forfeit any rights or remedies to which the State is entitled by law or equity, or pursuant to the provisions of the contract. Failure to give immediate notice, however, may be grounds for denial of any request for a waiver of a breach.

Either Party may terminate the contract, in whole or in part, if the other Party breaches its duty to perform its obligations under the contract in a timely and proper manner. Termination requires written notice of default and a thirty (30) calendar day (or longer at the non-breaching Party's discretion considering the gravity and nature of the default) cure period. Said notice shall be delivered by Certified Mail, Return Receipt Requested, or in person with proof of delivery. Allowing time to cure a failure or breach of contract does not waive the right to immediately terminate the contract for the same or different contract breach which may occur at a different time.

In case of breach by the Contractor, the State may, without unreasonable delay, make a good faith effort to make a reasonable purchase or contract to purchased goods in substitution of those due from the contractor. The State may recover from the Contractor as damages the difference between the costs of covering the breach. Notwithstanding any clause to the contrary, the State may also recover the contract price together with any incidental or consequential damages defined in UCC Section 2-715, but less expenses saved in consequence of Contractor's breach. OR In case of default of the Contractor, the State may contract the service from other sources and hold the Contractor responsible for any excess cost occasioned thereby.

V. Termination for Cause

The contract may be terminated as follows:

- 1.** The State and the Contractor, by mutual written agreement, may terminate the contract at any time.
- 2.** The State, at its sole discretion, may terminate the contract for any reason upon thirty (30) calendar day's written notice to the Contractor. Such termination shall not relieve the Contractor of warranty or other service obligations incurred under the terms of the contract. In the event of termination, the Contractor shall be entitled to payment, determined on a pro rata basis, for products or services satisfactorily performed or provided.
- 3.** The State may terminate the contract immediately for the following reasons:
 - a.** if directed to do so by statute;
 - b.** Contractor has made an assignment for the benefit of creditors, has admitted in writing its inability to pay debts as they mature, or has ceased operating in the normal course of business;
 - c.** a trustee or receiver of the Contractor or of any substantial part of the Contractor's assets has been appointed by a court;
 - d.** fraud, misappropriation, embezzlement, malfeasance, misfeasance, or illegal conduct pertaining to performance under the contract by its Contractor, its employees, officers, directors, or shareholders;
 - e.** an involuntary proceeding has been commenced by any party against the Contractor under any one of the chapters of Title 11 of the United States Code and (i) the proceeding has been pending for at least sixty (60) calendar days; or (ii) the Contractor has consented, either expressly or by operation of law, to the entry of an order for relief; or (iii) the Contractor has been decreed or adjudged a debtor;
 - f.** a voluntary petition has been filed by the Contractor under any of the chapters of Title 11 of the United States Code;
 - g.** Contractor intentionally discloses confidential information;
 - h.** Contractor has or announces it will discontinue support of the deliverable; and,
 - i.** In the event funding is no longer available.

VI. Equal Opportunity Employment

The Contractor shall comply with all applicable local, state, and federal statutes and regulations regarding civil rights laws and equal opportunity employment. The Nebraska Fair Employment Practice Act prohibits Contractors of the State, and their Subcontractors, from discriminating against any employee or applicant for employment, with respect to hire, tenure, terms, conditions, compensation, or privileges of employment because of race, color, religion, sex, disability, marital status, or national origin (Neb. Rev. Stat. §§ 48-1101 through 48-1125). The Contractor 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 goods or services to be covered by any contract resulting from this solicitation.

VII. Rights to Inventions

If any invention, improvement, or discovery is conceived or first actually reduced to practice in the course of or under the contract to which this Attachment has been added, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the Purchaser and Contractor agree to take actions necessary to provide immediate notice and a detailed report to the party at a higher tier until FHWA is ultimately notified.

Unless the Federal Government later makes a contrary determination in writing, irrespective of the Contractor's status (a large business, small business, state government or state instrumentality, local government, nonprofit organization, institution of higher education, individual), the Purchaser and the Contractor agree to take the necessary actions to provide, through FHWA, those rights in that invention due the Federal Government as described in U.S. Department of Commerce regulations, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," 37 C.F.R. Part 401.

The Contractor also agrees to include the requirements of this clause in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FHWA.

VIII. Clean Air Act.

[This section is applicable only for contracts in excess of \$150,000]

The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act 42 U.S.C. 7401 et seq. and the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to FHWA and the appropriate EPA Regional Office.

IX. Debarment, Suspension or Exclusion of Purchaser

The Contractor certifies that it, and any of its subcontractors, are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency. The State reserves the right to terminate this contract if a Contractor or its subcontractor is being considered for, presently being, or becoming debarred, suspended, ineligible or excluded from contracting with any state or federal entity.

X. Anti-Lobbying

[This section is applicable only for contracts in excess of \$100,000]

Contractor certifies, to the best of its belief, that it did not utilize the services of lobbyists, attorneys, political activists, or consultants to influence or subvert the bidding process. The Contractor certifies that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of

Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, et seq.)] Contractor shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Contractor certifies it will comply with all of the terms of this Federal Funding Appendix.

Adam Berg
Signature, Printed Name

9/20/2023
Date

Midwest Sales Manager
Title



SpeedLane[®] Pro

True Dual Beam Side-Fire Traffic Sensor and Collector Technical Specification

Rev 21st November 2022



SpeedLane[®] Pro Non-Intrusive Dual FMCW Radar Based Traffic Sensor and Collector

Houston Radar LLC
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Sugar Land, TX 77478
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1.0 General

1.1 Product Description

The SpeedLane® Pro is a true dual-beam high-definition non-intrusive traffic sensor/collector, and traffic flow monitor. This state-of-the-art 24GHz K-band microwave *frequency modulated continuous wave (FMCW) dual radar*-based counter is specifically designed for license free portable or permanent traffic data measurement and collection. The SpeedLane Pro utilizes high performance, ultra-low power DSP (Digital Signal Processing) technology and microwave components based on a planar patch array antenna with integrated low power PHEMT oscillator to achieve the highest standards in the industry for performance and reliability.

1.2 Principle of Operation

The dual FMCW radars in the SpeedLane Pro modulate the frequency of the transmit signal in a linear fashion. The difference between the frequencies of the local oscillator and the signal returned from the target is proportional to the time delay between these signals and thus is proportional to the distance to target. The Doppler shift of the return signal is taken into account for measuring a moving target. Radar utilizes double linear ramp modulation, first increasing and then decreasing the frequency of the signal. Additional information derived from two ramps allows the radar to measure both the range to target and target velocity. The patented dual radars setup “virtual speed traps” in 0.375” increments in front of the SpeedLane Pro which allows measurement of speed, direction of travel and length of each vehicle. The SpeedLane Pro employs advanced target tracking technique based on a proprietary algorithm that allows it to detect, measure and track multiple targets simultaneously. It also features advanced “application filters” pre-configured to optimize performance for a variety of applications.

2.0 Performance Objectives

The SpeedLane Pro is designed to provide:

- Best-in-class data for volume, per-vehicle speeds, average speed, 85th percentile speed, length classification, occupancy, and gap on a per lane or per direction basis, for up to 16 lanes of traffic.
- Unique identification, speed, length, direction of travel, gap measurement, timestamp, and lane assignment for each detected vehicle.
- The lowest power usage of any true dual beam FMCW radar solution.
- Sample rate of 500Hz per radar.
- The simplest, fastest, and most immediately verifiable setup and configuration in the industry through the utilization of:
 - Standard built-in onboard HD video camera
 - Standard companion Windows application with intuitive GUI for configuration of parameters which includes a display of real time plots of the targets, lane by lane counts, and accumulated target histograms
 - Standard ultra-long-range Bluetooth radio for wireless connectivity
 - Standard universal pole mounting bracket
 - A detection range of up to 255 feet (78m) for up to 16 user-configurable lanes, each with the resolution to allow for defining lanes in 1-foot (0.3m) increments.
 - Built-in 1 million vehicle statistics storage memory and 3 months of interval storage memory
- The most streamlined form factor in the industry, with no external modules required for the following options:
 - Cellular modem with GPS for remote access
 - Maximum Power Point Technology (MPPT) solar charger for the addition of solar panel charging
 - 100 Mbps Ethernet port
 - Power over Ethernet (PoE) module
 - Built-in Uninterruptible Power Supply (UPS) with 96 WHr LiFePO4 rechargeable battery

- An expansive range of installation and deployment options including:
 - Quick Adjust Clamps for ease of alignment
 - Solar charging kit with rechargeable battery, solar panel, solar panel mounting bracket, and cabling
 - PoE injector
 - Houston Radar SpeedLane Pro Cable
 - Field interface enclosure
 - Class I Microsoft Windows™-compatible Bluetooth™ dongle

3.0 Radar Detection Zone

The SpeedLane Pro's radar detection zone is defined by its 7°x74° beam and incident angle to the road surface. The strength of the target is determined by its radar cross-section (RCS) and is dependent on the target material, area of exposure, shape, and incident angle of the radar beam. The detection zone's characteristics include:

- Viewable via the standard built-in HD video camera
- Range from 6 feet (2m) up to 255 feet (78m)
 - Advanced detection algorithm allows setbacks as short as 2 feet provided radar is mounted at least 17 feet from the ground
- Can be configured for up to 16 lanes of traffic, which can be defined in 1-foot (0.3m) increments
- Automatic performance enhancement and maintenance via:
 - Automatic Gain Control (AGC) per lane to automatically adjust for weak signals, installation effects and environmental conditions
 - Automatic creation of Clutter Map for stationary targets (traffic signs, structures, fences, etc.), which are removed from the signal
 - Continuous automatic adjustment of the Clutter Map, which can be scheduled via the user-defined Clutter Time Constant (CTC); the Clutter Map adjustment rate is asymmetrical – adjusted up slowly to allow targets to fade away slowly, but adjusted down quickly to facilitate accuracy in zones with high traffic density.

4.0 Detection Zone Definition and Configuration

The SpeedLane Pro's radar detection zone is oval-shaped, and is defined by its 7°x74° beam and incident angle to the road surface. The SpeedLane Pro's built-in HD video camera provides visual confirmation of the area included within the detection zone. The beam does not end abruptly at the boundary of the detection zone but rather gradually tapers off. Weak targets near the boundaries may be missed while strong targets outside may still get detected. The strength of the target is determined by its radar cross-section (RCS) and depends on the target material, area, shape, and incident angle of the radar beam. Large flat metallic surfaces positioned at exactly 90° to the incident radar beam make the best targets. Examples are vehicle sides, front and rear ends. Flat metal surfaces at angles other than perpendicular to the beam tend to reflect the radar signal away and reduce the signal strength. Two or three metal surfaces joined at a 90° angle, for example a corner of a pickup truck bed, create a perfect reflector and usually results in a very strong return signal.

Per convention, "half-power" beam angles are specified where the power falls off to half the value from the center of the beam. It is possible for the radar to detect strong targets outside of the oval derived from a trigonometric calculation based on the beam angle.

4.1 Alignment

The radar beam should be pointed across the traffic at 90° to the road. Pointing the radar at an angle substantially different from 90° is not recommended because the signal strength is severely reduced. The SpeedLane Pro's built-in HD video camera provides visual confirmation of the radar beam's alignment relative to the desired detection zone.

4.2 Lane Configuration

The SpeedLane Pro comes standard with configuration software, StatsAnalyzer. StatsAnalyzer is a Windows-based graphical user interface application used to establish the lanes of traffic for detection (see Section 12 for additional information on StatsAnalyzer). If lanes are not defined, the SpeedLane Pro will still measure per vehicle speeds, range, lengths, and travel direction, while lane occupancy, gap and average speed will not be recorded, and lane activation features will not operate. Per direction speeds may still be obtained via the SQL interface. It is strongly recommended that lanes be defined.

StatsAnalyzer accumulates and displays all detected vehicles at every range within the detection zone as a histogram in real time to provide lane definition parameters. The histogram plot points are records of the absolute range of each target within the detection zone. A histogram plot point is created for any target that meets the criteria established by the proprietary Houston Radar Tracking Filter. The user may choose to establish the lane boundaries around the histogram peaks, or may exclude a pattern of targets. This confirmation of lane configurations eliminates the automatic creation of incorrect lanes, such as may result from a parking lot or access road being within the detection zone.

StatsAnalyzer displays all defined lanes and allows for the adjustment of lanes in 1-foot (.3 meters) increments.

StatsAnalyzer provides a graphical interface to display current traffic patterns and vehicle-specific information such as Received Signal Strength Indicator (RSSI) and length.

5.0 Performance

The SpeedLane Pro's accuracy statements assume nominal traffic conditions, with proper installation and alignment per the User Manual. Nominal conditions exist when true occupancy is less than 30%, without merging traffic; when average speeds are greater than 10 mph (16 kph) in every lane; when there is less than 20% truck traffic per lane; and when at least 50 cars per lane are counted in the interval.

5.1 Speed Accuracy

Average per lane: +/- 1%

Average per direction: +/- 1%

Per Vehicle: +/- 6% for 90% of vehicles

Range detection: 5-100 MPH (8-160 km/h)

5.2 Volume Accuracy

Per Direction Typical: 98 to 99%

Per Direction Minimum: 95%

Per Lane Typical: 98 to 99%

Per Lane Minimum: 90%

Max number of lanes: 16 user-defined

Max number of simultaneous detections: 16

5.3 Length Class Accuracy

Typical +/-5.7ft (1.7m) or 15% whichever is larger for 90% of vehicles

Max Classes 8 user-defined by vehicle length

5.4 Lane Occupancy Accuracy

Typical +/-10% per direction
+/-20% per lane

6.0 Physical Characteristics

The SpeedLane Pro is housed in a tubular NEMA 4X Lexan polycarbonate weather-proof enclosure. The enclosure maintains the following characteristics:

- Injection moldable non-chlorinated/brominated, UV-stabilized, unfilled flame-retardant grade polycarbonate with medium flow
- UV-stabilized
- 26 inches long by 3.33 inches in diameter (66cm by 8.5cm)
- 4.6 pounds (2.1kg) without optional internal UPS; 6.4 pounds (2.9kg) with optional internal UPS
- Built to NEMA 4X standards for wind, moisture exposure, and dust & airborne particles
- IP66 rating
- IP67 M12 data / power connector
- Operating temperature range without optional internal UPS: -40F (-40C) to +167F (+75C); operating temperature range with optional internal UPS: -4F (-20C) to +131F (+55C)

7.0 Power Requirements and Performance

7.1 Power Supply

The power supply to the SpeedLane Pro must be capable of supplying up to 200mA of current (at 12VDC) continuously to account for multiple installed options. Power supply options include:

- DC input voltage range of 9VDC to 28VDC
- 48VDC PoE (Power Over Ethernet) using standard 802.3af. Mode A/Type 1 (power over data pairs)
- Built-in Lithium Iron Phosphate rechargeable 96Whr battery, rechargeable via:
 - External 24V AC to DC adapter
 - External 12V (nominal- up to 21V open circuit) solar panel
 - External 12VDC battery

7.2 Power Consumption

The SpeedLane Pro consumes 0.9 Watts in its standard configuration. Optional installed components may increase its power consumption.

- Base System: 0.9 Watts fully operational (75mA @ 12V)
 - RF Power: 5mW maximum each radar
- With built-in camera enabled: 2.2 Watts streaming video over Ethernet (185mA @ 12V)
- Optional Ethernet: 1.2 Watts with Ethernet cable connected (98mA @ 12V)
- Optional internal modem:
 - Online: 1.2 Watts (97mA @ 12V)
 - Upload: 1.3 Watts (108mA @ 12V)

7.3 Power Protection

The SpeedLane Pro provides built-in protection from power supply irregularities.

- 6.2V undervoltage and 28.5V overvoltage protection shutdown
- Reverse power protection with resettable fuse

8.0 Communication Ports

The SpeedLane Pro features a software-configurable serial interface for RS-232, or RS-422/RS-485. The serial interface supports baud rates of 9600, 19200, 38400, 57600, and 115200 bits per second. The serial interface is used to communicate via the supplied Windows configuration program, StatsAnalyzer, to access statistics data and configure the unit for use.

The SpeedLane Pro features a standard built-in Class 1 long range 2.1 +EDR Bluetooth antenna, capable of delivering a signal across more than 800 feet (243 meters) outdoors. The StatsAnalyzer program can communicate via the Bluetooth interface. An Android smartphone/tablet app is also provided to communicate with the SpeedLane Pro via Bluetooth.

The SpeedLane Pro offers an optional built-in 100 Mbps Ethernet connection. This Ethernet connection implements “Zeroconf” networking (Avahi networking under Linux, or Bonjour under Windows), allowing the user to interface with the radar device by plugging its Ethernet cable directly into an Ethernet port on the user’s computer, or a local network switch and without requiring the user to set static IP address on the PC. Multiple SpeedLane Pro’s may be present on the same network simultaneously, and all are identified by unique hostnames. The SpeedLane Pro implements a “Houston Radar Discover” protocol to allow for discovery of every SpeedLane Pro on the user’s local network. The user can also assign a static IP address, netmask, and gateway to each SpeedLane Pro or acquire the networking parameters via DHCP server if one is present on the network

9.0 Data Protocols

The SpeedLane Pro provides mechanisms to retrieve both real-time and historical data. As the manufacturer, Houston Radar provides the protocol definition on request. The SpeedLane Pro allows multiple requests to be interleaved without having to be set in a specific mode of operation. The SpeedLane Pro supports both client-server (polling mechanism) and publisher-subscriber models (event-driven) for retrieving data.

9.1 Polling Real Time data (Client-Server)

9.1.1 Sensor ID

The SpeedLane Pro provides a mechanism to set a Sensor ID and retrieve it on demand. The Sensor ID shall be persisted across power failures.

9.1.2 Real Time Vehicle Speed Histogram

The SpeedLane Pro supports the retrieval of real-time Speed Histogram Counts for all lanes or for individual lanes at user-configurable speed bins. The minimum speed bin configurable is 1 mph or 1 km/h.

9.1.3 Real Time Vehicle Class Histogram

The SpeedLane Pro supports the retrieval of real-time Class Histogram Counts by lane for up to 8 user-configurable vehicle classification length bins.

9.1.4 Volume, Speed, Occupancy, Headway, Gap

The SpeedLane Pro supports the retrieval of real-time per-lane Volume, average Speed (km/h or mph), 85th Percentile speed (km/h or mph), average Lane Occupancy (%), average Headway (in milliseconds), and average Gap (in milliseconds) per-lane. The SpeedLane Pro supports configurable time intervals to average per-lane data.

9.2 Realtime Events (Publisher-Subscriber)

The SpeedLane Pro allows the ability to:

- Permanently or temporarily enable the streaming of real-time events.
- Permanently or temporarily disable the streaming of real-time events.

9.2.1 Presence Information

The SpeedLane Pro supports the streaming of per-lane real-time presence information.

9.2.2 Volume, Speed, and Occupancy

The SpeedLane Pro supports the streaming of Volume, average Speed, and average Occupancy at user-configurable time intervals on a per-lane basis.

9.2.3 Vehicle Events

The SpeedLane Pro supports the real-time streaming of vehicle events containing the following information for each vehicle event:

- Cycle Start Timestamp in milliseconds
- Presence Time in milliseconds
- Signal Magnitude
- Lane in which Vehicle is traveling
- Direction of Travel
- Length (in centimeters or centifeet)
- Speed (in centi km/h or centi mph)
- Range to target (in centimeters or centifeet)

9.3 Historical Data

9.3.1 Mechanisms

The SpeedLane Pro supports the retrieval of historical data using the following mechanisms:

- By running SQL queries against the onboard SQL database inside the SpeedLane Pro
- Using the REST API interface over HTTP

9.3.2 Data Points

The SpeedLane Pro supports the retrieval of the following per-lane historical data:

1. Interval Histogram
2. Vehicle Class Histogram
3. Speed Histogram
4. Direction Histogram
5. Individual Vehicle Data

9.3.2.1 Interval Histogram

The SpeedLane Pro supports the retrieval of user-configurable interval data per-lane containing the following information for the interval:

- Unique Sequence Number
- Interval in Minutes
- Interval Number (incrementing log count)
- Date and Time when the interval data was logged
- Lane
- Average Speed (in mph or km/h)
- 85th Percentile Speed (in mph or km/h)
- Occupancy (in %)

- Volume
- Gap (in milliseconds)
- Headway (in milliseconds)

9.3.2.2 Vehicle Class Histogram

The SpeedLane Pro supports the retrieval of Vehicle Class Histograms at up to 8 user-configurable length bins on a per-lane basis containing the following information for the interval:

- Unique Sequence Number
- Interval in Minutes
- Interval Number (incrementing log count)
- Date and Time when the interval data was logged
- Lane
- Bin Number
- Count

9.3.2.3 Speed Histogram

The SpeedLane Pro supports the retrieval of binned Vehicle Speed Histograms at user-configurable speed bin widths on a per-lane basis containing the following information for the interval:

- Unique Sequence Number
- Interval in Minutes
- Interval Number (incrementing log count)
- Date and Time when the interval data was logged
- Lane
- Bin Number
- Count

9.3.2.4 Direction Histogram

The SpeedLane Pro supports the retrieval of Vehicle Direction Histograms on a per-lane basis containing the following information for the interval:

- Unique Sequence Number
- Interval in Minutes
- Interval Number (incrementing log count)
- Date and Time when the interval data was logged
- Lane
- Direction
- Count

9.3.2.5 Individual Vehicle Data

The SpeedLane Pro supports the retrieval of Individual Vehicle data containing the following information:

- Unique Sequence Number
- Speed (in mph or km/h)
- Length (in feet or centimeters)
- Lane Number
- Direction of Travel
- Cycle Start Timestamp in milliseconds
- Date and Time when the vehicle was logged
- Interval Number (incrementing log count)
- Range to Vehicle (in feet or centimeters)

9.4 Data Retention

- The SpeedLane Pro stores the configuration in non-volatile memory.
- The SpeedLane Pro contains a temperature compensated low drift Real-Time Clock (RTC) with a battery backup to keep accurate time even when the primary power is turned off.
- The SpeedLane Pro stores 3 months of interval data (assuming interval bin size is set to 5 minutes).
- The SpeedLane Pro stores at least 1,000,000 individual vehicle records.
- The SpeedLane Pro automatically removes the oldest records to make room to store new interval and individual vehicle records.

10.0 Radar Design

The SpeedLane Pro employs a dual radar design. Each of the two radars shall have one transmit channel and two receive channels. Physical separation of the radars shall be at least 20 inches. In order to achieve accurate per vehicle speed measurements, two physically separated radars are necessary so that a speed trap type speed measurement can be performed.

10.1 Frequency stability.

The SpeedLane Pro conforms to FCC Section 15.249 requirements for 24.0–24.25 GHz band. The circuitry shall not utilize any manual tuning elements such as trim pots that could lead to human error and degraded performance. Radar's occupied bandwidth must remain stable over the specified temperature range and service life. Radar's transmit chirp quality shall be maintained over the specified temperature range and service life as well to achieve reliable target acquisition and tracking.

10.2 Antenna design

The SpeedLane Pro antenna two-way pattern is 7x74 degrees.

The wide vertical angle of 74 degrees enables the SpeedLane Pro to provide simultaneous detection from a lane located at the minimum offset to a lane located at the maximum range. The vertical beam width of a radar determines the field of view in which it can detect traffic. If this field of view does not encompass all lanes, then the radar will be unable to detect vehicles over the entire range.

A narrow horizontal beam width allows the SpeedLane Pro to resolve closely following vehicles (congested traffic) at the farthest ranges. If the horizontal beam width is too large, a trailing vehicle may be merged with the vehicle in front.

The sidelobes in the SpeedLane Pro two-way antenna pattern is -40 dB or less. Low sidelobes ensure that the performance from the antenna beam widths is fully achieved.

10.3 Resolution

The SpeedLane Pro is approved by the FCC to transmit a signal utilizing the whole allowed band of 24.0–24.25 GHz and automatically utilizes the optimum bandwidth to achieve the best performance based on the installation conditions. The SpeedLane Pro's proprietary dynamic allocation of the transmit signal within the allowable bandwidth translates directly into radar resolution, which contributes directly to detection performance.

11.0 Configuration and Reporting Software

Data from the SpeedLane Pro can be viewed, manipulated, and downloaded via multiple methods.

11.1 StatsAnalyzer Software

The SpeedLane Pro comes standard with configuration and reporting software, Houston Radar's StatsAnalyzer. StatsAnalyzer is a Windows-based graphical user interface application designed to aid in the setup, configuration, and data gathering for the SpeedLane Pro. Features of the software include:

- User selectable 1-minute to 60-minute binning and storage intervals
- Live histogram creation to monitor real-time traffic from the radar for local and remote monitoring applications
- Stats collection utilizing any communication port (see Section 8.0 Communication Ports for additional information)
- Store and organize data in individual projects
- Generate weekly views of hourly counts and average speeds
- Generate average monthly views by weekday hour of counts and speeds
- Generate detailed hourly counts, average speed, max speed, and 85th percentile reports
- Generate interactive raw data scatter graphs of speed vs time, counts vs time
- Join and trim data sets to manage data effectively

11.2 Tetryon Cloud Server Software

Houston Radar's Tetryon Cloud Server is a customizable cloud server used to aggregate data from multiple SpeedLane Pro devices in one central location. Features of the software include:

- Aggregation of data into a common SQL database
- Runs under Linux OS in the cloud or on a local server (installer package available to customer)
- Comprehensive, browser-based interactive graphing and reporting of live and historical data
- Recovers up to three months of collected data from the SpeedLane Pro's internal memory in the event of a communication outage to backfill missing data
- Maps SpeedLane Pro locations using embedded GPS coordinates
- Able to automatically capture stills from the SpeedLane Pro built-in camera
- Allows users to create alerts that provide visual or email notifications of traffic conditions
- Provides ability to automatically schedule radar firmware upgrades
- Dashboard summary view provides simple, one-page layout of the live updated speed and status of multiple SpeedLane Pro devices
- Built-in map view provides live updated speed and status of multiple SpeedLane Pro devices on Satellite Maps
- Simultaneous access by multiple users via the most common browsers e.g. Chrome and MS Edge
- Allows multi-level user account security
- Allows radars to be grouped into separate accounts
- Data may be downloaded in a spreadsheet format
- Includes a mobile-friendly website interface

12.0 Quality Control in Manufacturing

12.1 Build Standards

The SpeedLane Pro is built to the highest operating and performance standards in the industry.

12.1.1 NEMA

- TS2-2016 for shock resistance, vibration resistance, electromagnetic pulse, and temperature variations
- 300v for power surge protection
- 4X for wind, moisture exposure, dust & airborne particles

12.1.2 IEC

- 1000-4-5 for power surge protection
- 68-2-27 for shock resistance (test a)
- 68-2-30 for vibration resistance (test Fc)
- 60529:2013 for dust (IP6x) and water ingress (IPx6)

12.1.3 ETSI EN

- 61000-4-2 for power surge protection
- 300-440 V2.1.1 for wireless interference

12.1.4 FCC

- CFR 47, Part 15, Section 15.249 for field disturbance

12.2 Quality Control

A stringent Quality Control (QC) process is undertaken for each SpeedLane Pro. The following tests are conducted during the manufacturing process:

- Continuity tests on cables to ensure that anomalies, such as openings, shorts, crimps or defects, are not present
- Continuity tests on stranded conductors using a meter having a minimum input resistance of 20,000 Ω per volt and show that each conductor has a resistance of not more than that specified by the wire/cable manufacturer.
- Measure the insulation resistance between isolated conductors and between each conductor, ground, and shield using a meter designed for measuring insulation resistance. Perform all resistance testing after final termination and cable installation, but prior to the connection of any electronic or field devices.
- Replace any cable that fails to meet these parameters, or if any testing reveals defects in the cable, and retest new cable.
- Demonstrate the following before shipment of finished product:
 - Verify that physical construction has been completed
 - Inspect the quality and tightness of ground and surge protector connections
 - Check power supply voltages and outputs
 - Verify that device connects to power sources
 - Verify that the installation of specified cables and connections between all external accessories or options
 - Demonstrate that the remote system is fully operational and performing all specified types of detection, including data storage functions, with a laptop computer
 - Verify detector accuracy by conducting sample ground counts

13.0 Installation

The SpeedLane Pro is a side firing radar solution. The radars beam point across traffic at a 90° angle to the roadway, and covers one or more lanes. The SpeedLane Pro is mounted so that vehicles traveling on the roadway are detected for a duration of time while they are crossing the radar beams and their velocity is mostly tangential (at right angle to the beam) with a negligible radial (along the beam) component.

Installation locations should be selected to allow for open-air unobstructed radar beam access to free-flow traffic.

13.1 Mounting Bracket

The SpeedLane Pro has a pole mounting bracket included as standard. The mounting bracket allows for sufficient adjustment of the radars pointing angle at various mounting heights and setback lengths. The mounting bracket provides user access to adjustment mechanisms so that the SpeedLane Pro is rigidly mounted to a structure. The

structure to which the SpeedLane Pro is affixed shall not be affected by wind or incur sway. The mounting bracket consists of the following features and mechanisms:

- Adjustable clamps to secure the SpeedLane Pro to the mounting bracket
- Four (4) hex bolts to manipulate the adjustable clamps to achieve the proper tilt (or pitch)
- Four (4) bolts to adjust the SpeedLane Pro horizontally to achieve a level installation

13.2 Setback Length and Mounting Height

The setback length is the distance the SpeedLane Pro is mounted from the closest lane of traffic to be detected. The setback length, or offset, is a minimum of 6 feet (2 meters) from the closest lane of traffic to be detected. The appropriate setback length may vary by installation location.

The SpeedLane Pro's mounted height is determined so that the radar detection zone includes all desired traffic lanes, up to 255 feet (78 meters) from the mounting location, and in such a way that the radar beams are not inhibited by taller vehicles in the closest lanes. Typically, the mounting height will not be more than 1.25x the setback distance.

The tables below indicate suggested mounting heights with typical setback distances for optimal performance, with recommendations in bold.

| SpeedLane Pro Installation Table (in feet) | | | |
|--|-------------------------|---------------------|---------------------|
| Offset from 1st lane (ft) | Recommended Height (ft) | Minimum Height (ft) | Maximum Height (ft) |
| 7 | 17 | 8 | 19 |
| 8 | 17 | 8 | 20 |
| 9 | 17 | 8 | 21 |
| 10 | 17 | 9 | 22 |
| 11 | 17 | 9 | 23 |
| 12 | 17 | 10 | 24 |
| Offset from 1st lane (ft) | Recommended Height (ft) | Minimum Height (ft) | Maximum Height (ft) |
| 13 | 17 | 11 | 25 |
| 14 | 18 | 11 | 26 |
| 15 | 20 | 12 | 26 |
| 16 | 20 | 12 | 27 |
| 17 | 21 | 13 | 28 |
| 18 | 22 | 14 | 29 |
| 19 | 22 | 14 | 30 |
| 20 | 23 | 15 | 30 |
| 21 | 23 | 15 | 31 |
| 22 | 23 | 16 | 31 |
| 23 | 25 | 16 | 32 |
| 24 | 25 | 16 | 33 |
| 25 | 26 | 17 | 33 |
| 26 | 26 | 17 | 34 |
| 27 | 27 | 18 | 35 |
| 28 | 27 | 18 | 35 |
| 29 | 27 | 18 | 36 |
| 30 | 29 | 19 | 37 |

| | | | |
|----|----|----|----|
| 31 | 29 | 19 | 37 |
| 32 | 29 | 19 | 38 |
| 33 | 30 | 19 | 39 |
| 34 | 30 | 19 | 39 |
| 35 | 30 | 20 | 40 |
| 36 | 30 | 20 | 41 |
| 37 | 30 | 20 | 41 |
| 38 | 31 | 21 | 42 |
| 39 | 31 | 21 | 43 |
| 40 | 33 | 22 | 43 |
| 41 | 33 | 22 | 44 |
| 42 | 34 | 22 | 44 |
| 43 | 34 | 22 | 45 |
| 44 | 35 | 23 | 46 |
| 45 | 35 | 23 | 46 |

| SpeedLane Pro Installation Table (in meters) | | | |
|--|------------------------|--------------------|--------------------|
| Offset from 1st lane | Recommended Height (m) | Minimum Height (m) | Maximum Height (m) |
| 2 | 5 | 2 | 6 |
| 3 | 5 | 2 | 7 |
| 4 | 5 | 3 | 8 |
| 5 | 6 | 4 | 9 |
| 6 | 7 | 5 | 9 |
| Offset from 1st lane | Recommended Height (m) | Minimum Height (m) | Maximum Height (m) |
| 7 | 8 | 5 | 10 |
| 8 | 8 | 5 | 10 |
| 9 | 8 | 5 | 11 |
| 10 | 9 | 6 | 12 |
| 11 | 9 | 6 | 12 |
| 12 | 9 | 6 | 13 |
| 13 | 10 | 7 | 14 |
| 14 | 11 | 7 | 14 |

13.3 StatsAnalyzer Installation Wizard

The Houston Radar StatsAnalyzer software provides an Installation Wizard with step-by-step instructions to ensure proper positioning and alignment. The Installation Wizard includes the following visual aides to properly align the SpeedLane Pro:

- Live video feed from built-in HD camera with on-screen crosshair for alignment confirmation
- Snapshot feed from built-in HD camera with on-screen crosshair for alignment confirmation (for serial or Bluetooth connections that do not allow video)
- Tilt angle identification for vertical adjustments
- Level angle identification for horizontal adjustments

14.0 Service and Support

14.1 Maintenance

The SpeedLane Pro does not require any regular maintenance to maintain optimal performance during deployment. The user may periodically confirm the device's proper alignment using the snapshot or video capabilities of the built-in HD video camera, should there be concern of mounting security.

14.2 Warranty

Houston Radar warrants the SpeedLane Pro for a period of one year from the date of shipment. Warranty is limited to repair or replacement of non-performing products. Houston Radar, at its option, may repair or replace a non-performing product if the non-performing product is returned to Houston Radar at the client's expense. Houston Radar shall ship the replaced or repaired product back to client via UPS Ground or equivalent. Houston Radar shall not be held liable for any incidental or consequential damages arising from the non-performance of product under warranty period. Extended warranties shall be available upon request or contractual requirement.

14.3 Houston Radar Service Department

Houston Radar maintains a full-time Service Department with factory-trained personnel. Service Department personnel are responsible for electronic support of products and services via mail, telephone, fax, email, conferencing services (such as Skype™, GoToMeeting™, or similar applications), and onsite, as needed. Houston Radar shall make the determination of necessary onsite service at its sole discretion, unless expressly agreed upon prior to the need. The Service Department can be contacted as follows:

Houston Radar Service Department
702 Julie Rivers Drive
Sugar Land, Texas 77478
USA

Toll free phone/fax: +1.888.602.3111

Email: support@houston-radar.com

Online Submission: <https://houston-radar.com/contact-us/>

14.4 Additional Support

Houston Radar maintains support documentation and resources for the products and services it provides.

Support documentation and resources include:

- User Manuals
- Quick Start Guides
- Video tutorials
- Supplemental user training materials as required or requested by users and customers
- Community Support Forum at <https://houston-radar.com/support-community-forum/>

Houston Radar SpeedLane™ Pro Quick Start Guide

Version 2.0 Date September 5th 2018



Please read SpeedLane™ [User Manual](#) for a complete description of the installation procedure and setup of this product. This quick start guide is not meant to replace the user manual.

Scan the QR code on the right on your smart phone to download the complete user manual from our website or view a setup training video.



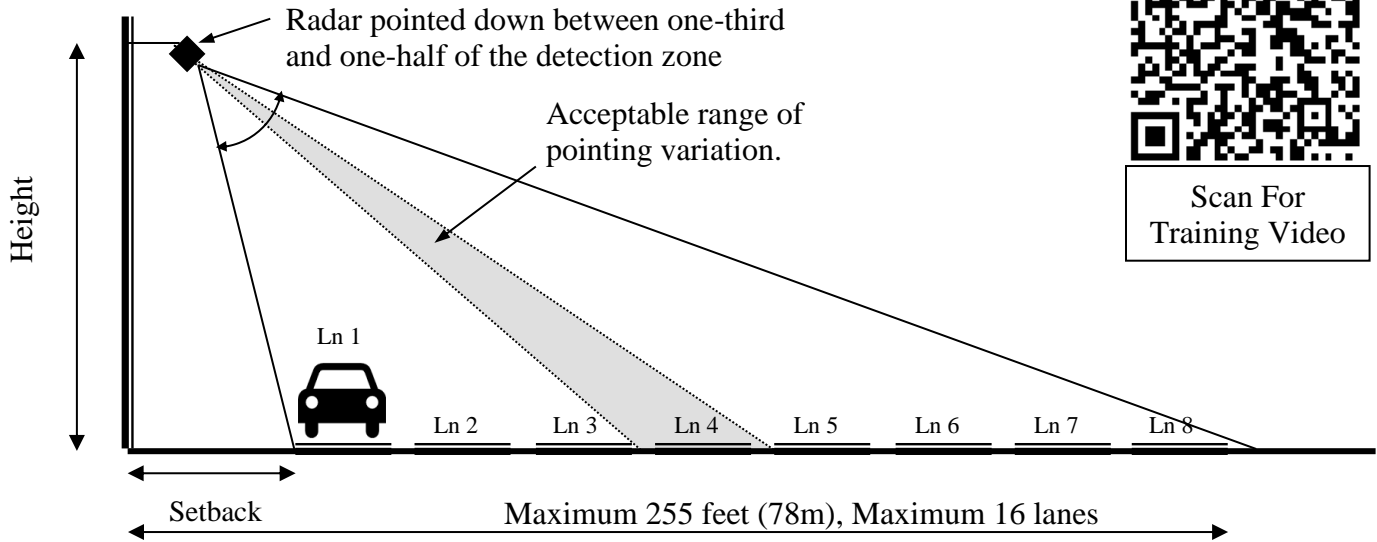
Scan For
User Manual

STEP1: Select appropriate location and mounting height

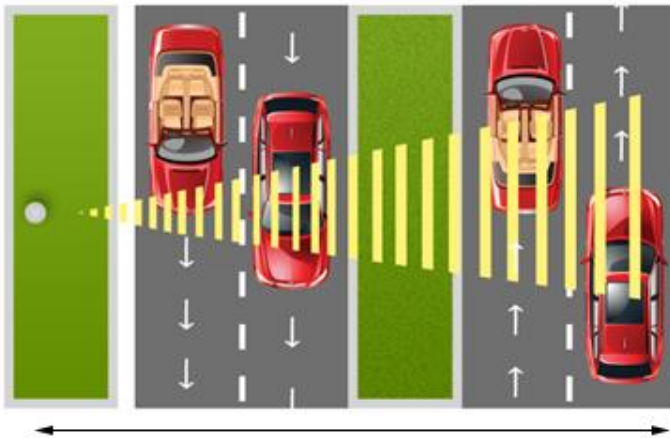
Pick a mounting location where you are able to best satisfy the height and setback guidelines listed in Appendix B.



Scan For
Training Video



[Refer to height and setback tables in Appendix B]



Maximum 16 Lanes, 255 feet (78m)



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The SpeedLane Pro can support a maximum of 16 lanes, with each lane moving in any direction. The far edge of the farthest lane should be no more than 255 feet (78m) away.

Try to select a location with at least 20 feet (8m) setback if possible. However, the unit will work with as little as 6 feet (2m) setback. But in this case, you should not mount it higher than about 18 feet (6m).

STEP2: Prepare to install the SpeedLane™ Pro

- Ensure you have 0.75” (19 mm) (or narrower) wide steel banding straps to attach the SpeedLane to the pole.
- Locate the provided 3/16” Allen key to loosen the clamp brackets enough so that the tube can be easily rotated by hand. This will allow you to make pitch adjustments to align the up/down pointing of the radar as recommended in the mounting chart in Step 1 above. *The clamps are designed to tightly grip the tube without crushing it when tightened all the way down.*



- The SpeedLane has an onboard sighting video camera that will be used for alignment purposes. You must prepare to power up the SpeedLane during installation and connect to it from our PC based StatsAnalyzer software.
 - If you are planning to power the device via 12VDC, locate the **12 pin M12** cable shown below and connect it to the connector on the right side of the radar (side away from camera window). ***Hand tighten*** completely.
-  The device may be powered either by pin 1 (+) and pin 5 (ground) on the DB9 connector or via the provided DC jack connector. ***The striped (black/white) wire on the DC jack connector is (+). If you purchased a RS485 surge protector junction box, the SpeedLane M12 cable may be provided with loose wires. Refer to the wiring diagram in the box for wiring instructions.***

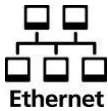
The SpeedLane can also be powered via the DB9 cable if it has a built in battery and the external power will be used to charge the battery.





SpeedLane Pro RS232/RS485 Serial, VDC and 100Mbps Ethernet Cable.

- Locate a suitable +12VDC nominal (28VDC maximum) power source capable of supplying 2.5 Watts or more (or 0.21 Amps) to power the unit. The nominal power usage of the radar is only 0.9 Watts, but will rise to 2.1 Watts when the camera is in use.
- Install provided Houston Radar StatsAnalyzer software on a Windows laptop or PC. Plug in the DB9 connector to a PC serial port or a USB to RS232 adapter.



Ethernet



Bluetooth

- If you have purchased the Ethernet option, we recommend using it for communication with the radar. ***The camera can only be used in video mode over Ethernet. With a serial or Bluetooth connection, you can use camera to take snapshots.***
- Alternatively, it may be more convenient to power the radar temporarily via the serial cable from a power source in the bucket truck, but connect to it wirelessly over Bluetooth from a computer on the ground. This will avoid having to use temporary wiring during the installation process. ***The Bluetooth ID of the radar is printed on a label on the back of the mounting plate. A pairing key is not usually required, but if requested, enter 1234.***

You MUST connect to the radar via Bluetooth or Ethernet to setup lanes if you have opted for half duplex RS485 interface on the main serial port.

STEP3: Power ON and verify proper connection while still on the ground

Power on the radar and ***wait about 45 seconds*** to allow it to finish booting. Then start up the Houston Radar StatsAnalyzer (or the Houston Radar Configuration tool) software and click on *File->Connect to Radar...*

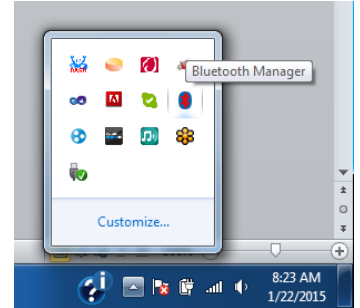
If you have decided to connect via a local serial port or Bluetooth, select “*Auto Detect Port*” or the port number for the serial port or Bluetooth connection and then click on “Connect”.



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If you are connecting via Bluetooth, you must have already paired the computer to the SpeedLane's Bluetooth and had a COM port assigned **before** starting the Houston Radar program. You can do this by **right** clicking on the **Bluetooth manager icon in your Windows status bar** and "Add New Connection". This procedure is required only once per computer/SpeedLane connection.



If you have decided to connect using Ethernet, pull down the "Connect To Radar On" list and select the "Local Network" option. The SpeedLane and Stats Analyzer supports zero-conf/auto discovery so they will communicate when directly connected.

Once the radar is found:

1. Check the **clock** and ensure it is correct. It is set to US Central Time from the factory. **Make sure your PC clock is accurate** and then click the "Sync Radar Clock to Computer" button to set the radar clock
2. Click "**Save Changes**" button. Reconnect if prompted.

You are now ready to strap the SpeedLane to the pole and complete setup. At this point power down the radar and proceed to the next step.

Step 4: Adjustments and setup of SpeedLane™ on the pole



The SpeedLane has an onboard sighting camera and electronic level sensor for measuring level and tilt that will be used for alignment purposes. These will make the setup process significantly easier and ensure proper alignment of the radar.

If you are mounting the SpeedLane to a pole, attach the pole mounting bracket to the mounting plate of the radar as shown below:



The bracket is designed to provide level adjustment to compensate for a sideways leaning pole. If this is required, loosen the bolts slightly before strapping to the pole to allow level adjustment while viewing the video/snapshots from the on-board camera and gyroscope level readings in wizard. After adjusting, tighten all bolts completely.

Follow the steps below to get the SpeedLane aligned so that the view of the road looks correct and traffic is reliably detected. *A little extra effort at this stage to properly align the radar will pay off in terms of trouble free performance of the radar.*

1. Loosely strap SpeedLane to pole at the appropriate height per installation tables
2. Connect the cables and **power on** the radar. Secure the service loops of the cables via strain relief clamps provided on the bracket. **Do not rely on the connectors to support the entire weight of the cable.**
3. Connect to the radar and click on the “**Installation Wizard**” tab. Follow the prompts on the screen. *We highly recommend watching the installation training video in advance which shows all the steps of wiring the SpeedLane and using the Installation Wizard.*

Here are a few points to keep in mind during the lane setup:

- ✓ Ensure you get at least 3 or more filled signal strength bars on most targets for proper detection.
- ✓ Define one lane for each lane on the road. Do not attempt to define one lane for multiple lanes on the road.
- ✓ Do not leave a gap between defined lanes if there is no gap on the road. Typically you would only have gap between the lanes if there is a median, shoulder or some other part of the road with no traffic.
- ✓ Do not try to overlap lanes (the software will prevent you from doing this).
- ✓ Setup the lane direction to match the direction of travel on the road.
- ✓ Click “Finish” on the last page of the Installation Wizard.

Step 5: Setup your external router/modem/Tetryon Server connection if required

If you wish to retrieve data remotely, refer to Appendix C for more details on the setup.



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We are here to help and can guide you remotely to ensure a proper alignment. We highly recommend that you setup a telephone appointment with us and plan to temporarily bring a cellular data modem with an Ethernet port to the site. We will then connect remotely via the Internet and view the SpeedLane camera and radar detections to ensure a proper setup. This method can be invaluable to ensure that the device is setup correctly. There is no additional charge for this support.

Questions? Call us at 1-888-602-3111 and select “Tech Support” option or email us at contact@houston-radar.com

We are also happy to review the photo from the SpeedLane camera to ensure the device is aimed correctly. Feel free to email us a photograph.



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Appendix A

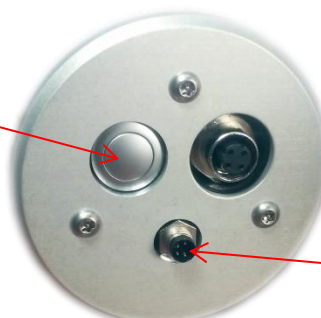
On-board battery Option for Solar Power, UPS or Portable Applications

If you have purchased a SpeedLane Pro with the Uninterruptable Power Supply (UPS) built-in battery option or a solar power package, the device has an on-board high performance LiFePO4 rechargeable battery and a high performance maximum power point technology (MPPT) charger.

In this configuration, the SpeedLane Pro will charge from the external 12VDC power on the 12 pin M12 connector as described in the quick start guide as well from the 4 pin M8 connector described below.

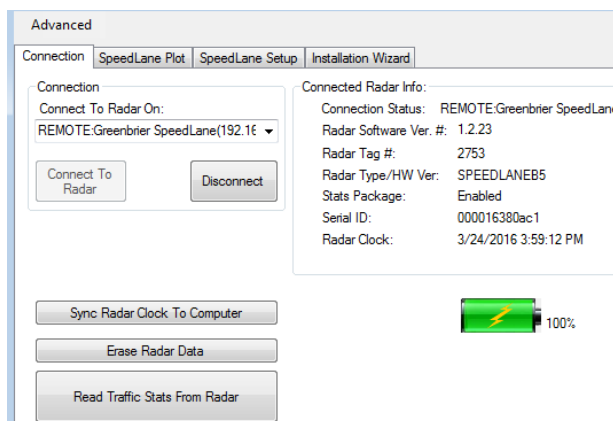
The unit has an additional IP67 rated 4 pin M8 connector as shown below. Only 2 pins of this connector are utilized for connection to an external solar panel or external DC charger. The other two pins should not be connected as they may be utilized for other features in the future.

On/Off Switch Toggle Switch.
Recessed= ON
Flush (as shown)=OFF



IP67 Rated M8 Connector for 12V nominal solar panel or provided external +24VDC charger.

Two sets of M8 cables are provided. One has bare leads on it, marked + and – for connection to an external 12V (nominal) solar panel. The other is for charging via external 24VDC power. Real time battery charge level and charging status is available when you connect via the Houston Radar Stats Analyzer. Click on the icon for a real time charge/discharge history plot.



Appendix B Recommended Installation Tables

| SpeedLane Installation Table (in feet) | | | | SpeedLane Installation Table (in meters) | | | |
|--|-------------------------|---------------------|---------------------|--|------------------------|--------------------|--------------------|
| Offset from 1 st lane | Recommended Height (ft) | Minimum Height (ft) | Maximum Height (ft) | Offset from 1 st lane | Recommended Height (m) | Minimum Height (m) | Maximum Height (m) |
| 7' | 17' | 8' | 19' | 2m | 5m | 2m | 6m |
| 8' | 17' | 8' | 20' | 2m | 5m | 2m | 6m |
| 9' | 17' | 8' | 21' | 3m | 5m | 2m | 6m |
| 10' | 17' | 9' | 22' | 3m | 5m | 3m | 7m |
| 11' | 17' | 9' | 23' | 3m | 5m | 3m | 7m |
| 12' | 17' | 10' | 24' | 4m | 5m | 3m | 7m |
| 13' | 17' | 11' | 25' | 4m | 5m | 3m | 8m |
| 14' | 18' | 11' | 26' | 4m | 5m | 3m | 8m |
| 15' | 20' | 12' | 26' | 5m | 6m | 4m | 8m |
| 16' | 20' | 12' | 27' | 5m | 6m | 4m | 8m |
| 17' | 21' | 13' | 28' | 5m | 6m | 4m | 9m |
| 18' | 22' | 14' | 29' | 5m | 7m | 4m | 9m |
| 19' | 22' | 14' | 30' | 6m | 7m | 4m | 9m |
| 20' | 23' | 15' | 30' | 6m | 7m | 5m | 9m |
| 21' | 23' | 15' | 31' | 6m | 7m | 5m | 9m |
| 22' | 23' | 16' | 31' | 7m | 7m | 5m | 9m |
| 23' | 25' | 16' | 32' | 7m | 8m | 5m | 10m |
| 24' | 25' | 16' | 33' | 7m | 8m | 5m | 10m |
| 25' | 26' | 17' | 33' | 8m | 8m | 5m | 10m |
| 26' | 26' | 17' | 34' | 8m | 8m | 5m | 10m |
| 27' | 27' | 18' | 35' | 8m | 8m | 5m | 11m |
| 28' | 27' | 18' | 35' | 9m | 8m | 5m | 11m |
| 29' | 27' | 18' | 36' | 9m | 8m | 5m | 11m |
| 30' | 29' | 19' | 37' | 9m | 9m | 6m | 11m |
| 31' | 29' | 19' | 37' | 9m | 9m | 6m | 11m |
| 32' | 29' | 19' | 38' | 10m | 9m | 6m | 12m |
| 33' | 30' | 19' | 39' | 10m | 9m | 6m | 12m |
| 34' | 30' | 19' | 39' | 10m | 9m | 6m | 12m |
| 35' | 30' | 20' | 40' | 11m | 9m | 6m | 12m |
| 36' | 30' | 20' | 41' | 11m | 9m | 6m | 12m |
| 37' | 30' | 20' | 41' | 11m | 9m | 6m | 12m |
| 38' | 31' | 21' | 42' | 12m | 9m | 6m | 13m |
| 39' | 31' | 21' | 43' | 12m | 9m | 6m | 13m |
| 40' | 33' | 22' | 43' | 12m | 10m | 7m | 13m |
| 41' | 33' | 22' | 44' | 12m | 10m | 7m | 13m |
| 42' | 34' | 22' | 44' | 13m | 10m | 7m | 13m |
| 43' | 34' | 22' | 45' | 13m | 10m | 7m | 14m |
| 44' | 35' | 23' | 46' | 13m | 11m | 7m | 14m |
| 45' | 35' | 23' | 46' | 14m | 11m | 7m | 14m |

Recommended Mounting



Appendix C

Retrieving Data Remotely from the SpeedLane

There are two ways to access the SpeedLane Pro data remotely:

1. Call directly in to the radar via the Stats Analyzer software
2. Setup the SpeedLane Pro to call out to our Tetryon™ cloud server and access the data on the server via a browser from any computer connected to the Internet

Both options can be used with either your own external modem or the optional built-in 3G GSM modem.

1. Call in to the SpeedLane from your Windows computer

When using external modem, you need to forward incoming network connections to allow the remote computer to connect into the SpeedLane. You also require a static IP address in the modem so you can connect to it directly.

If the SpeedLane is connected via **Ethernet** to the router/modem:

- 1.1. Assign an unused private static IP address to the SpeedLane via the *SpeedLane Setup->Ethernet tab*.
- 1.2. On the external modem, select any available external port number you wish to use (e.g. 5000). In the external **modem configuration** forward all TCP/IP traffic for this external port number to the SpeedLane IP address at port 23.
- 1.3. If you wish to use the video streaming feature, you also need to forward all TCP/IP traffic for external port 8080 to the SpeedLane IP address at port 8080.

External Modem with Ethernet to SpeedLane

If the SpeedLane is connected via serial port to the external modem:

- 1.4. On the external modem, select any available external port number you wish to use (e.g. 5000). In the external **modem configuration** forward all TCP/IP traffic for this external port number to the local serial port on the external modem connected to the SpeedLane.
- 1.5. Ensure you do not have any “terminal editing” settings enabled on this serial port and you are using it in “raw” mode without any character translation.
- 1.6. Setup the modem serial port with the following parameters: 115200 baud, 8bits, 1 stop, no parity and no handshaking. The DB9 port on the radar cable is wired as a DCD so it will require a null modem/crossover to connect to your modem.

External Modem with Serial to SpeedLane

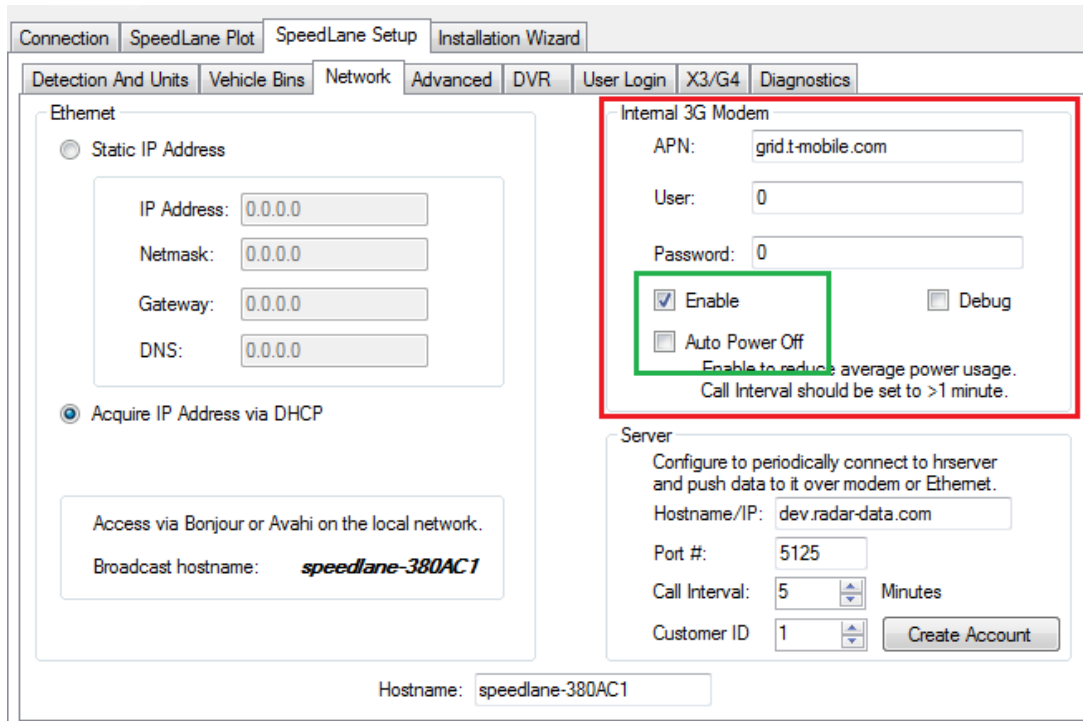


What options are installed in the SpeedLane?
Check the label on the back.



Setup Internal Modem

- 1.7. When using internal modem you must setup the “APN” and enable the modem in the SpeedLane Setup->Network tab.
- 1.8. Do not enable “Auto Power off” as you will not be able to call the SpeedLane.



Setup Stats Analyzer Remote Radar Connection

- 1.9. On the remote host computer, setup a “Remote Radar Connection” in the Houston Radar Stats Analyzer program via “File-Setup Remote Radar Connections...”. Use the **external** well known public IP address or hostname of the modem and:
 - 1.9.1. For the external modem, the external port number you selected in the steps above (5000 in example above) or
 - 1.9.2. For the internal modem, port 23.
- 1.10. Ensure you can make a connection from the remote computer to the SpeedLane and can view video if you have connected via Ethernet or internal modem (watch out for data usage when using a limited data plan!)



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2. Call out to our Tetryon server in the cloud

This option does not require a static IP address as the SpeedLane initiates an outgoing connection. Additionally you can opt to automatically power down the internal modem and save considerable power.

You must use either the optional internal modem or be connected to the external modem via Ethernet as the SpeedLane will initiate a TCP/IP connection to the server.

2.1. Configure your Tetryon server address in the SpeedLane Setup->Network tab
If you would like to use our demo server:

- 2.1.1. Use www.radar-data.com as the Hostname/IP address
- 2.1.2. Request a customer ID at <http://www.radar-data.com/newaccount> . Once you receive the customer ID, program it in the customer ID field.
You only need one customer ID per company and not one per radar.
- 2.1.3. Set port # 5125 and select your call interval.



Select a call interval 5+ minutes if you wish to auto power down the modem to save power. Call intervals of 15+ minutes with auto power off result in very modest modem duty cycles and add practically zero additional power to the basic 0.85 Watts of the radar and make the modem “free” from a power standpoint.

Once your account is activated, you will receive an email with further details on how to access the data online. Ask us how you can host the Tetryon server yourself without any license or purchase costs.

The screenshot shows the 'SpeedLane Setup' window with the 'Network' tab selected. The 'Server' section is highlighted with a red box and contains the following fields: Hostname/IP: , Port #: , Call Interval: Minutes, and Customer ID: . A 'Create Account' button is located to the right of the Customer ID field. The 'Internal 3G Modem' section has 'Enable' and 'Auto Power Off' checkboxes checked, with a green box around them. Below these checkboxes is the text: 'Enable to reduce average power usage. Call Interval should be set to >1 minute.' The 'Ethernet' section has 'Acquire IP Address via DHCP' selected. The 'Hostname' field at the bottom is set to 'speedlane-380AC1'.



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The device must be located 20 cm or more from persons. The device must not be co-located with other transmitters.

This device is certified to be used in Canada under “RSS 310”.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Any modification or use other than specified in this manual will strictly void the certification to operate the device.

Product contains no user serviceable parts inside. Do not attempt to open or repair. Doing so will void all warranty.

Specifications may change without notice.



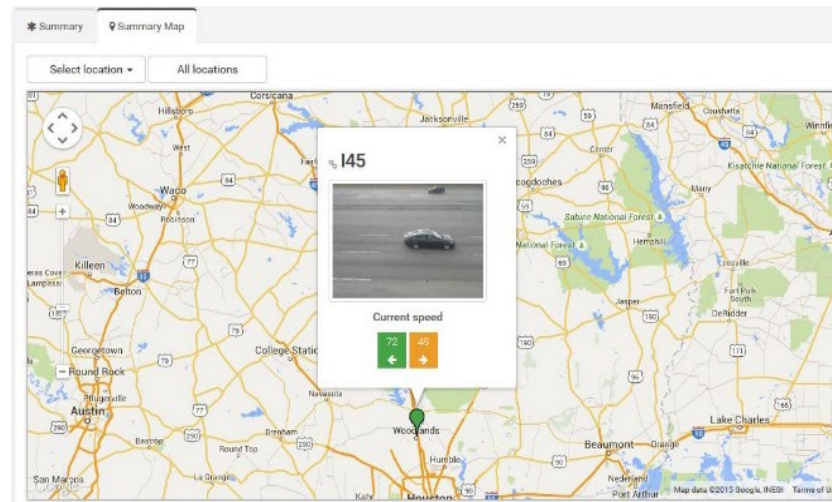
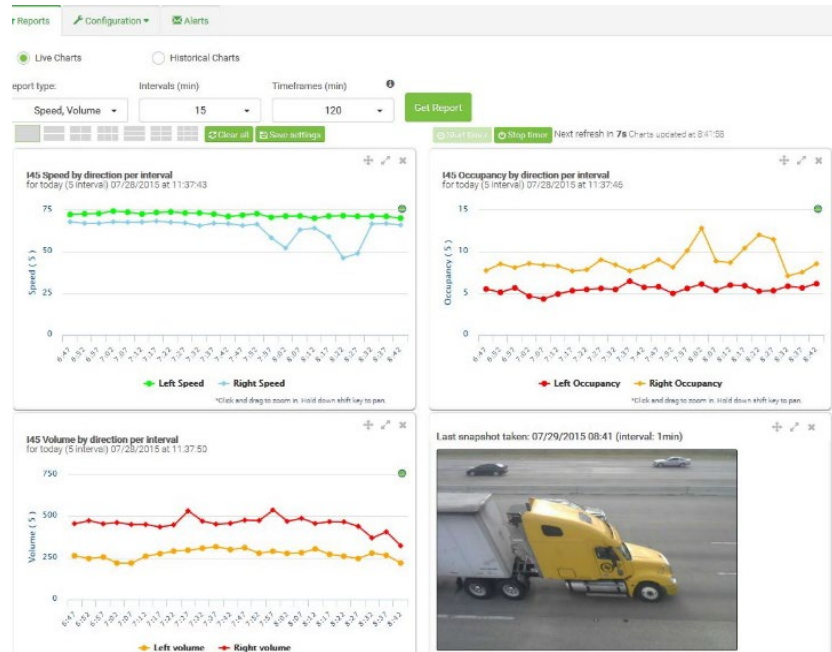
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Houston Radar's Tetryon Cloud Server is a customizable cloud server used to aggregate data from multiple SpeedLane Pro and Armadillo Tracker radars in a single browser-based interface.

Features and Benefits

- Dashboard summary view provides simple, one-page layout of the live updated speed and status of multiple radars
- Comprehensive, web-based interactive graphing and reporting of live and historical data
- Map view provides live updated speed and status of multiple radars on Google satellite maps
- Simultaneous access by multiple users via all popular browsers, including Chrome, Firefox, Explorer, and Safari.
- Multilevel user account security and user-specific preferences
- Mobile-friendly website interface
- Download data in 5 file formats, including CSV and PDF
- Automatically schedule radar firmware updates
- Create alerts to provide visual or email notifications of traffic conditions and communications status
- Capture still from the SpeedLane Pro's built-in HD camera
- Recover up to three months' collected data from radar's internal memory in the event of communication outage
- Aggregates data into a common SQL database
- Runs under Linux OS in the cloud
- Source code available*
- Customer has ability to host software on private server*



*Conditions Apply

