

TRAFFIC SIGNAL SYSTEM NOTES

A. NEW SIGNAL EQUIPMENT

1. ALL SIGNAL HEADS SHALL BE 12" POLYCARBONATE. THE SIGNAL HEADS SHALL HAVE FLAT BLACK HOUSINGS AND VISORS.
2. ALL SIGNAL HEADS SHALL HAVE FLAT BLACK LOUVERED BACKPLATES WITH 2" RETROREFLECTIVE BORDERS.
3. THE CONTROLLER SHALL BE AN ECONOLITE COBALT (NEMA TS2 TYPE 2) IN A NEMA P44 TRAFFIC CONTROL CABINET WITH A 15-INCH BASE EXTENSION INSTALLED AT THE LOCATION SHOWN ON THE PLANS. THE TRAFFIC CONTROL CABINET SHALL BE ORIENTED SUCH THAT THE DOOR DOES NOT FACE THE ROADWAY.
4. ALL SIGNAL HEADS SHALL HAVE RED, YELLOW AND GREEN L.E.D. SIGNALS WITH A VISIBLE BEAM SPREAD OF 80 DEGREES OFF AXIS.
5. ALL TRAFFIC SIGNAL EQUIPMENT SHALL BE PAINTED FLAT BLACK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
6. ALL TRAFFIC SIGNAL EQUIPMENT AND MAST ARM MOUNTED SIGNS SHALL HAVE SAFETY CABLES.
7. A DISCONNECT BREAKER FOR EACH CIRCUIT SHALL BE INSTALLED IN A RAINPROOF (NEMA 3R), LOCKED CABINET ON A STANCHION NEXT TO OR BELOW THE METER SOCKET.

B. TRAFFIC SIGNAL OPERATIONS

1. SWITCH-OVER TO THE INSTALLED TRAFFIC SIGNAL SYSTEM SHALL OCCUR ONLY DURING OFF PEAK TRAFFIC OPERATING HOURS (9:00AM - 4:00PM). UNIFORMED TRAFFIC OFFICERS SHALL CONTROL TRAFFIC DURING THE SWITCH-OVER.
2. ALL SIGNALS SHALL DWELL ON VT ROUTE 103 UNLESS OTHERWISE NOTED.
3. THE VT ROUTE 103 THRU PHASE SHALL BE USED FOR THE START-UP PHASE FOLLOWING FLASHING OPERATION.
4. SIGNAL TIMINGS SHOWN ON THE PLANS MAY REQUIRE FINE-TUNING IN THE FIELD BASED ON TRAFFIC OBSERVATION AND/OR ADDITIONAL FIELD STUDIES.

C. VEHICLE DETECTION

1. STOP BAR AND ADVANCE VEHICLE DETECTOR LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN ACCORDANCE WITH THE MANUFACTURER'S GUIDANCE FOR THE TYPE OF DETECTOR SUPPLIED. THE CONTRACTOR SHALL SUBMIT PROPOSED MOUNTING LOCATIONS AND DOCUMENTATION OF CONFORMANCE WITH THE MANUFACTURER'S GUIDANCE TO THE ENGINEER.
2. STOP BAR VEHICLE DETECTION ZONES SHALL EXTEND FIVE FEET PAST THE FINAL, PERMANENT STOP BAR.
3. THERE SHALL BE NO WIRING SPLICES BETWEEN THE VEHICLE DETECTORS AND THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT.
4. THE NEW STOP BAR DETECTION SYSTEM SHALL BE A WAVETRONIX SMARTSENSOR MATRIX.
5. THE NEW ADVANCE DETECTION SYSTEM SHALL BE A WAVETRONIX SMARTSENSOR ADVANCE.
6. SEE THE PLANS AND/OR THE SPECIAL PROVISIONS FOR A DETAILED LIST OF EQUIPMENT.

D. MAST ARM POLE FOUNDATIONS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOUNDATION DESIGN. FOUNDATIONS SHALL BE DESIGNED IN ACCORDANCE WITH THE MREI 10-01 GUIDELINES. IN ADDITION TO FABRICATION DRAWINGS, THE BORING LOGS, DESIGN CRITERIA, AND DESIGN CALCULATIONS SHALL BE SUBMITTED AS WORKING DRAWINGS IN ACCORDANCE WITH SECTION 105.03. ADDITIONAL REQUIREMENTS CAN BE FOUND IN THE TRAFFIC SIGNAL GENERAL NOTES IN THIS PLAN SET.

E. JUNCTION BOXES

1. THE LOGO ON JUNCTION BOX COVERS SHALL BE "TRAFFIC SIGNAL."

F. TRAFFIC SIGNAL CONDUIT

1. ALL TRAFFIC SIGNAL CONDUIT SHALL BE SCHEDULE 80 PVC.
2. WHEN CONDUIT IS PLACED BELOW THE ROADWAY OR ACROSS SIDE ROADS, IT SHALL BE PLACED IN A STEEL OR HDPE SLEEVE, SIZE SHOWN ON THE PLANS.
3. ALL UNUSED CONDUIT SHALL BE FILLED WITH STEEL WOOL PRIOR TO BEING CAPPED.
4. ALL TRAFFIC SIGNAL CONDUIT WORK SHALL BE PERFORMED IN ACCORDANCE WITH VTRANS "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2011, SECTION 678.

G. COMMUNICATIONS

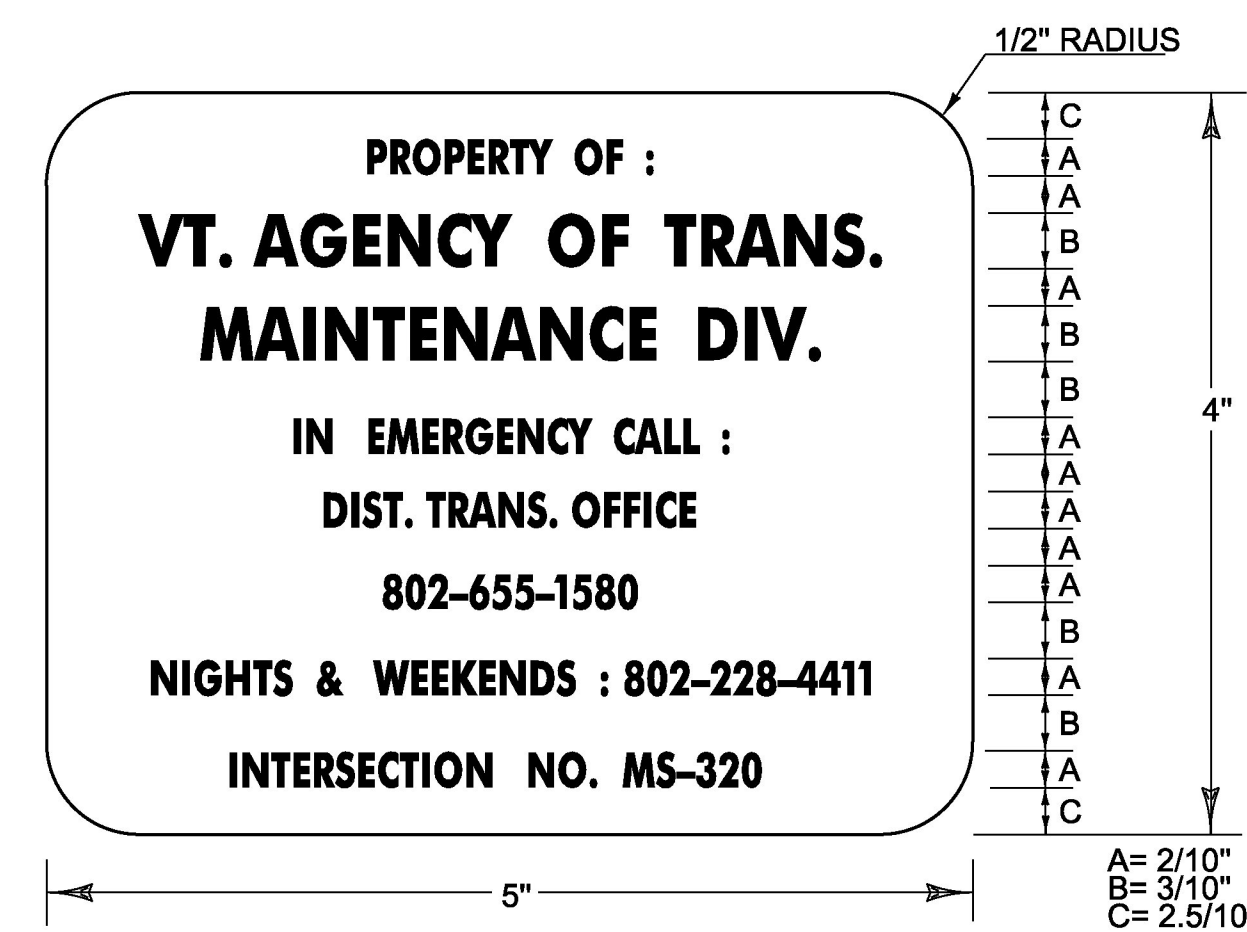
1. THE CONTRACTOR SHALL CONTACT THE VTRANS TRAFFIC SIGNAL OPERATIONS ENGINEER, DEREK LYMAN (802-249-5079) TO DETERMINE WHICH TELECOMMUNICATIONS SERVICE PROVIDER TO CONTACT TO ESTABLISH A TELECOMMUNICATION DROP FOR THE TRAFFIC SIGNAL SYSTEM.
2. THE CONTRACTOR SHALL COORDINATE WITH THE VTRANS INFORMATION TECHNOLOGY SECTION TO SET UP AN ACCOUNT WITH THE PREFERRED TELECOMMUNICATIONS PROVIDER FOR BROADBAND COMMUNICATIONS. JIM WOOD (802-828-2739) OF THE VTRANS INFORMATION TECHNOLOGY SECTION TO SUPPLY AND CONFIGURE ROUTER FOR INSTALLATION AFTER 30 DAY TEST PERIOD HAS CONCLUDED AND THE AGENCY HAS TAKEN OWNERSHIP OF THE TRAFFIC SIGNAL SYSTEM.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WIRING THE BROADBAND CONNECTION INTO THE CONTROLLER CABINET FROM THE NEAREST POSSIBLE SOURCE OF THE SELECTED UTILITY TRANSMISSION.

H. GENERAL

1. A UNIFORMED TRAFFIC OFFICER WITH A BLUE LIGHT SHALL BE PRESENT DURING ALL LANE CLOSURES.
2. THE CONTRACTOR SHALL ACQUIRE ALL THE NECESSARY PERMITS AND MAKE ALL NECESSARY ARRANGEMENTS WITH THE UTILITY COMPANY TO PROVIDE A PERMANENT POWER SUPPLY TO THE TRAFFIC SIGNAL EQUIPMENT, IF APPLICABLE. THE ROUTING OF POWER TO THE INTERSECTION SHALL BE SUCH THAT THE AGENCY OF TRANSPORTATION HAS FULL RESPONSIBILITY FROM THE TRANSFORMER THROUGH THE SIGNAL SYSTEM. NO INTERVENING OWNERSHIP/RESPONSIBILITY SHALL BE ALLOWED.

TRAFFIC CONTROL NOTES FOR TRAFFIC SIGNAL SYSTEM WORK

1. THE FOLLOWING NOTES APPLY TO TRAFFIC CONTROL NECESSARY FOR THE INSTALLATION OR MODIFICATION OF THE TRAFFIC SIGNALS ONLY. FOR OVERALL PROJECT TRAFFIC CONTROL MANAGEMENT REQUIREMENTS REFER TO THE TRAFFIC CONTROL PLANS AND SECTION 641 OF VTRANS "STANDARD SPECIFICATIONS FOR CONSTRUCTION" DATED 2011.
2. DURING CONSTRUCTION, TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON US ROUTE 103. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT NIGHT, ON WEEKENDS AND HOLIDAYS. DURING PEAK TRAFFIC AND DURING CONSTRUCTION. AT THE DISCRETION OF THE ENGINEER, UNIFORMED TRAFFIC OFFICERS SHALL DIRECT TRAFFIC, WHENEVER REQUIRED.
3. TRAFFIC CONTROL SIGNING AND CHANNELIZING DEVICES SHALL BE IN ACCORDANCE WITH THE APPROPRIATE STANDARD DRAWINGS (T-1, T-10, T-11, T-12, T-17, T-21, T-28, T-29, T-30, T-31, T-33) AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. AFTER SIGNAL INSTALLATION, ALL HEADS MUST BE COVERED (TURNING SHALL NOT BE ALLOWED) UNTIL TURNED ON. THE METHOD OF COVERING SHALL BE AS FOLLOWS:
 - THE SIGNAL COVERS SHALL CONSIST OF A ONE-PIECE PLASTIC BAG HAVING A MINIMUM THICKNESS OF FOUR MIL. THE BAG SHALL BE OPAQUE. THE COVER SHALL SLIP OVER THE ENTIRE SIGNAL HEAD AND SHALL BE SECURELY TIED AT THE OPENING WITH A ROPE OF SUFFICIENT SIZE AND STRENGTH TO SECURE THE COVER. AN INTERMEDIATE ROPE OF THE SAME MATERIAL SHALL BE DRAWN AROUND THE CENTER OF THE COVER TO PREVENT EXCESS FLAPPING IN THE WIND.
 - A DRAIN HOLE SHALL BE MADE AT THE BOTTOM OF THE BAG TO ALLOW THE ESCAPE OF MOISTURE. NO TAPE OR ADHESIVE WILL BE ALLOWED TO BE ATTACHED TO ANY SURFACE OF THE SIGNAL HOUSING OR LENSES. ALL COVERS SHALL BE PLACED IN A NEAT WORKMANLIKE MANNER, ANY COVER WHICH IS TORN OR MISSING SHALL BE IMMEDIATELY REPLACED. PAYMENT FOR THE COVERS, THEIR REPLACEMENT, AND REMOVAL AND ALL INCIDENTALS FOR COMPLETION OF THE WORK SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE TRAFFIC SIGNAL.
5. WHERE TWO-WAY TRAFFIC IS MAINTAINED DURING CONSTRUCTION, THE SIGN PACKAGE SHOWN ON STD. T-21 SHOULD BE USED. APPROACH CONSTRUCTION SIGNING SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PERIOD. OTHER SIGNING SHALL BE REMOVED OR COVERED WHEN NOT APPLICABLE.
6. VARIATIONS IN THE SIGNING PACKAGES MAY BE DICTATED BY UNIQUE GEOMETRY AND/OR TRAFFIC CONDITIONS AND THE TRAFFIC CONTROL PLANS.
7. THE CONTRACTOR SHALL NOT WORK WITHIN THE HIGHWAY RIGHT-OF-WAY WITHOUT THE APPROPRIATE CONSTRUCTION SIGNING IN PLACE AS SHOWN ON STD. T-10.
8. AT LOCATIONS WHERE SIGNALS CURRENTLY EXIST, A WORKING SIGNAL SYSTEM SHALL BE IN PLACE AT THE END OF EACH DAY. IF THE SIGNAL SYSTEM IS NOT WORKING AT THE END OF THE DAY, THE CONTRACTOR SHALL PROVIDE UNIFORMED TRAFFIC OFFICERS TO CONTROL TRAFFIC UNTIL SUCH TIME THAT THE EXISTING OR NEW SIGNAL SYSTEM IS IN OPERATION AT NO COST TO THE STATE OF VERMONT.
9. "SIGNALS UNDER CONSTRUCTION" SIGN PANELS SHALL BE MOUNTED UNDER "ROAD WORK AHEAD" SIGNS ANYTIME SIGNAL SYSTEM WORK IS BEING PERFORMED. SEE SIGN DETAIL ON THIS SHEET.
10. THE TYPE OF TEMPORARY TRAFFIC BARRIER USED ON THIS PROJECT SHALL COMPLY WITH NCHRP REPORT 350 TEST LEVEL THREE (TL-3). TEMPORARY TRAFFIC BARRIER MEETING THIS REQUIREMENT CAN BE FOUND ON THE FHWA WEBSITE.



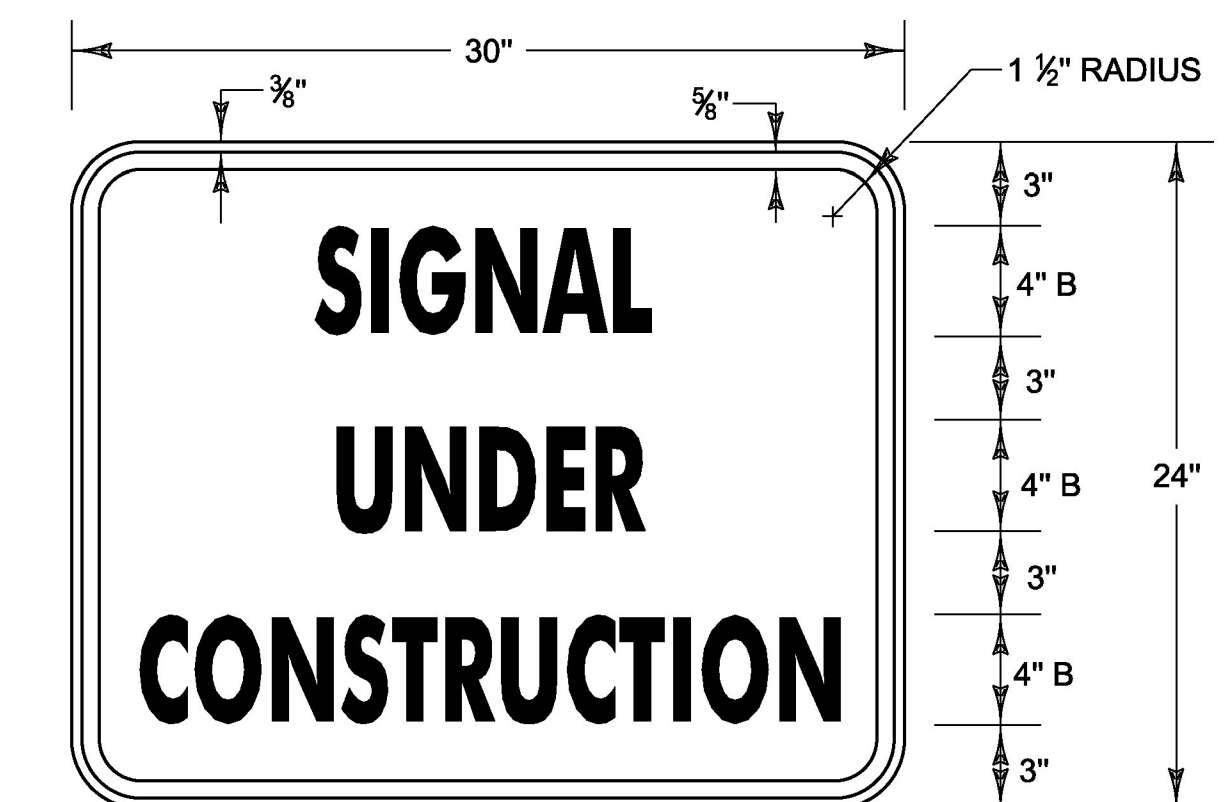
LEGEND: - BLACK (NON-REFL.) - STAMPED PRIOR TO PAINTING
BACKGROUND: NATURAL ALUMINUM OR BRASS SURFACE

NOTES:

1. THE PLAQUE SHALL BE MOUNTED ON ALL TRAFFIC SIGNAL CONTROLLER CABINETS. IT SHALL BE FASTENED TO THE CONTROLLER CABINET IN SUCH A MANNER AS TO BE NOT EASILY REMOVED, SUCH AS WELDED, RIVETED OR BOLTED WITH VANDAL PROOF BOLTS.
2. THE LETTERS SHALL BE PUNCHED OR STAMPED, SUCH STAMPING SHALL PENETRATE AT LEAST 1/2 THE BASE MATERIAL THICKNESS.
3. THE BASE MATERIAL FOR THE PLAQUE SHALL BE BRASS OR ALUMINUM WITH A MINIMUM THICKNESS OF 1/16".
4. THE CONTRACTOR SHALL CONTACT THE VTRANS TRAFFIC SIGNAL ENGINEER TO GET THE PROPER MS NUMBERS FOR THE PLAQUES.

CONTROLLER IDENTIFICATION PLAQUE

NOT TO SCALE



MATERIALS: SEE STD. E-144
COLORS: TEXT & BORDER - BLACK
BACKGROUND - ORANGE (RETROREFLECTIVE SHEETING)

CONSTRUCTION SIGN DETAIL

NOT TO SCALE
TO BE INSTALLED ON ROAD WORK AHEAD SIGN POSTS.

PROJECT NAME: LUDLOW
PROJECT NUMBER: HES SGNL(44)

FILE NAME: t13b020_frm.dgn PLOT DATE: 4/19/2017
PROJECT LEADER: P. COBURN DRAWN BY: M. BOGACZYK
DESIGNED BY: M. BOGACZYK CHECKED BY: P. COBURN
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