STATE OF GEORGIA

(Department of Administrative Services, State Purchasing Division)

2022 TECHNICAL AND PERFORMANCE

SPECIFICATIONS

FOR

Category 6: Chrysler Original Equipment Manufacturers (OEM) American with Disabilities Act (ADA) Minivan

NOTICE: This specification is NOT intended to restrict competition. Manufacturers/Dealer may bid their bus(es) in accordance with their standard manufacturing process. In the case where that process varies for this specification, Deviations must be submitted on the provided Request for Specification Deviation Document Form and Specification Deviation Certification and Compliance Form. Any deviation documented shall be "brand name, equivalent, or equal in performance" and must meet or exceed all FTA requirements (for FTA-compliant vehicles), and all Federal, State, and Local requirements. The state may, at any time during the evaluation and/or contract period, require the bidders to provide proof that the deviation meets the "brand name, equivalent or equal" in performance.

ADA Lowered-Floor Minivan Side-Entry Fold-Out Ramp (Chrysler Voyager/Pacifica LX –)

1.0. Capacity: This minivan shall be capable of carrying four (4) ambulatory adult forward-facing seated passengers or two (2) passengers seated in mobility aids, in addition to the driver. This minivan shall be made ADA-compliant through a modification whereby the vehicle floor area is lowered approximately 13" from the engine toe-pan to the rear axle to meet the minimum ADA door opening height requirement (56"). There shall be no modification to any portion of the vehicle roof in meeting the ADA door opening height requirement. A 30" usable clear-width manual, 80-degree (nominal) swing-away, fold-up mobility aid ramp is to be mounted vertically and inboard of the curbside passenger sliding door.

2.0. Chassis: Current Model year Chrysler Voyager/Pacifica LX chassis.

- **Engine: 3.6 L, V-6, 24V VVT gasoline ESS (engine start/stop) engine, with push-button start.**
- **Catalytic Convertor Theft Protection System**
- **Stereo shall be OEM AM/FM stereo with integrated voice command with Bluetooth and 6 factory installed speakers, Parkview rear back-up camera, Apple Car Play, Google Android Auto, U-Connect 4 with 7" display, and integrated voice command with Bluetooth,**
- **Power front windows with 1-touch up and down, 2nd Row Power Windows.**
- **Transmission: 9-speed automatic, electronically controlled with overdrive**
- **Radiator and Cooling system shall be OEM standard, with coolant recovery system; 50-50 mixture of factory-specified antifreeze and water.**
- **The vehicle shall be equipped with 4-wheel disc brakes and a factory Anti-Lock Brake System. Parking Brake: The vehicle shall be equipped with the factory OEM electric park brake and dash warning light.**
- **The vehicle shall be provided with an OEM tilt steering wheel, speed control, and OEM power steering.**
- **Wheelbase: The minivan shall have a 121" minimum wheelbase.**
- **GVWR: The chassis shall offer a minimum GVWR of 6055#. The vehicle as converted shall not exceed the OEM chassis GVWR when fully loaded.**
- **Additional Key and Fob for a total of 3**
- **Rear Mud Flaps**

3.0. Line Protection: All metal, plastic, and rubber fluid lines beneath the vehicle that are altered or exposed as a result of floor modification shall be secure and reasonably protected from road damage. Any fuel and brake line modification/alteration must be of OEM equivalent material or workmanship. Straightening and re-bending OEM brake or fuel lines is strictly prohibited.

4.0. Fuel Tank: The fuel tank shall be OEM with an OEM capacity of (19) gallons minimum with cap-less fuel fill (without discriminator). Tank, fuel lines, and hardware must meet all current FMVSS, including FMVSS 301, as well as all current CARB and EPA requirements and must be OEM equivalent in connection types, etc. The use of worm clamps is limited to that of the OEM. The tank shall be calibrated with the OEM dash fuel gauge.

5.0. Suspension:

5.1. Spacers will be added to the front and rear OEM suspension to maintain ground clearance and ADA requirements. There must be a minimum of five (5) inches of clearance between the break-over angle position of the vehicle exhaust pipe and the level ground when loaded to capacity. Vertical damping of the suspension shall be accomplished by OEM shock absorbers that shall maintain their effectiveness for at least the standard OEM warranty period without repairs in normal service.

5.2. Suspension system components shall be matched and tuned to provide maximum load capacity, ride quality, stability, and desirable steering and handling characteristics. The vehicle shall be tested to FMVSS 126 Electronic Stability Control Test.

6.0. Wheels: The minivan shall be equipped with four (4) 17" Stamped Steel wheels with wheel covers, and a full-size spare tire will be mounted in the interior rear of the vehicle. Tires shall be 235/65R BSW All Season steel belted radials, as provided by the OEM for the chassis specified. Tire changing equipment, as provided by the OEM, shall include a jack of sufficient strength/capacity, and other tools necessary for changing the mounted tires shall be stored in a compartment/container within the vehicle.

7.0. Electrical: Each vehicle shall have a 12-volt electrical charging system as supplied from the OEM. All electrical wiring shall be automotive stranded copper with printed circuit identifiers and be of sufficient gauge to handle the load. All harnesses that are modified or added to the vehicle will be secured to the frame/body at a maximum of two feet intervals with insulated clamps, or adhesive tape, etc. All exposed terminals and wiring shall be protected from the elements using sealed terminals or heat shrink where

necessary. Exposed wires will be wrapped or loomed in corrosion/moisture-resistant material.

7.1. Batteries: The vehicle shall be equipped with the OEM 12-volt dual battery system. Battery cables and connectors shall be OEM (battery 1: 650 cca, battery 2 (start/stop battery): 200 cca).

7.2. Alternator: Alternator shall be factory installed, heaviest duty available (180 amp minimum).

8.0. Front and Rear Heating and Air Conditioning: An OEM heating/defrosting and air conditioning system with vents front and rear shall be provided. All lines and hoses shall be sufficiently fastened, protected, and insulated to ensure against wear from friction and the elements. The lines must be mechanically attached, with OEM or equivalent clamps, to the vehicle structure and must be routed so as not to be exposed to wheel-spray. Cold feed lines shall not pass within 2 inches of any part of the exhaust system. Conversion shall not impede access to the front and rear air conditioning components.

9.0. Interior Lighting: LED lower lighting shall be added at the center row location of the vehicle that provides not less than two foot candles of illumination at the entrance area. This system shall illuminate automatically when the vehicle's front or sliding doors are open. All accessory vehicle lighting shall conform to ADA 49 CFR, Part 38, Subpart B.

10.0. Body Specifications: Conversion of a minivan by modifying the existing sidewalls and floor shall require construction that maintains OEM structural equivalent. All metal welded components shall be constructed by qualified operators and made corrosion-resistant through a commercial primer application or through the use of stainless steel or aluminum material.

10.1. Interior Height: Conversion shall provide a minimum clearance of 60" at the vehicle center of the interior roof.

10.2. Body Length: The chassis shall not exceed 203.8" in length.

10.3. Paint: The basic vehicle factory color shall be OEM standard bright white, with other available OEM factory colors optional upon request.

11.0. Sealant, Rustproofing, and Undercoating: All exposed floor seams shall be sealed with an industrial-grade butyl sealant or equivalent which conforms to ASTM C920. The entire surface of the exterior lowered floor

shall have a rust-inhibiting coating, such as an epoxy primer base, applied to cover all welded areas, and then a fresh application of undercoating over the entire surface. Undercoating shall comply with current Federal and State flammability standards.

12.0. Passenger Doors: The minivan shall have standard OEM driver and passenger front doors; one power left side and one power right OEM side door extended to floor level and one OEM power rear hatch. The power left and right-side sliding doors shall be OEM and extended to floor level to provide a minimum entry height of 56". The driver-side sliding door shall be equipped with a system that prevents the opening of the door when the fuel door is open. The passenger side sliding mobility aid accessible entry door shall be interlocked to the vehicle transmission and offer a minimum opening height of 56", a minimum opening width of 31" (excluding grab handle), and a maximum of 12.5" floor-to-ground height. Door extensions shall be constructed of aluminum to minimize weight while preserving strength and integrity. Both sliding doors shall have a mechanism to securely hold doors in the open position when the vehicle is on a hill.

12.1. Passenger Door Tracks: Sliding doors must have reinforced glides with an added stop brace to prevent doors from sliding off the track. Door tracks shall be reinforced or strengthened beyond OEM standards as needed in all areas of contact with sliding door arms.

12.2. Sliding Passenger Door Arms/Brackets: Reinforcement of the sliding door components shall at a minimum be adequate to support the increased weight created by the door extensions. Under normal closure conditions, there should be no evidence of the door track flexing or wobbling.

12.3. Door Locks: Power with child-protection door locks for rear doors.

12.4. Rear Door Emergency Exit: The rear cargo door shall be provided with a quick-release, manual override for opening the door from inside the vehicle. Capable of opening the door even if the door is locked. The vehicle's override device shall be spring-loaded and mounted on the inside of the rear door to prevent accidental release. A decal shall be provided showing operating instructions.

13.0. Interior Panels: The basic interior color shall be OEM, with (upper) and black (lower) ABS form-fitted plastic panels. Panel fastening devices shall match the color of the panels. Interior panels shall meet FMVSS 302. The

interior shall provide a pleasant atmosphere, be aesthetically pleasing, and contain smooth finishes without any unprotected sharp edges.

14.0. Ground Effects: Flares shall be constructed of black-formed TPO (Thermoplastic Olefin) plastic which is durable, impact-resistant, and widely used in the automotive industry. In addition, TPO provides the optimum balance of stiffness, cold temperature impact, and low thermal expansion. A molded step shall be incorporated into the driver and passenger front flares to aid entry and egress via the front doors. Beneath the flare's molded step surface shall be a steel support structure capable of supporting 400 lbs. with less than 1/8" deflection, which fastens directly to the vehicle's body structure. The flare's molded step surface shall have a minimum clear horizontal width of 4.5", a minimum length of 26", and utilize an anti-skid material which defines the step surface.

15.0. Flooring:

15.1. Sub Floor: The interior floor shall be thermoplastic panels, consisting of a polypropylene honeycomb core with chopped glass reinforced facing on both sides – providing a durable water-resistant base with a superior strength-to-weight ratio. The panels provide a smooth surface for flooring attachment and minimize interior noise.

15.2. Floor Covering Material: 2.2 mm thick commercial grade vinyl transit floor covering shall cover the entire floor surface. Flooring should also possess anti-skid properties (Gerflor Tarabus Sirius or equivalent).

15.3. Floor Assembly: The lowered floor skin shall be constructed of 20 ga. Aluminized steel. The frame rails shall be made of 14 ga. Aluminized Steel formed channels; the floor shall be reinforced with 16 ga. Aluminized Steel formed channel cross-members. The floor shall be lowered from the front toe-pan to the rear axle. The width of the floor shall extend from side doorsill to side doorsill. Mobility aid restraint tracks and seat locks shall be beveled, with no sharp edges, and will protrude no more than ¼" above the floor surface.

16.0. Seats and Grab Handles: All seats and restraints in the vehicle as specified must comply with current FMVSS standards.

16.1. Front Seats: The driver seat will be OEM and mounted to the vehicle floor. The OEM front passenger seat shall be equipped to easily lock/unlock from the floor and permit easy roll out for mobility aid access/securement.

16.2. Rear Seat: The third row 3-passenger bench seat shall be the Freeman Rear Bench seat remounted to be capable of accommodating 3 adult passengers, and is to be covered with vinyl upholstery to match the driver and front passenger seats. A manually operated folding one-piece lighted footrest will be installed for increased comfort of rear bench seat passengers.

16.3. Passenger Restraint: Restraints shall be furnished for all passengers, consisting of shoulder seatbelts and/or lap belts. Each belt shall be equipped with an automatic retractor. Securement devices, both for ambulatory and mobility aid passengers, shall meet all State and Federal Standards.

16.4. Grab Handles: Grab handles shall be installed, OEM are acceptable.

17.0. Mobility Aid/Occupant Restraint Systems: Each vehicle shall be equipped with three (3) Q-Straint QRT 360 series or equivalent (compatible with WC 19 wheelchairs) forward-facing mobility aid securement and occupant restraint system. The system shall utilize a flanged "L" continuous track, capable of securing a variety of common mobility aid designs and accommodating a wide range of occupant sizes. All attachment hardware and anchorages shall meet or exceed the 30 mph/20 g Impact Test criteria per SAE J2249, 36 CFR Part 1192 and CFR Part 38, and all applicable Federal Motor Vehicle Safety Standards, as amended. Each securement position system shall consist of four (4) automatic retractable securement strap assemblies that attach to the structural frame of the mobility aid at four separate points and anchor into the track on the vehicle floor at four separate points. Each securement system shall have a corresponding occupant restraint system. The occupant restraint system shall consist of an adjustable lap and a shoulder belt and shall meet all applicable Federal Motor Vehicle Safety Standards.

18.0. Mobility Aid Ramp: The vehicle shall be equipped with a manually operated, 80-degree (nominal) swing-away mobility access ramp which stows vertically and folds and unfolds through the passenger side slide door. The ramp swings out to provide unobstructed ambulatory passenger entry/exit. The installed ramp shall not obstruct the view of the driver through any vehicle window. When clock-spring assisted ramp is deployed,

it shall provide a minimum usable width of 30" and a slope meeting the requirements of ADA, 49 CFR. The ramp surface shall be continuous and made skid-resistant through powder coating. It shall have no protrusions from the surface greater than ¼" and shall accommodate both four-wheel and three-wheel mobility aids. The ramp shall have a rated capacity of 1,000 lbs., with a safety factor of at least three (3) based on the ultimate strength of the material. Each side of the ramp shall have protective barriers at least two (2) inches high to prevent mobility aids from rolling off the ramp edge.

19.0 Control Interlock: The ramp door shall be interlocked with the vehicle transmission to ensure the vehicle cannot be shifted out of the park while the right-side slide door is ajar.

20.0. Safety Equipment: The Following must be provided and secured in the vehicle

- **Ramp Tape installed at the end of the wheelchair ramp for visually impaired**
- **Biohazard Clean-up Kit**
- **10 Unit First Aid Kit**
- **Tri-Angle Flare Kit**
- **5# Fire Extinguisher**
- **Seat Belt Cutter**
- **Wheelchair Decals (x2)**
- **ADA Seating Notice Decal**
- **Q'Loops (x4)- ship**

21.0. Exhaust: The exhaust system shall be stainless steel.

22.0. Altoona Bus Testing Report: The converted minivan must have been submitted to the Altoona Bus Test Center for a 4 yr./100,000 mile Surface Transportation and Uniform Relocation Assistance Act (STURAA) test. Testing must have been completed on the current body style being converted. A copy of the test report shall be made available to the State upon request.

23.0 OPTIONS
Please ensure you have included the options below in your Additional Options for each bus bid. Provide the following Options:

23.1 CAMERA SYSTEM-OPTION 1

6 cameras with DVR- Recording while vehicle is in service to include the panic button and specific SD card

Camera locations-
Front – rear
Rear-front
Viewing the driver
Viewing the interior of the wheelchair lift
Viewing out the windshield
Exterior Curbside viewing down the bus towards the wheelchair lift

23.1.1 CAMERA SYSTEM OPTION 2

OPTION 1 and **add the WIFI antenna for live camera views while bus is in service**

23.1.2. CAMERA SYSTEM OPTION 3

OPTION 1 & 2 and **add Automatic Vehicle Locator system with specific needs of Live Tracking in Real Time**

23.1.3.4 CAMERA SYSTEM OPTION 4

OPTION 1, 2 & 3 and **add Passenger WIFI**

NOTE: If there are any charges from cellular companies the subrecipients will be responsible for setting up their accounts.

************END OF CAMERA SYSTEMS OPTIONS**

23.2 MOBILE DVR SYSTEM OPTION

- 8 Channel HD/IP Mobile DVR Specifications for Mass Transit Applications
- The eight (8) channel mass transit surveillance system requested must meet the following minimum requirements:
- The vendor is permitted to propose multiple systems within their response.
- The vendor is to include pricing for the AngelTrax Vulcan Series eight (8) channel HD/IP mobile digital video recording system.

23.2.1 GENERAL REQUIREMENTS

The MDVR must be constructed in a modular configuration with the modules for the hard drive and main control board which are fully removable on slide rails such that repair and replacement may be completed without removing the MDVR from the vehicle. Onboard system components shall be modular, and entire MDVR replacement shall not be required.

23.2.2 SYSTEM REQUIREMENTS

- The system must be capable of recording eight (8) channels of audio and video in 1080P simultaneously, at up to 20FPS, including up to six (6) HD cameras capable of 1080P video and audio and up to two (2) IP cameras capable of up to 1080P.
- The MDVR must be capable of the following recording resolutions:
  - DIGITAL: 1080P (1920x1080), 720P (1280x720)
  - NTSC: 1080P, 720P, WD1 (928x480), WHD1 (928x240), WCIF (464x240), D1 (704x480), HD1 (704x240), CIF (352x240)
- The system must be capable of optimizing high quality video and recording time by selecting frame rates, recording quality and resolution for each camera independently.
- The system must have a 4 to 7 second brownout protection during a loss of power to protect media. Duration will be determined by power consumption at time of power loss.
- The front of the MDVR must have status indicator lights to include PWR, USB, ALM, REC, ERR, and NET. An optional light indicator box must be available for easy viewing by the driver.
- The system must also continue to record while being viewed remotely or wirelessly downloading video by multiple users.
- The MDVR system must operate utilizing an embedded Linux platform for stability and reliability.

23.2.3 MDVR FEATURES

- The MDVR must have a mounted extension cable for connection to an optional touchscreen monitor used for setup and troubleshooting without removing the front door panel.
- The MDVR must have a “plug and play” connection on the rear panel for an onboard live monitor.
- The MDVR “panic button” located near the driver’s seat must have hard drive location “marking” capabilities and serve as a live recording indicator.
- The MDVR must have one alarm input, one output and eight (8) sensor inputs for marking events defined by the customer.
- The 3.5-inch SATA hard drive shall have a minimum storage capacity of 1TB of high quality video.
- The MDVR must have the capability of storing data on one M.2 SATA

SSD, as an alternative to the 3.5-inch SATA hard drive.

- Once the hard drive is full, the system will overwrite the oldest data first.
- The hard drive must be easily accessible from the front panel.
- The hard drive housing must include a heater.
- The MDVR must have one (1) microSD card slot for redundant recording, as desired by the user. The microSD recorder must have separate settings to allow for increased recording time when in redundant mode.
- The MDVR must have a slot to accept one (1) SIM card for dual cellular network capabilities. This feature must be included within the MDVR housing.
- The MDVR must have a USB port on the front of the unit for removable storage to allow for downloading video or images directly from the MDVR or upgrading the firmware of the device, the CP4 monitor, IPC or GPS. The USB port must also accommodate a mouse or the Vulcan™ Series Easy Check device management software and Wi-Fi module.
- All recording on the MDVR must utilize H.264/H.265 compression.
- The MDVR must have the capability to connect to an Ethernet port at 10/100M/1000M, for connecting the MDVR to a wired Ethernet connection. This unit has 2 RJ45 connections for IP cameras.
- The MDVR must power up based on a 9-36V ignition trigger under continuous record, alarm record, motion record and schedule recording options. In addition, the MDVR must be able to be programmed to stay powered on and recording for up to 24 hours after the vehicle is off.
- The MDVR must be capable of onboard viewing, downloading video and setting up the MDVR via a laptop or touchscreen monitor directly connected to the MDVR.
- The HD cameras must connect directly to the rear of the MDVR with 4 pin aviation grade connectors.
- The MDVR must have the ability to adjust the brightness, contrast, color and saturation individually on each camera and must also be able to electronically mirror or flip the camera displays.
- The MDVR must have the ability to store alarm events without the events being overwritten.
- The MDVR must have an integrated 3-axis accelerometer and must be capable of tagging the video and/or sending alerts if the vehicle

exceeds a pre-determined G-Force threshold. An additional connection must be available for an external accelerometer for use in driver behavior reporting.

- The MDVR must have the ability to provide the following, available for immediate download:
    - A programmed channel snapshot, taken when the panic button is pressed or when an alarm or event is triggered, and
    - Video clips, recorded in pre-defined lengths, of the camera view before and after the snapshot is taken.
- The MDVR must have the ability to detect video loss, motion or a camera being covered and be able to trigger an alarm or event independently.
- The MDVR must have the ability to upgrade the device firmware, CP4, IPC or GPS, either directly from a USB drive plugged into the MDVR or remotely using an active Internet connection.
- The MDVR will be capable of recording optional Virtual Synchronized Mapping™ as a permanently embedded video record simultaneously recorded with the video, providing a court-ready GPS map for evidence without the use of an Internet connection or the Google Maps™ mapping service.

23.2.4 MDVR WIRELESS CONNECTIVITY

- The MDVR must have two GPS connections on the rear panel: one for an optional active GPS antenna and one for an optional passive GPS antenna.
- The MDVR must include a port for an optional Wi-Fi or cellular antenna on the rear panel.
- The MDVR must have the ability to connect to one (1) internal cellular modem without requiring any external hardware other than antennas. The cellular connection must be able to be set to 3G/4G or a mix of the networks; must have a place to enter an APN number, user name and password; and must work with both CHAP and PAP certifications.
- The MDVR must be able to connect to a Pro 8™ Central Management System (CMS) server for live tracking, remote view, MDVR health, remote playback and remote video download.
- The MDVR must be able to switch from cellular download to Wi-Fi download when in range of the Wi-Fi network or be able to be

programmed for video download using Wi-Fi only.

23.2.5 MECHANICAL REQUIREMENTS

- The MDVR casing must be of extruded aluminum and built for MIL-STD-810F shock resistance and must operate between -40 degrees and 158 degrees Fahrenheit without additional enclosures.
- The MDVR must have user-selectable settings to shut down operations autonomously when temperature or voltage limits are exceeded. Temperature and voltage limits may be set by user, within the MDVR's recommended operating limits.
- The MDVR must be of the following dimensions: 13.7"L x 7.4"W x 3.9"H.

23.2.6. MDVR ELECTRICAL REQUIREMENTS

- The MDVR must operate within a power input range of 9-36V DC and must be connected with a wire that is a minimum of 16-gauge, with inline fuses, and be internally and continually protected from power surges, voltage spikes and reverse polarity.
- A separate, external UPS must be available to regulate fluctuations in vehicle voltage and to provide for operation of all functions at full capacity in the event of an interruption in power to the MDVR.

▪ ENVIRONMENTAL REQUIREMENTS

- The MDVR unit must have high and low temperature protection including a heater. An optional fan kit is required for use with HDD of 4TB+.
- The MDVR must have startup protection to prevent damage from voltage fluctuations.

23.2.7. PLAYBACK SOFTWARE

- Playback software must be provided without charge, including upgrades, for the life of the system.
- The playback software must be simple to use and, from one window, allow the user to access live or recorded video from multiple sources.
- The playback sources must include but not be limited to the following:
- An MDVR hard drive connected to a PC.
- An MDVR connected to the Pro 8 CMS server via an active Internet connection aboard the vehicle.

- A PC connected directly to the MDVR via the LAN aboard the vehicle or a server and a live stream from selected vehicles.
- The playback software must be capable of displaying video utilizing zoom, blur, selected camera views and selected microphone audio from all playback sources stated above. Organizing the display to pertinent and specific channel display must be done with a mouse click.
- The playback software must be capable of requesting wireless downloads, when equipped with an active Internet connection.
- The playback software must be capable of easy download for viewing by legal authorities and authorized parties.
- The video must be equipped with a watermark feature to alert the viewer to video alteration or manipulation.
- The playback software must utilize proprietary encryption to limit access to authorized parties.
- The playback software must be capable of converting video to AVI formats for common display.
- The playback software must be able to create “clips” of pertinent event time duration for storage and transmission on multiple media such as thumb drives, DVDs, etc.
- The playback software must display Google Maps™ mapping service and the vehicle’s GPS location, if the MDVR is equipped with optional GPS antenna, when the playback PC is connected to the Internet.
- The playback software must be capable of displaying Virtual Synchronized Mapping™, a GPS map of the vehicle location permanently embedded in the video recording, without Internet access, as court-ready evidence.

23.2.8. 7 WARRANTY, SERVICE AND SUPPORT

- All hardware shall include a warranty of five (5) years parts and labor.
- Unlimited telephone and email technical support shall be provided at no additional charge for the life of the system.
- Additional extended warranty and service contracts will be available.

*********END OF MOBILE DVR SYSTEM OPTION**

23.3 CENTRAL MANAGEMENT SYSTEM OPTION

- Central Management System (CMS) is an optional upgrade to the software and includes additional features to enhance the functionality of the software. The following specifications are

divided into Playback Software Requirements and Central Management System Requirements for your reference and should remain separate from each other in all requests and proposals.

23.3.1. PLAYBACK SOFTWARE REQUIREMENTS

- License-free playback software that is capable of video playback, calendar and event searches shall be provided to administration at no extra cost, and shall be compatible with Windows® 7, Windows® 8 and Windows® 10.
- The software shall include the following playback controls: pause/play, stop, rewind and fast forward up to x32 speed, slow motion playback, frame-by-frame playback, audio volume, snapshot, video export.
- The software shall allow users to select specific cameras to be displayed during playback.
- The software shall be capable of allowing camera channels to be rearranged within the playback screen.
- The software shall display the resolution and frame rate at the top of each camera channel.
- The software shall provide multiple layout options and window configurations of camera channels with the playback screen.
- The software shall allow users to double-click a camera channel to maximize its display in the playback screen for full-screen mode. While in full-screen mode, users shall be able to cycle through all camera channels.
- The software shall allow users to select date, time range and condition of the video when searching for available videos.
- The software shall include a slider bar that can be dragged directly to a particular point of the video. The timeframe represented by the slider bar shall be capable of being increased or decreased using magnifying lens icons located at the top of the slider bar.
- The software shall provide a calendar display for each month and adjacent month’s video with available clips highlighted by video type (normal or alarm).
- The software must provide a security watermark indicator during playback.
- The software must be capable of timeline zoom to (five) 5 seconds.
- The software shall allow for the following selectable metadata to

overlay on recorded video: date/time, speed, vehicle number and GPS coordinates.

- When the system is equipped with GPS, the software shall include a GPS map to display vehicle location, route, breadcrumb trail, and vehicle's sensor inputs synchronous to the video being played. Users shall be able to click on any point on the vehicle's breadcrumb trail on the map to jump directly to that time in the video.
- When equipped with GPS, the system shall provide historical software mapping display routes of the vehicle location and speed charts.
- When the system is equipped with GPS, the software shall be capable of connecting to prerecorded video by selecting a point on the map or selecting a point on the speed chart to view from that speed or location.
- Vehicle sensor inputs displayed below the map shall correlate with their corresponding location on the map such that when a sensor becomes active, it is highlighted at that point in the recording's timeline.
- The software shall include tabs in the playback screen to allow users to view map only, video only or both.
- To retrieve recorded video, the software shall provide searches by the following: event, time lapse, time and date and vehicle location.
- The software shall include an "Event" tab which displays all events and alarms that occurred during the open video segment. Users shall be able to double-click on an event to jump directly to that time in the video.
- The software shall include a "zoom in" button at the top of each camera channel to allow users to zoom in on any selected areas.
- The software shall include a "Blur" button at the top of each camera channel to allow users to select the areas of the camera's image to blur out. Blurring shall be capable of being used in one or all camera channels simultaneously. Blurring shall be capable of being exported with video.
- The software shall be capable of saving a video clip as a Windows Media Player (.avi) file or saving a video as a self-executable format (.exe). However, our preferred method of saving is in proprietary codec format.

- Video clips saved using the self-executable format (.exe) shall be encrypted and should be viewed without the embedded software, providing the ability to easily transfer secure video evidence.
- The video clip function shall provide the option of saving a portion of the video clip (shorter in length and/or reducing the number of cameras) in order to make a smaller video clip from the original.
- The software shall feature the option to archive video clips requiring a username and password for reviewing.
- The software shall include a “Snapshot” button to save a single-frame still image in .bmp format from any user-selected camera.
- With optional PRO8CMS, the playback software must automatically connect to the backend Central Management System (CMS) for video and audio review and investigation.

23.3.2 CENTRAL MANAGEMENT SYSTEM REQUIREMENTS

- The CMS shall provide various levels of user access rights that allow and restrict access to various functions.
- The system shall feature software for large-scale remote viewing and administrator functions for unlimited simultaneous users and for viewing up to hundreds of camera views at one time. The software shall allow for automated software upgrades and simultaneous updates to multiple sites.
- The CMS shall clearly display all connected assets (vehicles) for live viewing.
- The CMS shall be capable of live viewing any or multiple connected assets simultaneously.
- The CMS shall be capable of displaying 12 different screen formats for live view.
- The CMS shall be capable of arranging users into hierarchical groups that mirror an agency’s organization.
- The CMS shall be capable of arranging vehicles into multiple groups.
- The CMS shall include a “Frame Information” tab which displays detailed metadata: firmware, agency name and vehicle number, specific accelerometer reading and GPS coordinates, vehicle speed, and device voltage and temperature.
- The CMS shall allow the system (when networked via cellular or Wi-Fi or both) to automatically send email or text notifications for

any system event including the following: video loss, camera obstruction, hard drive “full status,” etc.

- The CMS shall supply health information of the video system with error logs, reports and automatic notifications for the following: video blind events, video loss events, disk errors, disk temperature events, fan errors, recorder errors, disk almost full, and hard disk monitoring events.
- The CMS shall allow the system to send notifications to the vehicle driver or external systems for any system event including video loss, camera obstruction, hard drive “full status,” etc.
- The CMS shall be capable of automatically sending notifications to a central location and shall support automatic fleet-wide email notification of system events as well as a fleet-wide health summary featuring camera and system health reports.
- With the CMS, the playback software will have the ability to playback video from the remote server, the asset (vehicle), the local hard drive, the directory or local storage.
- The CMS shall allow for easy fleet-wide searches and wireless download of video-based solely upon the date and a general map location.
- The CMS shall include an “Evidence” folder which allows users to label, categorize, organize and generate incident reports after reviewing critical video clips.
- The CMS shall display the current time and date on live video.
- When events are detected, the CMS shall display the event information and allow users to access the remote server directly to search the image associated with the event, when equipped with Wi-Fi or cellular equipment.
- The CMS shall allow the user to connect to multiple units simultaneously and allow for viewing 64 camera views at one time, based on the number of cameras in the fleet.
- The CMS shall be capable of two-way audio with optional speaker and microphone and cellular connection.
- The CMS shall be capable of remote configuration of recorder settings while the vehicle and MDVR are running.
- The CMS shall be capable of remotely setting the streaming quality while the vehicle and MDVR are running.
- The CMS shall be capable of remotely setting the GPS post

frequency while the vehicle and MDVR are running.

- The CMS shall be capable of sending SMS messages to the driver while the vehicle and MDVR are running.
- The CMS shall be capable of remotely restarting the recorder while the vehicle and MDVR are running.
- The CMS shall be capable of remotely formatting the hard drive while the vehicle and MDVR are running.
- The CMS shall be capable of taking remote snapshots of individual or all views and storing them locally for review.
- Image adjustments and alarm out controls shall be adjustable utilizing the CMS.
- The CMS shall be capable of archiving video as an evidence package to the server, allowing the user to name the event, record vehicle name, input key words for searching, driver name, overall description and screen snapshots.
- The CMS shall be capable of displaying and reporting the following: GPS, alarm, user log, device online/offline, offline user, mileage, continuous driver, online rate, video data traffic, panic button, motion alarm, last vehicle position, fence, I/O, vehicle patrol, RFID, recording unit temperature, and cellular data reporting capabilities.
- The CMS shall be capable of automated event video upload to a remote server.
- The CMS shall be capable of advanced backend capabilities for automatic download of video clips and the ability to classify event video data with wireless connections.
- The CMS shall be capable of searching saved, HDD or live video based on geo-fence setting, by vehicle speed range and by event or alarm.
- The CMS shall also be available as a downloadable app that can be installed onto any mobile device or tablet to stream live video and fleet tracking...

************END OF CENTRAL MANAGEMENT SYSTEM OPTION**