SECTION 905 -- PROPOSAL (CONTINUED)

I (We) further propose to execute the attached contract agreement (Section 902) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Specifications and Advertisement. I (We) also propose to execute the attached contract bond (Section 903) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) enclose a certified check, cashier's check or bid bond for **five percent (5%) of total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bond within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the State of Mississippi as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.

Bidder acknowledges receipt of and has added to and made a part of the proposal and contract documents the following addendum (addenda):

ADDENDUM NO.	1	DATED	4/16/2007	ADDENDUM NO.		DATED	
ADDENDUM NO		DATED		ADDENDUM NO.		DATED	

Number	Description
1	Replace Table of Contents with same; Add 907-639-1; Replace 907-648-1 with same; Replace bid sheets with same; Revise plan sheet nos. 2, 3, 4, & 26; Addendum diskette required.

TOTAL ADDENDA: 1
(Must agree with total addenda issued prior to opening of bids)

Respectfully Submitted,

DATE _____

_____
Contractor

BY _____
Signature

TITLE _____

ADDRESS _____

CITY, STATE, ZIP _____

PHONE _____

FAX _____

E-MAIL _____

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of _____ and the names, titles and business addresses of the executives are as follows:

President	Address
Secretary	Address
Treasurer	Address

The following is my (our) itemized proposal.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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906-3: MDOT On-the-Job Training Program
906-6: MDOT On-the-Job Training Program - Alternate Program

SECTION 905 - PROPOSAL,
PROPOSAL SHEET NOS. 2-1 THRU 2-11,
COMBINATION BID PROPOSAL,
CERTIFICATE OF PERFORMANCE - PRIOR FEDERAL-AID CONTRACTS,
NON-COLLUSION CERTIFICATE,
SECTION 902 - CONTRACT FORM, AND SECTION 903 - CONTRACT BOND FORM,
OCR-485,
PROGRESS SCHEDULE,
HAUL PERMIT FOR BRIDGES WITH POSTED WEIGHT LIMITS.

(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET OF SECTION 905 AS ADDENDA)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-639-1 **CODE: (SP)**

DATE: 01/11/2007

SUBJECT: Traffic Signal Equipment Poles

Section 639, Traffic Signal Equipment Poles, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-639-02.3--Foundations. Delete the first sentence of the first paragraph of Subsection 639.02.3 on page 481 and substitute the following:

Cast-in-place foundations for concrete, steel, and/or aluminum shafts shall be as specified on plans, and shall be cast of reinforced Class "DS" Concrete conforming to the requirements of Sections 601 and 602.

907-639-03.1--Foundations. Before the first paragraph of Subsection 639.03.1 on page 481, add the following:

Pole foundations shall be constructed as per the details on the plans, these specifications, and Section 803 of the Standard Specifications. Casings, as required, will be in accordance with Section 803 of the Standard Specifications.

In the first sentence of the first paragraph of Subsection 639.03.1 on page 481, change "Section 206" to "Section 801".

After the first paragraph of Subsection 639.03.1 on page 482, add the following:

Due to soil conditions in certain locations, as noted on the plans, concrete shall be placed with a tremie. When a tremie is used, it shall perform in accordance with the requirements in Subsection 804.03.9 of the Standard Specifications.

It may be necessary to use slip casing to keep the holes open. Casing will be required in portions of the holes that are not stable. Casings authorized by the Engineer shall be of suitable size and strength to accommodate the drilling equipment and to withstand ground-pressures and removal operations without deformation of the poured shaft. When removed, the casings shall revert to the Contractor for disposal.

907-639.04--Method of Measurement. Delete the second sentence of the first paragraph of Subsection 639.04 on page 482, and substitute the following:

Such measurement shall include the pole, mast arms and all other incidentals necessary to complete the equipment pole.

After the last paragraph of Subsection 639.04 on page 482, add the following:

Pole foundations of the size specified will be measured by the cubic yard, which measurement shall be the area bounded by the vertical planes of the neat lines of the foundation.

Slip casings of the size specified will be measured by the linear foot from the ground elevation to the bottom of the strata needing to be cased.

907-639.05--Basis of Payment. Delete the first paragraph of Subsection 639.05 on page 482, and substitute the following:

Traffic signal equipment pole and traffic signal equipment pole shaft extension of the type specified, measured as provided in above, will be paid for at the contract unit price per each, which price shall be full compensation for furnishing all materials, erecting, installing, connecting and testing poles, pole bases, mast arms, caps, covers, ground wire, ground rods, hardware and for all equipment, tools, labor and incidentals necessary to complete the equipment pole.

Pole foundations, measured as prescribed above, will be paid for at the contract unit price per cubic yard, which price shall include full compensation for structure excavation, reinforcing steel, anchor bolts; for placing, curing, and installing concrete; for replacing sod and final clean-up; and for all equipment, labor, tools and incidentals necessary to complete the foundation.

Slip casings, measured as prescribed above, will be paid for at the contract price per linear foot, which price shall be full compensation for all materials, tools, equipment, labor, and incidentals necessary to complete to work.

Delete the list of pay items on page 482, and substitute the following:.

907-639-A:	Traffic Signal Equipment Pole, Type ____	- per each
907-639-B:	Traffic Signal Equipment Pole Shaft Extension, Description	- per each
907-639-C:	Pole Foundations, ____ Diameter	- per cubic yard
907-639-D:	Slip Casing, ____ Diameter	- per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-648-1 **CODE: (SP)**

DATE: 04/05/2007

SUBJECT: Radio Interconnect

PROJECT: ER-0003-01(109) /104569307 & NH-0003-01(109) / 104569312 -- Hancock County

Section 648, Radio Interconnect, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is deleted in toto and replaced as follows:

SECTION 907-648 -- RADIO INTERCONNECT

907-648.01--Description. These specifications set forth the minimum technical requirements for turnkey wireless radio interconnect capabilities to local and master signal controller locations in lieu of hard wire interconnects. The system shall provide a serial or Ethernet interface at designated signal intersections. Serial interfaces will only carry signal data. Ethernet interfaces must be designed to carry signal data and/or digital video. The system must be expandable as MDOT and/or local municipalities add future signal intersections to the wireless network.

907-648.02--Materials. The Contractor shall be responsible for providing reliable two-way RF communications coverage between all locations specified in the Project Plans or any related Notice to Bidders. The attempted data transmissions of the radio interconnect must be successful 95% of the time and use a maximum of three automatic re-transmissions. The radio equipment, as opposed to the software application, shall generate the re-transmissions.

The Contractor shall provide the following elements necessary to implement a wireless system: radios, software, base stations, power supply, UPS, antennas, coaxial cable and connectors, lightning suppressors, mounting and grounding hardware, receivers, transceivers, modems, switches and any other equipment, hardware, enclosures and cabling required to make a complete operational system.

Each wireless device (except serial radios) must be capable of local and remote configuration. Remote configuration by two or more of the following is required: Telnet, HTTP, HTTPS, Secure Shell (SSH), or SNMP, and local configuration by direct console port. All cables must be supplied.

The placement of equipment and/or use of infrastructure on MDOT property will be open to negotiation. MDOT reserves the right to determine final placement of all equipment on MDOT property.

907-648.02.1--RF Data Link for Controller Communication. Communications between the

master and the local intersections shall be performed via wireless RF Data Link. All equipment requiring FCC type approval, acceptance or certification shall have approval, acceptance, or certification at time of shipment. All electronic equipment shall be solid state, utilize silicon semiconductor technology (except as otherwise specified), and reflect the latest advances in state-of-the-art design. All equipment and materials shall be new and free of corrosion, scratches, and other defects. All equipment must be of current design and manufacture. All equipment shall meet or exceed the applicable standards of the IEEE Electronic Industries Association, the Federal Communications Commission, and shall conform to the specifications of the local telephone company with respect to audio levels, frequencies, and control voltages. Equipment design and construction shall be consistent with good engineering practice, and shall be executed in a neat and workman-like manner. Appropriate lightning/surge protection will be provided for all installation hardware.

The Contractor shall provide RF transceivers and other data communications technology for full transmission and reception of data communications messages over radio channels to specified locations. All wireless data equipment proposed by the Contractor must be modular in design. Modularity allows MDOT to take advantage of component upgrades without replacement of the remaining wireless data equipment. Modularity also allows MDOT to replace any failed component without replacement of the remaining wireless data equipment.

The over-the-air radio protocol shall be designed to operate in a harsh RF environment (including dense fog and thunderstorm conditions) and to minimize RF losses associated with diverse terrain environments between MDOT intersections. All RF network management functions shall be transparent to the application. Contention control is the technique used to prevent a random data service from sending a message on a specific radio channel while other computing devices are using that channel. The method by which multiple accesses on the radio channel is handled is critical in attaining high message throughput capacity. The vendor shall describe in detail the following characteristics of its radio protocol:

1) The radio modulation scheme, including emissions designators and occupied bandwidth.
2) Protocol overhead such as framing, addressing, Forward Error Correction, Error Detection, etc.
3) Protocol contention scheme, including random retry mechanisms, collision resolution, and overload protection.
4) Frequency synchronization allows multiple distribution radios to share the same frequency without causing intersystem interference allowing for maximum utilization of RF spectrum. Vendor must describe their systems ability to avoid intersystem interference.

Contractor must provide for centralized management and logging of all Ethernet, Distribution, and Backbone radio devices. The management software must meet the following system requirements:

1) Utilize Microsoft Windows Operating System (Server 2003 or XP)
2) Synchronize to the GPS time standard to optimize throughput and eliminate data loss due to message collisions and reporting overlaps

3) Provide auto-discovery of radio equipment
4) Allow group configuration
5) Provide performance monitoring for networks and devices
6) Allow Rogue detection
7) Display alarms
8) Allow alarm traps and remote notification

The Vendor of the wireless radio equipment must be a reputable company with a minimum of five (5) years of experience in wireless communications and 10 years in business.

907-648.02.1.1--Serial Radio for Local Intersection. The radio signal communication shall be done in the 900-MHz data frequency bands. All interconnections and interfaces must provide for a complete installation and provide a serial access at each intersection location. A special transceiver antenna shall be provided at the master location.

907-648.02.1.2--Ethernet Radio for Local Intersection. Each Local Intersection Ethernet Radio is required to have a minimum 1.5 Mbps connection to the nearest Distribution Repeater Radio. Local Intersection Ethernet Radios must have Non-Line-of-Sight (NLOS) capabilities. The Contractor must guarantee 95% sustainable Bandwidth.

All interconnections and interfaces must provide for a complete installation and provide Ethernet access at each intersection location. All local controller radios must utilize Frequency Hopping Radios with RC4 Authentication, IP Address Access List, Protocol Filtering, and Virtual LAN.

For intersections with multiple Ethernet devices, a rugged environmentally hardened, NEMA TS2 compliant eight (8) port, RJ-45, 10/100 Mb, manageable switch shall be provided by the Contractor to accommodate the local hardware.

907-648.02.1.3--Repeaters. Repeater stations along the backbone must include the following: redundant Fixed Backbone Repeater, Non-Line-of-Sight (NLOS) mobile distribution base station and antenna systems capable of delivering sustained mobile data connections at a speed up to 60 MPH. Installations shall include; all mounting hardware, equipment racks and cabinets, UPS system with 2-hour backup, electrical, grounding, weatherproofing, configuration and testing required for a complete turn-key installation of all supplied equipment and materials for primary backbone and NLOS mobile distribution system.

907-648.02.1.3.1--Fixed Backbone Repeater Radio Communications. Each Fixed Backbone Repeater Radio site is required to have a minimum of two (2) radios providing redundant connections to the Central Backbone Repeater location (MDOT Lyman Project Office) or to at least one other fixed backbone repeater radio site, in the network, to provide a completely redundant ring. This redundant ring is required to be a fully redundant Layer 3 network utilizing dynamic routing protocols that provide network load balancing for maximum uptime and throughput at all fixed Backbone Repeater sites.

Each connection will have a minimum of one 100 Mbps full duplex radio system that is capable

of being field upgraded with minimal hardware and/or firmware upgrades that enable 150 Mbps and 200 Mbps operation. Backbone Repeater Radio links will range from 1-25+ miles in distance dependant upon each locations connection requirements. These links must be designed and configured to eliminate interference due to collocated radio systems and to optimize signaling across each connection. The Contractor must guarantee 95% sustainable bandwidth with 99.99% annual uptime for each Fixed Backbone Repeater Radio link with a combined uptime between associated redundant radio links of 99.999% annual uptime across the MDOT Backbone Repeater Radio Network.

The Contractor guarantees that the equipment furnished under the contract meets all of the requirements of these specifications and meets or exceeds the manufacture's published performance specifications. In addition, all equipment furnished shall fully meet all applicable Federal Communications Commission (FCC) rules and Electronic Industries Association (EIA) specifications.

The fixed backbone data equipment must operate in a licensed frequency that provides protected RF transmissions for each link. The Contractor must provide Frequency Coordination required in obtaining proper licensing from the FCC for MDOT to operate each licensed radio system link or hop under this contract. Frequency coordination services as required to comply with FCC rules and licensing instructions must be followed at all times. This shall include services required by the FCC at the time the frequency coordination is requested. Contractor must provide all services and fees required in obtaining these licenses on a "per-hop" or link basis.

The following security features must be provided at a minimum for each point-to-point fixed backbone repeater connection;

- AES Encryption – Bulk encryption of all data traversing the wireless network shall utilize AES 256-bit key encryption. The encryption operation must be based on encryption/decryption processes using symmetric block cipher (AES algorithm) and asymmetric key establishment techniques (Diffie-Hellman Key Establishment). The system must provide FIPS-validated operator authentication, secure key storage and management, and perform secure authentication. Encryption must be implemented on Layer 2 of the OSI Transport Model and must comply with HIPAA and meet, at minimum, FIPS 140-2 Level 2 security standards.

Pseudo-Random Bit Stream – The backbone microwave radio is required to produce a pseudo-random bit stream in its transmitters requiring the receiving radio receiver to synchronize to that same pseudo-random bit sequence before a connection can be established. The bit stream is generated to ensure a full frame is transmitted or received, and the key must only be available on two radios that are locked to one another.

907-648.02.1.3.2--Distribution Repeater Radio Communications. Each Distribution Repeater Radio site is required to have a minimum of six (6) load balancing access radios with a total bandwidth of 18 Mbps per site. Each site must provide 360 degrees of coverage and have a minimum radius coverage area of three (3) miles Non-Line-of-Sight with five (5) miles Line-of-

Sight. Where possible, distribution radio coverage areas should overlap in order to provide more reliable service to the designated intersections. The Contractor must guarantee 95 % sustainable bandwidth.

The distribution system shall include at least twelve (12) non-overlapping channels that can be synchronized to share the same frequency channel spacing.

All distribution radios must utilize Hopping Frequencies and RC4 Authentication, IP Address Access List, Protocol Filtering, and Virtual LAN.

907-648.02.2--Antennas. The Contractor shall install all antenna hardware and cables. Two antennas are required for each redundant link at repeater stations, one for each radio. The Contractor shall minimize the chance of interference between these antennas by mounting one antenna at least four feet directly over the other or by mounting one antenna in the vertical plane and the other in the horizontal plane. If the latter method is used, corresponding stations must use the same antenna orientation.

Adjustable sector antennas with a broadband dipole array, enclosed in an aluminum base with an ASA UV stabilized raydom for superior performance and weather ability are required for each Distribution Repeater Radio.

All paths shall be surveyed to confirm antenna sizes and centerlines. Contractor shall submit a copy of all path surveys to the MDOT Project Engineer through the standard MDOT submittal process. To ensure frequency clearance and to minimize interference potential, the system must be supplied with High Performance carrier grade rated antennas for the primary transmit signal. Space diversity antennas are standard performance. All antenna equipment and cabling must be provided by the radio equipment supplier.

There shall be three grounding straps for each transmission line run. The transmission line will be grounded at the antenna, at the bottom of the tower and at the point of entry into the building or equipment cabinet.

907-648.02.3--Interface Wiring for Serial Radios. A null modem cable is required between the Data Interface connectors of the two radios forming a repeater station.

907-648.03--Training, Testing and Installation (Excluding Serial Radios).

907-648.03.1--Installation Services. Contractor must prepare a comprehensive Network Design and Installation Plan for the wireless network. All Federal Communications Commission (FCC) license applications, if necessary will be prepared by the Contractor on behalf of MDOT, including any modifications to existing MDOT licenses. Contractor shall submit a copy of the Network Design, Installation Plan, and copies of any FCC license applications to the MDOT Project Engineer. MDOT reserves the right to reject any network designs and installation plans submitted. If rejected, the Contractor will be responsible for submitting revised network design and/or installation plan.

The Contractor must provide a supply of radio interconnect spare parts, including but not limited to, one Fixed Backbone Radio and antenna, three Distribution Radios and antennas, and two Local Ethernet Radios and antennas. The Contractor will provide a detailed parts list, including component model and serial numbers, to the Project Engineer through the standard MDOT submittal process.

907-648.03.2--Test Requirements. The Contractor shall conduct a Project Testing Program as required below. All costs associated with the Project Testing Program shall be included in overall contract prices; no separate payment will be made for any testing.

907-648.03.2.1--General Requirements. The Contractor is responsible for planning, coordinating, conducting and documenting all aspects of the Project Testing Program. The Project Engineer and/or his representatives are only responsible for attending and observing each test, and reviewing and approving the Contractor's test results documentation. The Project Engineer and/or his representatives reserve the right to attend and observe all tests.

Each test shall fully demonstrate that the equipment being tested is clearly and definitely in full compliance with all project requirements.

Test procedures shall be submitted and approved for each test as part of the project submittals. Test procedures shall include every action necessary to fully demonstrate that the equipment being tested is clearly and definitively in full compliance with all project requirements. Test procedures shall cross-reference to these Technical Specifications or the Project Plans. Test procedures shall contain documentation regarding the equipment configurations and programming.

No testing shall be scheduled until approval of all project submittals and approval of the test procedures for the given test.

The Contractor shall provide all ancillary equipment and materials as required in the approved test procedures.

The Contractor shall request in writing the Project Engineer's approval for each test occurrence a minimum of 14 days prior to the requested test date. Test requests shall include the test to be performed and the equipment to be tested. The Project Engineer reserves the right to reschedule test request if needed.

All tests shall be documented in writing by the Contractor in accordance with the test procedure and submitted to the Project Engineer within seven (7) days of the test. Any given test session is considered incomplete until the Project Engineer has approved the documentation for that test session.

All tests deemed by the Project Engineer to be unsatisfactorily completed shall be repeated by the Contractor. When the Contractor requests a test occurrence that is a repeat of a previous test, the

Contractor shall summarize the diagnosis and correction of each aspect of the previous test that was deemed unsatisfactory. The test procedures for a repeated test occurrence shall meet all the requirements of the original test procedures, including review and approval by the Project Engineer and ITS Manager.

The satisfactory completion of any test shall not relieve the Contractor of responsibility to provide a completely acceptable and operating system that meets all requirements of this project.

907-648.03.2.2--Factory Acceptance Test (FAT). Factory Acceptance Tests shall be conducted at the Manufacturer or Contractor facility or at a facility acceptable to all parties. All equipment to be utilized for this project shall be subject to tests that demonstrate the suitability of the design and compliance with the contract requirements, unless an exception for an equipment item is granted by the Project Engineer. The tests shall be performed on production units identified to be delivered under this contract.

The FAT procedure shall demonstrate all requirements defined in these specifications are met, including, but not limited to: functional/system performance requirements, electrical requirements, data transmission/communication requirements, safety/password requirements, environmental requirements, and interface requirements with other components of the project system.

The Project Engineer reserves the right to witness all FATs. At a minimum, the Project Engineer and/or his representative, will be in attendance at the FAT for the first three (3) units tested. The FAT for the first three (3) units shall be conducted during the same period. The Project Engineer shall be notified a minimum of forty-five (45) calendar days in advance of such tests. Salary and travel expenses of the Project Engineer and his representatives will be the responsibility of MDOT. In case of equipment or other failures that make a retest necessary, travel expenses of the Project Engineer and his representatives shall be the responsibility of the Contractor. This shall include all costs including, but not limited to, airfare, automobile rental, lodging, and per diem. These costs, excluding airfare shall not exceed $500.00, per representative, per day. These costs shall be deducted from payment due or charged to the withholding account of the Contractor when the project is terminated.

The vendor must complete the FAT on all remaining units on their own and submit documentation to the Project Engineer that the FATs were completed. The Project Engineer reserves the right to randomly attend those FAT tests.

No equipment for which a FAT is required shall be shipped to the project site without successful completion of factory acceptance testing as approved by the Project Engineer and the Engineer's approval to ship.

907-648.03.2.3--Standalone Acceptance Test (SAT). The Contractor shall perform a complete SAT on all equipment and materials associated with the field device site, including but not limited to electrical service, conduit, pull boxes, communication links (fiber, leased copper, wireless), control cables, poles, etc. An SAT shall be conducted at every field device site.

Where applicable, a SAT shall be conducted for a fully installed and completed connection to the designated Traffic Management Center (TMC) or central data/video collection site.

The SAT shall demonstrate that all equipment and materials are in full compliance with all project requirements and fully functional as installed and in final configuration. The SAT shall also demonstrate full compliance with all operational and performance requirements of the project. All SATs will include a visual inspection of the cabinet and all construction elements at the site to ensure they are compliant with the specifications.

After a thirty (30) day burn-in period, the contractor must demonstrate the bandwidth requirements specified in this special provision at selected intersections. The intersections to be tested will be randomly selected by the Project Engineer.

907-648.03.2.4--Serial Radio System Testing. The Contractor will be responsible for verifying the integrity of the communication links between the local intersections and the master.

907-648.03.2.5--Fixed Backbone, Distribution, and Local Ethernet System Testing. Successful communications are defined as the ability of a wireless transceiver to send an error-free message and decode an acknowledgment from the receiving station. A minimum of 30 test transmissions shall be attempted at each test site. If a failure occurs at the locations selected, it will be the responsibility of the Contractor to re-check the test area to determine if a problem exists. If there is a problem, it will be the Contractor's responsibility to run additional tests as required to define the cause of the problem. If areas of non-performance represent more than the Contractor's predicted link reliability, it will be the Contractor's responsibility to correct such problems as the sole expense of the Contractor. Any additional costs associated with further testing will be solely borne by the Contractor.

Contractor must prepare and execute a detailed system acceptance test plan, including detailed system acceptance test procedures. Contractor shall submit a copy of all System Acceptance plans to the MDOT Project Engineer through the standard MDOT submittal process. All test plans and procedures must be approved by MDOT and shall not be revised without prior written approval of MDOT. The plan should include but is not limited to the following:

1) A brief description of how the test will be conducted.
2) MDOT manpower requirements.
3) Approximate duration of the test.
4) A brief description of the methodology used for gathering test information.
5) A brief description of how the results will be tabulated and documented.
6) A brief explanation of how the system acceptance test plan proves that the RF link reliability requirements of these specifications will be met.

Throughout the test period, all equipment must meet the following standards:

1) No unit shall experience more than one failure during the test period.
2) System failure shall not occur more than one time. System failure is define as any

problem that prevents communication with the local intersections for more than 30 cumulative minutes. Failures of equipment due to scheduled maintenance, natural disasters, MDOT negligence, vandalism, or acts of God will not constitute test failure.

3) The wireless radio network shall operate for 30 consecutive days without a greater than 30 cumulative minute failure during the test period. The vendor shall have eight (8) hours from the time of the equipment failure notification to restore the equipment to operating condition.

907-648.03.3--Training. The Contractor shall submit to the Project Engineer for approval a detailed Training Plan including course agendas, detailed description of functions to be demonstrated, training location and a schedule. The Contractor must also submit the Trainer's qualifications to the Project Engineer for approval prior to scheduling any training. The training must include both classroom style training and hands-on training in the field of the maintenance and troubleshooting procedures required for each component. The training should also consist of a hands-on demonstration of all software configuration and functionality where applicable. Training must be performed on equipment and software that is identical to the equipment delivered to MDOT. This training should provide a working knowledge of the system operation and hands-on experience of system adjustment.

The supplier of the wireless radio interconnect system shall, at a minimum, provide a sixteen-hour operations and maintenance training class with suitable documentation for up to eight (8) persons selected by the Department. The operations and maintenance class shall be scheduled at a mutually acceptable time and location.

907-648.03.4--Warranty. The wireless radio interconnect system shall be warranted to be free of manufacturer defects in materials and workmanship for a period of one year from the date of Final Maintenance Release. Equipment covered by the manufacturer's warranties shall have the registration of that component placed in MDOT's name prior to Final Inspection. The Contractor is responsible for ensuring that the vendors and/or manufacturers supplying the components and providing the equipment warranties recognize MDOT as the original purchaser and owner/end user of the components from new. During the warranty period, the supplier shall repair or replace with new or refurbished material, at no additional cost to the State, any product containing a warranty defect, provided the product is returned postage-paid by the Department to the supplier's factory or authorized warranty site. Products repaired or replaced under warranty by the supplier shall be returned prepaid by the supplier.

During the warranty period, technical support shall be available from the supplier via telephone within four hours of the time a call is made by the Department, and this support shall be available from factory certified personnel. During the warranty period, updates and corrections to control unit software shall be made available to the Department by the supplier at no additional cost.

907-648.03.5--Maintenance and Technical Support. The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. The manufacturer of the wireless radio equipment must provide, and have a parts support system capable of providing parts for a period of five (5) years from the date of system acceptance.

Spare parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale of said spare parts.

The suppliers shall maintain an ongoing program of technical support for the wireless radio interconnect system. This technical support shall be available via telephone or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale of said technical support services.

907-648.04--Method of Measurement. Radio interconnect and repeater installation will be measured as a unit quantity per each, which measurement shall include radio, software, base stations, power supply, antennas, cables and connectors, lightning suppressors, mounting and grounding hardware, enclosures, receivers, transceivers, modems, UPS, switches and all other items necessary to complete the installation to provide appropriate RF Data Link. Measurement shall also include all system documentation including shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams and other materials necessary to document the operation of the Wireless Radio Interconnect System.

The radio interconnects and repeaters will be measured for payment on a per each basis as follows:

- 30% of the contract unit price upon delivery to the site. Delivery cannot be more than 60 days before anticipated installation.
- 70% of the contract unit price upon complete installation and Stand Alone testing of the wireless network
- 90% of the contract upon conditional system inspection.
- 100% of the contract unit price upon Final Maintenance Release.

Radio interconnect training, testing and spare parts will be measured per lump sum after satisfactorily completing all required training and delivery of all spare parts.

907-648.05--Basis of Payment. Radio interconnect and repeater installation, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract which price shall be full compensation for furnishing all materials; for installing, connecting and testing; and for all equipment, labor, tools, and incidentals necessary to complete the work.

Radio interconnect training, testing and spare parts, measured as prescribed above, will be paid for at the contract lump sum price.

Payment will be made under:

907-648-A: Radio Serial Interconnect, Installed in New Controller Cabinet - per each

907-648-B: Radio Serial Interconnect, Installed in Existing Controller Cabinet - per each

907-648-C: Radio Ethernet Interconnect, Local Intersection - per each

907-648-D: Radio Ethernet Distribution Repeater Installation - per each

907-648-E: Radio Ethernet Fixed Backbone Repeater Installation - per each

907-648-F: Radio Interconnect Training, Testing and Installation - lump sum

907-648-G: Radio Interconnect Spare Parts - lump sum

Repairing or replacing traffic signals on US Highway 90, MS. Highway 43, and Highway 603, known as Federal Aid Project Nos. ER-0003-01(109) / 104569307 & NH-0003-01(109) / 104569312, in the County of Hancock, State of Mississippi.

I (We) agree to complete the entire project within the specified contract time.

***** SPECIAL NOTICE TO BIDDERS *****
BIDS WILL NOT BE CONSIDERED UNLESS BOTH UNIT PRICES AND ITEM TOTALS ARE ENTERED.
BIDS WILL NOT BE CONSIDERED UNLESS THE BID CERTIFICATION LOCATED AT THE END OF THE BID SHEETS IS SIGNED

*****BID SCHEDULE*****

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Item Amount	
						Dollar	Ct	Dollar	Ct
Roadway Items									
0010	202-B005		40	Square Yard	Removal of Asphalt Pavement, All Depths				
0020	202-B035		27	Square Yard	Removal of Concrete Sidewalk				
0030	202-B059 Changed 04/17/2007		294	Square Feet	Removal of Legend, All Types				
0040	202-B076 Changed 04/17/2007		125	Linear Feet	Removal of Traffic Stripe				
0050	503-C007		85	Linear Feet	Saw Cut, Full Depth				
0060	608-B001 Changed 04/17/2007	(S)	90	Square Yard	Concrete Sidewalk, With Reinforcement				
0070	609-D002	(S)	60	Linear Feet	Combination Concrete Curb and Gutter Type 2				
0080	616-A002	(S)	16	Square Yard	Concrete Median and/or Island Pavement, 6-inch				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0090	618-A001		1	Lump Sum	Maintenance of Traffic	XXXXXXXX	XXX		
0100	620-A001		1	Lump Sum	Mobilization	XXXXXXXX	XXX		
0110	626-H001		90	Square Feet	Thermoplastic Legend, White				
0120	630-A002		52	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness				
0130	630-C004		14	Linear Feet	Steel U-Section Posts, 3.0 to 3.5 lb/ft				
0140	630-E004		39	Pounds	Structural Steel Angles & Bars, 7/16" x 2 1/2" Flat Bar				
0150	630-K002		28	Linear Feet	Welded & Seamless Steel Pipe Posts, 3 1/2"				
0160	635-A001		3,794	Linear Feet	Vehicle Loop Assemblies				
0170	635-B001		2	Each	Probe Point Detection Units, Paired				
0180	636-A001		15,010	Linear Feet	Shielded Cable, AWG #18, 4 Conductor				
0190	638-A005		19	Each	Loop Detector Amplifier, Card Rack Mounted, 4 Channel				
0200	639-A003 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0202	907-639-A005 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type 1, 50' Shaft				
0210	639-A012 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0212	907-639-A006 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 30' Arm				
0220	639-A013 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0222	907-639-A007 Added 04/17/2007		2	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 40' Arm				
0230	639-A014 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0232	907-639-A002 Added 04/17/2007		2	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 50' Arm				
0240	639-A016 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0242	907-639-A008 Added 04/17/2007		2	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 55' Arm				
0250	639-A017 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0252	907-639-A009 Added 04/17/2007		8	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 60' Arm				
0260	639-A087 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0262	907-639-A010 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 35' Arm				
0270	639-A096 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0272	907-639-A011 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 35' Arm				
0280	639-A098 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0282	907-639-A012 Added 04/17/2007		2	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 45' Arm				
0290	639-A111 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0292	907-639-A013 Added 04/17/2007		2	Each	Traffic Signal Equipment Pole, Type III, 17' Shaft, 50' & 50' Arms				
0300	639-A112 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0302	907-639-A014 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type III, 17' Shaft, 55' & 60' Arms				
0310	639-A118 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0312	907-639-A015 Added 04/17/2007		3	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 50' Arm				
0320	639-A119 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0322	907-639-A016 Added 04/17/2007		3	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 55' Arm				
0330	639-A122 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0332	907-639-A017 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 25' Arm				
0340	639-A123 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0342	907-639-A018 Added 04/17/2007		4	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 65' Arm				
0350	639-A124 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0352	907-639-A019 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 70' Arm				
0360	639-A134 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0362	907-639-A020 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 60' Arm				
0370	639-A149 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0372	907-639-A021 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 40' Arm				
0380	639-A153 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0382	907-639-A022 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type III, 17' Shaft, 30' & 45' Arms				
0390	639-A154 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0392	907-639-A023 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type III, 17' Shaft, 40' & 45' Arms				
0400	639-A155 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0402	907-639-A024 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 35' & 50' Arms				
0410	639-A156 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0412	907-639-A027 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 40' & 55' Arms				
0420	639-A157 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0422	907-639-A026 Added 04/17/2007		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 45' & 50' Arms				
0430	640-A016		78	Each	Traffic Signal Heads, Type 1 LED				
0440	640-A018		11	Each	Traffic Signal Heads, Type 3 LED				
0450	640-A019		5	Each	Traffic Signal Heads, Type 5 LED				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0460	640-A022		24	Each	Traffic Signal Heads, Type 7 LED				
0470	640-A031		10	Each	Traffic Signal Heads, Type 1A LED				
0480	640-A034 Changed 04/17/2007		4	Each	Traffic Signal Heads, Type 6 LED Countdown				
0490	640-A035		5	Each	Traffic Signal Heads, Type 7A, LED				
0500	642-A008		13	Each	Solid State Traffic Actuated Controllers, Type 8A				
0510	643-A001		1	Each	Closed Loop On-Street Master System				
0520	647-A001		28	Each	Pullbox, Type 1				
0530	647-A005		73	Each	Pullbox, Type 2				
0540	650-A002		5	Each	On Street Video Equipment, Fixed Type				
0550	650-A003		2	Each	On Street Video Equipment, PTZ Type				
0560	666-B015 Changed 04/17/2007		615	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 5 Conductor				
0570	666-B016 Changed 04/17/2007		9,150	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 7 Conductor				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0580	666-B022 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0582	666-B031 Added 04/17/2007		895	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #8, 2 Conductor				
0590	666-D005 Changed 04/17/2007		2,715	Linear Feet	Electric Cable, Aerial Supported in Conduit, IMSA 20-1, AWG 14, 7 Conductor				
0600	668-A016 Changed 04/17/2007		7,585	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 1"				
0610	668-A018 Changed 04/17/2007		710	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 2"				
0620	668-A020 Changed 04/17/2007		1,180	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 3"				
0630	668-B023 Changed 04/17/2007		2,530	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 1"				
0640	668-B025 Changed 04/17/2007		3,580	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 3"				
0642	668-C003 Added 04/17/2007		100	Linear Feet	Traffic Signal Conduit, Aerial Supported, Type 1, 1"				
0650	907-626-G002 Changed 04/17/2007		1,280	Linear Feet	Thermoplastic Detail Stripe, White, 4" Equivalent Length				
0660	907-626-G003		1,920	Linear Feet	Thermoplastic Detail Stripe, Yellow, 4" Equivalent Length				
0670	907-626-H003 Changed 04/17/2007		10,078	Linear Feet	Thermoplastic Legend, White, 4" Equivalent Length				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0680	907-639-C001 Deleted 04/17/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0682	907-639-C002 Added 04/17/2007		175	Cubic Yard	Pole Foundations, 36" Diameter				
0685	907-639-D001 Added 04/17/2007		630	Linear Feet	Slip Casing, 36" Diameter				
0690	907-642-B002		2	Each	Solid State Traffic Actuated Controller Modification, Per Plans				
0700	907-648-C001		14	Each	Radio Ethernet Interconnect, Local Intersection				
0710	907-648-D001 Changed 04/17/2007		4	Each	Radio Ethernet Distribution Repeater Installation				
0720	907-648-E001		9	Each	Radio Ethernet Fixed Backbone Repeater Installation				
0730	907-648-F001		1	Lump Sum	Radio Interconnect Training, Testing and Installation	XXXXXXXX	XXX		
0740	907-649-A001		38	Each	Video Detection System, 1 Sensor				
0750	907-649-B001		18	Each	Video Detection-Data Collection and Reporting Tool License				
0760	907-649-C001		1	Lump Sum	Video Detection Software and Setup	XXXXXXXX	XXX		
0770	907-649-D001		18	Each	Video Detection-Digitized Video Encoder/Decoded				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0780	907-649-E001		1	Lump Sum	Video Detection Training	XXXXXXXX	XXX		
0790	907-654-A001		2	Each	Battery Back-up System				

*** BID CERTIFICATION ***

TOTAL BID.....$_____

*** DBE/WBE SECTION ***

Complete item nos. 1, 2, and/or 3 as appropriate. See Notice to Bidders addressing Disadvantaged Business Enterprises in Highway Construction.

1. I/We agree that no less than _____ percent shall be expended with small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE and WBE).

2. Classification of Bidder: Small Business (DBE)_____ Small Business (WBE)_____

3. A joint venture with a Small Business (DBE/WBE): _____

*** SIGNATURE STATEMENT ***

BIDDER ACKNOWLEDGES THAT HE/SHE HAS CHECKED ALL ITEMS IN THIS PROPOSAL FOR ACCURACY AND CERTIFIED THAT THE FIGURES SHOWN THEREIN CONSTITUTE THEIR OFFICIAL BID.

_____

BIDDER'S SIGNATURE

_____

BIDDER'S COMPANY

_____

BIDDER'S FEDERAL TAX ID NUMBER