DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
OFFICE ENGINEER, MS 43
1727 30TH STREET
P.O. BOX 168041
SACRAMENTO, CA 95816-8041
FAX (916) 227-6214
TTY (916) 227-8454

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**** WARNING ** WARNING ** WARNING ** WARNING ****
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November 16, 2006

11-SD-5,52,94,805-Var
11-080804

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN DIEGO COUNTY AT VARIOUS LOCATIONS.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on November 30, 2006.

This addendum is being issued to revise the Notice to Contractors and Special Provisions.

In Section 10-3.14, "Microwave Vehicle Detection System - Side Fire," Subsections "Functional Requirements" and "Technical Requirements" are replaced with the attached.

To Proposal and Contract book holders:

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the NOTICE TO CONTRACTORS section of the Notice to Contractors and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by facsimile to all book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Office Engineer

Attachments

FUNCTIONAL REQUIREMENTS

MVDS shall simultaneously provide vehicle detection data in the form of vehicle presence, volumes, counts, speed, classification, and occupancy for a minimum of 8 lanes of traffic with the performance requirements of these special provisions. MVDS shall provide a separate zone per lane and detect vehicles as close as 3 m and as far as 60 m from the MVDS sensor. MVDS shall monitor traffic lanes in the presence of barrier railings, guardrails and other obstacles.

MVDS shall meet the following detection performance criteria when installed a minimum of 3 m from the nearest lane and at a minimum height of 5 m above the roadway detection zone:

A. Average 5 minute volumes for all lanes combined with better than 95 percent accuracy compared to vehicles observed in video images for the same period, for any 15 minute period selected by the Engineer.
B. Average 30 second volumes in every lane with better than 90 percent accuracy compared to vehicles observed in video images for the same period, for any 5 minute period selected by the Engineer.
C. Average 30 second speed in any lane with better than 95 percent accuracy, for any 5 minute period selected by the Engineer.
D. Average 5 minute occupancy for any lane with better than 85 percent accuracy, for any 15 minute period selected by the Engineer.
E. Count accuracy, when compared to vehicles observed in video images for the same period, shall be not less than 90 percent for any lane and not less than 95 percent for all lanes combined.
F. Average 15 minute classification according to user defined criteria with better than 90 percent accuracy compared to vehicles observed in video images for the same period. Vehicle Classification (or Length Classification) shall be provided for categories (small car, average car, mid-size car, long car, extra-long car) that are user definable as either by length parameters (minimum length to maximum length for the category) or by a multiple of length of the average car.
G. The Contractor shall provide the criteria for speed and volume acceptance test for approval by the Engineer. The Contractor shall also provide speed and volume data for verification by the Engineer.

MVDS shall consist of a sensor unit and include all required mounting hardware, power supplies, surge suppression, cables, connectors and wiring. The MVDS sensor shall include, as a minimum, a directional microwave transmitter, antenna, microwave receiver, a processor, memory and communication interface.

The MVDS shall be capable of supporting the data protocol as defined in the National Transportation Communication for ITS Protocol (NTCIP) Objects for Transportation Sensor Systems (TSS), Document Number 1209. The MVDS shall have an EIA-RS232 or EIA-485 or Ethernet communication port that supports the National Transportation Communication for ITS Protocol (NTCIP). The MVDS communication protocol shall be non-proprietary and openly specified and available for use in the public domain.

The manufacturer's data protocol may be accepted when the following conditions are met:

A. The MVDS data protocol shall be open and shall be freely available for use in the public domain.
B. The MVDS shall support the Wavetronix data protocol or the EIS RTMS (data) protocol version 6.8, or demonstrated equal.
C. The Contractor shall submit a copy of the MVDS protocol to the Engineer for review. The Engineer will submit review results within 2 weeks after receipt of the protocol.
D. Upon the Engineer's approval of the protocol, the Contractor shall submit a working unit for protocol verification purposes. The verification shall consist of connecting the unit to the State TMC computer using either the unit's serial or Ethernet port. The TMC computer will send and receive data to and from the MVDS unit. The Engineer will notify the Contractor upon successful communication between the MVDS unit and the TMC computer. The Engineer will complete MVDS unit testing within 2 weeks after receipt of the MVDS unit.

The MVDS shall be addressable and shall download count, speed, volume, classification and occupancy data when polled by the TMC computer. Speed shall be configurable in English or Metric units. The MVDS shall support unit set-up from a serial console port on the MVDS unit. The console port protocol shall support sensor unit set-up from a local Windows 2000/NT or newer compatible laptop or from a remote location with a desktop computer and standard phone modem. The console port shall have a DB-9 connector and be configured as Data Terminal Equipment. The MVDS shall have a 10/100 Base-T Ethernet port IEEE 802.3 compliant. The port shall be capable of transmitting MVDS traffic data to a central computer operating the manufacturer's MVDS software or to the TMC computer.

Each MVDS power connection shall have fast-blow AGC type fuse or a resettable circuit breaker such that the loss of power to any single MVDS due to over-current shall not limit the operation of the other connected MVDS. The fuses or breakers shall be easily accessible, and replaceable or resettable without requiring tools or removing cables, connectors, or other terminations. DB9 male connectors shall be provided for every connected MVDS unit for EIA-232 or EIA-485 communications with a local laptop computer for performing setup and diagnostics as well as remote communications. The connectors shall be labeled and provide internal routing of data between the DB9 connectors and the MVDS. The Contractor shall supply the cable and connectors for connecting all communication equipment as shown on the plans and specified elsewhere in these special provisions.

MVDS shall be user programmable in the field, via the MVDS unit console port, with a Windows 2000/NT or newer compatible laptop computer. The Contractor shall provide software, firmware and equipment to set-up, calibrate and operate the unit. MVDS software shall observes the vehicular traffic and automatically place detection lanes and set the sensor sensitivity. MVDS shall be designed so that a trained State employee can configure and calibrate the MVDS in less than 15 minutes per lane once the MVDS sensor unit is installed.

TECHNICAL REQUIREMENTS

The MVDS shall be FCC certified under Part 15 for low-power, unlicensed, continuous radio transmitter operation. The MVDS shall comply with FCC regulations under all specified operating conditions and over the expected life of the MVDS.

MVDS sensor unit shall not exceed 830 mm x 250 mm x 355 mm in size and shall not weigh more than 5 kg. The MVDS shall operate over a temperature range from –30°C to +70°C, with up to 95 percent relative humidity. The MVDS sensor enclosure shall be weatherproof with a NEMA 3R rating, and the sensor mounted and directed perpendicular to the flow of traffic lanes at the locations shown on the plans.

All electronic assemblies shall conform to the requirements detailed in Chapters 1 and 5 of the Transportation Electrical Equipment Specifications (TEES).

Each MVDS sensor unit shall terminate all cables in a pole mounted NEMA 3R enclosure housing when shown on the plans. The enclosure shall house all communication equipment, MVDS sensor unit power supply or transformer, sensor communication interface and AC service connections. The sensor communication interface shall consist of the MVDS console port and Ethernet port. Equipment installed in the enclosure shall be mounted using standard hardware and as shown on the plans.

MVDS sensors shall be wired with a connectorized cable harness. Cables shall run continuously (without splices) between the sensor and controller cabinet or pole mounted enclosure and terminate in labeled terminal blocks or sensor communications interface identified with the purpose served. The connector shall be a standard Mil Type and rated plug. The cable shall have the number of conductors specified by the MVDS manufacturer to support the number of detection zones depicted on the plans plus spares for two future zones with an overall shield and copper drain wire. Conductors shall be stranded copper equal to or exceeding the minimum strands and wire dimensions specified by the MVDS manufacturer for the wiring distance involved and covered with a minimum 0.30 mm polyvinyl chloride (PVC) insulation, rated for 300 V at 105°C. The outer jacket shall be chrome PVC with minimum thickness of 1.35 mm and the outside diameter of the cable shall not exceed 19.2 mm. A minimum of 2 m slack of MVDS cable shall be coiled at the bottom of the controller cabinet. Slack in other cabinets shall be as shown on the plans or as directed by the Engineer.

MVDS sensor unit power supplies or transformers shall be vertically mounted on a standard DIN rack rail using standard mounting hardware. The Contractor shall wire the MVDS power conductors to DIN rail mounted terminal blocks in the controller cabinet as directed by the Engineer. The ends of unused and spare conductors shall be coiled and taped to prevent accidental contact to other circuits. Conductors inside the cabinet shall be labeled for the functions as shown on the approved detailed diagrams.

The power supply or transformer shall meet or exceed the following minimum requirements:

	POWER SUPPLY	TRANSFORMER
Power Cord	Standard 120 V(ac), 3 prong cord, at least 1 meter in length (may be added by Contractor)	Standard 120 V(ac), 3 prong cord, at least 1 meter in length (may be added by Contractor)
Type	Switching mode type	Class 2
Rated Power	Twice (2x) full system load	Twice (2x) full system load
Operating Temperature	From -35°C to +74°C	From -35°C to +74°C
Operating Humidity Range	From 5 percent to 95	From 5 percent to 95
Input Voltage	From 90 V(ac) to 135 V(ac)	From 90 V(ac) to 135 V(ac)
Input Frequency	60 Hz ±1 Hz	60 Hz ±1 Hz
Inrush Current	Cold start, 25 A max. at 115 V	N/A
Output Voltage	As required by the MVDS	As required by the MVDS
Overload Protection	From 105 percent to 150 percent in output pulsing mode	Power limited at >150 percent
Over Voltage Protection	From 115 percent to 135 percent of rated output voltage	N/A
Setup, Rise, Hold Up	800 ms, 50 ms, 15 ms at 115 V(ac)	N/A
Withstand Voltage	I/P-0/P: 3 kV, I/P-FG: 1.5 kV, for 60 sec.	I/P-0/P: 3 kV, I/P-FG: 1.5 kV, for 60 sec
Working Temperature	Not to exceed 70°C at 30% load	Not to exceed 70°C at 30% load
Safety Standards	UL 1012, TUV EN60950	UL 1585
EMC Standards	EN55022 Class B, EN61000-4-2, 3, 4, 5 and EN61000-3-2, 3	N/A

Field terminated circuits shall include transient protection that complies with IEEE Standard 587-1980 Category C.

The MVDS shall automatically restore normal operation following a power failure within 3 minutes and not require manual intervention. The MVDS shall maintain the configuration and calibration information in non-volatile memory and retain the information while powered off for at least 90 days.

The MVDS shall be configurable for 30 second to 24 hour polling cycles and store vehicle count, speed, classification, and occupancy data in 10 second to not less than 15 minute intervals.

The MVDS shall be tested and in standard production for a minimum of 3 months. The Contractor shall not install any MVDS that is older than 6 months from the scheduled start date of the MVDS installation as indicated by date codes or serial numbers of electronic circuit assemblies.

The MVDS system and all supporting equipment shall be designed to operate continuously in an outdoor traffic monitoring and control environment 24 hours a day. The Contractor shall provide a manufacturer's warranty stating that the manufacturing quality and electronic components shall support a Mean Time Between Failures of 10 years in this environment.