CITY OF AUSTIN
SOLICITATION GLB0034 Revised
VIDEO IMAGING VEHICLE DETECTION SYSTEM
(Intersection Control - Video Detection Only)

1.0 GENERAL

This special specification sets forth the minimum requirements for a camera for use with a Video Imaging Vehicle Detection System (VIVDS) that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device. The camera must adhere to the latest Texas Department of Transportation (TX DOT) approved VIVDS specification and is approved for video detection only. In the case of discrepancies, this specification shall govern.

1.1 Definitions:

1.1.1 **Camera Assembly:** The complete camera or optical device assembly used to collect the visual image. The camera assembly consists of a charged coupled device (CCD) camera, environmental enclosure, sun shield, and **all necessary mounting hardware**.

1.1.2 **Live Video:** Video being viewed and/or processed at 30 frames per second.

1.1.3 **Lux:** The unit of light intensity used to determine the minimum and maximum values of light in which a camera may operate.

2.0 FUNCTIONAL REQUIREMENTS

2.1 Ensure the camera provided works with all approved TxDOT VIVDS processor units to provide real-time vehicle detection in compliance with the latest TxDOT VIVDS Intersection Control specifications.

2.2 Provide CCTV Cameras in accordance with NTSC and EIA-170A. Conform the system limiting resolution to FCC regulations for broadcast signals. Provide clear, low-bloom and low-lag video pictures under all conditions from bright sunlight to nighttime scene illumination.

3.0 CAMERA ASSEMBLY

3.1 As a minimum, each camera shall be of solid state design and provide the following capabilities:

3.1.1 Provide a color camera. During night-mode, it may switch over to black and white for better contrast.

3.1.2 Images shall be produced with a Charge Coupled Device (CCD) sensing element with horizontal resolution of at least 480 lines for black and white or 480 lines for color and vertical resolution of at least 350 lines for black and white or color. Images shall be output as a video signal conforming to RS170 and NTSC.

3.1.3 Useable video and resolvable features in the video image shall be produced when those features have luminance levels as low as 0.2 lux for black and white or as low as 1.0 lux for color for night use.

3.1.4 Useable video and resolvable features in the video image shall be produced when those features have luminance levels as high as 10,000 lux during the day. The camera must not sustain any permanent damage when pointed directly at strong light sources, including the sun, for brief periods of time.

3.1.5 The camera shall include an electronic shutter or auto-iris control based upon average scene luminance.

3.2 The camera and lens assembly shall be housed in an environmental enclosure that provides the following capabilities:

3.2.1 The enclosure shall be waterproof and dust-tight to the latest NEMA-4 specifications.

3.2.2 The PCB's shall be conformally coated.

3.2.3 The camera and lens shall be capable of operating in all weather conditions and able to withstand wind load of 140 mph without permanent damage to mechanical and electrical equipment or loss of alignment.

3.2.4 The camera's front lens cover shall be easily replaceable without the use of special tools or without the loss of warranty.

3.2.5 The unit shall provide strain relief for all cables (AC, Coax, and camera cables).

3.2.6 The enclosure shall allow the camera to operate satisfactorily over an ambient temperature range from -40°F to 165°F while exposed to precipitation as well as direct sunlight.

3.2.7 The enclosure shall include a provision within the enclosure for connection of power and video signal cables fabricated at the factory. Input power to the environmental enclosure shall be nominally 115 VAC 60 Hz. The average power consumption shall be 1W or less.

3.2.8 The enclosure shall also include a sun shield to minimize glare. The front edge of the sunshield shall protrude beyond the front edge of the environmental enclosure and shall include a provision to divert water flow to the sides of the sunshield. Any material used in the enclosure shall include ultra violet inhibitors.

3.2.8.1 Camera mounting hardware shall allow for vertical or horizontal mounting of the camera enclosure. The unit shall provide strain relief for all cables (power, coax, and camera cables).

3.2.9 When operating in the environmental enclosure with power and video signal cables connected, the image sensor shall meet FCC class B requirements for electromagnetic interference emissions.

3.2.10 The camera lens shall not need cleaning more than once a year.

3.2.11 The camera shall not require a heater to keep the lens free from ice and snow accumulations.

3.3 The output from the camera enclosure shall be in accordance with NTSC and EIA-170A.

3.4 Connections for both video and power shall be made to the image sensor using either a standard quick disconnect connectors or terminated on a terminal block inside the camera housing. The coaxial cable termination shall be a standard BNC while the power and ground connectors shall be able to accommodate 12 – 20 gauge solid or stranded cable. The connectors themselves (coaxial and power) shall be fully enclosed inside a weatherproof traffic signal housing with a NEMA-4 enclosure with strain reliefs to protect against premature failure due to wind, vibration, hail, snow, ice, water or other weather related elements.

3.4.1 All connections shall enter the NEMA-4 enclosure from the bottom of the enclosures to reduce the chance of water leakage into the enclosures.

3.5 When the connection between the image sensor and the VIVDS processor unit is coaxial cable, the coaxial cable used shall be a low loss, 75 ohm, precision video cable suited for outdoor installation, such as Belden 8281 or TxDOT approved equal.

3.6 The camera shall meet TS-2 cabinet specifications for both environmental and electrical performance

3.7 The power supply shall be rated at least 10 times greater than the power requirement of the camera.

4.0 VIVDS REQUIREMENTS

4.1 As a minimum, each VIVDS card shall be of solid state design and provide the following capabilities:

4.1.1 Four (4) outputs per card with expansion capabilities to eight (8) outputs per card.

4.1.2 NEMA TS1/TS2 and 170/2070 cabinet compatible.
An interface module shall be available to support a TS2 Port1/SDLC interface along with contact closure outputs to the traffic controller. It shall be possible to output the detection state directly to 2070 controllers.

4.1.3 Advanced detection capabilities up to 1000 feet.

4.1.4 Presence, speed and volume capabilities.

4.1.5 Set up via USB mouse and monitor.

4.1.5.1 Field upgradeable software via a USB thumb drive.

4.1.6 Analog NTSC, Ethernet and digital outputs.
Ethernet connectivity may be achieved either in the VIVIDS card or using an extension card. If an extension card is required for communication between the VIVIDS card and the City's transportation management center (TMC), then an extension card shall be included with each VIVIDS card at no additional charge. Communication between the VIVIDS card and the TMC shall allow remote monitoring of video from each camera and the modification of settings in each VIVIDS card.

4.1.7 Dual channel cards supporting two cameras.

4.1.8 Up to thirty (30) detection zones per card.

4.1.9 Meets TS-2 Electrical/Environmental cabinet specs

5.0 SURGE SUPPRESSION

5.1 As a minimum the Video surge suppressor panel shall consist of the following:

5.1.1 Aluminum back plate approximately 8 inch x 14 inch with the following equipment logically mounted to the panel:

5.1.1.1 Four (4) EDCO CX06-M coax surge suppressors

5.1.1.2 Double sided, eight (8) pole terminal strip.

6.0 INSTALLATION AND TRAINING

6.1 The supplier of the video camera shall provide, if requested, up to 8 hours of training to personnel of the City in the operation, setup, and maintenance of the camera. Instruction and materials shall be provided for a maximum of 15 persons and shall be conducted at a location selected by the City.

6.2 Instruction personnel are required to be certified by the equipment manufacturer. The User's Guide is not an adequate substitute for practical, classroom training, and formal certification by an approved agency.

7.0 WARRANTY, MAINTENANCE AND SUPPORT

7.1 The camera shall be warranted to be free of defects in material and workmanship for a period of 5 years from date of shipment from the supplier's facility. During the warranty period, the supplier shall repair with new or refurbished materials, or replace at no charge, any product containing a warranty defect provided the product is returned FOB to the supplier's factory or authorized repair site. Product repair or replaced under warranty by the supplier will be returned with transportation prepaid. This warranty does not apply to products damaged by accident, improper operation, abused, or unauthorized modification.

7.2 During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory certified personnel or factory certified installers.

7.3 The supplier shall maintain a program for technical support and software updates following expiration of the warranty period. This program shall be made available to the City in the form of a separate agreement for continuing support.

7.4 The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the cameras.

7.5 Each unit shall be permanently labeled with Serial Number, Model Number, and Date Code. If the Date Code is incorporated in the Serial Number, the Date Code may be omitted.