1-3/4" x 1-3/4" 12 GA. GALVANIZED SQUARE TUBE SIGN POST

7/16" TYP.

INSERT POST 6" INTO ANCHOR BASE AND SECURE WITH CORNER BOLT

2" PROJECTING ABOVE GROUND

3' LONG 2" x 2" 12 GA. GALVANIZED SQUARE TUBE ANCHOR BASE

NOTES:

1. SIGN POSTS AND ANCHORS SHALL BE TELESPAR OR APPROVED EQUAL.

2. SIGN POSTS ARE 10' LONG TYPICAL, BUT DIFFERENT LENGTH MAY BE REQUIRED BASED ON SIGN SIZE AND MUTCD REQUIREMENTS.

N.T.S.
### MATERIAL DATA

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>ASTM DESIGNATION</th>
<th>MIN. YIELD (ksi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAPERED TUBES</td>
<td>A595 GR. A OR A572</td>
<td>55</td>
</tr>
<tr>
<td>PLATES</td>
<td>A36</td>
<td>36</td>
</tr>
<tr>
<td>ANCHOR BOLTS</td>
<td>F1554 GR.55</td>
<td>55</td>
</tr>
<tr>
<td>GALVANIZING HARDWARE</td>
<td>F2329</td>
<td></td>
</tr>
<tr>
<td>SIGNAL ARM. BOLTS</td>
<td>A325</td>
<td></td>
</tr>
<tr>
<td>LUM. ARM. CONN. BOLTS</td>
<td>SAE GR.5</td>
<td></td>
</tr>
</tbody>
</table>

### FINISH DATA

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>FINISH PAINT/GALVANIZED (FPGV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE COAT</td>
<td>HOT-DIP GALVANIZED TO ASTM A123</td>
</tr>
<tr>
<td>PRIM COAT</td>
<td>NONE</td>
</tr>
<tr>
<td>FINISH COAT</td>
<td>TGIC OR URETHANE POLYESTER POWDER</td>
</tr>
<tr>
<td>COLOR</td>
<td><strong>FS 14056 – FEDERAL GREEN</strong></td>
</tr>
<tr>
<td>SPEC.</td>
<td>F 285E</td>
</tr>
</tbody>
</table>

### DESIGN CRITERIA:

The signal mast arm traffic structures shown on this drawing have been designed in accordance with the loading and nominal strength requirements of the 2015 AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, FIRST EDITION" SLT5-1 including latest interims. The wind loads were calculated from an ultimate wind velocity of 130MPH with a mean recurrence interval of 1700 years and an effective performance tested mitigation device approved by City of Lakewood allowing for a fatigue category of II. The fatigue loads were calculated on the requirements of Section 11 of the Code, and the following design conditions:

- Structures are designed to resist natural wind gusts based on the yearly mean wind velocity of 11.2 MPH.
- Structures are not designed to resist galloping-induced cyclic loads due to the use of effective mitigation device.
- Structures are designed for truck-induced gust loads, as required by the owner of the structures.
<table>
<thead>
<tr>
<th>DEVICE</th>
<th>DESCRIPTION</th>
<th>PROJ. AREA (FT²)</th>
<th>WEIGHT (LBS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12&quot;-4 SEC. SIGNAL WITH BACKPLATE</td>
<td>11.60</td>
<td>55</td>
</tr>
<tr>
<td>B</td>
<td>12&quot;-3 SEC. SIGNAL WITH BACKPLATE</td>
<td>8.67</td>
<td>38</td>
</tr>
<tr>
<td>C</td>
<td>DUAL-12&quot;-4 SEC. SIGNAL NO BACKPLATE (VERTICAL)</td>
<td>5.44</td>
<td>60</td>
</tr>
<tr>
<td>D</td>
<td>DUAL-16&quot;-PEDESTRIAN SIGNAL</td>
<td>8.00</td>
<td>80</td>
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<tr>
<td>E</td>
<td>30&quot; X 36&quot; REGULATORY SIGN</td>
<td>7.50</td>
<td>25</td>
</tr>
<tr>
<td>F</td>
<td>18&quot; X 84&quot; STREET NAME SIGN</td>
<td>10.50</td>
<td>32</td>
</tr>
<tr>
<td>G</td>
<td>TH1 MITIGATOR DEVICE</td>
<td>1.20</td>
<td>38</td>
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</table>
COLORADO POLE SERIES

FOUNDATION SCHEDULE

<table>
<thead>
<tr>
<th>MAST ARM LENGTH (FT.)</th>
<th>DIA. (IN.)</th>
<th>DEPTH (D) (FT.)</th>
<th>PAY LENGTH (L) (FT.)</th>
<th>V BARS</th>
<th>SIZE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>36</td>
<td>13.0</td>
<td>13.5</td>
<td>#9</td>
<td>10</td>
<td></td>
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<tr>
<td>35-45</td>
<td>42</td>
<td>15.0</td>
<td>15.5</td>
<td>#9</td>
<td>14</td>
<td></td>
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<tr>
<td>50-60</td>
<td>48</td>
<td>18.0</td>
<td>18.5</td>
<td>#9</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>65-70</td>
<td>48</td>
<td>20.5</td>
<td>21.0</td>
<td>#9</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

SEE VALMONT DRAWING FOR TRAFFIC SIGNAL LAYOUT & DETAILS

SEE SCHEDULE FOR MAST ARM LENGTH

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

DATE: JUNE 2019
GENERAL NOTES

1. DESIGN OF FOUNDATIONS IS BASED ON TRAFFIC SIGNAL POLE CONFIGURATIONS PROVIDED BY VALMONT INDUSTRIES, INC. DRAWING NO. TK01274 DATED 11/06/18 FOR THE CITY OF WESTMINSTER. REFER TO CITY OF WESTMINSTER TRAFFIC STANDARD DRAWINGS FOR ANY ADDITIONAL TRAFFIC POLE INFORMATION.

2. DESIGN CRITERIA: AASHTO – STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 2015 EDITION.

3. A DESIGN WIND VELOCITY OF 130 MPH HAS BEEN USED FOR THE DESIGNS HEREIN (BASED ON INFORMATION FROM VALMONT). CAISSONS ARE DESIGNED FOR BASE REACTIONS PROVIDED BY VALMONT.

4. ALL FOUNDATIONS ON THIS SHEET ARE FOR SINGLE MAST ARM POLES.

5. THE DESIGNS HEREIN ASSUME THAT SIGNALS ARE INSTALLED WITHIN THE ROADWAY PRISM WITH THE FOLLOWING SOIL PARAMETERS:
   5.1. SOIL DENSITY = 110 LB./CU.FT.
   5.2. SOIL COHESION = 750 LB./SQ/FT/ FOR MEDIUM STIFF COHESIVE SOIL
   5.3. SOIL S \theta \ ANGLE = 30° FOR MEDIUM DENSE COHESIONLESS SOIL
   5.4. SF = 1.5 FOR TORSIONAL RESISTANCE; 3.0 FOR FLEXURAL RESISTANCE

6. CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:
   6.1. SIGNALS WILL NOT BE INSTALLED WITHIN THE ROADWAY PRISM
   6.2. THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY
   6.3. THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG
   6.4. THE FOUNDATION SOILS ARE NOT HOMOGENEOUS
   6.5. FIRM BEDROCK IS ENCOUNTERED
   6.6. CAVING SOILS
   6.7. GROUNDWATER
   6.8. EXPANSIVE SOILS
   6.9. TRASH
   6.10. BOTTOM OF CAISSON WILL EXTEND BELOW BOTTOM OF ANY ADJACENT BUILDING OR RETAINING WALL FOUNDATION
   6.11. SLOPES GREATER THAN 10%

7. CAISSONS SHALL BE PLACED AGAINST UNDISTURBED EARTH.

8. CAISSONS SHALL BE CONSTRUCTED WITH AIR ENTRAINED CDOT CLASS 6 BZ CONCRETE. REINFORCING STEEL SHALL BE GRADE 60.

9. FOUNDATION TO BE PROVIDED WITH 2 CONDUIT STUB OUTS. DIRECTION TO BE DETERMINED BY CITY OF WESTMINSTER ENGINEER AND IS TO BE CONSIDERED PART OF THE POLE INSTALLATION BID ITEM.

10. ANCHOR BOLTS, BASE PLATE, NUTS, AND NUT COVERS TO BE FURNISHED BY POLE MANUFACTURER.

11. CAISSON CONCRETE SHALL CURE AT LEAST SEVEN DAYS PRIOR TO THE SIGNAL STRUCTURE INSTALLATION.

12. PLUMBING OF POLES SHALL BE ACCOMPLISHED BY ADJUSTING NUTS AFTER LOADING OF MAST ARM.

13. EACH END OF CAISSON TIES TO BE TERMINATED WITH A 135° HOOK AROUND A LONGITUDINAL BAR.

14. DESIGN IS BASED ON HORIZONTAL GROUND SURFACE CONDITION IN THE VICINITY OF THE CAISSON. CAISSONS SHOULD NOT BE INSTALLED AT SITES WITH A SLOPE EXCEEDING 10 PERCENT.

15. LEVELING CONCRETE SHALL BE 3,000 PSI CLASS B AIR ENTRAIN CONCRETE.

16. YIELD STRESS OF REINFORCING STEEL SHALL BE MINIMUM 60,000 PSI.
GENERAL NOTES:

1. Pipe couplings for signal brackets shall be either 1-1/2 or 2 inch depending upon the signal head to be installed. Signal brackets shall be furnished by the manufacturer of the signal heads.

2. Unless otherwise specified, all traffic signals mounted above the roadway shall have a height of 15 feet. All side mounted traffic signals shall have a height of 10 feet and pedestrian signals at a height of 8 feet measured to the bottom of the signal head housing or bracket.

3. All signal heads shall be mounted in such a manner as to be easily removed from their supporting structure.

4. Gasket sealing compound shall be used in addition to any lead washers required for creating a water-tight connection between the signal head and mounting bracket.

5. Signal heads shall be securely affixed by the use of a serrated coupling or other accessories recommended by the signal manufacturer.

6. Wiring from inside mast arm through 1” field drilled hole in arm shall be brought through the mounting support tube and lower arm (as shown). Field drilled holes shall have rubber grommets installed.

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

SIGNAL POLE AND MAST ARM MOUNTING DETAILS

DATE: JUNE 2019
NOTES ON PULL BOX INSTALLATION:

1. PULL BOX WILL HAVE AT LEAST TWO 1" DIA. HOLES DRILLED OR TORCHED 3" FROM TOP TO ACCEPT 6" OF 1" GALVANIZED RIGID CONDUIT.

2. 4" MIN. SLACK IS TO BE PROVIDED SO THAT ALL TESTING AND SPlicing CAN BE DONE OUTSIDE OF THE PULL BOX.

3. PULL BOX LID IS TO BE SEALED WATER TIGHT BY CAULKING.

4. PULL BOX IS TO BE LOCATED IN AN AREA OF THE STREET NOT HEAVILY TRAVELED, IF POSSIBLE, AND CENTERED A MINIMUM OF 12" FROM THE CONCRETE CURTAIN PAN.

5. COST OF THE PORTLAND CEMENT CONCRETE SHALL BE INCLUDED IN THE INSTALLATION OF THE PULL BOXES.

6. THE PULL BOX LID SHALL HAVE THE WORD "TRAFFIC" CAST INTO THEM.
LEAD-IN FROM LOOP DETECTOR PULL BOX TO CONTROLLER CABINET SHALL BE CANADA 30085 45 #10 AWG OR APPROVED EQUAL.

SECTION A-A

NOTE: FINISHED LOOP MUST SHOW NO SHORTED TURNS AND BROWN WIRE AND AT MEASURED (MINIMUM) TO GROUND. MEASURED WITH A QUALITY-MEASURING METER (SEE GENERAL NOTES).

SECTION B-B

GENERAL NOTES FOR TD-5 DETECTORS:

1. LOOP SIZE AND LOCATION SHALL BE AS SHOWN IN THE PLANS.

2. THE NUMBER OF TURNS OF WIRE SHALL BE AS INDICATED IN THE PLANS OF THE SPECIFIC INSTALLATION OR AS OTHERWISE SPECIFIED IN THE EQUIPMENT MANUFACTURER'S INSTRUCTIONS AND MEASURED AT THE TRAFFIC-PASSING THRESHOLD. ALL LOOP WIRE IN ADJACENT LOOPS SHALL BE IN THE SAME PLANE IN A CLOCKWISE OR COUNTER-CLOCKWISE DIRECTION AND THE TEAMS TURNED AT THE TIME OF INSTALLATION TO CLEARLY IDENTIFY THEIR DIRECTION.

3. IMMEDIATELY BEFORE LACING THE LOOP CABLE, THE SAW CUT SHALL BE THOROUGHLY CLEANED AND DRIED WITH HIGH PRESSURE COMPRESSED AIR.

4. THE WIRE SHALL BE POSITIONED BY USE OF A BLUNT INSTRUMENT SO AS TO MINIMIZE THE CHANCE OF DAMAGE TO THE CABLE INSULATION (THE USE OF A SCREWDRIVER, SAW BLADE, ETC. WILL NOT BE PERMITTED).

5. LOOP WIRE SHALL BE CONTINUOUS (NO SPORES PERMITTED) FROM THE PULL-BOX OR FOUNDATION THROUGHOUT THE LOOP CONFIGURATION.

6. AFTER THE LOOP WIRE IS INSTALLED, 3M OR APPROVED EQUAL SAW CUT SEALER SHOULD BE USED TO FILL THE SAW CUT BEFORE MOISTURE OR DIRT CAN ACCUMULATE. LOOP INSTALLATION MAY BE RESTRICTED DUE TO ADVERSE CLIMATIC CONDITIONS (DAMPNESS, DUST, ETC.)

7. SPLICES TO THE LOOP LEAD-IN CABLE SHALL BE WATERPROOFED WITH 3M SPLICE KITS OR APPROVED EQUAL.

8. ELECTRICAL CONTINUITY TESTS SHALL BE PERFORMED FOR EACH LOOP:

A. BEFORE ANY LOOP SEALER IS INSTALLED.
B. AFTER LOOP SEALER IS PLACED BUT PRIOR TO CONNECTION TO LOOP-WIRE CABLE.
C. AFTER LEAD-IN CABLE IS SPLICE AND TRAINED TO THE CONTROLLER.

IN ADDITION, "RESTRAINT-TO-GROUND" AND "INDUCTANCE" OF EACH LOOP SHALL BE MEASURED AND REPORTED FOR EACH OF THE THREE TESTS PERFORMED TO THE LOOP DETECTOR.

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

DATE: JUNE 2019

LOOP DETECTOR DETAILS
**CITY of WESTMINSTER**

4800 WEST 92ND AVENUE
Westminster, Colo. 80031

**TRAFFIC SIGNAL PULL BOX**

DATE: JUNE 2019

**TABLE OF DIMENSIONS (MINIMUMS)**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>TO BE USED AT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LARGE 18 X 30</td>
<td>31 1/4</td>
<td>18 1/4</td>
<td>3/4</td>
<td>33 1/8</td>
<td>20 1/8</td>
<td>12</td>
<td>16 3/8</td>
<td>29 3/8</td>
<td>1/2</td>
<td>11 1/4</td>
<td>CONTROLLER CABINET</td>
<td></td>
</tr>
<tr>
<td>SMALL 12 X 20</td>
<td>11 1/2</td>
<td>18 1/2</td>
<td>5/8</td>
<td>20 1/2</td>
<td>13 1/2</td>
<td>12</td>
<td>10 1/4</td>
<td>17 1/4</td>
<td>3/8</td>
<td>11 1/4</td>
<td>TRAFFIC SIGNAL POLE</td>
<td></td>
</tr>
<tr>
<td>SINGLE BOX</td>
<td>12 7/8</td>
<td>12 7/8</td>
<td>5/8</td>
<td>14 14</td>
<td>12 3/4</td>
<td>10 1/2</td>
<td>10 1/2</td>
<td>12</td>
<td>1</td>
<td>UPHOLD DETECTORS, SPECIES INTERCONNECT</td>
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</tr>
</tbody>
</table>

**Note:**
- Precast pull box for use in concrete/asphalt/sidewalk areas behind curb.
- See contract documents for material specifications.
TRAFFIC SIGNAL PLAN: GENERAL INSTALLATION NOTES

1. ALL CABINET DIMENSIONS ARE NOMINAL.

2. CABINET SHALL BE BONDED TO THE GROUND ROD.

3. CABINET BASES SHALL BE FIBERGLASS.

4. IF TELEPHONE INTERCONNECT IS SPECIFIED, A MINIMUM OF 5 INCHES CLEAR VERTICAL SPACE SHALL BE LEFT BENEATH ALL OTHER EQUIPMENT INSIDE THE CABINET.

5. ALL STRANDED WIRES TERMINATED IN THE CABINET UNDER A BINDER HEAD SCREW SHALL BE EQUIPPED WITH A SOLDERLESS, PRESSURE TYPE SPADE CONNECTOR WITH A PRE-INSULATED SHANK. ONLY ONE WIRE SHALL BE USED WITH EACH SPADE CONNECTOR. NO MORE THAN THREE CONDUCTORS SHALL BE CONNECTED TO ANY ONE TERMINAL ON THE TERMINAL BOARD PROVIDED IN THE CABINET.

6. CONTROLLERS AND RELAYS SHALL BE LOCATED TO PERMIT SAFE AND EASY REMOVAL.

7. IF THE CABINET IS LOCATED IN AN UNPAVED AREA, A RAISED CONCRETE PAD SHALL BE PROVIDED.

8. ALL CONCRETE SHALL BE PER CITY OF WESTMINSTER STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION.

9. THE ENDS OF THE SPARE CONDUCTORS SHALL NOT BE CUT BACK. SPARE CONDUCTORS SHALL BE NEATLY COILED AND TAPED FOR POSSIBLE FUTURE USE. ALL CABLES SHALL BE CLEARLY IDENTIFIED IN THE CABINET BY MEANS OF METAL OR DURABLE PLASTIC TAGS.

10. WORK SHALL BE NEAT, UNCLUTTERED "FIRST-CLASS" WORKMANSHIP AND SHALL CONFORM TO APPLICABLE SECTIONS OF THE NATIONAL ELECTRIC CODE, CURRENT EDITION, AND ANY LOCAL REGULATIONS.

11. ALUMINISTIC OR CAULKING COMPOUND SHALL BE USED WHEREVER THE CABINET COMES IN CONTACT WITH THE BASE TO INSURE WEATHER TIGHTNESS. ALUMINISTIC COMPOUND WILL BE REQUIRED IF THE CABINET IS CONSTRUCTED FROM ALUMINUM.


13. ALL REINFORCING STEEL SHALL BE CITY OF WESTMINSTER STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION.
1. The cabinet shall be constructed of 0.125 minimum thickness base aluminum. Cabinets shall be brain etched internally, and in field spray on in order to provide sufficient depth to withstand normal handling and transport to the field location without deforming.

2. The main door shall have a self-locking keyed thumbs lock with two keys. Hinges shall be mounted on the cabinet such that the interconnection of doors or cabinets is retained. Type A hinge shall be stainless steel. Hinge shall have inner and outer sleeves of sufficient thickness to prove a rain tight and dust tight seal.

3. In addition to the main door, and auxiliary door shall be provided equipped with a lock and police key. The auxiliary door shall provide access to the panel which shall contain:
   - A switch to change from normal to flash operation.
   - A manual on/off switch which will not affect controller operation.
   - Equipment which may be required by the special provisions.

4. All cabinets shall have a suitable designed vent to allow any explosive atmosphere to escape from the cabinet interior.

5. The cabinet shall be furnished complete including two mounting tables, capable of supporting 72 pounds each.

6. A lamp receptacle and convenience outlet, wired for 120 volt, 60 Hz, shall be provided in all cabinets.

7. The cabinet shall be provided with all necessary openings for mounting and connections of equipment specified for the particular application.

8. All connections of incoming conductors shall be neat and firm and shall to a terminal board mounted in the cabinet. The terminal board shall be located at least three inches from the bottom of the cabinet and approved for amount electrical clearance between the terminals and side of the cabinet. This board shall provide at least:
   - A terminal for circuit breaker for power supply one.
   - Terminals for detector cables, at least one for each signal circuit and associated conductors.

9. Connections between the terminal board and the controller including all associated equipment shall be made by wire. The multi-terminal plug receptacle shall be incorporated with the controller. Two plugs shall be incorporated.

10. The same polarity shall be maintained with the traffic signal circuits at the power supply panel. Provision for attaching the cabinet to the ground side of the power supply shall be made.

11. A crowd interference suppressor consisting of choke coils and/or condensers shall be provided with all flasher contacts.

12. Mounting brackets and hardware shall be placed so as to locate all equipment within easy access of the cabinet door opening.

CABINET BASE MATERIALS

Resin

To be a virgin and not a distressed polyester thermosetting resin. The material shall be tested for flame spread. The resin shall not be over 150, nor average time running to be over eighty seconds.

Polyurethane

To be tested per UL 94 classification and shall have a V-0 rating.

Fiberglass

Fiberglass shall be a combination of chopped glass with a minimum of one layer throughout of a non-compressed resin so as to form a laminate. The overall laminate shall be minimum of 1/4 inch.

Cabinet

The exterior surface shall be coated with a polyester base gelcoat in a sparcoat that will provide maximum protection from sun and weathering. The data indicates that the formation and application of two standard maximum coverages shows no change in fiber show and bond and no more than a "good" rating on general appearance and color change.

An alternate test for UV resistance can be the ASTM G-15 test method, with a maximum of 1000 hours of exposure in a model sun (Atlas Weatherometer).

CABINET REQUIREMENTS

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

DATE: JUNE 2019  T18
INTERNALLY ILLUMINATED — SINGLE SIDED

Street Name Signs – Traffic Signal Mast Arm Mount

Street Name = 8 inch Times Roman Bold (upper/lower case)
Street Prefix/Suffix & Hundred Block = 5 Inch Times Roman Bold

*** ALL LETTERING SHALL BE BOLD ***
*** CONCEPTUAL DESIGN — STREET NAME AND SUFFIX SHOWN ARE EXAMPLES ONLY ***
FRONT VIEW
40"x60" SIGN TO BE
SUPPLIED BY THE CITY
AND INSTALLED BY CONTRACTOR

TYPICAL 12" YELLOW SIGNAL
HEAD SECTION-PLY CARBONATE
WITH TURN-BAR, VENT
AND BLACK HOUSING

STANDARD SIGNAL
MOUNT ARM-SEE
MODE-RM
DETAIL SHEET

MOUNTING BOLT

FLASHING SEQUENCE SHALL BE:

PLACEMENT NOTES:

1. ROADWAY WITH ONE THROUGH LANE: SIGN AND FLASHER
   ASSEMBLY CENTERED ON THROUGH LANE.

2. ROADWAY WITH TWO THROUGH LANES: SIGN AND FLASHER
   ASSEMBLY CENTERED ON LANE LINE BETWEEN THROUGH LANES.

3. ROADWAY WITH THREE THROUGH LANES: SIGN AND FLASHER
   ASSEMBLY CENTERED ON CENTER THROUGH LANE.
NOTES
1. FIELD ADJUST SPACING TO AVOID VEHICLE TIRE PATHS.
2. SET BARS ON LANE LINES AND BETWEEN WHEEL PATH.
NOTES
1. FIELD ADJUST SPACING TO AVOID VEHICLE TIRE PATHS.
2. SET BARS ON LANE LINES AND BETWEEN WHEEL PATH.
3. 12 INCH BAR SHALL EXTEND FROM EDGE OF GUTTER TO EDGE OF GUTTER.

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

SCHOOL ZONE OR ROUTE
CROSSWALK STRIPING

DATE: JUNE 2019
T24
NOTES

1. CROSS WALK PAVEMENT MARKINGS ARE TO BE AlIGNED PARALLEL WITH TRAFFIC FLOW AND CENTERED ON CENTERLINE OF PEDESTRIAN RAMPS, UNLESS OTHERWISE DIRECTED.

2. 30" MINIMUM DISTANCE WHEN STORAGE LENGTH EXCEEDS 200 FEET, AND TWO TURN ARROWS ARE REQUIRED.

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

DATE: JUNE 2019
T25
NOTES

1. DISTANCE TO BE FIEL D DETERMINED TO ACCOMMODATE TURNING RADIUS; LAYOUT TO BE APPROVED BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.

2. 30' MINIMUM DISTANCE WHEN STORAGE LENGTH EXCEEDS 200 FEET, AND TWO TURN ARROWS ARE REQUIRED.
NOTES:
1. If turn lane exceeds 200 linear feet, then additional arrow is required and placed 30 LF from stop bar.

END OF 8” SOLID WHITE LANE STRIPE

CENTERLINE OF TRAVEL LANE

8’-0”

12”

8’-0”
TRAVEL LANE
3” to 12”

DIRECTION OF TRAVEL
LOCAL ROADWAYS

12”
18”

MINIMUM DIMENSIONS

TRAVEL LANE
3” to 12”

DIRECTION OF TRAVEL
ARTERIAL OR COLLECTOR ROADWAYS

24”
36”

MAXIMUM DIMENSIONS

NOT TO SCALE

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

DATE: JUNE 2019

YIELD LINES

T29
BICYCLE LANE PAVEMENT MARKINGS

NOTES:
1. ADDITIONAL WIDTH FOR BIKE LANES MAY BE REQUIRED AT THE CITY ENGINEER'S DISCRETION.
2. BIKE LANE MARKINGS SHALL BE ACCORDING TO THE M.U.T.C.D.

SHARED LANE PAVEMENT MARKINGS

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

BICYCLE LANE
PAVEMENT MARKINGS

DATE: JUNE 2019

BICYCLE LANE MARKINGS SHALL BE ACCORDING TO THE MUTCD.

NOT TO SCALE
NOTES:
1. ADDITIONAL WIDTH FOR BIKE LANES MAY BE REQUIRED AT THE CITY ENGINEER'S DISCRETION.
2. BIKE LANE MARKINGS SHALL BE ACCORDING TO THE MUTCD.

CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

BICYCLE LANE
PAVEMENT MARKINGS

DATE: JUNE 2019
T31
NOTES:

1. SHARED BICYCLE AND PARKING LANES SHALL BE USED ONLY IN RESIDENTIAL AREAS WHERE PARKING TURNOVER IS ANTICIPATED TO BE LOW AND SHALL BE APPROVED BY THE CITY TRAFFIC ENGINEER.

2. ADDITIONAL WIDTH FOR BIKE LANES MAY BE REQUIRED AT THE CITY ENGINEER'S DISCRETION.

3. BICYCLE LANE MARKINGS SHALL BE ACCORDING TO THE M.U.T.C.D.
NOT TO SCALE

ELEVATION VIEW

SCH. 40
STEEL PIPE

14" TO 18"

3/16" TYP.

FLUSH-MOUNT BASE PLATE

SCREWS OR EXPANSION BOLTS

12"

1/2"

NOTES:

1. PIPE SHALL BE: 
   - MINIMUM 1-1/4" SCHEDULE 40 STEEL PIPE (1-5/8" OUTSIDE DIAMETER) 
   - MAXIMUM 1-1/2" SCHEDULE 40 STEEL PIPE (2" OUTSIDE DIAMETER)

2. U-PIPE SHALL BE SOLID ONE-PIECE CONSTRUCTION WITH CONTINUOUS BEND AND LEGS 14" TO 18" APART.


4. THE RACK SHALL BE FLUSH MOUNTED WITH WELDED BASE PLATES, ANCHOR TO CONCRETE WITH HIDDEN OR VANDAL-RESISTANT FASTENERS (SCREWS OR EXPANSION BOLTS).

BASE PLATE DETAIL

PLATE 6"Ø X 3/16"

7/16" Ø HOLE (TYP.)

120°

1" (TYP.)
CONCRETE PAD NOTES:
1. EXPOSED CONCRETE SURFACE SHALL BE BROOM FINISHED.
2. PAD SIZE MAY VARY AS DIRECTED BY THE CITY ENGINEER.
3. PAD SHALL BE CONSTRUCTED WITH CLASS B OR CLASS D CONCRETE.
4. CONCRETE PAD SURFACE SHALL BE SLOPED AT 2% TO DRAIN.

DIMENSIONS:
* 3'-4" MINIMUM WHEN INSTALLED PERPENDICULAR TO A WALL OR CURB
** 3' MINIMUM WHEN INSTALLED PARALLEL TO A WALL OR CURB, 5' MINIMUM SEPARATION FROM CURB FACE WHEN INSTALLED ADJACENT TO A CURB WITH HEAD-IN PARKING
*** 10' MINIMUM IF MORE THAN TWO U-RACKS IN A SERIES

INVERTED U-RACK
6" CONCRETE PAD

SIDE-BY-SIDE RACKS

INVERTED U-RACK
6" CONCRETE PAD

END-TO-END RACKS