GENERAL NOTES
TRAFFIC CONTROL

I. SCOPE OF WORK

A. GENERAL

IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT THE CONTRACTOR IS TO SUPPLY ALL LABOR, EQUIPMENT AND MATERIALS TO RESULT IN A COMPLETELY OPERATIONAL, MULTIPHASE TRAFFIC CONTROL SYSTEM.

B. LOCATIONS

THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE TRAFFIC SIGNAL SYSTEM INCLUDING SIGNS AND PAVEMENT MARKINGS AS PER PLAN FOR EACH OF THE FOLLOWING LOCATIONS

1. EAST 305 STREET AND LAKELAND BOULEVARD
2. EAST 305 STREET AND NORTH MARGINAL ROAD

C. GENERAL SPECIFICATIONS

THE SYSTEM SHALL INCLUDE A THREE (3) PHASE SEMI-TRAFFIC ACTUATED CONTROLLER AT THE EAST 305 STREET AND LAKELAND BOULEVARD LOCATION AND A FOUR (4) PHASE SEMI-TRAFFIC ACTUATED CONTROLLER AT THE EAST 305 STREET AND NORTH MARGINAL ROAD LOCATION. BOTH CONTROLLERS SHALL OPERATE AGAINST A BACKGROUND CYCLE SUPPLIED BY A THREE (3) DIAL BACKGROUND CYCLE COORDINATION UNIT EQUIPPED INITIALLY WITH TWO (2) DIALS AS PER PLAN.

D. GENERAL MATERIALS

ANY ITEMS OF LABOR, MATERIALS, AND EQUIPMENT REQUIRED, BUT NOT SHOWN AS A SEPARATE PAY ITEM IN THE PROPOSAL SHALL BE FURNISHED AND INSTALLED AS INCIDENTAL TO THE CONTRACT.

THE REFERENCE TO ANY NAME, MAKE AND MODEL NUMBER IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE AND IS TO INDICATE TO BIDDERS THE DESIGN THAT WILL BE ACCEPTABLE. BIDS ON OTHER NAMES, MAKES AND NUMBERS WILL BE CONSIDERED. BEFORE ANY EQUIPMENT IS ORDERED OR INSTALLATION OF A TRAFFIC SIGNAL SYSTEM IS BEGUN, A COMPLETE SCHEDULE OF MATERIALS AND EQUIPMENT SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER. THE SCHEDULE SHALL INCLUDE EIGHT (8) SETS OF CATALOG CUTS, DIAGRAMS, DRAWINGS, BROCHURES, DATA SHEETS, MANUFACTURER'S CERTIFICATES OF COMPLIANCE OR OTHER DESCRIPTIVE DATA AS MAY BE REQUIRED AND SHALL INCLUDE COMPLETE DESCRIPTIVE DATA ON THE SIGNALS, WIRING DIAGRAMS, COMPLETE CABLE DESCRIPTIONS, TEST DATA, MAKE AND CAPACITY OF ALL APPARATUS. THE CONTRACTOR SHALL IDENTIFY THE ITEM ON EACH SHEET AND SHALL MARK ALL PRINTS "RECORD DRAWING". ONE COPY WILL BE RETURNED MARKED "APPROVED", IF FOUND SATISFACTORY. IN THE EVENT ANY ITEMS OF MATERIALS OR EQUIPMENT CONTAINED IN THE SCHEDULE FAIL TO COMPLY WITH THE SPECIFICATION REQUIREMENTS, SUCH ITEMS WILL BE REJECTED.

ALL MATERIALS AND EQUIPMENT FURNISHED UNDER THESE SPECIFICATIONS SHALL BE NEW, FIRST QUALITY, OF THE LATEST DESIGN, AND FREE FROM DEFECTS AND POOR WORKMANSHIP.

ALL MAJOR ITEMS OF EQUIPMENT SUCH AS CONTROLLERS, SIGNALS, DETECTORS, POLES, SPECIFIC TYPES OF CABLES, ETC., SHALL BE OF THE SAME MANUFACTURE AND SAME TYPE IN ORDER TO ASSURE UNIFORMITY, INTERCHANGEABILITY OF COMPONENTS, SINGLE RESPONSIBILITY AND MOST SATISFACTORY SERVICE.

E. SIGNAL SPECIFICATIONS

1. INSTALLATION--GENERAL

A. THE CONTRACTOR SHALL CONFORM TO THE NATIONAL ELECTRIC CODE AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS IN PERFORMING CONTRACT WORK. HE SHALL OBSERVE THE REGULATIONS OF UTILITIES IN THE AREA OF THEIR EQUIPMENT AND EXERCISE DUE CAUTION IN CONSTRUCTION WORK NEAR THEIR FACILITIES.

B. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITIES HAVING INSTALLATIONS IN THE AREA TO SECURE AND AFFIRM DATA ON UTILITY LOCATIONS. THESE AGENCIES AND UTILITIES SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO ANY EXCAVATION IN AREAS CONTAINING THEIR INSTALLATIONS.

C. THE CONTRACTOR SHALL INSTALL THE POWER TO THE CONTROLLER CABINET AND PROVIDE 120/240 VOLTS, 30 AMP SERVICE AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING AND PROVIDING THE POWER IN THE MANNER SHOWN IN THE PLANS THROUGH THE ILLUMINATING COMPANY. THE COST OF OBTAINING THE POWER SHALL BE INCLUDED IN THE BID PRICE FOR "POWER CABLE WITH ACCESSORIES".

D. TRAFFIC SIGNAL CABLE SHALL ENTER THE CONTROLLER CABINETS AND RUN CONTINUOUSLY FROM SIGNAL HEAD TO SIGNAL HEAD WITHOUT SPLICES. PRESSURE-TYPE CONNECTORS WILL BE USED TO MAKE CONNECTIONS INSIDE THE CONTROLLER CABINET. CABLE ENTRANCES SHALL BE PROTECTED BY A SUITABLE WEATHER-HEAD AND DRIP LOOP WHEN ENTERING TRAFFIC FIXTURES.

E. ALL WIRES IN THE CONTROLLER CABINET SHALL BE LABELED, NEATLY LASHED AND FASTENED TO THE CABINET WITH CLAMPS; THIS SHALL INCLUDE WIRES TO THE DETECTORS, SIGNAL HEADS, PEDESTRIAN UNITS, INTERCONNECT EQUIPMENT AND ALL MISCELLANEOUS EQUIPMENT.

F. ALL SPLICES IN PULL BOXES SHALL BE OF THE WEATHER-PROOF POURED TYPE.

G. ALL CURRENT CARRYING WIRES SHALL BE COPPER UNLESS OTHERWISE SPECIFIED.

H. NO SPLICES SHALL BE PERMITTED IN ANY ELECTRICAL CONDUCTOR WITH THE EXCEPTION OF DETECTOR LOOP WIRE TO DETECTOR LEAD-IN CABLE SPLICES IN PULL BOXES.

2. EQUIPMENT--GENERAL

ALL EQUIPMENT SHALL BE FURNISHED WITH TWO WIRING DIAGRAMS, SERVICE MANUAL AND INSTRUCTIONS ON INSTALLATION AND MAINTENANCE.

614 MAINTENANCE OF EXISTING SIGNAL INSTALLATION

THE EXISTING TRAFFIC SIGNAL(S) SHALL BE KEPT IN OPERATION UNTIL THE NEW SIGNAL IS OPERATIONAL. AT THIS TIME, THE EXISTING SIGNAL MAY BE TURNED OFF. WHEN NOT IN OPERATION, SIGNAL HEADS SHALL BE BAGGED.

PAYMENT WILL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "ITEM 614, MAINTENANCE OF TRAFFIC" AND WILL INCLUDE ALL TEMPORARY POLES, SIGNALS, BAGGING, CABLES, SPAN WIRE AND ACCESSORIES, AND ALL LABOR AND EQUIPMENT NEEDED TO RELOCATE, IF NECESSARY, AND MAINTAIN THE SIGNALS TO PROPERLY CONTROL INTERSECTION TRAFFIC.

202 REMOVAL OF EXISTING SIGNAL INSTALLATION

IN ACCORDANCE WITH STANDARD SPECIFICATION 202, THIS ITEM SHALL INCLUDE THE REMOVAL OF THE SIGNAL HEADS, CONTROLLER, STRAIN POLES, POLE FOUNDATIONS, CABLES, MESSENGER WIRES, AND ALL OTHER PORTIONS OF THE EXISTING TRAFFIC SIGNAL.

PAYMENT FOR "ITEM 202, REMOVAL OF EXISTING SIGNAL INSTALLATION" WILL BE MADE AT THE UNIT PRICE BID PER EACH INTERSECTION WHEREIN EXISTING SIGNAL EQUIPMENT IS TO BE REMOVED.

TO ASSURE MAINTENANCE OF ADEQUATE TRAFFIC CONTROL AT ALL TIMES, NO EQUIPMENT IS TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

625 LOOP DETECTOR AMPLIFIER

THE LOOP DETECTOR AMPLIFIER IS AN ELECTRONIC DEVICE THAT WILL DETECT THE PRESENCE OR MOTION OF A MASS OF METAL. THIS DETECTION IS ACCOMPLISHED BY THE PASSAGE OF A CAR OVER A WIRE LOOP IMBEDDED IN THE ROADWAY.

THE AMPLIFIER SHALL CONFORM TO THE FOLLOWING:

1. THE DETECTOR SHALL OPERATE SATISFACTORY AT ANY TEMPERATURE BETWEEN -30° F. AND +165° F.
2. THE OPERATING VOLTAGE SHALL BE 115 VOLT, 60 CYCLE.
3. THE INTERNAL CIRCUITRY SHALL BE INCORPORATED INTO PRINTED CIRCUIT BOARD ASSEMBLIES.
4. THE DETECTOR DESIGN SHALL INCLUDE A FIXED-FREQUENCY CRYSTAL WHICH WILL GENERATE A SINE WAVE FORM OF SIGNAL.
5. NO EXTERNAL EQUIPMENT SHALL BE NECESSARY FOR INSTALLATION, TUNING OR SENSITIVITY ADJUSTMENTS.
6. VARIOUS TYPES OF OUTPUTS SHALL BE AVAILABLE INCLUDING PULSE AND PRESENCE. THESE OUTPUTS SHALL BE AVAILABLE BY SWITCHING FROM ONE TO THE OTHER WITHOUT CHANGING ANY INTERNAL PARTS.
7. ALL TRANSISTORS, CRYSTALS, AND RELAYS SHALL BE OF THE PLUG-IN TYPE TO FACILITATE REPLACEMENT.
8. THE AMPLIFIER AND POWER SUPPLY SHALL BE CAPABLE OF DRIVING SEVERAL LOOPS FROM THE ONE SOURCE. THE AMPLIFIER SHALL BE CAPABLE OF DETECTING VEHICLES IN A TOTAL AREA OF UP TO 400 SQ. FT. AND SHALL PROPERLY FUNCTION WITH LEAD-IN LENGTHS TOTALING UP TO 750 FEET.

THE ABOVE TYPES OF LOOP DETECTOR AMPLIFIERS AND POWER SUPPLY SHALL BE AUTOMATIC SIGNAL NO. LD-1, OR LD-2 DECATUR NO. L.S.M.H. OR AUTOMATIC CONTROL EQUIPMENT MODEL LD-101M OR APPROVED EQUAL.

PAYMENT FOR ITEM 625 "LOOP DETECTOR AMPLIFIER" WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH DETECTOR AMPLIFIER, COMPLETELY WIRED AND INSTALLED IN CONTROLLER CABINET.

625 LOOP DETECTOR WIRE AND LEAD-IN CABLE

LOOP DETECTOR WIRE SHALL CONSIST OF SINGLE CONDUCTOR, INSULATED, NO. 14 AWG (OR RHW TYPE) 600 V. STRANDED COPPER WIRE, AND BE INSTALLED IN ACCORDANCE WITH THE TYPICAL LOOP DETECTOR DETAIL. EACH WIRE LOOP SHALL CONSIST OF THE NUMBER OF TURNS AS REQUIRED BY THE MANUFACTURER OF THE LOOP DETECTOR. THE LOOP WIRE SHALL RUN CONTINUOUSLY TO THE ADJACENT PULL BOX WHERE IT SHALL BE SPLICED TO THE LOOP DETECTOR LEAD-IN CABLE.

PAYMENT FOR ITEM 625 "LOOP DETECTOR WIRE" WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT IN PLACE FOR #14 DETECTOR WIRE AND SHALL INCLUDE DETECTOR WIRE, INSTALLATION, JACKET, CONDUIT FROM ROADWAY EDGE TO PULLBOX SPLICE AND ALL INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION. THE ESTIMATED QUANTITIES OF LOOP DETECTOR WIRE SHOWN ON THE PLANS IS BASED ON AN ANTICIPATED REQUIRED NUMBER OF TURNS. PAYMENT WILL BE BASED ON THE ACTUAL LINEAL FEET INSTALLED AS THIS IS CONTROLLED BY THE DETECTOR MANUFACTURER'S REQUIREMENTS FOR LOOPS.

PAYMENT FOR ITEM 625 "LOOP DETECTOR LEAD-IN CABLE" WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT IN PLACE FOR #14 AWG 2 COND. POLYETHYLENE INSULATED, TWISTED PAIR, SHIELDED AND JACKETED CABLE, INCLUDING SOLDERED WATER-PROOF SPLICE.

625 LOOP DETECTOR PAVEMENT CUTTING

LOOP DETECTOR PAVEMENT CUTTING SHALL CONSIST OF A 1-1/4 INCH OR 2 INCH X 1/4 INCH WIDE SAW CUT IN ACCORDANCE WITH TYPICAL LOOP DETECTOR INSTALLATION DETAIL. THE SAW CUT SHALL BE FILLED WITH A JOINT SEALER AFTER THE WIRE HAS BEEN INSTALLED. THE JOINT SEALER SHALL BE AS SPECIFIED ON SHEET 55.