A. ONE (1) SEICOR MODEL WIC012 WALL MOUNT INTERCONNECT CENTER WITH 12 "SC" COMPATIBLE SINGLE-MODE COUPLERS WITH CERAMIC INSERT SHALL BE INSTALLED ON THE RIGHT SIDE WALL OF THE CABINET. TWO (2) SINGLE-MODE DUPLEX PATCH CORDS WITH "SC" CONNECTORS AND COLOR-CODED BOOTS SHALL BE PROVIDED.

B. CONNECT THE ETHERNET PORT FROM THE CONTROLLER TO THE OPTICAL ETHERNET TRANSCEIVER INSTALLED USING PROPERLY RATED CAT5e CABLES AND RJ45 CONNECTORS.

16. THE CABINET SHALL BE FULLY WIRED TO ACCOMMODATE THE TRAFFIC SYSTEMS LLC SONEM 2000 EMERGENCY VEHICLE PREEMPTION EQUIPMENT INCLUDING A FULLY WIRED RACK AND TERMINATION PANEL. THE RACK SHALL BE WIRED TO ACCOMMODATE TWO (2) NEMA LOAD SWITCHES FOR CONFIRMATION LIGHT CONTROL. CONFIRMATION LIGHTS SHALL BE WIRED TO THE PREEMPT TERMINATION PANEL.

17. THE CABINET ASSEMBLY SHALL BE FULLY TESTED, WITH ALL COMPONENTS INSTALLED, AT THE FACTORY PRIOR TO SHIPMENT. THE CONTROLLER, MONITOR AND DETECTORS SHALL BE FULLY PROGRAMMED PER THE PLANS AND SPECIFICATIONS, BY A TRAINED FACTORY REPRESENTATIVE. THE COMPLETE AND FULLY PROGRAMMED CABINET ASSEMBLY SHALL BE FACTORY TESTED FOR A MINIMUM OF 24 HOURS, PRIOR TO SHIPMENT. THE SUPPLIER SHALL CERTIFY IN WRITING THAT THE TESTS HAVE BEEN SUCCESSFULLY PERFORMED PRIOR TO INSTALLATION IN THE FIELD. A REGISTERED PROFESSIONAL ENGINEER SHALL SUPERVISE ALL TESTING.

BASIS OF PAYMENT:

PAYMENT FOR ITEM 633 CONTROLLER, UNIT TYPE TS2/A2 WITH CABINET TYPE TS1, AS PER PLAN, SHALL BE MADE AT THE CONTRACT PRICE BID. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TESTING, CERTIFICATIONS AND OTHER INCIDENTALS NECESSARY TO FURNISH THE CONTROLLER AND WIRING COMPLETE, TESTED AND ACCEPTED.

ITEM 633 – CONTROLLER ITEM, MISC.: PREEMPTION PRIORITY CONTROL

THE PREEMPTION SHALL CONFORM TO O.D.O.T. SPECIFICATION 633 AND SHALL UTILIZE COMMUNICATIONS TO IDENTIFY THE PRESENCE OF AN EMERGENCY PRIORITY VEHICLE. IT SHALL CAUSE THE TRAFFIC SIGNAL CONTROLLER TO SELECT A PRE-PROGRAMMED, PREEMPTION PLAN THAT WILL DISPLAY AND HOLD THE DESIRED SIGNAL PHASE FOR THE DIRECTION OF THE EMERGENCY VEHICLE.

THE COMMUNICATIONS MEDIUM SHALL EMPLOY SIREN ACTIVATED DETECTION TECHNIQUES TO DETERMINE AND LOG THE PRESENCE OF THE EMERGENCY VEHICLE. THE SYSTEM SHALL DETECT THE PRESENCE OF THE VEHICLE THROUGH A SIREN LOCATED ON THE EMERGENCY VEHICLE. THE SYSTEM SHALL ACTIVATE THE PREEMPTION SEQUENCE BY APPLYING A SIGNAL TO ONE OF THE CONTROLLER'S PREEMPT DISCRETE INPUTS. THE SYSTEM SHALL BE COMPLETELY COMPATIBLE WITH THE NEMA SPECIFIED CONTROLLER.

THE EQUIPMENT SHALL BE RACK-MOUNTED AND EASILY REMOVABLE AND REPLACEABLE WITHIN THE CABINET. THE EQUIPMENT SHALL BE SUPPLIED COMPLETELY WIRED IN THE CONTROLLER CABINET AND TESTED.

THE SYSTEM SHALL BE CAPABLE OF PREEMPTING AND RECEIVING PRIORITY FOR EACH APPROACH TO THE INTERSECTION. IT SHALL BE POSSIBLE TO DETECT THE EMERGENCY VEHICLE UP TO 1200 FEET FROM THE INTERSECTION.

EACH INTERSECTION SHOWN IN THE PLANS SHALL BE SUPPLIED WITH THE FOLLOWING COMPONENTS:
15. PREEMPT DETECTORS
16. PREEMPTION DETECTOR CABLE
17. PREEMPT PHASE SELECTOR ASSEMBLY AND INTERFACE WIRING PANEL
4. CONFIRMATION LIGHT AND CABLE
5. PREEMPT POWER CABLES

THE PREEMPTION DETECTORS SHALL CONSIST OF FURNISHING AND INSTALLING A LIGHTWEIGHT, WEATHERPROOF, FOUR CHANNEL DIRECTIONAL PREEMPTION DETECTOR ASSEMBLY AS SHOWN IN THE PLANS. THE DETECTOR SHALL BE CAPABLE OF SENDING THE PROPER ELECTRICAL SIGNAL TO THE TRAFFIC SIGNAL CONTROLLER VIA THE PREEMPTION DETECTOR HOME RUN CABLE. DETECTORS SHALL BE SUPPLIED WITH MAST ARM MOUNTING HARDWARE. THE DETECTORS WILL FACE OUTBOUND (TO MINIMIZE FALSE CALLS FROM TURNING EMERGENCY VEHICLES) MOUNTED AS TO POINT DOWN THE CENTER OF ROADWAY. AT TEE INTERSECTIONS, THE LOCATION OF THE DETECTORS MAY BE MOUNTED INBOUND.

THE PREEMPTION DETECTOR CABLE SHALL CONSIST OF FURNISHING AND INSTALLING A HOME RUN CABLE FROM EACH DETECTOR TO THE PHASE SELECTORS IN THE CONTROLLER CABINETS. THE PREEMPTION DETECTOR CABLE SHALL CONFORM TO O.D.O.T. SPECIFICATION 632. THE CABLE SHALL BE APPROVED FOR BOTH OVERHEAD AND UNDERGROUND USE. THE JACKET SHALL WITHSTAND EXPOSURE TO SUNLIGHT AND ATMOSPHERIC TEMPERATURES AND STRESSES REASONABLY EXPECTED IN NORMAL INSTALLATIONS.

PREEMPTION PHASE SELECTIONS SHALL BE INSTALLED AND FURNISHED IN THE CONTROLLER CABINETS AND SHALL INCLUDE WIRING INTERFACE PANELS AND OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT PHASE SELECTIONS COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE LOCAL CONTROLLER CABINETS WHERE INDICATED IN THE PLANS. THE PHASE SELECTORS SHALL CONSIST OF A MODULE OR MODULES THAT WILL PROVIDE THE NECESSARY INPUTS TO THE CONTROLLER. PHASE SELECTORS SHALL BE SUPPLIED WITH SUFFICIENT QUANTITIES OF CHANNELS TO PROVIDE PREEMPTION FOR ALL APPROACHES TO THE INTERSECTION SEPARATELY. POWER SHALL BE OBTAINED FROM THE PHASE SELECTOR OR PHASE SELECTOR POWER SUPPLY AND NOT FROM THE LOCAL CONTROLLER TIMER. THE PHASE SELECTORS SHALL HAVE FRONT PANEL INDICATORS FOR ACTIVE PREEMPT CHANNEL STATUS. IT SHALL HAVE TEST SWITCHES TO ACTIVATE ALL PREEMPT CHANNELS.

PREEMPT CONFIRMATION LIGHTS SHALL BE FURNISHED AND INSTALLED INCLUDING MOUNTING HARDWARE, WIRE AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT CONFIRMATION LIGHT COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS.

A CONFIRMATION LIGHT SHALL BE SUPPLIED FOR EACH APPROACH TO INDICATE THAT THE EMERGENCY VEHICLE HAS ACHIEVED CONTROL OF THE TRAFFIC SIGNAL. THE CONFIRMATION LIGHT SHALL BE A VAPOR TIGHT ALUMINUM LIGHTING FIXTURE. IT SHALL BE SUPPLIED WITH A BLUE COLORED GLOBE, A 150 WATT PENDANT CONFIRMATION LAMP AND MOUNTING HARDWARE TO ATTACH TO THE TRAFFIC SIGNAL MAST ARM. A LOAD SWITCH IN THE TRAFFIC SIGNAL CONTROLLER SHALL POWER THE CONFIRMATION LIGHT.

THE CONTRACTOR SHALL THOROUGHLY CHECK OUT THE INSTALLED SYSTEM. AS A MINIMUM, THE CONTRACTOR SHALL VERIFY THAT ALL CONNECTIONS ARE PROPERLY MADE TO THE CONTROLLER CABINETS. THE CONTRACTOR SHALL CHECK THAT THE RANGE SETTING IS PROPER FOR EACH INTERSECTION. THE CONTRACTOR SHALL DETERMINE THAT ALL PHASE SELECTORS ARE SELECTING THE PROPER PHASE AND TIMING ACCURATELY. THE CONTRACTOR SHALL VERIFY THAT ALL VEHICLE EMITTERS ARE BEING PROPERLY DETECTED.

ALL CABLES, CONNECTORS, TERMINALS, AND INTERFACE RACKS TO PROVIDE A COMPLETE PRIORITY CONTROL SYSTEM SHALL BE INCIDENTAL TO THIS ITEM. PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH ITEM 633 – PREEMPTION, EMERGENCY, AS PER PLAN, IN PLACE AND FULLY OPERATIONAL AS SHOWN IN THE PLANS.

ITEM 633 CONTROLLER, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING AN INDUSTRY HARDENED, FULLY MANAGED ETHERNET SWITCH PROVIDING DUAL FIBER OPTICAL GIGABIT ETHERNET (1000BASEX) PORTS USING INDUSTRY STANDARD SC FIBER OPTIC CONNECTORS AND 8 FAST ETHERNET (10/100BASE TX) RJ45 COPPER PORTS. THE TRANSCEIVER SHALL OPERATE ON 120VAC, 10 WATTS AND SHALL MEET AND/OR EXCEED NEMA TS2 ENVIRONMENTAL REQUIREMENTS

THE FIBER OPTIC TRANSCEIVER SHALL INTERFACE TO SINGLE-MODE (8/125) FIBER OPTIC CABLE WITH AN OPTICAL WAVELENGTH OF 1310NM USING SC CONNECTORS. IT SHALL BE CAPABLE OF OPERATING OVER A DISTANCE OF AT LEAST 10KM WITH AN OPTICAL POWER BUDGET OF 17DB. THE TRANSCEIVER SHALL BE CAPABLE OF OPERATING IN A FAULT TOLERANT FIBER OPTIC LOOP.

PROVIDE A TRANSCEIVER THAT IS FULLY COMPLIANT WITH IEEE 802.3, 802.3U & 802.3Z. THE TRANSCEIVER SHALL PROVIDE FULL-DUPLEX OPERATION AND FLOW CONTROL.

PROVIDE A SIMPLE INTUITIVE USER INTERFACE FOR CONFIGURATION AND MONITORING OF THE TRANSCEIVER VIA STANDARD HTML GRAPHICAL WEB BROWSER, INCLUDING DETAILED ON-LINE HELP. EVENT LOGGING AND RECORDING SHALL BE INCLUDED. ALL SIGNIFICANT EVENTS SHALL BE STORED IN A NON-VOLATILE SYSTEM LOG.

THE OPTICAL ETHERNET TRANSCEIVER SHALL CONNECT TO ALL ETHERNET DEVICES IN THE CONTROLLER CABINET INCLUDING THE CONTROLLER (IF APPLICABLE), VIDEO DETECTION COMMUNICATIONS INTERFACE PANEL AND VIDEO SERVERS AND ANY OTHER ETHERNET DEVICES USING PROPERLY RATED CAT5E CABLES WITH RJ45 CONNECTORS.

PAYMENT FOR ITEM 633 CONTROLLER, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER, AS PER PLAN SHALL BE MADE AT THE CONTRACT PRICE BID. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TESTING, CERTIFICATIONS AND OTHER INCIDENTALS NECESSARY TO FURNISH COMPLETE IN PLACE, INCLUDING ALL CONNECTIONS MADE AND WIRING COMPLETE, TESTED AND ACCEPTED.

ITEM 633 – CONTROLLER ITEM MISC: PREEMPTION PRIORITY CONTROL, SONEM 2000 – ALT BID

ITEM 633 TESTING AND CERTIFICATION OF MALFUNCTION MANAGEMENT UNITS

PRIOR TO THE 10-DAY PERFORMANCE TEST PERIOD OF A NEW SOLID-STATE TRAFFIC SIGNAL CONTROLLER AND CONTINGENT UPON ACCEPTANCE BY THE CITY OF AKRON, THE CONTRACTOR SHALL TEST AND CERTIFY THE MALFUNCTION MANAGEMENT UNIT (MMU). CERTIFICATION TEST REPORTS OF THE MMU ARE TO BE INCLUDED IN THE CABINET PAPERWORK MOUNTED ON THE INSIDE OF THE CABINET DOOR. TESTING AND CERTIFICATION SHOULD BE COMPLETED NO MORE THAN TWO WEEKS PRIOR TO THE 10-DAY PERFORMANCE TEST. FACTORY CERTIFICATION IS NOT ACCEPTABLE.

ITEM 632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH CMS ITEM 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE STORED ON THE PROJECT FOR SALVAGE BY THE CITY OF AKRON, TRAFFIC ENGINEERING DIVISION IN ACCORDANCE WITH THE LISTING GIVEN HEREIN.

POLES ARE TO BE REUSED AS DIRECTED IN THE PLANS.

ALL SIGNAL HEADS AND HANGERS, VEHICLE AND PEDESTRIAN, AND ALL CONTROLS ARE TO BE STORED FOR SALVAGE, ALL OTHER ITEMS REMOVED ARE TO BE DISPOSED OF BY THE CONTRACTOR.

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED, THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

ITEM 632 PEDESTRIAN PUSH BUTTON, AS PER PLAN

IN ORDER TO CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA), THE REQUIREMENTS OF CMS ITEMS 632.09 AND 732.06 ARE MODIFIED AS FOLLOWS:

1. THE MAXIMUM FORCE REQUIRED TO OPERATE THE PUSH BUTTON SHALL BE 5 POUNDS PER FOOT (22.2 NEWTONS).
2. THE PUSH BUTTON SHALL BE RAISED OR FLUSH AND SHALL BE A MINIMUM OF 2 INCHES (50 MILLIMETERS) AT ITS SMALLEST DIMENSION.

DATE	REVISIONS
10-05	ADDED ETHERNET
08/2007	UPGRADE SPECIFICATIONS
09-11-08	UPGRADE SPECIFICATIONS

REDRAWN: RAC | CHECKED: NKS | DATE: 08-2007 | SCALE:

TRAFFIC CONTROLLER SPECIFICATION NOTES

CITY OF AKRON TYPICALS

CITY OF AKRON
DEPARTMENT OF PUBLIC SAFETY/SERVICE
TRAFFIC ENGINEERING DIVISION