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	6/19/2007	ADDENDUM NO.		DATED	
ADDENDUM NO		DATED		ADDENDUM NO.		DATED	

Number	Description
1	Replace Table of Content with same; Revise pages 1, 2 and 3 of Notice To Bidders No. 1140 with same; Revise Notice To Bidders No. 1510 with same; Revise Notice To Bidders No. 1512 with same; add Notice To Bidders No. 1627; add Special Provision 907-630-3; revise Special Provision No. 907-648-1 with same; replace bid sheets with same; delete the progress schedule from the back of the proposal; requires an addendum diskette.

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

TABLE OF CONTENTS

PROJECT: ER-NH-0003-01(108) / 104569306 &
ER-NH-0003-01(108) / 104569308 -- Harrison County

-CONTINUED ON NEXT PAGE-

907-107-2: Permits License, and Taxes
907-107-3: Contractor's Protection Plan
907-108-11: Prosecution and Progress
907-108-13: Liquidated Damages Table
907-109-3: Partial Payment, W/Supplement
907-213-1: Agricultural Limestone
907-227-4: Hydroseeding
907-401-2: Hot Mix Asphalt (HMA), W/Supplement
907-403-4: Hot Mix Asphalt (HMA), W/Supplement
907-603-5: Video Pipe Inspection
907-618-4: Placement of Temporary Traffic Stripe
907-619-1: Changeable Message Sign
907-622-4: Field Office Building
907-626-4: Thermoplastic Markings
907-626-12: Double Drop Thermoplastic Stripe
907-629-1: Retaining Wall Crash Cushion
907-630-3: Contractor Designed Overhead Sign Supports
907-639-1: Traffic Signal Equipment Poles
907-648-1: Radio Interconnect
907-649-1: Video Vehicle Detection
907-687-4: Loop, Sensor, Loop Automatic Traffic Recorder (ATR) Station
907-701-2: Portland Cement
907-707-2: Joint Material
907-708-3: Non Metal Drainage Structures
907-711-3: Synthetic Structural Fiber Reinforcement
907-714-2: Miscellaneous Materials
907-715-1: Agricultural Limestone
907-804-2: Concrete Bridges and Structures W/Supplement
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 2-16,
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

SECTION 904 - NOTICE TO BIDDERS NO. 1140 **CODE: (SP)**

DATE: 06/15/2007

SUBJECT: Radio Interconnect

PROJECT: ER-NH-0003-01(108) / 104569306 & 308 -- Harrison County

Bidders are hereby advised that the following Radio Interconnect Modifications specifications will be required on this project.

Radio Interconnect Modifications

Scope of Work: The Mississippi Department of Transportation desires to implement a high capacity, high speed wireless RF Data network capable of providing a minimum redundant 100 Mbps, full duplex, connection between fixed repeater (backbone) distribution sites. The distribution system must consist of a tandem system that is capable of both Near-Line-of-Site (NeLOS) and Non-Line-of-Sight (NLOS) to each intersection. The NeLOS system must provide a minimum of 5Mbps of access to each serviced intersection. The NLOS system must provide a minimum of 1.5Mbps of access to each serviced intersection. The NLOS system is to be reserved strictly for intersections that cannot connect to the NeLOS system. The radio channel infrastructure must be designed to support the full requirements of these specifications. **The wireless RF Data network installed under this project (ER-NH-0003-01(108)) must be fully and completely compatible and interoperable with the wireless network being installed in Hancock County under Project# ER-NH-0003-01(109).** MDOT would like to utilize licensed frequencies for the fixed repeaters (backbone), license restricted public safety frequency for the NeLOS, and license free spectrum for the NLOS distribution system. It is expected that the system will transmit data over standard conventional radio channels. The overall NeLOS and NLOS distribution system will be used to interconnect a minimum of 54 traffic signal locations and provide Ethernet capability at each intersection. MDOT is not specifying a specific technology or mix of technologies. A variety of frequency bands can be used. The RF infrastructure provided in this project must cover all intersections as listed in this Notice to Bidders and provide communications back to a central controller located at the MDOT Lyman Project Office, 16499 Highway 49, Saucier, MS 39574. The system must be expandable to cover future intersections which MDOT may choose to add at a future date.

Project Locations/Sites: Predictable and consistently reliable RF communications coverage shall be required for all MDOT intersections and tower (backbone) locations. A general map that illustrates the desired overall coverage area is included in this Notice to Bidders, Appendix A. Appendix B, illustrates the specific coverage area required for this phase of the overall Highway 90 project and this specific Notice to Bidders. The Mississippi Department of Transportation will supply limited information on the suggested sites but it will be the Contractor's responsibility to forecast coverage from these sites using their own methods. These forecasts must meet MDOT's

requirements for the desired system coverage and future growth. Elements of consideration should include current tower heights as opposed to required and/or desired tower heights. MDOT strongly recommends using existing state radio towers and/or city owned water towers as repeater backbone locations. The Contractor is not limited to the MDOT suggested tower locations in this Notice to Bidders. It is the responsibility of the Contractor to select the tower locations that will guarantee MDOT the desired system coverage outlined in these specifications. However, MDOT must approve all new tower site additions and/or required tower site replacements. MDOT will negotiate any necessary agreements and access permits with the local municipalities. It is also the Contractor's responsibility to determine the number of radio channels needed to meet the minimum system requirements. The Mississippi Department of Transportation will not be liable for any costs incurred by the Contractor in preparing a response to these specifications. The Contractor will submit a response at his own risk and expense.

The Contractor is responsible for the RF link performance. If the RF coverage performance of the installed system does not meet the requirements of these specifications, the Contractor will modify or otherwise cause the system to meet the minimum requirements at no cost, directly or indirectly, to the Mississippi Department of Transportation, and must state a time commitment for correcting such a condition.

Intersection Locations:

Harrison County Highway 90 intersection locations, in East Biloxi, that must support a minimum of 1.5 Mbps transfer rate.

- White Avenue
- Porter Avenue
- Beau Rivage Garage
- Caillavet Street
- Reynoir Street
- Lameuse Street
- Main Street
- Oak Street
- Maple Street
- Pine Street
- Cedar Avenue
- Myrtle Street

Suggested Tower Locations:

- Kuhn Street Water Tower City of Biloxi
- Stennis/Leslie Drive Tower City of Biloxi
- MDOT Lyman Project Office MDOT (Required Central Site)

Documentation: <u>The Contractor must provide in their response to this bid a Conceptual Design, System Diagrams, Product Specification sheets, and list of any proposed</u>

Subcontractors for the proposed Radio Interconnect system. The Conceptual design should include, but is not limited to, a narrative outline of the hardware, software, technology, and vendor alliances that will be needed to implement the proposed system. System Diagrams will be included in the package illustrating the following interconnections:

- General overview of the RF repeater (backbone) distribution hardware configuration and coverage area.
- General overview of the RF NLOS distribution hardware configuration and coverage area.

All documents and drawings must be professionally drafted, clear, and legible. Contractor must provide an electronic copy of all documents and drawings.

MDOT reserves the right to accept or reject the proposed Conceptual Design at its sole discretion.

References: The Contractor must be a reputable, established, and financially stable provider of wireless networks and must be a licensed Competitive Local Exchange Carrier (CLEC) and have held a CLEC license for at least the last three years with no interruption in licensure.

The Contractor must provide in their response to this bid a references from at least three (3) government entities that are currently utilizing a RF wireless solution based on the same technology as that proposed by the Contractor and which the Contractor has implemented in the last three (3) years.

Training: 120 hours of training and assistance shall be provided for operations, testing, and maintenance of the Radio Interconnect Systems.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1510 **CODE: (SP)**

DATE: **06/18/2007**

SUBJECT: **Contract Time**

PROJECT: **ER-NH-0003-01(108) / 104569306 &**
ER-NH-0003-01(108) / 104569308 -- Harrison County

The calendar date for completion of work to be performed by the Contractor for this project shall be **November 14, 2008** which date or extended date as provided in Subsection 108.06 shall be the end of contract time. It is anticipated that the Notice of Award will be issued by not later than **July 10, 2007** and the date for issuing the Notice to Proceed / Beginning of Contract Time will be simultaneous with the execution of the contract.

A progress schedule as referenced to in Subsection 108.03 will not be required for this contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1512 **CODE: (SP)**

DATE: 06/18/2007

SUBJECT: Cooperation Between Contractors and Utilities

PROJECT: ER-NH-0003-01(108) / 104569306 &
ER-NH-0003-01(108) / 104569308 -- Harrison County

The Bidder's Attention is hereby called to Subsections 105.06, Cooperation With Utilities, & 105.07, Cooperation Between Contractors, of the 2004 Edition of the Mississippi Standard Specification for Road and Bridge Construction.

This project adjoins projects ER-BR-0003-01(099)/104556 / 301 & 302 & ER-0110-01(025) / 104619 in the county of Harrison, which will be in progress. The Contractors shall cooperate with each other and with the Department during construction of the adjoining projects.

Bidders are advised that there will also be utility restoration work within the limits of this project. Contractors shall closely coordinate their work with all utility restoration activities through the Project Engineer. In the coordination efforts, the Contractors may be required to shift their operations to another location or suspend operations for a short, reasonable duration due to the utility restoration.

Reasonable delays will not be grounds for monetary compensation. Any delays of less than or equal to 24 continuous hours will be a reasonable delay.

The successful bidder shall familiarize themselves with the existing contracts referred to above and comply with the provisions of Subsections 105.06 & 105.07.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

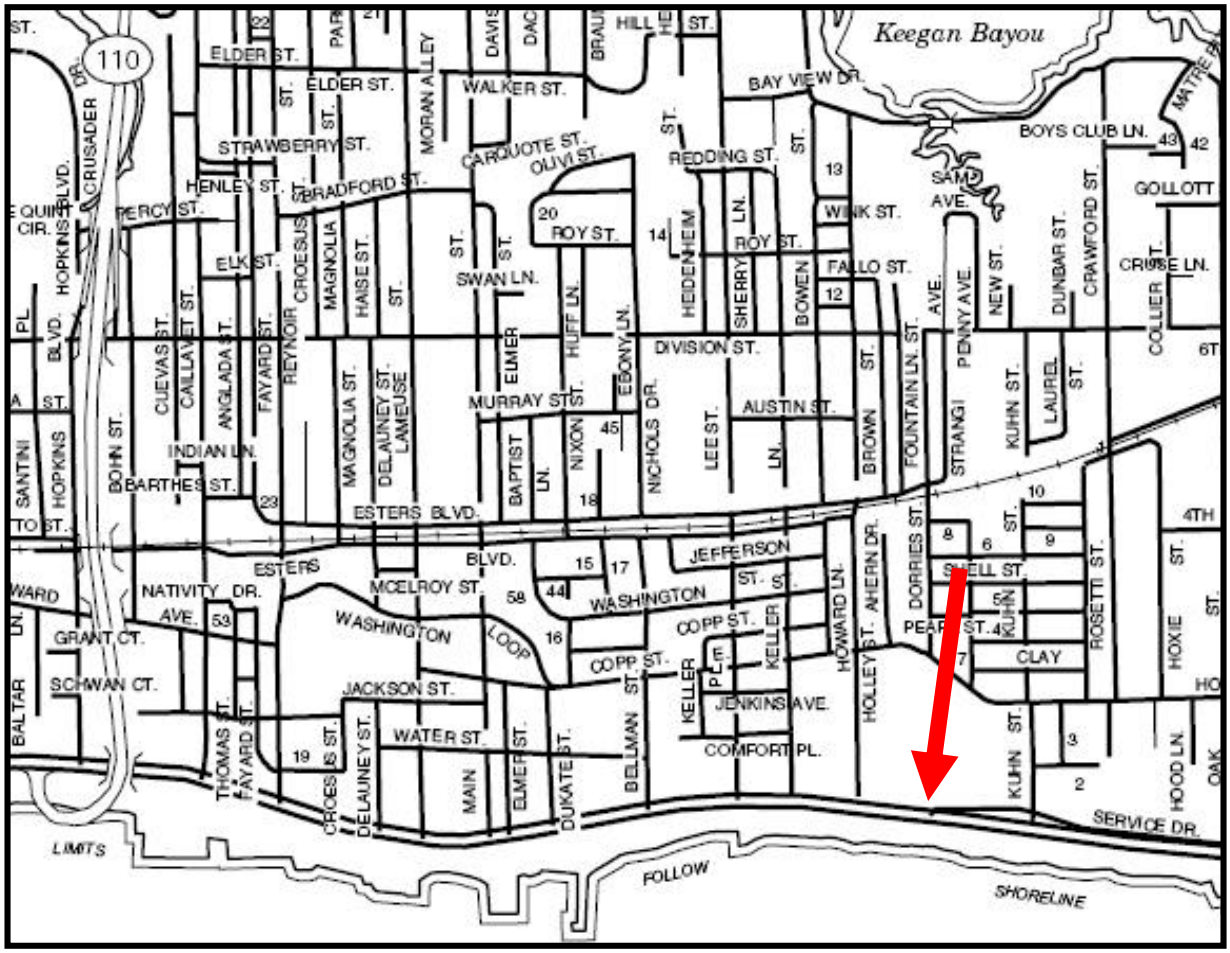
SECTION 904 - NOTICE TO BIDDERS NO. 1627 **CODE: (SP)**

DATE: 06/18/2007

SUBJECT: Automatic Traffic Recorder (ATR) Site

PROJECT: ER-NH-0003-01(108) / 104569306 & 308 -- Harrison County

Attached is a map showing the location of the Automatic Traffic Recorder (ATR).



Site 2	Location: US 90, Harrison Co.
1.2 Mi. E of I-110 4 Lanes Total, divided (27 ft median) 12 ft lanes with no shoulder Asphalt pavement	N 30° 23' 36.13" W 88° 52' 31.62"
Equipment Location	**Location Map for Automatic Traffic Recorder Station**
Equipment cabinet located WB Power and Phone visible ATR machine to be 20 ft. from shoulder	**Date** **17-May-07** **Prepared By** **Planning Division** **Mississippi Department of Transportation**

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-630-3 **CODE: (IS)**

DATE: 11/12/2004

SUBJECT: Contractor Designed Overhead Sign Supports

Section 630, Traffic Signs and Delineators, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-630.01--Description. Delete the last two paragraphs of Subsection 630.01 on page 454 and substitute the following:

The Contractor shall submit to the Bridge Engineer a design using steel. The design shall be a rectangular box truss connected at both the top and bottom to the vertical support posts. With the exception of cantilever mounts, overhead support structures shall have two vertical support posts at each end of the truss. Design drawings, calculations and other necessary supporting data shall be submitted as soon as possible after the Pre-Construction Conference. The design shall be prepared by a Professional Engineer registered in the State of Mississippi proficient in the design of overhead sign structures.

The design wind speed shall be as shown in the design specifications with a minimum of 90 mph. In addition to the loads required in the design specifications, overhead sign supports shall be designed to support a uniform load of 40 pounds per linear foot applied to the vertical truss to which the signs are attached, extending along the truss across the roadway below from points four feet outside each outer edge of pavement, unless otherwise specified. Appropriate damping or energy absorbing devices shall be installed in the event that an overhead structure is erected without installation of the permanent sign panels or if the area of permanent sign panels installed is not sufficient to prevent detrimental wind-induced vibration.

The larger of the following sign configurations shall be used in the design of overhead sign support structures:

1) The sign dimensions and configuration shown in the contract plans
2) Sign Height: 20 feet; Sign Width: Pavement Edge to Pavement Edge plus 16 feet
3) Sign Height: 20 feet; Sign Width: Post to Post Clear Spacing minus 44 feet

The sign widths in configurations 2) and 3) should be located symmetrically about the center of the truss.

907-630.05--Basis of Payment. Add the “907” prefix to pay item nos. 630-I and 630-J on page 463.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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

DATE: 06/15/2007

SUBJECT: Radio Interconnect

PROJECT: ER-NH-0003-01(108) / 104569306 & 308 -- Harrison 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 that has NeLOS to the nearest distribution tower is required to have a minimum of 5Mbps connection to this tower. In the event a local intersection does not have proper NeLOS to the nearest tower, the vendor should evaluate if the intersection has NeLOS to another downstream tower within range. In the event the intersection does not have NeLOS to any adjacent tower within range, the vendor must connect the intersection using an Ethernet Radio that is NLOS capable. The NLOS radio is required to have a minimum 1.5 Mbps connection to the nearest Distribution Repeater Radio. The Contractor must guarantee 95% sustainable Bandwidth for both the NeLOS and NLOS systems. All interconnections and interfaces must provide for a complete installation and provide Ethernet access at each intersection location. The NeLOS local controller radios must utilize the license restricted Public Safety frequency with RC4 Authentication, IP Address Access List, Protocol Filtering, and Virtual LAN. The NLOS local controller radios must utilize License Free Frequency Hopping Radios with RC4 Authentication, IP Address Access List, Protocol Filtering, and Virtual LAN.

Intersections will have multiple Ethernet devices, so 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, Near-Line-of-Sight (NeLOS) distribution base station and antenna system capable of delivering 5 Mbps fixed connections at 7 miles and 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 three (3) load balancing NeLOS access radios with a total bandwidth of 72Mbps per site, and three (3) load balancing NLOS access radios with a total bandwidth of 9 Mbps per site. Each distribution site must provide 360 degrees of coverage from both the NeLOS and NLOS systems. The NeLOS must have a minimum radius coverage area of seven (7) miles NeLOS with ten (10) miles Line-of-Sight (LOS), and the NLOS system must have a minimum radius coverage area of three (3) miles Non-Line-of-Sight with five (5) miles Line-of-Sight. The Contractor must guarantee 95 % sustainable bandwidth.

The NeLOS distribution system shall include at least four (4) non-overlapping channels with both 5 MHz and 10 MHz channel spacing modulation. NeLOS system must utilize the restricted public safety frequencies and comply with the high power mask requirements of the FCC regulation. Must include advanced security mechanisms (without impact on throughput) including WEP128, AES 128 encryption and FIPS 197 compliance.

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

Grading, Draining, Paving & Replacing traffic signals on US 90 between Rodenburg Ave. and Biloxi Bay, known as Federal Aid Project Nos. ER-NH-0003-01(108) / 104569306 & ER-NH-0003-01(108) / 104569308, in the County of Harrison, 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	201-A001		1	Lump Sum	Clearing and Grubbing	XXXXXXXX	XXX		
0020	202-A001		1	Lump Sum	Removal of Obstructions	XXXXXXXX	XXX		
0030	202-B024		3,845	Square Yard	Removal of Concrete Median & Island Pavement, All Depths				
0040	202-B035		12,373	Square Yard	Removal of Concrete Sidewalk				
0050	202-B038		78,324	Linear Feet	Removal of Curb, All Types				
0060	202-B047		1	Each	Removal of Guard Rail Bridge End Section, Type H				
0070	202-B051		75	Linear Feet	Removal of Guard Rail, Double Faced Rail Including Hardware, Post & Rail				
0080	202-B057		2	Each	Removal of Inlets, All Sizes				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0090	202-B078		2,840	Square Yard	Removal of Pavement, All Types and Depths				
0100	202-B094		93	Linear Feet	Removal of Curb &/or Curb and Gutter, All Types				
0110	202-B102		168	Linear Feet	Removal of Guard Rail				
0120	202-B106		4,268	Linear Feet	Removal of Pipe, All Sizes				
0130	202-B137		1	Each	Removal of Guard Rail Cable Anchor				
0140	202-B174		1,062	Linear Feet	Removal of Debris and Sand From Box Culvert, Less Than 6-foot Width				
0150	202-B175		267	Each	Removal of Debris and Sand From Inlet and Junction Box, AllTypes & Sizes				
0160	202-B176		16,098	Linear Feet	Removal of Debris and Sand From Pipe, 18" to Less Than 36" Diameter				
0170	202-B177		2,616	Linear Feet	Removal of Debris and Sand From Pipe, 36" to Less Than 54" Diamater				
0180	202-B179		150	Linear Feet	Removal of Debris and Sand From Pipe, 51" x 31" Arch Pipe				
0190	202-B181		736	Linear Feet	Removal of Debris and Sand From Pipe, 65" x 40" Arch Pipe				
0200	202-B182		2,201	Linear Feet	Removal of Debris and Sand From Pipe, Less Than 18" Diameter				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0210	202-B189		1	Each	Removal of Impact Attenuator				
0220	202-B218		7	Each	Removal of Inlet Tops				
0230	202-B219		279	Each	Removal of and Replacement of SS-2 Inlet Top				
0240	202-B220		326	Linear Feet	Removal of Debris and Sand From Pipe, 58" x 36" Arch Pipe				
0250	202-B221		106	Linear Feet	Removal of Debris and Sand From Pipe, 72" x 51" Arch Pipe				
0260	202-B222		6,917	Linear Feet	Removal of Debris and Sand From Pipe, 15" Slottted Metal Pipe				
0270	203-A002	(E)	417	Cubic Yard	Unclassified Excavation, LVM				
0280	203-EX006	(E)	2,478	Cubic Yard	Borrow Excavation, AH, LVM, Class B3				
0290	203-H004	(E)	100	Cubic Yard	Surplus Excavation, LVM, AH				
0300	206-A001	(S)	405	Cubic Yard	Structure Excavation				
0310	213-C001		17	Ton	Superphosphate				
0320	216-B004		5,000	Square Yard	Solid Sodding, Bermuda				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0330	219-A001		100	Thousand Gallon	Watering	20.	00	2,000.	00
0340	220-A001		17	Acre	Insect Pest Control	30.	00	510.	00
0350	234-A001		49,300	Linear Feet	Temporary Silt Fence				
0360	235-A001		200	Bale	Temporary Erosion Checks				
0370	406-A001		226,661	Square Yard	Cold Milling of Bituminous Pavement, All Depths				
0380	413-E001		41,360	Linear Feet	Sawing and Sealing Transverse Joints in Asphalt Pavement				
0390	503-C007		1,000	Linear Feet	Saw Cut, Full Depth				
0400	601-B001	(S)	31	Cubic Yard	Class "B" Structural Concrete, Minor Structures				
0410	602-A001	(S)	2,297	Pounds	Reinforcing Steel				
0420	603-CA002	(S)	1,984	Linear Feet	18" Reinforced Concrete Pipe, Class III				
0430	603-CA003	(S)	1,064	Linear Feet	24" Reinforced Concrete Pipe, Class III				
0440	603-CA004	(S)	428	Linear Feet	30" Reinforced Concrete Pipe, Class III				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0450	603-CA005	(S)	880	Linear Feet	36" Reinforced Concrete Pipe, Class III				
0460	603-CA006	(S)	232	Linear Feet	42" Reinforced Concrete Pipe, Class III				
0470	603-CE006	(S)	40	Linear Feet	58" x 36" Concrete Arch Pipe, Class A III				
0480	603-CE007	(S)	80	Linear Feet	65" x 40" Concrete Arch Pipe, Class A III				
0490	604-A001		4,373	Pounds	Castings				
0500	606-A002		63	Each	Guard Post, Type II Modified				
0510	606-B002		75	Linear Feet	Guard Rail, Class A, Type 1, Double Faced				
0520	606-B003		263	Linear Feet	Guard Rail, Class A, Type 1, Wood Post				
0530	606-C003		1	Each	Guard Rail, Cable Anchor, Type 1				
0540	606-D008		1	Each	Guard Rail, Bridge End Section, Type H				
0550	608-A001	(S)	17,013	Square Yard	Concrete Sidewalk, Without Reinforcement				
0560	609-B001	(S)	863	Linear Feet	Concrete Curb, Header				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0570	609-B002	(S)	442	Linear Feet	Concrete Curb, Doweled				
0580	609-B008	(S)	59,888	Linear Feet	Concrete Curb, Special Design Header, Type 1				
0590	609-B009	(S)	17,969	Linear Feet	Concrete Curb, Special Design Header, Type 2				
0600	609-D002	(S)	685	Linear Feet	Combination Concrete Curb and Gutter Type 2				
0610	609-D016	(S)	93	Linear Feet	Combination Concrete Curb and Gutter Type 3 Modified				
0620	613-D007		2	Each	Adjustment of Utility Appurtenance				
0630	616-A001	(S)	4,885	Square Yard	Concrete Median and/or Island Pavement, 4-inch				
0640	616-A003	(S)	766	Square Yard	Concrete Median and/or Island Pavement, 10-inch				
0650	618-A001		1	Lump Sum	Maintenance of Traffic	XXXXXXXX	XXX		
0660	619-A1004		3	Mile	Temporary Traffic Stripe, Continuous White, Paint				
0670	619-A2004		3	Mile	Temporary Traffic Stripe, Continuous Yellow, Paint				
0680	619-A3007		21	Mile	Temporary Traffic Stripe, Skip White, Paint				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0690	619-A4002		2,080	Linear Feet	Temporary Traffic Stripe, Skip Yellow, Paint				
0700	619-A5002		13,786	Linear Feet	Temporary Traffic Stripe, Detail, Paint				
0710	619-A6003		14,552	Linear Feet	Temporary Traffic Stripe, Legend, Paint				
0720	619-A6004		2,071	Square Feet	Temporary Traffic Stripe, Legend, Paint				
0730	619-D1001		32	Square Feet	Standard Roadside Construction Signs, Less than 10 Square Feet				
0740	619-D2001		696	Square Feet	Standard Roadside Construction Signs, 10 Square Feet or More				
0750	619-G4005		48	Linear Feet	Barricades, Type III, Double Faced				
0760	620-A001		1	Lump Sum	Mobilization	XXXXXXXX	XXX		
0770	626-A002		11	Mile	6" Thermoplastic Traffic Stripe, Skip White				
0780	626-B002		2	Mile	6" Thermoplastic Traffic Stripe, Continuous White				
0790	626-D001		1,040	Linear Feet	6" Thermoplastic Traffic Stripe, Skip Yellow				
0800	626-E002		2	Mile	6" Thermoplastic Traffic Stripe, Continuous Yellow				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0810	626-G001		33,426	Linear Feet	Thermoplastic Detail Stripe, White				
0820	626-G002		16,582	Linear Feet	Thermoplastic Detail Stripe, Yellow				
0830	626-H001		5,794	Square Feet	Thermoplastic Legend, White				
0840	626-H002		22,644	Linear Feet	Thermoplastic Legend, White				
0850	627-K001		2,114	Each	Red-Clear Reflective High Performance Raised Markers				
0860	627-L001		312	Each	Two-Way Yellow Reflective High Performance Raised Markers				
0870	629-A001		1	Each	Vehicular Impact Attenuator, 50 MPH				
0880	630-A001		1,121	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.080" Thickness				
0890	630-A002		706	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness				
0900	630-B001		803	Square Feet	Interstate Directional Signs, Bolted Extruded Aluminum Panels, Ground Mounted				
0910	630-C004		2,698	Linear Feet	Steel U-Section Posts, 3.0 to 3.5 lb/ft				
0920	630-D003		282	Linear Feet	Structural Steel Beams, W6 x 9				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0930	630-E001		174	Pounds	Structural Steel Angles & Bars, 3" x 3" x 1/4" Angles				
0940	630-E002		58	Pounds	Structural Steel Angles & Bars, 3 1/2" x 3 1/2" x 1/4" Angles				
0950	630-E003		328	Pounds	Structural Steel Angles & Bars, 4" x 4" x 5/16" Angles				
0960	630-E004		180	Pounds	Structural Steel Angles & Bars, 7/16" x 2 1/2" Flat Bar				
0970	630-I006 Deleted 06/18/2007					XXXXXXXX	XXX	XXXXXXXX	XXX
0980	630-K001		103	Linear Feet	Welded & Seamless Steel Pipe Posts, 3"				
0990	630-K003		48	Linear Feet	Welded & Seamless Steel Pipe Posts, 4"				
1000	631-A001		1,942	Cubic Yard	Flowable Fill				
1010	635-A001		96	Linear Feet	Vehicle Loop Assemblies				
1020	636-A001		950	Linear Feet	Shielded Cable, AWG #18, 4 Conductor				
1030	638-A005		2	Each	Loop Detector Amplifier, Card Rack Mounted, 4 Channel				
1040	640-A016		67	Each	Traffic Signal Heads, Type 1 LED				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
1050	640-A018		6	Each	Traffic Signal Heads, Type 3 LED				
1060	640-A020		1	Each	Traffic Signal Heads, Type 5R LED				
1070	640-A022		28	Each	Traffic Signal Heads, Type 7 LED				
1080	640-A031		3	Each	Traffic Signal Heads, Type 1A LED				
1090	640-A034		76	Each	Traffic Signal Heads, Type 6 LED Countdown				
1100	640-A036		12	Each	Traffic Signal Heads, Type 5L, LED				
1110	640-A037		2	Each	Traffic Signal Heads, Type 5LA, LED				
1120	642-A008		12	Each	Solid State Traffic Actuated Controllers, Type 8A				
1130	643-A001		1	Each	Closed Loop On-Street Master System				
1140	644-A001		45	Each	Optical Detector				
1150	644-B001		8,010	Linear Feet	Optical Detector Cable				
1160	644-C002		12	Each	Phase Selector, 4 Channel				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
1170	646-A001		1	Lump Sum	Removal of Existing Traffic Signal Equipment	XXXXXXXX	XXX		
1180	647-A005		63	Each	Pullbox, Type 2				
1190	650-A002		2	Each	On Street Video Equipment, Fixed Type				
1200	650-A003		1	Each	On Street Video Equipment, PTZ Type				
1210	666-B004		3,558	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 10, 2 Conductor				
1220	666-B015		10,127	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 5 Conductor				
1230	666-B016		8,160	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 7 Conductor				
1240	668-A016		905	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 1"				
1250	668-A018		840	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 2"				
1260	668-A020		335	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 3"				
1270	668-B024		1,955	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 2"				
1280	668-B025		2,225	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 3"				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
1290	699-A001		1	Lump Sum	Roadway Construction Stakes	XXXXXXXX	XXX		
1300	907-213-A001		68	Ton	Agricultural Limestone				
1310	907-227-A001		34	Acre	Hydroseeding				
1320	907-403-B002	(BA1)	3,474	Ton	Hot Mix Asphalt, HT, 19-mm mixture, Leveling				
1330	907-403-D004	(BA1)	17,196	Ton	Hot Mix Asphalt, HT, 9.5-mm mixture, Polymer Modified				
1340	907-403-E004	(BA1)	18,441	Ton	Hot Mix Asphalt, HT, 9.5-mm mixture, Polymer Modified, Leveling				
1350	907-603-V001		43,148	Linear Feet	Video Pipe Inspection, All Sizes				
1360	907-622-A001		1	Each	Engineer's Field Office Building, Type 2				
1370	907-626-C003		7	Mile	6" Thermoplastic Double Drop Edge Stripe, Continuous White				
1380	907-626-F003		6	Mile	6" Thermoplastic Double Drop Edge Stripe, Continuous Yellow				
1390	907-626-G001		784	Linear Feet	Thermoplastic Detail Stripe, Blue-ADA				
1400	907-629-D001		64	Linear Feet	Crash Cushion System				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
1405	907-630-I001 Added 06/18/2007		1	Lump Sum	Metal Overhead Sign Supports, Assembly No. 1, Contractor Designed	XXXXXXXX	XXX		
1410	907-639-A002		2	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 50' Arm				
1420	907-639-A006		3	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 30' Arm				
1430	907-639-A007		4	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 40' Arm				
1440	907-639-A011		4	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 35' Arm				
1450	907-639-A015		6	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 50' Arm				
1460	907-639-A016		2	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 55' Arm				
1470	907-639-A017		6	Each	Traffic Signal Equipment Pole, Type II, 17' Shaft, 25' Arm				
1480	907-639-A020		5	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 60' Arm				
1490	907-639-A021		3	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 40' Arm				
1500	907-639-A028		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 30' Arm				
1510	907-639-A029		2	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 45' Arm				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
1520	907-639-A030		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 65' Arm				
1530	907-639-A031		2	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 70' Arm				
1540	907-639-A032		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 25' & 60' Arms				
1550	907-639-A033		1	Each	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 35' & 35' Arms				
1560	907-639-A034		12	Each	Traffic Signal Equipment Pole, Type VI, 8' Shaft				
1570	907-639-C002		152	Cubic Yard	Pole Foundations, 36" Diameter				
1580	907-639-C003		7	Cubic Yard	Pole Foundations, 24" Diameter				
1590	907-639-D001		581	Linear Feet	Slip Casing, 36" Diameter				
1600	907-648-C001		12	Each	Radio Ethernet Interconnect, Local Intersection				
1610	907-648-D001		6	Each	Radio Ethernet Distribution Repeater Installation				
1620	907-648-E001		5	Each	Radio Ethernet Fixed Backbone Repeater Installation				
1630	907-648-F001		1	Lump Sum	Radio Interconnect Training, Testing and Installation	XXXXXXXX	XXX		

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
1640	907-649-A001		43	Each	Video Detection System, 1 Sensor				
1650	907-649-B001		14	Each	Video Detection-Data Collection and Reporting Tool License				
1660	907-649-D001		14	Each	Video Detection-Digitized Video Encoder/Decoded				
1670	907-649-E001		1	Lump Sum	Video Detection Training	XXXXXXXX	XXX		
1680	907-687-A014		1	Each	Loop, Sensor, Loop ATR Station				

*** 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