STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
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CLAY BRIGHT
COMMISSIONER

BILL LEE
GOVERNOR

INSTRUCTIONAL BULLETIN NO. 19-05

Regarding New and Revised Standard Drawings for Multimodal Design.

Effective August 9, 2019 letting (May 29, 2019 Turn-in), the following standard drawings have been developed to confirm to AASHTO, "A policy on Geometric Design of Highways and Streets", 6th Edition, 2011, "Guide For The Development Of Bicycle Facilities", 2019, "Guide For The Planning, Design, and Operation Of Pedestrian Facilities" and TDOT – "Roadway Design Guidelines" Section 9, Multimodal Design.

Also, Section 5 and 9 of the Roadway Design Guidelines has been revised to incorporate these changes.

New Standard Drawings:

DRAWING NUMBER	REVISION DATE	DESCRIPTION
MM-BPR-1		BIKE AND PEDESTRIAN SAFETY RAIL (Replaced S-BPR-1)
MM-BPR-2		BIKE AND PEDESTRIAN MEDIAN BARRIER RAIL (Replaced S-BPR-2)
MM-CR-1		DETECTABLE WARNING SURFACE PLACEMENT ON CURB RAMPS (Replaced RP-H-3)
MM-CR-2		PERPENDICULAR CURB RAMP (Replaced RP-H-4)
MM-CR-3		PARALLEL CURB RAMP (Replaced RP-H-5)
MM-CR-4		PEDESTRIAN REFUGE (Replaced RP-H-6)

DRAWING NUMBER	REVISION DATE	DESCRIPTION
MM-CR-5		SINGLE CROSSING CURB RAMP IN CURVE (Replaced RP-H-7)
MM-CR-6		DUAL CROSSING CURB RAMP PLACED OUTSIDE CURVE (Replaced RP-H-8)
MM-CR-7		CURB RAMPS IN CURVE BI-DIRECTIONAL DUAL CROSSING (Replaced RP-H-9)
MM-CR-8		MONO-DIRECTIONAL SINGLE CROSSWALK CURB RAMP DETAILS (Replaced RP-H-10)
MM-CR-9		ALTERNATIVE CURB RAMP DETAILS (Replaced RP-H-11)
MM-PM-1		SIGNING AND PAVEMENT MARKINGS AT INTERSECTION CROSSINGS FOR SHARED-USE PATHS (Replaced T-M-10)
MM-PM-2		SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANE OR ROUTES (Replaced T-M-11)
MM-PM-3		SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANES ON URBAN ROADWAYS (Replaced T-M-12)
MM-PM-4		SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANES (Replaced T-M-13)
MM-PM-5		SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANES AT INTERSECTIONS (Replaced T-M-14)
MM-PS-1		DETAILS FOR PEDESTRIAN STEPS AND HANDRAILS (Replaced RP-S-8)
MM-SW-1		DETAILS FOR CONCRETE SIDEWALKS (Replaced RP-S-7)
MM-SW-2		ALTERNATE DETAILS FOR CONCRETE SIDEWALK (REHABILITATION) (Replaced RP-S-9)
MM-TS-3		SEPARATED SHARED USE PATH TYPICAL SECTIONS (Replaced RD11-TS-8)

DRAWING NUMBER	REVISION DATE	DESCRIPTION
Revised Standard Drawings:		
MM-TS-1	01-07-19	BIKE ACCOMMODATION DESIGN GUIDANCE
MM-TS-2	01-07-19	LATERAL OFFSETS FOR SIDEWALK AND SHARED USE PATH
RP-D-15	01-07-19	DETAILS OF STANDARD CONCRETE DRIVEWAYS
RP-D-16	01-07-19	DETAILS OF LOWERED STANDARD CONCRETE DRIVEWAYS

These standard drawings are revised in the Roadway Design Guidelines, Chapter 5, Index of Standard Drawings and are available online.

Standard Drawings:
https://www.tn.gov/content/tn/tdot/roadway-design/standard-drawings-library/standard-roadway-drawings.html

Roadway Design Guidelines:
https://www.tn.gov/content/tn/tdot/roadway-design/design-standards/design-guidelines.html

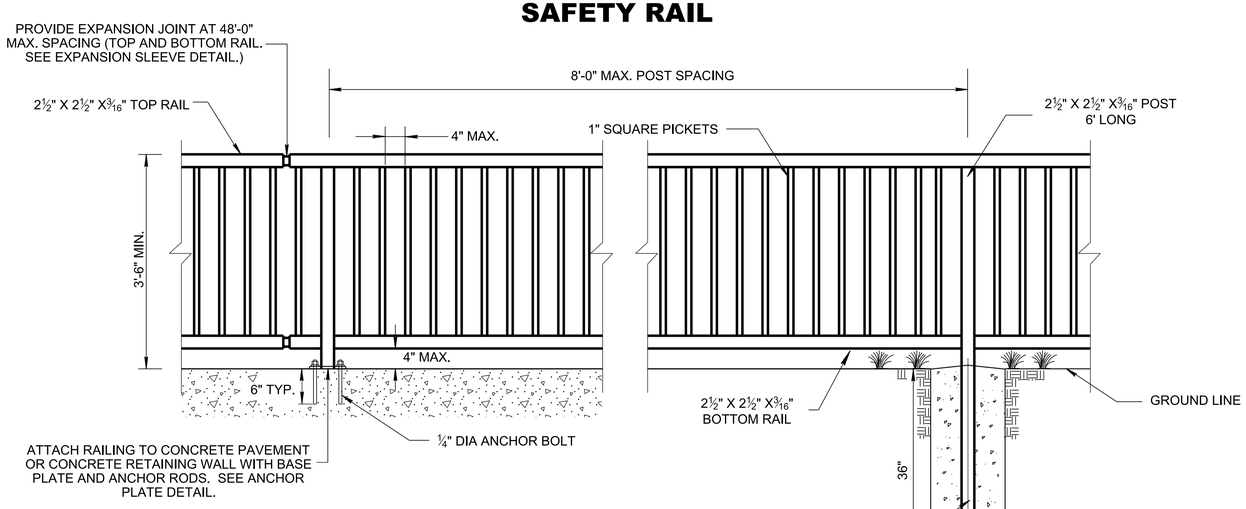
Jennifer Lloyd, PE
Civil Engineering Director
Roadway Design Division

KJL:ARH:RBB:LLP
February 15, 2019

INSTRUCTIONAL BULLETIN NO. 19-05 VOIDED THE FOLLOWING STANDARD DRAWINGS

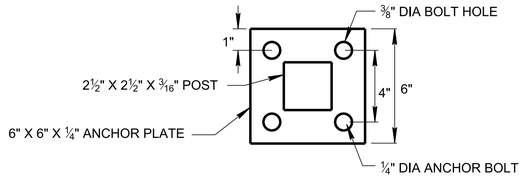
VOIDED	REPLACE WITH
S-BPR-1	MM-BPR-1
S-BPR-2	MM-BPR-2
RP-H-3	MM-CR-1
RP-H-4	MM-CR-2
RP-H-5	MM-CR-3
RP-H-6	MM-CR-4
RP-H-7	MM-CR-5
RP-H-8	MM-CR-6
RP-H-9	MM-CR-7
RP-H-10	MM-CR-8
RP-H-11	MM-CR-9
T-M-10	MM-PM-1
T-M-11	MM-PM-2
T-M-12	MM-PM-3
T-M-13	MM-PM-4
T-M-14	MM-PM-5
RP-S-8	MM-PS-1
RP-S-7	MM-SW-1
RP-S-9	MM-SW-2
RD11-TS-8	MM-TS-3

SAFETY RAIL

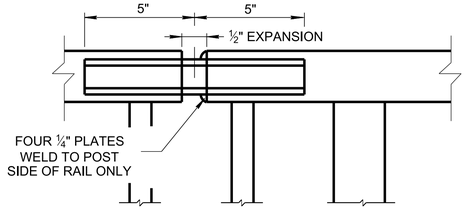


POST BOLTED TO CONCRETE

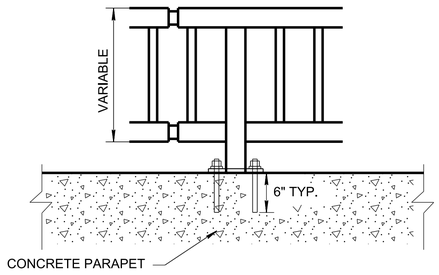
POST SET IN GROUND



ANCHOR PLATE DETAIL

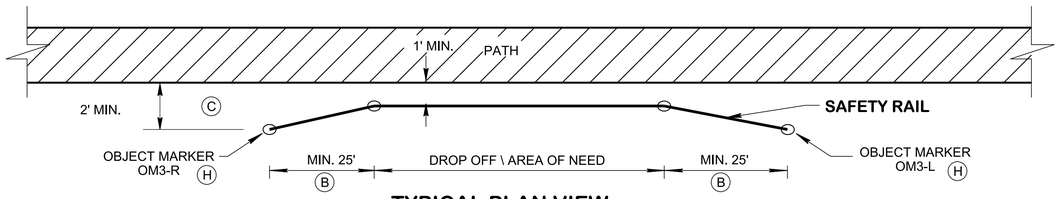


EXPANSION SLEEVE DETAIL (F)

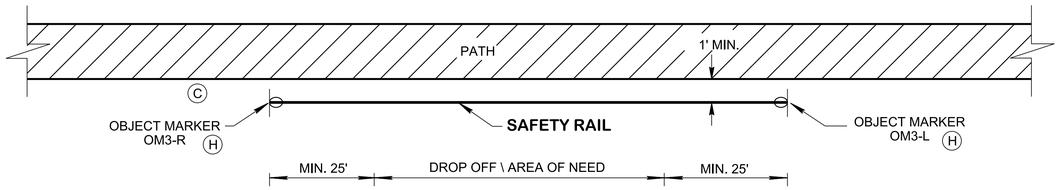


ALTERNATE INSTALLATION

RETROFITING EXISTING CONCRETE BARRIER TO MEET MIN 42" HIGH PED/BIKE SAFE RAIL



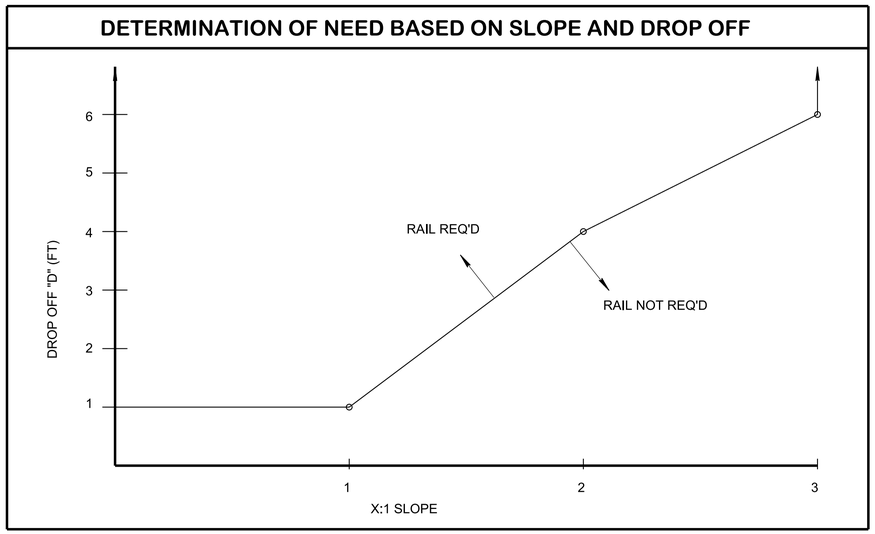
TYPICAL PLAN VIEW SIDEWALK OR SHARED USED PATH

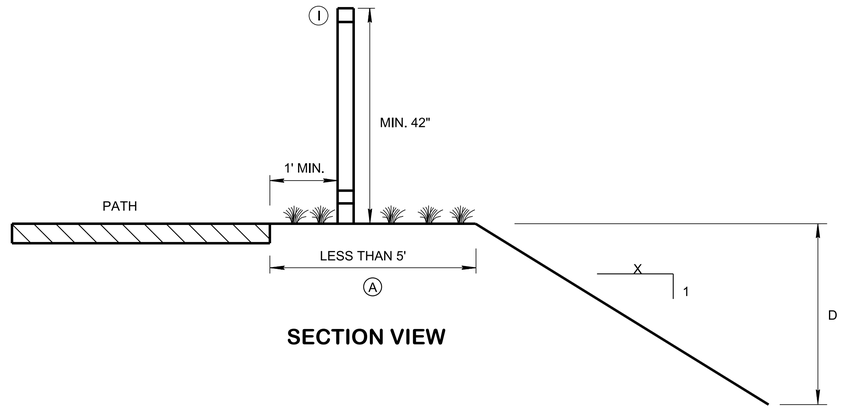


ALTERNATE PLAN VIEW

FIGURE 1

DETERMINATION OF NEED BASED ON SLOPE AND DROP OFF





SECTION VIEW

GENERAL NOTES

(A) TO DETERMINE IF SAFETY RAIL IS REQUIRED, REFER TO FIGURE 1 WHEN SHARED USE PATH OR SIDEWALK EDGE DROP OFF IS WITHIN 5'. INFORMATION IS PROVIDED FOR GUIDANCE ONLY, SOME SITES MAY REQUIRE A RAIL PER ENGINEERING JUDGEMENT. IF SIDEWALK IS ALONG A ROADWAY, SEE STANDARD DRAWING S-PL-6 FOR SAFETY HARDWARE PLACEMENT.

(B) SAFETY RAIL SHALL BEGIN 25' BEFORE AND EXTEND 25' BEYOND AREA OF NEED.

(C) SAFETY RAIL ENDS SHALL BE FLARED TO BEYOND 2' OF THE EDGE OF THE PATH OR MARKED WITH OBJECT MARKERS.

(D) STEEL SHALL CONFORM TO ASTM A36. WELD ALL COMPONENTS USE 3/16" FILLET WELDS. GRIND WELDS AND CONNECTIONS AS REQUIRED TO PROVIDE A SMOOTH SURFACE, FREE OF BURRS.

(E) FIELD PAINT SAFETY RAIL AFTER INSTALLATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.

(F) DETAIL SHOWN IS FOR TOP RAIL. EXPANSION JOINT FOR BOTTOM RAIL IS SIMILAR.

(G) SYSTEM REPLACEMENTS MAY BE ALLOWED PROVIDING THAT THE HEIGHT AND SPACING LIMITATIONS SHOWN ON THIS DRAWING ARE MET.

(H) ALL COST ASSOCIATED WITH THE SAFETY RAIL, FURNISHING, INSTALLING AND PAINTING ALONG WITH THE OBJECT MARKERS WILL BE INCLUDES IN ITEM NO. 604-01.20, BOX TUBE SAFETY RAIL, PER LINEAR FOOT.

(I) STANDARD RIGHT-OF-WAY CHAIN LINK FENCE, 4' HEIGHT MAY BE USED AS AN ALTERNATIVE TO THE BOX TUBE SAFETY RAIL. SEE STANDARD DRAWING S-F-10B FOR CHAIN LINK FENCE DETAILS. ALL COST OF THE OBJECT MARKERS WILL BE INCLUDES IN ITEM NO. 707-01.01. CHAIN LINK FENCE IS TO BE PAID FOR UNDER ITEM NUMBERS:

707-01.01	CHAIN-LINK FENCE (4-FOOT)	PER L.F.
707-01.02	END & CORNER POST ASSEMBLY(CHAIN-LINK FENCE 4')	PER EACH
707-01-04	GATE - CHAIN-LINK FENCE-4 FOOT (DESCRIPTION)	PER EACH

(Replaced Std Dwg S-BPR-1)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

BIKE AND PEDESTRIAN SAFETY RAIL

01-07-2019 | MM-BPR-1

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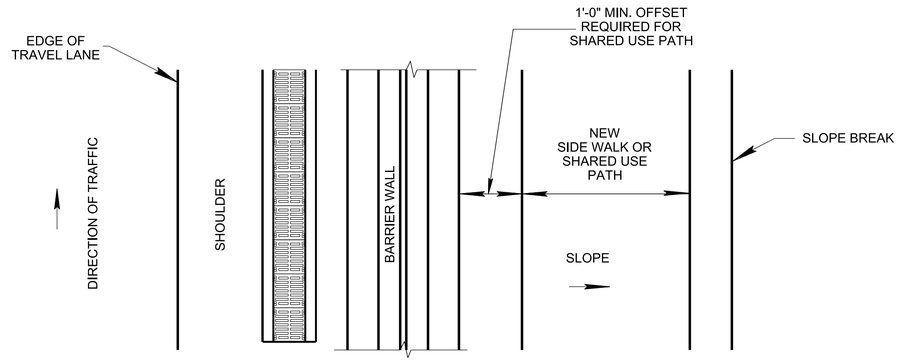
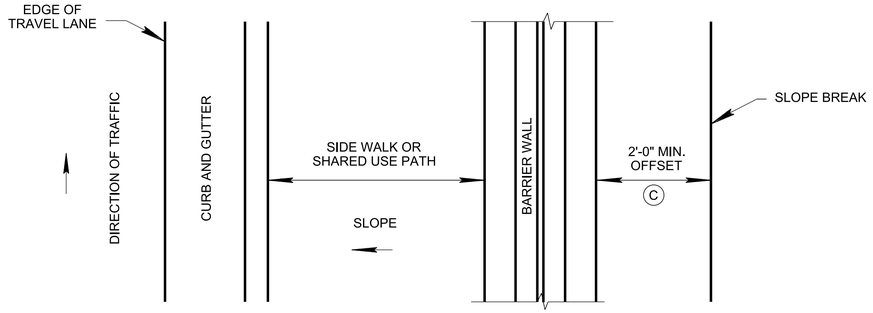
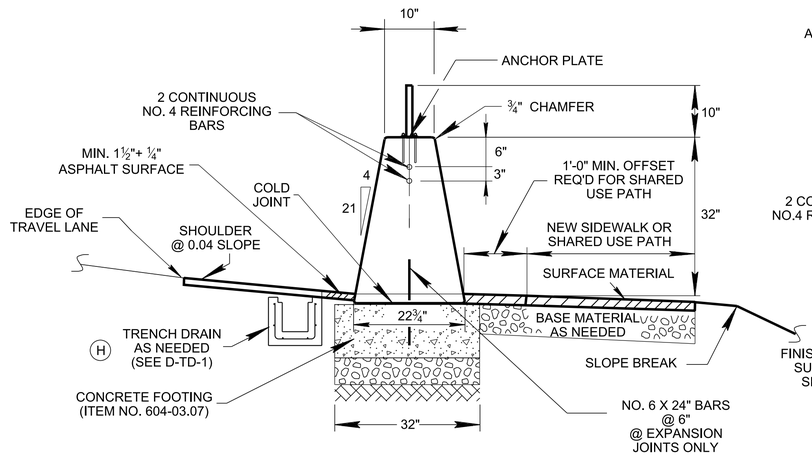


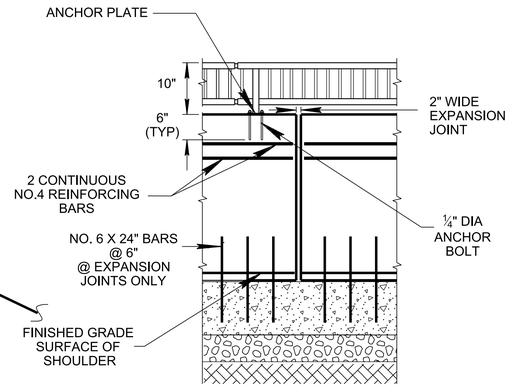
PLAN VIEW



PLAN VIEW



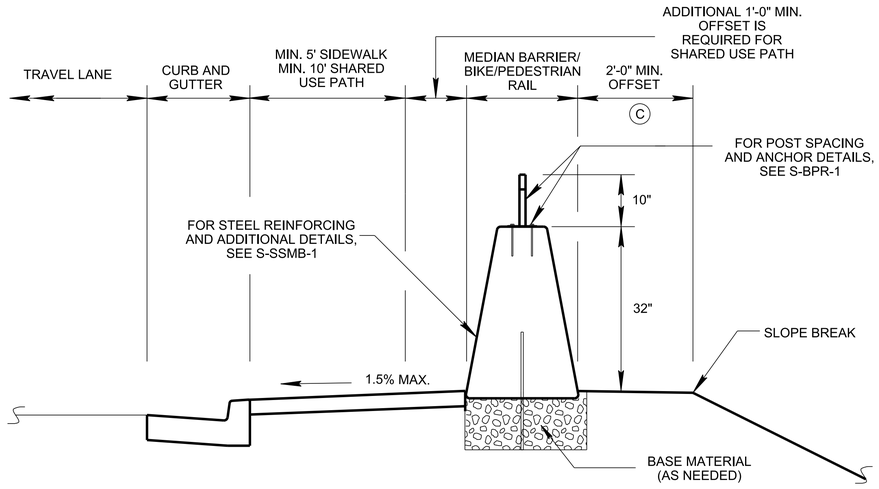
SECTION VIEW



ELEVATION VIEW

TYPICAL CROSS-SECTION (E)
HIGH SPEED TRAVEL LANE (SPEED > 45 MPH)

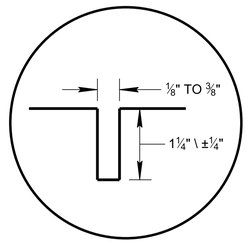
BARRIER PLACEMENT TO PROTECT
NON-MOTORIZED USERS



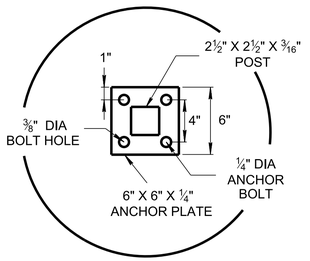
SECTION VIEW

TYPICAL CROSS-SECTION (D)
LOW SPEED TRAVEL LANE

BARRIER PLACEMENT TO PROTECT
MOTORIZED AND NON-MOTORIZED USERS



CONTRACTION JOINT DETAIL



ANCHOR PLATE DETAIL

GENERAL NOTES

(A) REFER TO STD. DWG. MM-TS-3 FOR ADDITIONAL DETAILS.

(B) REFER TO STD. DWG. RD11-TS-SERIES FOR MINIMUM SHOULDER WIDTH REQUIREMENTS DURING REHABILITATION PROJECTS.

(C) IF CONCRETE BARRIER IS INSTALLED WITH FOUNDATION SHOWN IN SECTION A-A ON S-PL-4, MINIMUM OFFSET MAY BE REDUCED TO 0'.

(D) THIS DETAIL SHOULD BE USED AT LOCATIONS WHERE DROP-OFF WOULD WARRANT GUARDRAIL.

(E) THE INTENT OF THIS PLACEMENT IS TO PROVIDE POSITIVE PROTECTION FOR NON-MOTORIZED USERS.

(F) THE BLUNT END OF THE BARRIER RAIL SHALL BE PROTECTED BY A CRASH CUSHION (SEE S-CC-1), OR BY AN END TERMINAL IF LOCATED WITHIN THE CLEAR ZONE.

(G) PAYMENT FOR BARRIER MEDIAN RAIL WILL BE UNDER ITEM NO'S:

604-01.20	BOX TUBE SAFETY RAIL	PER LINEAR FOOT
711-05.70	32 IN SINGLE SLOPE CONCRETE BARRIER WALL	PER LINEAR FOOT

(H) REHABILITATION PROJECTS MAY REQUIRE DRAINAGE STRUCTURE LOCATIONS WHERE STORM DRAINAGE IS NOT EXISTING.

(Replaced Std Dwg S-BPR-2)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

BIKE AND PEDESTRIAN MEDIAN BARRIER RAIL

01-07-2019

MM-BPR-2

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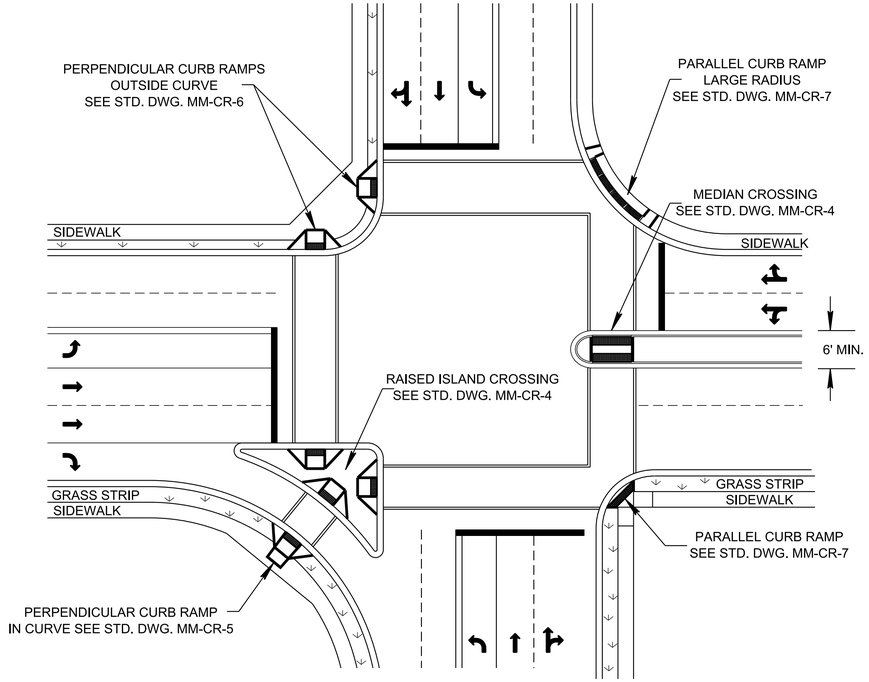
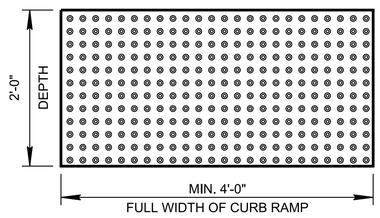
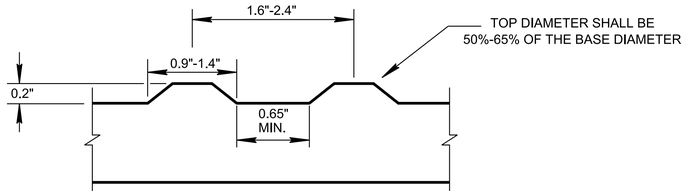


PLAN VIEW

(EXAMPLE LAYOUT SHOWING EACH RAMP TYPE; SEE REFERENCED STANDARD DRAWINGS FOR SPECIFIC ALIGNMENT INFORMATION)



DETECTABLE WARNING SURFACE DETAIL



DETECTABLE WARNING SURFACE ELEVATION VIEW (TYP.)

GENERAL NOTES

Ⓐ DETAILS SHOWN ON THIS STANDARD DRAWING APPLY TO THE CONSTRUCTION OR RECONSTRUCTION OF STREETS, CURBS, OR SIDEWALKS.

Ⓑ THE DETECTABLE WARNING SURFACES SHALL BE YELLOW. THE COLOR YELLOW IS USED BECAUSE YELLOW IS THE LAST COLOR A VISUALLY IMPAIRED PERSON CAN DETECT PRIOR TO TOTAL LOSS OF VISION. DETECTABLE WARNING SURFACES SHALL BE CONSTRUCTED USING PRODUCTS APPROVED ON THE TDOT QUALIFIED PRODUCT LIST 37.

Ⓒ THE DEPTH OF DETECTABLE WARNING SURFACES SHALL BE 2 FEET, IN THE DIRECTION OF PEDESTRIAN TRAVEL. AT CURB RAMPS AND BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN (EXCLUDING ANY FLARED SIDES), BLENDED TRANSITION, OR TURNING SPACE.

Ⓓ THE DETECTABLE WARNING SURFACE SHALL NOT BE EXTENDED BEYOND CROSSWALK BOUNDARIES AT LOCATIONS LACKING PROPER CURB HEIGHT.

Ⓔ CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS.

Ⓕ CURB RAMPS SHALL BE PROVIDED AT ALL CORNERS OF STREET INTERSECTIONS WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. CURB RAMPS SHALL ALSO BE PROVIDED AT MIDBLOCK CROSSWALK LOCATIONS AND ACROSS FROM CORNER RAMPS AT T-INTERSECTIONS.

Ⓖ CARE SHALL BE TAKEN TO ENSURE A UNIFORM GRADE ON THE RAMP. THE GRADE SHALL BE FREE OF SAGS AND SHORT GRADE CHANGES.

Ⓗ DRAINAGE STRUCTURES SHALL NOT BE PLACED IN LINE WITH RAMPS. INSTALL CATCH BASINS ON UPSTREAM SIDE OF RAMP FOR ROADS WITH GRADES LESS THAN 2%.

Ⓘ CROSSWALK MARKINGS, IF USED, SHALL BE LOCATED AS SHOWN ON THE APPLICABLE CURB RAMP STANDARD DRAWING. FOR CROSSWALK MARKING DETAILS, SEE STD. DWG. T-M-4.

Ⓙ FOR PERPENDICULAR CURB RAMP DESIGN DETAILS, SEE STD. DWG. MM-CR-2. FOR PARALLEL CURB RAMP DESIGN DETAILS, SEE STD. DWG. MM-CR-3.

Ⓚ PAYMENT:

ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN NEWLY CONSTRUCTED SIDEWALK AREAS, SHALL BE PAID BY ITEM NO. 701-02.03, CONCRETE CURB RAMP, PER SQUARE FOOT.

Ⓛ FOR SIGNALIZED INTERSECTIONS THAT REQUIRE PEDESTRIAN SIGNAL PUSHBUTTONS, SEE TDOT TRAFFIC DESIGN MANUAL FOR PLACEMENT DETAILS.

(Replaced Std Dwg RP-H-3)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

DETECTABLE WARNING SURFACE PLACEMENT ON CURB RAMPS

01-07-2019

MM-CR-1

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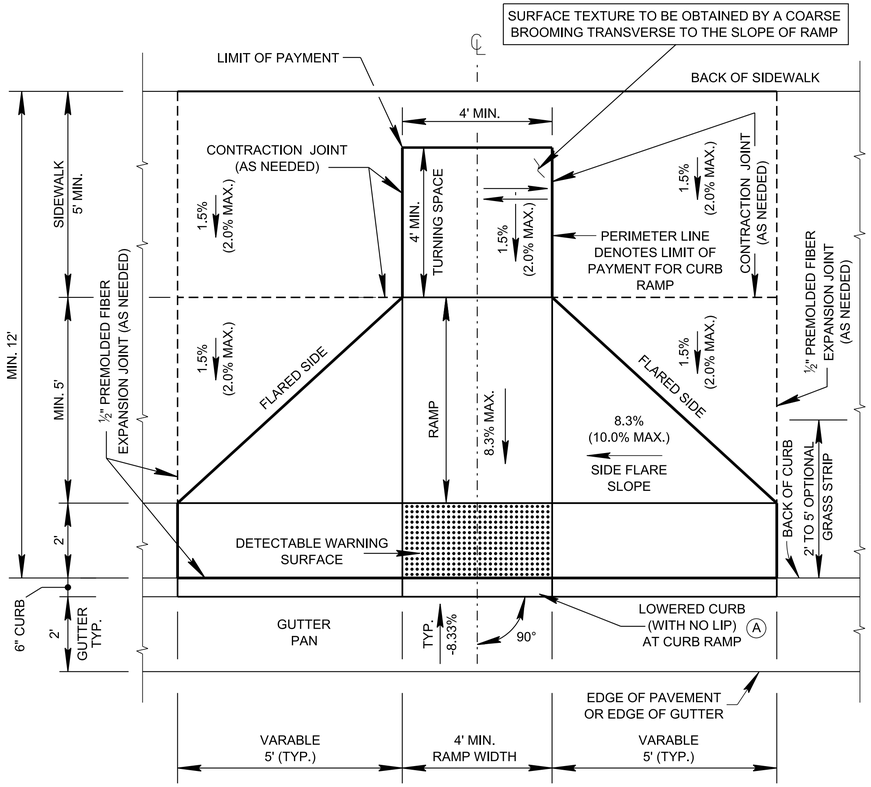
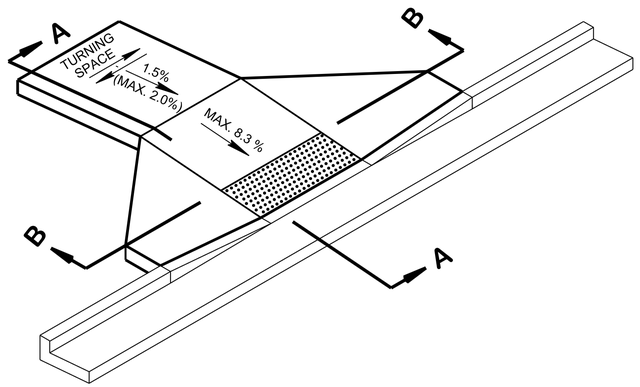
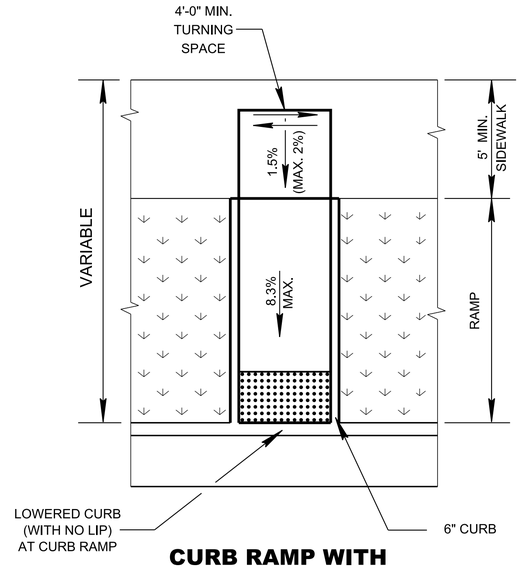


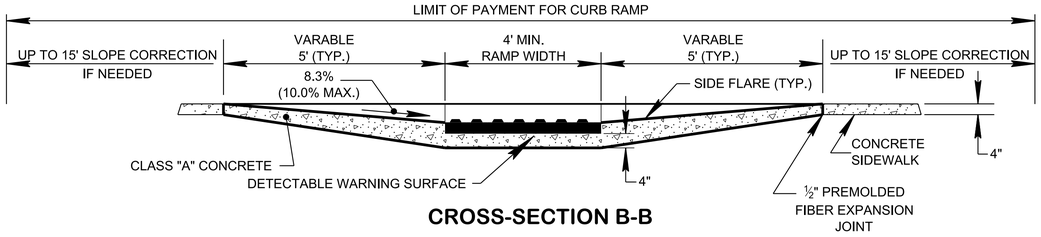
PERPENDICULAR CURB RAMP
PLAN VIEW



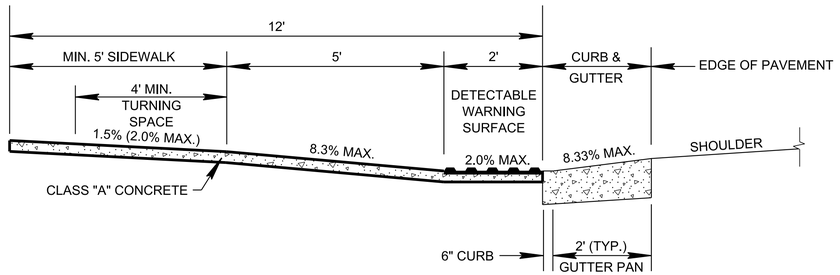
ISOMETRIC VIEW
CURB RAMP WITH GUTTER DETAIL



CURB RAMP WITH RETURNED CURB



CROSS-SECTION B-B



CROSS SECTION A-A

(SHOWN 30" CURB AND GUTTER TRANSITION)
AT LOCATIONS WHERE THE GUTTER PAN DOES NOT EXIST AND 2 FEET OF FLAT SURFACE MAY BE ELIMINATED.
THE ALGEBRAIC DIFFERENCE IN GRADE AT THE CURB RAMP/STREET INTERFACE SHALL NOT EXCEED 11%.

GENERAL NOTES

(A) PERPENDICULAR CURB RAMPS TO BE USED WHEN TOTAL SIDEWALK OR SIDEWALK AND GRASS STRIP WIDTH IS 12' OR GREATER, SEE STD. DWG. MM-CR-5 FOR PERPENDICULAR CURB RAMP IN CURVE, AND SEE STD. DWG. MM-CR-6 FOR PERPENDICULAR CURB RAMP PLACED OUTSIDE CURVE. PERPENDICULAR CURB RAMP MINIMUM DIMENSION SHOWN FOR 6" VERTICAL CURB.

(B) CURB SHALL BE FLUSH ACROSS ENTIRE WIDTH OF CURB RAMP. DETECTABLE WARNING SURFACES SHALL EXTEND 2' IN THE DIRECTION OF PEDESTRIAN TRAVEL. AT CURB RAMPS AND BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN (EXCLUDING ANY FLARED SIDES), BLENDED TRANSITION, OR TURNING SPACE. SEE STD. DWG. MM-CR-1 FOR DETECTABLE WARNING SURFACE DETAILS.

(C) DESIGN / CONSTRUCTION MODIFICATIONS MAY BE REQUIRED FOR CURB RAMPS TO BE INSTALLED ALONG A ROADWAY WITH LONGITUDINAL GRADES EXCEEDING 5%. ENGINEER SHOULD BE NOTIFIED FOR ASSESSMENT IF THE CURB RAMP SIDE FLARES EXCEED 10' IN LENGTH DUE TO THE LONGITUDINAL GRADE.

(D) PAYMENT:

NEW:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN NEWLY CONSTRUCTED SIDEWALK AREAS, SHALL BE PAID BY ITEM NO. 701-02.03, CONCRETE CURB RAMP, PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

RETROFIT:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN EXISTING SIDEWALK AREAS, REMOVAL OF THE EXISTING SIDEWALK, AND ADJUSTMENT OF GUTTER PAN SLOPE, SHALL BE PAID BY ITEM NO. 701-02.01, CONCRETE CURB RAMP (RETROFIT), PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INSTALLATION OF CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

COST OF CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB, PER C. Y. OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER, PER C. Y.

(E) WHERE NEW CURB RAMP CONDITIONS DO NOT MEET EXISTING SIDEWALK, THE DESIGNER SHALL ADD ADDITIONAL QUANTITY FOR 15 FEET OF SIDEWALK MODIFICATION TO TIE TO THE EXISTING GRADE.

(F) SIGNALIZED INTERSECTIONS WITH SIDEWALK SHALL HAVE PEDESTRIAN SIGNAL HEADS AND PUSHBUTTONS. ALL ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTONS SHALL BE ALIGNED WITH THE DIRECTION OF THE RAMP. SEE TDOT TRAFFIC DESIGN MANUAL FOR DETAILS.

(G) FOR ADDITIONAL SIDEWALK DETAILS AND IF MAILBOXES ARE REMOVED DURING INSTALLATION OF THE CURB RAMP, PROVIDE A 12" X 12" OPENING BEHIND THE CURB. SEE STD. DWG. MM-SW-1.

(H) IF GRASS STRIP IS INSTALLED, THE SIDE FLARES MAY BE OMITTED AND A RETURNED CURB OPTION MAY BE USED.

(I) DESIRABLE SIDEWALK CROSS SLOPE IS 1.5 %, ABSOLUTE MAXIMUM IS 2.0 %.

(J) SURFACE TEXTURE TO BE OBTAINED BY A COARSE BROOMING TRANSVERSE TO THE SLOPE OF CURB RAMP.

(K) SEE STD. DWG. T-M-4 FOR CROSSWALK MARKING DETAILS.

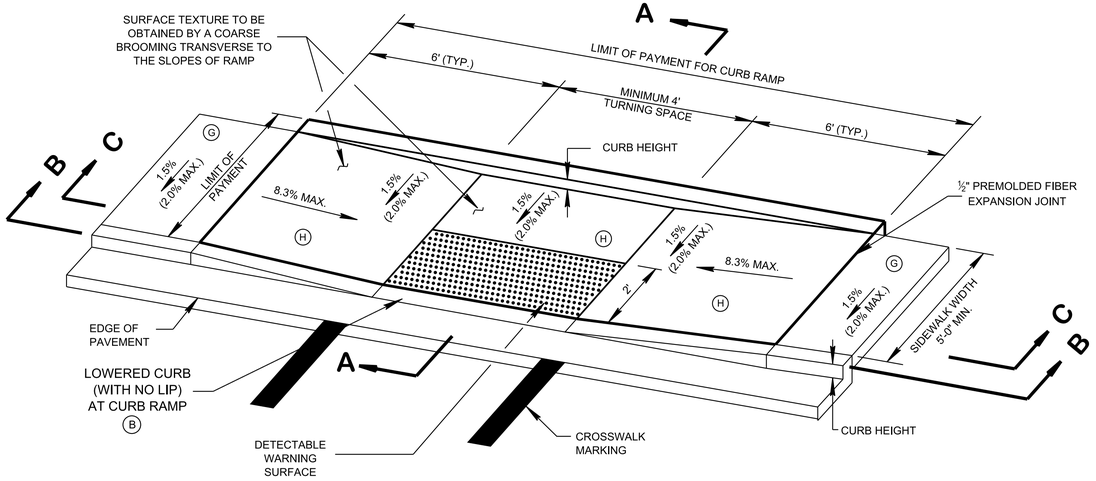
(Replaced Std Dwg RP-H-4)

STATE OF TENNESSE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

PERPENDICULAR CURB RAMP

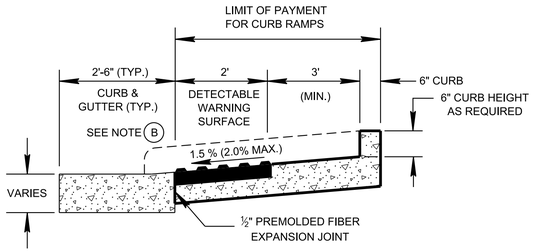
01-07-2019 MM-CR-2

NOT TO SCALE

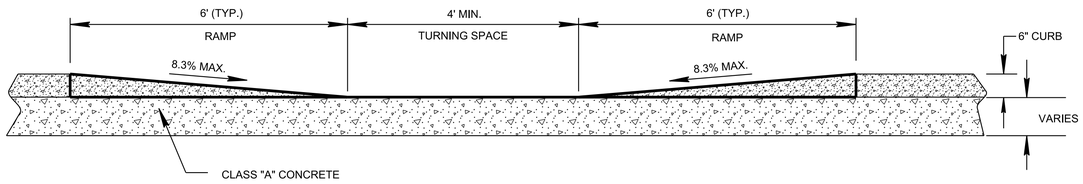


PARALLEL CURB RAMP DETAIL

DIMENSIONS SHOWN ABOVE FOR 0% LONGITUDINAL ROADWAY GRADE

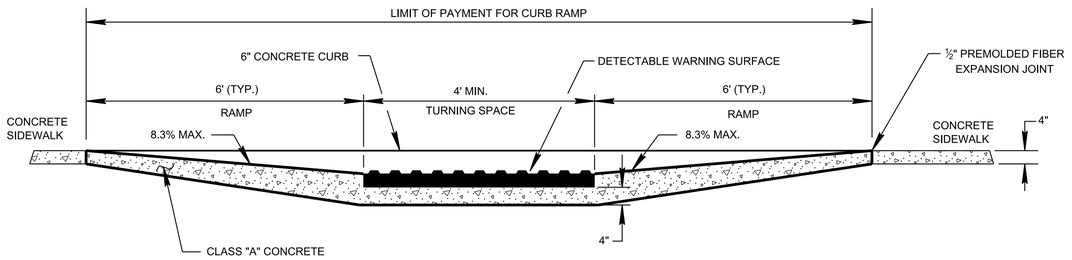


SECTION A-A



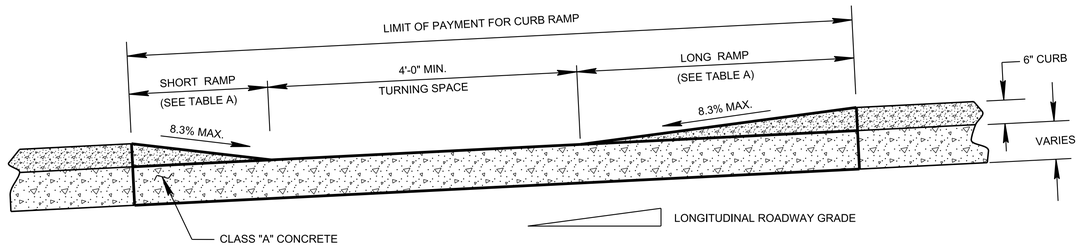
SECTION B-B

DIMENSIONS SHOWN ABOVE FOR 0% LONGITUDINAL ROADWAY GRADE



SECTION C-C

DIMENSIONS SHOWN ABOVE FOR 0% LONGITUDINAL ROADWAY GRADE



ALTERNATE SECTION B-B

PARALLEL CURB RAMP DETAIL SHOWN WITH LONGITUDINAL ROADWAY GRADE

NOTE: MODIFICATIONS MAY BE REQUIRED FOR LONGITUDINAL ROADWAY GRADES STEEPER THAN 5%. ENGINEER SHOULD BE NOTIFIED FOR ASSESSMENT IF THE CURB RAMP RUN EXCEEDS 15' IN LENGTH DUE TO THE LONGITUDINAL ROADWAY GRADE.

TABLE A

LONGITUDINAL ROADWAY GRADE	LONG RAMP	SHORT RAMP	PAY AREA S.F.
5 %	15'-0"	3'-9"	114
4 %	11'-6"	4'-1"	98
3 %	9'-5"	4'-5"	90
2 %	7'-11"	4'-10"	84
1 %	6'-10"	5'-5"	92
0 %	6'-0"	6'-0"	80

BASED ON 5' SIDEWALK WIDTH (EXCLUDING BACK CURB)

GENERAL NOTES

(A) PARALLEL CURB RAMPS MAY BE USE WHEN SIDEWALK WIDTH IS LESS THAN 12' AND CURB RAMP IS LOCATED ALONG TANGENT SIDEWALK SECTION OF ROADWAY. FOR PARALLEL CURB RAMPS INSTALLED IN CURVE SEE STD. DWG. MM-CR-7.

(B) CURB SHALL BE FLUSH ACROSS ENTIRE WIDTH OF CURB RAMP. DETECTABLE WARNING SURFACES SHALL EXTEND 2' IN THE DIRECTION OF PEDESTRIAN TRAVEL. AT CURB RAMPS AND BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN (EXCLUDING ANY FLARED SIDES), BLENDED TRANSITION, OR TURNING SPACE. SEE STD. DWG. MM-CR-1 FOR DETECTABLE WARNING SURFACE DETAILS.

(C) DESIGN / CONSTRUCTION MODIFICATIONS MAY BE REQUIRED FOR CURB RAMPS TO BE INSTALLED ALONG A ROADWAY WITH LONGITUDINAL GRADES EXCEEDING 5%. ENGINEER SHOULD BE NOTIFIED FOR ASSESSMENT IF THE CURB RAMP SIDE FLARES EXCEED 15' IN LENGTH DUE TO THE LONGITUDINAL GRADE.

(D) PAYMENT:

NEW:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN NEWLY CONSTRUCTED SIDEWALK AREAS, SHALL BE PAID BY ITEM NO. 701-02.03, CONCRETE CURB RAMP, PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

RETROFIT:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN EXISTING SIDEWALK AREAS, REMOVAL OF THE EXISTING SIDEWALK, AND ADJUSTMENT OF GUTTER PAN SLOPE, SHALL BE PAID BY ITEM NO. 701-02.01, CONCRETE CURB RAMP (RETROFIT), PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INSTALLATION OF CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

COST OF CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB, PER C. Y. OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER, PER C. Y.

(E) FOR SIGNALIZED INTERSECTIONS THAT REQUIRE PEDESTRIAN SIGNAL PUSHBUTTONS, SEE TDOT TRAFFIC DESIGN MANUAL FOR PLACEMENT DETAILS.

(F) FOR ADDITIONAL SIDEWALK DETAILS AND IF MAILBOXES ARE REMOVED DURING INSTALLATION OF THE CURB RAMP, PROVIDE A 12" X 12" OPENING BEHIND THE CURB. SEE STD. DWG. MM-SW-1.

(G) WHERE NEW CURB RAMP CONDITIONS DO NOT MEET EXISTING SIDEWALK, THE DESIGNER SHALL ADD ADDITIONAL QUANTITY FOR UP TO 15 FEET IN EACH DIRECTION OF SIDEWALK MODIFICATION TO TIE TO THE EXISTING GRADE.

(H) SURFACE TEXTURE TO BE OBTAINED BY A COARSE BROOMING TRANSVERSE TO THE SLOPE OF CURB RAMP.

(I) SEE STD. DWG. T-M-4 FOR CROSSWALK MARKING DETAILS.

(Replaced Std Dwg RP-H-5)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

PARALLEL CURB RAMP

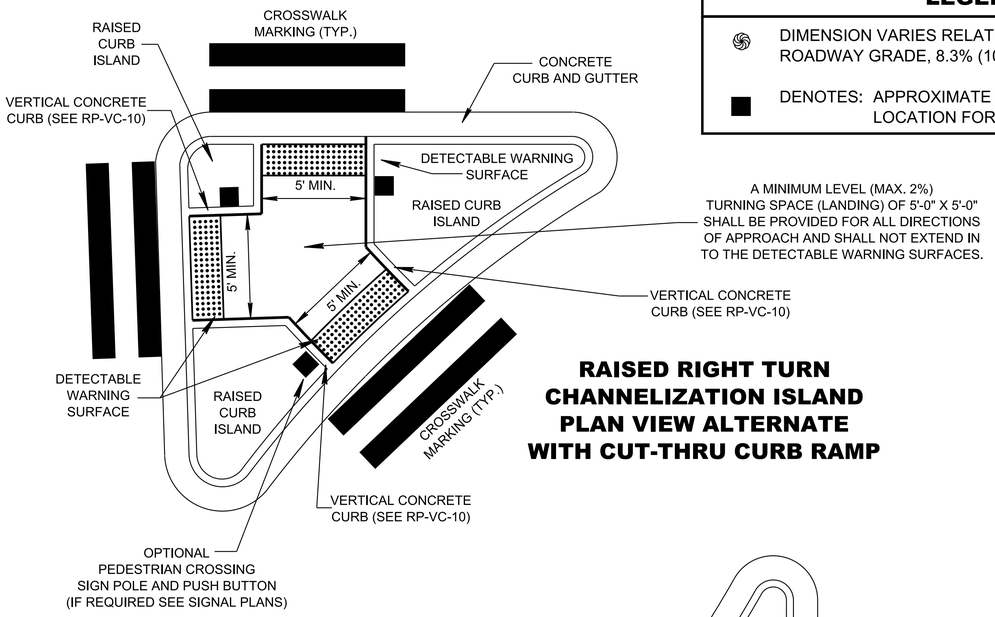
01-07-2019

MM-CR-3

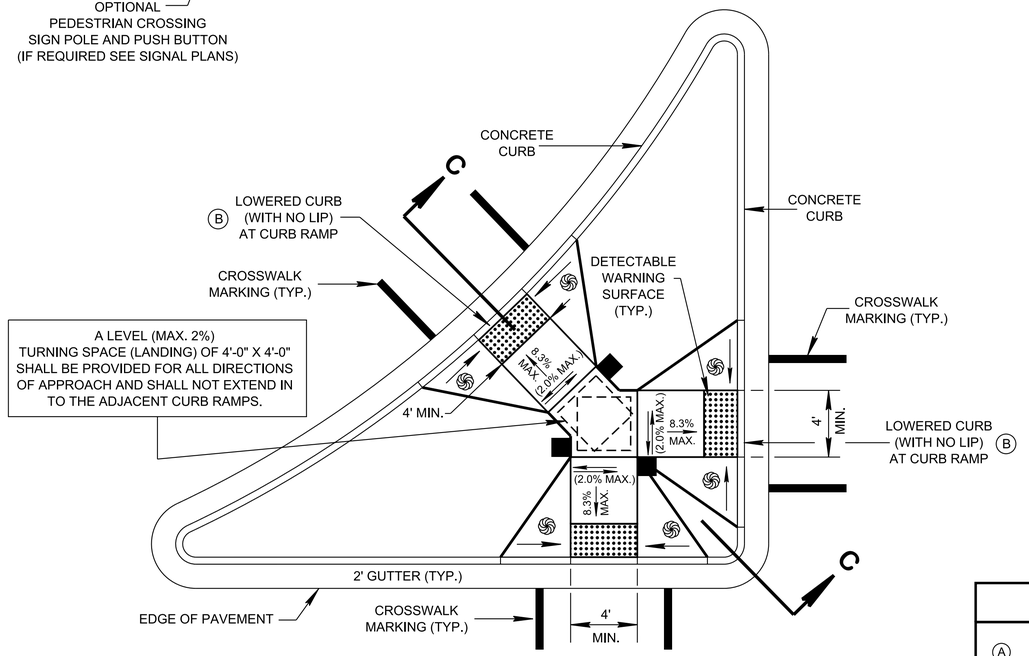
NOT TO SCALE

LEGEND

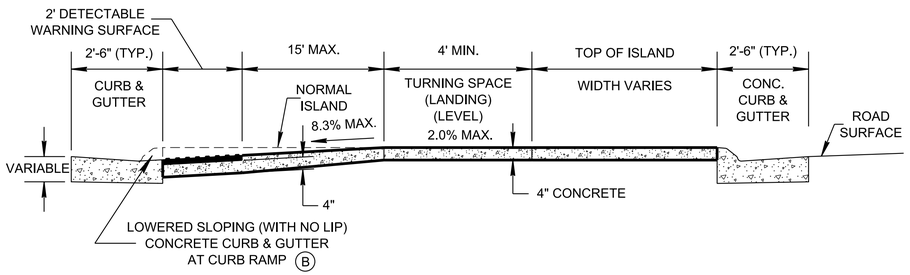
- DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE, 8.3% (10.0% MAX.)
- DENOTES: APPROXIMATE PEDESTRIAN PUSHBUTTON LOCATION FOR SIGNALIZED INTERSECTIONS



RAISED RIGHT TURN CHANNELIZATION ISLAND PLAN VIEW ALTERNATE WITH CUT-THRU CURB RAMP

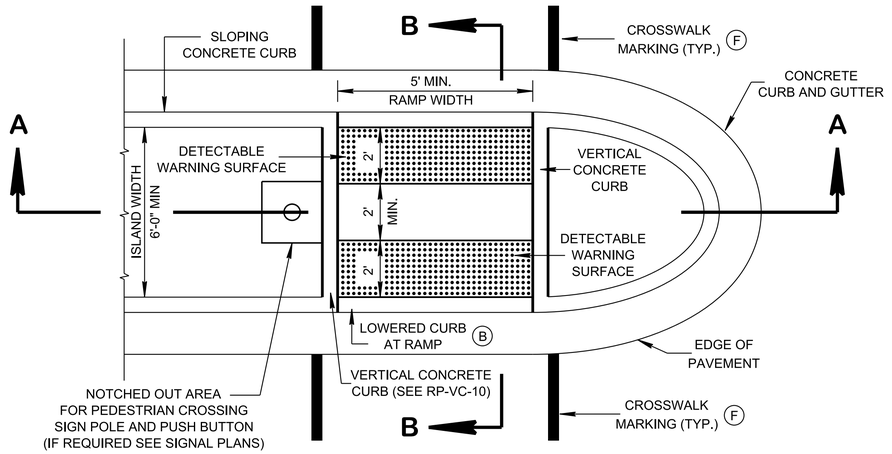


RAISED RIGHT TURN CHANNELIZATION ISLAND PLAN VIEW

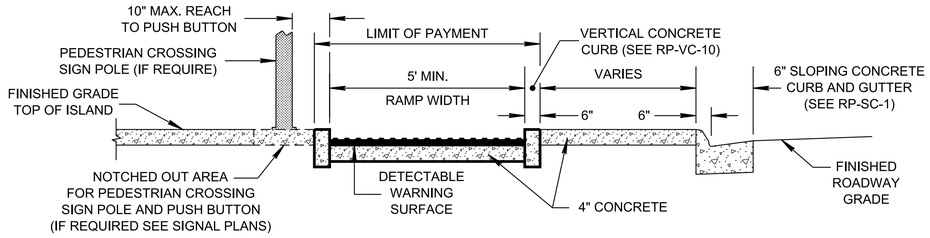


SECTION C-C

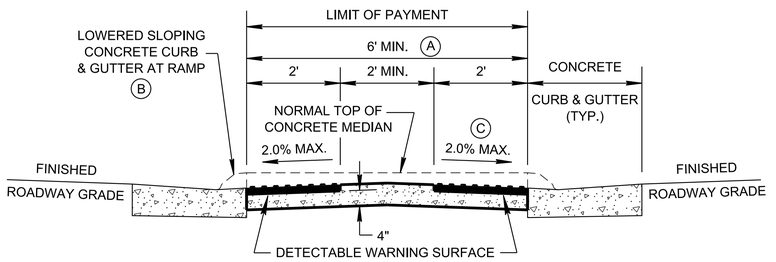
NOT TO SCALE



MEDIAN REFUGE PLAN VIEW



MEDIAN REFUGE SECTION A-A



MEDIAN REFUGE SECTION B-B

GENERAL NOTES

(A) IF THE MEDIAN IS LESS THAN 6' WIDE, THE AREA IS NOT A PEDESTRIAN REFUGE AND NO DETECTABLE WARNING SURFACES ARE REQUIRED.

(B) CURB SHALL BE LOWERED ACROSS ENTIRE WIDTH OF RAMP.

(C) THE GRADE OF THE MEDIAN REFUGE SHOULD NOT EXCEED 5%.

(D) FOR ADDITIONAL DETAILS AND OTHER INFORMATION NOT SHOWN ON THIS DRAWING, SUCH AS LIMITS OF PAYMENT, SEE STD. DWG. MM-CR-2.

(E) FOR DETECTABLE WARNING SURFACE DETAILS, SEE STD. DWG. MM-CR-1.

(F) FOR CROSSWALK MARKING DETAILS, SEE STD. DWG. T-M-4.

(G) THE 5'-0" MIN. CURB RAMP WIDTH IS APPLICABLE FOR CUT-THRU MEDIANS AND PEDESTRIAN ISLAND REFUGES ONLY, OTHERWISE 4'-0" MIN. CURB RAMP WIDTH MAY BE USED.

(H) PAYMENT:
COST OF CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB, PER C. Y. OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER, PER C. Y.

NEW CURB RAMPS:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING TRUNCATED DOME SURFACE(S) IN NEWLY CONSTRUCTED SIDEWALK AREAS, SHALL BE PAID BY ITEM NO. 701-02.03, CONCRETE CURB RAMP, PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

CURB RAMPS (RETROFIT):
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING TRUNCATED DOME SURFACE(S) IN EXISTING SIDEWALK AREAS, REMOVAL OF THE EXISTING SIDEWALK, AND ADJUSTMENT OF GUTTER PAN SLOPE, SHALL BE PAID BY ITEM NO. 701-02.01, CONCRETE CURB RAMP (RETROFIT), PER SQUARE FOOT.

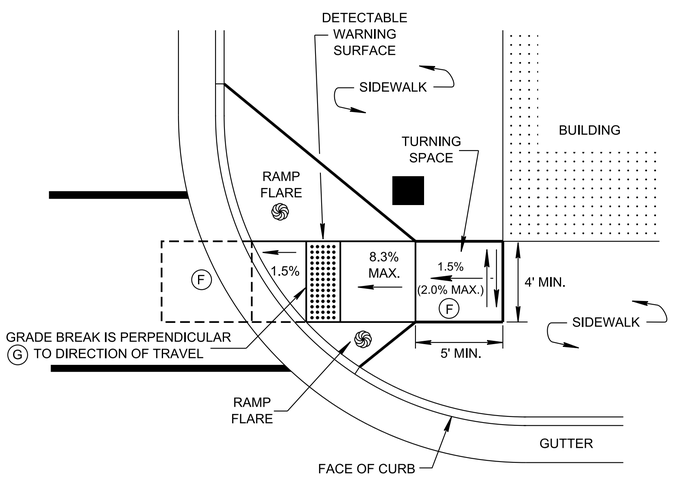
PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INSTALLATION OF CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

(Replaced Std Dwg RP-H-6)

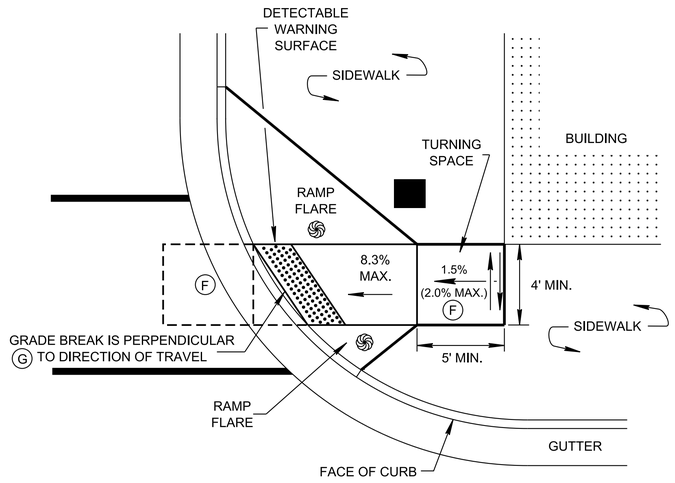
STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

PEDESTRIAN REFUGE

01-07-2019 MM-CR-4

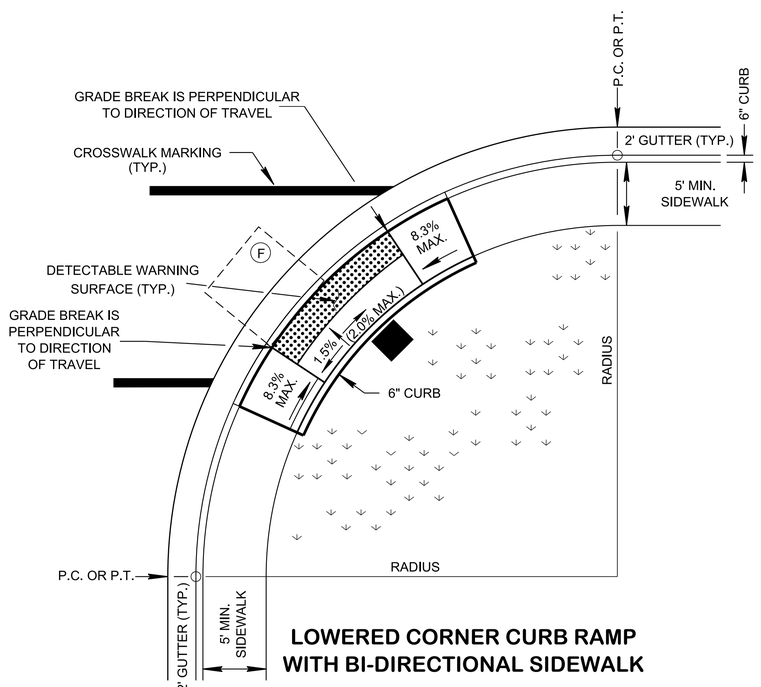


BI-DIRECTIONAL SIDEWALK

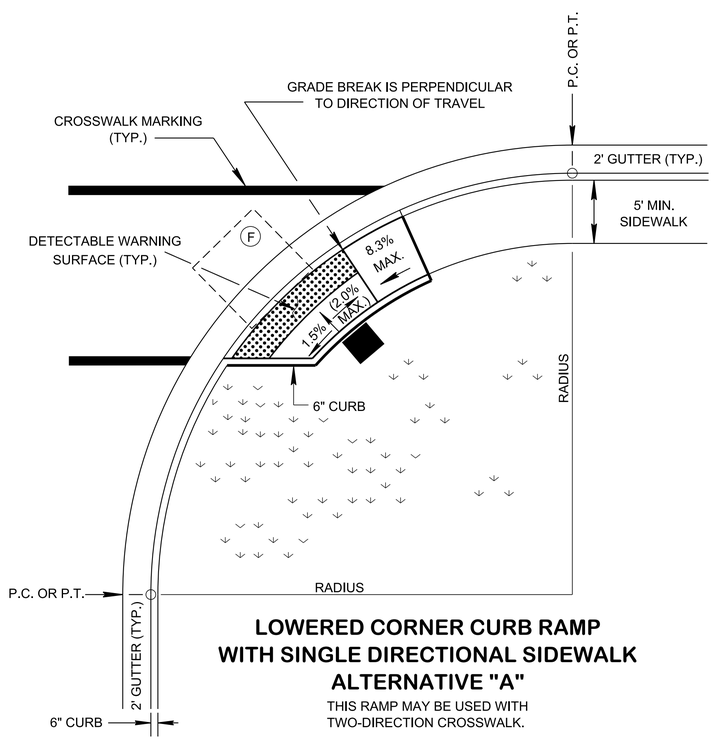


BI-DIRECTIONAL SIDEWALK ALTERNATIVE PLACEMENT

PERPENDICULAR CURB RAMPS FOR SINGLE CROSSING



LOWERED CORNER CURB RAMP WITH BI-DIRECTIONAL SIDEWALK



LOWERED CORNER CURB RAMP WITH SINGLE DIRECTIONAL SIDEWALK ALTERNATIVE "A"

THIS RAMP MAY BE USED WITH TWO-DIRECTION CROSSWALK.

PARALLEL CURB RAMPS FOR SINGLE CROSSING

LEGEND

DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE, 8.3% DESIRABLE (10.0% MAX.)

DENOTES: APPROXIMATE PEDESTRIAN POLE/PUSHBUTTON LOCATION FOR SIGNALIZED INTERSECTIONS

GENERAL NOTES

(A) FOR DETECTABLE WARNING SURFACE DETAILS SEE STD. DWG. MM-CR-1. FOR ADDITIONAL DETAILS AND OTHER INFORMATION FOR PERPENDICULAR CURB RAMPS NOT SHOWN ON THIS DRAWING SEE STD. DWG. MM-CR-2 AND FOR PARALLEL CURB RAMPS SEE STD. DWG. MM-CR-3. FOR CROSSWALK MARKING DETAILS SEE STD. DWG. T-M-4.

(B) IF PERPENDICULAR CURB RAMPS AND TURNING SPACE CANNOT BE CONSTRUCTED DUE TO LIMITED RIGHT-OF-WAY, USE PARALLEL CURB RAMP INSTEAD.

(C) CARE SHALL BE TAKEN ON ALL ROADWAY CURB RAMPS AT INTERSECTIONS WITH SIDEWALK AND CURB RAMPS TO ENSURE A UNIFORM GRADE AROUND THEM. THE ROADWAY CURB RAMP GRADE SHALL BE FREE OF SAGS AND SHORT GRADE CHANGES.

(D) SIDEWALK WIDTH SHALL NOT INCLUDE 6" CONCRETE CURB. THE DESIRABLE SIDEWALK CROSS SLOPE IS 1.5 %, ABSOLUTE MAXIMUM IS 2.0%.

(E) DRAINAGE STRUCTURES SHALL NOT BE PLACED IN THE CROSSWALK OR IN FRONT OF THE CURB RAMP.

(F) TURNING SPACE \ CLEAR SPACE:

CLEAR SPACE BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE 4' (MIN.) BY 4' (MIN.) SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.

TURNING SPACE MUST BE PROVIDED AT THE TOP OF PERPENDICULAR CURB RAMPS. THE TURNING SPACE MUST BE 4' (MIN.) BY 4' (MIN.), AND IS PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF THE SIDEWALK, THE TURNING SPACE MUST BE 4' (MIN.) BY 5' (MIN.), WITH THE 5' DIMENSION PROVIDED IN THE DIRECTION OF THE RAMP RUN.

FOR PARALLEL CURB RAMPS, A TURNING SPACE 4' (MIN.) BY 4' (MIN.) SHALL BE PROVIDED AT THE BOTTOM OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. IF THE TURNING SPACE IS CONSTRAINED ON 2 OR MORE SIDES, THE TURNING SPACE SHALL 4' (MIN.) BY 5' (MIN.), THE 5' DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.

(G) GRADE BREAKS:

GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF CURB RAMP RUNS AND TURNING SPACES. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

WHERE THE END OF BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS 5' OR LESS, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE CURB RAMP RUN WITHIN ONE DOME SPACING OF THE BOTTOM GRADE BREAK.

(H) PEDESTRIAN SIGNAL PUSHBUTTON:

WHERE PEDESTRIAN SIGNALS ARE PROVIDED AT PEDESTRIAN STREET CROSSINGS, THEY SHALL INCLUDE ACCESSIBLE PEDESTRIAN SIGNALS AND POLE\PEDESTRIAN PUSHBUTTONS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD. FOR DETAILS OF THE PLACING OF PEDESTRIAN SIGNAL PUSHBUTTONS SEE TDOT TRAFFIC DESIGN MANUAL.

WHEN TWO PEDESTRIAN PUSHBUTTONS ARE ON ONE CORNER THEY WILL BE SEPARATED BY 10 FEET.

(I) PAYMENT:

COST OF CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB, PER C. Y. OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER, PER C. Y.

NEW CURB RAMPS:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN NEWLY CONSTRUCTED SIDEWALK AREAS, SHALL BE PAID BY ITEM NO. 701-02.03, CONCRETE CURB RAMP, PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

CURB RAMPS (RETROFIT):
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN EXISTING SIDEWALK AREAS, REMOVAL OF THE EXISTING SIDEWALK, AND ADJUSTMENT OF GUTTER PAN SLOPE, SHALL BE PAID BY ITEM NO. 701-02.01, CONCRETE CURB RAMP (RETROFIT), PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INSTALLATION OF CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

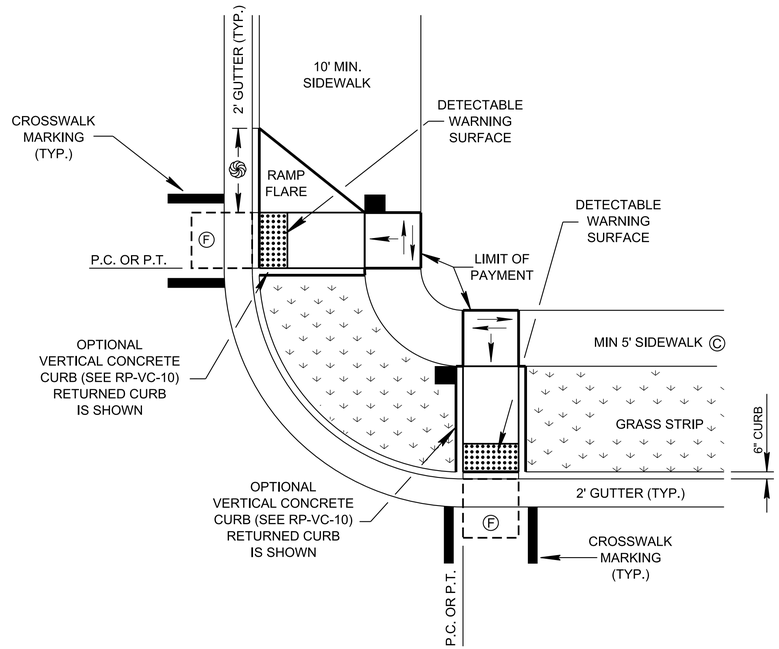
(Replaced Std Dwg RP-H-7)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

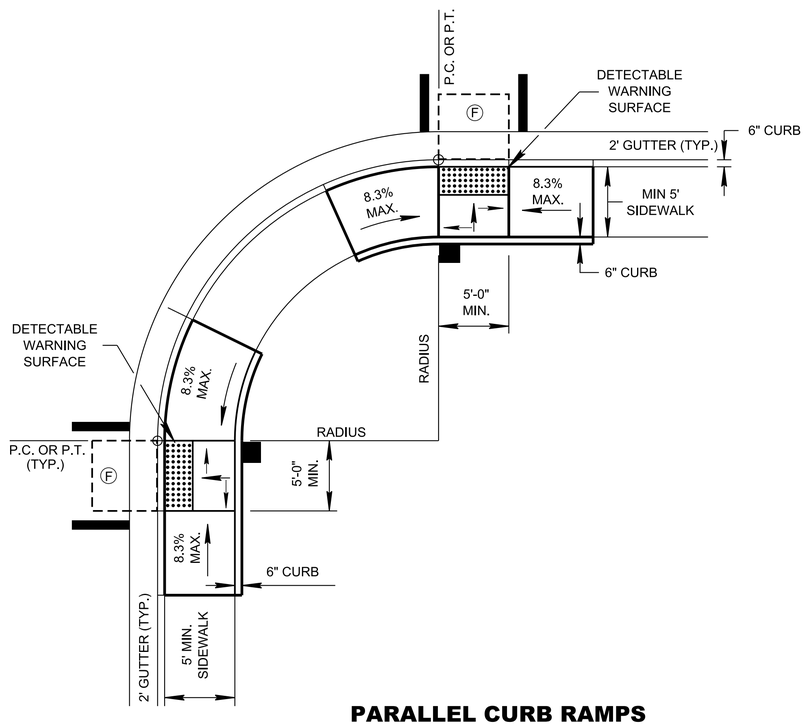
SINGLE CROSSING CURB RAMP IN CURVE

01-07-2019 | MM-CR-5

NOT TO SCALE



PERPENDICULAR CURB RAMP OUTSIDE RADIUS (WITH GRASS STRIP OR WIDE SIDEWALK)



PARALLEL CURB RAMPS OUTSIDE RADIUS

LEGEND

DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE, 8.3% DESIRABLE (10.0% MAX.)

DENOTES: APPROXIMATE PEDESTRIAN POLE/PUSHBUTTON LOCATION FOR SIGNALIZED INTERSECTIONS

1.5% (2.0% MAX.)

GENERAL NOTES

Ⓐ FOR DETECTABLE WARNING SURFACE DETAILS SEE STD. DWG. MM-CR-1. FOR ADDITIONAL DETAILS AND OTHER INFORMATION FOR PERPENDICULAR CURB RAMPS NOT SHOWN ON THIS DRAWING SEE STD. DWG. MM-CR-2 AND FOR PARALLEL CURB RAMPS SEE STD. DWG. MM-CR-3. FOR CROSSWALK MARKING DETAILS SEE STD. DWG. T-M-4.

Ⓑ IF PERPENDICULAR CURB RAMPS AND TURNING SPACE CANNOT BE CONSTRUCTED DUE TO LIMITED RIGHT-OF-WAY, USE PARALLEL CURB RAMP INSTEAD.

Ⓒ CARE SHALL BE TAKEN ON ALL ROADWAY CURB RAMPS AT INTERSECTIONS WITH SIDEWALK AND CURB RAMPS TO ENSURE A UNIFORM GRADE AROUND THEM. THE ROADWAY CURB RAMP GRADE SHALL BE FREE OF SAGS AND SHORT GRADE CHANGES.

Ⓓ SIDEWALK WIDTH SHALL NOT INCLUDE 6" CONCRETE CURB. THE DESIRABLE SIDEWALK CROSS SLOPE IS 1.5 %, ABSOLUTE MAXIMUM IS 2.0%.

Ⓔ DRAINAGE STRUCTURES SHALL NOT BE PLACED IN THE CROSSWALK OR IN FRONT OF THE CURB RAMP.

Ⓕ TURNING SPACE \ CLEAR SPACE:

CLEAR SPACE BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE 4' (MIN.) BY 4' (MIN.) SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.

TURNING SPACE MUST BE PROVIDED AT THE TOP OF PERPENDICULAR CURB RAMPS. THE TURNING SPACE MUST BE 4' (MIN.) BY 4' (MIN.), AND IS PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF THE SIDEWALK, THE TURNING SPACE MUST BE 4' (MIN.) BY 5' (MIN.), WITH THE 5' DIMENSION PROVIDED IN THE DIRECTION OF THE RAMP RUN.

FOR PARALLEL CURB RAMPS, A TURNING SPACE 4' (MIN.) BY 4' (MIN.) SHALL BE PROVIDED AT THE BOTTOM OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. IF THE TURNING SPACE IS CONSTRAINED ON 2 OR MORE SIDES, THE TURNING SPACE SHALL 4' (MIN.) BY 5' (MIN.). THE 5' DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.

Ⓖ GRADE BREAKS:

GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF CURB RAMP RUNS AND TURNING SPACES. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

WHERE THE END OF BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS 5' OR LESS, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE CURB RAMP RUN WITHIN ONE DOME SPACING OF THE BOTTOM GRADE BREAK.

Ⓗ PEDESTRIAN SIGNAL PUSHBUTTON:

WHERE PEDESTRIAN SIGNALS ARE PROVIDED AT PEDESTRIAN STREET CROSSINGS, THEY SHALL INCLUDE ACCESSIBLE PEDESTRIAN SIGNALS AND POLE\PEDESTRIAN PUSHBUTTONS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD. FOR DETAILS OF THE PLACING OF PEDESTRIAN SIGNAL PUSHBUTTONS SEE TDOT TRAFFIC DESIGN MANUAL.

WHEN TWO PEDESTRIAN PUSHBUTTONS ARE ON ONE CORNER THEY WILL BE SEPARATED BY 10 FEET.

Ⓘ PAYMENT:

COST OF CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB, PER C. Y. OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER, PER C. Y.

NEW CURB RAMPS:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN NEWLY CONSTRUCTED SIDEWALK AREAS, SHALL BE PAID BY ITEM NO. 701-02.03, CONCRETE CURB RAMP, PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

CURB RAMPS (RETROFIT):
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN EXISTING SIDEWALK AREAS, REMOVAL OF THE EXISTING SIDEWALK, AND ADJUSTMENT OF GUTTER PAN SLOPE, SHALL BE PAID BY ITEM NO. 701-02.01, CONCRETE CURB RAMP (RETROFIT), PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INSTALLATION OF CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

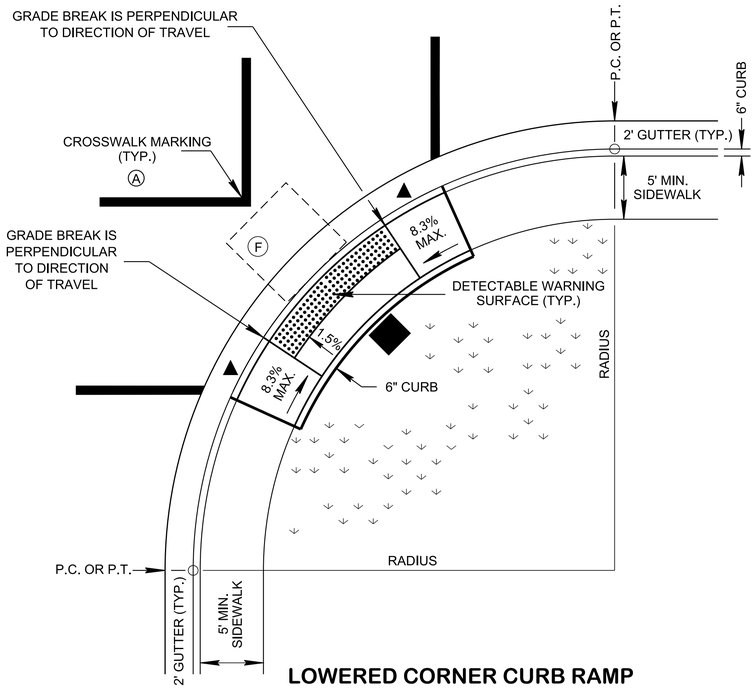
(Replaced Std Dwg RP-H-8)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

DUAL CROSSING CURB RAMP PLACED OUTSIDE CURVE

01-07-2019 | MM-CR-6

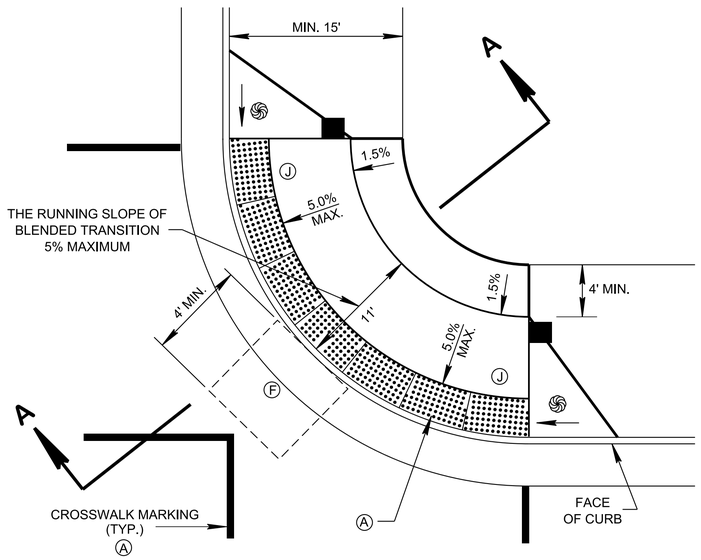
NOT TO SCALE



LOWERED CORNER CURB RAMP WITH BI-DIRECTIONAL SIDEWALK

LOWERED CORNER CURB RAMP TO BE USED AS AN ALTERNATE TO BLENDED TRANSITION WHEN REQUIRED DUE TO GEOMETRIC LIMITATIONS.

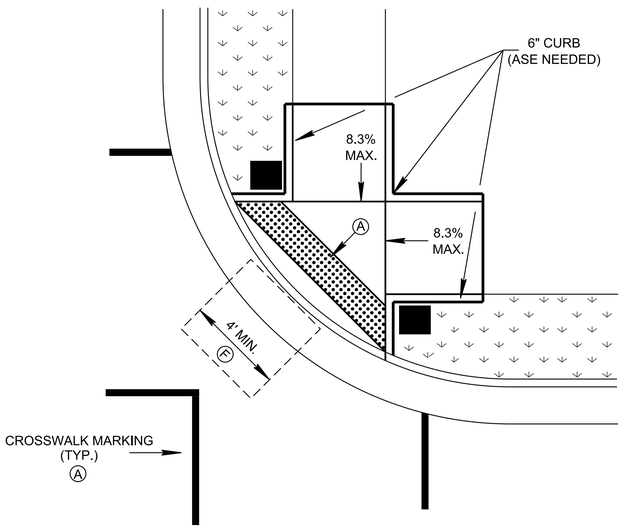
THIS DETAIL MAY BE USED WHERE SIDEWALK WIDTHS ARE LESS THAN 10" WIDE AND CURB RAMP IS LOCATED ANYWHERE WITHIN A CURVED SECTION OF SIDEWALK.



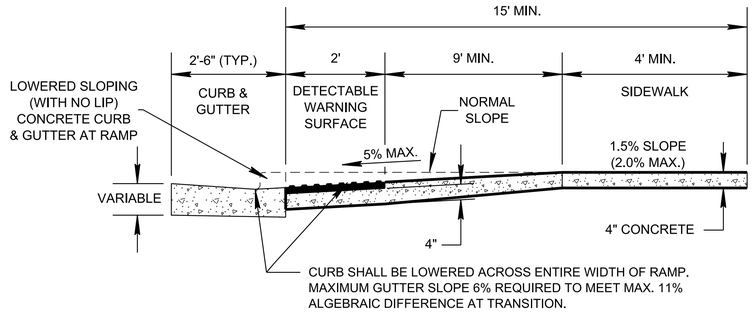
BLENDED TRANSITION

BLENDED TRANSITIONS ARE ALTERNATIVE ONLY WHEN PARALLEL, PERPENDICULAR AND COMBINATION CURB RAMPS WILL NOT WORK DUE TO GEOMETRIC CONSTRAINTS.

BLENDED TRANSITIONS ARE RAISED PEDESTRIAN STREET CROSSINGS, DEPRESSED CORNERS, OR SIMILAR CONNECTIONS BETWEEN PEDESTRIAN ACCESS ROUTES AT THE LEVEL OF THE SIDEWALK AND THE LEVEL OF THE PEDESTRIAN STREET CROSSING THAT HAVE A GRADE OF 5% OR LESS. BLENDED TRANSITIONS ARE SUITABLE FOR A RANGE OF SIDEWALK CONDITIONS.



PARALLEL CURB RAMP



SECTION A-A

LEGEND

֍	DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE, 8.3% DESIRABLE (10.0% MAX.)
■	DENOTES: APPROXIMATE PEDESTRIAN POLE/PUSHBUTTON LOCATION FOR SIGNALIZED INTERSECTIONS
▲	CLEARLY MAINTAIN THE DEFINED PERIMETER OF THE RAMP AT LOCATIONS WHERE THE GRADE OF THE ROADWAY MAY MATCH THE SLOPE OF THE RAMP.

GENERAL NOTES

Ⓐ FOR DETECTABLE WARNING SURFACE DETAILS SEE STD. DWG. MM-CR-1. FOR ADDITIONAL DETAILS AND OTHER INFORMATION FOR PERPENDICULAR CURB RAMPS NOT SHOWN ON THIS DRAWING SEE STD. DWG. MM-CR-2 AND FOR PARALLEL CURB RAMPS SEE STD. DWG. MM-CR-3. FOR CROSSWALK MARKING DETAILS SEE STD. DWG. T-M-4.

Ⓑ IF PERPENDICULAR CURB RAMPS AND TURNING SPACE CANNOT BE CONSTRUCTED DUE TO LIMITED RIGHT-OF-WAY, USE PARALLEL CURB RAMP INSTEAD.

Ⓒ CARE SHALL BE TAKEN ON ALL ROADWAY CURB RAMPS AT INTERSECTIONS WITH SIDEWALK AND CURB RAMPS TO ENSURE A UNIFORM GRADE AROUND THEM. THE ROADWAY CURB RAMP GRADE SHALL BE FREE OF SAGS AND SHORT GRADE CHANGES.

Ⓓ SIDEWALK WIDTH SHALL NOT INCLUDE 6" CONCRETE CURB. THE DESIRABLE SIDEWALK CROSS SLOPE IS 1.5 %, ABSOLUTE MAXIMUM IS 2.0%.

Ⓔ DRAINAGE STRUCTURES SHALL NOT BE PLACED IN THE CROSSWALK OR IN FRONT OF THE CURB RAMP.

Ⓕ TURNING SPACE \ CLEAR SPACE:

CLEAR SPACE BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE 4' (MIN.) BY 4' (MIN.) SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.

TURNING SPACE MUST BE PROVIDED AT THE TOP OF PERPENDICULAR CURB RAMPS. THE TURNING SPACE MUST BE 4' (MIN.) BY 4' (MIN.), AND IS PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF THE SIDEWALK, THE TURNING SPACE MUST BE 4' (MIN.) BY 5' (MIN.), WITH THE 5' DIMENSION PROVIDED IN THE DIRECTION OF THE RAMP RUN.

FOR PARALLEL CURB RAMPS, A TURNING SPACE 4' (MIN.) BY 4' (MIN.) SHALL BE PROVIDED AT THE BOTTOM OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. IF THE TURNING SPACE IS CONSTRAINED ON 2 OR MORE SIDES, THE TURNING SPACE SHALL 4' (MIN.) BY 5' (MIN.). THE 5' DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.

Ⓖ GRADE BREAKS:

GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF CURB RAMP RUNS AND TURNING SPACES. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

WHERE THE END OF BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS 5' OR LESS, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE CURB RAMP RUN WITHIN ONE DOME SPACING OF THE BOTTOM GRADE BREAK.

Ⓗ PEDESTRIAN SIGNAL PUSHBUTTON:

WHERE PEDESTRIAN SIGNALS ARE PROVIDED AT PEDESTRIAN STREET CROSSINGS, THEY SHALL INCLUDE ACCESSIBLE PEDESTRIAN SIGNALS AND POLE\PEDESTRIAN PUSHBUTTONS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD. FOR DETAILS OF THE PLACING OF PEDESTRIAN SIGNAL PUSHBUTTONS SEE TDOT TRAFFIC DESIGN MANUAL.

WHEN TWO PEDESTRIAN PUSHBUTTONS ARE ON ONE CORNER THEY WILL BE SEPARATED BY 10 FEET.

Ⓘ PAYMENT:

COST OF CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB, PER C. Y. OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER, PER C. Y.

NEW CURB RAMPS:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN NEWLY CONSTRUCTED SIDEWALK AREAS, SHALL BE PAID BY ITEM NO. 701-02.03, CONCRETE CURB RAMP, PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

CURB RAMPS (RETROFIT):
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN EXISTING SIDEWALK AREAS, REMOVAL OF THE EXISTING SIDEWALK, AND ADJUSTMENT OF GUTTER PAN SLOPE, SHALL BE PAID BY ITEM NO. 701-02.01, CONCRETE CURB RAMP (RETROFIT), PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INSTALLATION OF CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

Ⓙ DETECTABLE WARNING SURFACE(S) SHALL COVER ENTIRE RADIUS WITHIN RAMP AND SHALL EXTEND TO THE CROSSWALK PAVEMENT MARKINGS ON EITHER SIDE.

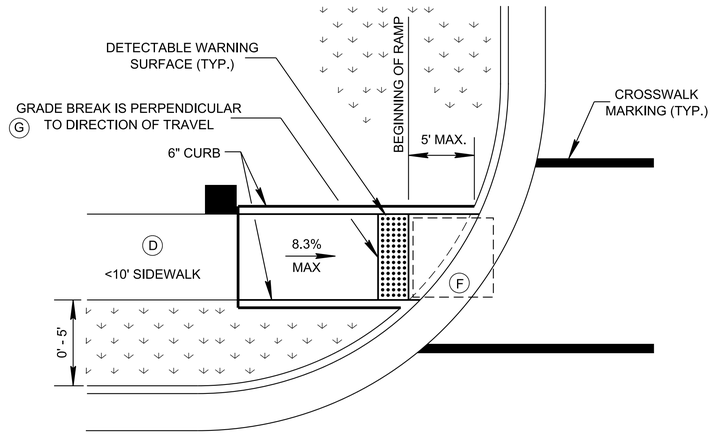
(Replaced Std Dwg RP-H-9)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

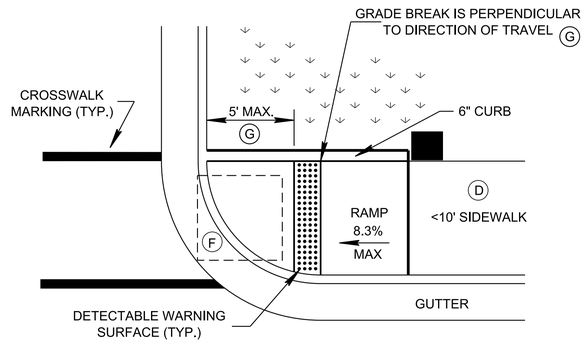
CURB RAMPS IN CURVE BI-DIRECTIONAL DUAL CROSSING

01-07-2019 | MM-CR-7

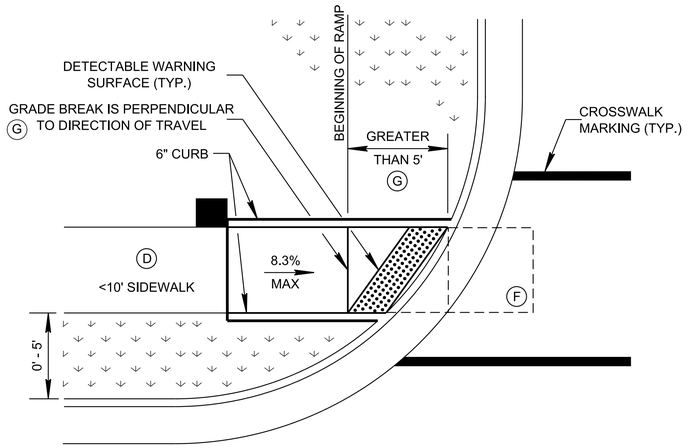
NOT TO SCALE



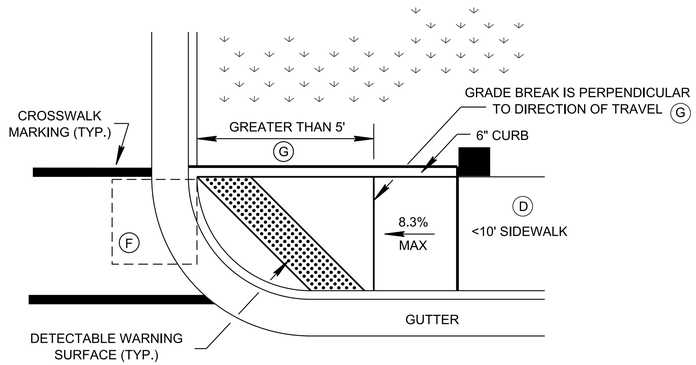
DETAIL A
MONO-DIRECTIONAL PERPENDICULAR CURB RAMP
WITH GRASS STRIP



DETAIL B
MONO-DIRECTIONAL PERPENDICULAR CURB RAMP
WITHOUT GRASS STRIP



DETAIL C
MONO-DIRECTIONAL PERPENDICULAR CURB RAMP
WITH GRASS STRIP AND GRADE BREAK > 5'



DETAIL D
MONO-DIRECTIONAL PERPENDICULAR CURB RAMP
WITH GRASS STRIP AND GRADE BREAK > 5'

LEGEND

■ DENOTES: APPROXIMATE PEDESTRIAN POLE/PUSHBUTTON LOCATION FOR SIGNALIZED INTERSECTIONS

GENERAL NOTES

Ⓐ FOR DETECTABLE WARNING SURFACE DETAILS SEE STD. DWG. MM-CR-1. FOR ADDITIONAL DETAILS AND OTHER INFORMATION FOR PERPENDICULAR CURB RAMPS NOT SHOWN ON THIS DRAWING SEE STD. DWG. MM-CR-2 AND FOR PARALLEL CURB RAMPS SEE STD. DWG. MM-CR-3. FOR CROSSWALK MARKING DETAILS SEE STD. DWG. T-M-4.

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Ⓒ CARE SHALL BE TAKEN ON ALL ROADWAY CURB RAMPS AT INTERSECTIONS WITH SIDEWALK AND CURB RAMPS TO ENSURE A UNIFORM GRADE AROUND THEM. THE ROADWAY CURB RAMP GRADE SHALL BE FREE OF SAGS AND SHORT GRADE CHANGES.

Ⓓ SIDEWALK WIDTH SHALL NOT INCLUDE 6" CONCRETE CURB. THE DESIRABLE SIDEWALK CROSS SLOPE IS 1.5 %, ABSOLUTE MAXIMUM IS 2.0%.

Ⓔ DRAINAGE STRUCTURES SHALL NOT BE PLACED IN THE CROSSWALK OR IN FRONT OF THE CURB RAMP.

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Ⓖ GRADE BREAKS:

GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF CURB RAMP RUNS AND TURNING SPACES. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

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WHEN TWO PEDESTRIAN PUSHBUTTONS ARE ON ONE CORNER THEY WILL BE SEPARATED BY 10 FEET.

Ⓘ PAYMENT:

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PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

CURB RAMPS (RETROFIT):
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN EXISTING SIDEWALK AREAS, REMOVAL OF THE EXISTING SIDEWALK, AND ADJUSTMENT OF GUTTER PAN SLOPE, SHALL BE PAID BY ITEM NO. 701-02.01, CONCRETE CURB RAMP (RETROFIT), PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INSTALLATION OF CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

Ⓙ THIS DRAWING CAN BE USED WHERE SIDEWALK WIDTHS ARE LESS THAN 10' WIDE AND RAMP IS LOCATED ANYWHERE WITHIN A CURVED SECTION OF SIDEWALK.

(Replaced Std Dwg RP-H-10)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

MONO-DIRECTIONAL SINGLE CROSSWALK CURB RAMP DETAILS

01-07-2019

MM-CR-8

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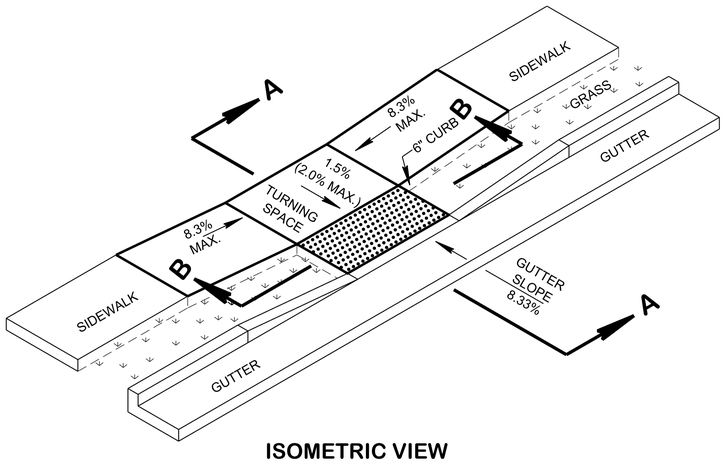
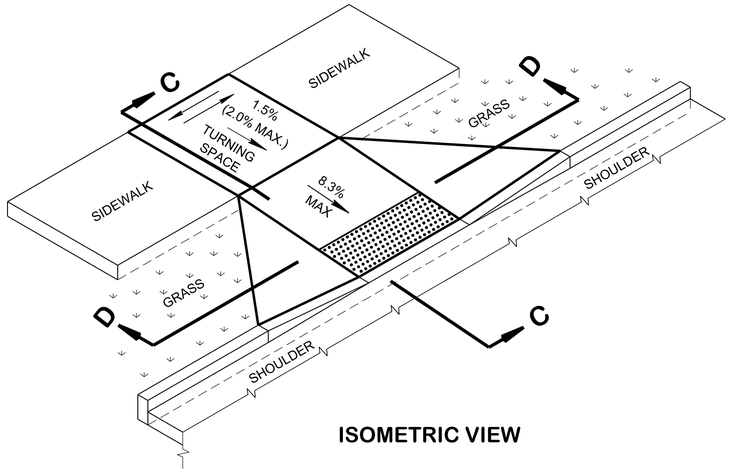
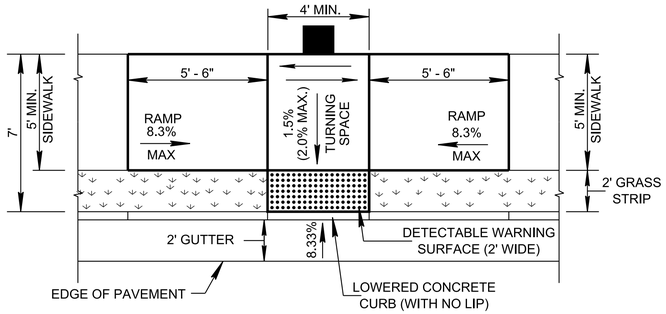


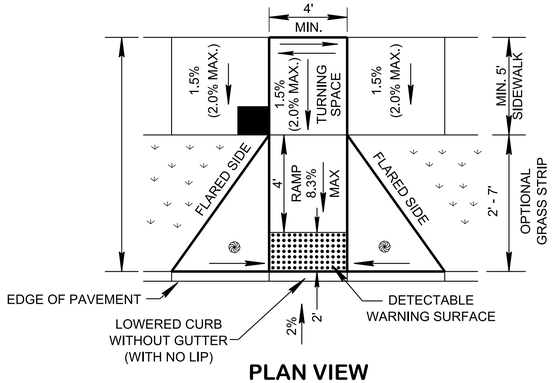
ISOMETRIC VIEW



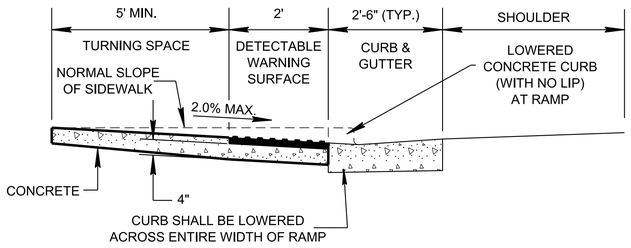
ISOMETRIC VIEW



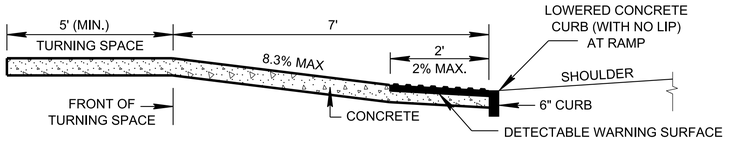
PLAN VIEW



PLAN VIEW

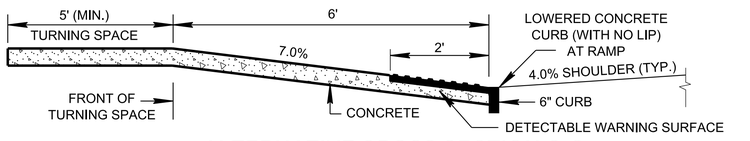


CROSS SECTION A-A



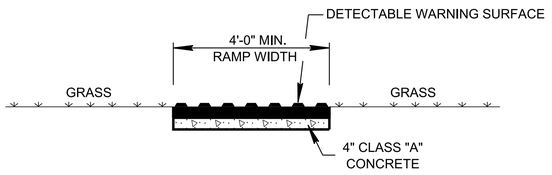
CROSS SECTION C-C

THE ALGEBRAIC DIFFERENCE IN GRADE AT THE CURB RAMP/STREET INTERFACE SHALL NOT EXCEED 11%.



ALTERNATIVE CROSS SECTION C-C

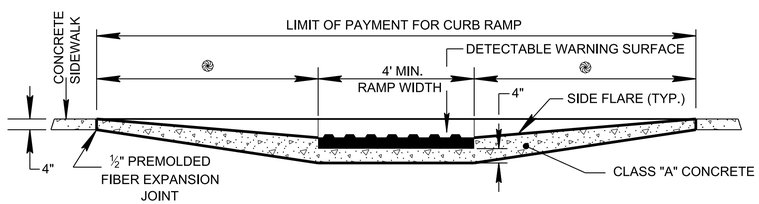
THE ALGEBRAIC DIFFERENCE IN GRADE AT THE CURB RAMP/STREET INTERFACE SHALL NOT EXCEED 11%.



CROSS-SECTION B-B

COMBINATION CURB RAMP

COMBINATION CURB RAMP COMBINE PARALLEL AND PERPENDICULAR CURB RAMPS INTO ONE.



CROSS-SECTION D-D

PERPENDICULAR CURB RAMP WITHOUT GUTTER PAN

LEGEND

DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE, 8.3% DESIRABLE (10.0% MAX.)

DENOTES: APPROXIMATE PEDESTRIAN POLE/PUSHBUTTON LOCATION FOR SIGNALIZED INTERSECTIONS

Ⓐ FOR DETECTABLE WARNING SURFACE DETAILS SEE STD. DWG. MM-CR-1. FOR ADDITIONAL DETAILS AND OTHER INFORMATION FOR PERPENDICULAR CURB RAMPS NOT SHOWN ON THIS DRAWING SEE STD. DWG. MM-CR-2 AND FOR PARALLEL CURB RAMPS SEE STD. DWG. MM-CR-3. FOR CROSSWALK MARKING DETAILS SEE STD. DWG. T-M-4.

Ⓑ IF PERPENDICULAR CURB RAMPS AND TURNING SPACE CANNOT BE CONSTRUCTED DUE TO LIMITED RIGHT-OF-WAY, USE PARALLEL OR COMBINATION CURB RAMP INSTEAD.

Ⓒ CARE SHALL BE TAKEN ON ALL ROADWAY CURB RAMPS AT INTERSECTIONS WITH SIDEWALK AND CURB RAMPS TO ENSURE A UNIFORM GRADE AROUND THEM. THE ROADWAY CURB RAMP GRADE SHALL BE FREE OF SAGS AND SHORT GRADE CHANGES.

Ⓓ SIDEWALK WIDTH SHALL NOT INCLUDE 6" CONCRETE CURB. THE DESIRABLE SIDEWALK CROSS SLOPE IS 1.5 %, ABSOLUTE MAXIMUM IS 2.0%.

Ⓔ DRAINAGE STRUCTURES SHALL NOT BE PLACED IN THE CROSSWALK OR IN FRONT OF THE CURB RAMP.

Ⓕ TURNING SPACE \ CLEAR SPACE:

CLEAR SPACE BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE 4' (MIN.) BY 4' (MIN.) SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.

TURNING SPACE MUST BE PROVIDED AT THE TOP OF PERPENDICULAR CURB RAMPS. THE TURNING SPACE MUST BE 4' (MIN.) BY 4' (MIN.), AND IS PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF THE SIDEWALK, THE TURNING SPACE MUST BE 4' (MIN.) BY 5' (MIN.), WITH THE 5' DIMENSION PROVIDED IN THE DIRECTION OF THE RAMP RUN.

FOR PARALLEL CURB RAMPS, A TURNING SPACE 4' (MIN.) BY 4' (MIN.) SHALL BE PROVIDED AT THE BOTTOM OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. IF THE TURNING SPACE IS CONSTRAINED ON 2 OR MORE SIDES, THE TURNING SPACE SHALL 4' (MIN.) BY 5' (MIN.). THE 5' DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.

Ⓖ GRADE BREAKS:

GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF CURB RAMP RUNS AND TURNING SPACES. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

WHERE THE END OF BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS 5' OR LESS, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE CURB RAMP RUN WITHIN ONE DOME SPACING OF THE BOTTOM GRADE BREAK.

Ⓗ PEDESTRIAN SIGNAL PUSHBUTTON:

WHERE PEDESTRIAN SIGNALS ARE PROVIDED AT PEDESTRIAN STREET CROSSINGS, THEY SHALL INCLUDE ACCESSIBLE PEDESTRIAN SIGNALS AND POLE\PEDESTRIAN PUSHBUTTONS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD. FOR DETAILS OF THE PLACING OF PEDESTRIAN SIGNAL PUSHBUTTONS SEE TDOT TRAFFIC DESIGN MANUAL.

WHEN TWO PEDESTRIAN PUSHBUTTONS ARE ON ONE CORNER THEY WILL BE SEPARATED BY 10 FEET.

Ⓘ PAYMENT:

COST OF CURB AND GUTTER TO BE INCLUDED IN THE PRICE OF ITEM NO. 702-01, CONCRETE CURB, PER C. Y. OR ITEM NO. 702-03, CONCRETE COMBINED CURB & GUTTER, PER C. Y.

NEW CURB RAMPS:
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN NEWLY CONSTRUCTED SIDEWALK AREAS, SHALL BE PAID BY ITEM NO. 701-02.03, CONCRETE CURB RAMP, PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR CONSTRUCTION OF THE CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

CURB RAMPS (RETROFIT):
ALL COSTS OF INSTALLING CURB RAMP(S), INCLUDING DETECTABLE WARNING SURFACE(S) IN EXISTING SIDEWALK AREAS, REMOVAL OF THE EXISTING SIDEWALK, AND ADJUSTMENT OF GUTTER PAN SLOPE, SHALL BE PAID BY ITEM NO. 701-02.01, CONCRETE CURB RAMP (RETROFIT), PER SQUARE FOOT.

PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR INSTALLATION OF CURB RAMP(S), INCLUDING INSTALLATION OF DETECTABLE WARNING SURFACE(S).

Ⓙ TRANSITION GUTTER CROSS SLOPE FROM NORMAL SLOPE TO 5% SIMILAR TO SUPERELEVATION TRANSITION AREAS. MATCH GUTTER TRANSITION TO RAMP FLARES FOR PERPENDICULAR CURB RAMP (TYPICAL 5') OR RAMP AREA FOR COMBINATION CURB RAMP (TYPICAL 5'-6").

(Replaced Std Dwg RP-H-11)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

ALTERNATIVE CURB RAMP DETAILS

01-07-2019 MM-CR-9

NOT TO SCALE

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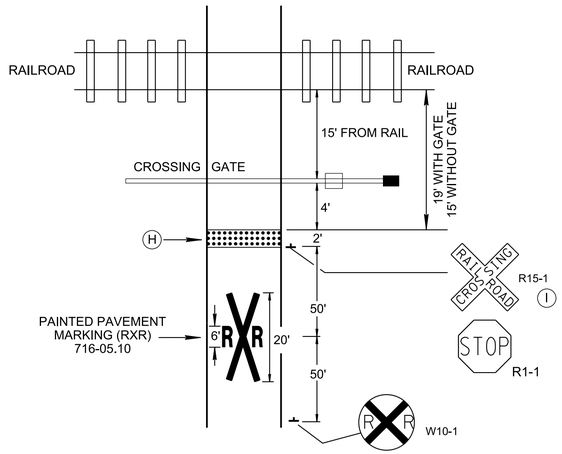
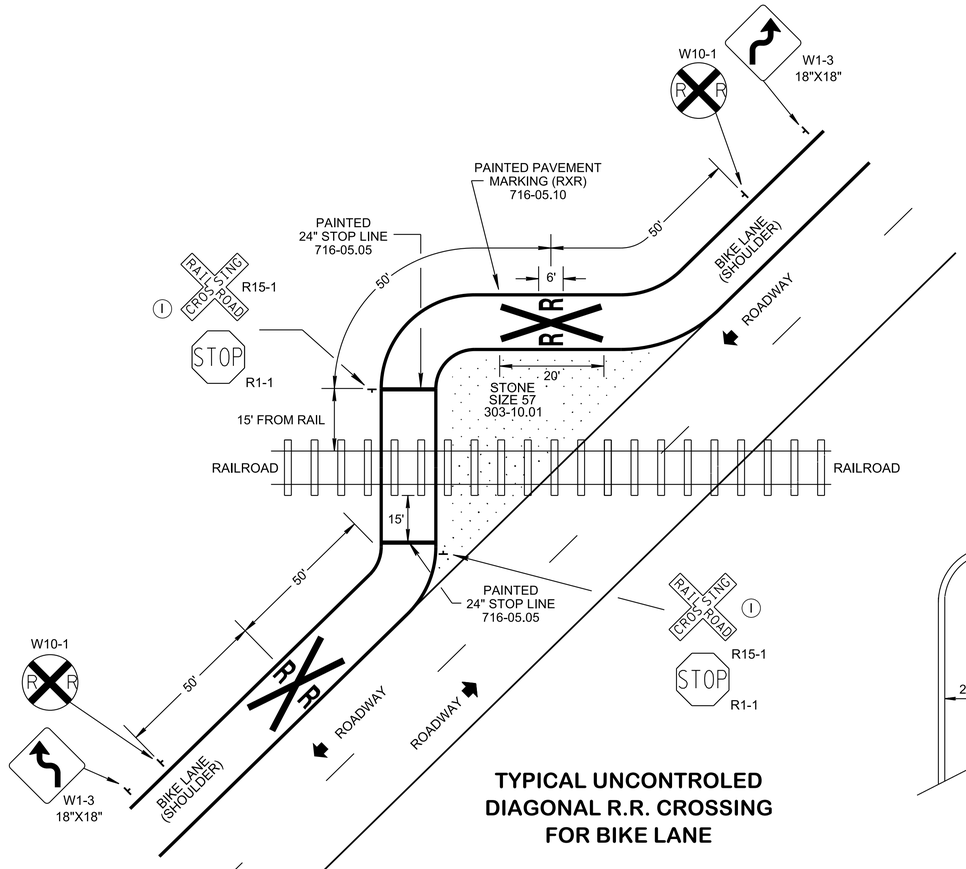
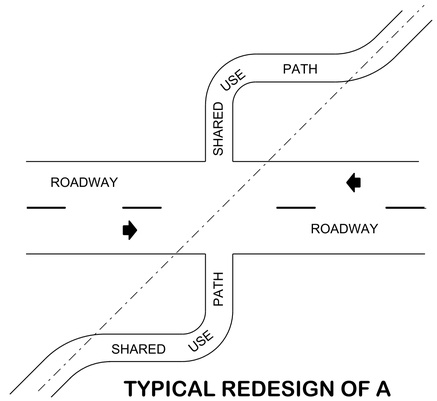


PERPENDICULAR RAILROAD CROSSING FOR SHARED-USE PATH

TYPICAL FOR BOTH SIDES

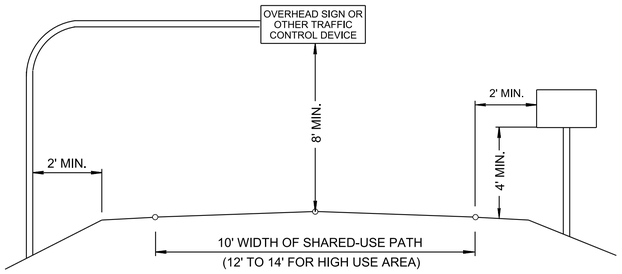


TYPICAL UNCONTROLED DIAGONAL R.R. CROSSING FOR BIKE LANE



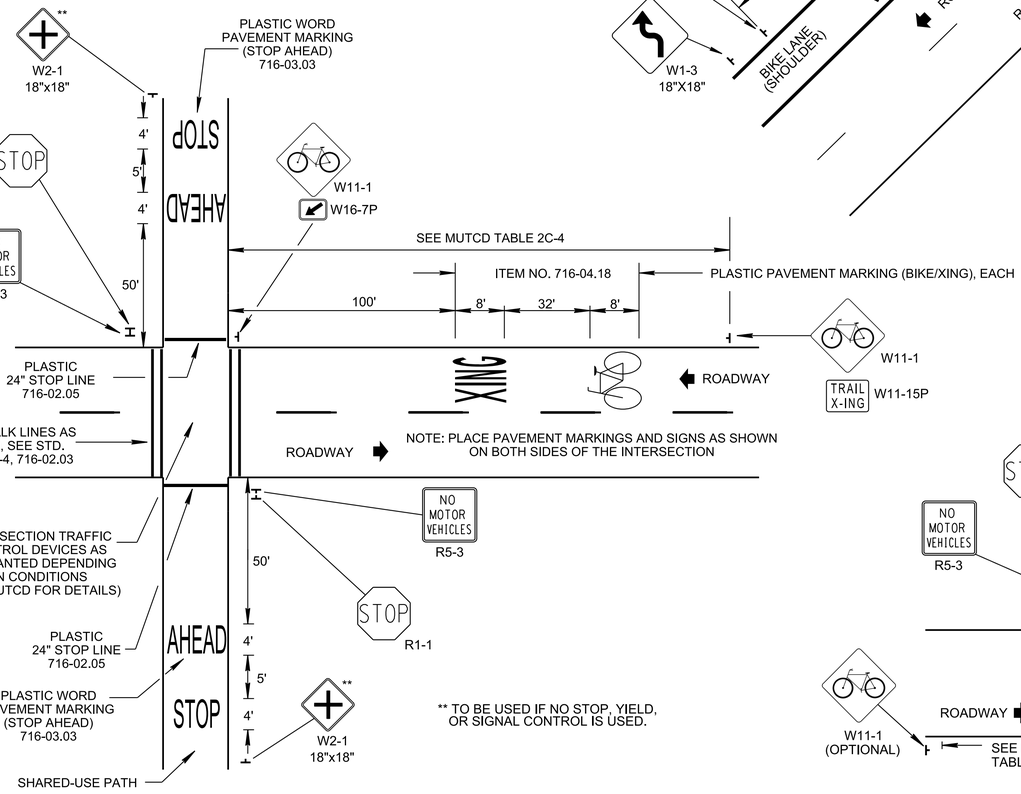
TYPICAL REDESIGN OF A DIAGONAL ROAD CROSSING

SEE BEGINNING AND END OF A DESIGNATED BICYCLE ROUTE ON A SHARED-USE PATH DETAIL FOR SIGN PLACEMENT AND PAVEMENT MARKING DETAILS.

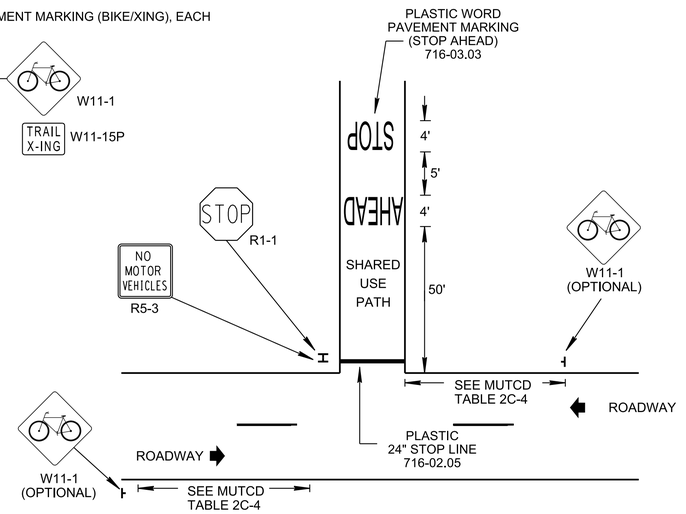


SIGN PLACEMENT ON SHARED-USE PATHS

(SEE MM-TS-3 FOR TYPICAL CROSS SECTION DETAILS)



ROADWAY CROSSING FOR SHARED-USE PATH



BEGINNING AND END OF A DESIGNATED BICYCLE ROUTE ON A SHARED-USE PATH

GENERAL NOTES

(A) WHEN OVERHEAD SIGNS ARE USED ON SHARED-USE PATHS, THE CLEARANCE FROM THE BOTTOM EDGE OF THE SIGN TO THE PATH SURFACE, DIRECTLY UNDER THE SIGN SHALL BE A MINIMUM OF 8 FEET.

(B) WHEN PLACEMENT OF STOP OR YIELD SIGNS IS CONSIDERED, PRIORITY AT SHARED-USE PATHS/ROADWAY INTERSECTION SHOULD BE ASSIGNED WITH CONSIDERATION OF THE FOLLOWING:
1. RELATIVE SPEEDS OF SHARED-USE PATH AND ROADWAY USERS;
2. RELATIVE VOLUMES OF SHARED-USE PATH AND ROADWAY TRAFFIC; AND
3. RELATIVE IMPORTANCE OF SHARED-USE PATH AND ROADWAY.

(C) WHEN ENGINEERING JUDGMENT DETERMINES THAT THE VISIBILITY OF THE INTERSECTION IS LIMITED ON THE SHARED-USE PATH APPROACH, INTERSECTION WARNING SIGNS SHOULD BE USED. INTERSECTION WARNING SIGNS SHOULD NOT BE USED WHERE THE SHARED-USE PATH APPROACH TO THE INTERSECTION IS CONTROLLED BY A STOP SIGN, YIELD SIGN, OR A TRAFFIC CONTROL SIGNAL.

(D) A SOLID WHITE LINE MAY BE USED ON SHARED-USE PATHS TO SEPARATE DIFFERENT TYPES OF USERS. THE R9-7 SIGN MAY BE USED TO SUPPLEMENT THE SOLID WHITE LINE. SMALLER SIZE LETTERS AND SYMBOLS MAY BE USED ON SHARED-USE PATHS. FIXED OBJECTS ADJACENT TO SHARED-USE PATHS MAY BE MARKED WITH OBJECT MARKERS.

(E) THE MINIMUM SIGN SIZES FOR SHARED-USE PATHS, SHALL BE THOSE SHOWN IN TABLE 9B-1 IN MUTCD, PART 9 AND SHALL BE USED ONLY FOR SIGNS INSTALLED SPECIFICALLY FOR BICYCLE TRAFFIC APPLICATIONS. THE MINIMUM SIGN SIZES FOR BICYCLE FACILITIES SHALL NOT BE USED FOR SIGNS THAT ARE PLACED IN A LOCATION THAT WOULD HAVE ANY APPLICATION TO OTHER VEHICLES.

(F) SEE STD. DWG. MM-PM-3 FOR OTHER SIGNING AND PAVEMENT MARKINGS.

(G) IF ACTIVE WARNING DEVICES ARE AT THE ROADWAY CROSSING, THEN ACTIVE DEVICES SHOULD ALSO BE AT THE BIKE LANE.

(H) THE TYPICAL FOR PERPENDICULAR RAILROAD CROSSING FOR SHARED-USE PATH THE DETECTABLE WARNING SURFACE SHALL BE PLACED ACROSS THE FULL WIDTH OF THE SHARED-USE PATH AT RAILROAD GRADE CROSSINGS. ALL COST OF FURNISHING AND INSTALLATION THE DETECTABLE WARNING SURFACE SHALL BE INCLUDED IN OTHER ITEMS OF CONSTRUCTION OF THE SHARED-USE PATH.

(I) RAILROAD CROSS-BUCK SIGN AND SUPPORT SHALL BE INSTALLED IN ACCORDANCE WITH STD. DWG. T-S-16. REFER TO STD. DWG. T-S-16A AT PASSIVE RAILROAD GRADE CROSSINGS FOR STOP SIGN OR YIELD SIGN INSTALLATION.

(Replaced Std Dwg T-M-10)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

SIGNING AND PAVEMENT MARKINGS AT INTERSECTION CROSSINGS FOR SHARED-USE PATHS

01-07-2019 | MM-PM-1

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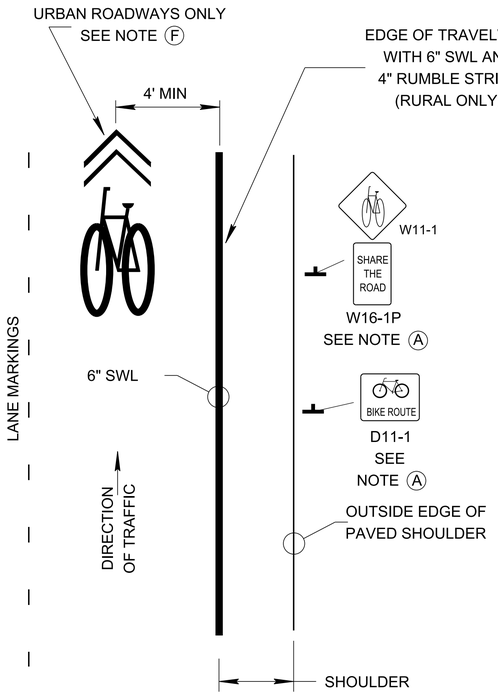
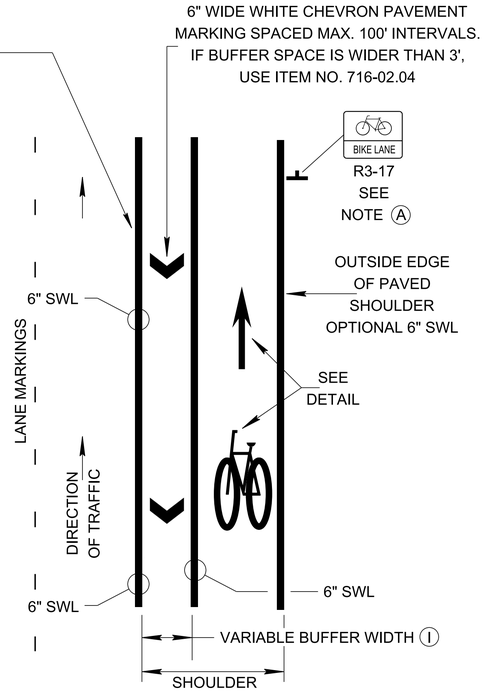
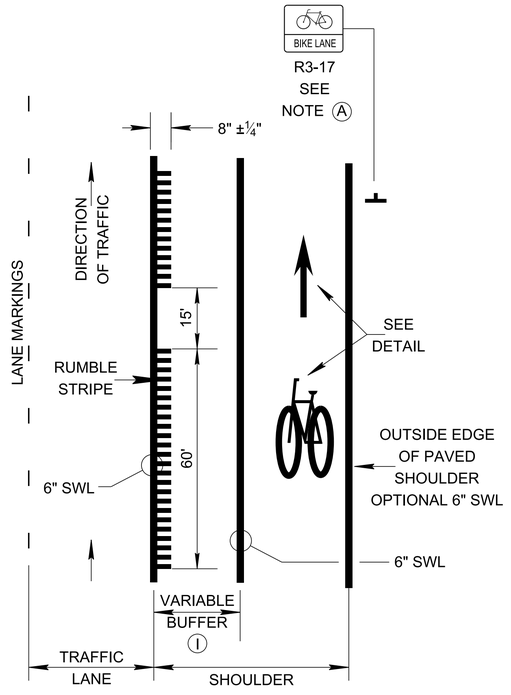


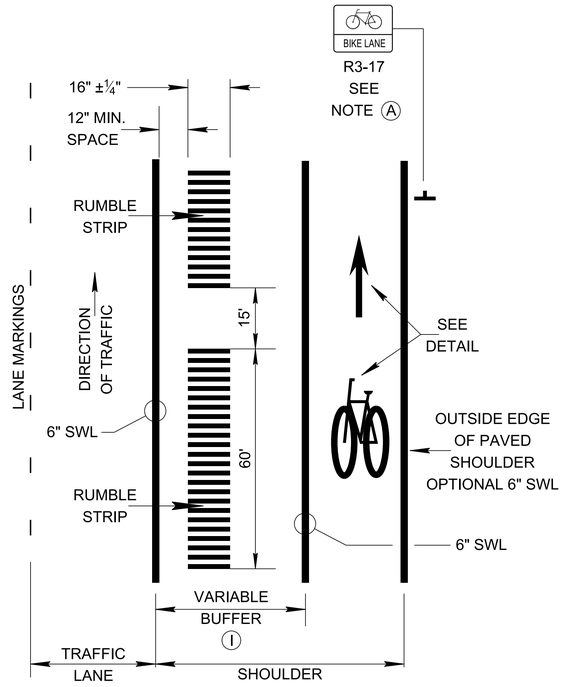
BIKE ROUTE MARKING AND SIGN DETAILS



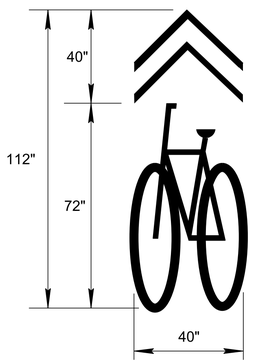
TYPICAL BIKE LANE ON MAJOR SUBURBAN ROADWAY



TYPICAL BIKE LANE/RUMBLE STRIPE DETAIL

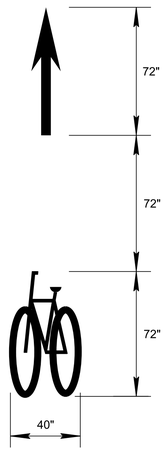


TYPICAL BIKE LANE/RUMBLE STRIP DETAIL



TYPICAL PAVEMENT MARKING FOR BICYCLE ROUTES

ITEM NO. 716-04.15
SEE NOTE (F)



TYPICAL PAVEMENT MARKING FOR BICYCLE LANES

ITEM NO. 716-04.13
NOTE: SPACED AT INTERVALS NOT GREATER THAN 1000 FEET

GENERAL NOTES

(A) SIGNS SHOULD BE PLACED APPROXIMATELY EVERY 0.25 MILE, AT EVERY TURN, AND AT ALL SIGNALIZED INTERSECTIONS. WHERE MULTIPLE SIDE ROADS/TURNS EXIST, IT IS NOT REQUIRED TO LOCATE SIGNS AT EVERY TURN; HOWEVER, SIGN SPACING SHOULD NOT EXCEED 0.25 MILE. SIGN SPACING SHOULD NOT EXCEED ONE MILE ON RURAL ROADS.

(B) SEE STD. DWG. T-M-15A AND T-M-16 IF RUMBLE STRIP OR RUMBLE STRIPE IS PROPOSED IN CONJUNCTION WITH BIKE ROUTE.

(C) BIKE LANES AND BIKE ROUTES ARE NOT PERMITTED ON ACCESS CONTROLLED FACILITIES.

(D) IF BIKE LANE IS PROPOSED ON PAVED SHOULDER, RUMBLE STRIPS SHOULD NOT BE USED WHEN THEIR INSTALLATION WOULD LEAVE A CLEAR SHOULDER PATHWAY LESS THAN 4' WIDE (OR LESS THAN 5' WIDE IF THERE IS AN OBSTRUCTION SUCH AS A CURB OR GUARDRAIL) TO THE RIGHT OF THE RUMBLE STRIP FOR BICYCLE USE.

(E) SEE MUTCD SECTIONS 9B.04, 9B.06, 9B.18, 9B.19, 9B.20, 9C.04 AND 9C.07, AND MUTCD TABLE 9B-1 FOR ADDITIONAL SIGNING AND PAVEMENT MARKING INFORMATION.

(F) SHARED BIKE LANE MARKINGS SHOULD NOT BE PLACED ON ROADWAYS THAT HAVE A SPEED LIMIT ABOVE 35 MPH. MARKING TO BE PLACED IMMEDIATELY AFTER AN INTERSECTION AND SPACED AT INTERVALS NOT GREATER THAN 250 FEET.

(G) IF USED, RUMBLE STRIP TO BE PAID FOR UNDER ITEM:
411-12.02, SCORING SHOULDERS (NON-CONTINUOUS) (16IN WIDTH), PER LINEAR MILE.

AND RUMBLE STRIPE TO BE PAID FOR UNDER ITEM:
411-12.03, SCORING FOR RUMBLE STRIPE (NON-CONTINUOUS) (8IN WIDTH), PER LINEAR MILE.

(H) PAVEMENT MARKINGS FOR BICYCLE LANES OR ROUTES TO BE PAID FOR UNDER ITEMS:
716-04.13, PLASTIC PAVEMENT MARKING (BIKELANE SYMBOL & ARROW), PER EACH.
716-04.15, PLASTIC PAVEMENT MARKING-BIKE SYMBOL/ARROW SHARED, PER EACH.

(I) ON MAJOR ROADWAYS APPROACHING URBAN AREAS, A BUFFERED BIKE LANE MAY BE USED, CONTACT THE TDOT BIKE COORDINATOR FOR GUIDANCE.

(J) SEE STD. DWG. MM-PM-3 THRU MM-PM-5 AND MM-TS-1 FOR ADDITIONAL BIKE LANE GUIDANCE.

(K) RUMBLES SHOULD NOT TYPICALLY BE INSTALLED AT V < 45 MPH IN URBAN ZONES.

(Replaced Std Dwg T-M-11)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANE OR ROUTES

01-07-2019 | MM-PM-2

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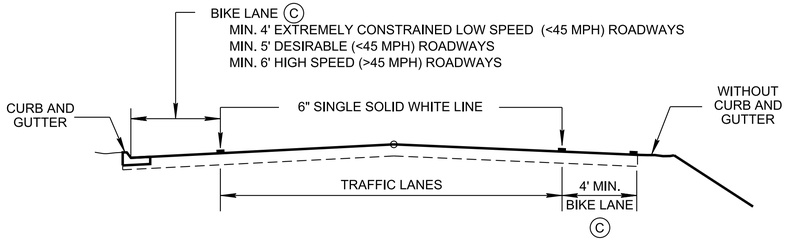
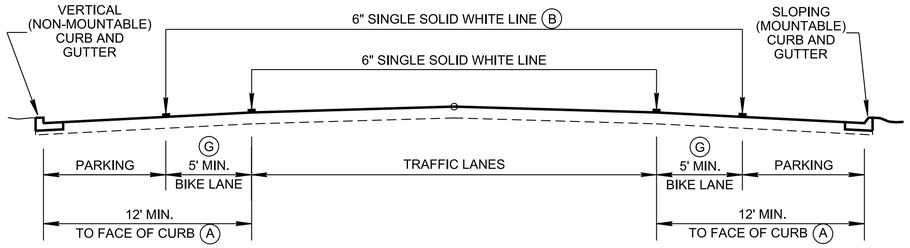
TYPICAL BIKE LANE CROSS SECTIONS FOR URBAN COLLECTORS AND STREETS



PAVED SHOULDER WIDTH 4' -8'



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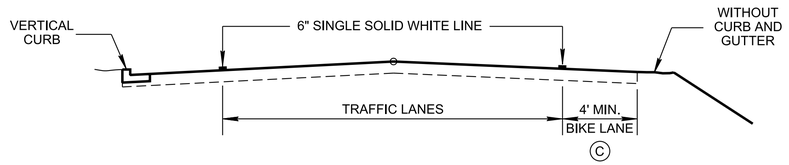
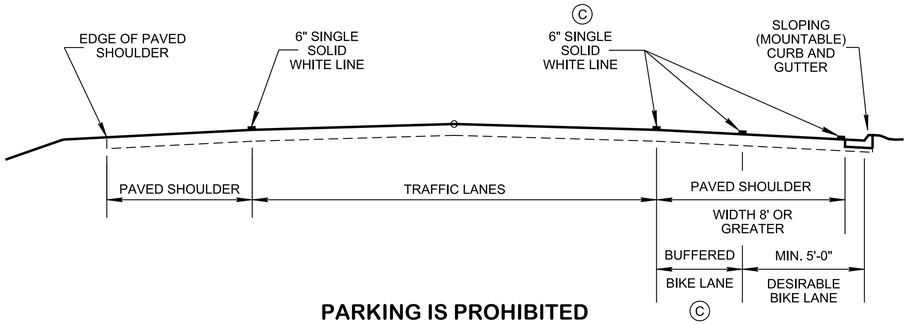
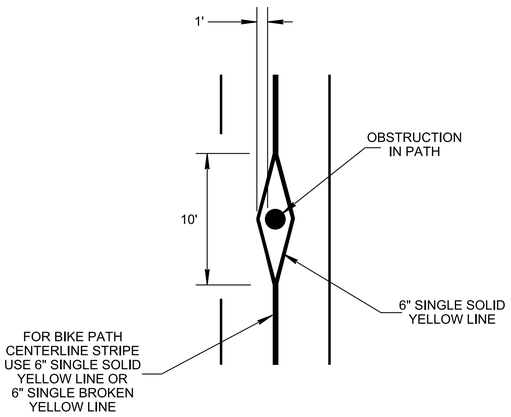


PAVED SHOULDER WIDTH LESS THAN 4'

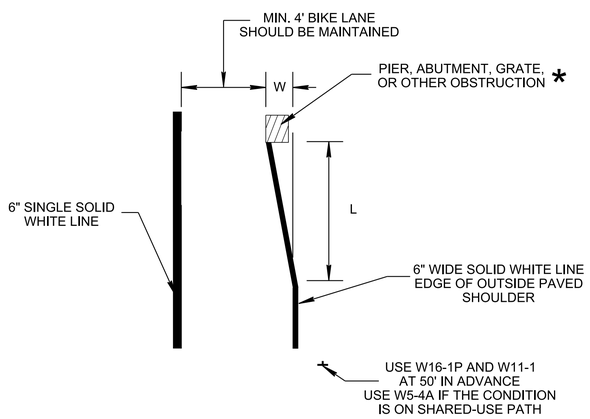


PARKING IS PROHIBITED

2-LANE URBAN COLLECTORS AND STREETS WITH BIKE LANE



BARRIER POST STRIPING



TYPICAL BIKE LANE MARKING FOR OBSTRUCTIONS
(E)

3-5 LANE URBAN (CURB AND GUTTER) ROADWAYS WITH BIKE LANE PAVED SHOULDER WIDTH 8' OR GREATER

GENERAL NOTES

(A) 13' IS RECOMMENDED WHERE THERE IS SUBSTANTIAL PARKING OR TURNOVER OF PARKED CARS IS HIGH (E.G. COMMERCIAL AREAS).

(B) THE OPTIONAL SOLID WHITE LINE MAY BE ADVISABLE WHERE PARKING STALLS ARE UNNECESSARY (BECAUSE PARKING IS LIGHT) BUT THERE IS CONCERN THAT MOTORISTS MAY MISCONSTRUE THE BIKE LANE TO BE A TRAFFIC LANE.

(C) AREAS WHERE MIN. OF 4' BIKE LANE CAN NOT BE PROVIDED " SHARE THE ROAD" (W16-1P AND W11-1) SIGN SHOULD BE PLACED TO WARN THE MOTORIST FOR SHARED ROADWAY USE. WHERE THE ROADWAY DESIGN SPEEDS IS MORE THAN 40 MPH SHARED USE BIKE ROUTES ARE NOT RECOMMENDED. SEE STD. DWG. MM-PM-2 FOR BIKE ROUTE PAVEMENT MARKINGS AND SIGNING REQUIREMENTS.

(D) BIKE LANE SIGNS SHOULD BE PLACED APPROXIMATELY EVERY 0.25 MILES AND AT ALL MAJOR INTERSECTIONS.

(E) WHEN PIER, BRIDGE ABUTMENT, GRATE, OR OTHER ROADWAY OBSTRUCTION INTRUDES IN THE BIKE PATH, THE BIKE LANE SHOULD BE MARKED AS SHOWN; L = WS, WHERE "W" IS WIDTH OF THE OBSTRUCTION IN FEET IN BIKE LANE AND "S" IS BICYCLE AVERAGE APPROACH SPEED 20 MPH. * PROVIDE AN ADDITIONAL FOOT OF OFFSET FOR A RAISED OBSTRUCTION AND USE THE FORMULA L = (WS+1) FOR THE TAPER LENGTH. SEE SECTION 9C.06 OF THE MUTCD FOR ADDITIONAL INFORMATION.

(F) ITEM NO. 716-04.13, PLASTIC PAVEMENT MARKING (BIKE LANE SYMBOL AND ARROW), PER EACH, TO INCLUDE BIKE SYMBOL AND ARROW AS ONE QUANTITY.

(G) BIKE LANES UP TO 7' IN WIDTH MAY BE CONSIDERED ADJACENT TO NARROW LANES WITH HIGH TURNOVER.

(Replaced Std Dwg T-M-12)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANES ON URBAN ROADWAYS

01-07-2019 | MM-PM-3

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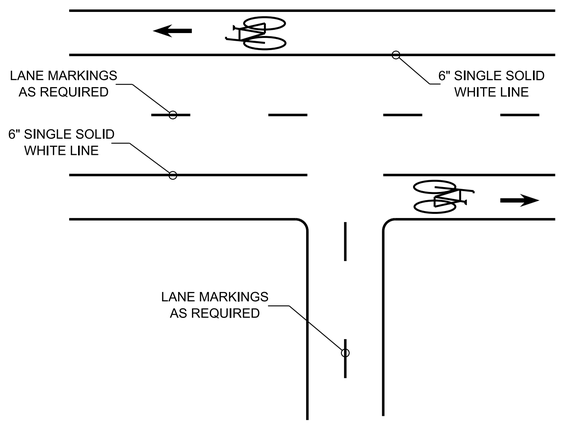
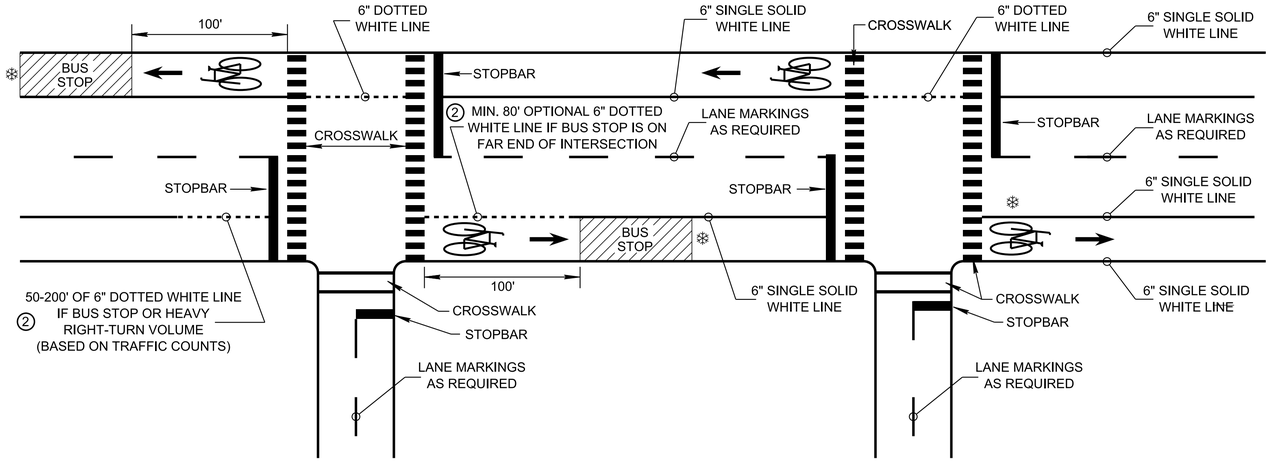


MINOR T-INTERSECTION WITH NO PEDESTRIAN CIRCULATION

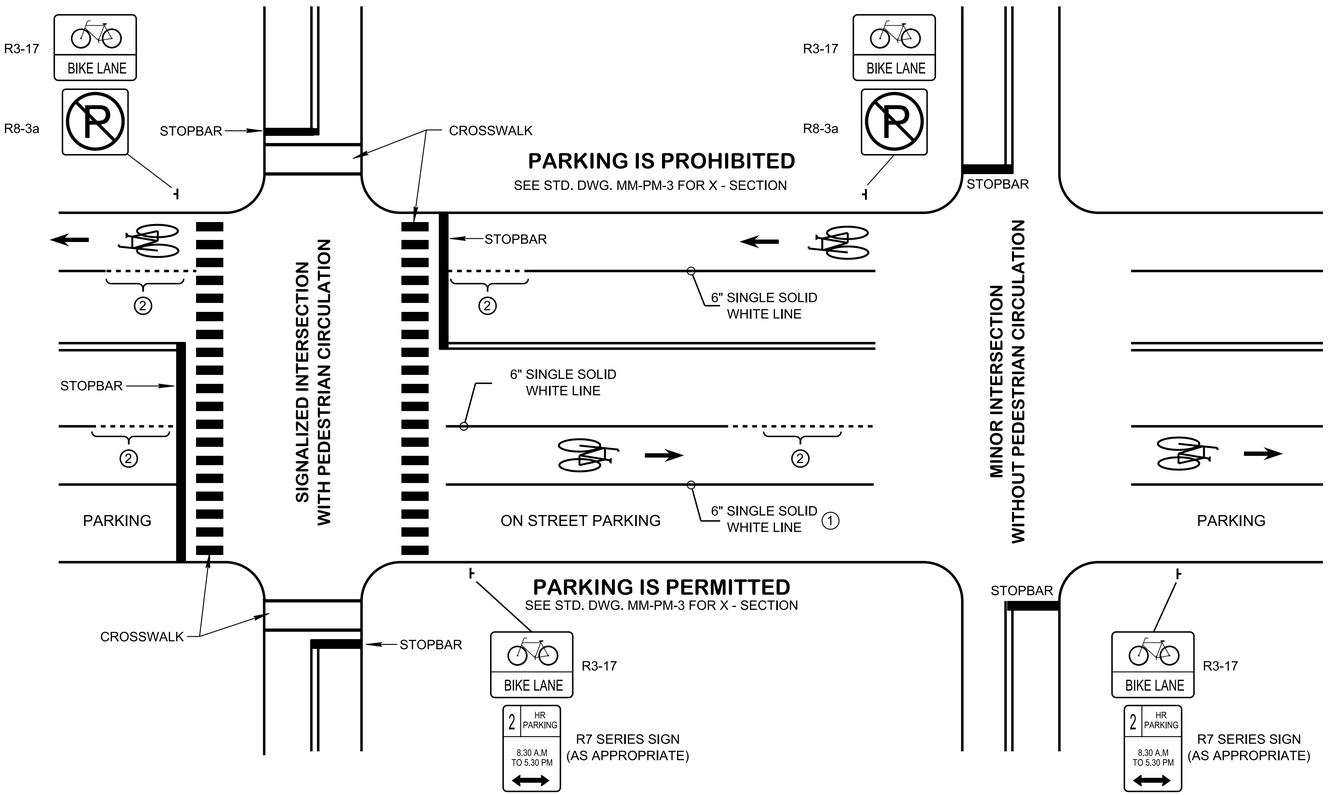


T-INTERSECTION WITH PAINTED CROSSWALKS AND BUS STOPS

T-INTERSECTION WITH PAINTED CROSSWALKS AND NO BUS STOPS

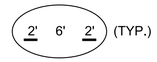
❄ BUS STOP LOCATIONS TO BE DETERMINED BY LOCAL AGENCY

TYPICAL BIKE LANE STRIPING AT T- INTERSECTIONS



TYPICAL PAVEMENT MARKINGS FOR BICYCLE LANES ON A TWO-WAY URBAN STREET

NOT TO SCALE



DOTED LINE DETAIL ②

FOOTNOTES

① THE OPTIONAL SOLID WHITE LINE MAY BE ADVISABLE WHERE PARKING STALLS ARE UNNECESSARY (BECAUSE PARKING IS LIGHT) BUT THERE IS CONCERN THAT MOTORISTS MAY MISCONSTRUE THE BIKE LANE TO BE A TRAFFIC LANE.

② 50'-200' OF 6" WIDE DOTTED WHITE LINE IF BUS STOP OR HEAVY RIGHT-TURN VOLUME (BASED ON TRAFFIC COUNTS). OTHERWISE USE SOLID LINE. SEE DETAIL.

GENERAL NOTES

Ⓐ THE BIKE LANE (R3-17) SIGN SHALL BE USED ONLY IN CONJUNCTION WITH MARKED BICYCLE LANES AS DESCRIBED IN SECTION 9C.04, AND SHALL BE PLACED AT PERIODIC INTERVALS ALONG THE BICYCLE LANES.

THE BIKE LANE (R3-17) SIGN SPACING SHOULD BE DETERMINED BY ENGINEERING JUDGMENT BASED ON PREVAILING SPEED OF BICYCLE AND OTHER TRAFFIC, BLOCK LENGTH, DISTANCES FROM ADJACENT INTERSECTIONS, AND OTHER CONSIDERATIONS.

THE AHEAD (R3-17a) SIGN SHOULD BE MOUNTED DIRECTLY BELOW A R3-17 SIGN IN ADVANCE OF THE BEGINNING OF A MARKED BICYCLE LANE. LONGITUDINAL PAVEMENT MARKING SHOULD BE USED TO DEFINE BICYCLE LANES.

THE ENDS (R3-17b) SIGN SHOULD BE MOUNTED DIRECTLY BELOW A R3-17 SIGN AT THE END OF A MARKED BICYCLE LANE.

Ⓑ MARKING USED ON BIKEWAYS SHOULD BE RETROREFLECTORIZED. LONGITUDINAL PAVEMENT MARKING SHOULD BE USED TO DEFINE BICYCLE LANES. PAVEMENT MARKING SYMBOLS AND/OR WORD MESSAGES SHOULD BE USED IN BIKEWAYS WHERE APPROPRIATE. CONSIDERATION SHOULD BE GIVEN SELECTING PAVEMENT MARKING MATERIALS THAT WILL MINIMIZE LOSS OF TRACTION FOR BICYCLE UNDER WET CONDITIONS.

Ⓒ A THROUGH BICYCLE LANE SHALL NOT BE POSITIONED TO THE RIGHT OF A RIGHT TURN ONLY LANE.

Ⓓ WHEN THE RIGHT THROUGH LANE IS DROPPED TO BECOME A RIGHT TURN ONLY LANE, THE BICYCLE LANE MARKINGS SHOULD STOP AT LEAST 100 FEET BEFORE THE BEGINNING OF THE RIGHT TURN LANE. THROUGH BICYCLE LANE MARKINGS SHOULD RESUME TO THE LEFT OF THE RIGHT TURN ONE LANE. AN OPTIONAL THROUGH-RIGHT TURN LANE NEXT TO A RIGHT TURN ONLY LANE SHOULD NOT BE USED WHERE IS A THROUGH BICYCLE LANE. IF A CAPACITY ANALYSIS INDICATES THE NEED FOR AN OPTIONAL THROUGH-RIGHT TURN LANE, THE BICYCLE LANE SHOULD BE DISCONTINUED AT THE INTERSECTION APPROACH. POSTS OR RAISED PAVEMENT MARKERS SHOULD NOT BE USED TO SEPARATE BICYCLE LANES FROM ADJACENT TRAVEL LANES.

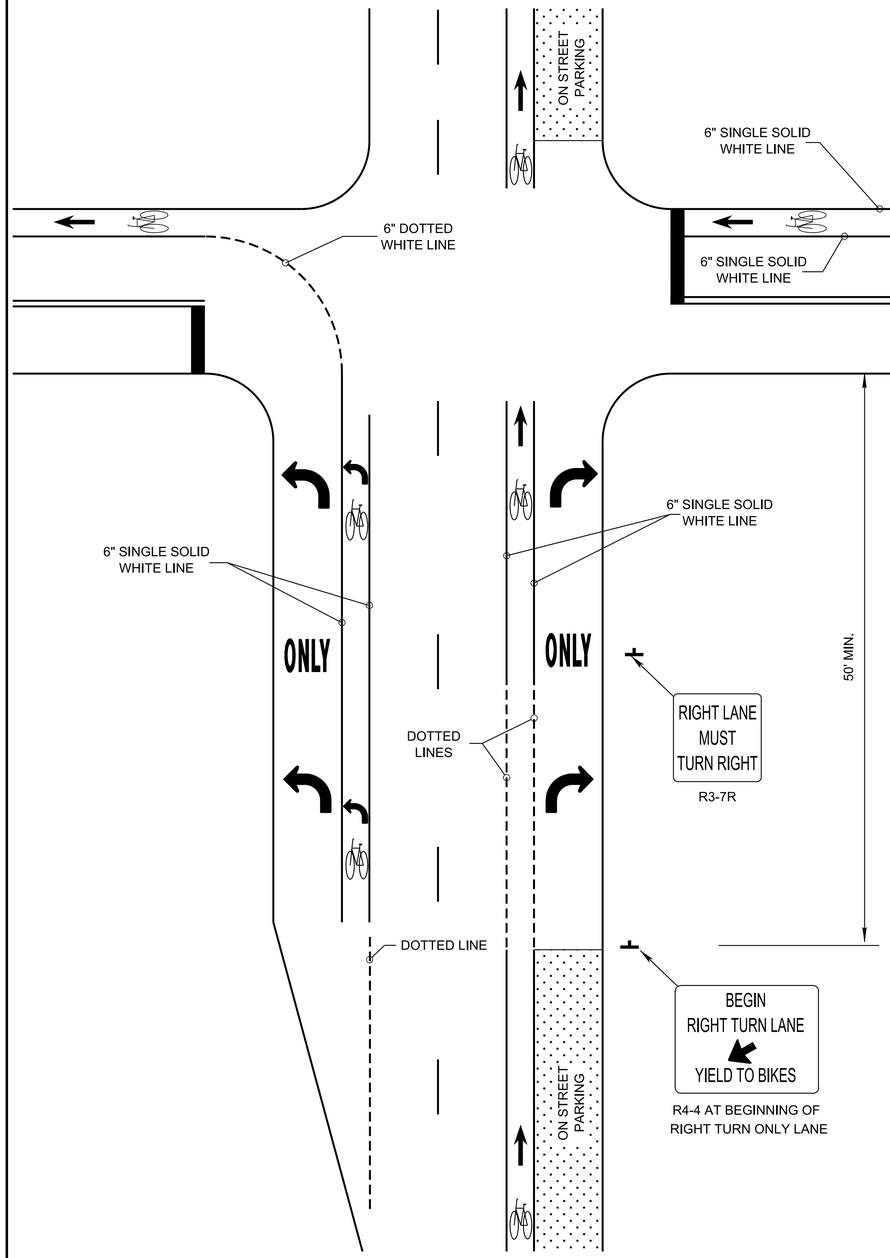
Ⓔ BICYCLE LANES SHALL NOT BE PROVIDED ON THE CIRCULAR ROADWAY OF A ROUNDABOUT INTERSECTION.

(Replaced Std Dwg T-M-13)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

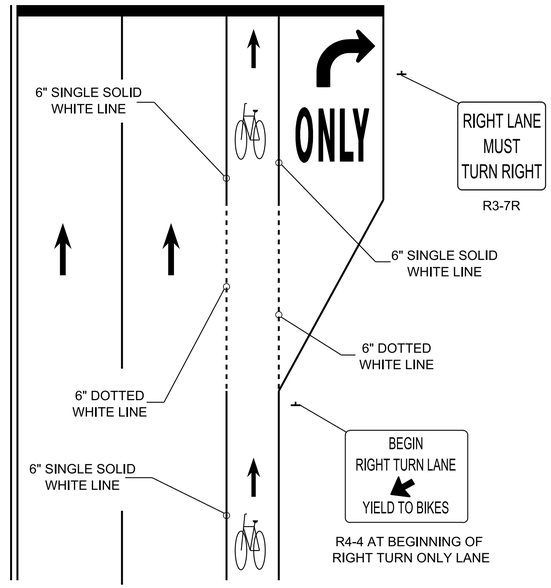
SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANES

01-07-2019 MM-PM-4

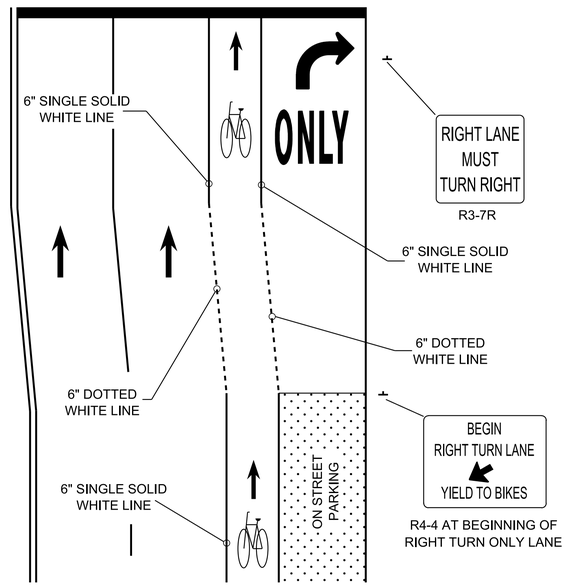


DESIGNATED BICYCLE LANE WITH LEFT-TURN AREA, FOR HEAVY TURN VOLUMES, ON-STREET PARKING, ONE-WAY TRAFFIC, OR DIVIDED HIGHWAY

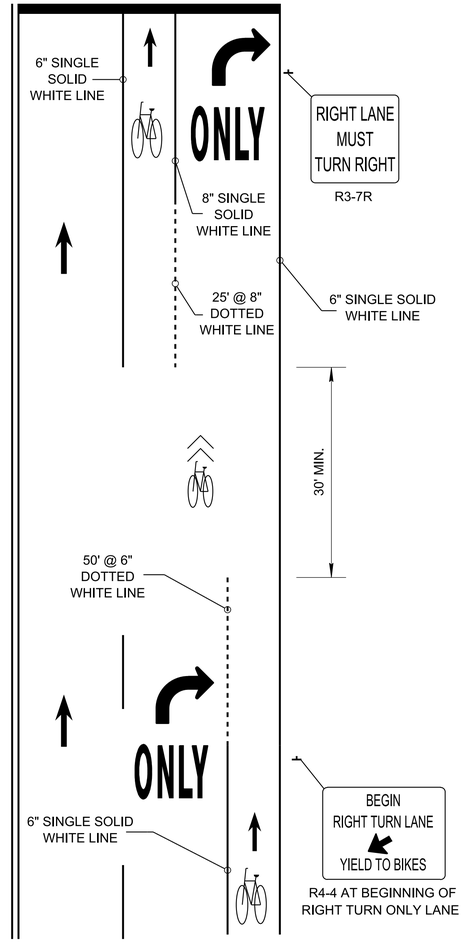
SEE STD. DWG. MM-PM-4 FOR GENERAL NOTES



TYPICAL BICYCLE LANE TREATMENT AT A RIGHT TURN ONLY LANE



TYPICAL BICYCLE LANE TREATMENT AT PARKING LANE INTO A RIGHT TURN ONLY LANE



TYPICAL BICYCLE LANE TREATMENT AT A RIGHT TURN DROP LANE

(Replaced Std Dwg T-M-14)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANES AT INTERSECTIONS

01-07-2019 | MM-PM-5

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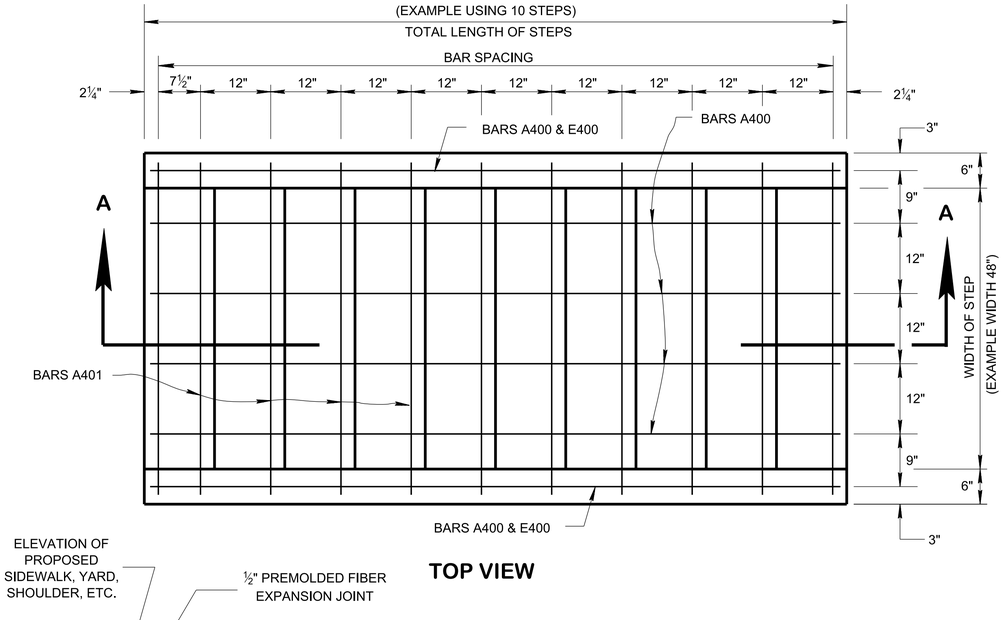
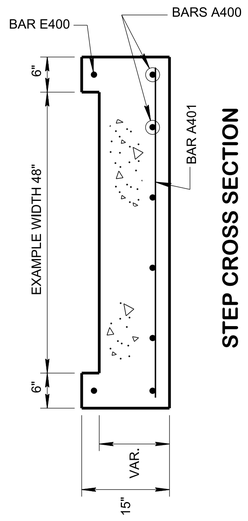
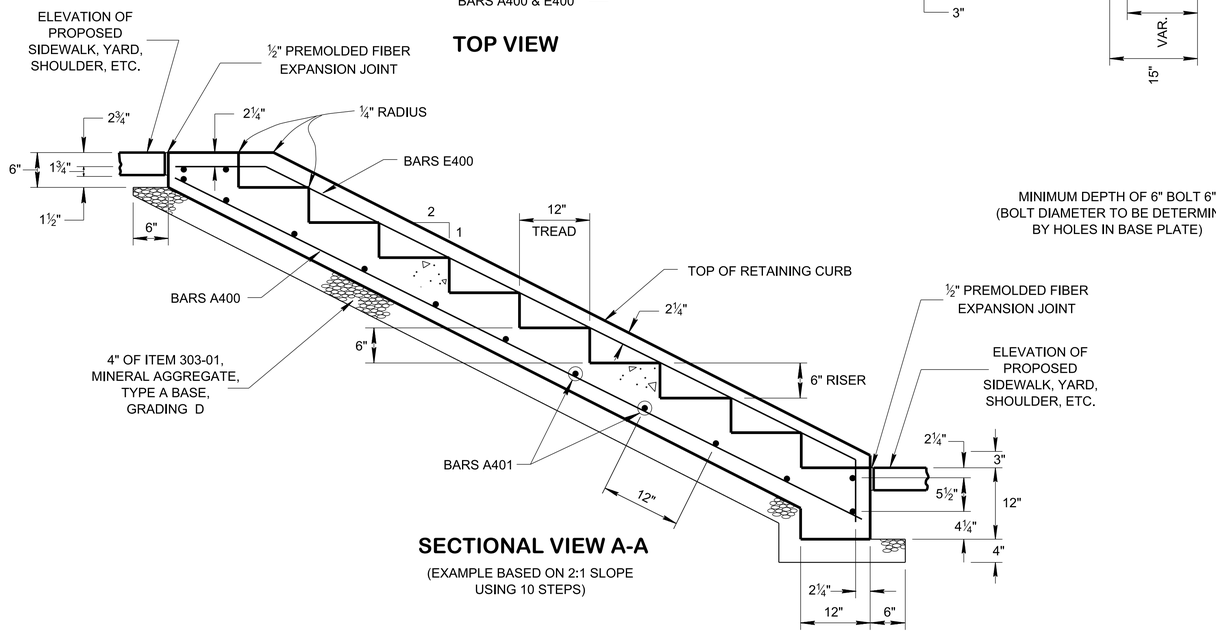


TOP VIEW

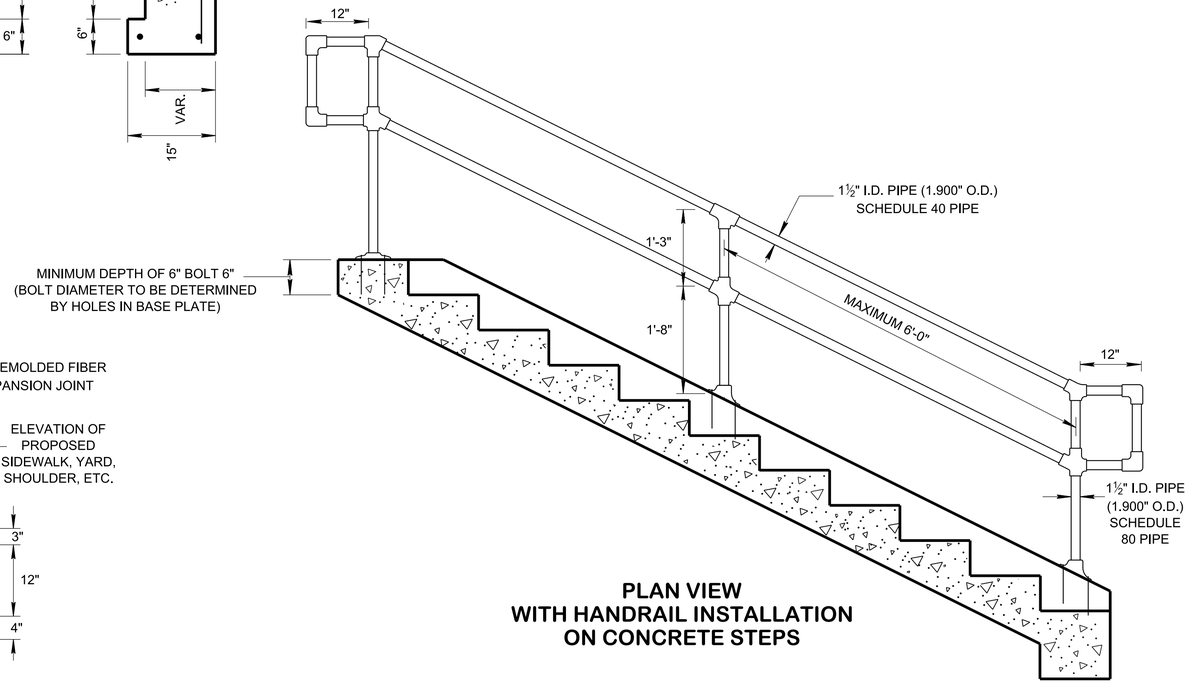


STEP CROSS SECTION



SECTIONAL VIEW A-A

(EXAMPLE BASED ON 2:1 SLOPE USING 10 STEPS)



PLAN VIEW WITH HANDRAIL INSTALLATION ON CONCRETE STEPS

CONCRETE STEP GENERAL NOTES

- (C1) FOR SPECIFICATIONS SEE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION.
- (C2) CONCRETE STEPS MAY BE CAST IN PLACE OR PRECAST. ALL CONCRETE CAST IN PLACE TO BE CLASS "A". ALL PRECAST TO BE 4000 POUNDS PER SQUARE INCH.
- (C3) ALL EXPOSED EDGES ARE TO BE ROUNDED USING A QUARTER INCH RADIUS.
- (C4) THE TREAD IS TO BE TWELVE INCHES DEEP. THE RISER HEIGHT IS TO BE VARIED SO AS TO CONFORM TO THE PROPOSED SLOPE. A MAXIMUM RISER HEIGHT OF SEVEN INCHES IS NOT TO BE EXCEEDED.
- (C5) CONCRETE JOINT MATERIAL TO BE ½" PREMOLDED FIBER IN ACCORDANCE WITH SECTION 905 OF THE STANDARD SPECIFICATIONS. COST OF JOINT MATERIAL WILL BE INCLUDED IN THE COST OF OTHER ITEMS.
- (C6) ALL REINFORCING STEEL TO ADHERE TO SPECIFICATION ASTM A 615. ALL REINFORCING STEEL TO BE NO. 4 BARS.
- (C7) THE COST OF EXCAVATION BELOW LEVEL ON PROPOSED SLOPE TO BE INCLUDED IN THE COST OF OTHER ITEMS.
- (C8) PAYMENT FOR CONCRETE STEPS WILL BE MADE AS FOLLOWS

ITEM NO. 604-01.01	CLASS "A" CONCRETE (ROADWAY)	PER CUBIC YARD
ITEM NO. 604-01.02	STEEL BAR REINFORCEMENT (ROADWAY)	PER POUND

HANDRAIL GENERAL NOTES

- (H1) PIPE CROSS MEMBERS ARE TO ADHERE TO SPECIFICATION ASTM A 53 TYPE E OR S-GRADE A OR B.
- (H2) THE PIPE HANDRAIL IS TO BE PAINTED BLACK IN COLOR AND ADHERE TO FEDERAL SPECIFICATION TT-E-489H.
- (H3) THE PIPE HANDRAIL IS TO BE USED ONLY AS A PROTECTION FOR PEDESTRIANS AND SHOULD NOT BE PLACED IN ANY LOCATION WHERE IT MIGHT BE SUBJECT TO VEHICULAR IMPACT. FOR VEHICULAR PROTECTION STANDARD GUARD RAIL SHOULD BE USED.
- (H4) THE PIPE HANDRAIL IS TO BE PAID FOR UNDER ITEM NO. 604-01.04, 1½" STEEL PIPE HANDRAIL PER LINEAR FEET.
- (H5) THE PIPE HANDRAIL SHALL BE REQUIRED WITH FIVE OR MORE STEPS AND WILL MEET THE FOLLOWING CONDITIONS:
  - (1) ON STEPS LESS THAN 44 INCHES WIDE HAVING BOTH SIDES ENCLOSED, ONE HANDRAIL ON EACH SIDE.
  - (2) ON STEPS LESS THAN 44 INCHES WIDE HAVING ONE SIDE OPEN, ONE HANDRAIL ON EACH SIDE.
  - (3) ON STEPS LESS THAN 44 INCHES WIDE HAVING BOTH SIDES OPEN, ONE HANDRAIL ON EACH SIDE.
  - (4) ON STEPS MORE THAN 44 INCHES WIDE BUT LESS THAN 88 INCHES WIDE, ONE HANDRAIL ON EACH SIDE
  - (5) ON STEPS 88 OR MORE INCHES WIDE, ONE HANDRAIL ON EACH SIDE, AND ONE INTERMEDIATE HANDRAIL LOCATED APPROXIMATELY MIDWAY OF THE WIDTH.

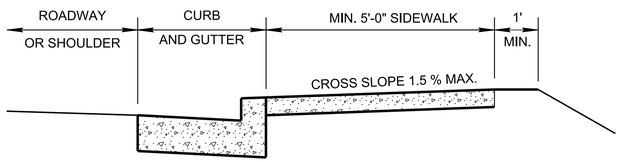
(Replaced Std Dwg RP-S-8)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

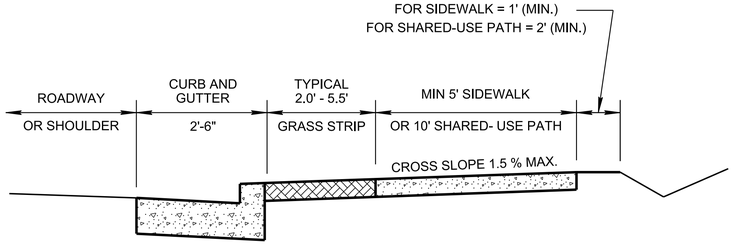
DETAILS FOR PEDESTRIAN STEPS AND HANDRAILS

01-07-2019 | MM-PS-1

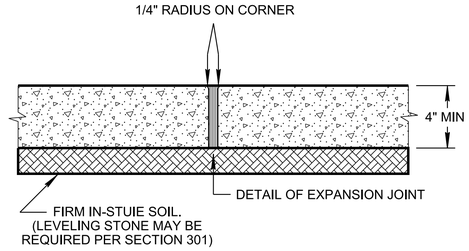
NOT TO SCALE



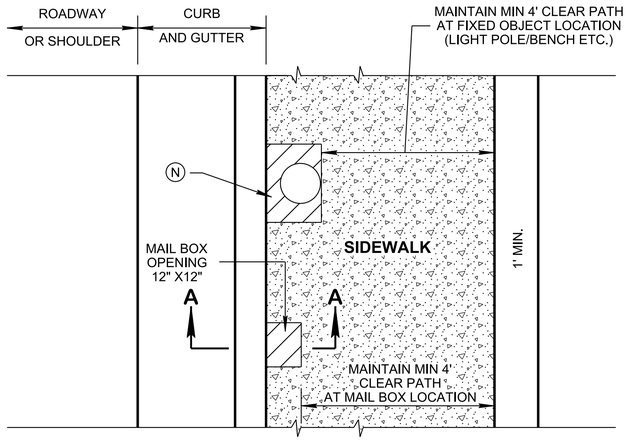
TYPICAL SIDEWALK CROSS SECTION WITHOUT GRASS STRIP



TYPICAL SIDEWALK CROSS SECTION WITH GRASS STRIP

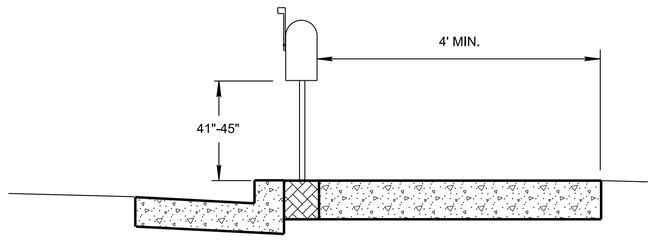


EXPANSION JOINT DETAIL



NOTE: SOME LOCATIONS WHEN THE PLACEMENT OF SERVICE APPURTENANCES OUTSIDE THE PEDESTRIAN FACILITY DUE TO EXTREME SITE CONDITIONS PLACEMENT SHALL PROVE UNINTERRUPTED 4' CLEAR PATH.

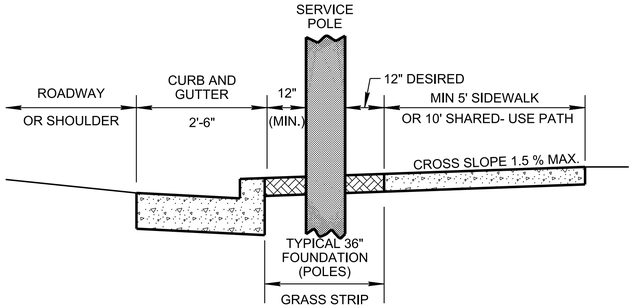
SIDEWALK CONSTRUCTION DETAILS WITHOUT GRASS STRIP PLAN VIEW



SECTION A-A

MAIL BOX DETAIL

NOTE: LEAVE 12"X12" OPENING IN SIDEWALK FOR MAIL BOX POST. ORIENT BOXES TO FACE THE DIRECTION OF ONCOMING TRAFFIC. EDGE OF MAIL BOX SHALL NOT OVERHANG BEYOND THE FACE OF THE CURB. NOR SHALL THE MAIL BOX OVERHANG THE SIDEWALK SUCH THAT THE USABLE WIDTH IS LESS THAN 4 FEET.



NOTE: IF SERVICE POLE IS PLACED IN GRASS STRIP THE POLE SHALL HAVE MIN. 3' OFFSET FROM TRAVELLED LANE. MINIMUM 36" DIAMETER AND 15' DEEP FOUNDATION SPACE SHALL BE EVALUATED TO ELIMINATE CONFLICTS.

SERVICE APPURTENANCE (LARGE SIGNS STRUCTURES, SIGNAL, LUMINARY AND UTILITY POLES 2' DIAMETER OR LARGER) SHALL BE PLACED OUTSIDE THE PEDESTRIAN ACCESSIBLE SPACE, PREFERABLE OUTSIDE THE SIDEWALK AREA AND INSIDE RIGHT-OF-WAY.

TYPICAL SIDEWALK CROSS SECTION WITH GRASS STRIP AND SERVICE APPURTENANCES

REFERENCED STANDARD DRAWINGS

SEE T-M-4, FOR CROSS WALK MARKING
SEE MM-CR SERIES FOR CURB RAMP DETAILS
SEE MM-BPR-1, FOR PEDESTRIAN RAIL REQUIREMENTS
SEE MM-SW-2, FOR ALTERNATE DETAILS FOR CONCRETE SIDEWALK (REHABILITATION)
SEE RP-SC-1, FOR 6" SLOPING CONCRETE CURBS AND CONCRETE CURBS AND GUTTERS
SEE RP-VC-10 OR 11, FOR VERTICAL CONCRETE CURB AND CONCRETE CURBS AND GUTTER DETAILS
SEE MM-PM-1 THRU MM-PM-5, FOR BIKE LANE/ROUTE PAVEMENT MARKINGS
SEE S-PL-6, FOR GUARDRAIL PLACEMENT
SEE RP-D-15 & 16 FOR CONCRETE DRIVEWAYS
SEE MM-TS-2 FOR PEDESTRIAN FACILITY LATERAL OFFSETS
SEE MM-TS-3 FOR SHARED USE TYPICAL SECTIONS

GENERAL NOTES

(A) ALWAYS PLACE SIDEWALK AS FAR AS AWAY FROM THE TRAVELLED WAY WHEN POSSIBLE FOR SPECIFICATIONS SEE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION.

(B) WHERE IT BECOMES NECESSARY TO REMOVE PARTS OF EXISTING CONCRETE SIDEWALKS OR RAMPS, THE RESULTING EDGES SHALL BE CUT TO A NEAT LINE, AND ANY OFFSETS IN SUCH LINES SHALL BE MADE OFFSETS IN SUCH LINES SHALL BE MADE AT RIGHT ANGLES.

(C) SIDEWALK WIDTHS DO NOT INCLUDE THE SIX INCH CURB WIDTH OF PROPOSED TOP OF CURB.

(D) DESIRABLE SIDEWALK CROSS SLOPE IS 1.5 %, ABSOLUTE MAXIMUM IS 2.0 %. ALL SIDEWALKS SHALL HAVE A BROOM FINISH AND SHALL BE 4" THICK UNLESS THE PLANS CALL FOR 6" THICKNESS. THE CONCRETE SHALL BE CLASS "A" AT 3000 PSI. ALL COST TO BE INCLUDES IN ITEM NO. 701-01.01,CONCRETE SIDEWALK (4"), S.Y. OR 701-01.02,CONCRETE SIDEWALK (6"), S.Y.

(E) SEE STD. DWG. MM-TS-2 FOR LATERAL OFFSET/ BUFFER GUIDANCE.

(F) EXPANSION JOINTS ARE TO BE PLACED 25 TO 30 FEET APART DEPENDING ON TRANSVERSE JOINT MARKINGS AND NEED TO MATCH CURB EXPANSION JOINT WHERE SIDEWALK IS BUILT DIRECTLY AGAINST CURB, OR AS DIRECTED BY THE ENGINEER WHERE THE PROPOSED SIDEWALK IS IN CONTACT WITH THE STREET RETURNS, ON BUILDING LINES PRODUCED AT STREET INTERSECTIONS, WHERE WALKS LEAD TO HOUSE OR OTHER ENTRANCES AND ANY OTHER LOCATIONS WHERE STRESSES MAY DEVELOP. THE COST OF ALL EXPANSION JOINTS IS TO BE INCLUDED IN THE UNIT PRICE BID FOR THE PROPOSED SIDEWALK.

(G) CONCRETE JOINT MATERIAL TO BE FLUSH WITH THE SIDEWALK SURFACE, HALF INCH AND/OR ONE INCH PREMOLDED FIBER IN ACCORDANCE WITH SECTION 905 OF THE STANDARD SPECIFICATIONS

(H) ONE INCH EXPANSION JOINTS ARE TO BE PLACED WHERE THE PROPOSED SIDEWALK IN CONTACT WITH CIRCULAR CURBS, BUILDINGS AND/OR RETAINING WALLS.

(I) HALF INCH EXPANSION JOINTS ARE TO BE USED AT ALL OTHER LOCATIONS

(J) LONGITUDINAL JOINT MARKINGS WILL NOT BE REQUIRED ON SIDEWALKS 5 FEET LESS IN WIDTH.

(K) ONE LONGITUDINAL JOINT MARKING WILL BE REQUIRED ON SIDEWALKS OVER 5 FEET BUT LESS THAN 9 FEET IN WIDTH.

(L) TWO LONGITUDINAL JOINT MARKINGS WILL BE REQUIRED ON SIDEWALKS OVER 9 FEET BUT LESS THAN 12 FEET IN WIDTH.

(M) TRANSVERSE JOINT MARKINGS ARE TO BE MADE TO FORM BLOCKS AS NEARLY TO SQUARE AS PRACTICAL.

(N) LEAVE SQUARE OPENING IN SIDEWALK. THE LENGTH OF THE SIDE OF THE SQUARE OPENING SHOULD BE EQUAL TO THE DIAMETER OF THE FIXED OBJECT PLUS SIXTEEN INCHES, IT WILL BE BORDERED BY HALF INCH EXPANSION JOINT.

(O) WHEN NEW SIDEWALK IS PLACED ADJACENT TO EXISTING SIDEWALK THE CONTRACTOR SHALL CORRECT ALL ABRUPT CHANGES AND SLOPES TO PROVIDE A SMOOTH TRANSITION FROM THE LIMIT OF CONSTRUCTION TO EXISTING PEDESTRIAN FACILITY.

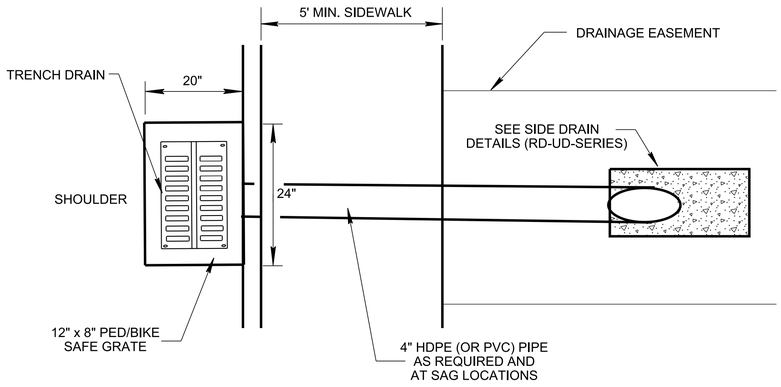
(Replaced Std Dwg RP-S-7)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

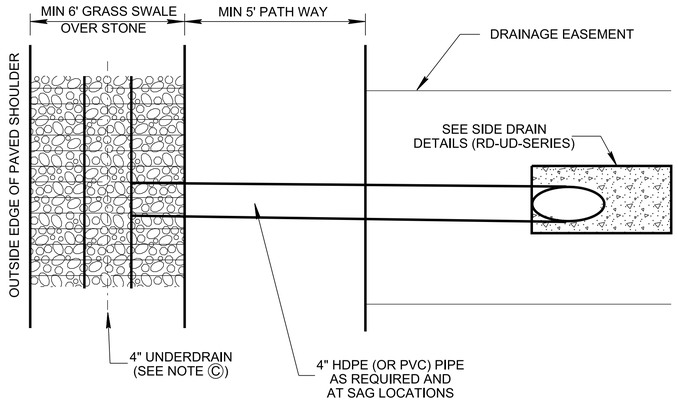
DETAILS FOR CONCRETE SIDEWALK

01-07-2019 | MM-SW-1

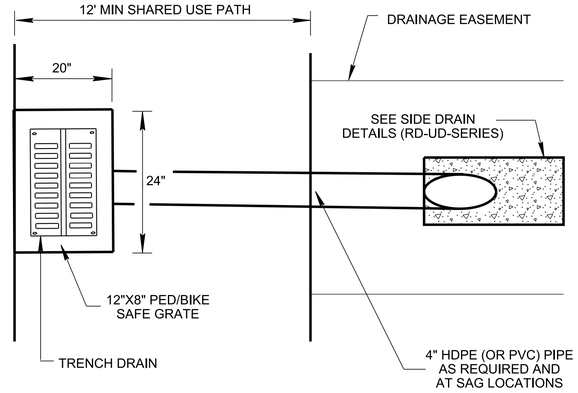
NOT TO SCALE



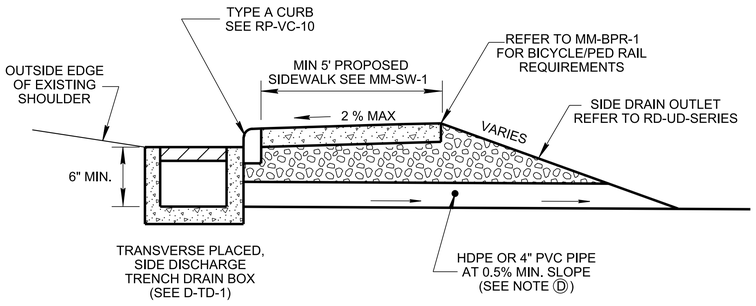
SIDEWALK
PLAN VIEW



SIDEWALK
PLAN VIEW

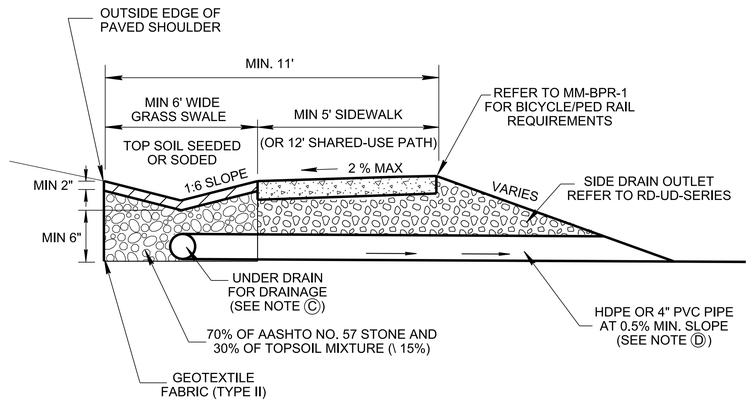


SHARED-USE-PATH
PLAN VIEW

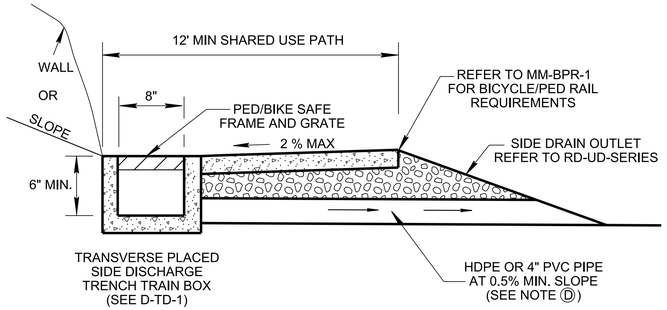


SIDEWALK WITH 6" VERTICAL CURB
ALWAYS MAINTAIN MIN 3' OFFSET BETWEEN THE EDGE OF
TRAVELLED WAY AND PEDESTRIAN FACILITY.

SECTION VIEW



SECTION VIEW



DRAINAGE DETAIL TO CAPTURE OFF SITE
STORM WATER FOR SHARED USE PATHS

SECTION VIEW

LOW-COST PEDESTRIAN FACILITY ALTERNATIVES FOR ROADS AND STREETS WITHOUT CURB AND GUTTER

DRAINAGE GENERAL NOTES

- Ⓐ ALTERNATE DRAINAGE DETAILS MAY BE USED AT LOCATIONS WHERE INSTALLING NEW STORM WATER SYSTEM IS NOT FEASIBLE.
- Ⓑ PAYMENT FOR TRENCH DRAINS WILL BE MADE UNDER ITEM NUMBER 611-05.01, TRENCH DRAIN PER LINEAR FOOT.
- Ⓒ ALL COST FOR TRENCHING, FURNISHING AND INSTALLING THE PIPE AND AGGREGATE FOR THE UNDERDRAIN WITH PIPE WILL BE INCLUDED IN THE BID PRICE FOR ITEM NO. 710-02, AGGREGATE UNDERDRAINS (WITH PIPE) OR ITEM NO. 710-04, FILTER CLOTH UNDERDRAIN (WITH PIPE). THE UNIT OF PAYMENT WILL BE PER LINEAR FOOT.
- Ⓓ BACKFILL MATERIAL USED WITH UNDERDRAIN LATERALS ON ALL HIGHWAY SYSTEMS SHALL BE MINERAL AGGREGATE. MINERAL AGGREGATE BACKFILL SHALL MEET REQUIREMENTS OF SUBSECTION 903.05 OF THE STANDARD SPECIFICATIONS FOR CLASS "A" OR CLASS "B" GRADING "D". IT SHALL BE PAID FOR UNDER THE PRICE BID FOR ITEM NO. 710-05, LATERAL UNDERDRAIN PER LINEAR FOOT.

GENERAL NOTES

1. NOT FOR NEW CONSTRUCTION. LOW-COST PEDESTRIAN FACILITY DETAILS MAY BE USED FOR REHABILITATION PROJECTS ONLY.
2. DETAILS MAY BE USED ON LOCAL ROADS AND STREETS WHERE INSTALLING NEW STORM WATER SYSTEM MAY NOT BE POSSIBLE.
3. SEE STD. DWG. MM-SW-1 FOR SIDEWALK DETAILS.
4. SEE STD. DWG. MM-CR SERIES FOR CURB RAMP DETAILS.

(Replaced Std Dwg RP-S-9)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

ALTERNATE DETAILS FOR CONCRETE SIDEWALK (REHABILITATION)

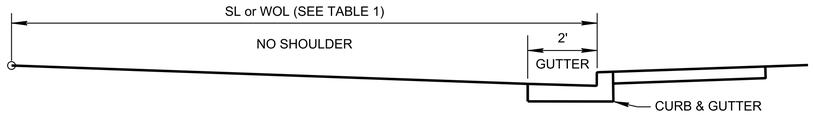
01-07-2019 | MM-SW-2

NOT TO SCALE

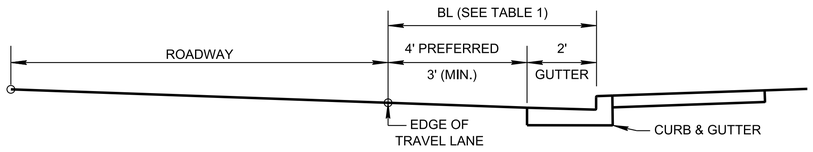
TYPICAL ROADWAY SECTION ELEMENTS TO ACCOMMODATE BIKE FACILITY

REV. 01-07-19: REVISED DIMENSIONS AND DRAWINGS TO ALIGN WITH DESIGN GUIDELINES SECITON 9-500. ADDED TYPICAL FOR SEPARATED BIKE LANE, BUFFER NOTES, TABLE 1 AND 2. REPLACED GENERAL NOTES (2), (3) AND (4). ADDED GENERAL NOTE (5). REDREW SHEET.

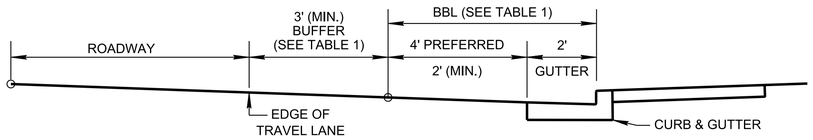
URBAN (CURB & GUTTER)



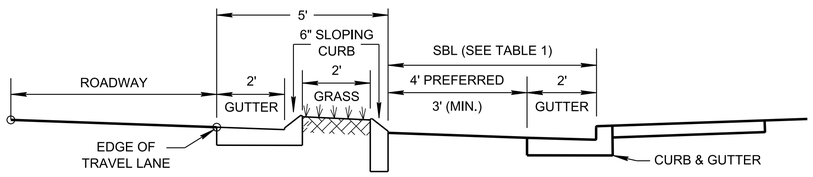
TYPICAL SHARED LANE OR WIDE OUTSIDE LANE STREET



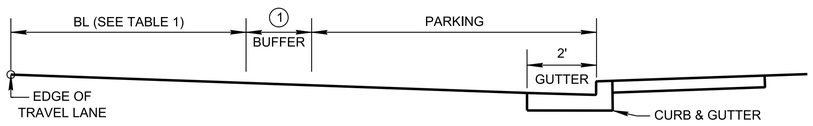
TYPICAL CONVENTIONAL BIKE LANE



TYPICAL BUFFERED BIKE LANE



TYPICAL SEPARATED BIKE LANE
(MONO DIRECTIONAL)



TYPICAL BIKE LANE WITH ON STREET PARKING

TABLE 1

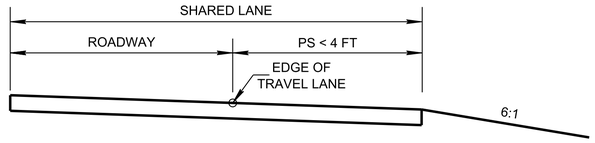
MINIMUM BICYCLE FACILITY GUIDANCE FOR URBAN (CURD AND GUTTER) CROSS SECTIONS (F)

ADT		< 2000	2,000 - 10,000	> 10,000
POSTED SPEED LIMITS (D)	≤ 35 MPH	WOL or SL	BL	BL
	40 - 50 MPH	BL (5 FT)	BL (5 FT) or BBL (4 FT ▲)	BL (5 FT) or BBL (4 FT ▲) or SBL (5 FT ▲)
	50 -55 MPH	BBL (4 FT ▲) or SBL (5 FT ▲)	BBL (4 FT ▲) or SBL (5 FT ▲)	BBL (4 FT ▲) or SBL (5 FT ▲)
	> 55 MPH	SUP	SUP	SUP

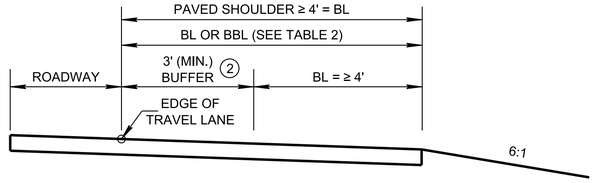
SL = SHARED LANE
SUP = SHARED-USE PATH
BBL = BUFFERED BIKE LANE
SBL = SEPARATED BIKE LANE
BL = CONVENTIONAL BIKE LANE
WOL = WIDE OUTSIDE LANE (MIN. 14 FT WIDE)

▲ ADD BUFFER A MINIMUM OF 3 FEET IN WIDTH; BUFFERED BIKE LANES ARE PREFERRED WHEN ON-STREET PARKING IS PRESENT REGARDLESS OF THE SPEED.

RURAL (SHOULDER AND DITCH)



TYPICAL BIKE ACCOMMODATION/ BIKE ROUTE



TYPICAL BIKE LANE

TABLE 2

MINIMUM BICYCLE FACILITY GUIDANCE FOR RURAL (SHOULDER AND DITCH) CROSS SECTIONS (F)

ADT		< 2000	2,000 - 10,000	> 10,000
POSTED SPEED LIMITS (D)	≤ 35 MPH	SL	BL	BL (3)
	40 - 45 MPH	SL	PS ≥ 4 FT = BL (3)	PS ≥ 4 FT = BL (3)
	> 45 MPH	PS ≥ 4 FT = BL (3)	PS ≥ 8 FT = BBL	PS ≥ 8 FT = BBL

SL = SHARED LANE
BL = CONVENTIONAL BIKE LANE WITHOUT BUFFER
PS = PAVED SHOULDER
BBL = BUFFERED BIKE LANE

MIN. 28' PAVED ROADWAY SECTION IS REQUIRED TO ACCOMMODATE BICYCLES ON TWO LANE ROADWAYS.

BUFFER NOTES

(1) BUFFERED BIKE LANES ARE PREFERRED ADJACENT TO ON-STREET PARKING. BUFFER MAY BE ADJACENT TO THE PARKING LANE, TRAVEL LANE, OR A COMBINATION OF THE TWO, DEPENDING ON LOCAL CONDITIONS AND ENGINEERING JUDGEMENT.

(2) THE BIKE LANE SHOULD BE LOCATED AS FAR FROM THE TRAVEL LANE AS THE PAVED SHOULDER WIDTH AND LOCAL CONDITIONS WILL ALLOW. BUFFER TYPICALLY RANGES FROM 3 TO 6 FT. BUFFERS LESS THAN 3 FT. SHOULD BE EVALUATED AND SUPPLEMENTED BY DEVICES SUCH AS GROUND MOUNTED DELINEATORS OR A BARRIER TO IMPROVE SAFETY.

(3) SHOULDERS LESS THAN 8' AND LESS THAN 45 MPH NO MINIMUM BUFFER REQUIRED.

GENERAL NOTES

(A) THE INTENT OF THIS DRAWING IS TO PROVIDE MINIMUM BIKE ACCOMMODATION DESIGN GUIDANCE FOR VARIOUS TYPICAL CONDITIONS. TDOT DESIGN GUIDELINES SECTION 9-500.00 SHOULD BE REFERENCED FOR ADDITIONAL INFORMATION AND GUIDANCE. EXCEEDING THE MINIMUM IS TYPICALLY DESIRABLE.

(B) SEE STD. DWG. MM-PM-1 AND MM-PM-2 FOR PAVEMENT MARKING AND SIGNING.

(C) TABLES 1 AND 2 PROVIDE MINIMUM ACCOMMODATION ALLOWED WITHOUT MULTIMODAL DESIGN DEVIATION APPROVAL. EXCEEDING MINIMUMS IS OFTEN PREFERRED. TYPICAL SECTIONS DEMONSTRATE TYPICAL IMPLEMENTATION OF GUIDANCE.

(D) TYPICALLY ASSUME POSTED SPEED IS 5 MPH LESS THAN DESIGN SPEED.

(E) FOR REFERENCE SEE: AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, 2019.

(F) FOR MONO DIRECTIONAL ONLY.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

BIKE ACCOMMODATION DESIGN GUIDANCE

08-24-2017 MM-TS-1

NOT TO SCALE

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2/28/2019 11:32:37 AM
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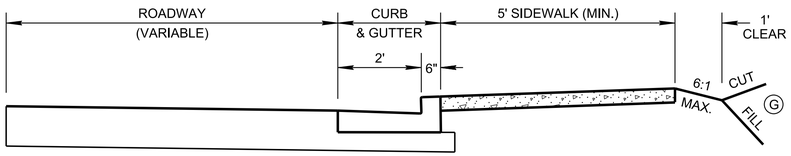
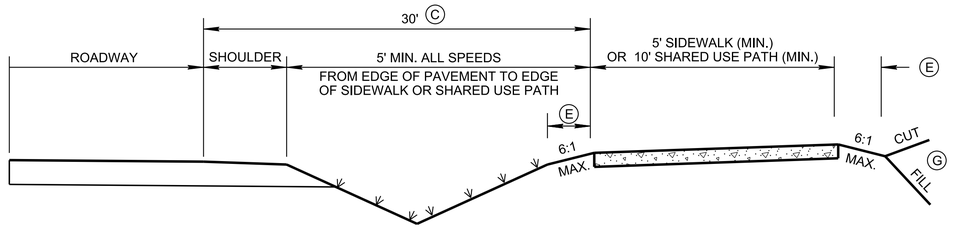
REV. 01-07-19: REVISED DIMENSIONS TO ALIGN WITH SECTION 9 OF DESIGN GUIDELINES. REVISED DRAWING NAME AND THE GENERAL NOTES. REDREW SHEET.

LATERAL OFFSET/BUFFER DETAILS



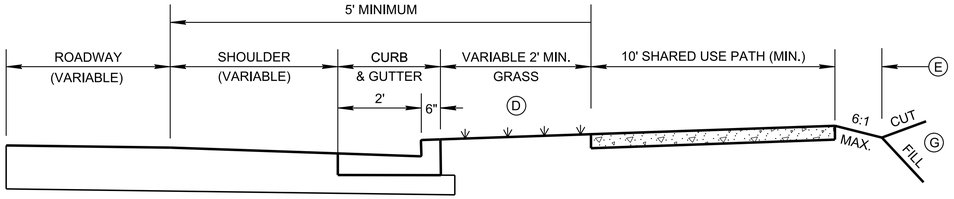
SIDEWALK ADJACENT TO CURB & GUTTER

POSTED SPEEDS ≤ 35 MPH (H)



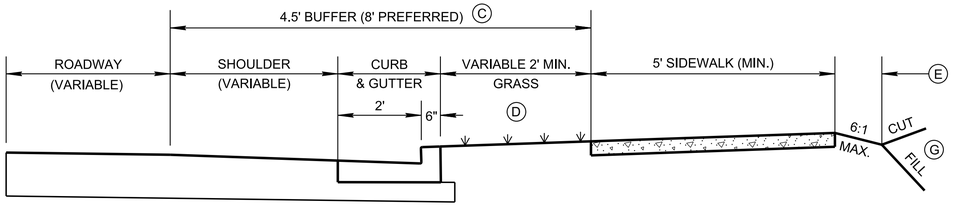
SIDEWALK OR SHARED USE PATH ON HIGH-SPEED FACILITY

RUAL HIGH SPEED ROADWAYS



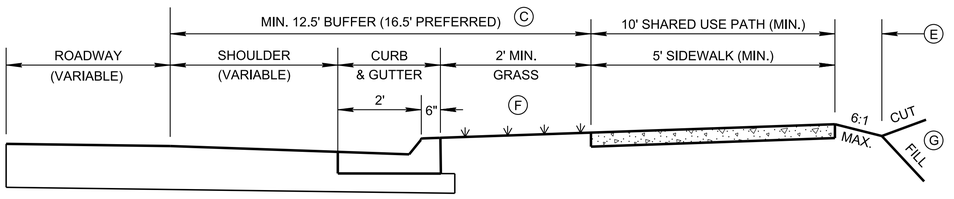
SHARED USE PATH W/ GRASS STRIP BEHIND CURB & GUTTER

POSTED SPEEDS ≤ 40 MPH (H)



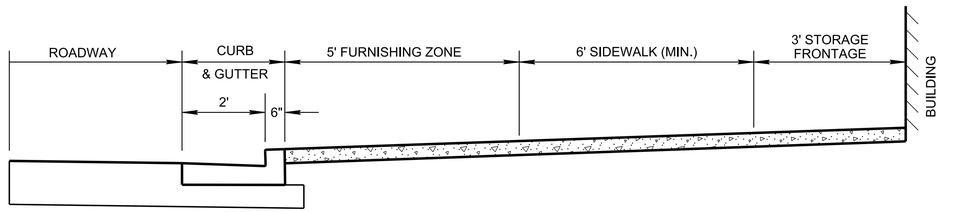
SIDEWALK W/ GRASS STRIP BEHIND CURB & GUTTER

POSTED SPEED = 40 MPH (H)



SIDEWALK OR SHARED USE PATH W/ GRASS STRIP BEHIND CURB & GUTTER

POSTED SPEEDS 45 TO 55 MPH (H)



SIDEWALK IN CENTRAL BUSINESS DISTRICT/COMMERCIAL AREA

POSTED SPEEDS ≤ 35 MPH (DESIGN SPEEDS ≤ 40 MPH)

GENERAL NOTES

(A) THE INTENT OF THIS DRAWING IS TO PROVIDE MINIMUM AND PREFERRED PEDESTRIAN BUFFER DESIGN CRITERIA FOR NEW, RECONSTRUCTION, AND RESURFACING PROJECTS.

(B) SEE STD. DWG. MM-SW-1 FOR CONCRETE SIDEWALK DETAILS.

(C) A SHOULDER/ PARKING LANE/ OR BIKE LANE CAN BE UTILIZED IN PLACE OF A GRASS STRIP (OR IN COMBINATION WITH A GRASS STRIP) TO MEET THE MINIMUM BUFFER REQUIREMENT SEPARATING PEDESTRIAN FACILITIES FROM THE TRAFFIC LANE. WHEN THE MINIMUM BUFFER REQUIREMENTS CANNOT BE MET ON NEW CONSTRUCTION OR RECONSTRUCTION PROJECTS, A MULTIMODAL DESIGN DEVIATION FORM SHALL BE COMPLETED AND SUBMITTED TO TDOT HEADQUARTERS DESIGN. FOR ADDITIONAL INFORMATION REFER TO SECTION 9 OF TDOT'S DESIGN GUIDELINES.

(D) TYPICALLY GRASS STRIP. AREA CAN BE PAVED TO CREATE A FURNISHING ZONE.

(E) 1' CLEAR ZONE FOR SIDEWALKS (MIN.), 2' CLEAR ZONE FOR SHARED USE PATHS (MIN.)

(F) BARRIER BETWEEN SIDEWALK/SHARED USE PATH AND ROADWAY SHOULD BE USED WHEN SIDEWALK/ SHARED USE PATH IS PLACED WITHIN CLEAR ZONE OR MINIMUM LATERAL OFFSET CANNOT BE MAINTAINED.

(G) SEE STD. DWG. MM-BPR-1 FOR GUIDANCE REGARDING SAFETY REQUIREMENTS.

(H) POSTED SPEED IS 5 M.P.H. LESS THAN DESIGN SPEED.

(I) SEE AASHTO, GUIDE FOR THE PLANNING, DESIGN, AND OPERATION OF PEDESTRIAN FACILITIES (CURRENT ADDITION).

(J) FOR BUFFERS REFER TO STD. DWG. MM-TS-3, SEPARATED SHARED USE PATH TYPICAL SECTIONS.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

LATERAL OFFSETS FOR SIDEWALK AND SHARED USE PATH

08-24-2017 | MM-TS-2

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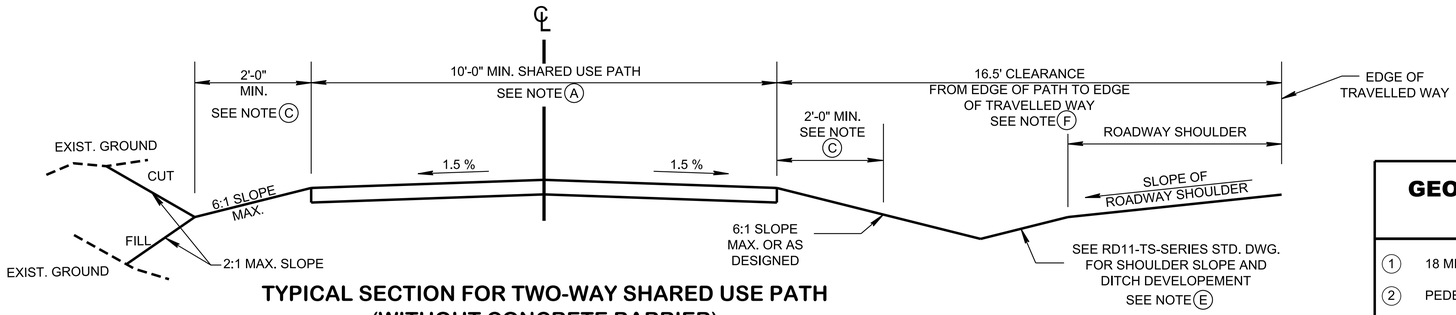
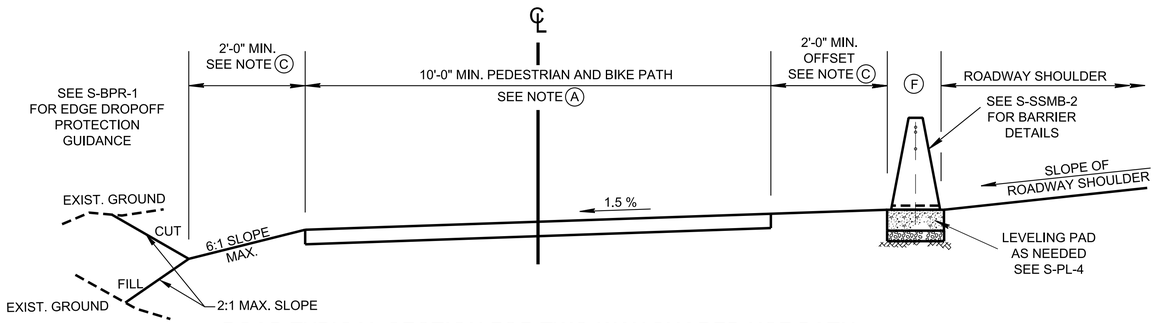
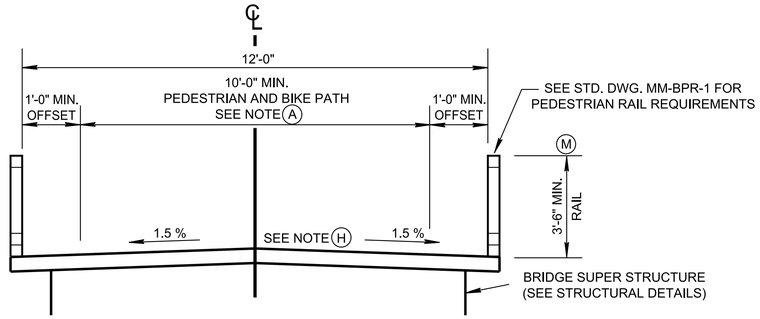


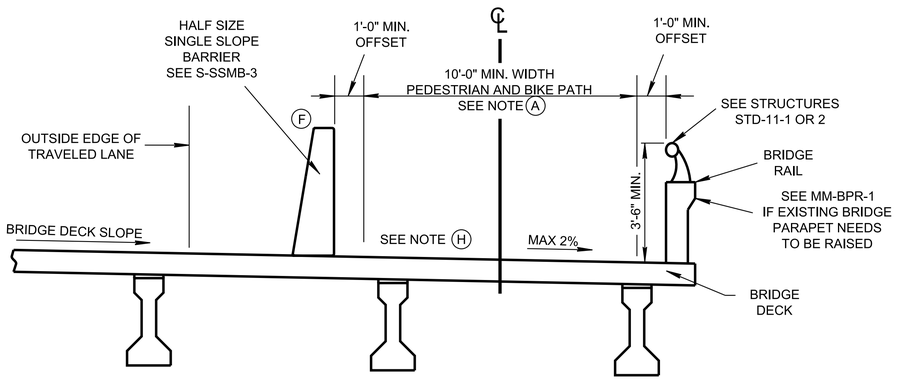
TYPICAL SECTION FOR TWO-WAY SHARED USE PATH (WITHOUT CONCRETE BARRIER)



ROAD TYPICAL SECTION FOR TWO-WAY SHARED USE PATH ADJACENT TO HIGH SPEED HIGHWAY (WITH CONCRETE BARRIER)



BRIDGE TYPICAL SECTION FOR SEPARATE SHARED USE PATH



BRIDGE TYPICAL SECTION FOR SHARED USE PATH

REFERENCED STANDARD DRAWINGS

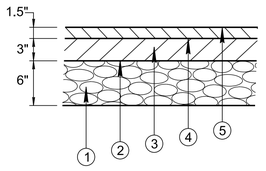
- SEE T-M-4 FOR CROSS WALK MARKING
- SEE MM-CR SERIES FOR CURB RAMP DETAILS
- SEE MM-BPR-1 FOR PEDESTRIAN RAIL REQUIREMENTS
- SEE MM-BPR-2 FOR BIKE AND PEDESTRIAN MEDIAN BARRIER RAIL
- SEE MM-SW-1 FOR ALTERNATE DETAILS FOR CONCRETE SIDEWALK (REHABILITATION)
- SEE RP-SC-1 FOR 6" SLOPING CONCRETE CURBS AND CONCRETE CURBS AND GUTTERS
- SEE RP-VC-10 OR 11 FOR VERTICAL CONCRETE CURB AND CONCRETE CURBS AND GUTTER DETAILS
- SEE MM-PM-1 THRU MM-PM-5 FOR BIKE LANE/ROUTE PAVEMENT MARKINGS
- SEE S-PL-6 FOR GUARDRAIL PLACEMENT
- SEE RP-D-15 & 16 FOR CONCRETE DRIVEWAYS
- SEE MM-TS-1 FOR BIKE ACCOMMODATION DESIGN GUIDANCE
- SEE MM-TS-2 LATERAL OFFSETS FOR SIDEWALK AND SHARED USE PATH

GEOMETRIC DESIGN CRITERIA

1. 18 MPH BICYCLE DESIGN SPEED
2. PEDESTRIAN DENSITY ≥ 200 PED/HR
3. HORIZONTAL CURVE 60' MIN. RADIUS
4. VERTICAL GRADE 5% MAX.
5. MINIMUM PAVED PATH WIDTH 10' WITH MAX. 6:1 SLOPE, 2' WIDE, CLEAR OF OBSTRUCTIONS
6. MAXIMUM CROSS SLOPE 2%

TYPICAL PAVEMENT DETAILS ❖

1. MINERAL AGGREGATE, TYPE A BASE, GRADING D, 6 INCHES
2. PRIME COAT
   402-02 AGGREGATE FOR COVER MATERIAL (PC) AT 8 - 12 LBS/S.Y.
3. BITUMINOUS BINDER AT 3 INCHES THICK (APPROX. 339 LBS/S.Y.)
   307-01.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING B-M2
4. TACK COAT
   403-01 BITUMINOUS MATERIAL FOR TACK COAT (TC) AT 0.05 - 0.10 GAL./S.Y.
5. BITUMINOUS SURFACING (SHOULDERS) AT 1.5 INCHES THICK (APPROX. 154.5 LBS/S.Y.)
   411-01.07 ACS MIX (PG64-22) GRADING E SHOULDER



❖ TYPICAL PAVEMENT DETAILS ARE PROVIDED FOR GUIDANCE. ALTERNATIVE PAVEMENT DESIGN OR MATERIAL MAY BE USED AND SHOWN ON THE PLANS.

GENERAL NOTES

- (A) UNDER CERTAIN CONDITIONS IT MAY BE NECESSARY OR DESIRABLE TO USE ALTERNATIVE PATH WIDTHS. TDOT STANDARDS ARE BASED ON 200 - 300 USERS PER HOUR, A LEVEL OF SERVICE (LOS) OF "C". REFER TO THE HIGHWAY CAPACITY MANUAL, 6TH EDITION FOR MORE INFORMATION.
- (B) THE MINIMUM WIDTH OF A ONE DIRECTIONAL SHARED USE PATH IS 6 FEET AND TWO DIRECTIONAL IS 10 FEET.
- (C) 2 FEET ON A 6:1 SLOPE IS DESIRABLE TO PROVIDE LATERAL OFFSET FROM TREES, POLES, WALLS, FENCES, GUARDRAILS, OR OTHER LATERAL OBSTRUCTIONS. WHERE THE PATH IS ADJACENT TO CANALS, DITCHES OR SLOPES STEEPER THAN 3:1, A WIDER SEPARATION SHOULD BE CONSIDERED.
- (D) THE VERTICAL CLEARANCE TO OBSTRUCTIONS SHOULD BE A MINIMUM OF 8 FEET. HOWEVER, VERTICAL CLEARANCE MAY NEED TO BE GREATER TO PERMIT PASSAGE OF MAINTENANCE AND EMERGENCY VEHICLES. IN UNDER CROSSINGS AND TUNNELS, 10 FEET IS DESIRABLE FOR ADEQUATE VERTICAL SHY DISTANCE.
- (E) A DRAINAGE OR STORMWATER CONVEYANCE SYSTEM DITCH SHOULD BE LOCATED PROPERLY BETWEEN THE SHARED USE PATH AND ROADWAY TO ENSURE THAT WATER DOES NOT FLOW ONTO THE ROADWAY OR SHOULDER. ALSO, DITCH SHOULD BE SUFFICIENT ENOUGH TO REMOVE THE ADDITIONAL RUNOFF.
- (F) WHEN THE DISTANCE BETWEEN THE EDGE OF TRAVEL LANE AND THE SHARED USE PATH IS LESS THAN 12.5 FEET ON A FACILITY WITH POSTED SPEED OF ≥ 45 MILES PER HOUR, A BARRIER RAIL IS REQUIRED. (THIS REDUCED WIDTH SHALL MEET THE REQUIREMENTS FOR OCCASIONAL MAINTENANCE ACTIVITIES.) SEE STD. DWG. MM-BPR-2 FOR DETAILS.
- (G) CLEAR ZONE SHOULD BE MAINTAINED BETWEEN THE ROADWAY AND THE SHARED USE PATH. IF CLEAR ZONE CAN NOT BE ACHIEVED, AN APPROPRIATE BARRIER SHOULD BE CONSIDERED FOR POSTED SPEED MORE THAN 45 MPH.
- (H) ON ALL BRIDGE DECKS, SPECIAL CARE SHALL BE TAKEN TO ENSURE THAT BICYCLE- SAFE EXPANSION JOINTS ARE USED AND DECKING MATERIALS THAT MAY BECOME SLIPPERY WHEN WET ARE AVOIDED.
- (I) SEE STD. DWG. MM-PM SERIES FOR SIGNING AND PAVEMENT MARKINGS.
- (J) THE PURPOSE OF THIS STANDARD IS TO PROVIDE MINIMUM GEOMETRIC AND SAFETY DESIGN STANDARDS DURING THE DEVELOPMENT OF NON-MOTORIZED TRANSPORTATION FACILITIES. ALL FACILITIES SHALL BE DESIGNED FOR ADA ACCESSIBILITY.
- (K) FOR FURTHER INFORMATION, REFER TO AASHTO "GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES" FOR GEOMETRIC DESIGN REQUIREMENTS AND TDOT ROADWAY DESIGN GUIDELINES MULTI-MODAL DESIGN GUIDE SECTION.
- (L) SHARED USE PATHS DO NOT REQUIRE PAVEMENT MARKINGS, HOWEVER, PROPER SIGNAGE MUST BE INSTALLED PER STANDARDS AND THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- (M) RAIL ROAD CROSSING MAY NEED SPECIAL FENCING.

(Replaced Std Dwg RD11-TS-8)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

SEPARATED SHARED USE PATH TYPICAL SECTIONS

01-07-2019 | MM-TS-3

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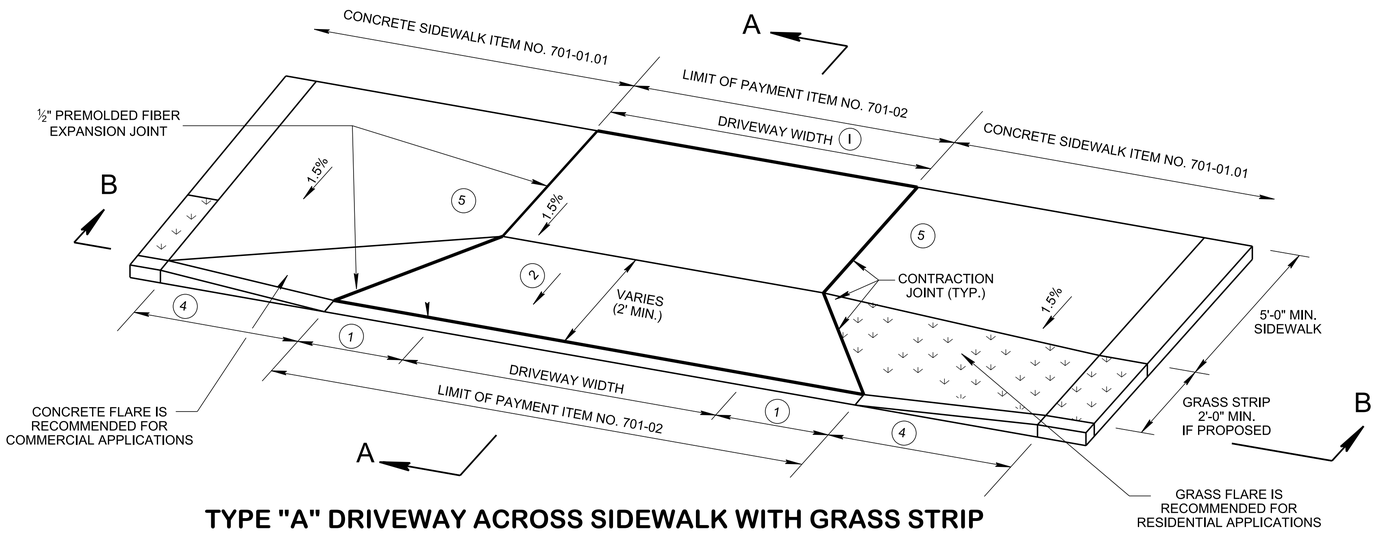
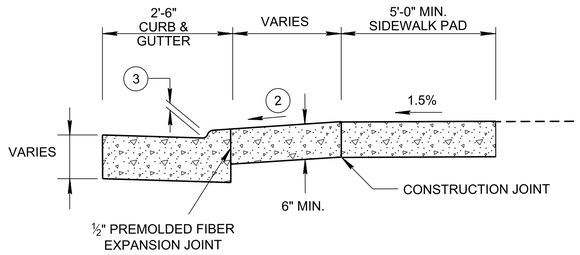


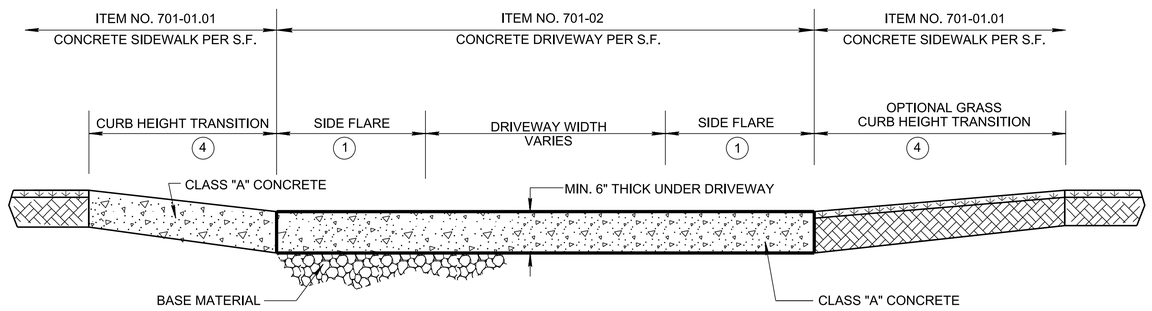
TYPE "A" DRIVEWAY ACROSS SIDEWALK WITH GRASS STRIP

LEGEND

✠ DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE.



SECTION A-A



SECTION B-B

FOOTNOTES

(1) SIDE FLARE WIDTH SHOULD BE A MINIMUM 7'-0" FOR COMMERCIAL DRIVEWAYS. SIDE FLARE WIDTH SHOULD BE A MINIMUM 3'-6" FOR RESIDENTIAL DRIVEWAYS.

(2) DRIVEWAY RAMP GRADE VARIES, 15% MAX. (10% RECOMMENDED) APRON GRADE FOR RESIDENTIAL DRIVEWAYS. 8% MAX. (5% RECOMMENDED) APRON GRADE FOR COMMERCIAL DRIVEWAYS.

(3) HEIGHT OF LOWERED CURB SHALL BE 2.25 INCHES. SEE STD DWG RP-VC-10 & RP-VC-11.

(4) THE SLOPE OF THE SIDEWALK AND/OR CURB HEIGHT TRANSITION VARIES TO A MAXIMUM OF 8.33% LENGTH OF TRANSITION IS RELATIVE TO THE LONGITUDINAL ROADWAY GRADE.

(5) COMMERCIAL DRIVEWAY ENTRANCE TYPICALLY (MAX. 40' WIDE) MAY REQUIRE DETECTABLE WARNING SURFACES IF ENTRANCE SERVES MORE THAN 400 VEHICLES PER DAY. SEE STD. DWG. NOS. MM-CR- SERIES FOR DETAILS.

(6) 3R PROJECTS MAY REQUIRE SLOPE CORRECTION, PARALLEL CROSS-WALK MARKINGS (ESPECIALLY AT TWO WAY DRIVEWAY ENTRANCES), AND DETECTABLE DOME SURFACE TO MAINTAIN CONTINUITY AT COMMERCIAL DRIVE ENTRANCES. ADDITIONAL SIGNS (WATCH FOR PED) MAY BE ADDED AT DRIVEWAYS BY THE DIRECTION OF AN ENGINEER IF NEEDED.

GENERAL NOTES

(A) THIS TYPE OF DRIVEWAY IS PREFERED OVER THE LOWERED TYPE AS SHOWN ON RP-D-16 BECAUSE THE ELEVATION OF THE SIDEWALK REMAINS A CONSTANT FOR PEDESTRIANS.

(B) 5'-0" MINIMUM SIDEWALK WITH A MAXIMUM CROSS SLOPE OF 1.5% THROUGH DRIVEWAYS.

(C) DESIGNER TO CHECK GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOW DOES NOT OVERTOP THE SIDEWALK AREA. IF OVERTOPPING OCCURS, PLACE AN INLET AT THE UPSTREAM SIDE OF THE DRIVEWAY OR PERFORM OTHER DESIGN MITIGATION.

(D) THE SLOPE OF THE LANDING AREA SHALL NOT EXCEED 1.5% IN THE SIDEWALK AREA.

(E) DRIVEWAYS TO BE BUILT COMPLETE OR IN PART AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

(F) ALL DRIVEWAYS TO BE 6" UNIFORM THICKNESS, UNLESS OTHERWISE SHOWN ON PLANS.

(G) EXPANSION JOINTS TO BE PLACED AS INDICATED ON THE PLANS EXCEPT JOINT AT BACK OF DRIVEWAY WHICH WILL BE PLACED WHEN DRIVEWAY ABUTS A RIGID DRIVEWAY OR BUILDING.

(H) THE ROADWAY DESIGNER SHALL CONSIDER THE USE OF A CATCH BASIN ON EITHER SIDE OF THE DRIVEWAY. CAREFUL CONSIDERATION TO THE PLACEMENT OF CATCH BASINS SHALL BE TAKEN IF THE DRIVEWAY IS IN A VERTICAL SAG CURVE.

(I) ITEM NUMBERS: 701-02, CONCRETE DRIVEWAY, PER SF.

(J) TYPICAL DRIVEWAY WIDTHS ARE 12' (14" TWO WAY) FOR RESIDENTIAL AND 24' (40' MAX.) FOR COMMERCIAL.

(K) REFER TO SECTION 5.1.3. IN THE RULES AND REGULATIONS FOR CONSTRUCTING DRIVEWAY ENTRANCES ON STATE HIGHWAY RIGHTS-OF-WAY (2015) FOR RADIUS OF CURVATURE GUIDANCE.

(L) ALL SIDEWALKS SHALL BE A MINIMUM THICKNESS OF 4" CONCRETE.

NOT TO SCALE

REV. 7-15-08: UPDATED SIDEWALK DIMENSIONS.

REV. 4-8-16: ADDED ITEM NUMBERS. UPDATED SLOPES AND DIMENSIONS. UPDATED NOTES.

REV. 07-16-18: ADDED NOTES TO CONC. FLARE AND GRASS FLARE IN ISOMETRIC VIEW. ADDED GENERAL NOTE (K). CHANGED REFERENCED STD. DWG. FROM RP-NMC-10 TO RP-VC-10. ADDED NOTE (A) AND RENUMBERED THE REST. ADDED SPECIAL NOTE. REDREW SHEET.

REV. 01-07-19: CORRECTED SPELLING. REDREW SHEET.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

DETAILS OF STANDARD CONCRETE DRIVEWAYS

02-15-2007 | RP-D-15

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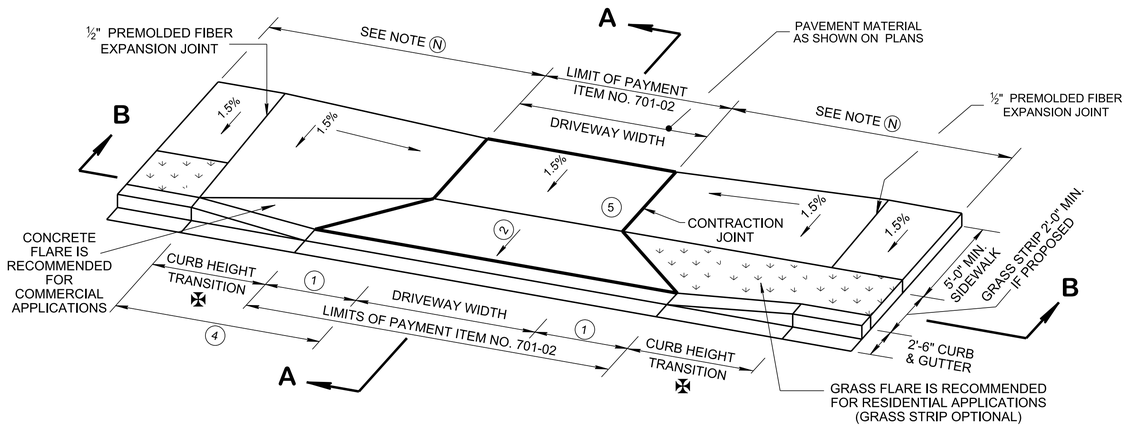
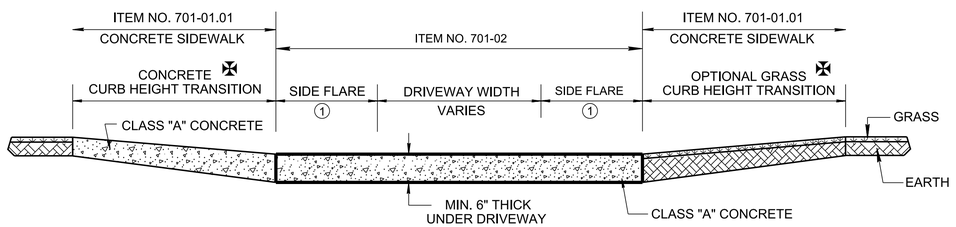


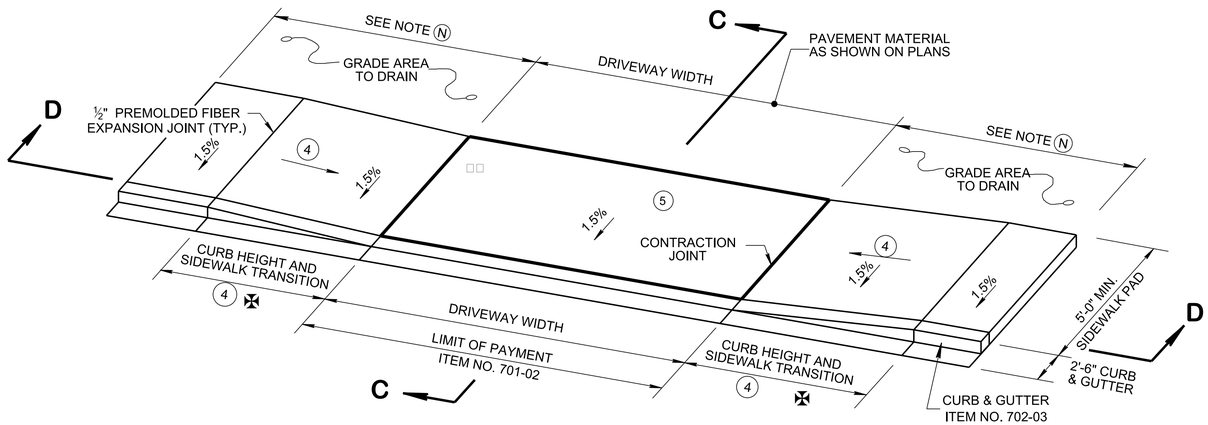
TYPE "B" DRIVEWAY ACROSS LOWERED SIDEWALK (WITH GRASS STRIP)



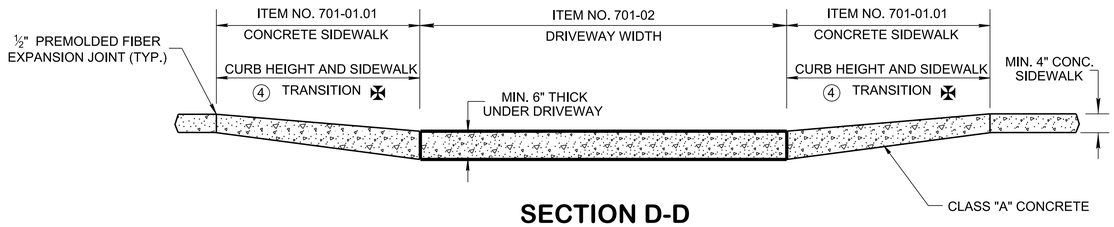
SECTION B-B

LEGEND

✠ DIMENSION VARIES RELATIVE TO LONGITUDINAL ROADWAY GRADE.



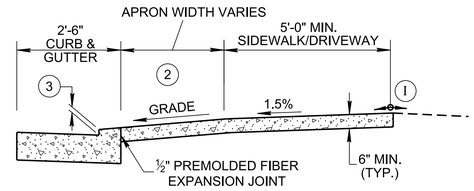
TYPE "C" DRIVEWAY ACROSS LOWERED SIDEWALK



SECTION D-D

FOOTNOTES

1. SIDE FLARE WIDTH SHOULD BE A MINIMUM 7'-0" FOR COMMERCIAL DRIVEWAYS. SIDE FLARE WIDTH SHOULD BE A MINIMUM 3'-6" FOR RESIDENTIAL DRIVEWAYS.
2. DRIVEWAY RAMP GRADE VARIES, 15% MAX. (10% RECOMMENDED) APRON GRADE FOR RESIDENTIAL DRIVEWAYS. 8% MAX. (5% RECOMMENDED) APRON GRADE FOR COMMERCIAL DRIVEWAYS.
3. HEIGHT OF LOWERED CURB SHALL BE 2.25 INCHES. SEE STD DWG RP-VC-10 & RP-VC-11.
4. THE SLOPE OF THE SIDEWALK AND/OR CURB HEIGHT TRANSITION VARIES TO A MAXIMUM OF 8.33% LENGTH OF TRANSITION IS RELATIVE TO THE LONGITUDINAL ROADWAY GRADE.
5. COMMERCIAL DRIVEWAY ENTRANCE TYPICALLY (MAX. 40' WIDE) MAY REQUIRE DETECTABLE WARNING SURFACES IF ENTRANCE SERVES MORE THAN 400 VEHICLES PER DAY. SEE STD. DWG. NOS. MM-CR- SERIES FOR DETAILS.
6. 3R PROJECTS MAY REQUIRE SLOPE CORRECTION, PARALLEL CROSS-WALK MARKINGS (ESPECIALLY AT TWO WAY DRIVEWAY ENTRANCES), AND DETECTABLE DOME SURFACE TO MAINTAIN CONTINUITY AT COMMERCIAL DRIVE ENTRANCES. ADDITIONAL SIGNS (WATCH FOR PED) MAY BE ADDED AT DRIVEWAYS BY THE DIRECTION OF AN ENGINEER IF NEEDED.



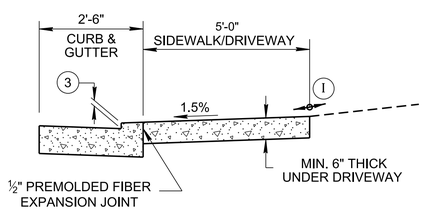
SECTION A-A (6)

GENERAL NOTES

- (A) DUE TO THE ELEVATION CHANGE FOR PEDESTRIANS ON THE SIDEWALK, THIS APPLICATION IS UNDESIRABLE AND IS TO BE USED IN LIMITED APPLICATIONS. SEE RP-D-15 FOR THE PREFERRED DRIVEWAY TYPE.
- (B) 5'-0" MINIMUM SIDEWALK WITH A MAXIMUM CROSS SLOPE OF 1.5% THROUGH DRIVEWAYS.
- (C) DESIGNER TO CHECK GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOW DOES NOT OVERTOP THE SIDEWALK AREA. IF OVERTOPPING OCCURS, PLACE AN INLET AT THE UPSTREAM SIDE OF THE DRIVEWAY OR PERFORM OTHER DESIGN MITIGATION
- (D) THE SLOPE OF THE LANDING AREA SHALL NOT EXCEED 1.5% IN THE SIDEWALK AREA.
- (E) DRIVEWAYS TO BE BUILT COMPLETE OR IN PART AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- (F) ALL CONCRETE DRIVEWAYS TO BE 6" UNIFORM THICKNESS, UNLESS OTHERWISE SHOWN ON PLANS.
- (G) EXPANSION JOINTS TO BE PLACED AS INDICATED ON THE PLANS EXCEPT JOINT AT BACK OF DRIVEWAY WHICH WILL BE PLACED WHEN DRIVEWAY ABUTS A RIGID DRIVEWAY OR BUILDING.
- (H) THE ROADWAY DESIGNER SHALL CONSIDER THE USE OF A CATCH BASIN ON EITHER SIDE OF DRIVEWAY. CAREFUL CONSIDERATION TO THE PLACEMENT OF CATCH BASINS SHALL BE TAKEN IF THE DRIVEWAY IS IN A VERTICAL SAG CURVE.
- (I) ALGEBRAIC DIFFERENCE NOT TO EXCEED 10.0%.
- (J) PAY ITEMS:

ITEM NO:	701-01.01,	CONCRETE SIDEWALK (4"),	PER SF.
ITEM NO:	701-02,	CONCRETE DRIVERWAY,	S.F.,
ITEM NO:	702-03,	CONCRETE COMBINED CURB & GUTTER,	C.Y.

- (K) WHEN MORE THAN 2 DRIVEWAYS ARE PROPOSED, USE TYPE "A" DRIVEWAY AS SHOWN ON STANDARD DRAWING RP-D-15 TO REDUCE ROLLER COASTER EFFECT FOR PEDESTRIANS.
- (L) TYPICAL DRIVEWAY WIDTHS ARE 12' (14' TWO WAY) FOR RESIDENTIAL AND 24' (40' MAX.) FOR COMMERCIAL.
- (M) REFER TO SECTION 5.1.3. IN THE MANUAL FOR CONSTRUCTING DRIVEWAY ENTRANCES ON STATE HIGHWAYS (2015) FOR RADIUS OF CURVATURE GUIDANCE.
- (N) ALL SIDEWALKS SHALL HAVE A MINIMUM CONCRETE THICKNESS OF 4".



SECTION C-C (6)

REV. 7-15-08: UPDATED SIDEWALK DIMENSIONS.

REV. 4-8-16: ADDED ITEM NUMBERS. UPDATED SLOPES AND DIMENSIONS. UPDATED NOTES.

REV. 07-16-18: ADDED NOTES TO CONC. FLARE AND GRASS FLARE IN ISOMETRIC VIEW. ADDED GENERAL NOTE (M) & (N).

REV. 01-07-19: ADDED LIMITS FOR ITEM NO. 701-02. ADJUSTED LOCATION OF GENERAL NOTE NO'S. (J) & (N) ON DETAILS. REDREW SHEET.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

DETAILS OF LOWERED STANDARD CONCRETE DRIVEWAYS

02-15-2007 | RP-D-16

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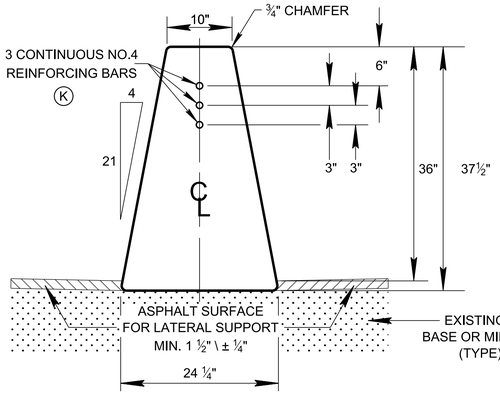
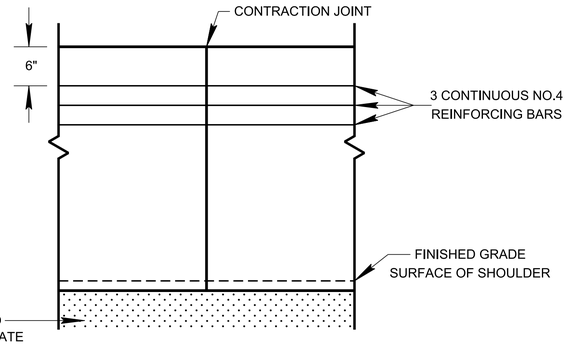
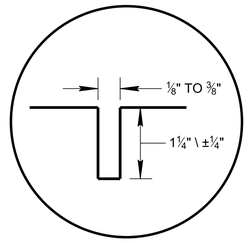


SECTION VIEW

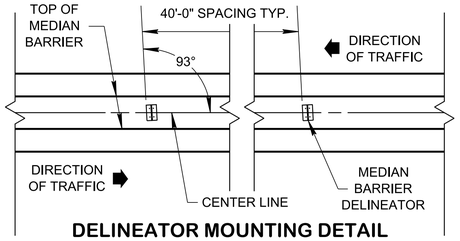


ELEVATION VIEW

36" HEIGHT WALL



CONTRACTION JOINT DETAIL



DELINEATOR MOUNTING DETAIL

DELINEATOR NOTES

1. MEDIAN BARRIER DELINEATOR REFLECTIVE SHEETING SHALL MEET ASTM D4956, TYPE V SPECIFICATIONS. DELINEATORS WITH DIMENSIONS OTHER THAN 4" X 3" MAY BE USED IF THE PRODUCT IS ON THE APPROVED PRODUCTS LIST. THE VARIATIONS IN DELINEATOR DIMENSION SHOULD NOT EXCEED ± 10%. DIFFERENT SIZE OR MANUFACTURED MEDIAN BARRIER DELINEATORS SHOULD NOT BE MIXED IN THE SAME LINE.
2. MEDIAN BARRIER DELINEATORS SHALL BE HIGH IMPACT, UV-STABILIZED, ENGINEERED THERMOPLASTIC OR POLYCARBONATE SUBSTRATE. SEE TDOT APPROVED QUALIFIED PRODUCT LISTS FOR ACCEPTABLE PRODUCTS.
3. MEDIAN BARRIER DELINEATORS WILL NOT BE REQUIRED IN AREAS WHERE ROADWAY IS LIGHTED.
4. SINGLE WHITE REFLECTIVE SHEETING WILL BE SUBSTITUTED FOR THE DOUBLE YELLOW REFLECTIVE SHEETING WHEN TRAFFIC ON EACH SIDE OF THE BARRIER IS GOING IN THE SAME DIRECTION.
5. THE COST OF FURNISHING AND INSTALLING MEDIAN BARRIER DELINEATORS, INCLUDING ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION, SHALL BE INCLUDED IN BID PRICE FOR CONCRETE MEDIAN BARRIER.
6. MEDIAN BARRIER DELINEATORS SHALL BE MOUNTED TO THE CONCRETE MEDIAN BARRIER WITH A ONE COMPONENT ADHESIVE AS RECOMMENDED BY THE MANUFACTURER. THEY SHALL BE INSTALLED NO EARLIER THAN THREE WEEKS AFTER THE TEXTURE COATING HAS BEEN APPLIED.

SECTION VIEW

ELEVATION VIEW

36" HEIGHT WALL WITH ALTERNATE REINFORCING

SECTION VIEW

ELEVATION VIEW

DETAILS OF ADDITIONAL REINFORCING AT THE WALL ENDS OR AT EXPANSION JOINT

GENERAL NOTES

A. CONCRETE BARRIER WALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 711 AND/OR CURRENT SPECIAL PROVISIONS.

B. IF SAWED CONTRACTION JOINTS ARE USED, THE JOINTS MUST BE SAWED WITHIN FOUR (4) HOURS AFTER THE CONCRETE IS PLACED.

C. THE CONTRACTION JOINTS ARE TO BE SPACED AT 20 TO 25 FOOT INTERVALS WHEN CONSTRUCTED ON ASPHALT PAVEMENT. WHEN THE CONCRETE BARRIER WALL IS ATTACHED TO CONCRETE PAVEMENT THE CONTRACTION JOINTS WILL CORRESPOND TO THE JOINTS IN THE CONCRETE PAVEMENT. THE COST OF MATERIAL AND LABOR FOR THE JOINT INSTALLATION SHALL BE INCLUDED IN THE BID PRICE FOR CONCRETE MEDIAN BARRIER.

D. THE CONCRETE BARRIER WALL SHALL BE GIVEN AN APPLIED TEXTURE FINISH. THE COLOR OF THE FINISH SHALL BE WHITE, FEDERAL SPECIFICATION NO. 37886. THE COST OF MATERIALS AND LABOR FOR THE TEXTURE FINISH SHALL BE INCLUDED IN THE BID PRICE FOR CONCRETE MEDIAN BARRIER.

E. THE TWO (2) INCH OPEN EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM SPACING NOT TO EXCEED 300 FEET. IF FIXED OBJECTS SUCH AS BRIDGE PIERS, BRIDGE ENDS, OVERHEAD SIGN SUPPORTS, OR OTHER FEATURES PROJECTING THROUGH, INTO OR AGAINST THE BARRIER EXIST THAT REQUIRE TWO INCH EXPANSION JOINTS, THEN THE DISTANCE BETWEEN THE EXPANSION JOINTS IS TO BE REDUCED IN ORDER TO ALLOW AN EQUAL DISTANCE BETWEEN JOINTS THAT IS LESS THAN 300 FEET. ALL ADDITIONAL STEEL REQUIRED AT EXPANSION JOINTS TO BE EPOXY COATED REINFORCING STEEL. THE COST OF MATERIAL AND LABOR FOR THE JOINT INSTALLATION SHALL BE INCLUDED IN THE BID PRICE FOR CONCRETE MEDIAN BARRIER.

F. THE TOP AND END EDGES OF THE CONCRETE BARRIER WILL HAVE A 3/4" TO 1" CHAMFER. IF BARRIER WALL IS SLIP-FORMED, ROUNDED EDGES WITH A 1" RADIUS MAY BE USED INSTEAD OF THE CHAMFER.

G. BAR SPLICES FOR ROADWAY BARRIER SHALL BE A MINIMUM OF 24 TIMES THE NOMINAL DIAMETER OF THE BAR.

H. ANY METHOD DEVISED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER THAT WILL ASSURE THE LONGITUDINAL ROADWAY REINFORCING STEEL WILL BE FIXED AGAINST MOVEMENT AND POSITIONED ± 1/2 INCH AS DIMENSIONED WHEN TIED TO THE TRANSVERSE ROADWAY REINFORCING STEEL WILL BE SATISFACTORY.

I. PAYMENT WILL BE MADE UNDER ITEM NO. 711-05.69, 36" SINGLE SLOPE CONCRETE BARRIER WALL, PER LINEAR FOOT.

J. MIN. SAFETY PERFORMANCE OF 36" SINGLE SLOPE WALL HAS BEEN EVALUATED UNDER MASH TL-4 AND DOCUMENTED ON TEST REPORT TTI: 9-1002-5, "DETERMINATION OF MINIMUM HEIGHT AND LATERAL DESIGN LOAD FOR MASH TEST LEVEL 4 BRIDGE RAILS".

K. THE CONTRACTOR MAY ELECT TO USE 3 CONTINUOUS ROPE CABLES INSTEAD OF THE 3 NO. 4 REINFORCING BARS. EACH CABLE MUST BE 3/4 INCH (MINIMUM) DIAMETER, ZINC-COATED (GALVANIZED) WIRE ROPE MANUFACTURED IN ACCORDANCE WITH AASHTO M 30.

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

36" SINGLE SLOPE CONCRETE BARRIER WALL

01-07-2019 | S-SSMB-1A

NOT TO SCALE

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