Bid Event 40100-0000009026

SPECIFICATIONS FOR FREEWAY SERVICE PATROL OPERATOR TRUCKS

ACCEPTABLE BRANDS/MODELS: FORD F450 SUPERCAB, INTERNATIONAL TERRA STAR OR EQUAL

SPECIAL INSTRUCTIONS

All bidders are expected to quote upon a manufacturer's latest standard conventional model truck complete with all standard equipment plus any optional or special equipment required meeting these specifications. Specifications include an extended cab with a service body with canopy and all specified special equipment meeting all requirements of these specifications.

Specifications require complete chassis pre-delivery service. It shall be the responsibility of the successful bidder to perform the pre-delivery service and inspect each unit for specification compliance prior to delivery to the State of Tennessee, Department of Transportation.

It shall be the responsibility of the successful bidder to guarantee delivery within the quoted time and to require manufacturers or suppliers to complete the installation of auxiliary equipment in accordance with the quoted delivery time.

NOTE: Unit(s) shall meet the US EPA emissions standards

MILEAGE, ODOMETER READING

The maximum mileage allowable for any vehicle to be considered acceptable shall be 300 miles including the pilot model. It shall be the responsibility of the successful bidder to make required arrangements to insure that the mileage/odometer reading does not exceed the maximum miles listed when the vehicles are delivered to the using agency for final acceptance.

DEIVERY REQUIREMENTS – 180 DAYS

Delivery does not mean acceptance. As each unit is delivered, each unit will be inspected and must be 100% operational before payment is processed. If unit is

not 100% operational, the successful bidder must take necessary adjustments/repairs before unit will be acceptable. TDOT regional garage superintendent at each delivery location will be responsible for final inspection/approval.

PILOT MODEL INSPECTION

The Department of Transportation requires a pilot model fully assembled, operational and ready for service be made available for inspection and approval purposes prior to production of the remaining units. All functions shall be tested during inspection. Final inspection and acceptance of all other units shall be made at the delivery location. Pilot model shall be included in the mileage/odometer limitation of 300 miles. Contact Bryan Sweeney at 615-741-4803 to schedule the pilot model inspection.

DOCUMENTS

Owner's manual, warranty papers, extra key, invoice and manufacturer's statement of origin are to be furnished with each unit. Manufacturer's statement of origin shall be executed in the name of:

Tennessee Department of Transportation
505 Deaderick Street
Nashville, TN. 37243-0346

Manuals for equipment (arrow boards, siren, etc.) along with wiring diagrams for additional equipment shall be provided upon delivery of the unit(s).

SPECIAL PROVISION

REGARDING

BUY AMERICA REQUIREMENTS

All manufacturing processes for iron and steel products, and coatings applied thereon, used in this project shall occur in the United States except that if the proposal has bid items for furnishing domestic and foreign iron and steel, the bidder will have the option of (1) submitting a bid for furnishing domestic iron and

steel, or (2) submitting a bid for furnishing domestic iron and steel and a bid for furnishing foreign iron and steel. If option (2) is chosen the bid will be tabulated on the basis of (a) the total bid price using the bid price for furnishing domestic iron and steel and (b) the total bid price using the bid price for furnishing foreign iron and steel.

For the total bid based on furnishing foreign iron and steel to be considered for award, the lowest total bid based on furnishing domestic iron and steel must exceed the lowest total bid based on furnishing foreign iron and steel by more than 25 percent. The 25 percent differential applies to the total bid for the entire project, not just the bid price for the steel or iron products.

Iron and steel products are defined as products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed from iron and steel made in the United States. Iron products are included, however, pig iron and processed, pelletized, and reduced iron ore may be purchased outside the United States.

Manufacturing begins with initial melting and continues through the coating stage. Any process which modifies chemical content, physical size or shape, or the final finish is considered a manufacturing process. Coatings include epoxy, galvanizing, painting or any other surface protection that enhances the value and/or durability of a material.

The contractor shall provide a certification to the Engineer with each shipment of iron and steel products to the project site that the manufacturing processes for the iron and steel products occurred in the United States. No steel shall be placed until the contractor ensures the requirements of this Special Provision are met.

The above requirements do not prevent a minimal use of foreign materials, if the cost of such materials used does not exceed 0.1 percent of the total contract cost or $2,500.00, whichever is greater. If steel not meeting the requirements of this Special Provision is used, the contractor shall provide a written statement to the Tennessee Department of Transportation prior to its use indicating where the steel will be incorporated in the work, the value of the steel, the percentage of

the contractor amount, and the appropriate invoices shall be submitted as documentation.

The contractor shall be responsible for all cost associated with any steel that is permanently incorporated into the project that does not meet the requirements of this Special Provision without prior written approval from the Tennessee Department of Transportation, up to and including removal and replacement.

2015 MODEL YEAR

TRUCK, EXTENDED CAB, w/SERVICE BODY, 15000 LB. GVWR, 4X4 w/SPECIALIZED EQUIPMENT

1. All standard equipment as listed by the manufacturer and/or as required for GVWR. GVWR shall govern over all components.
2. Cab Type: Extended Cab
3. Cab to Axle: 60”
4. Wheelbase: 137” to 162”
5. GVWR: 15,000 lb. minimum
6. Electrical System: 12 volt, heavy-duty, maintenance free, dual 750 CCA minimum batteries, dual 125 amp alternators minimum. Auxiliary idle control for maintaining proper battery voltage while operating all emergency lighting and equipment, dash mounted control switch is required. Daytime running lights required. (**NOTE**: If auxiliary idle control can be accessed through the cruise control, no dash mounted switch is required) Elevated idle control shall be pre-set at 1300 RPM.
7. Auxiliary up-fitter switch(s) shall be a minimum of one (1) switch with a 30 amp circuit. Switch(s) shall be instrument panel mounted. Factory installation required.
8. Axles: To meet GVWR. Suspension package, heavy service option package, to include stabilizer bars and dual rear wheels. Axle ratio preferred 4.30 to 1, limited slip differential. A minimum width of 92” is required.
9. Tires: Seven (7) manufacturer’s standard all season steel belted radials. Shall meet the GVWR and be same brand, size and capacity.
10. Wheels: Seven (7) manufacturer’s standard steel disc with stainless steel wheel simulators.
11. Engine: 6.7L, turbo diesel, 300 hp, 660 lb. torque, heavy-duty cooling system capacity. Engine hour meter required.

12. Engine Block Heater: 110V minimum
13. Transmission and Transfer Case: Six (6) speed automatic. Two-speed manual transfer case with locking hubs.
14. Towing Package: Shall include trailer wiring to the rear of chassis for wiring trailer receptacle during body installation. To include a 7/4 pin combination connector and factory integrated trailer brakes.
15. Steering: Power assisted
16. Brakes: Power assisted with four (4) wheel ABS. Pre-wired with integrated trailer brakes and 4 and 7 pin connections.
17. Fuel Tank: 35 gallons minimum (1/4 fuel upon delivery)
18. Cab Interior Features: **A**) Factory installed air conditioning; **B**) Factory installed high back bucket seats (w/driver arm rest, may be dealer installed); **C**) Rubber floor mat; **D**) AM/FM Radio; **E**) Power windows and door locks & cruise control w/tilt wheel; **F**) Auxiliary power point for mobile phones; **G**) Delete factory console (space is needed to mount a communications console between the seats for mounting multiple radios); **H**) Message board controller; **I**) strobe light control, etc. (**NOTE**: Console shall be Havis Shields consolidator model #C-3201 or equal and shall include accessories for mounting radios and controllers). **NOTE**: Fuse blocks will not be placed in the compartment for radios. Any wires that run into the console or siren box shall have enough slack wire to allow for adjustment of the console (forward, back, etc.). The radio console or storage area is for storage and radio mounts only. Up to 5 radios will be mounted in the console**. NO FUSE BLOCKS, RELAYS OR OTHER WIRING HARDWARE SHALL BE PLACED IN THE CONSOLE.**
19. Cab Exterior Features: Mirrors shall be trailer or camper type, power adjustable, heated. Convex mirrors shall be included. Headlights shall be dual beam (jewel effect)
20. Cab Entrance Steps: Front and rear steps to be durable steel construction, factory installed.
21. Cab and Chassis Color: Lime yellow. Paint shall be base coat/clear coat.
22. Manuals: Manufacturer's standard
23. Warranty: Manufacturer's standard

SPECIFICATIONS FOR SERVICE BODY

Specifications for a steel service body with a canopy roof and other special equipment for freeway service patrol vehicle.

BODY SECTION 1 – INTENT

The purpose of this specification is to describe a steel utility body with a full body width canopy roof and other special equipment. To include a complete installation on a truck with a 60” cab to axle.

BODY SECTION 2 – DIMENSIONS

Body Width: 93” minimum (does not include rub rails or fenders)
Floor Width: 50” minimum
Body Height: 40” minimum between back of cab and axle
Interior Clear Height: 60”
Floor to Compartment Height: 24 ¾” minimum
Floor Length: 107” minimum

BODY SECTION 3 – COMPARTMENTS

Compartment Depth: 20”
Front Vertical: (left side) 27 ¾” W x 33 ½” H with three (3) shelves and self dividers , minimum
Front Vertical: (right side) 27 ¾” W x 33 ½” H and shall come equipped with a pull-out shelf, rated at 250 lbs. for mounting a tool box. The pull-out shelf will latch in both the open and closed position. The shelf shall be mounted on ball Bearing slides with ¾” plywood lining.
Horizontal: (left and right) 43 1/3” W x 12” H with adjustable type shelf with dividers.
Rear Vertical: (left side) 20 ¼” W x 29 ½” H open compartment with pull-out shelf rated at 250 lbs.
Rear Vertical: (right side) 20 ¼” W x 29 ½” H with no trays. Swivel hooks required. Minimum four (4) hooks with 100 lb. rating, each Each with lock-in position 90 degrees from the mounting surface or parallel to the mounting surface. All swivel are to be constructed with1/2” rod with a throat opening of 2 ½”.

BODY SECTION 4 – BODY UNDERSTRUCTURE

Body understructure shall be 50,000 lbs. yield strength and 11 gauge high strength steel cross-members or 7 and 12 gauge commercial grade steel channel.

BODY SECTION 5 – FLOOR

The floor shall be 12 gauge tread plate steel and shall connect with side compartment inside panels for rigidity. Three (3) 2,000 lb. cargo tie down rings equally spaced each side, front to rear (6 total).

BODY SECTION 6 – BODY SHELL

The body shall be 14 gauge gavanneal steel. The compartment tops and backs shall be one-piece seamless construction. All doors, door openings, drip rails and other exposed steel edges are to be hemmed for strength, safety and resistance to corrosion.

BODY SECTION 7 – DOORS

Doors are to be 20 gauge, galvanneal steel double panel doors with hat or "Z" section reinforcements. All doors shall have double spring over center door positioned on vertical compartments. There shall be chain holds on horizontal doors.

BODY SECTION 8 – HINGES

Hinges are to be continuous stainless steel or stainless steel hinge brackets with ¼" diameter.

BODY SECTION 9 – DOOR LOCKS

All doors shall have "T" type twist handle, stainless steel locks with 3-point locking system. A master locking system on each side, to secure all compartments at the same time. All door locks keyed alike including the rear doors.

BODY SECTION 10 – DOOR SEALS

All door seals are to be automotive (bulb type) neoprene door seals.

BODY SECTION 11 – WHEEL CHOCKS OPENINGS

The curbside fender skirt shall include two (2) cutouts for wheel chocks. A pair of rubber chocks shall be furnished with each unit.

BODY SECTION 12 – FLOOR MAT

The treadplate shall be covered by a heavy-duty, one-piece, custom fit rubber floor mat.

BODY SECTION 13 – SPARE TIRE RETAINER

If the cab/chassis mfg. mounts the spare tire under the chassis, no spare tire retainer is required. If the mfg. does not mount the spare tire under the chassis, the spare tire retainer shall be mounted in the body load space in the front left corner.

BODY SECTION 14 – REAR WHEEL SPLASHGUARD (MUD FLAPS)

Anti-spray mud flaps shall be required. No dealer or mfg's logo shall be accepted on the mud flaps. The mounting location shall be hung from the underside of the truck body behind the rear wheels. The mounting construction shall be 3/16" x 2" flat iron of appropriate length attached to the body. The flap is to be sandwiched to mounting plate with 3/16" x 2" plate of appropriate length. Size to be approximately 18" H x 19" W x 3/8" thick. Color to be black.

BODY SECTION 15 – BACK-UP ALARM

The back-up alarm audible shall be 97 db. minimum.

BODY SECTION 16 – REAR BUMPER/HITCH

The body shall be equipped with a heavy-duty 12 gauge tread plate

galvanized steel rear bumper. A class 3 receiver tube shall be mounted under or in the bumper and reinforced to the chassis frame. A combination pintle hitch with a 2” ball with a minimum rating of 10,000 lbs. will be mounted on a solid shank, pintle hook mount with a grade 08 bolts and nuts with a locking pin. Safety chain eyelets shall be installed in the bumper and include a 7-way electrical plug. The body fabricator needs to understand in this application, the operators have been known to tow everything from an airplane to a tractor trailer out of the highway and should mount the receiver tube accordingly. A step shall be bolted to the rear bumper right of center. **Top of bumper shall be sprayed with a non-skid material.**

BODY SECTION 17 – INSTALLATION OF THE BODY

The body shall be installed on an extended cab with a 60” CA with dual rear wheels. The installation shall conform to all applicable Federal Motor Vehicle Safety Standards. The rear body to chassis mounting brackets are to incorporate bumper support as well as provide FMVSS 301 protection.

CANOPY SPECIFICATIONS

Dimensions:
Overall length: 107” minimum
Overall Width: Full body width (vertical sides only, tapered sides are not acceptable)
Interior Clear Height: 60”
Rear Clear Door Opening: 47 ½” W x 56” H, minimum
A chromed “grab handle” shall be mounted at the right-hand side, in the body interior, directly inside right hand door opening.

Construction: The canopy shall be 14 gauge galvanneal steel.

Canopy Windows: The canopy shall be fitted with two (2) 5” x 20” windows with tempered safety glass. These windows shall be mounted fore and aft of center on each side of the canopy near the top of the body.

Canopy Shelves: One (1) 20” wide shelf with dividers on each side of of the canopy.

Roof Ventilators: The canopy shall be equipped with two (2) manually operated roof top ventilators mounted in the top of the body. Ventilators shall be of adequate size to allow fresh air flow throughout the body. Ventilators shall be adequately constructed which allows them to remain open while the vehicle is in motion. Ventilators shall be manufactured from metal.

Canopy Interior Lamps: The canopy shall be fitted with three (3) surface mounted, 12 VDC, clear lens, interior/compartment lights. Each light shall have a replaceable 25-watt bayonet-style lamp. Each light shall be 5 7/8” protrusion. The lights shall be mounted equally spaced on center line of canopy. Whelen CL25C or equal. A door closure switch located at the canopy entrance doors shall activate the lights. The mounting of the door closure switch shall be located near the top of the door opening. The closure switch ensures the lights will not be left on. The lights shall be wired to allow operation while back doors are open regardless of engine operation.

Canopy Rear Entrance Doors: Rear entrance doors shall be 20 gauge reinforced double panel with stainless steel continuous hinges or stainless steel hinge brackets with ¼” swivel hooks and over center spring door retainers. Doors shall not have any windows. Rear panel doors shall be fitted with stainless paddle style lock with a key lock. All locks shall be keyed alike.

Canopy Access Doors: The rear of the canopy shall be fitted with a door on each side for easy access to the canopy shelves, for stowing traffic flags and poles. These doors shall be fitted with locking stainless paddle locks keyed the same as other locks.

Galvanneal Coated Panels: All body panels and shelves shall have a galvanneal coat on both sides of the metal to prevent corrosion.

Paint Body and Canopy: Body shall be immersed in electrocathodic or

electrodeposition epoxy prime paint with zinc phosphate pre-coat and seal for additional corrosion protection. Prime paint is to be oven cured to provide a hard durable finish. The body exterior and interior shall be painted with base coat/clear paint to match the cab (lime yellow). Interior includes compartments, interior of canopy and load space.

Installation of Canopy: The canopy installation shall conform to all federal and industry standards. The canopy shall be installed to provide a weather-tight interior. The body shall be tested with a high-pressure water spray to ensure there are no leaks around the canopy to body and other body seams. The installation shall reflect the highest standards of workmanship. Particular attention should be paid to fit and finish.

Warranty Body and Canopy: Twelve (12) months total coverage to include parts and labor. Five (5) years on rust through, hinge pins, door locks and shelving.

SPECIAL EQUIPMENT

FRONT PUSH BUMPER

The truck shall be fitted with a heavy-duty flora winch push bumper with a 12,000 lb.winch mounted out of site behind the bumper. All cables and/or rollers should be mounted recessed in the bumper so no damage will occur when pushing a car. (NOTE: 12” minimum ground clearance as measured from the bottom edge of the bumper) Color shall be gloss black. To include a bolt-on grill guard.

JUMP START SYSTEM

The truck shall be equipped with a pair of 25’ jumper cables and two (2) polarized quick connect/disconnect receptacles. A receptacle shall be flush mounted in a convenient location on the front push bumper/grille guard structure and at the rear of the utility body. The receptacles shall be mounted in such a manner as to provide maximum protection for the plug-in assembly while pushing a broken down vehicle or towing a trailer. The jump start system shall include a polarity indicator light. The light

automatically indicates an incorrect battery hook-up. A set of side post terminal adapters shall be furnished with the system.
Associated #GL-80/12/200 or equal.

AIR COMPRESSOR

The truck shall be equipped with an air compressor for operating air tools or inflating tires while assisting stranded motorists. The compressor shall be a two-stage, v-belt driven with 140-175 PSI operation. The compressor shall be air-cooled one-piece integrally cast cylinder and head, unloading for loadless starting and heavy-duty enclosed filter/silencer. Unit shall be a low profile design, mounted on a steel base, under which is mounted two (2) four (4) gallon surge tanks. Complete unit shall be equipped with electric 12-volt starting system, constant speed head unloaders, automatic engine slow down device, totally enclosed belt guard, safety horizontally to the driver's side in an area where hot gases will not interfere with wiring harness, air hoses, driveline, etc. Operating controls shall be mounted in right side, forward vertical compartment. Compressor controls include start/stop switch, throttle, chock etc. Mount controls on compartments back wall and align chock cable as straight in line with carburetor as possible. Starter cables shall be run from truck batteries to provide voltage for starting gasoline engine. Champion HGR 5-LPH or equal.

HOSE REEL

The body shall be equipped with a self-retracting hose reel assembly with 50' of ½" ID heavy-duty air hose. The reel shall be mounted inside the rear vertical (right side) compartment. The flooring shall be reinforced under the reel to prevent stress cracking. The hose shall be routed out of the body at the rear. Roller guides shall be mounted on the body opening to ensure smooth, easy guiding when the hose is extended or retracted. A bumper head shall be mounted on the hose end to prevent the hose from retracting through the body past the roller. The bumper head shall not interfere with the ratcheting action of the reel. The hose end shall have a quick disconnect, air coupling attached. The regulated air shall also be plumbed to the front of the truck. A junction, mounted on the top of the

push bumper area shall be installed as not to interfere with the pushing of a stalled vehicle. The junction shall be securely mounted, with a quick disconnect air coupling, allowing quick and solid coupling of air tools and hoses. An airline regulator, lubricator and moisture separator shall be installed between the compressor and the front and rear lines. Brass ball valves shall be installed after the airline regulator to control air flow to the front and rear lines. Autocrane Hose Reel Assembly #750822 or equal.

EMERGENCY LIGHTING (TELESCOPING POLE)

The body shall have two (2) emergency flood lamps mounted on the right and left front corners of the utility body. The lamps shall be mounted on telescoping poles. The telescoping inner pole shall measure 67.5” long and the fixed outer pole 24” long. The fixed outer pole shall come with two (2), 2” offset mounting brackets constructed of thermal plastic resin for durability. The outer pole shall be equipped with a quick release lock, constructed of aluminum, which allows the inner pole to be locked into a suitable working height. The poles shall be constructed of anodized aluminum with a bright dipped finish. The telescoping inner pole shall come with a heavy-duty handle on the bottom end, for raising or aiming light. The handle shall incorporate the coiled cable, which is capable of six (6) feet of “stretch” when the light is fully raised. The cable shall be installed through the body with machined aluminum strain relief cord connectors which ensure a solid, durable “weather-tight” connection. The light fixture shall be rated at 70 watts, 12 vdc. Fixture bulb shall be 70 watts, H.I.D. (high intensity discharge). The metal halide bulbs shall be rated at approximately 10,000 service hours, minimum. Fixture shall draw 6 amps each. Fixture shall be painted white (powder coat if available), and come equipped with a handle for light beam aim adjustment. Fixture shall meet ANSI/UL 1571 for outdoor lighting safety. Fixture shall be mounted to telescoping pole with an adjustment, which allows aim of directional light beam. Control switches for each light shall be mounted in center console inside cab. Havis-Shields Magnafire 3000, Kwik-raze 531 side mount series or equal.

ROTATING LED CHANGEABLE MESSAGE BOARD – MINIMUM SPECIFICATIONS

The body shall have a vehicle mounted rotating message board permanently affixed which is legible at a minimum distance of 650 ft. for 10” characters, 950 ft. for 16” characters and 1250 ft. for 20” characters in both day and night conditions. To include the rotating mount.

1. The message sign outer cabinet shall be fabricated of aluminum.
2. The dimensions of the sign outer cabinet shall be approx. 75” x 41” x 5”.
3. The dimensions of the sign display shall be approx. 71.5” x 33.75”.
4. The display side of the message sign shall contain a clear window, which is an UV stabilized polycarbonate material designed to protect against the effects of weather.
5. The polycarbonate window material shall have a scratch resistant surface to reduce degradation of message legibility due to scratches building up on the window.
6. The overall weight of the sign cabinet shall not exceed approx. 112 lbs.
7. The sign enclosure shall be thermostatically controlled and be equipped with a fan and rain-tight vents. Intake and exhaust vents associated with this fan shall restrict water from entering the enclosure when the sign is in either the horizontal (stowed) or vertical (display) position, whether vehicle is stationary or moving.
8. The sign cabinet shall have no louvered vents.
9. The sign shall have an effective weather-sealing gasket between window and cabinet. Gasket shall provide shock resistance, minimizing window vibration, while preventing dust and water entry.
10. The back of the sign shall e powder coated white to reflect light and reduce heating in the cabinet.
11. LED color must be amber, nominally, 592 nm.

12. The sign shall automatically dim upon reduced levels of ambient light.

13. The sign shall have four (4) LED's per pixel.

14. The sign shall have a 24 pixel x 48 pixel display matrix (1,152 total pixels).

15. The removal of one character panel will not adversely affect any other part of the sign.

16. The sign must conform to MUTCD type B arrow board requirements.

17. The sign shall have the ability to display three (3) lines of text with eight (8) characters per line, each character shall have a nominal height of 10".

18. The sign shall have the ability to display two (2) lines of text with six (6) characters per line, each character shall have a nominal height of 16".

19. The sign shall have the ability to display one (1) line of text displaying four (4) characters, with a character height of at least 20".

20. The sign shall be capable of automatically centering the displayed message page horizontally.

21. The sign shall automatically center and default to the largest font size available, when a message is displayed.

22. The sign shall be capable of displaying the following symbols using the full height of the LED display: Four corner caution, left & right flashing arrow, flashing double arrow, left & right sequencing arrow, left & right chevron, and flashing double diamond caution.

23. The sign control board or CPU shall be contained within the sign cabinet. No external box or separate component shall be stored or mounted in the operator compartment of vehicle or other location that is exterior from the sign.

24. All user programmable messages shall be stored on the control board or CPU, not on the input device.

25. The keypad controller shall have the capability to save a backup of all user programmable messages stored on the sign control board.

26. The sign cabinet shall be easily accessible, without the aid of tools, for general maintenance and repair.

KEYPAD HANDHELD CONTROLLER

1. The handheld terminal must be a Keypad Control unit. All programming, message selecting and viewing must be performed on this device.

2. A laptop or PC shall not be required to perform any sign functions including creating new messages, message editing, or message selection.

3. There shall be 40 user programmable messages.

4. Each message shall be able to display up to three (3) pages, or flashes of information.

5. The messages shall be organized into 5 groups of 8 messages. The user must have the ability to make each message group.

6. The user shall navigate through groups using the left/right arrow buttons and through messages within a group using the up/down arrow buttons on the keypad controller.

7. A single button press will instantly display any of the 8 messages programmed within the selected group using the corresponding number on the keypad.

8. There shall be a message library of 92 messages available for editing messages.

9. The message library shall be divided into 3 categories: Paint Striping, Incident Response, and General Maintenance.

10. The sign shall be capable of linking up to 4 messages, displaying up to 12 pages in sequence.

11. Keypad must have a supervisor password protection option for message editing.

12. Keypad Controller must have 5 buttons dedicated and marked for displaying symbols with a single button press. The 5 symbol buttons must be: 4 corner caution, left arrow, right arrow, left chevron and right chevron.

13. Approx. Keypad dimensions: 9” x 5” x 1.5”.

14. Approx. dimensions of display screen: 2” x 3”.

15. The Keypad Controller must have a display screen that previews all three pages of a message prior to being displayed on the sign.

16. The Keypad Controller shall have the capability of uploading and saving user programmable messages, which are stored on the sign control board.

17. The Keypad Controller shall have the capability of downloading saved user programmable messages into other, identical vehicle mounted sign models, for the purposes of standardizing messages in the fleet.

18. The Keypad Controller shall have the capability to connect and operate other vehicle mounted sign models within the fleet, without any additional setup or programming.

LOW PROFILE UPPER MOUNT

(Upper portion of support structure mechanism that holds and rotates the sign from a horizontal to vertical position that can be adapted to various structures attached to a vehicle)

1. A 12 volt linear actuator rated at 500 lbs. dynamic load and 3000 lbs. of static load shall be installed on the support structure that will automatically rotate the message sign from horizontal (stow) to vertical (display) position.

2. The support structure must rotate the message sign from horizontal (stow) to vertical (display) position within 14 seconds, while the vehicle is traveling at 65 mph.

3. The upper mount and sign, in a horizontal (stowed) position, shall be no taller than 13”.

4. The upper mount support structure shall be constructed of tubular and plate steel with a black protective powder coated finish.

5. Drawings are requested showing the layout of the upper mount support structure arrangement (submitted with bid).

6. When in the horizontal (stow) position, the sign must be resting on a bumper or rest to support the sign and minimize vibration. A 90 degree tilt mount that hangs and does not have a support is not acceptable.

7. All cables, harnesses, plugs and connectors required making the installed equipment operational in a vehicle configuration shall be provided.

LOWER MOUNT

(Lower portion support structure that attaches the upper mount to the bed of the truck)

1. Drawings are requested showing the layout of the lower mount support structure arrangement (submitted with bid).

2. Uprights and supports shall be constructed of tubular and plate steel with a black protective powder coated finish.

3. Mounting support structure shall be suitable for use on a vehicle allowing the sign to be visible above the cab at a minimum of 7 ft. from the ground to the bottom of the sign. All necessary hardware needed to attach the mounting support structure to the vehicle shall be provided for installation by the awarded vendor.

4. To maximize utility of vehicle bed space, mount shall be installable directly behind the cab.

LIGHTS AND WIRING

Positioning of rear lights starting at the top shall be:

A) Each side one (1) single polished aluminum housing with clear opti-scene light.
B) Each side one (1) quad polished aluminum housing with amber LED warning light-heads, red LED stop-tail light-heads, amber LED turn arrow light-heads and clear back-up light-heads.
C) Rear lighting shall have two (2) polished cast aluminum housings for scene lights on rear of vehicle. Scene lights shall be clear opti-scene lights. Whelen 600 series, model 60K000YR or equal.
D) Two (2) quad polished cast aluminum housings for two (2) 6” x 4” amber LED warning light-heads, two (2) red stop-tail light-heads, two (2) amber LED turn light-heads and two (2) clear back-up light-heads.
E) Switch for amber LED warning lights shall also control two (2) red LED lights mounted on top horizontal surface of front push bumper. Amber LED warning lights shall be Whelen 600 series, model 60A00FAR or equal. Front red LED lights shall be Whelen 500 series, model 50R00FRR or equal.
F) Stop-tail lights with signal-alert shall be Whelen 600 series, model 60R00XRR or equal.
G) Amber LED turn arrow indicator lights shall be When 600 series, model 60R00TAR or equal.
H) Clear back-up lights shall be Whelen 600 series, model 60J000ER or equal.

COMPARTMENT LIGHTING

All compartments shall be equipped with interior lamps. The lamps shall be protected with guards to prevent damage from loading or off-loading supplies. The lamps shall be powered with toggle switches and door closure switches. The closure switch ensures the lamps are not left on and the toggle switch allows the lamp to be turned off in the event the door is

left open for extended periods of time. The closure switch for the rear doors shall be mounted near the top to provide protection for the closure switch while loading and off-loading equipment. The lights shall be wired to allow operation while the truck engine is on/off.

WIRING AND CONNECTORS

Color-coded wiring harness encased in plastic loom and secured to the body. Loom retained by mechanical fastening system. All wire connectors shall be 3M special terminals (heat shrink terminals and connectors). Example: heat shrink brazed seam ring tongue terminals, heat shrink brazed seam locking fork terminals, heat shrink nylon fully insulated female disconnects, heat shrink nylon fully insulated butted seam male disconnects, heat shrink seamless butt connectors. All in-line taps and any end connectors shall be waterproof. **Note:** All wires and connectors/harnesses are to be routed in such a manner as to not interfere or impede access to other components within the engine compartment (batteries, air cleaner, etc.). All color-coded wiring is to be consistent from one truck to another. Wiring will not tie into factory fuse block and fuses. Fuse blocks will not be placed in the compartment for radios. Any wires that run into the console, siren box will have enough slack wire to allow for adjustment of the console (forward, back, etc.) **All wiring to have quick connect connections to disconnect the bed from the truck. All connectors to be waterproof.**

LIGHT BAR (LED)

The body shall have a flush mount, super LED light bar permanently affixed to the frontal area, approximately 3” below the roof line. The light bar shall be flush mount design with the following maximum dimensions: 4 13/16” H x 84” L. LED light bar shall have field replaceable “quick-disconnect” LED. By design, shall have its own, self-contained, power supplies. Light bar housing and frame shall be constructed of extruded aluminum. Light bar shall mount to chassis with four (4) bolts. The bolts shall be mounted to the light bar in such a fashion to allow 60” of horizontal travel along the back of the bar. This feature ensures easy placement of mounting bolts and no modification to body prior to

installation. Light bar shall have eight (8) working LED. Four (4) on each side with one (1) pair (2 each) of halogen work lights located in the center of bar. The light bar functions shall be arranged as follows:

1) The outer position (left & right side) shall be linear red LED with red lens.
2) The next position (left & right side) shall be linear white LED with clear lens.
3) The inner position (left & right side) shall be linear red LED with red lens.
4) Center of bar shall have two (2) halogen work lights.

All lens shall be polycarbonate, high impact material. Light bar shall be capable of: “comet flash”. This pattern incorporates a LED flash into four (4) pulses of light. These pulses are less than 85 milli-seconds apart. The power supply shall have a minimum five (5) year warranty and one (1) year minimum on LED. Whelen 4500 series LED or equal.

REAR AND SIDE WARNING LIGHTS

The rear of the body shall have two (2) red LED light-head assemblies mounted approximately 2” below the roof line in the area between the door and the corner of the body. Approximate dimensions: 7 1/8” H x 9 1/8” W. Directly below the two (2) red LED light-head assemblies shall be mounted two (2) amber LED light-head assemblies on each side of rear. The body shall have mounted on the right and left sides one (1) amber LED light-head assembly per side. The light-head assembly shall be mounted approximately 2” below the roof line, in the canopy section of the body side windows. All six (6) light-head assemblies shall include a chrome flange. Warranty on light-heads shall be five (5) years. Whelen 900 series, model 90A00FAR or equal.

HEADLIGHT FLASHING SYSTEM

The truck shall have a headlight flashing system installed. The flashing system shall be solid state relay driven, alternating flash design. System shall be capable of high beam override, allowing system interruption.

System control housing shall be constructed of molded polycarbonate and all electronics encapsulated by epoxy. Housing shall be compact in design and have external flanges for mounting. System shall have low current switching and be supplied with color-coded harness, installation and wiring instructions. Dimensions: 3” H x 4 ¼” W x 1 ½” D, weight 10 oz. Whelen model UHF2150A or equal.

PA SYSTEM

The truck shall be equipped with a PA system. The PA system shall use a high efficiency, 200 watt RMS loudspeaker. The loudspeaker shall have a round aluminum horn and be compact in design. The PA amplifier shall be remote head design. The amplifier shall be capable of 200 watt output. The amplifier shall have air horn (hi-low tone), public address, two-way radio re-broadcast wail, yelp and piercer. Control head and amplifier shall be pre-wired with mated, quick-disconnect plugs for easy installation. The control switch shall be programmed as follows: **1st** position is off; **2nd** position yellow on in back; **3rd** position red lights on in back; **4th** position all warning lights yellow, red, light bar, etc. (**NOTE**: Control mounted on a double swivel mount on top of the console for the operator to better see the buttons. Ram mount or equal) The PA system shall over-ride all other functions when the microphone is activated. Control head dimensions: 2” H x 4 ½” W x 2 ½” D. Remote amplifier dimensions: 2 3/8” H x 6” W x 5 ½” L. The remote amplifier shall be mounted in an area to avoid being struck by tools, etc. and the control head mounted in the console area. System shall have a two (2) year warranty. Whelen BETA 1 PA control head and remote amp (BETA 112R or equal). Siren speakers will be mounted on the top center of the front bumper behind the push guard (speakers mounted under hood have gotten too hot. No sirens should be mounted under the hood according to NFPA). Speaker model Federal BP-200 or equal.

POWER CONTROL

The front strobe light bar and rear/side LED head assemblies shall be operated by a nine (9) switch power control. The first three (3) positions are controlled by a slide switch. The slide switch shall operate left to right and have LED lamps to indicate power to light bar. The other six (6)

switches shall be push button by design. The power control shall have back lighted windows above the push button switches which allow clear legends to identify switch function. The power supply shall be rated to accommodate the light bar and strobe head assemblies. The power control shall have built-in 30 amp relays to operate each function. The power control shall be low profile in design and constructed of extruded aluminum for heat dissipation. The power control shall be mounted and wired into the truck console. Dimensions: 2" H x 6 1/6" W x 7 ¼" D – Approx. weight – 1 lb. 12 oz. The power control functions shall be wired as follows:

Slide switch 1st position – rear LED warning (comet flash)
Slide switch 2nd position – side and rear LED warning (comet flash)
Slide switch 3rd position – all LED warning & front light bar (comet flash)

Push button 1st position – LED (2) amber rear above stop-tail lights & LED (2) red front bumper mounted.
Push button 2nd position – alternating headlight switch
Push button 3rd position – rear compartment lights
Push button 4th position – steady burn, front work lights
Push button 5th position – rear scene lights
Push button 6th position – emergency flood lights

All wiring to and from strobes, etc. shall be connected with mated pin plugs. This allows quick-disconnect without cutting any harnesses. Wiring shall be tied up with nylon harness clamps. No loose wiring. All wiring run through panels shall use rubber, wiring grommets. The power feed back to the body from the truck battery shall be 10 gauge wire, in-line, on the power feed, there shall be a butterfly circuit breaker mounted under the truck hood. The circuit breaker shall be rated up to 30 VDC, and 60 amp rating. The breaker shall be waterproof single pole, and capable of manual reset. The reset feature shall have a visible indicator to warn of a tripped condition. The 10 gauge wire shall be run to a bus bar for power distribution to light bar, power supply, etc. Whelen model PCCS9R1 power control or equal.

DOME LIGHT, CAB INTERIOR

A 5” dome light shall be surface mounted on cab interior roof above the steering wheel to aid operator in low light conditions while preparing incident reports. Light shall be controlled with a push button or toggle switch mounted on light. Whelen CL25C or equal.

CAB MOUNTED LED SPOTLIGHT

Cab shall have a left post-mounted LED spotlight. Spotlight shall have a fingertip switch, provide 360 degree continuous horizontal rotation and up to 120 degrees vertical adjustment, six (6) inch round halogen sealed beam lamp and provide 270,000 candlepower of light. Left hand application. Utility model #330 or equal.

AUXILIARY WORK LIGHT

The body shall have mounted on the right rear, approximately 4” above the bumper, a round, 4-way female, wire connector. The connector shall be wired on two (2) pins directly off jump-start system. The front brush guard shall have an additional connector mounted on an aluminum plate and wired directly to the front jump-start system. The connectors shall be weatherproof and lock together. The connectors shall power a hand held, spot/flood, high intensity light. The light shall be rated at 12 VDC, 7.3 amps. Light shall supply 200,000 candle power on spot and 100,000 candle power on flood. Light shall be constructed of hi-impact, resistant plastic and come with 8 ft. of coiled cord. The coiled cable shall have a round, 4-way male, wire connector attached. This insures proper mating to body connectors. Grainger #4V225, Brinkman model 800-1303-0 or equal.

REAR VIEW CAMERA

A rear view camera system shall be installed for the safety of the operator and personnel. A camera shall be mounted on the rear of the service canopy with an LED flat screen monitor mounted inside the truck cab close to the rear view mirror. The camera shall be mounted in the center and as high as possible on the rear vertical wall of the canopy. The camera

system shall include LED monitor, camera with built-in IR Led night vision function, built-in microphone (one way audio) and all cable and mounting hardware. The vehicle's 12 volt electrical system shall provide power for the camera system. System shall be operational upon delivery.

ADDITIONAL SAFETY REQUIREMENTS

Add reflectorized chevron to the back of the trucks (according to the NFPA code 1901 for fire trucks and emergency vehicles). Each stripe in the chevron shall be a single color alternating between black and yellow/green. Each stripe shall be 6" in width. Striping shall be diamond grade material or high intensity, reflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. **NOTE**: Since rear doors shall not have any windows, stripes may be installed on doors only.

SPECIAL INSTRUCTIONS

The successful bidder shall be required to compile all manuals, operation guides, warranty information, etc. on the special equipment in ring binders. The binders shall be compiled according to serial numbers of equipment mounted in each truck. The successful bidder shall provide training lights, PA system, message board operation, air compressor, and jump start system. Training shall be a minimum one day class of operation, maintenance and trouble shooting for each component at each FOB destination.

PARTS AND SERVICE

Manufacturer's franchised authorized dealer must have parts and service facility within four (4) hours of FOB delivery location to be considered for an award. This must be a full service franchised dealership which includes:

1) Sales Management
2) Field Representatives
3) Manufacturer's required specialized tools
4) Fully equipped service trucks

5) Factory trained technicians