



- NOTES**
- 1) ALL SOLID STATE TRAFFIC SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE LATEST REVISION OF THE NEMA AND IMSA STANDARDS FOR TRAFFIC CONTROL SYSTEMS.
 - 2) ALL ELECTRICAL WIRE AND CABLE SHALL BE COPPER. ELECTRICAL SIGNAL CABLE FROM TRAFFIC SIGNAL CONTROLLER TO SIGNAL HEADS SHALL BE COMPOSED OF A.W.G. # 12 STRANDED CONDUCTORS, AND SHALL MEET THE INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION (IMSA) WIRE AND CABLE SPECIFICATIONS.
 - 3) PEDESTRIAN PUSH BUTTONS SHALL BE MOUNTED 3.5 FEET ABOVE THE SIDEWALK OR GROUND, WITH THE "PUSH BUTTON FOR WALK SIGNAL" SIGN MOUNTED IMMEDIATELY ABOVE OR INCORPORATED IN THE PUSH BUTTON ASSEMBLY SIGNAL UNIT.
 - 4) THE PEDESTRIAN SIGNAL HEADS SHALL HAVE AUDIO SIGNALS TO INDICATE ALLOWABLE PEDESTRIAN MOVEMENT FOR THE VISUALLY IMPAIRED DURING THE PEDESTRIAN PHASE. THEY SHALL BE OF THE TYPE NORMALLY USED FOR SUCH AN INSTALLATION AND BE WIRED IN SUCH A WAY AS TO BE EASILY DEACTIVATED. AFTER THE AUDIO SIGNAL HAS BEEN INSTALLED AND FIELD TESTED IT SHALL BE DEACTIVATED, UNLESS NOTED OTHERWISE. PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL SUBMIT THE PROPOSED SYSTEM FOR REVIEW PRIOR TO INSTALLATION.
 - 5) THE PEDESTRIAN HEADS SHALL HAVE TEXT "WALK", "DON'T WALK", UNLESS OTHERWISE NOTED. THEY SHALL MEET THE LATEST REQUIREMENTS OF THE MUTCD.
 - 6) SIGNAL TIMING IS APPROXIMATE AND IS NOT TO BE CONSIDERED FINAL. ALL NECESSARY HARDWARE TO CHANGE THE TIMING SHALL BE ON HAND WHEN THE SIGNALS ARE ACTIVATED. THE RESIDENT ENGINEER SHALL PERFORM CHECKS DURING THE AM AND PM PEAK PERIODS TO INSURE OPTIMUM SETTINGS. IF REQUIRED, APPROPRIATE TIMING CHANGES SHALL BE MADE TO "TUNE" THE CONTROLLER TO ITS BEST EFFICIENCY PRIOR TO COMPLETION OF THE PROJECT. TIMING CHANGES WILL BE ESTABLISHED BY A REPRESENTATIVE OF THE V.A.O.T. TRAFFIC AND SAFETY DIVISION. TIMING ADJUSTMENTS SHALL BE SUBSIDIARY TO ITEM 7. TRAFFIC CONTROL SIGNALS. TIMING CHANGES WILL NOT EFFECT THE RUNNING OF THE 30 DAY TEST PERIOD.
 - 7) THE TRAFFIC SIGNAL STRAIN POLES SHALL BE BACK RAKED BEFORE THE WIRES AND SIGNALS ARE INSTALLED SO THAT THE POLES WILL APPEAR PLUMB WHEN DEAD LOAD DEFLECTION DUE TO SPAN WIRE AND SIGNAL HEADS OCCURS. THE AMOUNT OF BACK RAKE SHALL BE AS SHOWN ON THE PLANS.
 - 8) THE STRANDED CONDUCTOR SIGNAL CABLE SHALL BE LASHED TO THE SPAN WIRE WITH STAINLESS ALLOY 430 LASHING (SPINNING) WIRE.
 - 9) WHEN STREET LIGHTS ARE INSTALLED ON A TRAFFIC SIGNAL STRAIN POLE, THE LUMINAIRES AND BRACKET ARMS ARE INCLUDED UNDER ITEM 7. TRAFFIC CONTROL SIGNAL. PARTICULAR ATTENTION SHOULD BE GIVEN TO THE SPECIFICATIONS ON STREET LIGHTING TO INSURE COMPLIANCE WITH ALL THE REQUIREMENTS OF THAT SECTION.
 - 10) THE SIGNAL SYSTEM SHALL NOT OPERATE WITHOUT THE APPROPRIATE PAVEMENT MARKINGS AND RELATED SIGNING.
 - 11) THE SIGNAL HEADS SHALL BE COVERED WITH AN OPAQUE COVERING UNTIL SUCH TIME AS THE SIGNAL SYSTEM IS FUNCTIONAL. AT NO TIME SHOULD THE HEADS BE VIEWED WITHOUT HAVING SOME FORM OF SIGNAL INDICATION I.E. FLASHING OPERATION OR SEQUENCING AS PER PLAN. REFER TO PROJECT GENERAL SPECIAL PROVISIONS FOR COVERING DETAILS.
 - 12) THE CONFLICT MONITOR SHALL BE CAPABLE OF DETECTING A LACK OF RED SIGNAL AS WELL AS THE GREEN, YELLOW AND WALK SIGNALS AND SHALL BE CAPABLE OF STORING AT LEAST NINE PREVIOUS FAULTS FOR RECALL VIA A DISPLAY SCREEN.
 - 13) THE VEHICLE DETECTOR AMPLIFIERS AND PHASE MODULES (WHERE APPROPRIATE) INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH PHASE AND MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2" WIDE. THE LOOP DETECTOR LEAD-INS SHALL BE LABELED AS TO WHICH MOVEMENT AND LANE THEY ARE FROM. VEHICLE DETECTOR AMPLIFIERS SHALL BE OF A TYPE WHICH FAIL IN THE "ON" POSITION.
 - 14) THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO COPIES OF THE INSTRUCTION MANUALS FOR THE CONTROLLER, LOOP DETECTORS, CONFLICT MONITORS, AND ANY OTHER EQUIPMENT INCLUDED IN THE CABINET. ONE COPY IS TO BE KEPT IN THE CABINET AND THE OTHER GIVEN TO THE PARTY RESPONSIBLE FOR MAINTENANCE OF THE SIGNAL SYSTEM. ADDITIONAL COPIES TO BE PROVIDED AS CALLED FOR ON THE PLANS.
 - 15) FOR PROGRAMMABLE SOLID STATE CONTROLLERS, COPIES OF THE FINAL PROGRAM LISTING SHALL BE PROVIDED AND DISTRIBUTED AS DETAILED IN NOTE 14.
 - 16) PHASING CHANGES, IF REQUESTED AND FEASIBLE, SHALL BE CONSIDERED AS PART OF THE CONTRACT. EXTRA COMPENSATION FOR THE CHANGES WILL BE AUTHORIZED FOLLOWING APPROVAL OF THE ESTIMATE.
 - 17) THE NEW TRAFFIC SIGNALS SHALL BE ACTIVATED ONLY UPON THE APPROVAL OF THE ENGINEER AND AFTER FLASHING FOR A MINIMUM OF 24 HOURS.
 - 18) IF THE PROJECT INVOLVES REPLACING OR IMPROVING AN EXISTING TRAFFIC SIGNAL, TRAFFIC SHALL BE CONTROLLED BY A UNIFORMED TRAFFIC OFFICER AT ANY TIME THE SIGNAL IS NOT EITHER SEQUENCING AS PER PLAN OR OPERATING ON FLASH. THE SWITCH FROM THE OLD TO THE NEW SIGNAL SHALL BE DONE DURING OFF-PEAK TRAFFIC AND IN SUCH A WAY AS TO MINIMIZE DOWN TIME.
 - 19) REMOVAL OF EXISTING SIGNAL EQUIPMENT, INCLUDING FOOTINGS, SHALL BE SUBSIDIARY TO THE ITEM, TRAFFIC CONTROL SIGNAL.
 - 20) TRAFFIC & PEDESTRIAN SIGNALS MOUNTED ON THE SIDE OF THE SIGNAL POLES MAY BE ATTACHED BY METHODS OTHER THAN THOSE SHOWN. SHOP DRAWINGS MUST BE SUBMITTED TO THE TRAFFIC DESIGN SECTION OF THE V.A.O.T. FOR APPROVAL PRIOR TO CONSTRUCTION.
 - 21) REFER TO STANDARD E-171B FOR ADDITIONAL NOTES.
 - 22) ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNAL HEADS (POST TOP, SIDE OR ARM MOUNTED) SHALL BE HEAVY DUTY ALUMINUM, UNLESS OTHERWISE NOTED ON THE PLANS.
 - 23) ALL TRAFFIC SIGNAL POLE OR POST ANCHOR BOLTS SHALL BE STAINLESS STEEL.
 - 24) WHEN (FREE SWINGING) OPTICALLY PROGRAMMABLE SIGNAL HEADS ARE REQUIRED, THEY SHALL NOT BE INSTALLED ON THE SAME HANGER ASSEMBLY AS LIGHTER WEIGHT HEADS, UNLESS OTHERWISE NOTED ON THE PLANS. WHEN TWO HANGER ASSEMBLIES ARE INSTALLED CLOSE TOGETHER, THE BOTTOM OF THE SIGNALS SHALL BE CONNECTED BY A FLAT ARM ASSEMBLY TO PREVENT THE HEADS FROM HITTING IN THE WIND.
 - 25) THE CABINET DOOR SHALL BE SUPPLIED WITH TEST SWITCHES FOR EACH PHASE.

REVISIONS AND CORRECTIONS
MAY 14, 1990 - FHWA COMMENTS

APPROVED
JUNE 21, 1989
DATE

CHIEF ENGINEER

Stephen S. MacArthur
DIRECTOR OF PLANNING
AND PRE-CONSTRUCTION

David A. Rose
TRAFFIC AND SAFETY ENGINEER

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION,
FROM FINAL APPROVAL PENDING.

TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS

