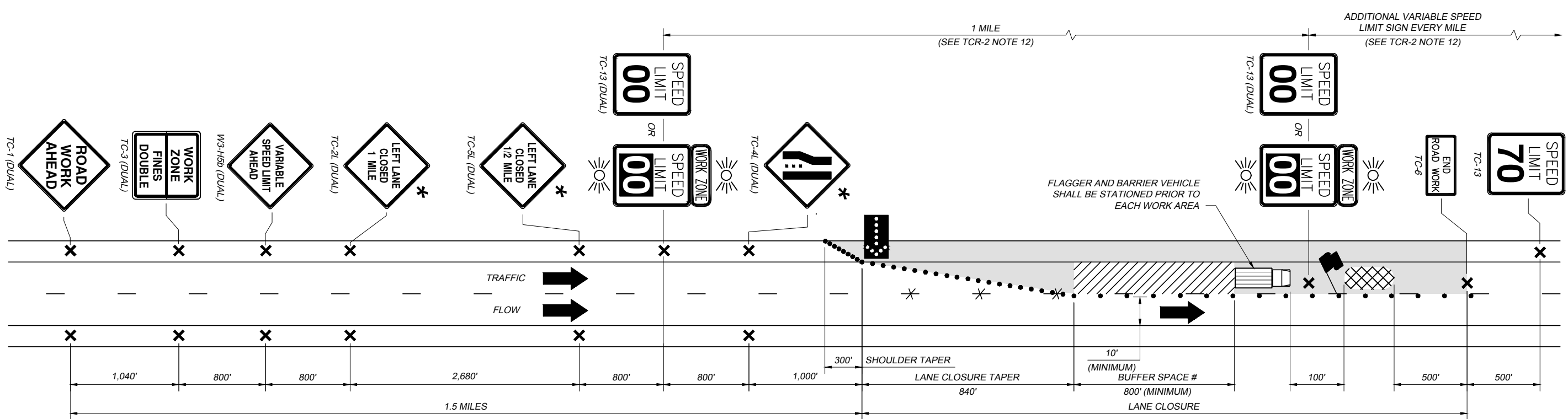


**STANDARD SINGLE LANE CLOSURE**  
TWO-LANE AND THREE-LANE ROADWAY



**STANDARD SINGLE LANE CLOSURE WITH VARIABLE SPEED LIMITS**  
TWO-LANE AND THREE-LANE ROADWAY

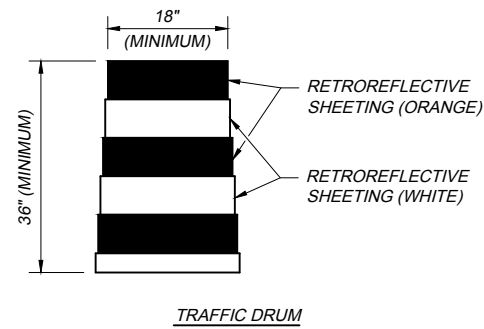
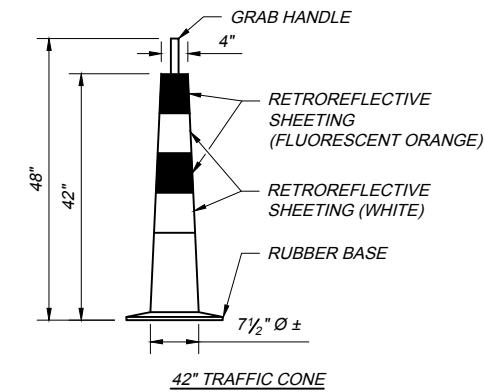
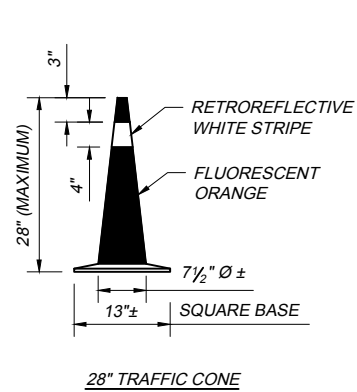
**NOTE:**

- \* - SUBSTITUTE "RIGHT LANE CLOSED" SIGNS (TC-2R, TC-5R, TC-4R) FOR "LEFT LANE CLOSED" SIGNS (SHOWN) WHEN RIGHT LANE IS CLOSED.
- # - THE BUFFER SPACE SHALL BE KEPT FREE OF WORK ACTIVITIES, EQUIPMENT, VEHICLES AND MATERIALS.

SEE OTIC STANDARD DRAWING TCR-2 SHEET 2 OF 2 FOR LEGEND.

**DETAILS**

**NOTES**



**NOTES:**  
 TRAFFIC CONES SHALL BE THE SLIMLINE OR TRIMLINE STYLE WITH THE BODY OF THE TRAFFIC CONE CONSTRUCTED OF POLYVINYL CHLORIDE MATERIAL. THE BASE OF THE TRAFFIC CONE SHALL BE CONSTRUCTED OF POLYVINYL CHLORIDE OR MOLDED RUBBER MATERIAL. THE CONE SHALL BE HOLLOW. THE NET WEIGHT OF THE CONE SHALL NOT BE LESS THAN 5 1/2 POUNDS.

THE EXTERIOR OF THE CONE SHALL BE HIGH VISIBILITY, FADE RESISTANT, IMPREGNATED FLUORESCENT ORANGE. THE GUIDE SHALL HAVE ONE RETROREFLECTIVE WHITE STRIPE ENCIRCLING THE CONE AND BE NOT LESS THAN 4 INCHES IN WIDTH. THE STRIPE SHALL BE PERMANENTLY APPLIED SO THAT THE TOP EDGE IS APPROXIMATELY 3 INCHES FROM THE CONE APEX.

EACH CONE IS TO HAVE A SLIP-OVER COLLAR BASE. THE SLIP-OVER COLLAR BASE SHALL BE BLACK IN COLOR AND SHALL BE CONSTRUCTED OF A RUBBER MATERIAL AND SHALL WEIGH NOT LESS THAN 5 POUNDS. THE SLIP-OVER COLLAR BASE SHALL BE FULLY COMPATIBLE WITH THE PHYSICAL PROPERTIES OF THE CONE.

A ONE-PIECE TRAFFIC CONE MEETING THE ABOVE MATERIAL REQUIREMENTS AND HAVING A NET WEIGHT OF APPROXIMATELY 10 1/2 POUNDS, WITH THE WEIGHT DISTRIBUTED TO ENSURE MAXIMUM STABILITY, MAY BE USED.

SHALL BE CERTIFIED TO MEET THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) CRASH TEST STANDARDS.

**NOTES:**  
 42 INCH TRAFFIC CONES SHALL BE A TWO PIECE DESIGN CONSISTING OF A HOLLOW STEM AND A WEIGHTED BASE. THE STEM SHALL BE MANUFACTURED FROM ULTRAVIOLET STABILIZED, HIGH VISIBILITY ORANGE IMPACT RESISTANT LOW DENSITY POLYETHYLENE AND SHALL HAVE AN INTEGRAL MOLDED HANDLE AT THE TOP OF THE STEM.

EACH CONE IS TO HAVE A SLIP-OVER COLLAR BASE. THE SLIP-OVER COLLAR BASE SHALL BE BLACK IN COLOR AND SHALL BE MANUFACTURED FROM MOLDED RUBBER MATERIAL AND SHALL WEIGH 16 POUNDS. THE SLIP-OVER COLLAR BASE SHALL BE FULLY COMPATIBLE WITH THE PHYSICAL PROPERTIES OF THE CONE.

THE 42 INCH CONE SHALL HAVE A MINIMUM OF 4 EACH, NOMINAL 6 INCH WIDE RETROREFLECTIVE STRIPES STARTING FROM THE TOP IN FLUORESCENT ORANGE, WHITE, FLUORESCENT ORANGE, WHITE SEQUENCE. ANY NONRETROREFLECTIVE SPACES BETWEEN THE FLUORESCENT ORANGE AND WHITE STRIPES SHALL NOT EXCEED 3 INCHES IN WIDTH.

THE RETROREFLECTIVE SHEETING SHALL BE NO. 3910 WHITE AND NO. 3914 FLUORESCENT ORANGE SCOTCHLITE DIAMOND GRADE WORK ZONE SHEETING AS MANUFACTURED BY 3M, OR EQUAL AS APPROVED BY THE CHIEF ENGINEER, CONSIDERING REFLECTIVITY, DURABILITY, PLIABILITY AND ADHESION QUALITIES.

SHALL BE CERTIFIED TO MEET THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) CRASH TEST STANDARDS.

**NOTES:**  
 THE TRAFFIC DRUM SHALL BE A TWO PIECE, BREAKAWAY STYLE, DESIGNED THAT DAMAGE AFTER IMPACT WILL BE MINIMAL THROUGH A TEMPERATURE OF -15 °F TO +125 °F. THE DRUM SHALL BE CONSTRUCTED OF NOT LESS THAN 1/8 INCH THICK, IMPACT RESISTANT, POLYETHYLENE, FORMULATED TO ALLOW THE DRUM TO RETURN TO THE ORIGINAL DESIGN AFTER IMPACT.

THE DRUM SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT AND A MINIMUM OF 18 INCHES IN DIAMETER. THE DRUM SHALL CONTAIN 5 RECESSED BANDS WHICH SHALL ACCEPT RETROREFLECTIVE SHEETING BANDS OF 6 INCH WIDTH. THE DRUM SHALL BE DESIGNED WITH ONE OR MORE FLAT SIDES OR WITH AN ANTI-ROLL DEVICE, TO MINIMIZE ROLLING, SHOULD THE UNIT BE KNOCKED OVER. TOTAL WEIGHT OF THE DRUM SHALL BE NOT LESS THAN 12 POUNDS.

COLOR OF THE DRUM SHALL BE COLOR STABILIZED, SAFETY ORANGE. TO PROVIDE STABILITY OF THE DRUM THE WEIGHTED BASE PORTION SHALL BE THE RUBBER COLLAR WEIGHTING TYPE WITH COMPATIBLE DRUM. DOUBLE WEIGHTING OF DRUMS MAY BE NECESSARY TO PREVENT MOVEMENT.

THE TRAFFIC DRUM SHALL HAVE A MINIMUM OF 4 EACH, NOMINAL 6 INCH WIDE, RETROREFLECTIVE STRIPES APPLIED TO THE DRUM RECESSED BANDS, STARTING FROM THE TOP, IN FLUORESCENT ORANGE, WHITE, FLUORESCENT ORANGE, WHITE SEQUENCE. THE RETROREFLECTIVE SHEETING SHALL BE NO. 3810 WHITE AND NO. 3814 ORANGE AS MANUFACTURED BY THE 3M COMPANY, HIGH IMPACT CHANNELIZER MATERIAL AS MANUFACTURED BY REFLEXITE NORTH AMERICA, OR EQUAL AS APPROVED BY THE CHIEF ENGINEER, CONSIDERING REFLECTIVITY, DURABILITY, PLIABILITY AND ADHESION QUALITIES.

SHALL BE CERTIFIED TO MEET THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) CRASH TEST STANDARDS.

- DRUM/CONE SPACING IS 50 FEET ON-CENTER IN TAPERS, CROSSOVERS AND RAMPS; 100 FEET ON-CENTER IN TANGENTS UNLESS OTHERWISE NOTED.
- FINAL LOCATION OF TEMPORARY TRAFFIC CONTROL DEVICES MAY NEED TO BE ADJUSTED TO PROVIDE MAXIMUM VISIBILITY.
- SIGNS USED FOR LONG TERM STATIONARY ZONES, WHICH ARE LOCATED ON THE LEFT SIDE OF AN OPEN 3-LANE SECTION OF ROADWAY ARE TO BE MOUNTED ON MEDIAN BARRIER CLAMPS WHEN THE MEDIAN BARRIER WALL HEIGHT IS 6 FEET OR LESS. SIGNS ON X-FOOTPRINT SIGN STANDS MAY BE USED IF AUTHORIZED BY THE CHIEF ENGINEER. WHEN THE MEDIAN BARRIER WALL IS OVER 6 FEET HIGH, SIGNS SHALL BE MOUNTED ON APPROVED SIGN SUPPORTS LOCATED ON THE SHOULDER.
- FOR SHORT TERM AND DAYTIME ZONES, SIGNS SHALL BE MOUNTED ON X-FOOTPRINT SIGN STANDS THAT MEET THE REQUIREMENTS OF SP 730. IF A TC-3 OR TC-13 IS REQUIRED ON A PORTABLE SIGN STAND THEN USE A TC-28 OR TC-29, RESPECTIVELY. FOR BI-DIRECTIONAL AND LONG TERM STATIONARY ZONES, SIGNS ARE TO BE MOUNTED ON BREAKAWAY POSTS OR APPROVED SIGN SUPPORTS, UNLESS OTHERWISE SHOWN.
- "END ROAD WORK" AND "SPEED LIMIT 70 MPH" SIGN SHALL BE OMITTED IF ANOTHER ACTIVE WORK ZONE'S ADVANCED SIGNAGE IS LOCATED LESS THAN 1.5 MILES FROM THE INTENDED LOCATION OF THE "END ROAD WORK" SIGN.
- IN LONG TERM STATIONARY ZONES REMOVE REFLECTORS FROM ALL EXISTING RAISED PAVEMENT MARKERS (RPM'S) THAT ARE IN CONFLICT WITH TEMPORARY TRAVEL LANES AND PAVEMENT MARKINGS.
- ANY EXISTING SPEED LIMIT SIGN(S) LOCATED BETWEEN THE TC-1 AND TC-6 SIGNS SHALL BE COVERED WHILE THE ZONE IS IN PLACE. IN PASSING LANE, LEFT LANE OR LEFT/CENTER LANE CLOSURES A TC-13 SHALL BE INSTALLED ON THE RIGHT SHOULDER ADJACENT TO ANY EXISTING SPEED LIMIT SIGN(S) LOCATED WITHIN THE LANE CLOSURE.
- ALL MAINTENANCE OF TRAFFIC DEVICES AND ZONES SHALL FOLLOW THESE STANDARDS. IF SITE SPECIFIC TRAFFIC CONDITIONS EXIST, THE MAINTENANCE OF TRAFFIC PLANS MAY BE MODIFIED TO SUIT THESE CONDITIONS; HOWEVER, NO MODIFICATIONS TO THE MAINTENANCE OF TRAFFIC PLANS SHALL BE MADE UNLESS APPROVED BY THE CHIEF ENGINEER.
- THE WIDTH OF A SINGLE TEMPORARY LANE MAY BE REDUCED TO 10 FEET.
- TC-6 AND TC-13 SHALL BE PLACED ON THE SIDE OF THE CLOSED LANE(S). ON TCR-3 AND TCR-12, TC-6 AND TC-13 WILL ALWAYS BE PLACED ON THE RIGHT SIDE OF THE ROAD.
- WHEN WORKERS ARE REQUIRED TO WORK NEXT TO LIVE TRAFFIC (E.G., FULL DEPTH REPAIR, RPM REPLACEMENT, ETC.) A SINGLE TEMPORARY LANE MAY BE PARTIALLY SHIFTED ON TO THE SHOULDER DURING SHORT TERM ZONES OR SHORT DURATION INTERMITTENT ZONES. THE TEMPORARY SINGLE LANE "BUMP OUT" SHALL BE ALIGNED SUCH THAT THE WHEELS OF THE VEHICLES STRADDLE THE SONIC NAP ALERT PATTERN (SNAP).  
  
IF A "BUMP OUT" IS NEEDED WITHIN A HALF-MILE OF THE START OF THE SINGLE TEMPORARY LANE THEN THE LANE CLOSURE TAPER SHOULD BE EXTENDED SO TRAFFIC IS SHIFTED ONTO THE SHOULDER AT THE BEGINNING OF THE WORK ZONE AND A "RUMBLE STRIPS AHEAD" SIGN SHALL BE PLACED 500 FEET PRIOR TO THE ARROW BOARD.  
  
IF A "BUMP OUT" IS NEEDED FURTHER INTO THE WORK ZONE, THEN THE "BUMP OUT" TAPER SHOULD BE SET AT A 70:1 TAPER RATE. THE "BUMP OUT" TAPER SHALL BE LOCATED SO THERE IS AN 800 FOOT BUFFER SPACE, SPACE FOR A BARRIER VEHICLE, AND 100 FOOT SPACE FOR THE FLAGGER PRIOR TO THE WORK AREA. A LANE SHIFT SIGN (TC-7L/R) SHALL BE PLACED 1,000 FEET PRIOR TO THE START OF THE "BUMP OUT" TAPER. A "RUMBLE STRIPS AHEAD" SIGN SHALL BE PLACED 500 FEET PRIOR TO THE START OF THE "BUMP OUT" TAPER.  
  
THE "BUMP OUT" SHOULD BE TAPERED BACK TO THE SINGLE TEMPORARY LANE AFTER THE WORK AREA. THIS TAPER SHOULD BE SET AT A 70:1 TAPER RATE AND A LANE SHIFT SIGN (TC-7L/R) SHALL BE PLACED 1,000 FEET PRIOR TO THE START OF THE TAPER.  
  
IF MULTIPLE "BUMP OUTS" ARE NEEDED THROUGHOUT THE WORK ZONE THEN THE SINGLE TEMPORARY LANE SHOULD REMAIN SHIFTED UNTIL AFTER THE LAST "BUMP OUT" AREA.  
  
DRUM / CONES SPACING IS 50 FEET ON-CENTER IN THE "BUMP OUT" TAPER AND TANGENT SECTION.
- PLACE A DIGITAL SPEED LIMIT (DSL) SIGN ASSEMBLY OR THE APPROPRIATE TC-13 (SPEED LIMIT 00) SIGN 1,800 FEET PRIOR TO THE LANE CLOSURE TAPER. PLACE ADDITIONAL DSL OR TC-13 AT APPROXIMATELY 1-MILE INTERVALS THROUGHOUT THE LENGTH OF THE LANE CLOSURE. DSL OR TC-13 LOCATED IN THE LANE CLOSURE SHALL BE STATIONED IN THE CLOSED LANE ADJACENT TO TRAFFIC.  
  
DSL OR TC-13 LOCATED IN THE WORK SPACE SHALL NOT BE PLACED IN THE WORK AREA OR THE BUFFER SPACE. DSL OR TC-13 PLACEMENT IN THE WORK AREA SHALL BE ADJUSTED SO THEY DO NOT INTERFERE WITH OTHER REQUIRED TRAFFIC CONTROL DEVICES.  
  
A DSL OR TC-13 MAY BE PLACED PRIOR TO ANY WORK AREA.  
  
A DSL OR TC-13 SHALL BE PLACED AFTER EVERY ACCELERATION RAMP WITHIN THE WORK ZONE.  
  
IF THE LANE CLOSURE IS APPROXIMATELY 1-MILE IN LENGTH THEN AT LEAST ONE DSL OR TC-13 SHALL BE PLACED IN THE WORK ZONE.  
  
THE SPEED LIMIT SHALL BE DISPLAYED IN ACCORDANCE WITH THE REQUIREMENTS OF SP 808.

**LEGEND**

- TYPE III PORTABLE BARRICADE WITH APPROPRIATE SIGN
- SIGN MOUNTED ON X-FOOTPRINT SIGN STAND (SEE NOTES 4 & 5)
- SIGN MOUNTED ON BREAKAWAY OR YIELDING POST(S)
- SIGN MOUNTED ON PERFORATED STEEL SQUARE TUBE SUPPORT (PSST)
- REFLECTORIZED TRAFFIC DRUMS
- REFLECTORIZED TRAFFIC CONES
- REMOVE LANE LINE AND RPM REFLECTORS (OMIT FOR SHORT AND INTERMEDIATE TERM STATIONARY ZONES)
- WORK AREA
- WORK SPACE
- BUFFER SPACE
- FLAGGER LOCATION (ALL WORKING HOURS)
- ARROW BOARD (AB) TYPE C PER ODOT SUPPLEMENTAL SPECIFICATION 821
- BARRIER VEHICLE
- WORK VEHICLE
- SHADOW VEHICLE
- DIGITAL SPEED LIMIT (DSL) SIGN
- FLAT SHEET SIGN USED FOR VARIABLE SPEED LIMIT

TCR-2 2023.02.17.DWG - 2/27/23