

PROJECT NUMBER: CM 2004(205)

SHEET: 1

COUNTY: DALLAS

CONTROL: 0918-45-667

HIGHWAY: LOCAL ROADWAYS

GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS: ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION JUNE 1, 2004. STANDARD SPECIFICATIONS ARE INCORPORATED INTO THE CONTRACT BY REFERENCE.

ITEM 416 DRILL SHAFT (36 IN) (420) (421) (440) (448)
ITEM 500 MOBILIZATION
ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING
ITEM 506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS (432) (556)
ITEM 618 CONDUIT (400) (445) (476) (622)
ITEM 620 ELECTRICAL CONDUCTORS
ITEM 624 GROUND BOXES (421) (440)
ITEM 628 ELECTRICAL SERVICES (441) (445) (449) (618) (620) (627) (656)
ITEM 680 INSTALLATION OF TRAFFIC SIGNALS (610) (625) (627) (634) (636) (656)
ITEM 682 VEHICLE AND PEDESTRIAN SIGNAL HEADS
ITEM 684 TRAFFIC SIGNAL CABLES
ITEM 686 TRAFFIC SIGNAL POLE ASSEMBLIES (STEEL) (416) (421) (441) (442) (445) (449)

SPECIAL PROVISIONS: SPECIAL PROVISIONS WILL GOVERN AND TAKE PRECEDENCE OVER THE SPECIFICATIONS ENUMERATED HEREON WHEREVER IN CONFLICT THEREWITH.

SPECIAL PROVISION "PARTNERING" (000---002)
SPECIAL PROVISION "NOTICE TO ALL BIDDERS" (000---003)
SPECIAL PROVISION "NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY" (000---004)
SPECIAL PROVISION "STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS" (000---006)
SPECIAL PROVISION "CERTIFICATION OF NON-DISCRIMINATION IN EMPLOYMENT" (000---009)
SPECIAL PROVISION "DISADVANTAGED BUSINESS ENTERPRISE IN FEDERAL-AID CONSTRUCTION" (000---461)
SPECIAL PROVISION "ON-THE-JOB TRAINING PROGRAM" (000---807)

SPECIAL PROVISION TO ITEM 001 (001---005)
SPECIAL PROVISION TO ITEM 005 (005---004)
SPECIAL PROVISION TO ITEM 007 (007---213,445)
SPECIAL PROVISION TO ITEM 009 (009---009)
SPECIAL PROVISION TO ITEM 416 (416---001)
SPECIAL PROVISION TO ITEM 420 (420---002)

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SPECIAL PROVISION TO ITEM	421	(421---031)
SPECIAL PROVISION TO ITEM	440	(440---001)
SPECIAL PROVISION TO ITEM	441	(441---002)
SPECIAL PROVISION TO ITEM	500	(500---005)
SPECIAL PROVISION TO ITEM	502	(502---033)
SPECIAL PROVISION TO ITEM	620	(620---001)
SPECIAL PROVISION TO ITEM	682	(682---001)

REQUIRED CONTRACT SPECIAL PROVISIONS:

FORM FHWA 1273, DECEMBER, 1993 (FEDERAL-AID CONSTRUCTION CONTRACTS)
CHILD SUPPORT STATEMENT
JOB CLASSIFICATION AND WAGE RATES
DISCLOSURE OF LOBBYING ACTIVITIES
WORKERS COMPENSATION INSURANCE

SPECIAL SPECIFICATIONS:

6007 REMOVING TRAFFIC SIGNALS
6011 TESTING, TRAINING, DOCUMENTATION, FINAL ACCEPTANCE, AND WARRANTY
6013 ELECTRONIC COMPONENTS
6016 ITS FIELD EQUIPMENT CABINET
6086 PREPARATION OF EXISTING CONDUITS, GROUND BOXES, OR MANHOLES
6266 VIDEO IMAGING VEHICLE DETECTION SYSTEM (VIVDS) (INSTALL ONLY)
A9001 HARDENED ETHERNET SWITCH
A9002 VIDEO SERVER
A9003 TRAFFIC CONTROL SYSTEM
A9004 TRAFFIC SIGNAL CONTROLLER ASSEMBLY (TS-2)
A9005 SYSTEM SUPPORT EQUIPMENT
A9006 SERIAL PORT SERVER
A9007 WIRELESS ETHERNET RADIO

THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH PAYMENT IS TO BE MADE OR THAT GOVERN PERTINENT WORK ELEMENTS THAT ARE SUBSIDIARY TO OTHER PAY ITEMS. THESE, TOGETHER WITH SUCH OTHER PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-LISTED SPECIFICATION ITEMS, CONSTITUTE THE COMPLETE SPECIFICATIONS FOR THIS PROJECT. SPECIAL SPECIFICATION A9001 THROUGH A9007 ARE SPECIFIC TO THE TOWN OF ADDISON.

BACKGROUND:

THE TOWN OF ADDISON IS PROCURING THE EQUIPMENT AND SERVICES NECESSARY TO CONSTRUCT AN ADVANCED TRAFFIC MANAGEMENT SYSTEM (ATMS) THAT WILL BE USED TO MONITOR AND CONTROL 34 INTERSECTIONS AND ALL VIVDS CAMERAS EXISTING AND

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PROPOSED TO BE INSTALLED AS PART OF THIS PROJECT. SOME EQUIPMENT WILL BE PROCURED UNDER A PROPRIETARY PURCHASE AGREEMENT AND INSTALLED BY A LICENSED CONTRACTOR, WHILE OTHER EQUIPMENT WILL BE FURNISHED AND INSTALLED BY THE SAME OR SEPARATE CONTRACTOR. WORK PACKAGES HAVE BEEN IDENTIFIED FOR THE PURPOSES OF ESTABLISHING CLEAR AREAS OF RESPONSIBILITIES OF THE DIFFERENT PARTIES.

THE TOWN OF ADDISON WILL PROCURE SEPARATELY THE FOLLOWING EQUIPMENT AND THE CONTRACTOR OF THIS PROJECT WILL INSTALL AND MAKE OPERATIONAL:

- a. VIDEO IMAGING VEHICLE DETECTION SYSTEM (VIVDS)
- b. TRAFFIC SIGNAL CONTROLLER ASSEMBLY (TS-2)
- c. WIRELESS ETHERNET RADIO SYSTEM

THE TOWN OF ADDISON WILL PROCURE THE COMPLETE SERVICES FOR THE FOLLOWING EQUIPMENT TO BE PROVIDED BY OTHERS:

- a. TRAFFIC CONTROL SYSTEM (ADVANCED TRAFFIC CONTROL SOFTWARE)

SCOPE OF WORK:

UNDER THIS CONTRACT, THE CONTRACTOR'S WORK WILL CONSIST OF THE FOLLOWING PRINCIPAL ITEMS;

- 1) INSTALLING, INTEGRATING, AND/OR TESTING WIRELESS ETHERNET RADIO SYSTEM. THE CONTRACTOR MUST BE CERTIFIED BY THE MANUFACTURER TO INSTALL THE WIRELESS ETHERNET RADIO SYSTEM AND PROVIDE DOCUMENTATION TO THE TOWN FOR VERIFICATION.
- 2) INSTALLING AND TESTING OF TRAFFIC SIGNAL CONTROLLERS (NEMA TS2 TYPE 1), TRAFFIC CABINET ASSEMBLIES, INCLUDING RAISED ALUMINUM BASE.
- 3) REMOVING AND SALVAGING TRAFFIC SIGNAL HARDWARE AND CONTROL EQUIPMENT.
- 4) VERIFYING THE USABILITY OF THE EXISTING CONDUIT INFRASTRUCTURE.
- 5) FURNISHING AND INSTALLING GROUND BOXES AND CONDUIT AT LOCATIONS SHOWN IN THE PLANS.
- 6) FURNISHING AND INSTALLING NEW TRAFFIC SIGNAL CABLE AT LOCATIONS SHOWN IN THE PLANS.
- 7) PROVIDING ALL REQUIRED CONSTRUCTION WORK ZONE TRAFFIC CONTROL.
- 8) FURNISHING AND INSTALLING ALL CONCRETE AND REINFORCING STEEL FOR TRAFFIC SIGNAL CONTROLLER CABINET AND POLE FOUNDATIONS.
- 9) INSTALLING VIDEO VEHICLE DETECTION HARDWARE AND SOFTWARE AT VARIOUS

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LOCATIONS.

- 10) FURNISHING, INSTALLING, INTEGRATING, AND/OR TESTING HARDENED ETHERNET SWITCHES, VIDEO SERVERS, AND SERIAL PORT SERVERS NECESSARY FOR COMMUNICATION TO TRAFFIC SIGNAL CABINETS FROM THE ADVANCED TRAFFIC CONTROL SOFTWARE THROUGH THE WIRELESS ETHERNET RADIO SYSTEM.
- 11) FURNISHING AND INSTALLING ALL OTHER MISCELLANEOUS ITEMS ESSENTIAL FOR A COMPLETE AND FULLY OPERATIONAL TRAFFIC SIGNAL CONTROL SYSTEM.

GENERAL:

THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THIS PROPOSED PROJECT WILL BE CONSISTENT WITH THE STATE IMPLEMENTATION PLAN AS PREPARED BY THE TEXAS AIR CONTROL BOARD.

THE CONTRACTOR'S REPRESENTATIVE WHO WILL BE DIRECTLY RESPONSIBLE FOR CONSTRUCTION OF THIS PROJECT WILL NEED TO ATTEND THE PRE-CONSTRUCTION CONFERENCE.

THE CONTRACTOR WILL ONLY BE ALLOWED TO WORK ON THIS PROJECT DURING DAYLIGHT HOURS (DAWN TO DUSK).

UNLESS DIRECTED BY THE ENGINEER, THE SIGNAL SHALL BE PLACED IN OPERATION BETWEEN 9:00 A.M. - 12:00 (NOON) WEEKDAYS.

FOR THE PURPOSE OF CLARIFICATION, ANY REFERENCE TO TXDOT AND/OR DEPARTMENT WITHIN THE SPECIAL PROVISIONS OR SPECIAL SPECIFICATIONS SHALL MEAN THE TOWN OF ADDISON.

TEST PERIOD FOR SIGNALS:

ONCE THE SIGNALS HAVE BEEN INSTALLED AND PLACED IN OPERATION, THEY SHALL OPERATE CONTINUOUSLY FOR A MINIMUM OF 30 CALENDAR DAYS IN A SATISFACTORY MANNER. EQUIPMENT FAILURES DURING THIS 30 DAYS WILL CAUSE THE TEST PERIOD TO START OVER.

PHASES OF SIGNAL OPERATION:

ALL CONTROLLER/MMU PROGRAMMING, SETTINGS, TIME INTERVALS, AND TIME-BASE COORDINATION PARAMETERS SHALL BE ADJUSTED AND SET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

WIRING:

EXTRA CABLE LENGTH SHALL BE INCLUDED IN EACH RUN TO PROVIDE ADEQUATE SLACK, AS DETERMINED BY THE ENGINEER, AT EACH GROUND BOX OR FOUNDATION.

UTILITIES:

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL

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UTILITIES AND UNDERGROUND STRUCTURES BEFORE MAKING ANY EXCAVATIONS. THE CONTRACTOR SHALL TAKE EXTREME CARE WHEN EXCAVATING OR DRILLING IN THE VICINITY OF UTILITIES. THE CONTRACTOR MAY BE REQUIRED TO PROBE OR EXPOSE THESE FACILITIES. THE CONTRACTOR WILL BE RESPONSIBLE FOR DAMAGES TO UTILITIES.

ITEM 416, DRILL SHAFTS:

THE CONTRACTOR SHALL COORDINATE WITH THE TOWN OF ADDISON WHEN PLACING CONCRETE FOR NEW FOUNDATIONS TO ENSURE THE PROPER CABINET ORIENTATION AND ANCHOR BOLT PLACEMENT MATCH TOWN REQUIREMENTS.

THE TOP 2 IN. OF THE DRILL SHAFTS SHALL BE FORMED TO PROVIDE A SMOOTH FINISH SATISFACTORY TO THE ENGINEER. THE COST OF THE WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THIS ITEM.

A 3/4 IN. CHAMFER SHALL BE FORMED ON THE TOP EDGE OF EACH TRAFFIC SIGNAL FOUNDATION.

THE CONTRACTOR SHALL PROBE BEFORE DRILLING FOUNDATIONS TO DETERMINE THE LOCATION OF UTILITIES AND STRUCTURES. FOUNDATIONS SHALL BE PAID FOR ONCE REGARDLESS OF EXTRA WORK CAUSED BY OBSTRUCTIONS.

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE BOLT PATTERNS OF EXISTING FOUNDATIONS TO BE REUSED AND FOR FURNISHING THE HARDWARE TO FIT THESE FOUNDATIONS. SOME OF THESE BOLT PATTERNS ARE SHOWN IN THE PLANS.

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DIMENSIONS OF POLE ASSEMBLIES AND FINALIZING THE TOP ELEVATION OF POLE FOUNDATIONS TO ENSURE THAT THE TRAFFIC SIGNAL HEAD MEETS THE DESIRED HEIGHT ABOVE THE ROADWAY.

ITEM 502, BARRICADES, SIGNS AND TRAFFIC HANDLING:

THE TRAFFIC CONTROL PLANS (TCP) FOR THIS PROJECT SHALL BE AS DETAILED ON TRAFFIC CONTROL PLAN SHEETS, WZ(BTS-1), (2)-99, AND AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR FURNISHING ALL THE NECESSARY SIGNS, CONES, AND BARRICADES.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR CONTROLLING TRAFFIC (INCLUDING POLICE IF NEEDED), TEMPORARY STOP SIGNS, IF IT SHOULD BECOME NECESSARY FOR A SIGNAL TO BECOME INOPERATIVE DUE TO THE NATURE OF THE WORK INVOLVED. IF AT ANY TIME THE EXISTING TRAFFIC SIGNALS BECOME INOPERABLE, THE CONTRACTOR SHALL PROVIDE PORTABLE STOP SIGNS WITH TWO

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ORANGE FLAGS, AS APPROVED BY THE ENGINEER, TO BE USED FOR TRAFFIC CONTROL.

FLAGGERS, WHEN USED, SHALL BE EQUIPPED WITH AN APPROVED FLAGGING VEST AND HARD HAT. THEY SHALL USE A "SLOW-STOP" PADDLE.

THE CONTRACTOR SHALL PLAN HIS WORK SEQUENCE IN A MANNER THAT WILL CAUSE THE MINIMUM INTERFERENCE WITH TRAFFIC DURING CONSTRUCTION OPERATIONS. BEFORE BEGINNING WORK ON THIS PROJECT, THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL BY THE ENGINEER, A PLAN OF CONSTRUCTION OPERATIONS OUTLINING IN DETAIL A SEQUENCE OF WORK TO BE FOLLOWED, SETTING OUT THE METHOD OF HANDLING TRAFFIC ALONG, ACROSS, AND ADJACENT TO THE WORK.

BARRICADES AND SIGNS SHALL BE PLACED IN SUCH A MANNER AS TO NOT INTERFERE WITH THE SIGHT DISTANCE OF DRIVERS ENTERING THE HIGHWAY FROM DRIVEWAYS OR SIDE STREETS.

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN FLAGGERS AT SUCH POINTS AND FOR SUCH PERIODS OF TIME AS MAY BE REQUIRED TO PROVIDE FOR THE SAFETY AND CONVENIENCE OF PUBLIC TRAVEL AND CONTRACTOR'S PERSONNEL, AND AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR WILL NOT BE PERMITTED TO COMMENCE WORK ON THE ROAD BEFORE SUNRISE AND SHALL ARRANGE HIS/HER WORK SO THAT NO MACHINERY OR EQUIPMENT SHALL BE CLOSER THAN 30 FT. TO THE TRAVELLED ROADWAY AFTER SUNSET, EXCEPT AS AUTHORIZED BY THE ENGINEER.

THE CONTRACTOR SHALL KEEP TRAVELLED SURFACES USED IN HIS/HER HAULING OPERATION CLEAR AND FREE OF DIRT OR OTHER MATERIAL.

THE USE OF RUBBER-TIRED EQUIPMENT WILL BE REQUIRED FOR MOVING DIRT AND OTHER MATERIALS ALONG OR ACROSS PAVED SURFACES.

NO LANE CLOSURES WILL BE ALLOWED PRIOR TO 8:30 A.M. OR AFTER 4:00 P.M., MONDAY THRU FRIDAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

ITEM 506, TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS:

THROUGHOUT THE PROJECT LIMITS, EROSION CONTROL ELEMENTS CONSISTING OF SAND BAGS AND SEDIMENT FENCES WILL BE USED TO MITIGATE RUNOFF OF PROJECT MATERIALS INTO STORM INLETS OR RECEIVING WATERS. DUE TO THE MINIMAL DISTURBANCE OF SOIL AS PART OF THIS PROJECT, THE CONTRACTOR WILL BE ALLOWED TO RELOCATE EROSION CONTROL ELEMENTS AS NEEDED. THE NEED AND PLACEMENT OF EROSION CONTROL ELEMENTS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. EROSION CONTROL ELEMENTS MUST REMAIN IN PLACE AT INTERSECTIONS UNTIL WORK IS FINISHED PRIOR TO REMOVAL.

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QUANTITIES FOR SAND BAGS AND SEDIMENT FENCES ARE NOT SHOWN WITHIN THE LAYOUT SHEETS BUT HAVE BEEN INCLUDED WITHIN THE QUANTITY SUMMARY DUE TO THE CONTRACTORS DISCRETION AS TO PLACEMENT AS NEEDED.

ITEM 618, CONDUIT:

THE LOCATION OF CONDUCTOR, CONDUIT AND GROUND BOXES ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE FIELD CONDITIONS.

CONDUIT SHALL BE PLACED UNDER EXISTING PAVEMENT BY AN APPROVED JACKING OR BORING METHOD UNLESS OTHERWISE DIRECTED BY THE ENGINEER. PITS FOR JACKING OR BORING SHALL NOT BE CLOSER THAN 2 FT. FROM THE EDGE OF THE PAVEMENT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WATER JETTING WILL NOT BE PERMITTED.

WHEN BORING IS USED FOR UNDER PAVEMENT CONDUIT INSTALLATIONS, THE MAXIMUM ALLOWABLE OVERCUT SHALL BE 1 IN. IN DIAMETER.

WHEN CONDUITS ARE BORED, THE VERTICAL AND HORIZONTAL TOLERANCES SHALL NOT EXCEED 18 IN. AS MEASURED FROM THE INTENDED TARGET POINT.

THE USE OF A PNEUMATICALLY DRIVEN DEVICE FOR PUNCHING HOLES BENEATH THE PAVEMENT (COMMONLY KNOWN AS A "MISSILE") WILL NOT BE PERMITTED ON THIS PROJECT.

THE CONTRACTOR SHALL INSTALL A PULL ROPE IN CONDUIT RUNS IN EXCESS OF 50 FT.

A CLEANER-PRIMER SHALL BE USED ON ALL PVC TO PVC JOINTS BEFORE APPLICATION OF PVC CEMENT.

CONDUIT INSTALLED FOR FUTURE USE SHALL HAVE NON-METALLIC PULL ROPES INSTALLED AND SHALL BE CAPPED USING STANDARD WEATHER TIGHT CONDUIT CAPS, AS APPROVED BY THE ENGINEER. THIS WORK SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO THIS ITEM.

HIGH-DENSITY POLYETHYLENE (HDPE) PIPE MAY BE THREADED AND USED WITH THREADED PVC CONNECTORS OR COUPLINGS.

PVC CONDUIT SYSTEMS THAT SNAP OR LOCK TOGETHER WITHOUT GLUE THAT ARE DESIGNED AND UL LISTED TO BE USED FOR BORED PVC ELECTRICAL CONDUIT APPLICATIONS WILL BE ALLOWED FOR BORED PVC SCHEDULE 40 OR SCHEDULE 80, WHEN APPROVED BY THE ENGINEER.

NO ADDITIONAL COMPENSATION WILL BE PAID TO THE CONTRACTOR WHEN THESE SPECIFIC PURPOSE CONDUIT SYSTEMS ARE SUBSTITUTED FOR THIS PURPOSE.

ALL CONDUIT ELBOWS AND RIGID METAL EXTENSIONS REQUIRED TO BE INSTALLED ON PVC CONDUIT SYSTEMS WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE

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CONSIDERED SUBSIDIARY TO VARIOUS BID ITEMS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT CERTAIN EXISTING CONDUIT IS PROPOSED FOR REUSE. IF THE EXISTING CONDUIT CANNOT BE USED THE CONTRACTOR WILL BE REQUIRED TO REPAIR AND/OR REPLACE THIS CONDUIT AS DIRECTED BY THE ENGINEER. REPAIR OF THIS CONDUIT WILL BE PAID FOR AS "EXTRA WORK" ON A "FORCE ACCOUNT BASIS". THE CONTRACTOR SHALL PROBE THE EXISTING CONDUIT WHEN LOCATING DRILL SHAFTS SO THAT ITS CONDITION WILL BE KNOWN BEFORE IT IS NEEDED. UP TO TEN PERCENT OF THE UNUSABLE CONDUITS WILL BE RANDOMLY SELECTED BY THE ENGINEER FOR RETESTING.

ITEM 620, ELECTRICAL CONDUCTORS:

A CONTINUOUS BARE OR GREEN INSULATED COPPER WIRE NO. 8 AWG OR LARGER SHALL BE INSTALLED IN EVERY CONDUIT THROUGHOUT THE ELECTRICAL SYSTEM, AS DETAILED IN THE PLANS, IN ACCORDANCE WITH ITEM 620, THE ELECTRICAL DETAIL SHEETS, AND THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.

GROUNDING CONDUCTORS THAT SHARE THE SAME CONDUIT, JUNCTION BOX, GROUND BOX OR STRUCTURE SHALL BE BONDED TOGETHER AT EVERY ACCESSIBLE POINT IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

ITEM 624, GROUND BOX:

ALL GROUND BOXES USED FOR SIGNALS SHALL HAVE "DANGER HIGH VOLTAGE" AND "TRAFFIC SIGNALS" IMPRINTED ON THE COVER.

ITEM 680, INSTALLATION OF HIGHWAY TRAFFIC SIGNALS:

THIS PROJECT SHALL CONSIST OF FURNISHING, INSTALLING, INTEGRATING, AND TESTING ALL MATERIALS AND EQUIPMENT NECESSARY FOR A COMPLETE AND FULLY FUNCTIONAL TRAFFIC SIGNAL SYSTEM. IN ADDITION TO THESE ITEMS, UNDER ITEM 680 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:

1. SUBMITTAL LITERATURE SHALL BE PROVIDED FOR ALL NEW TRAFFIC SIGNAL AND COMMUNICATIONS EQUIPMENT FURNISHED BY THE CONTRACTOR PRIOR TO INSTALLATION.

2. DURING THE THIRTY DAY TEST PERIOD, THE CONTRACTOR SHALL UTILIZE QUALIFIED PERSONNEL TO RESPOND TO ALL TROUBLE CALLS AND TO REPAIR ANY MALFUNCTIONS TO NEW CONTROL EQUIPMENT. A LOCAL TELEPHONE NUMBER (NOT SUBJECT TO FREQUENT CHANGES) WHERE TROUBLE CALLS ARE TO BE RECEIVED ON A 24-HOUR BASIS SHALL BE PROVIDED TO THE ENGINEER BY THE CONTRACTOR. THE CONTRACTOR'S RESPONSE TO REPORTED CALLS SHALL BE WITHIN A REASONABLE TRAVEL TIME, BUT NOT MORE THAN TWO (2) HOURS MAXIMUM. APPROPRIATE REPAIRS SHALL BE MADE WITHIN 24 HOURS. THE CONTRACTOR SHALL PLACE A PERMANENT LOG BOOK IN

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EACH CONTROLLER CABINET AND KEEP A RECORD OF EACH TROUBLE CALL REPORTED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF EACH TROUBLE CALL. THE ERROR LOGIN IN THE CONFLICT MONITOR SHALL NOT BE CLEARED DURING THE THIRTY DAY TEST PERIOD WITHOUT THE APPROVAL OF THE ENGINEER.

3. THE CONTRACTOR SHALL PLACE DUCT SEAL AT THE ENDS OF ALL CONDUITS AFTER CABLES HAVE BEEN INSTALLED.

4. WHERE WORK REQUIRES THE REMOVAL OF POWER FROM THE CONTROLLER AND CABINET ASSEMBLY, THE CONTRACTOR SHALL ERECT TEMPORARY STOP SIGN PANELS, AS DIRECTED BY THE ENGINEER. THE STOP SIGN PANELS SHALL BE REMOVED AFTER THE TRAFFIC SIGNALS ARE IN OPERATION.

5. THE CONTRACTOR SHALL INSTALL THE TRAFFIC SIGNAL CONTROLLER AND CABINET ASSEMBLY AS PER SPECIAL SPECIFICATION ITEM A9004. THE CONTRACTOR SHALL NOT ACTIVATE TRAFFIC SIGNALS WITHOUT PRIOR APPROVAL FROM THE ENGINEER IN THE FIELD. THE CONTRACTOR WILL SCHEDULE HIS/HER WORK SO THAT THE EXISTING SIGNALIZED INTERSECTIONS WILL BE OUT OF SERVICE FOR NO MORE THAN EIGHT HOURS.

6. ALL ELECTRICAL CONDUCTORS REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE PROJECT SITE.

7. THE CONTRACTOR SHALL FURNISH AND INSTALL ALUMINUM SUB BASE (RAISED BASE) FOR ALL NEW TRAFFIC SIGNAL CABINET INSTALLATIONS. THIS RAISED BASE WILL REPLACE THE FIBERGLASS BASE AS SPECIFIED UNDER TxDOT'S TRAFFIC SIGNAL CONTROLLER CABINET BASE AND PAD (TS-CF-04) STANDARD. THE ALUMINUM BASE SHALL BE CONSTRUCTED OF .125 BRUSHED ALUMINUM SHEET. ALL CORNERS, EDGES, AND CUTOUTS SHALL HAVE ALL SHARP EDGES GROUND SMOOTH TO PREVENT HAND INJURIES. THE UNIT SHALL HAVE ALL SLAG AND WELDING FLASH REMOVED AND SHALL BE RINSED WITH ETCHING SOLUTION, PROVIDING A SMOOTH UNIFORM FINISH. SILVER SPRAY PAINT IS NOT AN ACCEPTABLE FINISH. THE UNIT SHALL BE CONSTRUCTED WITH A FIVE (5") FLANGE ON THE TOP AND BOTTOM.

8. THE TRAFFIC SIGNAL CABINET, RAISED BASE, AND NECESSARY HARDWARE INSTALLED ON THIS PROJECT WILL BE PAINTED TO MATCH EXISTING SIGNAL HARDWARE WITHIN THE TOWN OF ADDISON. CONTRACTOR TO COORDINATE WITH THE TOWN OF ADDISON FOR EXACT COLOR.

ITEM 682, VEHICLE AND PEDESTRIAN SIGNAL HEADS:

ALL SIGNAL HEADS FURNISHED BY THE CONTRACTOR SHALL BE OF THE SAME MANUFACTURER.

ALL SIGNAL HEAD ATTACHMENTS ON NEW TRAFFIC SIGNAL MAST ARM ASSEMBLIES THAT ARE FURNISHED BY THE CONTRACTOR SHALL BE DESIGNED SUCH THAT THE WIRING TO EACH SIGNAL HEAD SHALL PASS FROM THE MAST ARM THROUGH THE SIGNAL HEAD

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BRACING OR ATTACHMENT HARDWARE TO THE SIGNAL HEAD. NO EXPOSED CABLE OR WIRING WILL BE PERMITTED.

THE SIGNAL-TO-MAST ARM CONNECTION MUST ALLOW FOR ADJUSTMENT ABOUT THE HORIZONTAL AND VERTICAL AXIS. SIGNAL HEADS MOUNTED ON POLES AND MAST ARMS SHALL BE LEVEL AND PLUMB.

ALL NEWLY INSTALLED BACK PLATES SHALL BE FURNISHED WITH LOUVERS.

ALL NEWLY INSTALLED PEDESTRIAN AND VEHICLE SIGNAL HEADS WILL BE PAINTED TO MATCH EXISTING SIGNAL HARDWARE WITHIN THE TOWN OF ADDISON. CONTRACTOR TO COORDINATE WITH THE TOWN OF ADDISON FOR EXACT COLOR.

ITEM 684, TRAFFIC SIGNAL CABLE:

THE CONDUCTORS IN THE TRAFFIC SIGNAL CABLE SHALL BE STRANDED FOR THIS PROJECT. INDIVIDUAL CONDUCTORS SHALL BE NO. 12 AWG.

THE MULTICONDUCTOR SIGNAL CABLE SHOWN ON THE PLANS SHALL BE TERMINATED ON THE TERMINAL STRIP LOCATED IN THE ACCESS COMPARTMENT OF THE MAST ARM SIGNAL POLE. SPLICES IN THE CONDUCTORS FROM THE TERMINAL STRIP AT THE HAND HOLE TO THE SIGNAL HEADS WILL NOT BE PERMITTED IN THE POLE SHAFT OR IN THE MAST ARM.

A SEPARATE MULTICONDUCTOR CABLE (NO. 12 AWG) SHALL BE USED INSIDE MAST ARM SIGNAL AND PEDESTAL POLES FROM THE TERMINAL STRIP TO EACH SIGNAL HEAD AS FOLLOWS:

<u>HEAD TYPE:</u>	<u>CONDUCTOR SIZE:</u>
H3/V3	5 CNDR
H5LT	7 CNDR
143C	5 CNDR (EA)
152A	5 CNDR

EACH CABLE SHALL BE IDENTIFIED WITH PERMANENT MARKING LABELS (PANDUIT TYPE PLM STANDARD SINGLE MARKER TIE, THOMAS & BETTS TYPE 548M OR EQUIVALENT) AT EACH GROUND BOX, POLE BASE AND CONTROLLER.

A MINIMUM LENGTH OF 5 FEET FOR EACH CABLE SHALL BE LEFT IN EACH GROUND BOX AND EACH METAL POLE BASE. FOR EACH CONDUCTOR TERMINATING IN THE CONTROLLER CABINET, A MINIMUM OF 10 FEET LENGTH SHALL BE PROVIDED. ALL CONDUCTORS ARE TO BE CONTINUOUS WITHOUT SPLICE FROM TERMINAL POINT TO TERMINAL POINT, OR AS OTHERWISE APPROVED BY THE ENGINEER. NO ALUMINUM CONDUCTORS WILL BE PERMITTED ON THIS PROJECT. TRAFFIC SIGNAL CABLES SHALL BE RATED FOR 600VOLT OPERATION.

ITEM 686, TRAFFIC SIGNAL POLE ASSEMBLY (STEEL):

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ALL POLE SHAFTS FOR THIS PROJECT SHALL BE MARKED WITH THE IDENTIFICATION NUMBERS FROM THE SIGNAL LAYOUT SHEETS (POLE T-1, ETC.) TO FACILITATE ASSEMBLY OF THESE ITEMS IN THE FIELD. THE IDENTIFICATION NUMBERS SHALL BE MARKED ON THE POLE SHAFTS PRIOR TO THE SHIPMENT FROM THE FABRICATOR. THE POLE SHAFTS SHALL ALSO BE IDENTIFIED BY INTERSECTION.

POLES WILL REQUIRE NUTS ON THE TOP AND BOTTOM (DOUBLE NUTS) OF THE SHAFT BASE PLATE. ANCHOR BOLTS SHALL BE SET SO THAT TWO ARE IN TENSION AND TWO ARE IN COMPRESSION.

THE TRAFFIC SIGNAL POLE HEIGHTS AND LENGTHS SHOWN IN THE PLANS AND IN THE MATERIAL SUMMARY ARE TO BE USED FOR BIDDING PURPOSES ONLY.

ON EXISTING SIGNAL POLE ASSEMBLIES, THE CONTRACTOR WILL BE REQUIRED TO INSTALL NEW CONDUCTORS FROM THE TERMINAL STRIP OR TRANSFORMER BASE INSIDE THE POLE TO THE SIGNAL HEADS.

THE TRAFFIC SIGNAL STRAIN POLE AND NECESSARY HARDWARE INSTALLED ON THIS PROJECT WILL BE PAINTED TO MATCH EXISTING SIGNAL HARDWARE WITHIN THE TOWN OF ADDISON. CONTRACTOR TO COORDINATE WITH THE TOWN OF ADDISON FOR EXACT COLOR.

ITEM 6007, REMOVING TRAFFIC SIGNALS

ONLY REMOVE ITEMS IDENTIFIED IN THE PLANS. ALL REMOVED EQUIPMENT, WITH EXCEPTION TO GROUND BOXES, ELECTRICAL CONDUCTORS, AND TRAFFIC SIGNAL CABLE WILL BE SALVAGED AND DELIVERED TO THE TOWN OF ADDISON SERVICE CENTER. ITEMS INVOLVED IN THIS SPECIFICATION INCLUDE BUT NOT LIMITED TO PEDESTRIAN SIGNAL HEADS, VEHICLE SIGNAL HEADS, TRAFFIC SIGNAL CONTROLLERS, AND TRAFFIC SIGNAL CABINETS.

ITEM 6266, VIDEO IMAGING VEHICLE DETECTION SYSTEM

THE CONTRACTOR SHALL INSTALL AND MAKE FULLY OPERATIONAL THE VIDEO IMAGING VEHICLE DETECTION SYSTEM AND INTEGRATE INTO THE PROPOSED TRAFFIC CONTROL SYSTEM TO PROVIDE REMOTE CONFIGURATION OF THE SYSTEM. REMOTE CONFIGURATION WILL INCLUDE, AT A MINIMUM, COMMUNICATION WITH THE VIVDS SYSTEM IN ORDER TO CHANGE DETECTION ZONES, PROVIDE ALARMS WHEN THE SYSTEM FAILS, AND PROVIDE GENERAL MAINTENANCE FUNCTIONALITY. ANY SOFTWARE PACKAGES NEEDED TO PROVIDE REMOTE CONFIGURATION WILL BE FURNISHED AND INSTALLED ON THE TRAFFIC CONTROL SYSTEM SERVER/WORKSTATION. THE VIDEO IMAGING VEHICLE DETECTION SYSTEM WILL BE PROCURED BY THE TOWN OF ADDISON.

ITEM A9002, VIDEO SERVER

CONTRACTOR TO FURNISH A VIDEO SERVER MEETING THE REQUIREMENTS UNDER

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SPECIFICATION A9002. THIS VIDEO SERVER, AT A MINIMUM, MUST BE CAPABLE OF SENDING ALL VIDEO IMAGES FROM EACH VIVDS APPROACH CAMERA AT THE INTERSECTION BACK TO THE TRAFFIC CONTROL SYSTEM. THIS VIDEO SERVER MUST BE COMPATIBLE WITH THE TOWN'S EXISTING VIVDS SYSTEMS AS WELL AS THE SYSTEM BEING PROVIDED BY THE TOWN AS PART OF THIS PROJECT.

ITEM A9004, TRAFFIC SIGNAL CONTROLLER ASSEMBLY (TS-2)

THE TOWN OF ADDISON WILL FURNISH TRAFFIC SIGNAL CONTROLLERS AND TRAFFIC SIGNAL CABINETS TO THE CONTRACTOR FOR INSTALLATION AND TESTING. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND TESTING ALL EQUIPMENT LOCATED WITHIN THE TRAFFIC SIGNAL CABINET AND ANY EQUIPMENT AT THE INTERSECTION.

THE TRAFFIC SIGNAL CABINET AND NECESSARY HARDWARE INSTALLED ON THIS PROJECT WILL BE PAINTED TO MATCH EXISTING SIGNAL HARDWARE WITHIN THE TOWN OF ADDISON. CONTRACTOR TO COORDINATE WITH THE TOWN OF ADDISON FOR EXACT COLOR.

ITEM A9005, SYSTEM SUPPORT EQUIPMENT

FURNISH THE FOLLOWING ITEMS, MEETING THE SPECIFICATIONS IN THIS CONTRACT:

<u>DESCRIPTION</u>	<u>QUANTITY</u>
HARDENED ETHERNET SWITCH	2
VIDEO SERVER	2
SERIAL PORT SERVER	1
ATSI CONFLICT MONITOR TESTER MODEL #PCMT 2500	1
ATSI NEMA TS2 TYPE 1 CONTROLLER TEST BOX MODEL #920	1
ATSI DETECTOR TESTER MODEL #QC 330	1
ATSI BIU TESTER MODEL #BIUT800	1

THE FOLLOWING ITEMS WILL BE INCLUDED WITHIN THE TOWN OF ADDISON'S PROPRIETY PURCHASE AGREEMENT AND WILL BE FURNISHED BY THE TOWN OF ADDISON:

<u>DESCRIPTION</u>	<u>QUANTITY</u>
WIRELESS ETHERNET RADIO (AP)	2
WIRELESS ETHERNET RADIO (SU)	4
CLUSTER MANAGEMENT MODULE	1
VIVDS PROCESSOR SYSTEM	1
VIVDS CAMERA ASSEMBLY	4
VIVDS SET-UP SYSTEM	1
TRAFFIC SIGNAL CONTROLLER ASSEMBLY (TS-2)	3
GROUND MOUNTED CABINET (SIZE 6) (CONF. 3)	1
ALUMINUM RAISED CABINET BASE	1

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COMPUTER EQUIPMENT (LISTED UN DMS 10101)

1

ITEM A9006, SERIAL PORT SERVER

CONTRACTOR TO INSTALL, INTEGRATE, AND/OR TEST SERIAL PORT SERVERS AT LOCATIONS WHERE A SERIAL TO ETHERNET CONNECTION IS NEEDED FOR EXISTING TRAFFIC SIGNAL CONTROLLER ASSEMBLIES.

ITEM A9007, WIRELESS ETHERNET RADIO EQUIPMENT FOR TRAFFIC SIGNAL SYSTEM

THE TOWN WILL FURNISH WIRELESS ETHERNET RADIO EQUIPMENT, UNDER A SEPARATE CONTRACT AND PROVIDE TO THAT CONTRACTOR TO INSTALL AND MAKE FULLY OPERATIONAL TO SUPPORT THE PROPOSED TRAFFIC CONTROL SYSTEM. THE WIRELESS ETHERNET RADIO EQUIPMENT WILL BE FURNISHED BY THE TOWN OF ADDISON AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR CONDUCTING THE INSTALLATION WILL BE REQUIRED TO BE CERTIFIED BY THE MANUFACTURER AND PROVIDE CERTIFICATION DOCUMENTS TO THE TOWN FOR VERIFICATION. THE CONTRACTOR WILL INTEGRATE THE COMMUNICATIONS SYSTEM WITH THE TRAFFIC CONTROL SYSTEM SOFTWARE AND HARDWARE AS WELL AS THE LOCAL CONTROLLERS.

SUBMITTAL LITERATURE WILL BE PROVIDED FOR ALL NEW TRAFFIC SIGNAL AND COMMUNICATIONS EQUIPMENT FURNISHED BY THE CONTRACTOR PRIOR TO INSTALLATION.

THE CONTRACTOR WILL BE ADVISED OF A PRELIMINARY INVESTIGATION THAT HAS BEEN CONDUCTED AND THAT THE LINE-OF-SIGHT SHOULD EXIST BETWEEN THE MASTER RADIO LOCATION (ACCESS POINTS) AND THE OTHER INTERSECTIONS WITH SUBSCRIBER UNIT RADIOS. THE CONTRACTOR WILL CONDUCT THEIR OWN INVESTIGATION TO DETERMINE WHETHER ADDITIONAL APPARATUS, SUCH AS LONGER THAN STANDARD ANTENNA MASTS, REFLECTOR DISHES, OR REPEATER SUBSCRIBER UNIT RADIOS WILL BE REQUIRED AND SHALL INCLUDE THE COST OF FURNISHING AND INSTALLING ANY SUCH APPARATUS AS MAY BE REQUIRED TO PROVIDE A PROPERLY FUNCTIONING SYSTEM.

SUBSCRIBER UNIT RADIOS SHALL BE MOUNTED ON BY ANTENNA MASTS TO EXISTING SIGNAL POLES OR ON SIGNAL MAST ARMS. ANTENNA MASTS SHALL BE ATTACHED TO THE POLE USING PELCO "ASTRO-BRAC", OR EQUIVALENT TYPE ASSEMBLY. THE CONTRACTOR SHALL MAKE HIS INVESTIGATION TO DETERMINE THE APPROPRIATE LENGTH OF THE ANTENNA MAST.

THE MASTER COMMUNICATIONS ANTENNA (ACCESS POINTS) AS SHOWN IN THE PLANS SHALL BE LOCATED AT PRESTIGE CIRCLE ELEVATED TANK. THE ORIENTATION OF THE ACCESS POINTS WILL BE ESTABLISHED BY THE CONTRACTOR IN ORDER TO DISTRIBUTE BANDWIDTH EQUALLY ACROSS THE SYSTEM IN ORDER TO MAXIMIZE .

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SYSTEM THROUGHPUT. ACCESS POINT RADIOS MAY OVERLAP IN COVERAGE TO DISTRIBUTE BANDWIDTH AND THROUGHPUT NEEDS IN ORDER TO MAXIMIZE EFFICIENCY OF THE SYSTEM.

THE CONTRACTOR SHALL PROVIDE SEPARATE LIGHTNING PROTECTION (POLYPHASER IS-50NX-C2 OR EQUAL) FOR ALL WIRELESS BROADBAND RADIO EQUIPMENT, INCLUDING THE EQUIPMENT AT THE SERVICE CENTER. THIS SHALL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE TOWN SPECIAL SPECIFICATION, "WIRELESS EQUIPMENT FOR TRAFFIC SIGNAL SYSTEM".

ALL CATEGORY 5E ETHERNET CABLES SHALL BE SHEILDDED AND RATED FOR OUTDOOR USE AND CARRY POWER OVER ETHERNET TO WIRELESS EQUIPMENT. CATEGORY 5E CABLES WILL BE BELDEN 1300A OR EQUIVALENT.