



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Request for Quotation

RFQ NUMBER  
**PSC736**

PAGE  
**1**

ADDRESS CORRESPONDENCE TO ATTENTION OF  
**KRISTA FERRELL  
 304-558-2596**

VENDOR

**RFQ COPY**  
 TYPE NAME/ADDRESS HERE

SHIP TO

**PUBLIC SERVICE COMMISSION  
 OF WEST VIRGINIA  
 201 BROOKS STREET  
 CHARLESTON, WV  
 25301 340-0323**

DATE PRINTED <b>05/02/2006</b>	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
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BID OPENING DATE: **05/17/2006** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	EA		680-77		
<p><b>RADAR INSTRUMENTS, TRAFFIC ENFORCEMENT</b></p> <p><b>REQUEST FOR QUOTATION</b></p> <p>THE WEST VIRGINIA PURCHASING DIVISION ON BEHALF OF THE AGENCY, THE WEST VIRGINIA PUBLIC SERVICE COMMISSION, IS SOLICITING BIDS TO PROVIDE THE AGENCY WITH 30-35 GOLDEN EAGLE II (OR EQUAL) RADAR SYSTEMS PER THE ATTACHED SPECIFICATIONS.</p> <p>OR EQUAL BRANDS MUST BE COMPATABLE FOR USE WITH GOLDEN EAGLE II RADAR SYSTEMS.</p> <p>VENDORS MUST INCLUDE FOB DESTINATION CHARGES IN THEIR PROPOSAL PRICE FOR DELIVERY TO CHARLESTON, WV.</p> <p>UNIT PRICE SHOULD BE BASED ON THE PURCHASE OF 30-35 UNITS.</p> <p>MATERIALS MUST BE DELIVERED TO THE WV PUBLIC SERVICE COMMISSION NO LATER THAN 06/30/2006.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.</p> <p>THE MODEL/BRAND/SPECIFICATIONS NAMED HEREIN ESTABLISH THE ACCEPTABLE LEVEL OF QUALITY ONLY AND ARE NOT</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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**GENERAL TERMS & CONDITIONS  
(REQUEST FOR QUOTATION) RFQ AND (REQUEST FOR PROPOSAL) RFP**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$45 fee.
5. All services performed or goods delivered under State Purchase Orders/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from Federal and State taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this contract is automatically null and void, and is terminated without further order.
14. **HIPAA Business Associate Addendum** - The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Covered Entity (45 CFR ü160.103) and will be disclosing Protected Health Information (45 CFR ü160.103) to the vendor.

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**INSTRUCTIONS TO BIDDERS**

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in cases of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **DUPLICATE BIDS:** All quotations must be delivered by the bidder to the respective offices listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications.

**ORIGINAL SIGNED BID TO:**

Department of Administration  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

**DUPLICATE BID TO:**

State Auditor's Office  
Bid Observer  
Building 1 Room W114  
1900 Kanawha Boulevard, East  
Charleston, WV 25305-0230



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<p>INTENDED TO REFLECT A PREFERENCE OR FAVOR ANY PARTICULAR BRAND OR VENDOR. VENDORS WHO ARE BIDDING ALTERNATES SHOULD SO STATE AND INCLUDE PERTINENT LITERATURE AND SPECIFICATIONS. FAILURE TO PROVIDE INFORMATION FOR ANY ALTERNATES MAY BE GROUNDS FOR REJECTION OF THE BID. THE STATE RESERVES THE RIGHT TO WAIVE MINOR IRREGULARITIES IN BIDS OR SPECIFICATIONS IN ACCORDANCE WITH SECTION 148-1-4(F) OF THE WEST VIRGINIA LEGISLATIVE RULES AND REGULATIONS.</p> <p>VENDOR PREFERENCE CERTIFICATE</p> <p>CERTIFICATION AND APPLICATION* IS HEREBY MADE FOR PREFERENCE IN ACCORDANCE WITH WEST VIRGINIA CODE, 5A-3-37 (DOES NOT APPLY TO CONSTRUCTION CONTRACTS).</p> <p>A. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>( ) BIDDER IS AN INDIVIDUAL RESIDENT VENDOR AND HAS RESIDED CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>( ) BIDDER IS A PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR AND HAS MAINTAINED ITS HEAD-QUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR 80% OF THE OWNERSHIP INTEREST OF BIDDER IS HELD BY ANOTHER INDIVIDUAL, PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR WHO HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p>						

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<p>( ) BIDDER IS A CORPORATION NONRESIDENT VENDOR WHICH HAS AN AFFILIATE OR SUBSIDIARY WHICH EMPLOYS A MINIMUM OF ONE HUNDRED STATE RESIDENTS AND WHICH HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA CONTINUOUSLY FOR THE FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION.</p> <p>B. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>( ) BIDDER IS A RESIDENT VENDOR WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES WORKING ON THE PROJECT BEING BID ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID;</p> <p>OR</p> <p>( ) BIDDER IS A NONRESIDENT VENDOR EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS OR IS A NONRESIDENT VENDOR WITH AN AFFILIATE OR SUBSIDIARY WHICH MAINTAINS ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES OR BIDDERS' AFFILIATE'S OR SUBSIDIARY'S EMPLOYEES ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID.</p> <p>BIDDER UNDERSTANDS IF THE SECRETARY OF TAX &amp; REVENUE DETERMINES THAT A BIDDER RECEIVING PREFERENCE HAS FAILED TO CONTINUE TO MEET THE REQUIREMENTS FOR SUCH PREFERENCE, THE SECRETARY MAY ORDER THE DIRECTOR OF PURCHASING TO: (A) RESCIND THE CONTRACT OR PURCHASE</p>						

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<p>ORDER ISSUED; OR (B) ASSESS A PENALTY AGAINST SUCH BIDDER IN AN AMOUNT NOT TO EXCEED 5% OF THE BID AMOUNT AND THAT SUCH PENALTY WILL BE PAID TO THE CONTRACTING AGENCY OR DEDUCTED FROM ANY UNPAID BALANCE ON THE CONTRACT OR PURCHASE ORDER.</p> <p>BY SUBMISSION OF THIS CERTIFICATE, BIDDER AGREES TO DISCLOSE ANY REASONABLY REQUESTED INFORMATION TO THE PURCHASING DIVISION AND AUTHORIZES THE DEPARTMENT OF TAX AND REVENUE TO DISCLOSE TO THE DIRECTOR OF PURCHASING APPROPRIATE INFORMATION VERIFYING THAT BIDDER HAS PAID THE REQUIRED BUSINESS TAXES, PROVIDED THAT SUCH INFORMATION DOES NOT CONTAIN THE AMOUNTS OF TAXES PAID NOR ANY OTHER INFORMATION DEEMED BY THE TAX COMMISSIONER TO BE CONFIDENTIAL.</p> <p>UNDER PENALTY OF LAW FOR FALSE SWEARING (WEST VIRGINIA CODE 61-5-3), BIDDER HEREBY CERTIFIES THAT THIS CERTIFICATE IS TRUE AND ACCURATE IN ALL RESPECTS; AND THAT IF A CONTRACT IS ISSUED TO BIDDER AND IF ANYTHING CONTAINED WITHIN THIS CERTIFICATE CHANGES DURING THE TERM OF THE CONTRACT, BIDDER WILL NOTIFY THE PURCHASING DIVISION IN WRITING IMMEDIATELY.</p> <p>BIDDER: -----</p> <p>DATE: -----</p> <p>SIGNED: -----</p> <p>TITLE: -----</p>						

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<p>* CHECK ANY COMBINATION OF PREFERENCE IN EITHER "A" OR "B", OR BOTH "A" AND "B" WHICH YOU ARE ENTITLED TO RECEIVE. YOU MAY REQUEST UP TO THE MAXIMUM 5% PREFERENCE FOR BOTH "A" AND "B". (REV. 12/00)</p> <p>CONSIDERATION(S)</p>						
<p>NOTICE</p>						
<p>AN ORIGINAL, SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION          PURCHASING DIVISION          BUILDING 15          2019 WASHINGTON STREET, EAST          CHARLESTON, WV 25305-0130</p>						
<p>AN EXACT DUPLICATE MUST BE SUBMITTED TO:</p> <p>STATE AUDITOR'S OFFICE          BID OBSERVER          BUILDING 1, ROOM W114          1900 KANAWHA BOULEVARD, EAST          CHARLESTON, WV 25305-0230</p>						
<p>BOTH BIDS MUST CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPES OR THE BIDS MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p>						
BUYER:				21		
RFQ. NO.:				PSC736		

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BID OPENING DATE:				05/17/2006		
BID OPENING TIME:				1:30 PM.		
PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:						
-----						
CONTACT PERSON (PLEASE PRINT CLEARLY):						
-----						
***** THIS IS THE END OF RFQ PSC736 ***** TOTAL:						_____

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE \_\_\_\_\_ TELEPHONE \_\_\_\_\_ DATE \_\_\_\_\_

TITLE \_\_\_\_\_ FEIN \_\_\_\_\_ ADDRESS CHANGES TO BE NOTED ABOVE

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The Public Service Commission is seeking bids to purchase 30 to 35 radar systems for their state vehicles with the following specifications. It is important that the equipment meet all specifications in order to be compatible with existing equipment. The brand and model of this system, that we have used in the past, and should be compatible with, is the Golden Eagle II.

DETAILED SPECIFICATIONS

RADAR SYSTEM

		Comply?	
A.	SYSTEM DESCRIPTION	Yes	No
A1.	The radar shall be a multi-piece design, consisting of a counting unit, handheld remote control and one or two antenna modules.	_____	_____
A2.	All components, circuits and parts shall have been thoroughly inspected and tested before and after assembly of the radar unit	_____	_____
A3.	The radar system shall operate within its specifications at ambient temperatures from -22°F to +140°F (-30°C to +60°C).	_____	_____
A4.	The radar system shall meet all requirements of the NHTSA "Model Minimum Performance Specification for Police Traffic Radar Devices" and shall be listed on the IACP Consumer Products List (CPL).	_____	_____
A5.	The system shall operate from a power supply voltage of 10.8 - 16.5 VDC, negative ground. The system shall employ an overcurrent protection circuit, using a replaceable fuse. Maximum current drain on the vehicle's electrical system shall not exceed 1.0 amperes.	_____	_____
A6.	The radar system shall be designed to accept compatible Eagle series antenna modules operating on any of the FCC-approved frequencies of 24.150 GHz (K-band) or 33.4-36.0 GHz (K <sub>a</sub> -band). No modifications to the counting unit shall be required in order to adapt to the various antenna frequency bands.	_____	_____



- A7. The radar system shall incorporate an automatic self-test feature that verifies the operation of the system upon power-up, and at intervals of no longer than five minutes as long as the system is powered up. \_\_\_\_\_
- A8. All switches used on the radar system shall be full-travel push buttons with tactile feedback. Membrane switches incorporated into the front panel overlay or the remote control shall not be acceptable. No part of any switch shall protrude beyond the protective bezel of its enclosure. \_\_\_\_\_
- A9. The speed processing circuit of the radar system shall utilize digital signal processing (DSP) techniques that convert the antenna's Doppler signal returns into digital data, perform a frequency domain spectral analysis of all such signals, store in memory the spectral frequency components of interest, and present to the operator the appropriate vehicle speed(s) depending upon the desired mode of operation. The system shall also employ DSP algorithms to reduce the undesirable effects of fan and blower noise interference, and patrol speed shadowing and combining. \_\_\_\_\_
- A10. All displays and indicators used on the radar system shall be red, solid-state, light emitting diode (LED) type that automatically adjusts in brightness to compensate for ambient light levels. \_\_\_\_\_
- A11. The radar system shall have an adjustable range control allowing the operator to select the distance at which targets will be detected; the range control shall have six discrete steps based on the signal-to-noise ratio of the reflected signal received by the antenna. \_\_\_\_\_
- A12. The radar system shall be capable of accurately determining target vehicle speeds while operating in either the stationary or moving mode. The radar system shall process and display speeds with an accuracy of +/- 1 mph in the stationary mode and +/- 2 mph in the moving mode. \_\_\_\_\_

- A13. The counting unit shall be completely enclosed in a metal housing to provide structural integrity and immunity to electromagnetic interference. The dimensions of the counting unit shall not exceed 6.5" wide by 1.75" high by 5.0" deep, with a maximum weight of 2 pounds 1 ounce, excluding cables and mounting hardware.
- A14. The radar system shall provide visual indication of radio frequency interference (RFI), low power supply voltage, and internal circuit error conditions. No target vehicle speeds may be processed while any such conditions exist.
- A15. The radar system shall provide an audible output of the Doppler signal corresponding to the target vehicle speed. In the moving mode, the target audio shall not change in pitch when the patrol vehicle speed changes. The audio volume level shall be adjustable in ten discrete steps and a means shall be provided to unscquelch the audio when no target is present. The speaker for the audio presentation shall face out the front of the radar system's main control panel. Units with the audio speaker located in the remote control will not be acceptable.
- A16. The handheld remote control shall be wired to the counting unit via a removable three-conductor audio-style miniature connector.
- A17. The radar system shall be capable of accepting an input from a wired or optional IR wireless remote control. The wireless receiver shall be located in the front display panel. The unit must be capable of using either the wired or wireless remote controls with no modifications to the counting or display unit.

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- A18. A switch shall be provided on both the main control panel of the counting unit, allowing the RF transmission from the antenna to be inhibited in order to circumvent radar detectors, and a visual indication shall be provided while in the "hold" mode. \_\_\_\_\_
- A19. The unit shall have individual antenna switches on the remote control. They shall be labeled "front" and "rear". \_\_\_\_\_
- A20. The radar system shall incorporate a "fastest vehicle" function that allows the operator to selectively monitor the speed of the fastest vehicle within the antenna beam, while continuing to monitor the strongest signal return present, the audio filters shall be switched to allow the audio tones from the fastest vehicle to be heard and a visual indication shall be provided while this "fastest vehicle" function is active. The "fastest vehicle" mode must be capable of being operated in a toggle on/off or a momentary function, as selected by the operator. \_\_\_\_\_
- A21. The radar system shall be capable of accurately determining target vehicle speeds while operating in the stationary, moving/opposite direction, or moving/same direction mode. Each selected antenna may be independently set for different modes of operation. Units that require the mode of operation to be set the same for both antennas will not be considered. \_\_\_\_\_
- A22. The radar system shall incorporate a "stopwatch" mode that calculates and displays average target vehicle speeds, by measuring the elapsed time taken to traverse a premeasured distance. \_\_\_\_\_

- A23. The counting unit shall consist of a logic control unit and the control/display panel that shall be designed to connect as one package or physically separated and mounted remotely. The control/display panel shall contain operational controls as well as all speed display readouts. The dimensions of the control/display panel shall not exceed 6.5" wide by 1.75" high by 1.25" deep, with a maximum weight of 12 ounces. The dimensions of the logic control unit shall not exceed 6.5" wide by .98" high by 3.75" deep, with a maximum weight of 1 pound 5 ounces, excluding cables and mounting hardware. \_\_\_\_\_
- A24. The counting unit shall have a rear panel connection to the pulse input from the vehicle's speedometer. This speed input shall be used to direct the Digital Signal Processing computer to search for the Doppler patrol speed signal in a specific speed range. The counting unit shall not display the speedometer input as patrol speed. \_\_\_\_\_
- A25. The unit shall be capable of automatically switching from moving mode to stationary mode when the patrol vehicle slows to a stop, without operator input. When the patrol vehicle begins moving, the unit shall automatically switch to the moving mode and the previously set mode of operation. \_\_\_\_\_
- A26. The unit shall have a patrol speed algorithm that allows the unit to "learn" the patrol speed driving habits of the operator without continued input from the operator or any external connections to the patrol speedometer to eliminate patrol speed combining and/or shadowing. \_\_\_\_\_
- A27. A "patrol speed blank" switch shall be provided on the front panel, allowing the operator to selectively suppress or display the patrol speed-reading while the unit is in the locked condition. \_\_\_\_\_

- A28. The counting unit shall display, upon command, the software revision of both the control microprocessor and the Digital Signal Processor. The target window will display the control processor's software revision and the patrol window will display the DSP's software revision. \_\_\_\_\_
- A29. The counting unit shall display, upon command, the type of antenna(s) that are connected to the unit. It shall display the letter "F" for front antenna and "r" for rear antenna. The numbers 0-3 shall be displayed following the "F" or "r" to signify the frequency band of the antenna. 0 shall indicate no antenna connected, 2 shall indicate a K-band antenna and 3 shall indicate a K<sub>a</sub>-band antenna. \_\_\_\_\_

**B. COUNTING UNIT**

- B1. The counting unit shall be capable of measuring the actual Doppler input signals from the antenna unit(s) and converting those signals into the speeds of the target vehicle and patrol vehicle. \_\_\_\_\_
- B2. The counting unit shall be designed for easy programming of the speed readings in either English (mph) or metric (km/h) measurement systems; such conversion shall be menu programmable and be performed by the operator or a technician without the necessity of replacing any radar system components. \_\_\_\_\_

Other operator-selected menu functions of the equipment shall include: no patrol speed blanking, minimum audio level, automatic target unlock, fastest mode toggle on/off or push-and-hold and a selection of video output formats. For those states requiring a specific function that is included in the menu will be locked out and set at the factory. The operator shall not be capable of changing this function. Radar units not offering a menu selection of operating parameters will not be considered. \_\_\_\_\_

- B3. The counting unit shall be designed to mount on the dashboard of a patrol vehicle as a one-piece or separated, as a two-piece unit.

\_\_\_\_\_

The logic control portion of the counting unit shall connect directly to the control/display panel without cables or can be separated from the control/display unit. If separated, it shall connect to the control/display unit with a shielded cable. The logic control unit shall have a front panel mounted 9 pin sub-D connector for connecting to the display unit. The display unit shall have a rear panel, 9 pin sub-D connector.

\_\_\_\_\_

- B4. The counting unit shall have three, 3-digit, high-brightness, seven-segment, numeric red LED (light emitting diode) displays. The target, lock and patrol displays shall be approximately 0.3" in height. The displays shall indicate vehicle speeds in truncated (rounded down) whole numbers. The brightness of the displays shall be automatically and continuously variable to permit easy viewing in all ambient light conditions. Displays with two discrete states (bright/dim) or switch selectable levels are not acceptable.

\_\_\_\_\_

- B5. The counting unit shall be equipped with red LED indicators located between the target and lock display windows, which present a visual indication of current mode of operation (stationary, moving/same or moving/opposite direction), selected antenna (front or rear) and a relative target area in relationship to the patrol vehicle. When the stopwatch mode is selected, these displays blank and a separate red LED display will light.

\_\_\_\_\_

- B6. While in the moving mode, the counting unit shall process and display combined speeds of 210 mph, but shall not exceed 211 mph. The counting unit shall continuously track and display both the patrol and target vehicle speeds after lock has been activated. The locked target speed will be displayed in the lock window. After the patrol speed has dropped 10 mph below the locked patrol speed, the patrol speed display will flash the patrol speed at the time of lock. \_\_\_\_\_
- B7. Speed Range:
- Stationary Mode: 10 to 210 mph. \_\_\_\_\_
- Opposite Direction Moving Mode: Patrol speed 10 to 99 mph, or 20 to 99 mph. These patrol speed ranges must be programmable and can be easily changed by the operator using the remote control. Target speed of 10 to 210 mph, subject to a maximum closing rate limitation of 210 mph. Maximum patrol speed shall be 149 MPH. \_\_\_\_\_
- Same Direction Moving Mode: Minimum difference between patrol and same direction target vehicle is 5 MPH (8 km/h). Maximum difference is 0.65 x patrol speed. \_\_\_\_\_
- B8. The front panel control and display shall be arranged with the target display and patrol display on opposite sides. All push button switches shall be positioned in a line parallel to the horizontal centerline of the panel and located in the bottom half area. \_\_\_\_\_
- B9. The counting unit shall contain the following controls:
- a. LOCK/RELEASE - this switch shall be used to lock and release target speeds. It shall also used to start, stop and clear the timer in the stopwatch mode. \_\_\_\_\_

- b. TEST - this switch shall be used to initiate the internal accuracy test function. \_\_\_\_\_
- c. MODE - this switch shall be used to change from moving to stationary radar modes and stopwatch. \_\_\_\_\_
- d. AUDIO - this switch shall be designed to activate the audio set mode. A secondary function is to decrement desired levels. \_\_\_\_\_
- e. RANGE - this switch shall be designed to activate the range set mode. A secondary function is to increment desired levels. \_\_\_\_\_
- f. HOLD - this switch shall be used to activate the non-transmitting (hold) mode. \_\_\_\_\_
- g. POWER - this momentary push button switch shall be designed to activate power to the counting unit. \_\_\_\_\_

B10. The stopwatch function shall allow the operator to preset the distance in one-yard increments (meters in metric system) from 100 to 999. Upon operator command, the counting unit shall be capable of timing the target vehicle as it passes the two reference points and automatically converting the elapsed time into the vehicle's speed in miles per hour or km/h. The unit shall be capable of counting elapsed time up to a maximum of 99.9 seconds. The time shall be rounded up to the next tenth second and the average speed truncated (rounded down) to the whole number. \_\_\_\_\_

B11. The counting unit shall initiate an automatic internal test upon power-up of the unit and at least every five minutes that the system has power applied. Whenever the system operation is changed, moving to stationary, or to stopwatch, this automatic test shall be performed. In addition, prior to displaying any speed in the stopwatch mode, an internal self-test will be performed. \_\_\_\_\_



- B12. The counting unit shall be equipped with a TEST button that, when activated by the operator, performs the following in sequence:
- h. Display of the number 888 in the target, lock and patrol speed windows. \_\_\_\_\_
  - b. Illumination of all LED indicators. \_\_\_\_\_
  - i. Display of the "PAS" in the target and patrol windows (target window only when in the stationary mode), to verify the internal counting circuitry is functioning correctly. If the test fails, "FAL" will be displayed. \_\_\_\_\_
- B13. The counting unit shall be equipped with two independent quartz crystal time base circuits. One crystal shall be used to operate the DSP timing circuitry and the other crystal used to control the main operating microprocessor. These two crystals shall be crosschecked during the internal test and at least every five minutes that the system has power applied. If an error in frequency is detected, the target speed window shall display "Err" as an indication of crystal error. \_\_\_\_\_
- B14. The counting unit shall include an adjustable audio circuit that amplifies the Doppler signal so an audio tone of the speed of the target vehicle may be heard. The audio signal shall be present at all times while the target vehicle is within the radar beam, and should be squelched when no target is being displayed. The radar device shall permit the operator to inhibit the squelch action to keep the receiver open so the operator may determine the ambient interference conditions. The audio tones produced under normal operating conditions shall be within the normal audio range (200 to 3,000 Hertz). The target audio shall not change in pitch when the patrol vehicle speed changes. \_\_\_\_\_

- B15. The counting unit must be equipped with a low voltage warning indicator. If the power supply voltage falls below 10.8 VDC, the counting unit shall display "Lo" in the target display window. However, the display shall maintain a previously locked speed with supply voltages as low as 9.0 VDC. \_\_\_\_\_
- B16. The counting unit must be equipped with a radio frequency interference (RFI) detector, which visually indicates "rFi" in the target display window when excessive extraneous radio frequency fields are present. No speeds shall be displayed or locked while this condition exists. A previously locked speed shall be maintained and displayed after the condition no longer exists. \_\_\_\_\_
- When using the Ka-Band antenna, the unit shall continue to function, even in the presence of high RF signals, such as when the patrol vehicle's police band radio is transmitting. \_\_\_\_\_
- B17. The counting unit must be equipped with a means to visually indicate the system is in the RF HOLD mode by displaying "Hld" in the target window. \_\_\_\_\_
- B18. The unit shall automatically clear all displays with any mode of operation change. \_\_\_\_\_
- B19. All external electrical connections to the counting unit shall be made on the rear panel as follows:
- a. The counting unit must contain two antenna connectors (1 front antenna and 1 rear antenna; separate junction box not acceptable). The receptacle shall be designed to accept the antenna unit's plug and shall be compatible with all electrical contacts and the quick release mechanism. \_\_\_\_\_

- b. Design of the system shall allow either front or rear antenna to be disconnected, and the system to be operated as a single antenna unit, without any modification. \_\_\_\_ \_\_\_\_
  
- c. The system shall be designed so as to recognize when an antenna is connected to the antenna receptacle and will not allow an open receptacle to be selected. \_\_\_\_ \_\_\_\_
  
- d. The design of the system shall allow a compatible Eagle series antenna on the K-band or K<sub>a</sub>-band frequencies to be plugged into either antenna input connector. The unit shall recognize which antenna frequency is being selected and allow any combination of frequencies to be used at either antenna port without any modification to the radar system. \_\_\_\_ \_\_\_\_
  
- e. The power cord shall be permanently attached to the counting unit, through a heavy plastic feed-through or similar strain relief to prevent the power cord from being damaged. \_\_\_\_ \_\_\_\_
  
- f. A miniature "D" type 9-pin connector shall be provided for connection to an RS-232C interface to an optional external printer. \_\_\_\_ \_\_\_\_
  
- g. A miniature "D" type 15-pin connector shall be provided for connection to a video recording system, personal computer, or an external giant display system. \_\_\_\_ \_\_\_\_
  
- h. A 3-conductor miniature connector shall be provided for connection to the wired remote control unit. \_\_\_\_ \_\_\_\_
  
- j. A 2-conductor miniature connector shall be provided for connection to the speedometer cable input. \_\_\_\_ \_\_\_\_

- B20. The counting unit shall be enclosed in an extruded aluminum housing. The case shall function as a wrap around electrical shield for the top, bottom and sides of the counting unit. It shall make a tight fit around the counting unit. \_\_\_\_\_
- B21. The counting unit shall have a #10 stud mounted on each side plate cover. A three-sided knob shall be supplied to attach the "U" shaped bail-mounting bracket to the counting unit. The bracket shall have no sharp edges or corners and shall have a flat black painted or anodized type finish. \_\_\_\_\_
- B22. The counting unit's power cord shall be approximately 5 1/2 feet long, with a completely flexible polypropylene jacket impervious to deterioration by oil and exposure to sunlight. It shall be approximately 3/16" in diameter, terminated on one end by a rugged heavy-duty, fused male plug compatible with a conventional cigarette lighter receptacle of a vehicle. The male connector plug shall be made of a rugged break-resistant material. It shall have heavy, corrosion-resistant spring-action electrical contacts. \_\_\_\_\_
- B23. The counting unit must have a "fastest vehicle" function, controlled by the operator from the remote control. This function must have two operating modes, selectable from a menu by the operator. The operator can select either a "push and hold" or "toggle on, toggle off" function. The "fastest" mode shall be automatically activated upon power up. The counting unit shall indicate the "fastest vehicle" mode is active by lighting a red LED on the front display panel. The counting unit will display the speed of the strongest reflected signal vehicle speed, in the antenna's beam, in the target display window, and the fastest vehicle in the "fast" display window. When a "fastest" vehicle is displayed, the "fastest" LED indicator shall flash, \_\_\_\_\_

indicating the speed shown is not the strongest signal and the audio filters shall allow the audio Doppler tone for the fastest vehicle to be heard for further tracking history.

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Units that do not detect the fastest vehicle seen by the radar, regardless of the number of vehicles or display the next strongest, faster vehicle, will not be considered.

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If the "push and hold" feature is used, when the operator releases the "fastest" switch, the counting shall remain in the "fastest vehicle" mode for approximately 1 1/2 seconds, then return to the strongest signal mode and turn the "fastest" LED indicator off.

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- B24. The unit shall be capable of locking the fastest speed. If the Lock/Release switch is depressed when a fastest vehicle is displayed, the locked fastest speed will be displayed in the Lock/ET window and the "fastest" LED will flash, indicating the vehicle, at the time of lock, was the fastest, not the strongest return signal. The counting unit must remain in the "fastest vehicle" mode and continue to display vehicle speeds until the locked speed is cleared. Units that do not allow locking for the fastest vehicle speed will not be considered.

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- B25. The unit shall be capable of detecting speedometer input pulses from the vehicle's speed transducer. These pulses shall be converted to speed and used to direct the DSP computer to search for the Doppler patrol speed signal at that speed, plus or minus 5 mph. The unit shall use the speedometer signal for comparison to the actual Doppler patrol speed.

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The unit shall detect the presence of the speedometer input pulses and display the Doppler patrol speed in the patrol speed window. When no speedometer input pulses are received and the patrol vehicle is in motion or the Doppler patrol signal cannot

be found, the patrol speed window shall display two dashed lines indicating loss of patrol speed.

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B26. The unit shall be capable of synchronizing the patrol vehicle's speedometer input pulses with Doppler patrol speed return signal. The unit shall be capable of operating in the absence of speedometer input pulses.

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B27. The unit shall use commands from the remote control to synchronize the speedometer input pulses and the Doppler patrol speed return signal.

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B28. When the unit is connected to the speedometer input, the unit shall automatically switch between the moving and stationary modes of operation. When switching from stationary mode to moving mode, the unit shall revert to the same mode of operation as when the unit was switched into stationary mode.

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**C. ANTENNA UNITS**

C1. The transmitted microwave beam shall be left-hand circularly polarized from a horn-type antenna. The antenna RF beam width shall not exceed 13° (K-band) and 12° (K<sub>a</sub>-band), measured at the 3 dB (half power) points. Maximum manufacturing tolerance is 1.0 degree variance. The minimum beam width shall be 10 degrees for K-band and K<sub>a</sub>-band. The side lobes shall be at least -25 dB below the main beam.

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C2. The antenna horn shall be completely free from seams, welds or solder joints, etc. It shall be precisely constructed so that the transmitted microwave beam is highly symmetrical conical shaped signal for target discrimination. The horn shall be constructed from a solid piece of copper or aluminum material that will not crack, warp or corrode during the normal operating life of the unit. The horn shall be rigidly supported at both ends to inhibit movement in normal use.

\_\_\_\_\_

Comply?  
Yes No

- C3. The antenna shall be designed so that it may be used as a stationary mode radar unit from within the vehicle and shall not be damaged or affected from this type of use. \_\_\_\_\_
- C4. The antenna unit shall directly interchange, between the front and rear antenna connector receptacles on the counting unit, or with other counting units of the same brand and model, without the need for special adapting or adjustment. \_\_\_\_\_
- C5. The antenna unit shall be connected to the counting unit with a single cable. Cable lengths must be available from 3 feet to 21 feet. The cable shall have a miniature circular connector that mates with a connector on the rear of the antenna unit. The cable shall have a rugged, heavy duty, flexible polypropylene outer jacket impervious to deterioration by oil or sunlight. Critical conductors within the cable shall be electrically shielded from interference. A metal-jacketed plug with a quick disconnect metal ring shall be provided that mates with the connector on the rear panel of the counting unit. \_\_\_\_\_
- An optional waterproof, quick disconnect connector shall be available for the connector at the antenna unit. The antenna shall also be available with a strain relief, captive cable version. \_\_\_\_\_
- C6. The antenna unit shall utilize a Gunn effect diode as the microwave source. It shall use a low-noise Schottky barrier diode as the receiver. The filaments of the diodes used in the microwave source and receiver shall be welded and bonded. \_\_\_\_\_
- NOTE: "Cat Whisker" diode types are not acceptable, due to their greater rates of failures. \_\_\_\_\_

C7. Under no circumstance shall the radar antenna unit produce an RF microwave power density level in excess of 5 mW/cm<sup>2</sup>, measured 5 cm from the aperture of the antenna.

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D. REMOTE CONTROL UNIT

D1. The system shall be equipped with a lightweight, hand-held, wired remote control unit that allows the operator to instantaneously control the following functions:

a. Front antenna. A momentary switch that turns the front antenna's RF transmitter on and off in order to avoid detection by radar detecting devices. This switch also allows selection of the front antenna for detecting speeds.

\_\_\_\_\_

b. Rear antenna. A momentary switch that turns the rear antenna's RF transmitter on and off in order to avoid detection by radar detecting devices. This switch also allows selection of the rear antenna for detecting speeds.

\_\_\_\_\_

c. Lock/Release. A dual purpose momentary switch which locks or releases the displayed speed(s) in the radar mode, or starts and stops the counting unit's internal timer during the stopwatch mode of operation.

\_\_\_\_\_

d. Fastest/Slower. A momentary switch used in the stationary or moving/opposite direction mode to tell the counting unit to display the fastest vehicle in the radar beam. In the moving/same direction mode to tell the counting unit the target vehicle is slower than the patrol vehicle's speed.

\_\_\_\_\_

e. Opposite/Same. A momentary switch used to select, in the moving mode, opposite direction traffic or same direction traffic.

\_\_\_\_\_



- f. Front/Rear. A momentary switch used to select either the front antenna or rear antenna. \_\_\_\_\_
- D2. The remote control shall be designed to fit in the palm of the hand. It shall be made of extruded aluminum with rounded corners. It shall have no sharp corners or edges. It shall be 5.7" in length, 2.0" wide and 1.0" deep. \_\_\_\_\_
- D3. The remote control shall connect to the rear panel of the counting unit with a jacketed 3-conductor cable that is impervious to deterioration from oil and sunlight. The cable shall be 6 feet in length. The cable shall be fitted to the remote control unit with a molded strain-relief. At the opposite end, the cable shall be terminated with a miniature 3.5 mm plug. \_\_\_\_\_
- D4. The system shall also have, as an option, a wireless remote control. It shall consist of a hand-held remote control unit as described in numbers 1 and 2 above. It shall be powered by two (2) standard AA batteries, internal to the remote control unit, and transmit data to the counting unit through an IR transmitter located in the remote control. The wireless remote control must be designed such that replacing the batteries does not require any tools and can easily be done in the field. The IR receiver shall be mounted in the front display panel. No modification to the counting unit shall be necessary to accommodate the wireless remote control. \_\_\_\_\_

**E. TUNING FORKS**

- E1. The contractor shall furnish for K-band units, one each 35 mph and 65 mph tuning fork, for K<sub>a</sub>-band units, one each 30 and 55 mph tuning fork, for each unit ordered. Tuning forks shall have factory certification as to accuracy, traceable to the National Institute of Standards and Technology, and shall have individual serial numbers and band of operation stamped on the tuning fork. \_\_\_\_\_

- E2. Each tuning fork shall have a soft protective pouch type cover. \_\_\_\_\_
- E3. Tuning forks shall be accurate within +/- 1 mph of the calibration frequency. \_\_\_\_\_

**F. MOUNTING BRACKETS FOR ANTENNA UNIT**

- F1. The manufacturer shall have antenna unit mounting brackets available for dash, window, and rear deck mounting in the patrol vehicle. The exact type required will be specified on purchase order or bid sheet. \_\_\_\_\_
- F2. The dash mount shall be fabricated from 1/16" (approximate) thickness aluminum or steel. The dash mount shall be designed so as to electrically shield the front of the antenna unit from the top of the dashboard, to minimize interference from noise sources including the heater/A-C fan motor. Aluminum parts shall be anodized or painted flat black. Steel parts shall be electroplated with chrome, nickel or cadmium, etc. The front of the dash mount shall be equipped with at least two suction mounting discs for attachment to the bottom of the windshield. The discs shall be composed of synthetic material that shall not harden or degrade under sunlight or heat conditions. \_\_\_\_\_
- F3. An optional dash mount shall be made available which will have a small bracket that permanently attaches to the lower portion of the windshield. The dash mount shall attach to this bracket, but shall be easily removable. Windshield brackets shall be available for installation in additional police vehicles. \_\_\_\_\_
- F4. The optional window-mounting bracket shall be fabricated from 1/8" (approximate) thickness aluminum or steel. Window bracket friction joints shall be able to withstand total wind speed up to approximately 125 mph. All steel parts shall be electroplated with chrome, nickel or cadmium, etc., to prevent rust or oxidation. It shall be designed so as not to require any weather stripping \_\_\_\_\_

between the window and the top and/or sides of the window frame. An optional dual antenna window mount shall also be available.

\_\_\_\_\_

- F5. The optional combination dash/ antenna-mounting bracket shall be fabricated from 1/8" (approximate) thickness aluminum or steel. This bracket shall sit on the dashboard, directly in front of the operator, wrap around the dash and secure on the underneath side of the dash using the existing dash screws holes from the automobile manufacture. This bracket must be available for both the Ford Crown Victoria and the Chevrolet Impala.

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- F5. The optional rear deck mount shall be fabricated from 1/16" (approximate) thickness aluminum or steel. The base of the mount shall have a dark colored nonreflective finish. Velcro strips shall be provided for attachment to the rear package shelf of the patrol vehicle. Additional bolts and nuts shall be provided for permanent mounting to the rear deck.

\_\_\_\_\_

- F7. An optional rear deck mount shall be fabricated from 1/16" (approximate) thickness aluminum or steel. This bracket shall mount to the driver's side or center rear baby seat security bracket.

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- F6. Mounting brackets shall be designed so that they may be easily removed from the antenna unit and vehicle, so the antenna unit can be used for hand-held operation. Mounting brackets shall be designed so the antenna can be moved and adjusted in both the vertical and horizontal planes without necessity of tools. Mounting brackets shall use a knurled knob for securing the antenna unit.

\_\_\_\_\_

- F7. All mounting brackets shall be free of sharp edges and protruding parts. Mounting brackets shall have smooth, rounded edges, wherever possible, to improve operator safety.

\_\_\_\_\_

**G. AUXILIARY POWER CABLE**

An optional auxiliary shielded power cable with female receptacle must be available from the manufacturer. It shall use ring terminals to connect directly to the vehicle's battery posts and be shielded to limit interference from the vehicle's electrical, radio and ignition systems. The female receptacle shall have an under-dash mounting bracket and shall be compatible with the counting unit's power cable plug. The cable shall have a 2 amp SLO-BLO fuse for protection.

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**H. OPERATING INSTRUCTIONS MANUAL**

H1. The contractor shall furnish a full and complete set of operating instructions, with case law history in the use of traffic radar and trouble shooting guide, with each unit.

\_\_\_\_\_

H2. A small, single sheet, laminated, operating guide shall be provided with each unit.

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H3. The contractor shall make available complete radar operator training. This shall consist of basic Doppler theory, stationary and moving modes of operation, potential interferences, and practical applications (field) work.

\_\_\_\_\_

**I. MANUFACTURER'S QUALITY CONTROL AND TESTING**

I1. All electronic components shall be high reliability commercial grade parts.

\_\_\_\_\_

I2. All assembled printed circuit boards and sub-assemblies shall be thoroughly inspected and completely tested mechanically and electrically before installation into the radar unit.

\_\_\_\_\_

I3. All printed circuit boards shall be glass epoxy, type FR4 or equivalent. Also, all circuit boards shall be solder masked.

\_\_\_\_\_

I4. All components dissipating power in excess of one watt and mounted directly against a circuit board shall have adequate heat sinks for circuit board protection. All electronic

and electrical components shall only be utilized within their manufacturer's operating specifications pertaining to voltage, current and heat dissipation characteristics.

\_\_\_\_\_

15. Each complete radar unit shall be individually bench tested for all functions and test parameters, then submitted to +57° C (+135° F) ambient burn in under power for 24 hours minimum, then retested on the bench. In addition, each radar unit shall be field tested in both the moving and stationary modes of operation.

\_\_\_\_\_

16. Transmitter and tuning fork frequencies shall be certified with test equipment traceable to the National Institute of Standards and Technology as a final test before units are shipped. A factory certificate of accuracy shall be furnished for each tuning fork frequency and for the radar unit's transmitter operating frequency.

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**J. WARRANTY**

The manufacturer shall fully guarantee his traffic radar systems to be free of defects in materials and workmanship for a period of TWO (2) years from the date of delivery to the agency.

Extended maintenance agreements shall be Available to the agency after the 2 year Warranty expires, if needed.

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**K. DELIVERY**

Delivery of all radars has to be received  
By this agency no later than June 30, 2006.

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**L. COMPATIBILITY**

Any modifications necessary to make this  
Equipment operate properly with other provided  
Equipment are to be the responsibility of  
the vendor.

Radar units must be compatible with Eyewitness  
Car Cameras that the agency already has.

\_\_\_\_\_

The equipment offered will be in full commercial  
production. No brand new or prototype models  
will be considered. Proof of current sales  
And delivery of the specified equipment  
Over the past six months will be provided,  
In writing, referencing current customers  
With contacts and phone numbers for verification.

When requested by this department the bidder  
shall furnish a complete sample unit at  
No charge within 10 days of the request.

For those paragraphs checked "no" bidder shall  
Indicate the exact deviation from the specification  
And why the deviation is the equivalent  
Or exceeds the requirement.

**M. SERVICE**

Service should be able to be performed by an  
Authorized service center near the agency -  
Please state service area:

\_\_\_\_\_

Rates are as follows - please give pricing based on 30-35 units:

Quantity	Item	Quoted Price
1 each	Radar System	
1	Extended Maintenance Agreement Cost after 2 year warranty expires - cost for 12 months (1 year) at a time	

Company Name: \_\_\_\_\_  
(Please print all)  
Contact Name: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Email: \_\_\_\_\_

# A F F I D A V I T

**West Virginia Code §5A-3-10a states:**

No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate.

**DEFINITIONS:**

“Debt” means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers’ compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

“Debtor” means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions.

“Political subdivision” means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities.

“Related party” means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

**EXCEPTION:**

The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers’ compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**LICENSING:**

The vendor must be licensed in accordance with any and all state requirements to do business with the state of West Virginia.

**CONFIDENTIALITY:**

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency’s policies, procedures and rules. Vendors should visit [www.state.wv.us/admin/purchase/privacy](http://www.state.wv.us/admin/purchase/privacy) for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and are in compliance with the requirements as stated.

Vendor’s Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_