

# TRAFFIC CONTROL NOTES

CALC. BY: _____	LAKE COUNTY LAK-20-2.70	OHIO
DATE: _____		FHWA REGION <b>5</b>
CHKD. BY: _____		FEDERAL PROJECT
DATE: _____		

4  
98

THE CONTRACTOR MAY CLOSE APPROACHES AT THE INTERSECTION FOR A PERIOD NOT TO EXCEED 10 MINUTES FOR THE PURPOSE OF ERECTING SIGNAL SUPPORTS BY THE USE OF FLAGGERS OR OFF DUTY POLICE OFFICER(S) WITH PATROL CAR(S). CLOSURES SHALL ONLY BE PERMITTED BETWEEN THE HOURS OF 10:00 AM AND 3:00 PM.

IF IT IS NECESSARY TO STOP ALL TRAFFIC FOR THE ERECTION OF SIGNAL SUPPORTS, THE WORK SHALL BE SO ARRANGED THAT THE STOPPAGE IS LESS THAN TEN (10) MINUTES IN ANY ONE (1) THIRTY (30) MINUTE PERIOD. NO STOPPAGE OF TRAFFIC SHALL OCCUR FOR THE ERECTION OF OVERHEAD SUPPORTS, CUTTING AND INSTALLING LOOP DETECTOR WIRE OR HANGING SPAN WIRE AND SIGNAL HEADS WITHOUT A LAW ENFORCEMENT OFFICER WITH PATROL CAR AT THE SITE FOR ASSISTANCE IN CONTROLLING TRAFFIC. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE SERVICES AND SCHEDULING OF SAID LAW ENFORCEMENT OFFICER WITH PATROL CAR. COST OF ALL THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614, MAINTAINING TRAFFIC.

## 632 VEHICULAR SIGNAL HEAD, 3, 4 OR 5 SECTION, 12" LENS, 1 OR 2-WAY, AS PER PLAN

SECTION 732.01 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF INJECTION MOLDED, UV STABILIZED, POLYCARBONATE PLASTIC AND MEET ITS SPECIFICATIONS.
- PLASTIC LENSES SHALL BE USED.
- PIPE, SPACERS, AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
- PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
- SIGNAL HEADS SHALL BE OF RIGID MOUNT TYPE.

## 632 LOOP DETECTOR UNITS, BY TYPE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.07 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES:

THE OUTPUT DEVICE SHALL BE A RELAY, AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS.

THE LOOP DETECTOR UNITS FOR NON-SYSTEM LOOPS SHALL HAVE TWO (2) OUTPUTS. ONE OUTPUT TO BE PRESENCE AND THE OTHER TO BE PULSE TO ENABLE ACCURATE COUNTING OF VEHICLES ENTERING THE LOOP EVEN WHEN PRECEDING VEHICLES REMAIN PRESENT OVER THE LOOP. THE COUNT OUTPUT SHALL BE WIRED TO THE SYSTEM INPUT OF THE TRANSCEIVER MODULE. THE PRESENCE OUTPUT SHALL BE WIRED TO THE CONTROLLER'S DETECTOR INPUT AND THE TRANSCEIVER MODULE'S GRAPHICS DETECTOR INPUT.

THE UNIT SHALL BE SELF TUNING.

THE UNITS ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENT WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN THE FINAL PARAGRAPH OF 732.07.

EACH AMPLIFIER SHALL BE NUMBERED TO CORRESPOND WITH ITS LOOP NUMBER. THE LOOP NUMBERS ARE SHOWN ON EACH PLAN SHEET.

## 632 INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PAIR NO. 19 AWG, SOLID, REA (PE-38), AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING INTERCONNECT CABLE AS FOLLOWS:

- INTEGRAL MESSENGER TYPE INTERCONNECT CABLE MEETING THE REQUIREMENTS OF 732.19 AND REA (PE-38). UNDER THIS METHOD ANY SECTION OF CABLE SHOWN IN THE PLANS TO BE CONTAINED IN CONTROLLERS, POLES, CONDUITS OR SUPPORTED ON MESSENGER WIRE INSTALLED FOR OTHER PURPOSES SHALL HAVE THE SUPPORTING MESSENGER AND JACKET WEB NEATLY REMOVED BY THE USE OF A TOOL SPECIFICALLY DESIGNED AND SIZED FOR THIS PURPOSE. DEVIATIONS FROM THE CABLE ROUTING SHOWN IN THE PLAN, FOR THE SOLE PURPOSE OF REDUCING THE AMOUNT OF MESSENGER TO BE REMOVED, WILL NOT BE PERMITTED. THE CABLE SHALL BE INSTALLED WITH APPROXIMATELY ONE TWIST FOR EACH 15 FEET OF SPAN LENGTH.

THE NUMBER OF SPLICE LOCATIONS SHALL BE KEPT TO A MINIMUM.

- PRUNING OF TREES IN ACCORDANCE WITH LA-1 TO PREVENT CONTACT WITH INTERCONNECT CABLE SHALL BE INCIDENTAL TO THE COST OF THE BID ITEM.

MEASUREMENT SHALL BE BASED UPON THE NUMBER OF LINEAR FEET "INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PAIR NO. 19 AWG, SOLID, REA (PE-38), AS PER PLAN" IN PLACE IN ACCORDANCE WITH THE METHOD DESCRIBED IN 632.28.

## 632 SIGNAL SUPPORT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.11, SIGNAL SUPPORTS SHALL HAVE THE FOLLOWING REQUIREMENTS:

THE SUPPORTS SHALL BE USED IN THE CITY OF WILLOUGHBY HISTORICAL DISTRICT AT THE FOLLOWING LOCATIONS:

- ERIE AND VINE/MENTOR
- ERIE AND SECOND/GLEN
- ERIE, EUCLID, SPAULDING AND RIVER
- EUCLID AND PARK/WILSON

THE SUPPORTS SHALL BE MODEL 50608 AS MANUFACTURED BY UNION METAL CORPORATION, CANTON, OHIO. THE SUPPORTS SHALL HAVE THE INTERIOR AIR SPRAYED WITH A RUST INHIBITIVE WAX BASE COATING. THE OUTSIDE SHALL BE SANDBLASTED TO SSPC-SP6 COMMERCIAL BLAST AND PRIMERED WITH TILE CLAD II HI-BUILD PRIMER B62 N71/B60V70 AT 3 TO 4 MILS DRY FILM. THE OUTSIDE SHALL HAVE 1 COAT OF POLANE POLYURETHANE ENAMEL 1 TO 2 MILS OF FEDERAL BLACK COLOR NUMBER 17038 APPLIED.

THE POLE SHALL CONSIST OF A SHAFT FABRICATED FROM A MINIMUM OF 7 GAUGE (.179 IN.) HOT ROLLED COMMERCIAL STEEL. THE SHAFT SHALL BE COLD ROLLED OVER A HARDENED STEEL MANDREL USING HYDRAULIC PRESSURE TO PROVIDE NO EXTERNALLY VISIBLE LONGITUDINAL WELDS. THE POLE SHALL MEET THE CHEMICAL AND PHYSICAL PROPERTIES OF ASTM-A595 GRADE A WITH A 55,000 PSI MINIMUM YIELD. THE CROSS SECTION OF THE SHAFT SHALL HAVE SIXTEEN (16) EQUALLY SPACED CRISP FLUTES WITH THE RADIUS OF THE FLUTE'S CREST NOT TO EXCEED THE THICKNESS OF THE MATERIAL. THE SHAFT SHALL BE ONE PIECE CONSTRUCTION WITH A CONTINUOUS TAPER OF 0.14 INCHES PER FOOT.

THE MAST ARM SHALL CONSIST OF A TAPERED STEEL SHAFT, FABRICATED FROM A MINIMUM 1 1/2 GAUGE (.120 IN.) HOT ROLLED COMMERCIAL STEEL. THE CROSS SECTION OF THE ARM SHALL HAVE EIGHT (8) EQUALLY SPACED FLUTES. IT SHALL HAVE A TAPER OF 0.14 INCHES PER FOOT AND MEET THE CHEMICAL AND PHYSICAL PROPERTIES OF ASTM-A595 GRADE A WITH A 55,000 PSI MINIMUM YIELD. ARM DIMENSIONS SHALL BE DESIGNED IN ACCORDANCE WITH 90 MPH AASHTO REQUIREMENTS. MAST ARM SHALL BE MONOCURVE FLANGE PLATE MOUNTED WITH A 60 INCH RISE AND SHALL INCLUDE A STEEL ARM PLATE WITH FOUR (4) CONNECTING BOLTS CONFORMING TO THE REQUIREMENTS OF ASTM-A325.

THE SUPPORTS SHALL INCLUDE AN ORNAMENTAL BASE ASSEMBLY EQUAL TO SERIES 230 MANUFACTURED BY UNION METAL CORPORATION, CANTON, OHIO. THE BASE SHALL BE AN ALUMINUM TWO PIECE SPLIT CLAM SHELL WITH TWO (2) REMOVABLE DOORS AT 180 DEGREES. THE BASE SHALL BE 45 INCHES IN HEIGHT AND 30 INCHES IN DIAMETER AT THE BASE.

ANCHOR BOLTS SHALL BE A MINIMUM OF FOUR (4) WITH DOUBLE HEX NUTS AND WASHERS. NUTS, WASHERS AND THREADED AREAS OF ANCHOR BOLTS SHALL BE HOT-DIPPED GALVANIZED TO ASTM-A153. ANCHOR BOLTS SHALL HAVE A 55,000 PSI MINIMUM YIELD STRENGTH.

## 632 PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.15, PEDESTALS SHALL HAVE THE FOLLOWING REQUIREMENTS:

THE PEDESTALS SHALL BE INSTALLED IN THE LOCATIONS SHOWN IN THE PLANS AND SHALL MEET ALL OF THE MATERIAL AND COATING REQUIREMENTS FOR ITEM 632, SIGNAL SUPPORT, AS PER PLAN AS STATED ABOVE.

## 632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, PULL BOXES, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH 632.25 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE DELIVERED AND UNLOADED AT THE CITY TRAFFIC SHOP LOCATED AT 37450 N. INDUSTRIAL PARKWAY IN ACCORDANCE WITH THE LISTING GIVEN ON SHEET 7.

## 633 CONTROLLER, MASTER, TRAFFIC RESPONSIVE AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A SOLID-STATE DIGITAL MICROPROCESSOR TYPE TRAFFIC RESPONSIVE MASTER CONTROLLER WITH MENU DRIVEN PROMPTS, INTERNAL TBC, TELEMETRY UNIT, IN THE LOCAL CONTROLLER CABINET, AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE MASTER COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL ALSO INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE LOCAL CONTROLLER CABINETS WHERE INDICATED IN THE PLANS.

THE MASTER CONTROLLER SHALL CONFORM TO O.D.O.T. SPECIFICATION 633 AND SHALL HAVE THE FOLLOWING FEATURES:

- IT SHALL GENERATE SYSTEM PATTERN COMMANDS TO LOCAL INTERSECTION CONTROLLERS WITHIN ITS CONTROL AREA IN RESPONSE TO PREVAILING TRAFFIC CONDITIONS AS INDICATED BY SAMPLING SENSORS STRATEGICALLY PLACED IN THE CONTROL AREA. THE MASTER SHALL ALSO ALLOW PRE-PROGRAMMED TIME OF DAY SELECTION OF PATTERNS.
- IT SHALL MONITOR THE OPERATION OF THE LOCAL INTERSECTION CONTROLLERS AND SHALL INITIATE FAILURE REPORTS IF MALFUNCTIONS ARE DETECTED. THE MASTER SHALL GENERATE SYSTEM OPERATION STATUS REPORTS FOR PRINTING AT THE CENTRAL OFFICE MONITOR.
- IT SHALL BE CAPABLE OF OPERATING IN ANY OF THE FOLLOWING MODES: