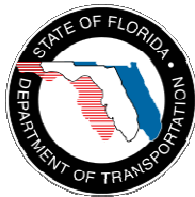


Brevard County Advanced Traffic Management System (ATMS) Requirements Traceability Verification Matrix (RTVM)

**October 9, 2012
Version 1.1**



Prepared for:
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Attached Reference Documents

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|---|--------------|
| Design/Build Maximum Price Request For Proposal For The Brevard County Advance Traffic Management System (ATMS) Expansion in Brevard County | Attachment 1 |
| BlueTOAD Installed Site Test Procedure | Attachment 2 |
| CCTV Stand Alone Test Procedures | Attachment 3 |
| Fiber Optic Test Procedures | Attachment 4 |
| Sensys Installed Site Test Procedure | Attachment 5 |

Requirement Identification

| Requirement Prefix | Definition |
|--------------------|----------------------------------|
| S | Overall System Requirement |
| CB | Cabinet |
| CD | Conduit |
| CM | Configuration Management |
| FD | Field Devices |
| FN | Fiber Optic Network |
| MS | Managed Field Ethernet Switch |
| NM | Network Management |
| TV | Closed Circuit Television (CCTV) |
| VD | Vehicle Detection System (VDS) |
| WS | Work Stations |

Verification Method Identification

| Verification Method | Definition |
|---------------------|---|
| Documentation | Verification required documentation is available. |
| Demonstration | Witnessing system operation in the expected or simulated environment without a need for measurement data. |
| Inspection | Direct observation of requirements. |
| Test | Direct measurement of system operation. |

Test Case Identification

| Test Case | Definition |
|-----------|---|
| TC01 | Overall System Test Procedures |
| TC02 | VDS Test Procedures |
| TC03 | Communications Test Procedures |
| TC04 | CCTV Test Procedures |
| TC05 | Install / Environmental Test Procedures |
| TC06 | Component Test Procedures |

The Brevard County ATMS Expansion Project RTVM

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|--|------------------------------------|---------|--------------|-----------|-------------|------------|
| CB001 | S001 | All cable terminations and connecting terminal blocks shall be contained in a weather-proof aluminum enclosure that shall meet the applicable requirements for a NEMA 3R rated cabinet, as specified in FDOT Standard Specifications Section 785, as it relates to the physical requirements of the cabinet, door and lock operations, and weatherproofing. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB002 | CB001 | The placement of device cabinets will provide the protection for the maintenance technician from the roadway traffic. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB003 | CB001 | A stable, level, and slip resistant concrete pad (tech pad) shall be at all new and existing, affected cabinet locations to allow a technician to stand on comfortably while working on equipment inside the cabinet. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB004 | CB003 | The tech pad shall, at a minimum, be reinforced to prevent cracking. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB005 | CB003 | The tech pad shall, at a minimum, have a depth of 4 inches, extend 36 inches from the face of each cabinet door, and be 36 inches wide. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB006 | CB003 | The tech pad shall be secured and stabilized in such a manner as to prevent shifting and undermining. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB007 | CB001 | Cabinets shall have all proper Surge Supression Equipment as called out in FDOT Specification 785. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB008 | CB001 | All cables shall enter the cabinet from the bottom of the cabinet. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB009 | S002 | As part of the central system improvements, a Type 336S ground mounted cabinet (local hub) shall be installed adjacent to the FDOT DASH III Master hub in the southwest quadrant of SR 528 and I-95 in Cocoa. This local hub shall meet the FDOT Specifications and provide full fiber optic connectivity to the FDOT master hub, I-95 72SM backbone FOC and SR 528 72SM backbone FOC white buffers. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC03 | Not Tested | |
| CB010 | CB009 | The Hub in requirement CB009 shall directly connect to the following: the FDOT router in adjacent master hub, the Traffic Engineering router in Viera, the Traffic Operations router in Merritt Island, the existing Port St. John local hub, SR 50/405 subsystem, and SR 46 subsystem. In addition, a type 336S cabinet shall be required at all locations as described in Table 4 in RFP E5N82. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC03 | Not Tested | |
| CB011 | CB001 | All cabinets within the project limits shall be at minimum TS 2 cabinets and shall replace or upgrade any non TS 2 cabinet to a TS 2 cabinet within the project limits defined by RFP E5N82. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|--|------------------------------------|---------|--------------|-----------|-------------|------------|
| CB012 | CB001 | If existing TS 2 cabinets do not have sufficient rack space to support the newly installed detection hardware, then additional detection racks shall be installed to provide the necessary connections to accommodate the wireless magnetometer detector units. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CB013 | CB001 | If a TS 2 cabinet cannot support any additional detection racks, the cabinet shall be upgraded or replaced with with a TS 2 that will provide sufficient space for the additional hardware to be installed. | Attachment 1 of the FDOT RFP E5N82 | 5.vi | Inspection | TC06 | Not Tested | |
| CD001 | S002 | Pull box and splice boxes containing fiber optic cable shall not contain power cables for ITS devices or other equipment. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD002 | S002 | In the event that cabling is supplied to above ground equipment installed on concrete signal strainpoles, the contractor shall furnish and install a minimum 2" external rigid metal conduit. All work shall be in accordance with but not limited to FDOT Specifications Section 630 and all applicable specifications. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD003 | S002 | Underground Fiber Optic conduit shall be HDPE Conduit. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD004 | CD003 | The HDPE Fiber Optic conduit shall be a minimum of two (2) two-inch (2") in diameter conduit with a minimum of two (2) conduits installed (one for fiber and one for spare use) for FOC trunkline installation and one (1) conduit for drop cable installation. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD005 | CD003 | The color designation for the conduit shall be orange and white with the orange conduit used for FOC installation and white for the spare. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD006 | CD002 | Pull box spacing shall not exceed 500 feet. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD007 | CD003 | HDPE conduit shall conform to performance requirements of FDOT Standard Specifications Section 783. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD008 | CD003 | Existing spare conduit may be utilized where useable and within the constraints of FDOT standards for cable routing. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD009 | CD008 | Existing conduit which houses only copper interconnect may be utilized for proposed fiber optic cable routing following the removal of existing copper interconnect. If conduit was utilized, verify copper was removed. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD010 | CD008 | The removal of copper interconnect and use of existing conduit shall be limited to only existing copper interconnect between and servicing only the signal cabinets within the project limits. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD011 | CD008 | Where existing conduit is utilized, pull boxes shall be upgraded to FDOT fiber optic pull box standards. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|---|------------------------------------|---------|---------------|-----------|-------------|------------|
| CD012 | CD003 | Bridge Mounted Fiber Optic conduit shall be rigid conduit. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CD013 | CD002 | The conduit shall be a minimum of two (2) two-inch (2") in diameter conduit with a minimum of two (2) conduits installed (one for fiber and one for spare use) for FOC trunkline installation and one (1) conduit for drop cable installation. | Attachment 1 of the FDOT RFP E5N82 | 5.v | Inspection | TC03 | Not Tested | |
| CM001 | S001 | The central system software and supporting hardware (Central Management System or CMS) shall be installed and configured in two locations: System 1 shall be located at The Brevard County Traffic Engineering Center in Viera and System 2 shall be located at The Brevard County Traffic Operations Center on Merritt Island. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM002 | CM001 | System 1 shall be located at The Brevard County Traffic Engineering Center in Viera and shall include the following four (4) servers: Server 1 shall include: Sensor Network Archive, Proxy and Statistics (SNAPS) software for the Wireless Magnetometer System Server 2 shall include: Arterial Travel Time Data Software, Server 3 shall include: Traffic Adaptive Software, Server 4 shall include: Video Management Software | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM003 | CM001 | System 2 shall be located at The Brevard County Traffic Operations Center on Merritt Island and shall include the following three (3) servers: Server 1 shall include: Backup ATMS.now Software (software provided by Brevard Co.), Server 2 shall include: Backup Traffic Adaptive Software, Server 3 shall include: Backup Video Management Software | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM004 | S001 | The CMS shall provide management and control of field devices (detectors, etc.) installed as well as performs data processing, analysis, and automated response. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM005 | CM001 | The Central Management System shall include a Device Management and Travel Time software server for the Wireless Magnetometer System. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM006 | CM001 | The Sensor Network Archive, Proxy, and Statistics (SNAPS) software shall be installed on a server running Fedora 10 operating system with MySQL Database and Apache HTTP server. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM007 | CM006 | The SNAPS software shall be capable of providing remote management to all deployed sensors and shall function as the central repository for detection event and device performance data which will be automatically generated from field installed devices | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM008 | CM006 | SNAPS shall be fully capable of continuously monitoring the health and performance of all detectors, to include, radio communications status, battery level, and management status for the entire VDS system as well as backing up and storing all VDS device configurations | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|---|------------------------------------|---------|---------------|-----------|-------------|------------|
| CM009 | CM002 | The Arterial Travel Time (ATT) software shall be installed on a server running Fedora 10 operating system with MySQL Database and Apache HTTP server. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM010 | CM009 | The Arterial Travel Time (ATT) software shall have the capability to establish travel time data through the re-identification of magnetic signatures of vehicles captured at upstream and downstream VDS devices. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM011 | CM009 | The ATT software must be configurable and scalable to sample data from all mainline VDS sensors of all corridors and shall be capable of archiving all ATT data with the ability to provide a graphing interface and the output of .xls and .csv format files. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM012 | CM009 | The ATT software shall be capable of populating a real time colored coded arterial map from the magnetic signature sampling. This map shall be composed of segments with each segment indicating through color codes the current level of congestion. Segment labels on the map shall be capable of displaying: Median Travel Time (sec), 80th percentile Travel Time (sec), 90th percentile Travel Time (sec), Vehicles in segment (number), Length of segment (miles). | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM013 | CM009 | ATT software shall be capable of providing a real-time XML data feed which will include data such as: Segment identification number, Time interval (seconds), Time of day when vehicle enters a segment, Minimum travel time within the current interval, 10th percentile through 90th percentile travel time within the current interval, Maximum travel time within the current interval, Number of vehicles counted over upstream array in current interval, Number of vehicles counted over downstream array in current interval, Number of matches used to generate the aggregate. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM014 | CM001 | The Traffic Adaptive Control (TAC) software shall be installed on a server running Windows Server 2008 R2 operating system, including 5 CALS. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM015 | CM014 | The TAC software shall be capable of providing a fully adaptive real-time traffic control system operation for the traffic signal network using the sensor data generated by the VDS devices and forwarded by traffic controllers. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM016 | CM014 | The traffic adaptive software shall be capable of optimizing phase times to accommodate traffic progression with the ability to link and unlink intersections so adjacent corridors and subsections can be coordinated together. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM017 | CM014 | The TAC software shall have the ability to have modified cycle times on a cycle by cycle basis. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM018 | CM014 | No external control boxes will be accepted as an interface between sensors and controller or central hardware. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC06 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|--|------------------------------------|---------|---------------|-----------|-------------|------------|
| CM019 | CM014 | The traffic adaptive control software shall be capable of integrating software-in-the-loop in conjunction with Synchro SimTraffic to demonstrate and test configurations before implementation on roadway traffic controllers. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM020 | CM014 | A software API shall be provided for integration with existing County traffic controllers. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM021 | CM014 | The TAC software must be capable of accomplishing traffic adaptive operations through two major components: The Tactical Element and the Strategic Element as defined in RFP E5N82 Section 5. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM022 | CM001 | The ATMS.now software will be provided by Brevard County and must be installed on a server running the Windows Server 2008 R2 operating system, including 5 CALS. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM023 | CM022 | The server that has ATMS.now installed shall serve as a backup Naztec ATMS.now server to mirror the existing Naztec ATMS.now server at Traffic Engineering in Viera. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM024 | CM001 | The contractor shall furnish and install video management software onto two (2) servers with one server functioning as the primary and the other as the backup server to the primary. The Traffic Engineering Center shall house the Primary and Traffic Operations Center shall house the Backup. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM025 | CM024 | The video management software shall be capable of providing centralized management, configuration and control of the CCTV system. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM026 | CM024 | Through the video management software, the system administrator shall be able to set different authorization levels for different types of users for various authorization level of live viewing and PTZ of the CCTV system. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM027 | CM024 | The video management software shall be able to support an unlimited number of cameras and monitors. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM028 | CM024 | The primary CCTV control software shall be capable of storing all device properties for all installed field CCTVs and serve as the central video distribution point for the client workstations. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM029 | CM024 | The central video management software server shall have both an application for configuration of the field devices and an application for viewing multiple simultaneous video streams while handling multiple field alarm inputs. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM030 | CM024 | The video management software shall be fully capable of supporting the County's existing CCTV devices and the newly installed CCTV devices as part of this project | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC03 | Not Tested | |
| CM031 | CM001 | The video management software shall be installed on a server running the Windows Server 2008 R2 operating system, including 5 CALS. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|--|------------------------------------|---------|--------------|-----------|-------------|------------|
| CM032 | CM001 | Contractor shall configure and install the operating system for each server installed. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| CM033 | CM001 | All servers shall meet or exceed the specifications as called out in the RFP E5N82, section 5.2 Server Hardware Requirements. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC03 | Not Tested | |
| FD001 | S001 | Field device installations shall meet all applicable clear zone requirements. | FDOT Standard Specification | NA | Inspection | TC05 | Not Tested | |
| FD002 | FD001 | Field device installations shall meet FDOT 2010 Standard Specifications for Road and Bridge Construction (online edition). | FDOT Standard Specification | NA | Inspection | TC05 | Not Tested | |
| FN001 | S002 | Install a 72-strand, 12-fiber buffer, fiber optic cable (FOC) trunkline for the Brevard County Advance Traffic Management System (ATMS) Expansion of all corridors as listed in Table 3 - FON Required Locations in RFP E5N82. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN002 | S002 | Install a 12-strand, 12-fiber buffer, FOC drop cable to each of the signal cabinets found within the limits of the project where drop cables do not exist already | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN003 | FN001 | Drop cables shall connect fibers 1 through 4 of the blue buffer of the FOC trunkline. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN004 | FN001 | Fibers 1 through 4 of the trunkline expressing from the west shall be spliced to fibers 1 through 4 of the drop cable. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN005 | FN001 | Fibers 1 through 4 of the trunkline expressing from the east shall be spliced to fibers 7 through 10 of the drop cable. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN006 | FN002 | Drop cables shall be terminated in patch panels that shall be installed within existing signal cabinets | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC06 | Not Tested | |
| FN007 | MS001 | Existing signal controllers shall be replaced with Ethernet capable controllers of the same make for all existing signal controllers that do not have Ethernet functionality for all signalized intersections found within the project limits. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN008 | MS001 | Connection between Ethernet capable controllers and the (Managed Field Ethernet Switches) MFES shall be made. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN009 | MS001 | All new ITS sub-systems required by RFP E5N82 for each location shall directly interface with the MFES to be located within the signal cabinet. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN010 | FN001 | No standalone sub-system site requiring separate power source, cabinet assembly, or ancillary components typically associated with standalone sub-system ITS sites are permitted unless approved by the County. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC06 | Not Tested | |
| FN011 | FN001 | All trunkline fiber shall be single mode. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|---|---|---------|---------------|-----------|-------------|------------|
| FN012 | FN002 | All drop cable fiber shall be single mode. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN013 | S002 | Installation of fiber optic cable shall follow the method established in Concept Plans for Sub-Project 1 (Document 1 of the OTHER DOCUMENTS provided with RFP E5N82). | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN014 | CD003 | Where fiber optic cable is installed underground, a tone wire shall be continuous from pull box to pull box following the path parallel to the fiber with a maximum 2 foot offset inside conduit. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN015 | FN014 | Any splices to the tone wire shall only be done at a pull box, no in-conduit splicing shall be allowed. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN016 | CD011 | A ground rod shall be supplied at each splice box for termination of the tone wire. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN017 | CD011 | Tone wires shall be terminated to the ground rods via removable ground rod clamp. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN018 | CD008 | Where existing conduit is utilized, the tone wire may be installed with the fiber optic cable in same conduit. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN019 | FN021 | Only type SC connectors for patch panel connections shall be used unless legacy equipment requires otherwise. However, if a connector type other than the SC must be used, it must be approved by the FDOT ITS Project Manager. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN020 | FN021 | Patch cables must be pre-connectorized by the factory with appropriate connector type to connect all ITS equipment. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN021 | S002 | A minimum of four (4) fibers in each direction shall be terminated in patch panels within all signal cabinets. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN022 | FN001 | Fibers 1-4 of the first buffer will be terminated with the trunk fibers expressing to the west, and fibers 7-10 of the first buffer will be terminated with trunk fibers expressing to the east. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN023 | FN001 | Fibers in the last buffer of the trunk cable shall be reserved for regional communications and shall pass through the entire length of the project unspliced except where connecting to existing fiber optic cable or butt splicing of cable is required. | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN024 | FN021 | Unless preterminated patch panels are used, then contractor shall provide buffer fan-out kits and pigtails that shall match the color of the fiber strand they encase | Attachment 1 of the FDOT RFP E5N82 | 5.iv | Inspection | TC03 | Not Tested | |
| FN025 | S003 | All installed fiber and connections shall be tested and signed off on when test is passed in accordance to Attachment 4 of this RTVM: Fiber Optic Test Procedure | Attachment 4:Fiber Optic Test Procedure | All | Documentation | TC03 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|--|------------------------------------|---------|---------------|-----------|-------------|------------|
| MS001 | S002 | Field-hardened switches shall be industrial-grade Ethernet switches, conforming to FDOT environmental requirements. | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Inspection | TC03 | Not Tested | |
| MS002 | S001 | Managed field Ethernet switches (MFES) shall be installed within the signal cabinets at all signalized intersections found within the project limits that are not currently equipped with MEFS. | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Inspection | TC03 | Not Tested | |
| MS003 | MS001 | Network switches shall provide at minimum four (4) Gigabit SFP/TX Combo ports and four (4) copper 10/100/1000 TX ports | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Inspection | TC03 | Not Tested | |
| MS004 | MS001 | Network switch supported protocols, at minimum, shall include IGMP v1, v2, and v3, sFlow, 802.1x Security features, STP, RSTP, and MSTP, 802.1Q VLAN, Console, Telnet, and Web management, Optical Monitoring (Physical Layer), Link Layer Discovery Protocol | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Inspection | TC03 | Not Tested | |
| MS005 | MS001 | Layer 3 field hub routers shall be installed in all field hubs listed in Table 4 - Required Locations for Layer 3 Field Routers | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Demonstration | TC03 | Not Tested | |
| MS006 | MS001 | All field hub routers except the unit installed at the City of Melbourne shall provide 24 100/1000BASE-X SFP ports. | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Inspection | TC03 | Not Tested | |
| MS007 | MS001 | The City of Melbourne field hub shall provide 24 10/100/1000BASE-T ports and 4 100/1000BASE-X SFP uplink ports. | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Inspection | TC03 | Not Tested | |
| MS008 | MS001 | SFP ports shall be populated with sufficient optical transceivers, necessary to connect to adjacent new or existing field hubs and/or core routers. | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Inspection | TC03 | Not Tested | |
| MS009 | MS001 | Layer 3 switch capabilities, requirements, and supported protocols of the switches shall include at minimum Chassis: 1 RU with field replaceable fan tray and 1+1 redundant 320 hot swap AC Power Supply, 5-Year Warranty with 5-Year Same Day Support, Stackable with current field routers via minimum 60Gb/s interconnect or 10GB fiber, uplink modules, Operating System: JUNOS or IronWareOS, Packet Switching Capacity: 88 Gb/s, Aggregate Switch Capacity: 264 GB/s, Number of VLANs 4,096, Max IPv4 unicast routes: 16,000 (in hardware), Max IPv4 multicast routes: 8,000 (in hardware), Routing Protocols supported: OSPFv2 with graceful restart, Multicast PIM-SM and PIM-DM, IGMP v2,v3, snooping, VRRP redundancy, sFlow, Port-based, VLAN-based, router-based ACLs Ingress and Egress, ACL entries: 7,000 | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Inspection | TC03 | Not Tested | |
| MS010 | MS009 | A Layer 3 Core Chassis Router shall be installed at the Traffic Operations Center on Merritt Island in the existing 19" rack in server room. The chassis router shall provide all connections for the Traffic Operations Local Area Network (LAN) via CAT5E cables and gigabit fiber optic connections to all existing systems and new systems. The switch shall meet the requirements called ou in Section 5.vii in RFP E5N82. | Attachment 1 of the FDOT RFP E5N82 | 5.vii | Demonstration | TC03 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|--|------------------------------------|---------|---------------|-----------|-------------|------------|
| NM001 | S002 | The contractor shall configure the switches including all tagging, disable all applicable ports, setup all IP addresses, physically connect all devices per plan, and verify all connectivity. | Attachment 1 of the FDOT RFP E5N82 | 5.ix | Demonstration | TC03 | Not Tested | |
| NM002 | S002 | The contractor shall demonstrate remote accessing all the new and existing ITS devices to the County. | Attachment 1 of the FDOT RFP E5N82 | 5.ix | Demonstration | TC03 | Not Tested | |
| NM003 | NM001 | The contractor shall provide the County with IP addresses, port status, and auto-negotiation speeds, etc. for all switches that cannot be acquired from the remote location. | Attachment 1 of the FDOT RFP E5N82 | 5.ix | Documentation | TC03 | Not Tested | |
| NM004 | NM001 | The contractor shall supply verification that database parameters and addressing for new devices were properly entered to allow communications between the central equipment and the new field devices. | Attachment 1 of the FDOT RFP E5N82 | 5.ix | Documentation | TC03 | Not Tested | |
| S001 | | The ATMS Expansion Project will build ITS infrastructure and ITS sub-system components along the 10 corridors in Brevard County. This includes upgrading existing signalized intersections to Ethernet functionality, install a fiber optic interconnect throughout the project limits to relay command and control communications to the upgraded signalized intersections through the wide-area network (WAN) of Brevard County to the Brevard County Traffic Management Center (TMC). Upgrades to existing signal intersection detection and installation of CCTV cameras shall be complete to further enhance the overall traffic control system by providing more complete flow rate, volume, and travel time data and remote monitoring capability of the sub-systems through the WAN. | Attachment 1 of the FDOT RFP E5N82 | I. | Demonstration | TC01 | Not Tested | |
| S002 | | The ATMS Expansion project will include new ITS devices that will be integrated into existing communications infrastructure. | Attachment 1 of the FDOT RFP E5N82 | I. | Inspection | TC01 | Not Tested | |
| S003 | | ITS subsystems include a fiber optic network system (FON), a vehicle detection system (VDS), a closed circuit television (CCTV) camera system, and an adaptive signal control system for the traffic corridor. | Attachment 1 of the FDOT RFP E5N82 | I. | Inspection | TC01 | Not Tested | |
| TV001 | S003 | CCTV shall be installed and configured in the required locations as called out in RFP E5N82 Table 1- CCTV Required Locations. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Inspection | TC04 | Not Tested | |
| TV002 | S003 | All CCTV cameras shall be integrated into the Brevard County's Cameleon software. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Demonstration | TC04 | Not Tested | |
| TV003 | TV001 | All CCTV Cameras shall have the capability to provide individual video stream viewing and PTZ through an encoder generated web page. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Demonstration | TC04 | Not Tested | |
| TV004 | S002 | Cameras shall be of an integrated modular IP type, utilizing power and Ethernet connections to the existing traffic controller cabinet and shall be linked with the existing communications system. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Inspection | TC04 | Not Tested | |
| TV005 | TV001 | All cameras must be non-pressurized with minimum 26x optical zoom. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Inspection | TC04 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|---|---|---------|---------------|-----------|-------------|------------|
| TV006 | TV002 | Cameras shall be configured with location name in view, along with four (4) approach presets labeled as North, East, South and West to indicate approach direction. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Demonstration | TC04 | Not Tested | |
| TV007 | TV001 | Video encoder shall provide both high and low bandwidth MPEG-4 and M-JPEG outputs simultaneously. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Inspection | TC04 | Not Tested | |
| TV008 | TV001 | All CCTV cameras shall be installed on existing strain pole or mast arm upright support only and shall be designed to capture the greatest level of mainline coverage as available through the installation constraint established above. Mainline coverage shall be defined as the surveillance of mainline (corridor) traffic between edges of pavement of both east and west mainline movements throughout the limits of the project as awarded by this project. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Inspection | TC04 | Not Tested | |
| TV011 | TV001 | The CCTV Cameras shall be NTCIP Compliant. | Attachment 1 of the FDOT RFP E5N82 | 5.ii | Inspection | TC04 | Not Tested | |
| TV012 | S003 | The contractor shall provide the County with the following documentation: Camera Manufacturer, Port Server Type (if applicable), ort Server Port number (if Applicable), Port Server IP Address, Video Encoder Manufacturer, Video Encoder IP Address, Encoder Model, All pertinent information as it pertains to VDS | Attachment 1 of the FDOT RFP E5N82 | 6.iv | Documentation | TC04 | Not Tested | |
| TV013 | S003 | Each new CCTV shall be tested and signed off on when test is passed in accordance to Attachment 3 of this RTVM: CCTV Stand Alone Test Procedures | Attachment 3:CCTV Stand Alone Test Procedures | All | Documentation | TC04 | Not Tested | |
| VD001 | S003 | Wireless magnetometer sensor (sensor), repeater, and transceiver technology shall be used for the detection upgrades to the signalized intersections found within the project limits as described in RFP E5N82, Table 2 - VDS Required Locations | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Inspection | TC02 | Not Tested | |
| VD002 | VD001 | Detector installation shall be sub-surface, requiring minimal construction/disturbance of existing roadway asphalt. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Inspection | TC02 | Not Tested | |
| VD003 | VD001 | The roadside wireless transceiver shall be mountable to existing support structures such as mast arms or strain poles where available. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Inspection | TC02 | Not Tested | |
| VD004 | VD001 | Pole locations for mounting devices and/or mounting to existing distribution power poles must be cleared through all appropriate permitting agencies. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Documentation | TC02 | Not Tested | |
| VD005 | VD001 | Detector communication for data and configuration shall be accomplished through the wireless transceiver and controller via standard conductor cabling. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Demonstration | TC02 | Not Tested | |
| VD006 | VD001 | Sensors shall be installed between 1 foot and 3 feet in front of the stop bar for all through and left turn approaches to each signalized intersection. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Inspection | TC02 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|--|---|---------|---------------|-----------|-------------|------------|
| VD007 | VD001 | At minimum, one wireless access point shall be provided at each signalized intersection. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Inspection | TC02 | Not Tested | |
| VD008 | VD001 | Sensors shall be installed downstream of all mainline (corridors) through movements. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Inspection | TC02 | Not Tested | |
| VD009 | VD001 | The design location of downstream sensors shall capture free-flow movement of traffic and total volume of through movement and shall detect only those movements intended. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Inspection | TC02 | Not Tested | |
| VD010 | VD001 | Installation of the sensors shall be such that turning movement counts can be generated from the data collected from each set of sensors per intersection. | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Inspection | TC02 | Not Tested | |
| VD011 | VD001 | The wireless vehicle detection system shall manage data in a compatible format with that of the existing signal coordination/management system software (ATMS.now) and hardware (Naztec signal controllers). | Attachment 1 of the FDOT RFP E5N82 | 5.iii | Demonstration | TC02 | Not Tested | |
| VD012 | S003 | Each new VDS (BlueToad device) shall be tested and signed off on when test is passed in accordance to Attachment 2 of this RTVM: BlueTOAD Installed Site Test Procedure | Attachment 2:BlueTOAD Installed Site Test Procedure | All | Documentation | TC02 | Not Tested | |
| VD013 | S003 | Each new VDS (Sensys device) shall be tested and signed off on when test is passed in accordance to Attachment 5 of this RTVM: Sensys Installed Site Test Procedure | Attachment 5:BlueTOAD Installed Site Test Procedure | All | Documentation | TC02 | Not Tested | |
| WS001 | S001 | A total of three new video management workstations with video decoding and management software shall be installed with one (1) located at the Brevard County Traffic Operations Center on Merritt Island, one (1) located at the Brevard County Traffic Engineering Center in Viera, and one (1) located at the City of Melbourne Public Works Traffic Engineering Office on Harper Road in Melbourne, FL. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC04 | Not Tested | |
| WS002 | WS001 | The three new video management control and viewing workstations shall operate the Windows 7 Professional, 64-bit English Operating System and meet the hardware requirements as called out in RFP E5N82, section 5.3 | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC04 | Not Tested | |
| WS003 | S001 | The new video management software client version shall be installed on the six existing Brevard County ATMS workstations as follows; two (2) located at the Traffic Engineering Center in Viera, two (2) located at the Emergency Operations Center in Rockledge, and two (2) located at the Traffic Operations Center on Merritt Island. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC04 | Not Tested | |
| WS004 | WS003 | The video management workstations must be capable of acting as clients to the newly installed video management servers. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Inspection | TC04 | Not Tested | |
| WS005 | S001 | The workstation software must be able to control an unlimited number of cameras and must be fully compatible to control, configure and view CCTVs installed as part of this project as well as the existing CCTV's. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC04 | Not Tested | |

| Req ID | Parent | Requirement | Source | Section | Verif Method | Test Case | Test Result | Test Notes |
|--------|--------|--|------------------------------------|---------|---------------|-----------|-------------|------------|
| WS006 | S001 | Each workstation shall be capable of providing a minimum viewing of six (6) simultaneous MPEG 4 video streams | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC04 | Not Tested | |
| WS007 | S001 | Video control and viewing must meet the requirements as follows: Full screen mode viewing, Multiple user customizable workspaces, Provision for multiple external monitors, Auto scanning of complete network, Remote upload of all CCTV device configurations, Built in site map editor, Background site map graphics in bitmap, Automatic camera activation on alarm, Device COMs for remote camera control (PTZ), Device configuration through a dedicated configuration manager, Device selection tree view, CCTV PTZ through onscreen virtual PTZ controls. | Attachment 1 of the FDOT RFP E5N82 | 5.viii | Demonstration | TC04 | Not Tested | |

134 Requirements

Attachment 1

**Design/Build Maximum Price Request For Proposal For
The Brevard County Advance Traffic Management System (ATMS) Expansion in
Brevard County**



Florida Department of Transportation
District 5

**DESIGN/BUILD MAXIMUM PRICE
REQUEST FOR PROPOSAL**

For

**The Brevard County Advance Traffic Management System
(ATMS) Expansion in Brevard County**

Financial Projects Number(s): 428597-1-52-01, 428919-1-52-01, 428920-1-52-01

Federal Aid Project Number(s): ARRA 641-B

Contract Number: E5N82

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ATTACHMENTS

Attachment 1: Design/Build Utility Agreement
Attachment 2: Division I Design Build Specifications
Attachment 3: SP0090503ES (Only applies to FM 428597-1-52-01)
Attachment 4: SP0070111ES (Only applies to FM 428597-1-52-01)
Attachment 5: SP0090801ES (Only applies to FM 428597-1-52-01)
Attachment 6: ITS Damage Recovery Specifications
Attachment 7: Traffic Adaptive System
Attachment 8: Permit Exemption Policy Memo

The attachments listed in the table of contents are by this reference hereby incorporated into and made a part of this RFP as though fully set forth herein.

OTHER DOCUMENTS

The following documents are being provided with this RFP. Except as specifically set forth in the body of the RFP, these documents are provided for general information only. They are not being incorporated into and are not being made a part of the RFP, the contract documents or any other document that is connected or related to this project except as otherwise specifically stated therein. Nothing contained in these documents shall be construed as a representation of any field condition or of any state of facts upon which the Design/Build Firm can rely in performing under this contract. All information contained in these documents must be verified by a proper factual investigation and no claims for damages, time, or any other impacts, may be based on these documents:

Document 1: Concept Plans for Sub-Project 1
Document 2: Sketch of Corridor 1 existing infrastructure
Document 3: Geotechnical Data
Document 4: Log and returned mark-ups of utility coordination for design
Document 5: ITS Ecological Constrains Memo
Document 6: Work Program ITS Overlapping Projects
Document 7: Brevard County Signal Controller Inventory

I. Introduction.

The Florida Department of Transportation (Department) has issued this Request for Proposal (RFP) to solicit competitive bids and proposals from Proposers for the design and construction of ITS infrastructure and ITS sub-system components along the following corridors in Brevard County, Florida:

- SR 500 (US 192) from the I-95 Southbound Ramps to ~~Babcock Street~~ Dairy Road
- SR 518 (Eau Galle Blvd/Montreal Ave) from CR 509 (Wickham Road) to Pineapple Ave.
- SR 520 (King Street) from Clearlake Road to Banana River Drive
- SR 5 (US 1) from Peachtree Street to Eyster Blvd.
- SR 5 (US 1) from ~~Aurora Road~~ Lake Washington Road to ~~SR 5054 (Sarno) Road~~ Babcock St
- SR 50 (Cheney Hwy) from I95 to SR 405
- SR 405 (Columbia Blvd) from SR 50 (Cheney Hwy) to SR 5 (US1)
- Palm Bay Road from Minton to Robert J. Conlan Blvd.
- Minton Road from I95 overpass to Emerson Drive NW
- CR 509 (Wickham Road) from SR 5054 (Sarno Road) to SR 500 (US 192)

ITS subsystems shall be defined as a fiber optic network system (FON), a vehicle detection system (VDS), a closed circuit television (CCTV) camera system, and an adaptive signal control system for the traffic corridor. Central control software inclusive of its hardware such as but not limited to servers, computers etc., shall be furnished and installed at the Brevard County Traffic Management Center (TMC) for the functioning purposes of remote control management of the VDS from the Brevard TMC. The overall system being installed shall be considered the Brevard County Advance Traffic Management System (ATMS) Expansion.

The purpose of the project is to upgrade existing signalized intersections to Ethernet functionality and to install a fiber optic interconnect throughout the project limits to relay command and control communications to the upgraded signalized intersections through the wide-area network (WAN) of Brevard County to the Brevard County Traffic Management Center (TMC). Upgrades to existing signal intersection detection and installation of CCTV cameras will further enhance the overall traffic control system by providing more complete flow rate, volume, and travel time data and remote monitoring capability of the sub-systems through the WAN. The traffic signal timing control shall be optimized through real time traffic adaptive operation implementation throughout the signalized intersections within the entire project limits. These upgrades will allow Brevard County to operate and maintain these corridors in a more efficient and cost-effective manner.

The Department has set a total maximum bid price of \$7,555,519.00 for this project. The scope of work for the Complete Project consists of three (3) Sub-Projects with Sub-Project 1 having its own maximum bid price as described in the "Description of Work" section of this RFP. Each Design/Build Firm is to develop design approaches with corresponding schedules that maximize the amount of scope in the RFP that can be designed and built without exceeding the maximum price for the Complete Project or Sub-Project 1. Neither the bid price for Sub-Project 1 nor the combined lump sum of all Sub-Projects (Complete Project) shall exceed the total maximum bid prices set within this Request for Proposal. The scope may be modified within the criteria defined in the "Description of Work" section below to meet either maximum bid price. A scope change can be defined as physical items actually altered from the RFP and all scope changes shall be shared with the Design/Build Firms. The competition is on project scope, qualifications, quality, innovation, schedule and costs (not to exceed neither the total maximum price nor the maximum price set for Sub-Project 1). If the total maximum bid price or the maximum bid price set for Sub-Project 1 is exceeded, the Design Build Firm's price proposal shall be found non-responsive and the firm will not be considered for Final Selection.

With the maximum bid price and the use of Options, the Department's goal is to maximize the construction and exhaust the funding for Sub-Project 1 and to construct the remaining work within Sub-Project 2. The scope of Sub-Project 3 is fixed.

For this project, the Department considers the following to be requirements of the project that are not to be changed by the Design/Build Firms:

- Construct within the right-of-way owned by FDOT District 5 and/or Brevard County
- Proposed detection upgrades to signalized intersections compatible with Brevard County existing hardware and management software with no additional conversion hardware or software required to accomplish compatibility.
- Signal Phases are not to be added or deleted.

Any changes to requirements of the RFP by a Design/Build Firm must be approved by the Department prior to the information cut-off date. These changes will be shared with other Design/Build Firms. Innovative concepts will not be shared with other Design/Build Firms. An innovative concept or idea would be Design Build Firms means and methods in constructing the project and not part of approved changes to the RFP.

Description of Work

The criteria defined in Section VI.P and description of work shall be designed following the methodology of the conceptual design plans provided in the "OTHER DOCUMENTS" section of this RFP, "Document 1".

The scope of work for the Complete Project consists of three (3) Sub-Projects. Sub-Project 1 contains Options. All Option work not accomplished in Sub-Project 1 shall be included in Sub-Project 2. Each Sub-Project contains segments of roadways (Corridors) that describe the project limits of the Sub-Projects. Each Sub-Project involves the installation and/or adjustment of the ITS sub-components to include a FON, CCTV camera system, wireless VDS and traffic adaptive signal control for all Corridors as described below. Existing fiber may be utilized within the Corridors except where removal and replacement of existing fiber is specified.

Each Sub-Project for this project including Corridors and maximum bid price and options if applicable is described below. The required locations of the fiber optic cable (FOC), CCTV cameras and VDS to include Traffic Signal Control for each Corridor of each Sub-Project shall be as described in Tables 1 – 3 section VI.P of this RFP.

Sub-Project 1 – (FM 428597-1) has a maximum bid price of \$874,558.00 and includes the installation and/or adjustment of the ITS sub-components to include a FON and a CCTV camera system for:

- Corridor 1 (SR 500/US 192) – From I95 South Bound Ramps to Babcock Street
- Corridor 2 (SR 518/Eau Galle Blvd/Montreal Ave) – From CR 509/Wickham Road to Pineapple Ave.

Proposers shall note a sketch of the existing ITS infrastructure known throughout the limits of Corridor 1 in Sub-Project 1 is provided as Document 2 for use in evaluation of design and construction of the work described above. Use of existing conduit infrastructure for design and installation of the new 72-strand, 12-fiber buffer, fiber optic cable is encouraged. Proposers shall submit technical and price proposals per the instructions specified in section VII of this RFP.

In the event that the Design/Build Firm's bid for Sub-Project 1 is below the maximum bid amount for

Sub-Project 1, the required installation of wireless VDS's to include implementation of traffic adaptive signal control shall be added to the scope of work for Sub-Project 1 as Options in order to maximize the scope of work accomplished within the maximum bid price. Any Options added to Sub-Project 1 shall not cause the bid price for Sub-Project 1 to exceed the maximum bid price established. Each Option shall be individually added in the order as shown in the table below:

| Options | Locations |
|----------------------|--|
| Option 1 | SR 500 (US 192) and I-95 Southbound Ramps |
| Option 2 | SR 500 (US 192) and I-95 Northbound Ramps |
| Option 3 | SR 500 (US 192) and Dike Road |
| Option 4 | SR 500 (US 192) and John Rodes Boulevard |
| Option 5 | SR 500 (US 192) and CR 509 (Wickham Road/Minton Road) |
| Option 6 | SR 500 (US 192) and Meadowland Avenue |
| Option 7 | SR 500 (US 192) and Dayton Boulevard |
| Option 8 | SR 500 (US 192) and Laila Court |
| Option 9 | SR 500 (US 192) and Evans Road |
| Option 10 | SR 500 (US 192) and McClain Drive |
| Option 11 | SR 500 (US 192) and Melbourne Square |
| Option 12 | SR 500 (US 192) and Dairy Road |
| Option 13 | SR 500 (US 192) and Airport Boulevard |
| Option 14 | SR 500 (US 192) and South Country Club Road |
| Option 15 | SR 500 (US 192) and Babcock Street |
| Option 13 | SR 518 (Eau Gallie Blvd) and Croton Rd |
| Option 14 | SR 518 (Eau Gallie Blvd) and Commadore Blvd |
| Option 15 | SR 518 (Eau Gallie Blvd) and SR 5 (US 1) |
| Option 16 | SR 518 (Eau Gallie Blvd) and Highland Ave |
| Option 17 | SR 518 (Eau Gallie Blvd) and Pineapple |
| Option 18 | SR 518 (Montreal Ave) and Highland Ave |
| Option 19 | SR 518 (Montreal Ave) and Pineapple Ave |

Specification, guidelines and references that pertain to the American Recovery and Reinvestment Act of 2009 (ARRA) that are contained within this RFP shall only be applicable to the scope of work for Sub-Project 1 (FM 428597-1-52-01).

Sub-Project 2 – (FM 428919-1) includes all remaining Options that are not included in the bid price proposal for Sub-Project 1 and installation and/or adjustment of the ITS sub-components to include a FON, CCTV camera system, wireless VDS and traffic adaptive signal control for:

- Corridor 3 (SR 520) – From Clearlake Road to South Banana River Drive
- Corridor 4 (SR5/US 1) – From Peachtree Street to Eyster Blvd
- Corridor 5 (SR5/US 1) – From ~~Aurora Road~~ Lake Washington Road to ~~SR 5054 (Sarno) Road~~ Babcock St.
- Corridor 6 (SR 50/Cheney Hwy) – From I95 to SR 405
- Corridor 7 (SR 405/Columbia Blvd) – SR 50/Cheney Hwy to SR5/US1

Corridor 3 of Sub-Project 2 involves the installation, replacement and/or adjustment of bridge conduit and FOC at the Merritt Island Causeway between US 1 and Tropical Trail and between Skyes Creek Pkwy and S. Banana Drive. Although, the Design Build Firm shall be required to add a new 72 Strand, 12-buffer FOC at the aforementioned locations, the Design Build Firm shall note that new conduit will be installed on the Merritt Island Causeway between US1 and Tropical Trail as a part of another project. The Design Build Firm shall utilize said conduit and must coordinate with the Department as to the availability of the conduits preparedness for fiber installation. Additionally, the Design Build Firm shall remove and dispose of the existing HDPE conduit attached to the Merritt Island Causeway at said location.

Sub-Project 3 – (FM 428920-1) includes the installation and/or adjustment of the ITS sub-components to include a FON, CCTV camera system, wireless VDS and traffic adaptive signal control for:

- Corridor 8 (Palm Bay Road) – From Minton Road to Robert J. Colin Blvd
- Corridor 9 (Minton Road) – From I95 Overpass to Emerson Drive NW
- Corridor 10 (CR 509/Wickham Road) – From SR 5054/Sarno Road to SR 500/US 192
- Add software and associated hardware to the Brevard County TMC's as described in the "Central Management System" and "Network Equipment" sub-sections of section VI.P of this RFP.

A. Design/Build Responsibility

The Design/Build Firm shall be responsible for survey, geotechnical investigation, design, acquisition of all permits not acquired by the Department, any required modification of permits acquired by the Department, maintenance of traffic, demolition, and construction on or before the date indicated in their proposal. The Design/Build Firm will coordinate all utility relocations.

The Design and Construction Criteria (Section VI) sets forth requirements regarding survey, design, construction, and maintenance of traffic during construction, requirements relative to project management, scheduling, and coordination with other agencies and entities such as state and local government, utilities and environmental permitting agencies, and the public.

The Design/Build Firm shall demonstrate good project management practices while working on this project. These include communication with the Department and others as necessary, management of time and resources, and documentation.

Sections 1201 and 1512 of the American Recovery and Reinvestment Act of 2009 (ARRA) require states to fulfill employment reporting obligations for each ARRA funded project. The Design/Build Firm on each ARRA project shall complete the initial employment report within five calendar days after the Notice to Proceed is issued by the Department. Thereafter, the reporting information will be due on a monthly basis on or before the 10th of each month, until completion of the contract. Design/Build Firms are required to provide the necessary employment information (employees, hours, and payroll wages) for their own workforce as well as the workforce of all subcontractors/subconsultants that are active on their ARRA funded project(s) for the reporting month. FDOT has automated the form which will be used to collect employment information. The prime contractor can access the employment reporting form (also known as FDOT's ARRA Employment Reporting System) from the following website:
<http://www2.dot.state.fl.us/ARRAEmploymentReporting/>

Failure to timely report the required employment information may be cause for rejection of the monthly invoice for contract payment. Please refer to the informational brochure available at the following link, which provides summary information on the employment reporting requirements for ARRA:

<http://www.dot.state.fl.us/inspectorgeneral/ARRA/ARRABrochureFinalVersion.pdf>

Additional training information on ARRA employment reporting can also be accessed at:

<http://www.dot.state.fl.us/inspectorgeneral/ARRA.shtm>

One critical reporting component is a requirement for prime Design/Build firms to have a Dun and Bradstreet (DUNS) number. This is a unique nine-digit firm identification number issued by Dun & Bradstreet. It is not the same as a firm's Tax ID Number. Design/Build Firms who don't already have a DUNS number can register for it thru the following website:

<http://www.dnb.com/us/>

Design/Build Firms who do not already have a DUNS number should begin the application process. According to the D&B website, it takes a minimum of 30 business days for a new D&B DUNS Number to be processed.

B. Department Responsibility

The Department will provide contract administration, management services, construction engineering inspection services and quality acceptance reviews of all work associated with the development and preparation of the contract plans and construction of the improvements. The Department will provide job specific information and/or functions as outlined in this document.

II. Schedule of Events.

Below is the current schedule of the remaining events that will take place in the selection process. The Department reserves the right to make changes or alterations to the schedule as the Department determines is in the best interests of the public. Proposers will be notified sufficiently in advance of any changes or alterations in the schedule. Unless otherwise notified in writing by the Department, the dates indicated below for submission of items or for other actions on the part of a Proposer shall constitute absolute deadlines for those activities and failure to fully comply by the time stated shall cause a Proposer to be disqualified.

| Date | Event |
|--|---|
| <u>October 4, 2010</u> | Shortlist meeting |
| <u>October 11, 2010</u> | Deadline for submission of written questions prior to the pre-proposal meeting |
| <u>October 12, 2010</u> | Pre-proposal meeting at 1:30 p.m. local time in Cypress A Conference Room, District Office - 719 S. Woodland Blvd., Deland, FL |
| <u>December 21, 2010</u> | Final deadline for submission of questions/information |
| <u>November 3, 2010</u> | Technical Proposals due in District Office by 2:00 p.m. local time |
| <u>November 23, 2010</u> | Revisions to Technical Proposal sections that are affected by question 7 and 16 of the DB Questions and Responses on the website are due in District Office (attention: Chela Wood) by 2:00 p.m. local time. Do not resubmit the entire proposal. Submit only those pages that include any updated changes, and changes made are to be highlighted. |
| <u>December 9, 2010</u> to be determined | Question and Answer Session in the Lake County Conference Room, District Office – 719 S. Woodland Blvd, DeLand, FL. Times will be assigned during the pre-proposal meeting. One hour will be allotted for questions and responses. |
| <u>December 23, 2010</u> to be determined | Price Proposals due in District Office by 2:00 p.m. local time. |

| | |
|--|--|
| December 23, 2010 to be determined | Public announcing of Technical Scores and opening of Price Proposals at 2:00 p.m. local time in Volusia County Conference Room, District Office - 719 S. Woodland Blvd, Deland, FL |
| January 3, 2011 to be determined | Public Meeting of Selection Committee to determine intended Award at 8:15 a.m. in the District Office – 719 S. Woodland Blvd, Deland, FL |
| January 3, 2011 to be determined | Posting of the Department's intended decision to Award (will remain posted for 72 hours/days) |
| January 7, 2011 to be determined | Anticipated Award Date |
| January 31, 2011 to be determined | Anticipated Execution Date |
| February 14, 2011 to be determined | Anticipated Notice to Proceed Date (NTP) – Start of Contract Time |

III. Threshold Requirements

A. Qualifications

Proposers are required to be pre-qualified in all work types required for the project. The technical qualification requirements of Florida Administrative Code (F.A.C.) Chapter 14-75 and all qualification requirements of F.A.C. Chapter 14-22, based on the applicable category of the project, must be satisfied.

B. Joint Venture Firm

Two or more firms submitting as a Joint Venture must meet the Joint Venture requirements of Section 14-22.007, Florida Administrative Code. Parties to a joint venture must submit a Declaration of Joint Venture and Power of Attorney Form No. 375-020-18, prior to the deadline for receipt of proposals.

If the Proposer is a joint venture, the individual empowered by a properly executed Declaration of Joint Venture and Power of Attorney Form shall execute the proposal. The proposal shall clearly identify who will be responsible for the engineering, quality control, and geotechnical and construction portions of the Work.

C. Price Proposal Guarantee

A bid guaranty in an amount of not less than five percent of the total bid amount shall accompany each Proposer's Price Proposal. The guaranty may, at the discretion of the Proposer, be in the form of a cashier's check, bank money order, bank draft of any national or state bank, certified check, or surety bond, payable to the Department. The surety on any bid bond shall be a company recognized to execute bid bonds for contracts of the State of Florida. The guaranty shall stand for the Proposer's obligation to timely and properly execute the contract and supply all other submittals due therewith. The amount of the guaranty shall be a liquidated sum, which shall be due in full in the event of default, regardless of the actual damages suffered. The bid guaranty of all Proposers' shall be released at such time as the successful Proposer has complied with the condition stated herein, but not prior to that time.

D. Pre-Proposal Meeting

Attendance at the pre-proposal meeting is mandatory and any short listed Proposer who fails to attend will be deemed non-responsive and automatically disqualified from further consideration. All questions of Proposers to be discussed at the pre-proposal meeting must be submitted in writing by the deadline stated

in the Schedule of Events. The purpose of this meeting is to provide a forum for all concerned parties to discuss the proposed project, answer questions on the design and construction criteria, CPM schedule, and method of compensation, instructions for submitting proposals, and other relevant issues. In the event that any discussions or questions at the pre-proposal meeting require, in the Department's opinion, official additions, deletions, or clarifications of the Request for Proposal, the Design and Construction Criteria, or any other document, the Department will issue a written summary of questions and answers or an addendum to this Request for Proposals as the Department determines is appropriate. No oral representations or discussions, which take place at the pre-proposal meeting, will be binding on the Department. FHWA will be invited on oversight projects, in order to discuss the project in detail and to clarify any concerns. All necessary Utility Companies will be invited to discuss utility issues with the short listed firms. The Proposers shall direct all questions via email to the Department's Question and Answer website: <http://www2.dot.state.fl.us/construction/D5/>

During and after the meeting, it is the responsibility of the Project Manager/Contracting Unit to ensure that each Proposer develops their technical proposal with the same information. If a Proposer receives information from the Department relating to the project prior to the information cutoff date, the Department will ensure that all Proposers receive the same information in a timely fashion. The project file will clearly document all communications with any Firm regarding the design and construction criteria by the Contracting Unit or the Project Manager.

E. Question and Answer Session

The Department shall meet with each Proposer, formally, for a Question and Answer session. FHWA shall be invited on FA Oversight Projects. The purpose of the Q & A session is for the Technical Review Committee to seek clarification and ask questions, as it relates to the Technical Proposal, of the Proposer. The Question and Answer sessions will occur after the date the Technical Proposals are due, and be part of the Overall Technical Proposal Scoring. The Department will terminate Question and Answer Sessions promptly at the end of the allotted time. The Department may tape record or videotape all or part of the Question and Answer Sessions. Such recordings will become part of the Contract Documents in accordance with the Specifications. The Question and Answer session will not constitute "discussions" or negotiations. Proposers will not be permitted to ask questions of the Department except to ask the meaning of a clarification question posed by the Department. No additional time will be allowed to research answers.

The Department will provide some (not necessarily all) proposed questions to each firm as it relates to their technical proposal approximately 24 hours before the scheduled Question and Answer Session. No supplemental materials, handouts, etc. will be allowed to be presented in the Question and Answer Session.

There will be no limit to the number of staff members that the proposing firms can bring to the Question and Answer Sessions; however, it is highly recommended that the staff members be limited to those with knowledge and decision-making authority of the Question and Answer Session topics, and those who will actually be providing the services.

F. Protest Rights

Any person who is adversely affected by the specifications contained in this Request for Proposal must file a notice of intent to protest in writing within seventy-two hours of the receipt of this Request for Proposals. The formal written protest shall be filed within ten days after the date of the notice of protest

if filed. The person filing the Protest must send the notice of intent and the formal written protest to:

Clerk of Agency Proceedings
Department of Transportation
605 Suwannee Street, MS 58, Room 562
Tallahassee, Florida 32399-0458

The formal written protest must state with particularity the facts and law upon which the protest is based and be legible, on 8 ½ x 11-inch white paper and contain the following:

1. Name, address, telephone number, and Department identifying number on the Notice, if known, and name, address and telephone number of a representative, if any; and
2. An explanation of how substantial interest will be affected by the action described in the Request for Proposals; and
3. A statement of when and how the request for Proposals was received; and
4. A statement of all disputed issues of material fact. If there are none, this must be indicated; and
5. A concise statement of the ultimate facts alleged, as well as the rules and statutes, which entitle to relief; and
6. A demand for relief; and
7. Conform to all other requirements set out in Florida Statutes (F.S.), Chapter 120 and F.A.C., Chapter 28-106, including but not limited to Section 120.57, F.S. and Rules 28-106.301, F.A.C., as may be applicable.

A formal hearing will be held if there are disputed issues of material fact. If a formal hearing is held, this matter will be referred to the Division of Administrative Hearings, where witnesses and evidence may be presented and other witnesses may be cross-examined before an administrative law judge. If there are no disputed issues of material fact, an informal hearing will be held, in which case the person filing the protest will have the right to provide the Department with any written documentation or legal arguments which they wish the Department to consider.

Mediation pursuant to Section 120.573, F.S., may be available if agreed to by all parties, and on such terms as may be agreed upon by all parties. The right to administrative hearing is not affected when mediation does not result in a settlement.

Failure to file a protest within the time prescribed in Section 120.57(3), Florida Statutes, shall constitute a waiver of proceedings under Chapter 120, F.S.

G. Non-Responsive Proposals

Proposals found to be non-responsive shall not be considered. Proposals may be rejected if found to be in nonconformance with the requirements and instructions herein contained. A proposal may be found to be non-responsive by reasons, including, but not limited to, failure to utilize or complete prescribed forms, conditional proposals, incomplete proposals, indefinite or ambiguous proposals, failure to meet deadlines

and improper and/or undated signatures.

Other conditions which may cause rejection of proposals include evidence of collusion among Proposers, obvious lack of experience or expertise to perform the required work, submission of more than one proposal for the same work from an individual, firm, joint venture, or corporation under the same or a different name (also included for Design/Build projects are those proposals wherein the same Engineer is identified in more than one proposal), failure to perform or meet financial obligations on previous contracts, employment of unauthorized aliens in violation of Section 274A (e) of the Immigration and Nationalization Act, or in the event an individual, firm, partnership, or corporation is on the United States Comptroller General's List of Ineligible Design/Build Firms for Federally Financed or Assisted Projects.

Proposals will also be rejected if not delivered or received on or before the date and time specified as the due date for submission.

If either maximum bid price established is exceeded, the D/B Firm's price proposal shall be found non-responsive and the firm will not be considered for Final Selection.

H. Waiver of Irregularities

The Department may waive minor informalities or irregularities in proposals received where such is merely a matter of form and not substance, and the correction or waiver of which is not prejudicial to other Proposers. Minor irregularities are defined as those that will not have an adverse effect on the Department's interest and will not affect the price of the Proposals by giving a Proposer an advantage or benefit not enjoyed by other Proposers.

1. Any design submittals that are part of a proposal shall be deemed preliminary only.
2. Preliminary design submittals may vary from the requirements of the Design and Construction Criteria. The Department, at their discretion, may elect to consider those variations in awarding points to the proposal rather than rejecting the entire proposal.
3. In no event will any such elections by the Department be deemed to be a waiving of the Design and Construction Criteria.
4. The Proposer who is selected for the project will be required to fully comply with the Design and Construction Criteria for the price bid, regardless that the proposal may have been based on a variation from the Design and Construction Criteria.
5. Proposers shall identify separately all innovative aspects as such in the Technical Proposal. An innovative aspect does not include revisions to specifications or established Department policies. Innovation should be limited to Design/Build Firm's means and methods, approach to project, use of new products, new uses for established products, etc.
6. The Proposer shall obtain any necessary permits, and shall pay for all associated fees, and mitigation efforts as needed. The Proposer shall make all attempts to avoid all wetland impacts, if possible. If wetland impacts occur, it will be the responsibility of the Design/Build team to ensure that SJRWMD approves the exclusion of additional impacts from the Senate Bill mitigation program. The Design/Build team can therefore mitigate through bank credits or other alternative methods. If SRJWMD requires monetary donations to the mitigation fund, the D/B team will be required to pay mitigation fees into

the existing FDOT mitigation Escrow account for additional wetland impacts, beyond the permitted acreage. The current fiscal year fee for impacting one acre of wetlands is \$103,275. In addition, the Proposer shall obtain any necessary protected species permits, if impacts to protected species or their habitat occur as a result of the proposed design.

7. Those changes to the Design Concept may be considered together with innovative construction techniques, as well as other areas, as the basis for grading the Technical Proposals in the area of innovative measures.

I. Modification or Withdrawal of Proposal

Proposers may modify or withdraw previously submitted proposals at any time prior to the proposal due date. Requests for modification or withdrawal of a submitted proposal shall be in writing and shall be signed in the same manner as the proposal. Upon receipt and acceptance of such a request, the entire proposal will be returned to the Proposer and not considered unless resubmitted by the due date and time. Proposers may also send a change in sealed envelope to be opened at the same time as the proposal provided the change is submitted prior to the proposal due date.

J. Department's Responsibilities

This Request for Proposal does not commit the Department to make studies or designs for the preparation of any proposal, nor to procure or contract for any articles or services. Proposers shall examine the Contract Documents and the site of the proposed work carefully before submitting a proposal for the work contemplated and shall investigate the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished and as to the requirements of all Contract Documents. Written notification of differing site conditions discovered during the design or construction phase of the project will be given to the Department's Project Manager.

The Department does not guarantee the details pertaining to borings, as shown on any documents supplied by the Department, to be more than a general indication of the materials likely to be found adjacent to holes bored at the site of the work, approximately at the locations indicated. Proposers shall examine boring data, where available, and make their own interpretation of the subsoil investigations and other preliminary data, and shall base his bid on his own opinion of the conditions likely to be encountered. The submission of a proposal is prima facie evidence that the Proposer has made an examination as described in this provision.

K. Design/Build Contract

The Department will enter into a Lump Sum contract with the successful Design/Build Firm. In accordance with Section V, the Design/Build Firm will provide a schedule of values to the Department for their approval. The total of the Schedule of Values will be the lump sum contract amount.

The terms and conditions of this contract are fixed price and fixed time. The Design Build Firm's submitted bid (time and cost) is to be a lump sum bid for completing the scope of work detailed in the Request for Proposal.

L. Design-Build Contract-Method of Compensation and Funding: N/A

IV. Disadvantaged Business Enterprise (DBE) Program.

A. DBE Availability Goal Percentage:

The Department of Transportation has an overall eight point one eight percent (8.18%) race-neutral DBE goal. This means that the State's goal is to spend at least 8.18% of the highway dollars with Certified DBE's as prime Design/Build Firms or as subcontractors. Race-neutral means that the Department believes that the 8.18% overall goal can be achieved through the normal competitive procurement process. The Department has reviewed this project and assigned a DBE availability goal shown on the bid blank/contract front page under "% DBE Availability Goal". Although not a contract requirement, the Department believes that this DBE percentage can realistically be achieved on this project based on the number of DBE's associated with the different types of work that will be required.

Under 49 Code of Federal Regulations Part 26, if the 8.18% goal is not achieved, the Department may be required to return to a race-conscious program where goals are imposed on individual contracts. The Department encourages all of our Design/Build Firms to actively pursue obtaining bids and quotes from Certified DBE's.

B. Anticipated DBE Participation Statement:

The Department is reporting to the Federal Highway Administration the planned commitments to use DBE's. This information is being collected through the Anticipated DBE Participation Statement. This statement shall be submitted to the District Contract Compliance Manager/ Resident Compliance Officer who will then submit it electronically to the Equal Opportunity Office. Although these statements WILL NOT become a mandatory part of the contract, they will assist the Department in tracking and reporting planned or estimated DBE utilization.

C. Equal Opportunity Reporting System:

The Design/Build Firm is required to report monthly, through the Department's Equal Opportunity Reporting System on the Internet at, <http://www.dot.state.fl.us/equalopportunityoffice/> actual payments, minority status, and the work type of all subcontractors and suppliers. All DBE payments must be reported whether or not the prime initially planned to utilize the company. Each month the prime must report actual payments to all DBE and MBE subcontractors and suppliers. In order for the race neutral DBE Program to be successful, cooperation is imperative.

D. DBE Supportive Services Providers:

The Department has contracted with a consultant, referred to as DBE Supportive Services Provider, to provide managerial and technical assistance to DBE's. This consultant is also required to work with prime Design/Build Firms, who have been awarded contracts, to assist in identifying DBE's that are available to participate on the project. The successful Design/Build Firm should meet with the DBE Supportive Services Provider to discuss the DBE's that are available to work on this project. The current Provider for the State of Florida is serviced by Blackmon Roberts Group and can be reached at (863) 802-1280 in Lakeland or (305) 777-0231 in Coral Gables.

E. DBE Affirmative Action Plan:

A DBE Affirmative Action Plan must be approved and on file with the Equal Opportunity Office prior to award of the contract for each prime Design/Build Firm. Update and resubmit the plan every three years. No Contract will be awarded until the Department approves the plan. The DBE Affirmative Action Plan must be on your company's letterhead, signed by a company official, dated and contain all elements of an

effective DBE Affirmative Action Plan. These Plans should be mailed to:

Florida Department of Transportation
Equal Opportunity Office
605 Suwannee Street, MS 65
Tallahassee, FL 32399-0450

Questions concerning the DBE Affirmative Action Plan may be directed to the Equal Opportunity Office by calling (850) 414-4747.

F. Bidders Opportunity List:

The Federal DBE Program requires States to maintain a database of all firms that are participating, or attempting to participate, on DOT-assisted contracts. The list must include all firms that bid on prime contracts or bid or quote subcontracts on DOT-assisted projects, including both DBE's and Non-DBE's.

On the Bidders Opportunity Form if the answers to numbers 2, 3, 4, or 5 are not known, leave them blank and the Department will complete the information. This information should be returned with the bid package or proposal package or submitted to the Equal Opportunity Office within three days of submission. It can be mailed to the Equal Opportunity Office or faxed to (850) 414-4879.

V. PROJECT REQUIREMENTS AND PROVISIONS FOR WORK

A. Governing Regulations:

The services performed by the Design/Build Firm shall be in compliance with all applicable Manuals and Guidelines including the Department, FHWA, AASHTO, and additional requirements specified in this document. Except to the extent inconsistent with the specific provisions in this document, the current edition, including updates, of the following Manuals and Guidelines shall be used in the performance of this work. Current edition is defined as the edition in place and adopted by the Department at the date of advertisement of this contract with the exception of the Standard Specifications for Road and Bridge Construction (Divisions II & III), Special Provisions and Supplemental Specifications, Manual on Uniform Traffic Control Devices (MUTCD), Design Standards and Design Standards Modifications. The Design/Build Firm shall use the edition of the Standard Specifications for Road and Bridge Construction (Divisions II & III), Special Provisions and Supplemental Specifications, Design Standards and Design Standard Modifications that is in effect at the time the bid price proposals are due in the District Office. The Design/Build Firm shall use the 2009 edition of the MUTCD. It shall be the Design/Build Firm's responsibility to acquire and utilize the necessary manuals and guidelines that apply to the work required to complete this project. The services will include preparation of all documents necessary to complete the project as described in Section I of this document.

1. Florida Department of Transportation Roadway Plans Preparation Manuals
<http://www.dot.state.fl.us/rddesign/PPMManual/PPM.shtm>
2. Florida Department of Transportation Design Standards
<http://www.dot.state.fl.us/rddesign/DesignStandards/Standards.shtm>
3. Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Divisions II & III), Special Provisions and Supplemental Specifications
<http://www.dot.state.fl.us/specificationsoffice/Default.shtm>
4. Florida Department of Transportation Surveying Procedure
<http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/550030101.pdf>

5. Florida Department of Transportation EFB User Guide (Electronic Field Book)
<http://www.dot.state.fl.us/surveyingandmapping/downloads.shtm>
6. Florida Department of Transportation Drainage Manual
<http://www.dot.state.fl.us/rddesign/dr/Manualsandhandbooks.shtm>
7. Florida Department of Transportation Soils and Foundations Handbook
<http://www.dot.state.fl.us/structures/Manuals/SFH.pdf>
8. Florida Department of Transportation Structures Manual including Temporary Design Bulletins
<http://www.dot.state.fl.us/structures/manlib.shtm>
9. Florida Department of Transportation Computer Aided Design and Drafting (CADD) Production Criteria Handbook Roadway Standards
<http://www.dot.state.fl.us/ecso/downloads/publications/CriteriaHandBook/>
10. Florida Department of Transportation Production Criteria Handbook CADD Structures Standards
<http://www.dot.state.fl.us/ecso/downloads/publications/CriteriaHandBook/>
11. AASHTO – A Policy on Geometric Design of Highways and Streets
https://bookstore.transportation.org/item_details.aspx?ID=110
12. MUTCD - 2009
<http://mutcd.fhwa.dot.gov/>
13. Safe Mobility For Life Program
<http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/000750001.pdf>
14. Traffic Engineering and Operations Making Roads Safer for Older Drivers
<http://www.dot.state.fl.us/trafficoperations/Operations/ElderRdUser.shtm>
15. American with Disabilities Act
<http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/625020015.pdf>
16. Florida Highway Landscape Guide
<http://www.dot.state.fl.us/emo/beauty/landscap.pdf>
17. Florida Department of Transportation Florida Sampling and Testing Methods
<http://www.dot.state.fl.us/statematerialsoffice/administration/resources/library/publications/fstm/disclaimer.shtm>
18. Florida Department of Transportation Pavement Coring and Evaluation Procedure
<http://www.dot.state.fl.us/statematerialsoffice/administration/resources/library/publications/materialsmanual/documents/v1-section32-clean.pdf>
19. Florida Department of Transportation District Design Guidelines
<http://www.dot.state.fl.us/rddesign/updates/files/updates.shtm>
20. Florida Department of Transportation District Design Memos or Practices Manual (as applicable)
<http://www2.dot.state.fl.us/fdotd5erc/SFiles.aspx>
21. Florida Department of Transportation Utility Accommodation Manual
<http://www.dot.state.fl.us/rddesign/utilities/UAM.shtm>

22. AASHTO – Specifications for Highway Bridges
https://bookstore.transportation.org/category_item.aspx?id=BR
23. Florida Department of Transportation Construction Project Administration Manual
<http://www.dot.state.fl.us/construction/Manuals/cpam/CPAMManual.shtm>
24. Florida Department of Transportation Flexible Pavement Design Manual
<http://www.dot.state.fl.us/pavementmanagement/PUBLICATIONS.shtm>
25. Florida Department of Transportation Rigid Pavement Design Manual
<http://www.dot.state.fl.us/pavementmanagement/PUBLICATIONS.shtm>
26. Florida Department of Transportation Pavement Type Section Manual
<http://www.dot.state.fl.us/pavementmanagement/PUBLICATIONS.shtm>
27. Florida Department of Transportation Right of Way Manual
<http://www.dot.state.fl.us/rightofway/Documents.shtm>
28. Florida Department of Transportation Intelligent Transportation System Guide Book
http://www.dot.state.fl.us/TrafficOperations/Doc_Library/Doc_Library.shtm
29. Federal Highway Administration Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications
<http://www.fhwa.dot.gov/engineering/geotech/pubs/reviewguide/checklist.cfm>
30. Florida Department of Transportation Bicycle Facilities Planning and Design Handbook
<http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/625010050.pdf>
<http://www.dot.state.fl.us/emo/pubs/pdeman/pt2ch14.pdf>
31. Federal Highway Administration Hydraulic Engineering Circular Number 18 (HEC 18).
http://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=17
32. Florida Department of Transportation Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways
<http://www.dot.state.fl.us/rddesign/FloridaGreenbook/FGB.shtm>
33. **Florida Statutes**
<http://www.leg.state.fl.us/Statutes/index.cfm?Mode=View%20Statutes&Submenu=1&Tab=statutes&CFID=14677574&CFTOKEN=80981948>
34. AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 5th Edition, 2009
https://bookstore.transportation.org/item_details.aspx?ID=1319
35. Florida Department of Transportation – Traffic Engineering Manual
<http://www.dot.state.fl.us/trafficoperations/Operations/Studies/TEM/TEM.shtm>
36. Florida’s Highway Guide Sign Program, Rule Chapter 14-51, F.A.C.
http://www.dot.state.fl.us/trafficoperations/Operations/Studies/TEM/14-51_PartI.shtm
37. FDOT Minimum Specifications for Traffic Control Signal Devices
http://www.dot.state.fl.us/trafficoperations/Traf_Sys/terl/apl4.shtm
38. FDOT Approved Products List
<http://www3.dot.state.fl.us/trafficcontrolproducts/>

39. FDOT Qualified Products List
<http://www.dot.state.fl.us/Specificationsoffice/ProductEvaluation/QPL/Default.shtm>
40. FDOT District V Design/Build Shop Drawing submittal process
<http://www.dot.state.fl.us/construction/DistrictOffices/d5web/files/sop/ch8/Design-Build%20Shop%20Drawings%20Submittal.pdf>
41. FDOT District V Guidelines for Traffic Signal Plan Preparation
<http://www2.dot.state.fl.us/fdotd5erc/SFiles.aspx?C=4>
42. FDOT District V Guidelines for Signing and Pavement Marking Plans
<http://www2.dot.state.fl.us/fdotd5erc/SFiles.aspx?C=4>
43. FDOT District V Design Engineer Memorandums
<http://www2.dot.state.fl.us/fdotd5erc/SFiles.aspx?C=25>
44. FDOT Office of Construction Memorandums
http://www.dot.state.fl.us/construction/memos/Current_Memo/CurrentMemos.shtm
45. AASHTO Roadway Lighting Design Guidelines
https://bookstore.transportation.org/item_details.aspx?ID=320
46. FDOT “Open Roads Policy”
http://www.dot.state.fl.us/trafficoperations/Traf_Incident/pdf/Open_Roads_Policy_FDOT_FHP.pdf
47. FDOT Preparation and Documentation Manual
<http://www.dot.state.fl.us/construction/Manuals/finalet/p&d/PrepDocManual.shtm>
48. FDOT Driveway Information Guide
<http://www.dot.state.fl.us/planning/systems/sm/accman/default.shtm>
49. Federal Aviation Authority (FAA), Part 77 Regulations
http://www.access.gpo.gov/nara/cfr/waisidx_04/14cfr77_04.html

B. Innovative Aspects:

All innovative aspects shall be identified separately as such in the Technical Proposal.

An innovative aspect does not include revisions to specifications, standards or established Department policies. Innovation should be limited to Design/Build Firm’s means and methods, approach to project, etc.

C. Geotechnical Services:

1. General Conditions:

The Design/Build Firm will be responsible for identifying and performing any geotechnical investigation,

analysis, and design dictated by the project needs. All geotechnical work necessary shall be performed in accordance with the governing regulations.

The Design/Build Firm shall provide the Department signed and sealed design and construction reports. The reports shall be a record set of all geotechnical information, including relevant support data.

2. **Pile Foundations: N/A**
3. **Drilled Shaft Foundations for Bridges and Major Structures: N/A**
4. **Drilled Shaft Foundations for Miscellaneous Structures: N/A**

The Design/Build Firm shall employ geotechnical and drilled shaft testing consultants with the following minimum qualifications:

- Professional engineers registered in the State of Florida with at least 3 years of post-registration experience in drilled shaft foundation design and construction.
- The drilled shaft installation shall be supervised and certified by the Geotechnical Foundation Design Engineer of Record. These services shall include providing CTQP-qualified Drilled Shaft Inspectors in the numbers necessary to comply with Department specifications for recording drilled shaft construction records. Provide drilled shaft construction logs to FDOT within 24 hours of completing the shaft.
- Use drilled shaft superintendents in responsible charge of drilling operations experienced in drilled shaft installation and testing in the State of Florida. This “responsible charge” experience shall include at least three (3) projects with drilled shaft foundations of similar size.

D. Environmental Permits:

It is anticipated that the proposed project will not require a state Environmental Resource Permit, Section 404 permit, or any protected species permits. It is the Proposer’s responsibility to ensure that all wetlands are avoided during construction. A safe-upland line should be provided on construction plans to ensure that the contractor does not perform work or stage equipment within jurisdictional wetlands that are within 25 feet of the construction limits. Should wetland impacts be unavoidable, the following section describes permitting requirements (also described in Section III.H: Waiver of Irregularities).

All efforts should be made to avoid impacts to protected species and their habitat. Should protected species impacts be unavoidable, the Design Build Firm will be responsible for obtaining any necessary protected species permits (including required mitigation). Gopher Tortoise (*Gopherus polyphemus*) burrows have been identified near the project but are currently located outside of the jurisdictional 25 foot buffer limits of conceptual design. The gopher tortoise is listed as a State Threatened species. FDOT will require the chosen Design Build Firm to conduct a species-specific survey that adheres to standardized methods, prior to construction, to ensure no impacts will occur to new tortoise burrows within 25 feet of the project limits. If impacts will occur, a relocation permit from the Florida Fish and Wildlife Conservation Commission will be required, and will be sole responsibility of the Design/Build Team to secure. The Chosen Design/Build team shall coordinate with the District Permit Coordinator prior to

consulting any regulatory agency during design.

1. Storm Water and Surface Water:

Plans shall be prepared in accordance with Chapter 62-25, Regulation of Storm water Discharge, Florida Administrative Code.

2. Permits:

All applicable data shall be prepared in accordance with Chapter 373 and 403, Florida Statutes, Chapters 40 and 62, Florida Administrative Code; Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and parts 114 and 115, Title 33, Code of Federal Regulations. In addition to these Federal and State permitting requirements, any dredge and fill permitting required by local agencies shall be prepared in accordance with their specific regulations. Acquisition of all applicable permits will be the responsibility of the Design/Build Firm. Preparation of complete permit packages will be the responsibility of the Design/Build Firm. The Design/Build Firm will obtain permits while acting as an authorized representative for the "Department" for permitting purposes only. If any agency rejects or denies the permit application, it is the Design/Build Firm's responsibility to make whatever changes necessary to ensure the permit is approved.

The Design/Build Firm will be required to pay all permit fees. Any fines levied by permitting agencies shall be the responsibility of the Design/Build Firm.

The Design/Build Firm shall be responsible for an assessment of all potential gopher tortoise habitat that could be impacted by the project. The habitat will be systematically surveyed according to the current guidelines published by the Florida Fish and Wildlife Conservation Commission (FWC). If gopher tortoise burrows are found, all practicable measures will be employed to avoid impacts. The Design/Build Firm shall be responsible for obtaining an FWC permit for the relocation of gopher tortoises and commensals from burrows which cannot be avoided, and relocation shall be performed at a time as close as practicable to the start of construction activities at the site of the burrows. If new burrows are found after relocation, their occupants will also be relocated. A copy of the permit and any subsequent reports to FWC must be provided to the District Environmental Management Office.

The Design/Build Firm will be required to pay all permit fees including any and all fees associated with the relocation of gopher tortoises. Any fines levied by permitting agencies shall be the responsibility of the Design/Build Firm.

However, notwithstanding anything above to the contrary, upon the Design/Build Firm's preliminary request for extension of Contract Time, pursuant to 8-7.3, being made directly to the District Construction Engineer, the Department reserves unto the District Construction Engineer, in his sole and absolute discretion, according to the parameters set forth below, the authority to make a determination to grant a non-compensable time extension for any impacts beyond the reasonable control of the Design/Build Firm in securing permits. Furthermore, as to any such impact, no modification provision will be considered by the District Construction Engineer unless the Design/Build Firm clearly establishes that it has continuously from the beginning of the project aggressively, efficiently and effectively pursued the securing of the permits including the utilization of any and all reasonably available means and methods to overcome all impacts. There shall be no right of any kind on behalf of the Design/Build Firm to challenge or otherwise seek review or appeal in any forum of any determination made by the District Construction Engineer under this provision.

3. Signed and Sealed As-Built Drawings

The Design/Build Firm shall adhere to all environmental permit conditions related to as-built certification.

E. Railroad Coordination:

The Department will conduct the required contract negotiations and plans review coordination. All required Railroad Reimbursement Agreements will be between Florida East Coast Railway, LLC and (the Department). Copies of the approved Agreements will be made available to the Design/Build Firm. The Design/Build Firm must comply with the terms of these agreements. The Design/Build Firm must make the necessary arrangements with Florida East Coast Railway, LLC prior to encroachments into the railroad rights-of-way.

F. Survey:

The Design/Build Firm shall perform all surveying and mapping services necessary to complete the project. Survey services must also comply with all pertinent Florida Statutes and applicable rules in the Florida Administrative Code. All field survey data will be furnished to the District Surveyor in a Department approved digital format, readily available for input and use in CADD Design files. All surveying and mapping work must be accomplished in accordance with the Department's Surveying Procedure, Topic Nos. 550-030-101; Right-of-Way Mapping Procedure, Topic No. 550-030-015; Aerial Surveying Standards for Transportation Projects Procedure, Topic No. 550-020-002. This work must comply with the Minimum Technical Standards for Professional Surveyors and Mappers, Chapter 61G17, Florida Administrative Code (F.A.C.), pursuant to Section 472.027, Florida Statutes (F.S.) and any special instructions from the Department. This survey also must comply with the Department of Environmental Protection Rule, Chapter 18-5, F.A.C. pursuant to Chapter 177, F.S., and the Department of Environmental Protection.

G. Verification of Existing Conditions:

The Design/Build Firm shall be responsible for verification of existing conditions, including research of all existing Department records and other information.

By execution of the contract, the Design/Build Firm specifically acknowledges and agrees that the Design/Build Firm is contracting and being compensated for performing adequate investigations of existing site conditions sufficient to support the design developed by the Design/Build Firm and that any information is being provided merely to assist the Design/Build Firm in completing adequate site investigations. Notwithstanding any other provision in the contract documents to the contrary, no additional compensation will be paid in the event of any inaccuracies in the preliminary information.

H. Submittals:

1. Plans:

Plans must meet the minimum contents of a particular phase submittal prior to submission for review. The particular phase of each submittal shall be clearly indicated on the cover sheet.

Submittals shall contain the following:

- Plan sheets developed to the specified level of detail (i.e. 90% plans, Final plans, etc.),
- Design documentation including a complete set of calculations, geotechnical reports, pertinent correspondence, etc. in support of the 90% and final component submittals.

The Design/Build Firm shall provide copies of required review documents as listed below.

90% Component Plans

8 sets of 11" X 17" each component set, except ITS plans
5 sets of 11" X 17" ITS plans
7 copies of Final Geotechnical Report
2 copy of Specifications Package
Independent Peer reviewer's comments and comment responses
2 sets of the adaptive signal control implementation and timings plan draft version
2 sets of 11" x 17" ITS plans and adaptive signal control plan in Adobe Acrobat format (.pdf) on CD's

Final Component Plans

8 sets of 11" X 17" each component set, except ITS plans
5 sets of 11" X 17" ITS plans
2 sets of final documentation
1 signed and sealed copy of Specifications Package
2 sets of electronic copies of Specifications Package and 11" x 17" plans in Adobe (.pdf) format on CD's

Construction Set:

1 set of 11"X 17" copies of the signed and sealed plans for the Department to stamp "Released for construction".
2 sets of 11" x 17" ITS plans in Adobe Acrobat format (.pdf) on CD's

Final signed and sealed plans will be delivered to the Department's Project Manager a minimum of 5 working days prior to construction of that component. The Department's Project Manager will send a copy of a final signed and sealed plans to the appropriate office for review and stamping "Released for Construction". Only stamped signed and sealed plans are valid and all work that the Design/Build Firm performs in advance of the Department's release of Plans will be at the Design/Build Firm's risk.

Record Set:

The Design/Build Firm shall furnish to the Department, upon project completion, the following:

- 1 set of 11" X 17" signed and sealed plans
- 5 sets of 11 "X 17" copies of the signed and sealed plans
- 2 sets of final CADD files on CD (This can be added to the Final Project CD)

- 2 sets of 11" x 17" as-built roadway and component plans and 2 sets of the adaptive signal control implementation and timings plan final version in Adobe Acrobat format (.pdf) on CD

The Design/Build Firm's Professional Engineer in responsible charge of the project's design shall professionally endorse (signed and sealed and certified) the record prints, the special provisions and all reference and support documents. The professional endorsement shall be performed in accordance with the Department Plans Preparation Manual.

The Design Build Firm shall complete the record set as the project is being constructed. The record set becomes the as-builts at the end of the job and signed/sealed changes are by the EOR. The record set shall reflect all changes initiated by the Design/Build Firm or the Department in the form of revisions. The record set shall be submitted on a Final Project CD upon project completion. The CEI shall do a review of the record set prior to final acceptance in order to complete the record set.

The CEI shall certify the final plans as per Section 4.5.7 of Chapter 4 of the Preparation and Documentation Manual (TOPIC No. 700-050-010)

I. Contract Duration:

The Design/Build Firm shall establish the contract duration for the subject project. In no event shall the contract duration exceed 470 calendar days. The official Proposed Contract Time (PCT) will be the one submitted with the Bid Price Proposal. The date on which calendar days will begin to be charged to the project shall be the same date as the Notice to Proceed.

J. Project Schedule:

The Design/Build Firm shall submit a project schedule, in accordance with Subarticle 8-3.2 (Design/Build Division I Specifications), which supports the established contract duration submitted as part of the Technical Proposal. The minimum number of activities shall be those listed in the payout schedule and those listed below:

- Anticipated Award Date
- Design Submittals
- Design Survey
- Design Reviews by the Department and FHWA
- Design Review / Acceptance Milestones
- Materials Quality Tracking
- Geotechnical Investigation
- Start of Construction
- Clearing and Grubbing
- Construction Mobilization
- Environmental Permit Acquisition
- Intelligent Transportation System Design
- Intelligent Transportation System Construction
- Maintenance of Traffic Design
- Maintenance of Traffic Set-Up (per duration)
- Erosion Control

- Additional Construction Milestones as determined by the Design/Build Firm
- Final Completion Date for All Work

The DESIGN BUILD FIRM'S schedule should allow for a fifteen (15) calendar day (excluding Holidays as defined in section 1-3 of the Specifications) review time for the DEPARTMENT'S review of the 90% design submittal.

The review period commences upon the Department's receipt of the valid submittal or re-submittal and terminates upon the transmittal of the submittal back to the Design/Build Firm. The Department's review is not meant to be a complete and detailed review. Submittal of the subsequent Component plans will not be allowed until all previous Component plan review comments have been resolved, responded to by the Design/Build Firm, and accepted by the Department's reviewers.

K. Key Personnel/Staffing:

The Design/Build Firm's work shall be performed and directed by key personnel identified in the technical proposal by the Design/Build Firm. Any changes in the indicated personnel shall be subject to review and approval by the Department's Project Manager. The Design/Build Firm shall have available a professional staff that meets the minimum training and experience set forth in Florida Statute Chapter 455.

L. Meetings and Progress Reporting:

The Design/Build Firm shall anticipate periodic meetings with Department personnel and other agencies as required for resolution of design and/or construction issues. These meetings may include:

- Department technical issue resolution
- Permit agency coordination
- Local government agency coordination
- Scoping Meetings

During design, the Design/Build Firm shall meet with the Department's Project Manager on a regular basis and provide a look ahead of the upcoming activities.

During construction, the Design/Build Firm shall meet with the Department's Project Manager on a weekly basis and provide a one-week look ahead for activities to be performed during the coming week.

The Design/Build Firm shall, on a monthly basis, provide written progress reports that describe the items of concern and the work performed on each task in a Department-approved format.

M. Public Involvement:

1. General:

Public involvement is an important aspect of the project. Public involvement includes communicating to all interested persons, groups, and government organizations information regarding the development of the project. A Public Involvement Consultant (PIC) has been hired by the Department to carry out an

exhaustive Public Involvement Campaign and a marketing effort. The Design/Build Firm will continue to be part of the Public Involvement effort but on a limited basis as described below.

2. Community Awareness:

The Design/Build Firm will review and comment on a Community Awareness Program provided by the PIC for the project.

3. Public Meetings:

The Design/Build Firm shall provide all support necessary for the PIC to hold various public meetings, which may include:

- Kick-off or introductory meeting
- Metropolitan Planning Organization (MPO) Citizens Advisory Committee Meetings
- MPO Transportation Technical Committee Meetings
- MPO Meetings
- Public Information Meetings
- Elected and appointed officials
- Special interest groups (private groups, homeowners associations, environmental groups, minority groups and individuals)

The Design/Build Firm shall include attendance at two meetings per month for the term of the contract to support the public involvement program.

For any of the above type meetings the Design/Build Firm shall provide all technical assistance, data and information necessary for the PIC to produce display boards, printed material, video graphics, computerized graphics, etc., and information necessary for the day-to-day exchange of information with the public, all agencies and elected officials in order to keep them informed as to the progress and impacts that the proposed project will create. This includes workshops, information meetings, and public hearings.

The Design/Build Firm shall, on an as-needed basis, attend the meetings with an appropriate number of his personnel to assist the Department's Project Representative/PIC. The Design/Build Firm shall forward all requests for group meetings to the PIC. The Design/Build Firm shall inform the PIC of any meetings with individuals that occur without prior notice.

4. Public Workshops, Information Meetings:

The Design/Build Firm shall provide all the support services listed in No. 3 above.

All legal/display ads announcing workshops, information meetings, and public meetings will be prepared and paid for by the PIC.

The Department will be responsible for the legal/display advertisements for design concept acceptance. The PIC will be responsible for preparing and mailing (includes postage) for all letters announcing workshops and information meetings.

5. Public Involvement Data:

The Design/Build Firm is responsible for the following:

- Coordinating with the Public Involvement Consultant.
- Identifying possible permit and review agencies and providing names and contact information for these agencies to the PIC.
- Providing required expertise (staff members) to assist the PIC on an as-needed basis.
- Preparing color graphic renderings and/or computer generated graphics to depict the proposed improvements for coordination with the Department, local governments, the Urban Design Guidelines Committee, and other agencies.

The collection of public input occurs throughout the life of the project and requires maintaining files, newspaper clippings, letters, and especially direct contacts before, during and after any of the public meetings. Articles such as those mentioned shall be provided to the PIC for their use and records.

In addition to collecting public input data, the Design/Build Firm may be asked by the PIC to prepare responses to any public inquiries as a result of the public involvement process. The Department shall review all responses prior to mailing.

N. Quality Management Plan (QMP):

1. Design:

The Design/Build Firm shall be responsible for the professional quality, technical accuracy and coordination of all surveys, designs, drawings, specifications, geotechnical and other services furnished by the Design/Build Firm under this contract.

The Design/Build Firm shall provide a Design Quality Management Plan, which describes the Quality Control (QC) procedures to be utilized to verify, independently check, and review all design drawings, specifications, and other documentation prepared as a part of the contract. In addition the QMP shall establish a Quality Assurance (QA) program to confirm that the Quality Control procedures are followed. The Design/Build Firm shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The QMP may be one utilized by the Design/Build Firm, as part of their normal operation or it may be one specifically designed for this project. The Design/Build Firm shall submit a QMP within 15 working days of the written Notice to Proceed. A marked up set of prints from the Quality Control review will be sent in with each review submittal. The responsible Professional Engineers or Professional Surveyor that performed the Quality Control review, as well as the QA manager will sign a statement certifying that the review was conducted.

The Design/Build Firm shall, without additional compensation, correct all errors or deficiencies in the surveys, designs, drawings, specifications and/or other services.

No fabrication, casting, or construction will occur until all related design review and shop drawing review comments are resolved.

2. Construction:

The Design/Build Firm shall be responsible for developing and maintaining a Construction Quality Control Plan in accordance with Section 105 of Standard Specifications which describes their Quality Control procedures to verify, check, and maintain control of key construction processes and materials.

The sampling, testing and reporting of all materials used shall be in compliance with the Sampling, Testing and Reporting Guide (STRG) provided by the Department. The Design/Build Firm will use the Department's database(s) to allow audits of materials used to assure compliance with the STRG. The Department has listed the most commonly used materials and details in the Department's database. When materials being used are not in the Department's database list, the Design/Build Firm shall use appropriate material details from the STRG to report sampling and testing. Refer to the "Access Instruction for LIMS" for more information on how to gain access to the Department's databases: <http://www.dot.state.fl.us/statematerialsoffice/quality/programs/qualitycontrol/contractor.shtm>

Prepare and submit to the Engineer a Job Guide Schedule (JGS) using the Laboratory Information Management System (LIMS) 21 calendar days prior to commencement of construction. Update the Job Guide Schedule and submit it to the Engineer prior to each monthly progress estimate. The Department may not authorize payment of any progress estimate not accompanied by an up-to-date Job Guide Schedule. Maintain the Job Guide Schedule throughout the project including the quantity placed since the previous submittal, and total to date quantity and any additional materials placed. Do not commence work activities that require testing until the Job Guide Schedule has been reviewed and accepted by the Engineer. At final acceptance, submit a final Job Guide Schedule that includes all materials used on the project in the same format as the monthly reports.

The Department shall maintain its rights to inspect construction activities and request any documentation from the Design/Build Firm to ensure quality products and services are being provided in accordance with the Department's Materials Acceptance Program.

O. Liaison Office:

The Department and the Design/Build Firm will designate a Liaison Office and a Project Manager who shall be the representative of their respective organizations for the project.

For this project an Engineer's Field Office will not be required.

P. Schedule of Values:

The Design/Build Firm will be responsible for invoicing the Department based on current invoicing policy and procedure. Invoicing will be based on the completion or percentage of completion of major, well-defined tasks as defined in the schedule of values. Final payment will be made upon final acceptance by the Department of the Design/Build project. Tracking DBE participation will be required under normal procedures according to the CPAM. The Design/Build Firm must submit the schedule of values to the Department for approval. No invoices shall be submitted prior to Department approval of the schedule of values.

Upon receipt of the invoice, the Department's Project Manager will make judgment on whether or not work of sufficient quality and quantity has been accomplished by comparing the reported percent complete against actual work accomplished.

Q. Computer Automation:

The project shall be developed utilizing computer automation systems in order to facilitate the development of the contract plans. Various software and operating systems were developed to aid in assuring quality and conformance with Department of Transportation policies and procedures. Seed Files, Cell Libraries, User Commands, MDL Applications and related programs developed for roadway

design and drafting are available for the MicroStation V8 format in the FDOT CADD Software Suite. However, it is the responsibility of the Design/Build Firm to obtain and utilize current Department releases of all CADD applications.

The Design/Build Firm's role and responsibilities are defined in the Department's CADD Manual. The Design/Build Firm will be required to submit final documents and files which shall include complete CADD design and coordinate geometry files in Intergraph / Micro station format, as described in the above referenced document.

The archived submittal shall also include either a TIMS database file, CADD Index file (generated from RDMENU) or documentation that shall contain the project history, file descriptions of all (and only) project files, reference file cross references, and plotting criteria a (e.g. batch, level symbology, view attributes, and display requirements). A printed directory of the archived submittal shall be included.

R. Construction Engineering and Inspection:

The Department is responsible for providing Construction Engineering and Inspection (CEI) and Quality Assurance Engineering.

The Design/Build Firm is subject to the Department's Independent Assurance (IA) Procedures.

S. Testing:

The Department or its representative will perform verification and resolution testing services in accordance with the latest Specifications. On all Federal Aid Projects, the Department or its representative shall perform verification sampling and testing on site as well as off site locations such as pre-stress plants, batch plants, structural steel and weld, fabrication plants, etc.

T. Design/Build Firm Value Added:

The Design/Build Firm may provide a Contractor guaranteed/Value Added Project Features, in accordance with Article 5-14 of the Specifications for the following features:

- Any products or features the Design/Build Firm desires.

The Design/Build Firm shall develop the Value Added criteria, measurable standards, and remedial work plans in the Design/Build Firm's technical proposal features proposed by the D/B Firm.

U. Adjoining Construction Projects:

The Design/Build Firm shall be responsible for coordinating construction activities with other construction projects that are impacted by or impact this project. This includes projects under the jurisdiction of local governments, the Department, or other regional and state agencies.

V. Design Issue Escalation:

The Department has established the issue escalation process for design questions and conflict resolution that the Design/Build Firm shall follow unless revised by the Partnering agreement. All issues are to be directed to the Department Project Manager. If the issue cannot be resolved at this level the Department Project Manager shall forward the issue to the next level in the process. The escalation process begins

with the District Design Engineer, followed by the Director of Transportation Operations, and finally to the District Secretary. Each level shall have a maximum of three working days to answer, resolve or address the issue. This three day window is a response time and does not infer resolution. Questions may be expressed verbally and followed up in writing. The Department Project Manager will respond in a timely manner but not to exceed three working days. The Design/Build Firm shall provide any available supporting documentation.

The Design/Build Firm shall provide a similar issue escalation process for his organization with personnel of similar levels of responsibility.

The District Secretary will have the final authority on design decisions.

W. Construction Clarification, Conflict Resolution, and Issue Escalation:

In the event that construction problems occur, the resolution of those problems will be processed in one of the following two ways unless revised by a Partnering agreement:

- If the resolution does not change the original intent of the technical proposal/RFP, then the Design/Build Firm Engineer of Record (EOR) will be responsible for developing the design solution to the construction problem and the District Resident Engineer will be responsible for review and response within 10 working days. The District Resident Engineer will either concur with the proposed solution or, if the District Resident Engineer has concerns, the issue will be escalated as described in the process below.
- If the resolution does alter the original intent of the technical proposal/RFP then the EOR will develop the proposed solution, copy in the District Resident Engineer, and send it to the District Construction Office for review and response through the Department Project Manager. The District Construction Office will respond to the proposed solution within ten working days. The District Construction Office will either concur with the proposed solution or, if the District Resident Engineer has concerns, the issue will be escalated as described in the process below. Changes to the original intent of the technical proposal/RFP will require a contract change order and FHWA approval.
- The Department has established the issue escalation process for construction questions and conflict resolution that the Design/Build Firm shall follow unless revised by the Partnering agreement. All issues are to be directed to the Department Project Manager. If the issue cannot be resolved at this level the Department Project Manager shall forward the issue to the next level in the process. The escalation process begins with the District Construction Engineer, followed by the Director of Transportation Operations, and finally to the District Secretary. Each level shall have a maximum of three working days to answer, resolve or address the issue. This three day window is a response time and does not infer resolution. Questions may be expressed verbally and followed up in writing. The Department Project Manager will respond in a timely manner but not to exceed three working days. The Design/Build Firm shall provide any available supporting documentation.

The Design/Build Firm shall provide a similar chain of command for his organization with personnel of

similar levels of responsibility.

Should an impasse develop, the Dispute Review Board shall assist in the resolution of disputes and claims arising out of the work on the Contract.

VI. Design and Construction Criteria

A. General:

The Design/Build Firm shall be responsible for: detailed plan checking as outlined in the Plans Preparation Manual (PPM); as described in the RFP; and the Design and Construction criteria package. This includes a checklist of the items listed in the PPM for each completed phase submittal. Roadway submittals may be broken down into ITS, signing & pavement marking, signalization, landscaping and final geometry components. The component design must be in conformity with the Design and Construction Criteria requirements, approved preliminary layout and concept as provided in the Technical Proposal.

Before construction activities can begin for a specific component, signed and sealed design plans and calculations supporting the design for that component must be reviewed by the Department. Component submittals shall be complete submittals along with all the supporting information necessary for review. The work must represent logical work activities and must show impacts on subsequent work on this project. Any modification to the component construction due to subsequent design changes as the result of design development is solely the Design/Build Firm's risk. Upon review by the Department, the plans will be stamped "Released for Construction" and initialed and dated by the reviewer. Any construction initiated by the Design/Build Firm prior to receiving signed and sealed plans stamped "Released for Construction" shall be at the sole risk of the Design/Build Firm.

All design and construction documents shall be prepared using the English system.

B. Geotechnical Services

The Design/Build Firm shall perform a subsurface investigation, analysis and design for all aspects of the project in accordance with Department standards, policies and procedures. Existing subsurface information may be used. Supplemental subsurface investigation and testing will be required to ensure all aspects of the project are covered.

Driven Pile Foundations for Bridges and Major Structures: N/A

Drilled Shaft Foundations for Bridges and Major Structures: N/A

Drilled Shaft Foundation for Miscellaneous Structures:

The Design-Build Firm shall be responsible for the following:

- Evaluating geotechnical conditions and designing the foundations including the drilled shaft diameter and length, and construction methods to be used.
- Completing the subsurface investigation and drilling pilot holes prior to establishing the drilled shaft tip elevations.

- Documenting and providing a report that includes all analysis, and recommendations to the District Geotechnical Engineer. The report should include but not be limited to the following: pilot borings for all drilled shafts, soil parameters used for design shaft length and diameter, shafts tip elevation, and design calculations. This report shall be signed and sealed by a Florida licensed Professional Engineer and shall be submitted to the District Geotechnical Engineer for review and approval at least five working days prior to beginning production shaft construction. Additional data or analysis may be required by the Engineer.
- Constructing all drilled shafts to the required tip elevation.
- Verifying level and clean hole bottom conditions and properties of the drilling fluid at the time of concrete placement.
- Documenting and submitting the drilled shaft excavation and concreting logs to the District Geotechnical Engineer within 24 hours of concrete placement. The documentations shall include the drilled shaft installation procedures and sequencing as well as any problems encountered during construction and concrete placement. Allow three working days for the District Geotechnical Engineer to review the data before any further construction on the shafts.
- Repairing all detected defects and conducting post repair integrity testing using 3D tomographic imaging and gamma-gamma density logging. Submitting all results to the District Geotechnical Engineer within five days of test completion.
- Submitting the Foundation Certification Packages.
 - Each Foundation Certification Package shall contain an original signed and sealed letter certifying capacity and integrity of all drilled shafts, and clearly legible copies of all shaft excavation and concreting logs, all CSL reports and electronic data, slurry test data, supplemental testing data and analyses for the foundation unit. The certification shall not be contingent on any future testing or approval by FDOT.
 - Submit two copies of the Foundation Certification Package signed and sealed by the Geotechnical Foundation Design Engineer of Record to FDOT within three weeks of finishing each foundation unit and prior to Verification Testing. A foundation unit is defined as one or more shafts constructed.

C. Utility Coordination

The Design Build Firm shall insure FDOT standards, policies, procedures, and design criteria are followed concerning utility coordination. The FDOT standards, policies, procedures, and design criteria are contained in the current adopted Design Standards, Standard Specifications for Road and Bridge Construction, Rule 14-46.001 (Utility Accommodation Manual), and any Supplemental Specification, Provision, or Agreement attached to this RFP.

The Design/Build Firm may employ more than one individual or utility engineering consultant to provide utility coordination and engineering design expertise. However, the Design/Build Firm shall employ and identify a single dedicated person responsible for managing all utility coordination and design activities. This person shall be contractually referred to as the Utility Coordination Manager and shall be identified in the Design/Build Firm's proposal. The Utility Coordination Manager shall be required to satisfactorily demonstrate to the Department's Project Manager having the following knowledge, skills, and abilities:

1. A minimum of 4 years of experience performing utility coordination in accordance with Department standards, policies, and procedures.
2. Knowledge of the Department plans production process and District utility coordination practices,
3. Knowledge of Department agreements, standards, policies, and procedures.

The Design/Build Firm's Utility Coordination Manager shall be responsible for, but not limited to, the following:

1. Ensuring that Utility Coordination and design is conducted in accordance with the Department's standards, policies, procedures, and design criteria.
2. Assisting the Engineer of Record in identifying all existing utilities and coordinating any new installations.
3. Scheduling utility meetings, keeping and distribution of minutes of all utility meetings, and ensuring expedient follow-up on all unresolved issues.
4. Distributing all plans, conflict matrixes and changes to affected utility owners and making sure this information is properly coordinated.
5. Identifying and coordinating the completion of any Department or utility owner agreement that is required for reimbursement, or accommodation of the utility facilities associated with the Design/Build project.
6. Assisting the Engineer of Record and the contractor with resolving utility conflicts.
7. Handling reimbursable issues inclusive of betterment and salvage determination.
8. Obtaining and maintaining Sunshine State One Call Design to Dig Tickets.
9. QA Review of construction plans prior to construction activities for completeness
10. Acquisition/procurement of any required easements when stated in RFP and as required by design
11. Periodic project updates to the district utility office as needed.

D. Roadway Plans: N/A

E. Geometric: N/A

F. Design Documentation, Computations and Quantities:

The Design/Build Firm shall submit to the Department design notes and computations to document the design conclusions reached during the development of the construction plans.

The design notes and computation sheets shall be fully titled, numbered, dated, indexed, and signed by the designer and the checker. Computer output forms and other oversized sheets shall be folded to a standard size 8½" x 11". The data shall be in a hard-back folder for submittal to the Department. At the project completion, a final set of design notes and computations, signed by the Design/Build Firm, shall be submitted with the record set of plans and tracings.

The design notes and calculations shall include, but not be limited to the following data:

1. Design standards used for the project
2. Documentation of decisions reached resulting from meetings, telephone conversations or site visits

3. Final quantities list

G. Structure Plans: N/A

H. Specifications:

Department Specifications may not be modified or revised. The Design/Build Firm shall also include all Technical Special Provisions, which will apply to the work in the proposal. Technical Special Provisions shall be written only for items not addressed by Department Specifications, and shall not be used as a means of changing Department Specifications.

Before construction activities can begin, the Design/Build Firm shall prepare and submit a signed and sealed Construction Specifications Package for the project, containing all applicable Division II and III Special Provisions and Supplement Specifications from the Specifications Workbook in effect at the time the Bid Price Proposals were due in the District Office. Specification Workbooks are posted on the Department's website at the following URL address:

<https://www2.dot.state.fl.us/SpecificationsPackage/Utilities/Membership/login.aspx?ReturnUrl=%2fspecificationspackage%2fDefault.aspx>.

The signed and sealed Specifications Package shall also include individually signed and sealed Technical Special Provisions for any and all work not addressed by Department Specifications. Any Technical Special Provisions included in the signed and sealed Construction Specifications Package which had not been included in the proposal phase, may require a contract cost modification as a condition of approval.

The Design/Build Firm must account for a 10 working day (excluding Holidays as defined in section 1-3 of the Specifications) review time in its schedule. Upon review by the Department, the Construction Specifications Package will be stamped "Released for Construction" and initialed and dated by the reviewer.

Any subsequent modifications to the Construction Specifications Package shall be prepared, signed and sealed as a Supplemental Specifications Package, subject to the same process for submittal, review, and, release for construction, as described above, for the original Construction Specifications Package. Construction work affected by Supplemental Specifications Packages shall not begin until stamped "Released for Construction" Supplemental Specification Package is obtained.

I. Shop Drawings:

The Design/Build Firm shall be responsible for the preparation and approval of all Shop Drawings. Shop Drawings shall be submitted to the Department and shall bear the stamp and signature of the Design/Build Firm's Contractor Engineer of Record (EOR) and Specialty Engineer and signed and sealed by the Contractor's EOR or the Specialty Engineer, as appropriate. The Department shall review the Shop Drawing(s) to evaluate compliance with project requirements and provide any findings to the Design/Build Firm. The Department's procedural review of shop drawings is to assure that the Design/Build Firm and the EOR have both accepted and signed the drawing, the drawing has been independently reviewed and is in general conformance with the plans. The Departments review is not meant to be a complete and detailed review. Upon review of the shop drawing, the Department will stamp "Released for Construction" or "Released for Construction as noted" and initialed and dated by the reviewer.

Shop Drawing submittals must be accompanied by sufficient information for adjoining components or areas of work to allow for proper evaluation of the Shop Drawing(s) submitted for review.

J. Sequence of Construction:

The Design/Build Firm shall construct the work in a logical manner and with the following objectives as guides:

1. Maintain or improve, to the maximum extent possible, the quality of existing traffic operations, both in terms of flow rate and safety, throughout the duration of the project.
2. Minimize the number of different Traffic Control Plan (TCP) phases, i.e., number of different diversions and detours for a given traffic movement.
3. Take advantage of newly constructed portions of the permanent facility as soon as possible when it is in the best interest of traffic operations and construction activity.
4. Maintain reasonable direct access to adjacent properties at all times, with the exception in areas of limited access right-of-way where direct access is not permitted.
5. Proper coordination with adjacent construction projects and maintaining agencies.

K. Stormwater Pollution Prevention Plans (SWPPP)

The Design/Build Firm shall prepare an erosion control plan that complies with the Storm Water Pollution Prevention Plan (SWPPP) as required by the National Pollution Discharge Elimination System (NPDES). The Design/Build Firm shall refer to the Plans Preparation Manual for information in regard to the SWPPP and Florida Department of Environmental Protection (FDEP) Rule 62-25 for requirements on the erosion control plan. Detailed limits of the erosion control items will be necessary but may be shown on the roadway plans sheets. This plan shall be submitted along with the Design/Build Firm's Certification at least 15 working days prior to beginning construction activities.

L. Temporary Traffic Control Plan:

1. Traffic Control Analysis:

The Design/Build Firm shall design a safe and effective Temporary Traffic Control Plan to move vehicular traffic during all phases of construction. The areas shall include, but are not limited to, construction phasing, utility relocation, drainage structures, signalization, ditches, front slopes, back slopes, drop offs within clear zone, and traffic monitoring sites. Special consideration shall be given to the drainage system when developing the construction phases. Positive drainage must be maintained at all times.

The Temporary Traffic Control Plan shall address how to assist with maintenance of traffic throughout the duration of the contract.

The Temporary Traffic Control Plan shall be prepared by a certified designer who has completed the Department's training course, and in accordance with the Department's Design Standards and the Roadway Plans Preparation Manual.

2. Temporary Traffic Control Plans:

The Design/Build Firm shall utilize Index Series 600 of the Department's Design Standards where applicable. Should these standards be inadequate, a detailed Temporary Traffic Control Plan shall be

developed.

The Design/Build Firm shall prepare additional Temporary Traffic Control drawings such as plan sheets, cross sections, profiles, drainage structures, retaining wall details, and sheet piling as necessary for proper construction and implementation of the Temporary Traffic Control Plan. The Temporary Traffic Control Drawings for any Release for Construction component set shall depict how traffic will be maintained in conjunction with previous, subsequent, and adjacent Release for Construction component sets.

In the event permanent vehicle detection is disrupted, the contractor shall provide an alternative means of detection to all lanes approaching the intersection, separating each movement which previously had detection. The type of detector shall be approved by the Engineer prior to installation. Equipment shall only detect the intended movement.

3. Traffic Control Restrictions:

There will be NO LANE CLOSURES ALLOWED during the times indicated in the table below. A single lane may be closed only during active work periods. All lane closures, including ramp closures, must be reported to the local emergency agencies, the media, the PIC, the ITS Project Manager and the District Public Information Officer, Steve Olson at 386-943-5479 a minimum of seven (7) calendar days in advance. Also the Design/Build Firm shall develop the project to be able to provide for all lanes of traffic to be open in the event of an emergency or if the lane closure causes a driver delay greater than 20 minutes.

| Roadway | Description | No Lane Closures | |
|---------------------|-------------------------------|---------------------------------|----------|
| | | From | To |
| S.R. 500 | | 7:00 AM | 9:00 PM |
| S.R. 518 | | 7:30 AM | 7:30 PM |
| S.R. 520 | Four lane section | 6:30 AM | 10:30 PM |
| S.R. 520 | Six lane section | 9:00 AM | 7:00 PM |
| S.R. 5 | Peachtree St. to Eyster Blvd. | 7:00 AM | 7:00 PM |
| S.R. 5 | Aurora Rd. to Sarno Rd. | 7:00 AM | 8:00 PM |
| S.R. 50 | | 6:30 AM | 8:30 PM |
| S.R. 405 | | 7:00 AM | 7:30 PM |
| S.R. 9 Ramps | | 5:00 AM | 10:00 PM |
| Wickham Rd. | | 7:00 -9:00 am and 4:00 -6:00 pm | |
| Minton Rd. | | 7:00 -9:00 am and 4:00 -6:00 pm | |
| Palm Bay Rd. | | 7:00 -9:00 am and 4:00 -6:00 pm | |

Existing posted speed limits must be maintained during construction unless otherwise approved by the Department.

M. Environmental Services/Permits/Mitigation:

The Design/Build Firm will be responsible for preparing designs and proposing construction methods that are permissible. The Design/Build Firm will be responsible for any required permit fees. All permits required for a particular construction activity will be acquired prior to commencing the particular construction activity. Delays due to incomplete permit packages, agency rejection, agency denials, agency processing time, or any permit violations, except as provided in Section V.D.2, will be the responsibility

of the Design/Build Firm, and will not be considered sufficient reason for time extension.

The installation of any “Optional Facility” identified within this RFP is not a requirement of this RFP, nor is the Design/Build Firm responsible for any permitting or commenting agency coordination or other impacts to the permit processes that would be associated with such an “Optional Facility”, unless the Design/Build Firm chooses to include the “Optional Facility” in its Proposal.

If contamination is detected the Design/Build Firm will notify the Department and the Department will employ a Contamination Assessment/Remediation (CAR) contractor or similar process to remediate the contamination. The Department will be responsible for contamination in all areas of the Department-owned Right-of-Way.

N. Signing and Pavement Marking Plans: N/A

O. Lighting Plans: N/A

P. Intelligent Transportation System (ITS)

1. General:

The Design/Build Firm shall furnish and install fiber optic cabling (FOC), CCTV camera equipment, and wireless detector equipment conforming to the current FDOT Specifications. The Design Build Firm shall work with the Department and Brevard County ITS personnel to integrate all devices into the Brevard County Traffic Management System. Any new conduit runs, electrical circuitry, electrical panels or other required assemblies or equipment to make the system functional shall be provided by the Design/Build Firm.

The existing ITS facilities, network equipment and communications within the limits of this project defined by this RFP shall remain in operations without interruption for the duration of the project. In the event that interruption of said devices cannot be avoided, then downtime may be allowed on a case-by-case basis but must be approved by the FDOT Project Manager.

2. Location of Existing ITS Equipment:

See “Sketch of corridor of existing infrastructure” included as Document 2 in “Other Documents”.

3. Equipment and Components:

The Design/Build Firm shall examine carefully each component and equipment assembly it furnishes to verify that the material, design and construction, markings, and workmanship comply with the requirements of this RFP. Visual inspections shall be performed on all modules and subassemblies to determine any physical defects such as cracking, scaling, poor fastening, incorrect component values, etc. Complete electrical testing shall be performed on each module and subassembly to determine its compliance to the designed function. Housing, chassis, and connection terminals shall be inspected for mechanical sturdiness, and harnessing to sockets shall be electrically tested for proper wiring sequence.

The Design/Build Firm shall conduct QC procedures to assure that equipment units and components are not damaged during shipping and storage. The Design/Build Firm shall develop a quality assurance program and submit it to the Department for review and acceptance within fifteen (15) days after Notice to Proceed (NTP). The Design/Build Firm shall follow the approved quality assurance program for the construction and installation of all field hardware.

4. Design and Engineering Services:

The Design/Build Firm shall secure all permits, make arrangements for all connections, etc., on relevant issues that will be required for designing, installing and operating the ITS system to include power. The Design/Build Firm shall send electronic copies of all the correspondence and minutes, of any project related meetings, to the FDOT's Project Manager.

The design of the new ITS system shall integrate with the existing ITS scheme. The design shall include the necessary infrastructure and components to ensure proper connection of the new ITS sub-systems. This shall include but not be limited to all proposed ITS sub-systems of this project as well as existing sub-systems that remain or are re-deployed as the final ITS of the project.

ITS devices shall be mounted on existing traffic signal structures. The Design Build Firm shall ensure service and communication to the existing traffic signal structures is uninterrupted during the installation of the new ITS devices.

The Design/Build Firm shall provide adaptive signal control analysis for the project throughout the entirety of the project limits awarded by this contract. Analysis and development of timing patterns shall be provided in similar fashion (as applicable) as required by the guidelines established in the Traffic Adaptive System (Attachment 7 of the ATTACHMENTS provided with this RFP). Traffic signal timing shall be required for all intersections in which wireless VDS's are installed.

5. Design and Construction Criteria

i. ITS Governing Rules, Guidelines and Specifications

The work in this section specifies the criteria that the Design/Build Firm shall be responsible for furnishing and installing. All equipment furnished for this project shall meet but are not limited to the following specifications and/or requirements when applicable:

- State of Florida's NTCIP requirements
- Statewide Approved Products List (APL)

All plans and designs are to be prepared in accordance to the FDOT Specifications including but not limited to:

- Section 780 Intelligent Transportation Systems General Requirements
- Section 781 Intelligent Transportation Systems Motorist Information Systems
- Section 782 Intelligent Transportation Systems Video Equipment
- Section 783 Intelligent Transportation Systems Fiber Optic Cable and Interconnect
- Section 784 Intelligent Transportation Systems Network Devices
- Section 785 Intelligent Transportation Systems System Infrastructure
- Section 786 Intelligent Transportation Systems Vehicle Detection and Data Collection

ii. Closed Circuit Television (CCTV) and Digital Video Encoder

The CCTV Cameras shall be NTCIP compliant. All CCTV cameras shall be integrated into the Brevard County's Cameleon software. The proposed CCTV Camera shall have the capability to provide individual

video stream viewing and PTZ through an encoder generated web page. Cameras shall be of an integrated modular IP type, utilizing power and Ethernet connections to the existing traffic controller cabinet. All cameras must be non-pressurized with minimum 26x optical zoom. Cameras shall be configured with location name in view, along with four (4) approach presets labeled as North, East, South and West to indicate approach direction. Video encoder shall provide both high and low bandwidth MPEG-4 and M-JPEG outputs simultaneously.

All CCTV cameras shall be installed on existing strain pole or mast arm upright support only and shall be designed to capture the greatest level of mainline coverage as available through the installation constraint established above. Mainline coverage shall be defined as the surveillance of mainline (corridor) traffic between edges of pavement of both east and west mainline movements throughout the limits of the project as awarded by this project.

1. Table 1 – CCTV Required Locations

| <i>Corridor</i> | <i>Intersection</i> | <i>Quadrant</i> |
|-------------------|---|-----------------|
| US 192 | SR 500 (US 192) and CR 509 (Wickham Road/Minton Road) | SW |
| US 192 | SR 500 (US 192) and Evans Road | NW |
| US 192 | SR 500 (US 192) and Dairy Road | NW |
| US 192 | SR 500 (US 192) and Babcock Street | SE |
| SR 518 | SR 518 (Eau Gallie Blvd) and Croton Rd | NE |
| SR 518 | SR 518 (Eau Gallie Blvd) and Commadore Blvd | SE |
| SR 518 | SR 518 (Eau Gallie Blvd) and SR 5 (US 1) | SE |
| SR 518 | SR 518 (Eau Gallie Blvd) and Pineapple Ave | SE |
| SR 518 | SR 518 (Montreal Ave) and Highland Ave | SW |
| SR 518 | SR 518 (Montreal Ave) and Pineapple Ave | NE |
| SR 520 | SR 520 & Clearlake Rd | NW |
| SR 520 | SR 520 & SR 519 (Fiske Blvd) | NW |
| SR 520 | SR 5 (US1) & SR 520 | NW |
| SR 520 | SR 520 (Willard St) & Forrest Ave (existing mast arm mount) | SW |
| SR 520 | SR 520 (King St) & Brevard Ave (existing mast arm mount) | SE |
| SR 520 | SR 520 between King St and Willard St on west end of Humphrey Bridge (new ITS pole) | N/A |
| SR 520 | SR 520 between roadways on east end of Humphrey Bridge (new ITS pole) | N/A |
| SR 520 | SR 520 & SR 3 | NW |
| SR 520 | SR 520 & Sykes Creek Pkwy | SE |
| SR 520 | SR 520 & Newfound Harbor Dr | NW |
| SR 520 | SR 520 & S. Banana River/Milford Pt Dr. | NW |
| US 1 | SR 5 (US 1) and Rosa L Jones Blvd | SW |
| US 1 | SR 5 (US 1) and Barton Blvd | NE |
| US 1 | SR 5 (US 1) and Eyster Blvd | SW |
| US 1 | SR 5 (US 1) and Lake Washington | ? |
| US 1 | SR 5 (US 1) and Aurora Rd | NE |

| | | |
|---------------|---|----|
| US 1 | SR 5 (US 1) and Sarno Rd | SW |
| US 1 | SR 5 (US 1) and Babcock Street | ? |
| SR 50 | SR 50 (Cheney Hwy) and I-95 Southbound Ramps | SE |
| SR 50 | SR 50 (Cheney Hwy) and SR 405 (Columbia Blvd) | NW |
| SR 405 | SR 405 (Columbia Blvd) and Target Entrance | NW |
| SR 405 | SR 405 (Columbia Blvd) and Barna Ave | S |
| SR 405 | SR 405 (Columbia Blvd) and SR 407 | SE |
| SR 405 | SR 405 (Columbia Blvd) and Sisson Rd | NW |
| Palm Bay Road | Palm Bay Rd & Minton Rd | SW |
| Palm Bay Road | Palm Bay Rd & I-95 Southbound Ramps | SE |
| Palm Bay Road | Palm Bay Rd & Hollywood Blvd | SE |
| Palm Bay Road | Palm Bay Rd & Dairy Rd | SE |
| Palm Bay Road | Palm Bay Rd & Babcock St | SW |
| Palm Bay Road | Palm Bay Rd & Lipscomb/Clearmont St NE | SE |
| Palm Bay Road | Palm Bay Rd & Robert J Conlin Blvd | SE |
| Minton Road | Minton Rd & Norfolk Pkwy | NE |
| Minton Road | Minton Rd & Emerson Dr NW | SW |
| Wickham Road | CR 509 (Wickham Rd) & Wright Ave | SW |
| Wickham Road | CR 509 (Wickham Rd) & Ellis Rd | SE |
| Wickham Road | CR 509 (Wickham Rd) & Sheridan Rd | NW |

iii. Vehicle Detection System (VDS)

Wireless magnetometer sensor (sensor), repeater, and transceiver technology shall be used for the design and installation of the detection upgrades to the signalized intersections found within the project limits as awarded by this project. Detector installation shall be sub-surface, requiring minimal construction/disturbance of existing roadway asphalt. The roadside wireless transceiver shall be mountable to existing support structures such as mast arms or strain poles where available. Proposed pole locations for mounting devices and/or mounting to existing distribution power poles must be cleared through all appropriate permitting agencies. Detector communication for data and configuration shall be accomplished through the wireless transceiver and controller via standard conductor cabling.

Sensors shall be installed between 1 foot and 3 feet in front of the stop bar for all through and left turn approaches to each signalized intersection. At minimum, one wireless access point shall be provided at each signalized intersection. Sensors shall be installed downstream of all mainline (corridors) through movements. The design location of downstream sensors shall intend to capture free-flow movement of traffic and total volume of through movement. Detection zones of all proposed sensors shall detect only those movements intended. The Design/Build Firm shall make every effort to reduce the total number of repeater and transceiver devices required.

Design and installation of the sensors shall be such that turning movement counts can be generated from the data collected from each set of sensors per intersection. Use of data reduction of collected data may be incorporated into design methodology to reduce the number of sensors required at an intersection. The wireless vehicle detection system shall manage data in a compatible format with that of the existing signal coordination/management system software (ATMS.now) and hardware (Naztec signal controllers).

1. Table 2 – VDS Required Locations

| <i>Corridor</i> | <i>Intersection</i> |
|------------------------|--|
| US 192 | SR 500 (US 192) and I-95 Southbound Ramps |
| US 192 | SR 500 (US 192) and I-95 Southbound Off Ramp Queue Detection |
| US 192 | SR 500 (US 192) and I-95 Northbound Ramps |
| US 192 | SR 500 (US 192) and I-95 Northbound Off Ramp Queue Detection |
| US 192 | SR 500 (US 192) and Dike Road |
| US 192 | SR 500 (US 192) and John Rodes Boulevard |
| US 192 | SR 500 (US 192) and CR 509 (Wickham Road/Minton Road) |
| US 192 | SR 500 (US 192) and Meadowland Avenue |
| US 192 | SR 500 (US 192) and Dayton Boulevard |
| US 192 | SR 500 (US 192) and Laila Court |
| US 192 | SR 500 (US 192) and Evans Road |
| US 192 | SR 500 (US 192) and McClain Drive |
| US 192 | SR 500 (US 192) and Melbourne Square |
| US 192 | SR 500 (US 192) and Dairy Road |
| US 192 | SR 500 (US 192) and Airport Boulevard |
| US 192 | SR 500 (US 192) and South Country Club Road |
| US 192 | SR 500 (US 192) and Babcock Street |
| SR 518 | SR 518 (Eau Gallie Blvd) and Croton Rd |
| SR 518 | SR 518 (Eau Gallie Blvd) and Commadore Blvd |
| SR 518 | SR 518 (Eau Gallie Blvd) and SR 5 (US 1) |
| SR 518 | SR 518 (Eau Gallie Blvd) and Highland Ave |
| SR 518 | SR 518 (Eau Gallie Blvd) and Pineapple Ave |
| SR 518 | SR 518 (Montreal Ave) and Highland Ave |
| SR 518 | SR 518 (Montreal Ave) and Pineapple Ave |
| SR 520 | SR 520 & Clearlake Rd |
| SR 520 | SR 520 & Varr Ave |
| SR 520 | SR 520 & SR 519 (Fiske Blvd) |
| SR 520 | SR 520 & Blake Ave |
| SR 520 | SR 5 (US1) & SR 520 |
| SR 520 | SR 520 (Willard St) & Forrest Ave |
| SR 520 | SR 520 (Willard St) & Brevard Ave |
| SR 520 | SR 520 (Willard St) & Delannoy Ave |
| SR 520 | SR 520 (King St) & Forrest Ave |
| SR 520 | SR 520 (King St) & Brevard Ave |
| SR 520 | SR 520 (King St) & Delannoy Ave |
| SR 520 | SR 520 (King St) & Riveredge Blvd |

| | |
|---------------|--|
| SR 520 | SR 520 (Willard St) & Forrest Ave |
| SR 520 | SR 520 (Willard St) & Brevard Ave |
| SR 520 | SR 520 (Willard St) & Delannoy Ave |
| SR 520 | SR 520 (King St) & Forrest Ave |
| SR 520 | SR 520 (King St) & Brevard Ave |
| SR 520 | SR 520 (King St) & Delannoy Ave |
| SR 520 | SR 520 (King St) & Riveredge Blvd |
| SR 520 | SR 520 & Tropical Trail |
| SR 520 | SR 520 & SR 3/S. Courtenay Pkwy |
| SR 520 | SR 520 & Big Lots Entrance |
| SR 520 | SR 520 & Plumosa St |
| SR 520 | SR 520 & Merritt Square Mall Entr |
| SR 520 | SR 520 & Sykes Creek Pkwy |
| SR 520 | SR 520 & Kiwanis Island Park Rd |
| SR 520 | SR 520 & Newfound Harbor Dr |
| SR 520 | SR 520 & N. Banana River Dr |
| SR 520 | SR 520 & S. Banana River/Milford Point Dr |
| SR 520 | S. Courtenay Pkwy & Magnolia Ave |
| SR 520 | S. Courtenay Pkwy & Fortenberry Rd |
| US 1 | SR 5 (US 1) and Peachtree St |
| US 1 | SR 5 (US 1) and Rosa L Jones Blvd |
| US 1 | SR 5 (US 1) and Florida Ave |
| US 1 | SR 5 (US 1) and Longwood Ave |
| US 1 | SR 5 (US 1) and Barton Blvd |
| US 1 | SR 5 (US 1) and Rockledge Square Entr |
| US 1 | SR 5 (US 1) and Eyster Blvd |
| US 1 | SR 5 (US 1) and Lake Washington |
| US 1 | SR 5 (US 1) and CR 511 (Aurora Rd) |
| US 1 | SR 5 (US 1) and Sarno Rd |
| US 1 | SR 5 (US 1) and Babcock Street |
| SR 50 | SR 50 (Cheney Hwy) and I-95 Southbound Ramps |
| SR 50 | SR 50 (Cheney Hwy) and SR 405 (Columbia Ave) |
| SR 405 | SR 405 (Columbia Ave) and Windover Trail |
| SR 405 | SR 405 (Columbia Ave) and Target Entrance |
| SR 405 | SR 405 (Columbia Ave) and Barna Ave |
| SR 405 | SR 405 (Columbia Ave) and SR 407 |
| SR 405 | SR 405 (Columbia Ave) and Grissom Pkwy |
| SR 405 | SR 405 (Columbia Ave) and Sisson Rd |
| Palm Bay Road | Palm Bay Rd & Minton Rd |
| Palm Bay Road | Palm Bay Rd & Athens Dr |
| Palm Bay Road | Palm Bay Rd & Culver Dr/Norfolk Pkwy |

| | |
|---------------|--|
| Palm Bay Road | Palm Bay Rd & I-95 SB Ramps |
| Palm Bay Road | Palm Bay Rd & I-95 NB Ramps |
| Palm Bay Road | Palm Bay Rd & Hollywood Blvd |
| Palm Bay Road | Palm Bay Rd & Dairy Rd |
| Palm Bay Road | Palm Bay Rd & Port Malabar Blvd NE |
| Palm Bay Road | Palm Bay Rd & Stack Blvd |
| Palm Bay Road | Palm Bay Rd & Rivera Dr NE |
| Palm Bay Road | Palm Bay Rd & Babcock St |
| Palm Bay Road | Palm Bay Rd & Lipscomb/Clearmont St NE |
| Palm Bay Road | Palm Bay Rd & Troutman Blvd NE |
| Palm Bay Road | Palm Bay Rd & Robert J Conlin Blvd |
| Palm Bay Road | Norfolk Pkwy & Shopping Center Dr |
| Minton Road | Minton Rd & Norfolk Pkwy |
| Minton Road | Minton Rd & Hield Rd |
| Minton Road | Minton Rd & Emerson Dr NW |
| Wickham Road | CR 509 (Wickham Rd) & Fountainhead Blvd |
| Wickham Road | CR 509 (Wickham Rd) & Wright Ave |
| Wickham Road | CR 509 (Wickham Rd) & Technology Dr |
| Wickham Road | CR 509 (Wickham Rd) & Harper Rd |
| Wickham Road | CR 509 (Wickham Rd) & Ellis Rd |
| Wickham Road | CR 509 (Wickham Rd) and Greenboro Dr/Idlewylde Cir |
| Wickham Road | CR 509 (Wickham Rd) & Sheridan Rd |

iv. Fiber Optic Network (FON)

The Design/Build Firm shall design and install a FON as stated below:

Design and install a 72-strand, 12-fiber buffer, fiber optic cable (FOC) trunkline for the Brevard County Advance Traffic Management System (ATMS) Expansion of all corridors, where applicable, as listed in Table 3 shown below. Design and install a 12-strand, 12-fiber buffer, FOC drop cable to each of the signal cabinets found within the limits of the project where drop cables do not exist already.

- Drop cables shall connect fibers 1 through 4 of the blue buffer of the FOC trunkline.
- Fibers 1 through 4 of the trunkline expressing from the west shall be spliced to fibers 1 through 4 of the drop cable.
- Fibers 1 through 4 of the trunkline expressing from the east shall be spliced to fibers 7 through 10 of the drop cable.
- Drop cables shall be terminated in patch panels that shall be installed within existing signal cabinets

Existing signal controllers shall be replaced with Ethernet capable controllers of the same make for all existing signal controllers that do not have Ethernet functionality for all signalized intersections found within the project limits awarded by this project.

Connection between Ethernet capable controllers and the MFES shall be made. All new ITS sub-systems required by this RFP for each location shall be designed to directly interface with the MFES to be located within the signal cabinet. No standalone sub-system site requiring separate power source, cabinet assembly, or ancillary components typically associated with standalone sub-system ITS sites are anticipated for this project. All fiber shall be single mode. Installation of fiber optic cable shall follow the method established in Concept Plans for Sub-Project 1 (Document 1 of the OTHER DOCUMENTS provided with this RFP).

1. Table 3 – FON Required Locations

| <i>Corridor</i> | <i>Intersection</i> | <i>FOC</i> | <i>Type</i> |
|-------------------|--|-------------------------------|-----------------------|
| US 192 | SR 500 (US 192) and Wickham/Minton Rd to SR 500 (US 192) and Dayton Road | 72 Strand-6 Buffer | Trunkline |
| US 192 | SR 500 (US 192) and Wickham/Minton Rd | 12 Strand-1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and Meadowlane Ave | 12 Strand-1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and Dayton Road | 12 Strand-1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and Dayton Road to SR 500 (US 192) and Laila Court | 72 Strand-6 Buffer | Trunkline |
| US 192 | SR 500 (US 192) and Laila Court | 12 Strand-1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and Laila Court to SR 500 (US 192) and Dairy Road | 72 Strand- 6 Buffer | Trunkline |
| US 192 | SR 500 (US 192) and Evans Road | 12 Strand-1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and McClain Drive | 12 Strand 1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and Melbourne Square | 12 Strand 1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and Dairy Road | 12 Strand 1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and Dairy Road to SR 500 (US 192) and Babcock Street | 72 Strand-6 Buffer | Trunkline |
| US 192 | SR 500 (US 192) and Airport Blvd | 12 Strand 1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and South Country Club Rd | 12 Strand 1 Buffer | Drop Cable |
| US 192 | SR 500 (US 192) and Babcock Street | 12 Strand 6 Buffer | Drop Cable |
| SR 518 | SR 518 (Eau Gallie Blvd) and Wickham Road to SR 518 (Montreal Ave) and Pineapple Ave | 72 Strand-6 Buffer | Trunkline |
| SR 518 | SR 518 (Eau Gallie Blvd) and Croton Rd | 12 Strand 1 Buffer | Drop Cable |
| SR 518 | SR 518 (Eau Gallie Blvd) and Commadore Blvd | 12 Strand 1 Buffer | Drop Cable |
| SR 518 | SR 518 (Eau Gallie Blvd) and SR 5 (US 1) | 12 Strand 1 Buffer | Drop Cable |
| SR 518 | SR 518 (Eau Gallie Blvd) and Highland Ave | 12 Strand 1 Buffer | Drop Cable |
| SR 518 | SR 518 (Eau Gallie Blvd) and Pineapple Ave | 12 Strand | Drop Cable |

| | | | |
|--------|---|-----------------------|--------------|
| | | 1 Buffer | |
| SR 518 | SR 518 (Montreal Ave) and Highland Ave | 12 Strand 1 Buffer | Drop Cable |
| SR 518 | SR 518 (Montreal Ave) and Pineapple Ave | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and SR 501 (Clearlake Road) to SR 520 and SR 5 (US 1) | | Remove Cable |
| SR 520 | SR 520 and SR 501 (Clearlake Road) to SR 520 and SR 5 (US 1) | 72 Strand 6 Buffer | Trunkline |
| SR 520 | SR 520 & Varr Ave | 12 Strand-1 Buffer | Drop Cable |
| SR 520 | SR 520 & SR 519 (Fiske Blvd) | 12 Strand-1 Buffer | Drop Cable |
| SR 520 | SR 520 & Blake Ave | 12 Strand-1 Buffer | Drop Cable |
| SR 520 | SR 520 and SR 5 (US 1) to SR 520 and Tropical Trail | | Remove Cable |
| SR 520 | SR 520 and SR 5 (US 1) to SR 520 and Tropical Trail | 72 Strand 6 Buffer | Trunkline |
| SR 520 | SR 520 (Willard St) and Delannoy Ave | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 (King St) and Brevard Ave | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 (King St) and Delannoy Ave | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 (King St) and Riveredge Blvd | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 (W. Merritt Island Cswy) and west end of Humphrey Bridge CCTV pole | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 (W. Merritt Island Cswy) and east end of Humphrey Bridge CCTV pole | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and Tropical Trail to SR 520 and Sykes Creek Pkwy | | Remove Cable |
| SR 520 | SR 520 and Tropical Trail to SR 520 and South Banana River Drive | 72 Strand 6 Buffer | Trunkline |
| SR 520 | SR 520 and Tropical Trail | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and SR3 / South Courtenay Pkwy | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and Big Lots Entrance | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and Plumosa Street | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and Merritt Square Mall Entr | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and Sykes Creek Pkwy | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and Kiwanis Island Park Rd | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 and Newfound Harbor Dr | 12 Strand 1 Buffer | Drop Cable |
| SR 520 | SR 520 & N. Banana River Dr | 12 Strand 1 Buffer | Drop Cable |

| | | | |
|--------------|---|-----------------------|-------------------------------|
| SR 520 | SR 520 & S. Banana River Dr | 12 Strand 1 Buffer | Drop Cable |
| US 1 | SR 5 (US 1) and CR 511 (Aurora Rd) Lake Washington Rd to SR 5 (US 1) and Sarno Rd Babcock St. | 72 Strand 6 Buffer | Trunkline |
| US 1 | SR 5 (US 1) and Lake Washington | 12 Strand 1 Buffer | Drop Cable |
| US 1 | SR 5 (US 1) and CR 511 (Aurora Rd) | 12 Strand 1 Buffer | Drop Cable |
| US 1 | SR 5 (US 1) and Sarno Rd | 12 Strand 1 Buffer | Drop Cable |
| US 1 | SR 5 (US 1) and Babcock St. | 12 Strand 1 Buffer | Drop Cable |
| SR 50 | SR 50 (Cheney Hwy) and I-95 Southbound Ramps to SR 50 (Cheney Hwy) and SR 405 (Columbia Blvd) | 72 Strand 6 Buffer | Trunkline |
| SR 50 | SR 50 (Cheney Hwy) and I-95 Southbound Ramps | 12 Strand 1 Buffer | Drop Cable |
| SR 50 | SR 50 (Cheney Hwy) and SR 405 (Columbia Blvd) | 12 Strand 1 Buffer | Drop Cable |
| SR 405 | SR 405 (Columbia Blvd) and SR 50 (Cheney Hwy) to SR 405 (Columbia Blvd) and SR 5 (US 1) | | Remove Cable |
| SR 405 | SR 405 (Columbia Blvd) and SR 50 (Cheney Hwy) to SR 405 (Columbia Blvd) and SR 5 (US 1) | 72 Strand 6 Buffer | Trunkline |
| SR 405 | SR 405 (Columbia Blvd) and Windover Trail | 12 Strand 1 Buffer | Drop Cable |
| SR 405 | SR 405 (Columbia Blvd) and Target Entrance | 12 Strand 1 Buffer | Drop Cable |
| SR 405 | SR 405 (Columbia Blvd) and Barna Ave | 12 Strand 1 Buffer | Drop Cable |
| SR 405 | SR 405 (Columbia Blvd) and SR 407 | 12 Strand 1 Buffer | Drop Cable |
| SR 405 | SR 405 (Columbia Blvd) and Grissom Pkwy | 12 Strand 1 Buffer | Drop Cable |
| SR 405 | SR 405 (Columbia Blvd) and Sisson Rd | 12 Strand 1 Buffer | Drop Cable |
| Minton Road | Minton Rd and I-95 DASH III Hub to Minton Rd and Emerson Drive NW | 72 Strand 6 Buffer | Trunkline |
| Minton Road | Minton Rd & Norfolk Pkwy | 12 Strand 1 Buffer | Drop Cable |
| Minton Road | Minton Rd & Hield Rd | 12 Strand 1 Buffer | Drop Cable |
| Minton Road | Minton Rd & Emerson Dr NW | 12 Strand 1 Buffer | Drop Cable |
| Minton Road | Minton Rd and Palm Bay Rd | | Connection to Palm Bay Rd FOC |
| Wickham Road | CR 509 (Wickham Rd) and SR 5054 (Sarno Rd to CR 509 (Wickham Rd) and Ellis Rd | 72 Strand 6 Buffer | Trunkline |
| Wickham Road | CR 509 (Wickham Rd) & Fountainhead Blvd | 12 Strand 1 Buffer | Drop Cable |
| Wickham Road | CR 509 (Wickham Rd) & Wright Ave | 12 Strand 1 Buffer | Drop Cable |
| Wickham Road | CR 509 (Wickham Rd) & Technology Dr | 12 Strand 1 Buffer | Drop Cable |

| | | | |
|--------------|--|-----------------------|------------|
| Wickham Road | CR 509 (Wickham Rd) & Harper Rd | 12 Strand 1 Buffer | Drop Cable |
| Wickham Road | CR 509 (Wickham Rd) & Ellis Rd | 12 Strand 1 Buffer | Drop Cable |
| Wickham Road | CR 509 (Wickham Rd) & Harper Rd – to Harper Rd and City of Melbourne Public Works Traffic Engineering office | 12 Strand 1 Buffer | Drop Cable |
| Wickham Road | CR 509 (Wickham Rd) and Ellis Rd to CR 509 (Wickham Rd) and SR 500 (US 192) | 72 Strand 6 Buffer | Trunkline |
| Wickham Road | CR 509 (Wickham Rd) and Greenboro Dr/Idlewyld Cir | 12 Strand 1 Buffer | Drop Cable |
| Wickham Road | CR 509 (Wickham Rd) & Sheridan Rd | 12 Strand 1 Buffer | Drop Cable |

2. Tone Wire

Where fiber optic cable is installed underground, a tone wire shall be continuous from pull box to pull box following the path parallel to the fiber with a maximum 2 foot offset inside conduit. Any splices to this wire shall only be done at a pull box, no in-conduit splicing shall be allowed. A ground rod shall be supplied at each splice box for termination of the tone wire. Tone wires shall be terminated to the ground rods via removable ground rod clamp. In the case where existing conduit is utilized, the tone wire may be installed with the fiber optic cable in same conduit.

3. Connector Type and Patch Panel

Use only type SC connectors for patch panel connections unless legacy equipment requires otherwise. If a connector type other than the SC must be used, it must be approved by the FDOT ITS Project Manager. The Design/Build Firm must provide fiber patch cables of sufficient length for all connections and cross connections. Patch cables must be pre-connectorized by the factory with appropriate connector type to connect all ITS equipment.

4. Termination Requirement

A minimum of four (4) fibers in each direction shall be terminated in patch panels within all signal cabinets. Fibers 1-4 of the first buffer will be terminated with the trunk fibers expressing to the west, and fibers 7-10 of the first buffer will be terminated with trunk fibers expressing to the east. Fibers in the last buffer of the trunk cable shall be reserved for regional communications and shall pass through the entire length of the project unspliced except where connecting to existing fiber optic cable or butt splicing of cable is required. Unless preterminated patch panels are used, the Design/Build Firm shall provide buffer fan-out kits and pigtails that shall match the color of the fiber strand they encase.

v. Conduit

1. Above Ground

In the event that cabling is supplied to above ground equipment installed on concrete signal strainpoles, the Design/Build Firm shall furnish and install a minimum 2" external rigid metal conduit. All work shall be in accordance with but not limited to FDOT Specifications Section 630 and all applicable specifications.

2. Under Ground

Fiber Optic conduit shall be HDPE conduit. The conduit shall be a minimum of two (2) two-inch (2") in diameter conduit with a minimum of two (2) conduits installed (one for fiber and one for spare use) for FOC trunkline installation and one (1) conduit for drop cable installation. The color designation for the conduit shall be orange and white with the orange conduit used for FOC installation and white for the spare. Pull box spacing shall not exceed 500 feet.

3. Existing Conduit

Existing spare conduit may be utilized where useable and within the constraints of FDOT standards for cable routing. Existing conduit which houses only copper interconnect may be utilized for proposed fiber optic cable routing following the removal of existing copper interconnect. The removal of copper interconnect and use of existing conduit shall be limited to only existing copper interconnect between and servicing only the signal cabinets within the project limits. Where existing conduit is utilized, pull boxes shall be upgraded to FDOT fiber optic pull box standards.

4. Bridge Conduit

Fiber Optic conduit shall be rigid conduit. The conduit shall be a minimum of two (2) two-inch (2") in diameter conduit with a minimum of two (2) conduits installed (one for fiber and one for spare use) for FOC trunkline installation and one (1) conduit for drop cable installation.

vi. New Cabinets

As part of the central system improvements, a Type 336S ground mounted cabinet (local hub) shall be installed adjacent to the FDOT DASH III Master hub in the southwest quadrant of SR 528 and I-95 in Cocoa. This local hub shall meet the FDOT Specifications and provide full fiber optic connectivity to the FDOT master hub, I-95 72SM backbone FOC and SR 528 72SM backbone FOC white buffers. Specifically, this local hub shall directly connect to the following: the FDOT router in adjacent master hub, the Traffic Engineering router in Viera, the Traffic Operations router in Merritt Island, the existing Port St. John local hub, SR 50/405 subsystem, and SR 46 subsystem. In addition, a type 336S cabinet shall be required at all locations as described in Table 4 below.

The Design/Build Firm shall ensure that all cabinets are at minimum TS 2 cabinets and shall replace or upgrade any non TS 2 cabinet to a TS 2 cabinet within the project limits defined by this RFP. If a TS 2 cabinet does not have sufficient rack space to support the newly installed detection hardware, the Design/Build Firm shall furnish and install additional detection racks to provide the necessary connections to accommodate the wireless magnetometer detector units. If the Design/Build Firms determines that a TS 2 cabinet cannot support any additional detection racks, the Design/Build Firm shall upgrade or replace the TS 2 cabinet with a TS 2 that will provide sufficient space for the additional hardware to be installed.

vii. Network Equipment

Managed field Ethernet switches (MFES) shall be installed within the signal cabinets at all signalized intersections found within the project limits, awarded by this project, that are not currently equipped with MEFS. The MFES shall be field hardened, conforming to FDOT environmental requirements. Network switches shall provide at minimum four (4) Gigabit SFP/TX Combo ports and four (4) copper

10/100/1000 TX ports. Network switch supported protocols, at minimum, shall include:

- IGMP v1, v2, and v3
- sFlow
- 802.1x Security features
- STP, RSTP, and MSTP
- 802.1Q VLAN
- Console, Telnet, and Web management
- Optical Monitoring (Physical Layer)
- Link Layer Discovery Protocol

Layer 3 field hub routers shall be installed in all field hubs listed in Table 4 below. All field hub routers except the unit installed at the City of Melbourne shall provide 24 100/1000BASE-X SFP ports. The City of Melbourne field hub shall provide 24 10/100/1000BASE-T ports and 4 100/1000BASE-X SFP uplink ports. SFP ports shall be populated with sufficient optical transceivers, necessary to connect to adjacent new or existing field hubs and/or core routers. Capabilities, requirements, and supported protocols shall include at minimum:

- Chassis: 1 RU with field replaceable fan tray and 1+1 redundant 320 hot swap AC Power Supply
- 5-Year Warranty with 5-Year Same Day Support
- Stackable with current field routers via minimum 60Gb/s interconnect or 10GB fiber uplink modules
- Operating System: JUNOS or IronWareOS
- Packet Switching Capacity: 88 Gb/s
- Aggregate Switch Capacity: 264 GB/s
- Number of VLANs 4,096
- Max IPv4 unicast routes: 16,000 (in hardware)
- Max IPv4 multicast routes: 8,000 (in hardware)
- Routing Protocols supported: OSPFv2 with graceful restart
- Multicast PIM-SM and PIM-DM
- IGMP v2,v3, snooping
- VRRP redundancy
- sFlow
- Port-based, VLAN-based, router-based ACLs Ingress and Egress
- ACL entries: 7,000

Furnish and install a Layer 3 Core Chassis Router at the Traffic Operations Center on Merritt Island in the existing 19" rack in server room. The chassis router shall be capable of providing all connections for the Traffic Operations Local Area Network (LAN) via CAT5E cables and gigabit fiber optic connections to all existing systems and new systems. The installation of the core chassis system shall not interrupt Traffic Operations LAN and/or Core networking services beyond a maximum period of six (6) consecutive hours. The specifications and protocols below shall be required at minimum:

- Chassis: 4-14 Rack Units – fully redundant power supplies; field replaceable fan trays, redundant routing engine, redundant switch fabric

- Power Supply Voltage: 120 VAC
- 5-Year Warranty with 5-Year Same Day Onsite Support
- Environment Monitoring
- Minimum 20 GbE SFP Fiber Optic Ports with 10-80Km Optics as necessary
- Minimum 48 GbE Copper Ports
- Switch Fabric Capacity: 960 Gb/s
- Forwarding Capacity: 640 Gb/s
- Routing Capacity: 512K IPv4 Routes
- Layer 2 Capacity: 4094 VLANs, 1 million MAC addresses
- Management interfaces: Console, Web, Telnet
- Operating Systems: JUNOS
- DHCP Server, Relay
- Multicast Capacity: 16,000 Multicast Groups
- Routing Capability: OSPFv2, BGPv4
- VRRP redundancy
- Multicast Support: PIM-DM, PIM-SM, BGP-MP
- IEEE Compliance:
 - 802.3ae 10 GbE
- sFlow
- SSH v2

1. Table 4 –Required Locations for Layer 3 Field Routers

| <i>Corridor</i> | <i>Intersection</i> | <i>Quadrant</i> |
|-----------------|---|-----------------|
| SR 518 | SR 518 (Eau Gallie Blvd) and SR 5 (US 1) | SW |
| SR 520 | SR 5 (US1) & SR 520 | SW |
| SR 50 | SR 50 (Cheney Hwy) and I-95 Southbound Ramps | NW |
| Wickham Road | SR 500 (US 192) and CR 509 (Wickham Road/Minton Road) | SE |
| Central System | SR 528 and I-95 | SW |

viii. Central Management System (CMS)

The central system software and supporting hardware (Central Management System or CMS) shall be installed and configured in two locations as shown below:

- The Central Management System shall be divided into two (2) Systems
 - System 1 shall be located at The Brevard County Traffic Engineering Center in Viera and shall include the following three (3) servers:
 - Server 1 shall include:
 - Sensor Network Archive, Proxy and Statistics (SNAPS) software for the Wireless Magnetometer System
 - Server 2 shall include:
 - Arterial Travel Time Data Software

- Server 3 shall include:
 - Traffic Adaptive Software
- Server 4 shall include:
 - Video Management Software
- System 2 shall be located at The Brevard County Traffic Operations Center on Merritt Island and shall include the following three (3) servers:
 - Server 1 shall include:
 - Backup ATMS.now Software (software provided by Brevard Co.)
 - Server 2 shall include:
 - Backup Traffic Adaptive Software
 - Server 3 shall include:
 - Backup Video Management Software

The Design Build Firm shall be responsible for providing all hardware and software as described within this RFP.

The CMS shall provide management and control of field devices (detectors, etc.) installed as well as performs data processing, analysis, and automated response as described below. The Central Management System shall include a Device Management and Travel Time software server for the Wireless Magnetometer System.

1. Software Requirements

a. Sensor Network Archive, Proxy and Statistics (SNAPS)

The Sensor Network Archive, Proxy, and Statistics (SNAPS) software shall be installed on a server running Fedora 10 operating system with MySQL Database and Apache HTTP server. The SNAPS software shall be capable of providing remote management to all deployed sensors and shall function as the central repository for detection event and device performance data which will be automatically generated from field installed devices. SNAPS shall be fully capable of continuously monitoring the health and performance of all detectors, to include, radio communications status, battery level, and management status for the entire VDS system. The SNAPS software shall be capable of backing up and storing all VDS device configurations.

b. Arterial Travel Time (ATT)

The Arterial Travel Time (ATT) software shall be installed on a server running Fedora 10 operating system with MySQL Database and Apache HTTP server. The Arterial Travel Time (ATT) software must have the capability to establish travel time data through the re-identification of magnetic signatures of vehicles captured at upstream and downstream VDS devices. The ATT software must be configurable and scalable to sample data from all mainline VDS sensors of all corridors and shall be capable of archiving all ATT data with the ability to provide a graphing interface and the output of .xls and .csv format files. The ATT software must be capable of populating a real time colored coded arterial map from the magnetic signature sampling. This map shall be composed of segments with each segment indicating through color codes the current level of congestion. Segment labels on the map shall be capable of displaying:

- Median Travel Time (sec)

- 80th percentile Travel Time (sec)
- 90th percentile Travel Time (sec)
- Vehicles in segment (number)
- Length of segment (miles)

In addition to the map display, the ATT software must be capable of providing a real-time XML data feed which will include data such as:

- Segment identification number
- Time interval (seconds)
- Time of day when vehicle enters a segment
- Minimum travel time within the current interval
- 10th percentile through 90th percentile travel time within the current interval
- Maximum travel time within the current interval
- Number of vehicles counted over upstream array in current interval
- Number of vehicles counted over downstream array in current interval
- Number of matches used to generate the aggregate

c. Traffic Adaptive Control (TAC) Software

The Traffic Adaptive Control (TAC) software must be installed on a server running Windows Server 2008 R2 operating system, including 5 CALS. The TAC software must be capable of providing a fully adaptive real-time traffic control system operation for the traffic signal network using the sensor data generated by the VDS devices and forwarded by traffic controllers. The traffic adaptive software must be capable of optimizing phase times to accommodate traffic progression with the ability to link and unlink intersections so adjacent corridors and subsections can be coordinated together. The traffic adaptive control software must also have the ability to modified cycle times on a cycle by cycle basis. No external control boxes will be accepted as an interface between sensors and controller or central hardware. The traffic adaptive control software must be capable of integrating software-in-the-loop in conjunction with Synchro SimTraffic to demonstrate and test configurations before implementation on roadway traffic controllers. A software API must be provided to allow integration with existing County traffic controllers. The TAC software must be capable of accomplishing traffic adaptive operations through two major components:

- The Tactical Element, which is contained within the intersection software, which makes phase time adjustments based upon the level of saturation. This software takes the input from the VDS system providing count and occupancy data to determine split utilization and makes adjustments accordingly. Arriving platoons are monitored, with offset modifications made.
- The Strategic Element which is operated via network at the central system, providing information relevant to insuring traffic progression along a green band. This component operates on central server and commands an intersection to change phase time, offsets, and cycle times in order to create coordinated systems. Critical intersections shall be determined, and adjacent intersections are automatically associated and disassociated

based on demand.

d. ATMS.now Software

The ATMS.now software will be provided by Brevard County and must be installed on a server running the Windows Server 2008 R2 operating system, including 5 CALS. Once installed, this server shall server as a backup Naztec ATMS.now server to mirror the existing Naztec ATMS.now server at Traffic Engineering in Viera. The Design Build Firm shall note that Brevard County currently owns the software license for ATMS.now to be installed on the new server.

e. Video Management Software

The Design Build Firm shall furnish and install video management software onto two (2) servers with one server functioning as the primary and the other as the backup server to the primary. The Traffic Engineering Center shall house the Primary and Traffic Operations Center shall house the Backup. The video management software must be capable of providing centralized management, configuration and control of the CCTV system. Through the video management software, the system administrator must be able to set different authorization levels for different types of users for various authorization level of live viewing and PTZ of the CCTV system. The video management software must be able to support an unlimited number of cameras and monitors. The primary CCTV control software shall be capable of storing all device properties for all installed field CCTVs and serve as the central video distribution point for the client workstations. The central video management software server shall have both an application for configuration of the field devices and an application for viewing multiple simultaneous video streams while handling multiple field alarm inputs. The video management software must be fully capable of supporting the County's existing CCTV devices and the newly installed CCTV devices as part of this project. The video management software shall be installed on a server running the Windows Server 2008 R2 operating system, including 5 CALS.

2. Server Hardware Requirements

The Design Build Firm shall be responsible for furnishing and installing all servers required as a part of this RFP and shall also be responsible for configuring and installing the operating system for each server installed. All servers shall meet or exceed the specifications below at minimum:

- Server must integrate into existing ATMS system and utilize current management/monitoring software suite
- Base Unit: 2-4 U Rack Chassis for Up to 6, 3.5-Inch Hard Drives and Intel 56xx Series Processors
- Memory: 12GB Memory (6x2GB), 1333MHz Dual Ranked RDIMMS for 1 Processor, Optimized
- CPU: 2x CPU Intel 56xx Series Processors
- Hard Drive: Multi Select SAS 5x 600 GB 15K RPM Raid 5
- Hard Drive Controller: PERC 6/i SAS RAIS Controller 2x4 Connectors, Internal, PCIe256MB Cache, x6 Chassis

- NIC: Broadcom 5709 Dual Port 1GbE NIC w/TOE iSCSI, PCIe-4
- Server Management: iDRAC6 Hardware/Software to integrate into existing management suite
- CD-ROM or DVD-ROM Drive: DVD+/-RW, SATA, Internal
- Software: OpenManagement Console
- Raid Controller: RAID 5 for H700 or PERC6/i Controllers
- Cable Management: Sliding Ready Rails with Cable Management Arm
- Warranty: 5 YR warranty with 4hr onsite service
- Misc: High Output Power Supply Redundant, 870W
- Misc: Microsoft SQL Server Workgroup, OEM, Includes 5 CALs NFI, with Media

3. Workstation Hardware and Software Requirements

The Design Build Firm shall furnish and install a total of three new video management workstations with video decoding and management software. Said workstations shall be located as follows; one (1) located at the Brevard County Traffic Operations Center on Merritt Island, one (1) located at the Brevard County Traffic Engineering Center in Viera, and one (1) located at the City of Melbourne Public Works Traffic Engineering Office on Harper Road in Melbourne, FL. The Design Build Firm shall install the new video management software client version on the six existing Brevard County ATMS workstations as follows; two (2) located at the Traffic Engineering Center in Viera, two (2) located at the Emergency Operations Center in Rockledge, and two (2) located at the Traffic Operations Center on Merritt Island. The video management workstations must be capable of acting as clients to the newly installed video management servers. Each workstation shall be capable of providing a minimum viewing of six (6) simultaneous MPEG 4 video streams. The workstation software must be able to control an unlimited number of cameras and must be fully compatible to control, configure and view CCTVs installed as part of this project as well as the existing CCTV's. Video control and viewing must meet the requirement below:

- Full screen mode viewing
- Multiple user customizable workspaces
- Provision for multiple external monitors
- Auto scanning of complete network
- Remote upload of all CCTV device configurations
- Built in site map editor
- Background site map graphics in bitmap
- Automatic camera activation on alarm
- Device COMs for remote camera control (PTZ)
- Device configuration through a dedicated configuration manager
- Device selection tree view
- CCTV PTZ through onscreen virtual PTZ controls

The three new video management control and viewing workstations shall operate the Windows 7 Professional, 64-bit English Operating System and meet the following hardware requirements:

- Processor: Quad Core Intel Xeon W3565 3.2 GHz, 8M L3, 4.8GT/s
- Memory: 6 GB, 1333MHz, DDR3 SDRAM, ECC (3 DIMMS)
- Chassis: Mini-Tower Chassis Configuration
- CD-ROM or DVD-ROM Drive: DVD+/-RW, SATA, Internal
- Hard Drive Controller: Integrated Intel chipset SATA 3.0 GB/s controller
- Boot Hard Drive: 320 GB SATA 3.0 GB/s with NCQ and 16MB DataBurst Cache
- Graphics: 1.0GB NVIDIA Quadro FX 3800, Dual Monitor, 2DP and DVI
- Standard Keyboard and Optical Mouse
- Warranty: 5 year Basic Limited Warranty and 5 Year NBD On-Site Service
- Monitor Specification – Minimum two (2) 42” LCD TV
 - Digital Television Certification HDTV 1080p
 - TV Tuner 1x analog/digital combo
 - Video Interface Component, Composite, HDMI
 - HDMI Ports Qty 4 port(s)
 - PC Interface VGA(HD-15)
 - USB Port 1 port(s)
 - HDCP Compatible Yes
 - Diagonal Size 42”-widescreen
 - Technology TFT active matrix
 - Resolution 1920 X 1080
 - Display Format 1080p(FullHD)
 - Image Aspect Ratio 16:9
 - Enhanced Refresh Rate 120Hz
 - Motion Enhancement Technology 120Hz Smooth Motion Technology
 - Color Depth Up to 1.06 billion colors
 - Image Contrast Ratio 4000:1
 - Dynamic Contrast Ratio 20000:1
 - Brightness 450 cd/m2
 - Progressive Scan Progressive scanning (line doubling)
 - Viewing Angle 176 degrees
 - Viewing Angle (Vertical) 176 degrees
 - Pixel Pitch 0.4845 X 0.4845mm
 - Pixel Response Time 5ms
 - Backlight Life 50,000 hours
 - Comb Filter 3D digital
 - HDMI Cables for connection to workstation

ix. Network Integration

The Design/Build Firm shall provide a Logical Topology to the department for concurrence. The logical topology for integration is to include all Layer 2 Ethernet switches within the project limits. The Design/Build Firm shall then setup an Integration Meeting with District 5 ITS and Brevard County representatives allowing minimally 2 week’s notice and review time of the logical topology. At the Integration Meeting the Department will provide an IP Scheme, Standard Port Utilization for the Layer 2 devices (including which ports are to be disabled), VLAN Tagging Scheme for all subnets, and information on all Layer 2 and 3 protocols to be run on the switches.

It is the Design/Build Firm's responsibility to setup all tagging, disable all applicable ports, setup all IP addresses, physically connect all devices per plan, and verify all connectivity. Once all field devices are installed, the Design/Build Firm shall give notice to the ITS Project Manager to notify Brevard County to begin configuring the central control management software for the field devices. The Design/Build Firm shall allow 2 weeks for Brevard County to enter the information into the management software. The Design/Build Firm shall troubleshoot with the County's assistance any issues that arise from configuring the central software that directly relates to the newly installed devices.

Once the local devices have been entered into the central control management software the County shall inspect the network for issues from a remote location. The Design/Build Firm shall provide any assistance necessary to provide the County with IP addresses, port status, and auto-negotiation speeds, etc. for all switches that cannot be acquired from the remote location. Inability of the County to access the new ITS devices remotely will constitute failing the inspection should remote access fail due to the malfunction of any new ITS installation or due to the malfunction of existing components resulting from the installation of new components. Failure to remotely access the new ITS devices due to County network infrastructure failure does not dismiss the Design/Build firm from the required testing. Local testing will be performed if such a situation arises. If the inspection is failed the Design/Build Firm shall reconfigure the devices and again work with the County to get the devices into the central management software. After this is complete the switches shall again be inspected. All steps of this process will be repeated until the integration inspection is successfully completed.

6. Testing, Integration and Acceptance:

The Design/Build Firm shall conduct all testing in accordance to the FDOT Specifications.

i. Pre-Installation Test

The following tests shall be conducted prior to the installation of the equipment:

The Design/Build Firm shall perform all Pre-Installation testing in accordance with FDOT Specifications. The Design/Build Firm shall prepare and submit for approval to FDOT, test and demonstration procedures for all pre-installation tests. Notify the Project Manager a minimum of 10 days in advance of the time the test are to be conducted so that the Department can make arrangements for their representative to be present.

ii. Installed Site Test

After due notice to the FDOT Project Manager, the Design/Build Firm shall perform an installed site test on system components in accordance with FDOT Specifications and as stated herein. Whenever any equipment unit fails to pass the component tests, the Design/Build Firm shall correct the deficiencies, either by repair or replacement, at the Design/Build Firm's expense (including freight costs) as required to comply with the testing requirements. Upon notification by the Design/Build Firm that deficiencies have been corrected, the equipment will be retested entirely and not only that part of the failed segment of the test. All installed site testing and any retesting shall be performed in the presence of FDOT personnel.

iii. Network System Integration Test

The Brevard County ITS personnel will integrate the new system components into the Brevard County ATMS after the Design/Build Firm successfully completes stand alone testing. After the County

completes central software integration, the Design/Build Firm shall perform the System Acceptance Testing from the Brevard County Traffic Management Center. The Design/Build Firm shall plan for a minimum of two (2) weeks and a maximum of four (4) weeks for complete integration of the central software by Brevard County ITS personnel. Network integration time is to be included in the Design Build Firm's construction schedule.

iv. Central Control Test

The central control and monitoring equipment shall be tested at the Brevard County Traffic Management Center with the exception of the CCTV testing which will be conducted at the BCTMC. Tests will be coordinated with the Brevard County Public Works Engineering and FDOT.

The tests shall include, but not be limited to:

- Verification that all interconnecting cable installations, monitors, network equipment and equipment controllers are in accordance with the specifications.
- Demonstration of full integration of CCTV pan, tilt, zoom control with the control capabilities of FDOT's Sunguide Software.
- Demonstration of full integration of CCTV pan, tilt, zoom control with the control capabilities of Brevard County's Cameleon ITS Software.
- Demonstration of full integration of field equipment monitoring and control with the monitoring and control capabilities of the ATMS.now and Cameleon ITS Software in use at the time of the test.
- Verification that database parameters and addressing for new devices were properly entered to allow communications between the central equipment and the new field devices.

For this test the Design Build Firm shall provide the following information:

- Camera Manufacturer
- Port Server Type (if applicable)
- Port Server Port number (if Applicable)
- Port Server IP Address
- Video Encoder Manufacturer
- Video Encoder IP Address
- Encoder Model
- All pertinent information as it pertains to VDS

v. System Acceptance Test (SAT)

All equipment furnished by the Design/Build Firm shall be subject to monitoring and testing to determine conformance with all applicable requirements and to ensure proper operation of the Brevard County Central System. Documentation that demonstrates component performance and operation in conformance to FDOT Specification and that described in all sections of this document shall be furnished by the Design/Build Firm as part of this project. All equipment required for conducting tests shall be supplied by the Design/Build Firm. No separate payment shall be made for the monitoring, testing, test equipment, and documentation of test results, but shall be included in the amount bid for the project scope.

FDOT reserves the right to examine and test any or all materials furnished by the Design/Build Firm for the project to determine if they meet the Specifications.

If FDOT decides that any material used in the construction of this project is defective or otherwise unsuitable, and the workmanship does not conform to the design or specifications of this contract, the Design/Build Firm shall replace such defective parts and material at no cost to FDOT.

The times and dates of tests shall be approved by the FDOT Project Manager. The Design/Build Firm shall conduct all tests in the presence of the FDOT Project Manager or his/her representative. Testing shall take place only on weekdays, which are official working days of the State, unless the Project Manager allows the test to be conducted and/or continued on weekends and non-working days. The Design/Build Firm shall make a request in writing at least fourteen (14) days prior to the proposed testing, and schedule them only if permission is granted by the FDOT in writing. The Design/Build Firm shall be responsible for the conduct and documentation of the results of these tests that will be countersigned by an FDOT or designated representative at the end of each test. The signature of an FDOT representative implies only proof of presence.

The system acceptance test shall demonstrate that all equipment furnished, adjusted, or modified by the Design/Build Firm has been installed properly and operates as a fully functional ATMS. Prior to initiating the system acceptance test, all in place component tests and the central control test shall have been successfully completed by the Design/Build Firm in the presence of the FDOT Project Manager or designated representative.

The system acceptance test will begin within seven (7) days after the FDOT Project Manager is advised of intent to begin by the Design/Build Firm and shall be contingent upon the FDOT Project Manager providing notice that all work has been completed satisfactorily.

The Brevard County ATMS Expansion shall be activated and left on for sixty (60) consecutive days. During this period, all materials and components of the Brevard County ATMS Expansion shall operate as specified and without any failure.

In the event that any component of the Brevard County ATMS Expansion, provided by Design/Build Firm, malfunctions or operates below the level specified within the FDOT Specifications, the system acceptance test period will be terminated, and the Design/Build Firm shall be required to determine and correct the problems, including repair and replacement of equipment, at no cost to FDOT.

The Design/Build Firm shall respond with a qualified technical representative on site to determine and correct any problems within twenty-four (24) hours, following notification by FDOT. Upon correction of the problems, to the satisfaction of the Department, it shall be at the sole discretion of the Department to determine to either restart the 60-day SAT or to extend the 60-day SAT period by the number of days lost due to failure and repair time.

In the event a malfunction is the result of equipment not installed by the Design Build Firm or others not under the responsibility of the Design/Build Firm (e.g., power service, leased telephone circuits, etc.), the system acceptance test period will be suspended until correction of these problems by others.

vi. System Acceptance

Upon determination from FDOT in writing that the Brevard County ATMS has completed the sixty (60) day system acceptance test period and is in conformance with the requirements of the Plans and the

FDOT Specification, the Brevard County ATMS and all components therein will have achieved Final Acceptance.

7. Repair of Damage to Existing Equipment:

Any damage caused by the Design/Build Firm to any existing roadway features (i.e. drainage structures, bituminous pavement sections, existing sign structures, etc.) shall be repaired to the satisfaction of FDOT's Maintenance Engineer at the expense of the Design/Build Firm. All repair work shall conform to the latest edition of the FDOT Specifications.

Any damage caused by the Design/Build Firm to any existing ITS features (i.e. Fiber Optic cable, etc.), signs, illumination equipment, and electrical service as well as all the hardware and software components of the Transportation Management Center (TMC) system shall be replaced by equal or better components or repaired to the satisfaction of FDOT's ITS Project Manager at the expense of the Design/Build Firm. All repair work shall conform to the latest edition of the FDOT Specifications.

8. Scope of Warranty Services:

i. Warranty Services for Sub-Project 1 (428597-1) & Sub-Project 2 (428919-1)

1. General Warranty Provision

In addition to any warranties implied by law and to any manufacturers' or distributors' warranties assigned to the Department, the Design Build Firm hereby warrants that all CCTV cameras and each of its components shall be free from defects in materials and workmanship for a period of three (3) years following the date of final acceptance.

This warranty shall apply to all CCTV cameras and each of its components and to its assembly as a whole. In the event a defect, malfunction, or other failure not caused by misuse or third party acts not contemplated occurs during the warranty period, the Design Build Firm shall repair the warranted item if repair can be made on site within 48 hours time from receipt of notice of the occurrence. If repair cannot be made within 48 hours time from receipt of notice of the occurrence, the Design Build Firm shall replace the warranted item on site within 72 hours time from receipt of notice of the occurrence. In determining time for repair or replacement, matters unique to the Design Build Firm, such as office location or availability of personnel, shall not be considered. In the event that the Department determines that public health, safety, or welfare requires temporary measures to continue safe functioning of the facility of which the warranted item is a part, the Design/Build Firm shall provide temporary items or take other temporary measures as the Department deems necessary. All repairs, replacements, and temporary measures shall be at the sole cost and expense of the Design/Build Firm, without any charge to the Department.

If the Design Build Firm fails to comply with the Design/Build Firm's obligations under this warranty, the Design Build Firm shall be liable to the Department for all damages associated with the Design Build Firm's breach hereof and damages associated with the initial occurrence from the date of the occurrence. Damages shall include, but shall not necessarily be limited to, costs incurred in repairing or replacing warranted items, as well as incidental and consequential damages suffered by the Department.

All costs associated with this warranty shall be included in the Price Proposal.

2. Assignment of other Warranties

The Design Build Firm shall assign to the Department any and all manufacturers' or other sellers' warranties that come with any products, material or supplies which are incorporated into or are consumed in the project in any way. Assignment of such warranties shall be effective on the date of Final Acceptance. To the extent that any such warranties do not extend to subsequent purchasers or owners or such warranties contain a limitation on assignment, the Design Build Firm agrees that the Design Build Firm purchased the products, materials and supplies on behalf of the Department with the intent that the Department be the intended recipient of any warranties. All documents associated with or describing any such warranties shall be delivered to the Department along with the other project final acceptance documents and shall be deemed to be a part of the required final acceptance documentation. The Design Build Firm shall not take any action or fail to act in any way which voids any such warranties. All subcontracts shall contain a similar provision which requires subcontractors to assign any such warranties to the Department.

ii. Warranty Services for Sub-Project 3 (428920-1)

1. General Warranty Provision

In addition to any warranties implied by law and to any manufacturers' or distributors' warranties assigned to Brevard County, the Design Build Firm hereby warrants that all CCTV cameras and each of its components shall be free from defects in materials and workmanship for a period of three (3) years following the date of final acceptance. This warranty runs directly to Brevard County as the intended third party beneficiary.

This warranty shall apply to all CCTV cameras and each of its components and to its assembly as a whole. In the event a defect, malfunction, or other failure not caused by misuse or third party acts not contemplated occurs during the warranty period, the Design Build Firm shall repair the warranted item if repair can be made on site within 48 hours time from receipt of notice of the occurrence. If repair cannot be made within 48 hours time from receipt of notice of the occurrence, the Design Build Firm shall replace the warranted item on site within 72 hours time from receipt of notice of the occurrence. In determining time for repair or replacement, matters unique to the Design Build Firm, such as office location or availability of personnel, shall not be considered. Brevard County shall have the sole right to determine defects in the materials and workmanship during the warranty period. In the event that Brevard County determines that public health, safety, or welfare requires temporary measures to continue safe functioning of the facility of which the warranted item is a part, the Design Build Firm shall provide temporary items or take other temporary measures as Brevard County deems necessary. All repairs, replacements, and temporary measures shall be at the sole cost and expense of the Design Build Firm, without any charge to Brevard County.

If the Design Build Firm fails to comply with the Design Build Firm's obligations under this warranty, the Design Build Firm shall be liable to Brevard County for all damages associated with the Design Build Firm's breach hereof and damages associated with the initial occurrence from the date of the occurrence. If the Design Build does not repair or replace the warranted item or fails to provide temporary items or take temporary measure as stated above, Brevard County may do so. Damages shall include, but shall not necessarily be limited to, costs incurred in repairing or replacing warranted items, as well as incidental and consequential damages suffered by Brevard County. Brevard County may make demand of the Design/Build Firm for payment of said damages and payment shall be made promptly.

All costs associated with this warranty shall be included in the Price Proposal.

2. Assignment of other Warranties

The Design Build Firm shall assign to Brevard County any and all manufacturers' or other sellers' warranties that come with any products, material or supplies which are incorporated into or are consumed in the project in any way. Assignment of such warranties shall be effective on the date of Final Acceptance. To the extent that any such warranties do not extend to subsequent purchasers or owners or such warranties contain a limitation on assignment, the Design Build Firm agrees that the Design Build Firm purchased the products, materials and supplies on behalf of Brevard County with the intent that Brevard County be the intended recipient of any warranties. All documents associated with or describing any such warranties shall be delivered to the Department along with the other project final acceptance documents and shall be deemed to be a part of the required final acceptance documentation. The Design Build Firm shall not take any action or fail to act in any way which voids any such warranties. All subcontracts shall contain a similar provision which requires subcontractors to assign any such warranties to Brevard County.

VII. Technical Proposal Requirements.

A. General:

Each Design/Build Firm being considered for this project is required to submit a Technical Proposal. The proposal shall include sufficient information to enable the Department to evaluate the capability of the Design/Build Firm to provide the desired services. The data shall be significant to the project and shall be innovative, when appropriate, and practical. Discussions of past performances on other projects shall be minimized except as they relate to the proposed work.

B. Submittal Requirements:

Four (4) copies of the Technical Proposal shall be hard copies bound with tabs labeled Section 1 through Section 5 with the information, paper size and page limitation requirements as listed below:

The Technical Proposal must also be submitted in .pdf electronic format. The .pdf format must include bookmarks for the various sections and subsections. Seven (7) copies of the CD of the Technical Proposal shall be submitted.

Submit four (4) hard copies and seven (7) CDs of the Technical Proposal to:

Ms. Chela Wood, Professional Services, MS 4-524
Florida Department of Transportation
719 South Woodland Boulevard
DeLand, Florida 32720

Section 1: Written Technical Proposal

- Paper size: 8½" x 11", additional larger charts and graphics placed on 11"X17" paper may be provided if folded neatly to 8½" x 11"
- Maximum allowed pages: 20 (excluding graphics and charts)
- Minimum Font Size: 11
- Minimum Margin Size: 0.75" (excluding graphics and charts)

The written technical proposal shall be presented in the following order and the minimum information to be included is identified below.

Design Approach

The Design/Build Firm shall present a comprehensive approach to developing the design of the project. Specific areas to be addressed shall include but not be limited to:

- Approach to minimizing impacts to Utilities
- Structures Design and geotechnical considerations
- ITS modifications
- Utilization of existing right-of-way
- Innovative aspects relative to the design of the project

Project Management Plan

The Design/Build Firm shall present a comprehensive approach to managing the design and construction of the project. Specific areas to be addressed shall include but not be limited to:

- **Project Management**: The role of the Design/Build Firm's Project Manager(s) in the design and construction of the project and any specific project management programs shall be described.
- **Staffing Plan**: Provide a staffing plan for the design and construction of the project, addressing all disciplines and specialty areas, sub-consultants, and sub-contractors. Identify key personnel including their relevant experience and responsibilities. Identify personnel responsible for utility coordination detailing their experience on similar projects. The Department must approve any changes to the Project Management Plan and key personnel. Other items to be included in the discussion of the staffing plan are:
 1. Man-loading requirements (both quality and quantity) for all technical services
 2. Man-loading capabilities of all team firms
 3. Man-loading availability for the project
- Design/Build Firms being considered for this project may have more than one office location. The office assigned responsibility for the work shall be identified in this section of the Technical Proposal. If different elements of the work will be done at different locations, those locations shall be listed.
- **Quality Management Plan (QMP)**: The highlights of the QMP shall be summarized. The minimum information to be included shall be in accordance with Section V.N of this RFP.
- **Coordination Plan**: The Design/Build Firm will also summarize critical elements and strategies to ensure successful coordination with the following:
 - Department management team and Public Information Personnel
 - Other adjacent Department and local projects
 - Permitting/Environmental agencies
 - Utility owners
 - Local governments
 - Property and Business owners
 - General public

Construction and Maintenance of Traffic Approach

The Design/Build Firm shall present a comprehensive approach for construction of the project. Specific areas to be addressed shall include but not be limited to:

- **Maintenance of Traffic:** This shall include, but not be limited to geometric design for diversions and/or detours, lane widths, shoulder widths, visual obstructions, reductions in speed limits, minimizing of lane closures, and provision of bicycle and pedestrian accommodations through all MOT phases.
- **Utility Relocation Approach:** This shall include, but not be limited to, the Design/Build Firm's approach to expedite utility adjustments and relocations that minimize impacts to the traveling public and utility service interruptions.
- **Construction Methods:** This shall include, but not be limited to, the Design/Build Firm's approach to staging of equipment and materials, structures foundation construction, erection and shoring of critical elements, protection of adjacent structures, and efforts to reduce environmental impacts.
- **Protection of Local Business Interests:** This shall include, but not be limited to, Design/Build Firm's plan to minimize impacts to local businesses within construction limits, by maximizing driveway access, prevention of screening the visibility of businesses by equipment and/or materials, minimizing dust, noise, and vibration, utilization of Public Information Coordinators and planned activity notification, and process for managing complaints.
- **Safety:** Include the Design/Build Firm's approach to incorporating safety elements in both the design and construction. This includes such elements as ingress/egress into work zones, rolling road blocks, public safety and worker safety.
- Innovative aspects related to the construction of the project.

Maintenance & Contractor Guaranteed Coverage

The Design/Build Firm shall clearly describe their design and construction strategies to ensure and/or improve the maintainability of the project after completion, including:

- Design and construction methods that minimize periodic and routine maintenance.
- Exceeding minimum material requirements to enhance durability.
- Access to provide adequate inspections and maintenance.
- Response plan to remediate project defects.

In this section, the Design/Build Firm may also present the extent of the Contractor Guaranteed/Value Added coverage above and beyond the minimum time frame and features required by the specifications.

Section 2: Resumes of Key Project Personnel

- Paper size: 8½" x 11"
- Minimum Font: 11
- Maximum number of resumes to be included: 15
- Each Résumé is limited to one (1) page per person.
- The minimum information to be included: education, experience directly relevant to this project and personal references.

Section 3: Proposed Schedule

- Paper size: 8½" x 11" or larger if folded neatly to 8½" x 11"
- Maximum allowed pages: 2
- The minimum information to be included in the summary CPM schedule of anticipated major milestones and their associated phasing as follows:
 - Anticipated Notice to Proceed Date
 - Design Survey
 - Design Reviews by the Department and FHWA
 - Geotechnical Investigations
 - Environmental Permitting
 - Construction Mobilization
 - Start of Construction
 - Construction Milestones
 - Construction Phasing and major MOT shifts
 - Utility Adjustment/Relocations
 - Additional Construction Milestones as determined by the Design/Build Firm
 - Final Completion Date for all Work

Section 4: Design Support Documents:

The Design/Build Firm shall provide design elements, including but not limited to:

- Summary of design standards used for the project
- Documentation of decisions reached resulting from meetings, telephone Conversations or site visits
- Preliminary qualities list

The minimum information to be included shall be in accordance with Section VI.F.

- Paper size: 8½" x 11"
- Design support documents will be printed and presented double-sided
- Maximum allowed pages: No page limit

Section 5: Preliminary Plans

The Design/Build Firm shall provide preliminary plans necessary to convey the intent of the concept.

- Paper size: 11" x 17"
- Maximum allowed pages: 20

The minimum information to be included in the preliminary design requirements is as follows

Roadway

- Project Limits
- Horizontal alignment
- Stationing along Horizontal alignment
- Utility provisions
- Maintenance of traffic provisions
- Preliminary ITS Design

C. Evaluation Criteria:

The Technical Review Committee shall evaluate the written Technical Proposal by each Design/Build team. The Design/Build Firm should not discuss or reveal elements of the price proposal in the written proposals. A technical score for each firm will be based on the following criteria:

| Item | Value |
|---|--------------|
| 1. Design Approach & Proposed Equipment | 40 |
| 2. Maintenance & Contractor Guaranteed Coverage | 25 |
| 3. Project Management Plan | 15 |
| 4. Construction & Maintenance of Traffic Approach | 15 |
| 5. Contract Duration | 5 |
| Maximum Score | 100 |

The following is a description of each of the above referenced items:

1. Design Approach and Proposed Equipment (40 points)

Credit will be given for a comprehensive approach to the design aspects of the project, including but not limited to ITS modifications, structures design, and minimizing impacts to utilities. Credit will be given for The Design/Build Firm's approach to the communication section with equipment and parts cut sheet with manufacture specifications data sheets. Incomplete or omission of major components as listed below will be considered as non-responsive. This will be required for each of the proposed major items, at a minimum the fiber optic cable, cabinet enclosures, CCTV, pull boxes, detectors, centralized software and any other devices or parts the Design-Build Firm would be using in this project.

2. Maintenance and Contractor Guaranteed Coverage (25 points)

Credit will be given for:

- Design and construction methods that minimize periodic and routine maintenance
- Exceeding minimum material requirements to enhance durability
- Access to provide adequate inspections and maintenance

- Maintaining functionality of existing ITS facilities

3. Project Management Plan (15 points)

Credit will be given for a comprehensive Project Management Plan (PMP) that addresses Project Management approach, staffing plans, Quality Management Plan and coordination. Credit will also be given for incorporation of effective peer reviews.

4. Construction and Maintenance of Traffic Approach (15 points)

Credit will be given for a comprehensive approach for conducting the construction effort for the project, including but not limited to, Maintenance of Traffic, construction methods, worker and public safety, utility adjustments and relocations.

5. Contract Duration (5 points)

Credit will be given, **at the time of bid opening**, according to the following table.

For the Proposed Contract Time Item, credit will be given, at the time of bid opening, according to the following table. The Proposed Contract Time shown on the bid proposal form shall be the official contract duration.

| Proposed Contract Time (Days) | | | Points Awarded |
|-------------------------------|---|---------|----------------|
| 470 | - | 445 | 0 |
| 444 | - | 419 | 1 |
| 418 | - | 393 | 2 |
| 392 | - | 367 | 3 |
| 366 | - | 341 | 4 |
| 340 | - | or less | 5 |

If the Proposed Contract Time is greater than 470 days, the proposal will be considered non-responsive.

D. Bid Price Proposal

Bid Price Proposals shall be submitted on the Bid Proposal Form attached hereto and shall include one lump sum price for each of the Sub-Projects and one lump sum price for the Complete Project as defined in the "Description of Work" of Section I of this RFP.

For Sub-Project 1 the Proposer shall include one lump sum price for Sub-Project 1 inclusive of the highest Option the Design Build Firm can design and build without exceeding the maximum bid price for Sub-Project 1. The Proposer shall clearly indicate the highest Option Number included within the bid price for Sub-Project 1. All remaining Options that are not included in the bid price for Sub-Project 1 shall be included in the bid price for Sub-Project 2.

For Sub-Project 2 the Proposer shall include one lump sum price for Sub-Project 2, inclusive of all remaining Options not included in the bid price for Sub-Project 1.

For Sub-Project 3 the Proposer shall include on lump sum price for Sub-Project 3. That bid price shall only and exclusively include the scope of work for Sub-Project 3.

The Proposer shall include the total lump sum price of the Complete Project which shall be the combined lump sum of all Sub-Projects inclusive of all Options. The combined lump sum of all Sub-Projects (the Complete Project) shall not exceed the total maximum bid price set for this project. If the Proposer's price proposal for Sub-Project 1 or the Complete Project is greater than the maximum bid prices in this RFP, then the Bid Price Proposal shall be deemed non-responsive.

The lump sum prices shall include all costs for all design, geotechnical surveys, architectural services, engineering services, Design/Build Firms quality plan, construction of that portion of the Project, and all other work necessary to fully and timely complete that portion of the Project in accordance with the Contract Documents, as well as all job site and home office overhead, and profit, it being understood that payment of that amount for that portion of the Project will be full, complete, and final compensation for the work required to complete that portion of the Project.

The Bid Price Proposals shall be hand delivered in a sealed package to the following:

Ms. Chela Wood, Professional Services
Florida Department of Transportation
719 South Woodland Boulevard
DeLand, Florida 32720

The package shall indicate clearly that it is the Price Proposal and shall identify clearly the Proposer's name and project description. The Bid Price Proposal shall be secured and unopened until the date specified for opening of Price Proposals.

E. Final Selection Formula:

The Department will have a public meeting for opening of sealed bids. The Technical Scores will be announced based on the procedure outlined below. The bid opening meeting will be recorded.

At this meeting, the Department will announce the score for each member of the Technical Review Committee for each Proposer and each Proposer's average Technical Score. The Technical Proposals shall all be graded based on the complete project. The complete project is defined as the combined scope of work for all Sub-Projects inclusive of all Options. Following announcement of the technical scores, the sealed bid proposals will be opened.

The Selection Committee shall publicly open the sealed bid proposals and calculate an adjusted score using the following formula:

$$\frac{BPP}{TS} = \text{Adjusted Score}$$

BPP = Bid Price Proposal
TS = Technical Score

The firm selected will be that firm whose adjusted score is lowest.

The Department reserves the right to consider any proposal as non-responsive if any part of the Technical Proposal does not meet established codes and criteria. Also, if the Proposed Contract Time (PCT) is greater than 470 days, the proposal will be considered non-responsive.

F. Final Selection Process:

The Department's Selection Committee will review the evaluation of the Technical Review Committee and the Price Proposal of each Proposer as to the apparent lowest adjusted score and make a final determination of the lowest adjusted score. The Selection Committee has the right to correct any errors in the evaluation and selection process that may have been made. The Department is not obligated to award the contract and the Selection Committee may decide to reject all proposals. If the Selection Committee decides not to reject all proposals, the contract will be awarded to the Proposer determined by the Selection Committee to have the lowest adjusted score.

G. Compensation to Short-Listed Lead Design Firms :N/A

Attachment 2

Blue Toad Installed Site Test Procedure

**Florida Department of Transportation
District 5**

Brevard Co. ATMS Expansion
Contract # E5N82

FIN # 428597-1-52-01, 428919-1-52-01, 428920-1-52-01
FAP# ARRA 641-B



BlueTOAD Installed Site
Test Procedure

Prepared for:
Florida Department of Transportation

Prepared by:
Miller Electric Company
2251 Rosselle Street
Jacksonville, FL 32201

BlueTOAD INSTALLED SITE TEST PROCEDURE

The purpose of this test is to verify the operation of the installed BlueTOAD vehicle detection devices from the local traffic signal cabinet. In addition to testing the devices the following information shall be verified and recorded.

BlueTOAD Location _____ **Station #** _____

To ensure proper BlueTOAD communication the following items will be used to conduct the test:

- 1) Laptop Computer
- 2) Terminal emulator application (i.e. PuTTY)
- 3) Serial Cable or USB to serial adapter with cable (DB-9 female)

Step 1

Visually verify all control cabinet equipment and cabling for proper installation. This includes verification that the detector card is properly seated.

Step 2

Connect the serial cable from Laptop to the detector card DB-9 communication port. This connection may be made directly to the computer or if necessary through the USB to serial converter. Apply power to all devices and the Laptop.

Step 3

Upon powering up the device the tester shall launch the terminal emulator application (PuTTY). Configure a new connection using the following parameters, save this connection as BlueTOAD.

| <i>Parameter</i> | <i>Value</i> |
|-------------------------|----------------------------------|
| serial line | set to COM port of PC to be used |
| Speed (baud) | 115,200 |
| connection type | serial |
| data bits | 8 |
| stop bits | 1 |
| parity | none |
| flow control | none |

Step 4

Confirm the connection between the computer and the serial port on the BlueTOAD device and then using the button on the card “reset” the device. You should see the following BlueTOAD banner.


```
#####
# BlueTOAD                               #
#                                         #
# Build Date: June 27,2011               #
# Build Time: 14:04:09                   #
# FW Version: 2.0                        #
#####
Device ID: <1005>
WDT Init: . . . [ok]
LED Blink Task Init . . . [ok]
Please press any key to enter Configuration Mode
```

Did the BlueTOAD banner appear? If yes continue on, if no verify the serial parameters and retry.
If the unit does not respond contact the project manager for corrective action.

Blue Toad Banner Appeared _____

Step 5

When prompted hit any key to enter the Configuration Mode.

```
#### Welcome to BlueTOAD Configuration Mode ####
```

Once in configuration mode type “?” to see a list of Configuration Mode commands.

Available Commands:

```
Boot
Set IPtype
Set IPaddr
Set mask
Set gateway
Set dns1
Set devid
Showconfig
```

For the purposes of this test we will type “showconfig” in an effort to confirm that all applicable settings are installed on the device and are consistent with the project IP Address list and County provided communication scheme. Once selected you should see the following;

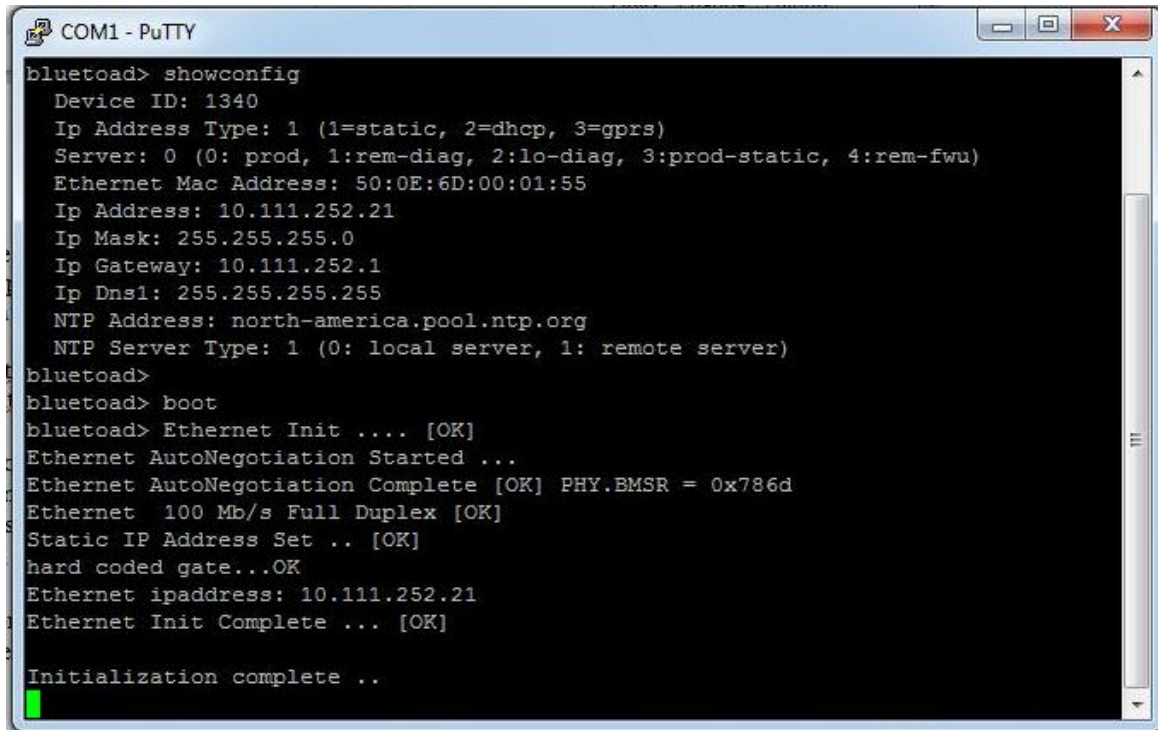
```
Device ID:
Ethernet MAC address:
IP Address Type:
IP Address:
IP Mask:
IP Gateway:
IP DNS1:
```

Does this information match the specific site? _____

If yes move on to the next step, if no follow the manufactures instructions on device set up to correct the information. Once the corrected information is installed repeat Step 5 to ensure the set up was saved to the device.

Step 6

The final step in this test is to verify that the device is transmitting data while in the running state. At the prompt type “boot” and the BlueTOAD unit will enter the running state at which time the following information should be displayed.



```
bluetoad> showconfig
Device ID: 1340
Ip Address Type: 1 (1=static, 2=dhcp, 3=gprs)
Server: 0 (0: prod, 1:rem-diag, 2:lo-diag, 3:prod-static, 4:rem-fwu)
Ethernet Mac Address: 50:0E:6D:00:01:55
Ip Address: 10.111.252.21
Ip Mask: 255.255.255.0
Ip Gateway: 10.111.252.1
Ip Dns1: 255.255.255.255
NTP Address: north-america.pool.ntp.org
NTP Server Type: 1 (0: local server, 1: remote server)
bluetoad>
bluetoad> boot
bluetoad> Ethernet Init .... [OK]
Ethernet AutoNegotiation Started ...
Ethernet AutoNegotiation Complete [OK] PHY.BMSR = 0x786d
Ethernet 100 Mb/s Full Duplex [OK]
Static IP Address Set .. [OK]
hard coded gate...OK
Ethernet ipaddress: 10.111.252.21
Ethernet Init Complete ... [OK]

Initialization complete ..
```

Did the Initialization complete?_____

If yes the test is complete, if no contact the project manager for corrective measure.

BlueTOAD Test Attendees:

Miller Representative

Department/CEI
Representative

Signed Date

Print Name

Signed Date

Print Name

Attachment 3

CCTV Stand Alone Test Procedures

**Florida Department of Transportation
District 5**

Brevard Co. ATMS Expansion
Contract # E5N82

FIN # 428597-1-52-01, 428919-1-52-01, 428920-1-52-01
FAP# ARRA 641-B



CCTV Stand Alone
Test Procedures

Prepared for:
Florida Department of Transportation

Prepared by:
Miller Electric Company
2251 Rosselle Street
Jacksonville, FL 32201

CCTV STAND ALONE TEST PROCEDURE

The purpose of this test is to verify the operation of the installed CCTV devices prior to its connection to the communication infrastructure. In addition to testing the devices the following information shall be verified and recorded.

CCTV Location _____ Station # _____

Manufacturer's Name: Bosch
Product Name: AutoDome
Product Model Number: 500i
Product Serial Number: _____

To ensure proper CCTV operation the following items will be used to conduct the test:

- 1) Manufacturer Supplied Software accessed through web browser
- 2) Laptop Computer
- 3) Ethernet Interface Cable

Step 1

Visually verify all control cabinet equipment and cabling for proper installation. This includes verification that all power supply voltages are correct to the devices.

Step 2

Connect the Ethernet cable from Laptop to the Ethernet cable from within the CCTV composite cable. This connection may be made through and Ethernet cable coupling or the Ethernet TVSS unit. Apply power to all devices and the Laptop; establish communication from the laptop to the device.

Step 3

Upon powering up the device the tester should wait for roughly one minute. Once time has passed the tester will log into the unit via the default IP address (192.168.0.1) using either Windows Explorer or Internet Explorer. Upon connection to the device you should see the Bosch screen enabling you to see streaming video or motion jpeg video depending on your laptop software configuration.

Is an image present? _____ Is the image clear and undistorted? _____

If the answer to both is yes proceed with the test. If the answer is no repeat the previous steps, if the unit is still not operating properly notify the Project Manager for corrective action.

Step 4

During this test we will verify proper operation of the Zoom functions of the camera. Upon connection to the device use the software to continuously Zoom in to full power then zoom out continuously.

| CCTV Assembly Operational | Pass | Fail | Comments |
|---------------------------|------|------|----------|
| IN Continuous | | | |
| OUT Continuous | | | |
| | | | |

Step 5

During this test we will verify proper operation of the Pan and Tilt functions of the camera. Upon connection to the device use the software to continuously Pan left, then right for a complete 360 degree turn. Next use the software to Tilt the camera to the upper and lower limits. When going to the lower limits the camera will perform a “flip” and continue back to the upper limits, this is required for proper operation.

| CCTV Assembly Operational | Pass | Fail | Comments |
|----------------------------------|-------------|-------------|-----------------|
| LEFT Continuous | | | |
| RIGHT Continuous | | | |
| UP Continuous | | | |
| DOWN Continuous | | | |

Step 6

During this test we will verify proper operation of the Iris functions of the camera. Upon connection to the device use the software to select and activate the manual Iris functions. Next use the software to open the Iris until the image becomes very bright; second close the iris until the images becomes dark. Prior to exiting the system make sure the iris is rest to function automatically.

| Iris Operation | Pass | Fail | Comments |
|----------------------------|-------------|-------------|-----------------|
| Iris Open (lightens image) | | | |
| Iris Close (darkens image) | | | |
| Return Iris to Automatic | | | |
| | | | |

Step 7

This step will be used to insert and document the required pre-set viewing locations on the camera. Pre-sets 1 through 5 will be programmed and tested under this step. The following is a list of locations and the order in which they are to be saved to the CCTV memory.

| CCTV Pre-set Operational | Yes | No | Comments (Landmark Descriptions) |
|---------------------------------|------------|-----------|---|
| 1) North side of intersection | | | |
| 2) East side of intersection | | | |
| 3) South side of intersection | | | |
| 4) West side of intersection | | | |
| 5) Traffic Signal Cabinet | | | |
| 6) Center of Intersection | | | |

All of the aforementioned tests were completed and documented successfully and have been witnessed by the CCTV Device Test Attendees.

CCTV Device Test Attendees:

Miller Representative

Department/CEI
Representative

Signed _____ Date _____

Print Name

Signed _____ Date _____

Print Name

Attachment 4

Fiber Optic Test Procedure



Intelligent Transportation Systems

201 Reece Way Suite 1431
Casselberry, FL 32707
407.339.6636
Fax 407.339.3822
EC 13003017

Fiber Optic Test Procedures

1.0 Introduction

The fiber test procedures will verify integrity and attenuation of the fiber optic cables installed and spliced on the project in accordance with FDOT Technical Special Provision 783-1.4.

Final testing may begin after the successful installation and splicing of the cable and test plan approval by CEI

2.0 Required Test Equipment

The following equipment is required for this test procedure:

Optical Time Domain Reflectometer (OTDR)

The test unit will be calibrated at the nominal test wavelengths. Calibration should be dated within the last year. The test equipment will be traceable to the National Institute of Standards and Technology (NIST) calibration standard.

2.1 Pre-Installation Testing

Pre-installation, often called reel testing is performed to ensure that the cable has not been damaged in-transit from the manufacturer.

The cable is tested at the 1310nm and 1550 nm wavelengths unidirectional from the inside end which is presented in a protected cage on the side of the reel for this purpose. The technician confirms that all fibers within the cable are of the same length. This testing is to be performed at the discretion of the cable installation contractor or subcontractor.

4.0 Final Acceptance Testing

End- to-End Attenuation testing shall be completed on all terminated fibers within the cable.



783-1.4.2.1 End to End Attenuation Testing: Perform testing on all fibers to ensure that end to end attenuation does not exceed allowable loss (0.4 db/km for 1310nm wavelength, 0.3 db/km for 1550nm wavelength, plus 0.5 db for any connectors and 0.1 db for splices). Repair or replace cable sections exceeding allowable attenuation at no cost to the Department.

783-1.4.2.2 OTDR Tracing: Test all fibers from both cable end points with an optical time domain reflectometer (OTDR) at wavelengths of 1310 and 1550 nm. Test the fibers that are not terminated at the time of installation using a bare fiber adapter. Present the results of the OTDR testing (i.e., traces for each fiber) and a loss table showing details for each splice or termination tested to the Engineer in an approved electronic format. Ensure all OTDR testing complies with the EIA/TIA-55-61 standard.

783-1.4.2.3 Splice Loss Testing: Ensure that the splice loss for a SMF fusion splice does not exceed a maximum bidirectional average of 0.1 decibel per splice. Repair or replace splices that exceed allowable attenuation at no cost to the Department.

783-1.4.2.4 Connector Loss Testing: Ensure that the attenuation in the connector at each termination panel and its associated splice does not exceed 0.5 decibel. Repair or replace connectors exceeding allowable attenuation at no cost to the Department.

The correct index of refraction setting shall be programmed into the test unit based on the cable manufacturer's specifications. The contractor will perform a bi-directional end to end O.T.D.R. test at two (2) optical wavelengths. A 1km launch box will be used to perform all tests. The O.T.D.R. shall have its parameters set up properly. All parameters shall be the same for each cable segment under test. The following are the parameters:

- a. Fiber type- single-mode or multi-mode
- b. Wavelength- 1310nm, 1550 nm
- c. Range and resolution- a function of cable segment length, typically 1.5 times segment length
- d. Pulse width- function of cable segment length
- e. Refractive index- supplied by cable manufacturer
- f. Threshold – limit of event loss, end of fiber segment and reflectance
- g. Backscatter coefficient

For Single-mode (9/125 um) fiber, the wavelengths shall be 1310 nm and 1550 nm. The O.T.D.R. traces, a loss table identifying length of span, splices and terminations will be presented along with an electronic copy of the O.T.D.R. traces will be provided for each strand shall be printed and submitted to the Engineer for review. Each O.T.D.R. trace will identify:

- a. Cable
- b. Buffer color
- c. Fiber color
- d. Fiber origin point
- e. Fiber termination point
- f. Operating technicians name



The O.T.D.R. shall have threshold configured to view any anomaly greater than .01 dB. Additionally, any fusion splice identified by the O.T.D.R. as having a bi-directional algebraic sum greater than 0.10 dB shall be broken and re-spliced.

An example of the splice loss computation:

$$\text{Splice Loss (dB)} = \frac{(\text{A to B direction Loss}) + (\text{B to A direction Loss})}{2}$$

An example follows for an A to B OTDR reading of -0.28 dB and the B to A OTDR reading of 0.38 dB:

$$\text{Splice Loss (dB)} = \frac{(\text{A to B direction Loss}) + (\text{B to A direction Loss})}{2}$$

$$\text{Splice Loss (dB)} = \frac{(-0.28 \text{ dB}) + (0.38 \text{ dB})}{2}$$

This can be rewritten or simplified to:

$$\text{Splice Loss (dB)} = \frac{0.38 \text{ dB} - 0.28 \text{ dB}}{2}$$

$$\text{Splice Loss (dB)} = \frac{(0.10)}{2}$$

$$\text{Splice Loss (dB)} = 0.05 \text{ dB}$$

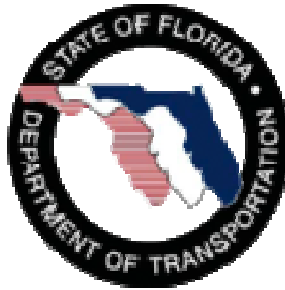
Attachment 5

Sensys Installed Site Test Procedure

**Florida Department of Transportation
District 5**

Brevard Co. ATMS Expansion
Contract # E5N82

FIN # 428597-1-52-01, 428919-1-52-01, 428920-1-52-01
FAP# ARRA 641-B



Sensys Installed Site
Test Procedure

Prepared for:
Florida Department of Transportation

Prepared by:
Miller Electric Company
2251 Rosselle Street
Jacksonville, FL 32201

SENSYS INSTALLED SITE TEST PROCEDURE

The purpose of this test is to verify the operation of the installed Sensys vehicle detection devices from the local traffic signal cabinet. In addition to testing the devices the following information shall be verified and recorded.

Sensys Location _____ **Station #** _____

To ensure proper Sensys communication the following items will be used to conduct the test:

- 1) Manufacturer Supplied Software: Traffic DOT2
- 2) Laptop Computer
- 3) Ethernet Interface Cable

Step 1

Visually verify all control cabinet equipment and cabling for proper installation. This includes verification that all detector cards are properly seated.

Step 2

Connect the Ethernet cable from Laptop to the access box communication port. This connection may be made directly to the access box or through the Ethernet switch. Apply power to all devices and the Laptop; establish communication from the laptop to the device.

Step 3

Upon powering up the device the tester will log into the unit via the site specific IP address using the Traffic DOT2 software. Upon connection to the device the tester should wait for roughly one minute so that the software can properly poll and display the device information. Once time has passed you should see the DOT2 device verification screen in the map view mode.

Did the site IP allow access into the software? _____

If the answer is yes proceed with the test. If the answer is no repeat the previous steps, if the unit is still not operating properly notify the Project Manager for corrective action.

Step 4

During this step we will verify proper communication to each of the devices installed at this intersection. Upon connection to the device and verification that you are in the map view screen select the "Table View" button in the upper right hand corner of the screen. Once in table view you should see a complete list of devices and their respective LQI and RSSI values. While the values are not absolute the recommended levels for LQI are between 90 and 100 with the RSSI values recommended between -80 and -50, the lower number the better.

Total number of devices listed? _____

Are all devices within the recommended range? _____

Use the space below to note all devices not functioning within the recommended range.

(This test may continue even if devices are outside the recommended range as the value constantly varies for many reasons. Device functionality and performance will be tested and documented in the detection validation test.)

Step 5

During this step we will verify that the information in step 4 corresponds with the layout and requirement of the intersection. At the bottom of the screen in the center position there will be a

tab that says “Devices Seen”. This tab is a total of all devices communicating with the Access Point (it does not include the access point). Using the site as-builts count all devices installed (excluding the access point) and verify that installed number of devices matches the “devices seen” and the number from step 4. Provided all numbers match this site is considered operational and has passed the installed site test.

As-Built plan quantity of devices excluding the access point. _____

Total number of devices shown on the Devices Seen tab. _____

Total number of devices accounted for in step 4. _____

Step 6

During this step we will simply take a screen shot of the table view page as verification and documentation that the information obtained was accurate at the time of test. In the upper right hand corner of the screen you will see a Print Screen button. Select or click on that button and save the file to a folder designated Sensys Installed Site Test Data. Make sure to name the file in accordance with the intersection being tested.

SENSYS Device Test Attendees:

Miller Representative

Department/CEI
Representative

| | |
|------------|------|
| Signed | Date |
| _____ | |
| Print Name | |

| | |
|------------|------|
| Signed | Date |
| _____ | |
| Print Name | |