

# MODIFYING EXISTING PEDESTRIAN SIGNAL SYSTEM, INTERSECTION

## 1.0 GENERAL

1.1 ALL ITEMS IDENTIFIED IN THESE NOTES, AS DIRECTED BY THE RESIDENT ENGINEER, OR AS REQUIRED FOR THE CONSTRUCTION OF A FULLY OPERATIONAL PEDESTRIAN SIGNAL SYSTEM SHALL BE INCLUDED UNDER ITEM 900.620 SPECIAL PROVISION (MODIFY EXISTING PEDESTRIAN SIGNAL SYSTEM, INTERSECTION) PER INTERSECTION IDENTIFIED.

## 2.0 NEW TRAFFIC SIGNAL EQUIPMENT

2.1. PEDESTRIAN SIGNAL HEADS:  
HEADS SHALL BE LED TYPE. THE PEDESTRIAN SIGNAL SHALL BE CAPABLE OF DISPLAYING BRIGHTLY AND UNIFORMLY, THE ALTERNATE SYMBOL MESSAGES "HAND" IN PORTLAND ORANGE AND "WALKING PERSON" IN WHITE. THE GENERAL CONSTRUCTION OF THE PEDESTRIAN SIGNAL SHALL INCLUDE A SINGLE PIECE CAST ALUMINUM HOUSING, A SINGLE PIECE DOUBLE PARABOLIC REFLECTOR, A TWO SYMBOL TWO COLOR MESSAGE LENS, A SECOND LENS FOR THE COUNTDOWN MESSAGE, AND SUN VISOR. POLE MOUNTED PEDESTRIAN SIGNALS SHALL BE MOUNTED ABOVE PEDESTRIAN PUSH BUTTONS AND FACING DIRECTION OF THE ARROW/PEDESTRIAN CROSSING.

2.2. PEDESTRIAN PUSH BUTTONS:  
THE PEDESTRIAN PUSH BUTTON ASSEMBLIES SHALL MEET THE REQUIREMENTS OF ACCESSIBLE PEDESTRIAN SIGNALS AS SPECIFIED IN VTRANS STANDARD SPECIFICATION SUBSECTIONS 752.13 AND 752.14. THE BUTTON SHALL BE MOUNTED DIRECTLY UNDER THE PEDESTRIAN SIGNAL HEAD WHICH IS POLE MOUNTED IN A POSITION TO BE VISIBLE ALONG A SIGHT LINE WITHIN THE CROSSWALK; THE PUSH BUTTON FACE SHALL BE PARALLEL TO THE CROSSWALK AND THE ARROW SHALL BE POINTED TO THIS CROSSWALK. PUSH BUTTONS SHOULD BE LOCATED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NO FARTHER THAN LOCATED 10 FEET FROM THE EDGE OF CURB, SHOULDER OR PAVEMENT MEETING THE CROSSWALK.

2.3. PULL BOXES AND JUNCTION BOXES:  
A. PULLBOXES AND JUNCTION BOXES ARE DETAILED ON VTRANS STANDARD SHEET E-173.  
B. ALL SPLICES IN PULLBOXES/JUNCTION BOXES SHALL BE SOLDERED AND SEALED IN A WATERPROOF WELL SPLICE KIT. PAYMENT INCIDENTAL TO OTHER ITEMS.

C. THE LOGO ON THE COVER OF PULLBOXES/JUNCTION BOXES SHALL BE "SIGNAL".

2.4 TRAFFIC SIGNAL CONTROLLER AND CABINET:  
ALL EXISTING TRAFFIC SIGNAL CONTROLLERS AND CABINETS, AT EACH INTERSECTION IDENTIFIED, SHALL BE RETAINED. EACH NEW PEDESTRIAN SIGNAL SHALL BE CONTROLLED FROM THE EXISTING TRAFFIC CONTROL CABINET.

2.5. TRAFFIC SIGNAL CONDUIT & SLEEVES:  
A. ALL TRAFFIC SIGNAL CONDUIT SHALL BE 1.5 INCH DIAMETER OR LARGER AS REQUIRED BY THE ELECTRICAL CODE. SEE VTRANS STANDARD SPECIFICATION SUBSECTION 678.09 FOR ADDITIONAL INFORMATION.

B. CONDUIT PLACED UNDER ROADS AND DRIVES SHALL FACILITATE VACANT SPACE IN THE EXISTING CONCRETE DUCT BANKS AT EACH INTERSECTION. ANY NEW ELECTRICAL CONDUIT SLEEVED REQUIRED SHALL BE SCHEDULE 80 PVC SLEEVE. MINIMUM SLEEVE DIAMETER SHALL BE 6 INCHES.

C. OPEN CUT TRENCH EXCAVATION FOR BITUMINOUS CONCRETE PAVEMENT REQUIRED TO PLACE PVC ELECTRICAL CONDUIT SLEEVE SHALL BE PERFORMED USING VTRANS STANDARD SHEET D-20. A SAWCUT SHALL BE PERFORMED IN THE EXISTING PAVEMENT SURFACE PRIOR TO EXCAVATION PAYMENT WILL BE CONSIDERED INCIDENTAL TO THE ITEMS NOTED. BACKFILL INCIDENTAL TO THE ITEMS NOTED. BACKFILL & PAVEMENT TO MATCH RESPECTIVE EXISTING MATERIALS AS SPECIFIED BY RESIDENT ENGINEER.

D. THE MINIMUM DEPTH BELOW THE ROADWAY SURFACE FOR THE PLACEMENT OF ELECTRICAL CONDUIT SLEEVES SHALL BE 3 FEET. THE MINIMUM DEPTH BELOW FINISHED GRADE FOR ELECTRICAL CONDUIT SHALL BE 2 FEET.

E. 6 INCH WIDE RED PLASTIC MARKING TAPE SHALL BE PLACED IN THE EXCAVATED TRENCH 12 INCHES BELOW THE FINISHED GRADE FOR ALL CONDUIT AND SLEEVE RUNS EXCEPT THOSE BORED UNDER ROADWAY, PAYMENT INCIDENTAL TO THE ITEMS NOTED.

2.6 ALL EQUIPMENT SHALL MEET OR EXCEED NEMA STANDARDS AND IMSA OR ITE SPECIFICATIONS, WHERE APPLICABLE.  
2.7 ALL PEDESTRIAN PUSH BUTTONS SHALL COMPLY WITH VTRANS STANDARD SPECIFICATIONS 752.13 AND 752.14.

## 3.0 REMOVAL OF EXISTING OR REUSE OF SALVAGED EQUIPMENT

3.1 ALL REMOVED AND NOT REUSED EQUIPMENT SHALL BE RETURNED TO THE CITY WITHIN 48 HOURS OF ITS REMOVAL. CONTRACTOR SHALL COORDINATE WITH THE CITY TO ASSURE REPRESENTATIVE IS AVAILABLE TO RECEIVE EQUIPMENT.  
3.2 REMOVAL OF EQUIPMENT SHALL INCLUDE REMOVAL OF CONCRETE BASES (DISPOSAL BY CONTRACTOR) AND BACKFILL OF THE HOLES, TO A POINT 6 INCHES BELOW GRADE WITH MATERIAL SIMILAR TO EXISTING SOIL WHERE APPLICABLE. ANY EQUIPMENT THAT IS DAMAGED BY THE CONTRACTOR DURING REMOVAL SHALL BE REPAIRED, OR REPLACED, TO THE SATISFACTION OF THE RESIDENT ENGINEER AT THE CONTRACTOR'S EXPENSE. ANY EQUIPMENT NOT WANTED BY THE CITY SHALL BE DISPOSED OF BY THE CONTRACTOR.

3.3 PAYMENT FOR REMOVAL AND DISPOSAL OF EXISTING SIGNAL EQUIPMENT SHALL BE INCIDENTAL TO ITEMS NOTED.

## 4.0 SIGNAL OPERATION

4.1 THE TIMING OF THE NEW PEDESTRIAN SIGNAL SHALL BE AMENDED, BY THE CITY, AS SET FORTH IN THE CURRENT VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).  
4.2 SIGNAL TIMING MAY REQUIRE FINE-TUNING IN THE FIELD BASED ON TRAFFIC OBSERVATION. ALL COST OF ANY REQUIRED ADJUSTMENTS SHALL BE INCIDENTAL TO THE ITEMS NOTED.

## 5.0 EQUIPMENT TRAINING AND MANUALS

5.1 COPIES OF ALL EQUIPMENT MANUALS FOR THE NEW PEDESTRIAN SIGNAL SYSTEM AS WELL AS COMPLETE PROGRAM LISTINGS FOR THE CONTROLLERS SHALL BE PROVIDED TO THE CITY.

## 6.0 GENERAL

6.1 ALL ELECTRICAL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL OF THE STATE ELECTRICAL INSPECTOR. ALL WORK MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.  
6.2 AFTER PROJECT ACCEPTANCE, THE TRAFFIC SIGNAL INSTALLATIONS SHALL BECOME THE PROPERTY AND RESPONSIBILITY OF THE CITY.

6.3 THE POWER SOURCE TO EACH TRAFFIC CONTROL CABINET SHALL REMAIN UNAFFECTED DUE TO THE MODIFICATION OF THE EXISTING PEDESTRIAN SIGNAL SYSTEMS.

6.4 THE REQUIRED 30-DAY TEST PERIOD FOR THE SIGNAL EQUIPMENT SHALL NOT BEGIN UNTIL ALL CONSTRUCTION IS COMPLETE AND ALL CERTIFICATION DOCUMENTATION HAS BEEN DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER AND THE CITY.

6.5 UTILITIES INFORMATION SHOWN HEREIN, WAS OBTAINED FROM THE BEST AVAILABLE SOURCES, AND MAY OR MAY NOT BE EITHER ACCURATE OR COMPLETE. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EXISTING UTILITIES, AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY, PUBLIC OR PRIVATE. SHOULD ANY UTILITY BE DAMAGED DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE REPAIRS AND RESTORATION OF SERVICE WITH THE AFFECTED UTILITY(S).

## 7.0 SUBMITTALS

7.1 FABRICATION DRAWINGS:  
THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS IN ACCORDANCE WITH SECTIONS 105 AND 678.

7.2. DOCUMENTATION REQUIREMENTS:  
THREE (3) ADVANCE COPIES OF EQUIPMENT MANUALS FURNISHED BY THE MANUFACTURER SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW A MINIMUM OF TEN DAYS PRIOR TO THE SCHEDULED START OF THE FIRST 24-HOUR OPERATION TEST PERIOD. THE ENGINEER WILL VERIFY THE MANUFACTURER'S EQUIPMENT MANUAL AS PART OF THE TEST AND INTEGRATION PROCESS. THE EQUIPMENT MANUAL INCORPORATING THE ENGINEER'S CORRECTIONS AND COMMENTS SHALL BE INTEGRATED BY THE CONTRACTOR INTO THE OPERATIONS AND MAINTENANCE MANUAL. THE MANUAL SHALL, AS A MINIMUM, INCLUDE THE FOLLOWING:

- A. COMPLETE AND ACCURATE SCHEMATIC DIAGRAMS.
- B. COMPLETE INSTALLATION AND OPERATION PROCEDURES.
- C. COMPLETE PERFORMANCE SPECIFICATIONS (FUNCTIONS, ELECTRICAL, MECHANICAL, AND ENVIRONMENTAL) OF THE UNIT.

| LIST OF MAJOR EQUIPMENT   |                |                   |               |
|---|----------------|-------------------|---------------|
| EQUIPMENT   | MADISON STREET | WASHINGTON STREET | CENTER STREET |
| PEDESTAL POST AND FOUNDATIONS   | 1              | 1                 | 1             |
| LED WALK/DON'T WALK PEDESTRIAN HEADS (SINGLE FACE SYMBOLIC COUNT-DOWN TYPE W/9" SYMBOLS) MOUNTING HARDWARE: |                |                   |               |
| PED POST MOUNTED ONE-WAY  | 3              | 2                 | 2             |
| PEDESTRIAN PUSHBUTTON ASSEMBLIES W/SIGNS  | 3              | 2                 | 2             |
| MASTER CONTROLLER   | EXISTING       | EXISTING          | EXISTING      |

\* THE QUANTITIES LISTED ABOVE ARE APPROXIMATE AND ARE FURNISHED AS GENERAL INFORMATION ONLY. ANY ITEM NOT LISTED BUT REQUIRED AS PART OF THE PEDESTRIAN SIGNAL SYSTEM DESIGN SHALL BE INCLUDED AS PART OF ITEM 900.620 SPECIAL PROVISION (MODIFY EXISTING PEDESTRIAN SIGNAL SYSTEM, INTERSECTION) PER INTERSECTION SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE FOR THE SIGNAL SYSTEM DESIGN AS SHOWN.

D. COMPLETE ACCURATE TROUBLESHOOTING, DIAGNOSTIC, AND MAINTENANCE PROCEDURES.

## 8.0 CONSTRUCTION REQUIREMENTS

8.1 PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR AND THE RESIDENT ENGINEER WILL PERFORM A JOINT INSPECTION OF THE CONDITION OF EXISTING EQUIPMENT AND COMPONENTS. ANY EQUIPMENT THAT IS FOUND TO BE DEFECTIVE OR DAMAGED PRIOR TO BEGINNING WORK SHALL BE MAINTAINED IN AT LEAST AS GOOD CONDITION UNTIL REPLACED UNDER THE CONTRACT.

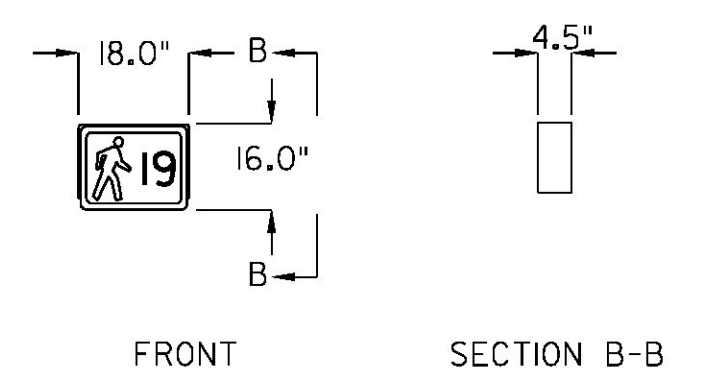
8.2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL TRAINING, LABOR, MATERIALS, CABLES, CONNECTORS, TOOLS, EQUIPMENT, SHIPPING, AND INCIDENTAL ITEMS NECESSARY TO COMPLETE THE INSTALLATION.

8.3 CABLE TO BE INSTALLED IN CONDUIT SHALL BE PULLED WITH A MINIMUM OF DRAGGING ON THE GROUND OR PAVEMENT. THIS SHALL BE ACCOMPLISHED BY MEANS OF REELS MOUNTED ON JACKS OR APPROVED DEVICES CONVENIENTLY LOCATED FOR UNREELING CABLE DIRECTLY INTO THE CONDUIT. POWDERED SOAPSTONE, TALC, OR OTHER APPROVED LUBRICANTS SHALL BE USED WHEN INSERTING CABLE INTO THE CONDUIT. CABLE SHALL BE PULLED THROUGH CONDUIT BY MEANS OF A CABLE OR CABLES. WIRING WITHIN JUNCTION BOXES AND CABINETS SHALL BE NEATLY ARRANGED.

8.4. WHEN CONDUCTORS AND CABLES ARE PULLED INTO CONDUITS, ALL ENDS OF CONDUCTORS AND CABLES SHALL BE TAPED TO EXCLUDE MOISTURE, AND SHALL BE SO KEPT UNTIL THEY ARE ATTACHED TO THE TRAFFIC CONTROL CABINET.

8.5. CONDUCTORS ENTERING THE TRAFFIC CONTROL CABINET SHALL BE NEATLY DRESSED AND LACED ALONG THE BASE AND BACK OF THE TRAFFIC CABINET. SPARE CONDUCTORS (IF ANY) SHALL BE TIED TOGETHER WITH THEIR ENDS TAPED. AT LEAST 2 FEET OF SLACK SHALL BE LEFT FOR EACH CONDUCTOR IN THE TRAFFIC CABINET.

### DESIGN CRITERIA



FRONT SECTION B-B  
PED SIGNALS

|                |     |
|----------------|-----|
| POLY-CARBONATE | 27* |
| ICE LOAD       | 25* |

\* ADD 6.5\* DEAD LOAD AND 36\* ICE LOAD FOR REQUIRED BACKPLATE

\*\* ADD 10\* DEAD LOAD AND 49\* ICE LOAD FOR REQUIRED BACKPLATE

NOTE: ALL DIMENSIONS AND WEIGHTS ARE APPROXIMATE AND MAY VARY BY MANUFACTURER

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PEDESTRIAN SIGNAL NOTES PSN-01 SHEET 365 OF 392

