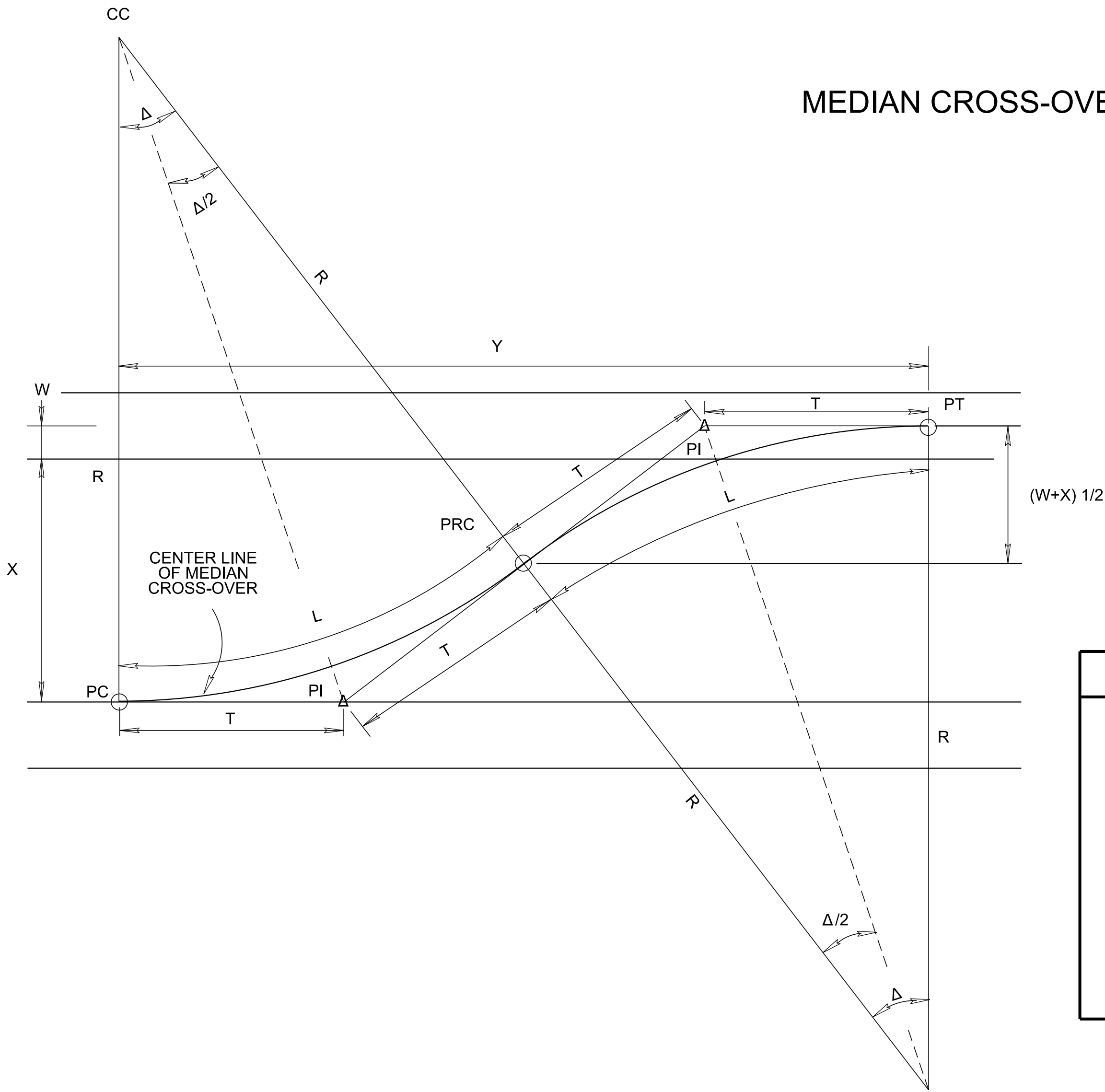


MEDIAN CROSS-OVER DETAIL ON DIVIDED HIGHWAYS



GENERAL NOTE

Ⓐ FORMULAS AND CURVE DATA SHOWN ON THIS DRAWING APPLY TO TANGENT SECTIONS OF DIVIDED HIGHWAYS. FOR CROSS-OVERS ON CURVED SECTIONS OF DIVIDED HIGHWAYS, SEE PLANS FOR CURVE DATA.

LEGEND

W = LANE WIDTH
X = MEDIAN WIDTH
Y = DISTANCE ALONG CENTERLINE OF DIVIDE HIGHWAY FROM PC OF 1ST CURVE TO PT OF SECOND CURVE
R = RADIUS OF CURVE
L = LENGTH OF EACH CURVE
L. C. = CHORD LENGTH OF EACH CURVE
T = TANGENT LENGTH OF CURVE
E = EXTERAL LENGTH OF EACH CURVE
Δ = DEFLECTION ANGLE OF EACH CURVE
PC = POINT OF CURVATURE
PRC = POINT OF REVERGE CURVATURE
PT = POINT OF TANGENT
PI = POINT OF INTERSECTION
CC = CENTER OF CURVE
S.E. = SUPERELEVATION RATE

EQUATION NOTES

GIVEN VALUES: W, X, DESIGN SPEED (V)
FORMULAS: $R = \frac{5729.58}{D}$ WHERE D IS DEGREE OF CURVATURE BASED ON DESIGN SPEED
(V= 45 MPH, D= 2°30'; V= 50 MPH, D= 2°00'; V= 55 MPH, D= 1°30'; V= 60 MPH, D=1° 00')
 $\Delta = \cos^{-1} \left[\frac{R-1/2(W+X)}{R} \right]$
 $T = R \tan \frac{\Delta}{2}$
 $L.C. = 2R \sin \frac{\Delta}{2}$
 $L = \frac{100}{D} \Delta$
 $E = T \tan \frac{\Delta}{4}$
 $Y = 2R \sin \Delta$

CURVE DATA (W=12', S.E.=0.04'/' OR 4 %)

DESIGN SPEED	45 M.P.H.								50 M.P.H.							
D	2°30'								2°							
R	2,291.83'								2,864.79'							
X	30'	36'	40'	48'	64'	70'	100'	200'	30'	36'	40'	48'	64'	70'	100'	200'
Δ	7°45'44"	8°17'57"	8°38'19"	9°16'51"	10°26'53"	10°51'14"	12°41'31"	17°29'38"	6°56'30"	7°25'18"	7°43'31"	8°17'57"	9°20'33"	9°42'19"	11°20'51"	15°38'05"
T	155.48'	165.60'	173.10'	186.02'	209.54'	217.73'	254.88'	352.62'	173.75'	185.80'	193.43'	207.84'	234.08'	243.21'	284.62'	393.31'
L.C.	310.25'	330.35'	345.22'	370.83'	417.34'	433.51'	506.64'	697.04'	346.87'	370.82'	385.97'	414.60'	466.61'	484.68'	566.45'	799.31'
L	310.49'	330.63'	345.54'	371.23'	417.92'	434.16'	507.68'	699.76'	347.08'	371.08'	386.26'	414.96'	467.13'	485.26'	567.38'	781.74'
E	5.27'	5.98'	6.53'	7.54'	9.56'	10.32'	14.13'	26.97'	5.26'	6.02'	6.52'	7.53'	9.55'	10.31'	14.10'	26.87'
Y	619.08'	658.98'	688.47'	739.22'	831.22'	863.13'	1007.07'	1377.47'	692.47'	740.09'	770.19'	827.02'	930.12'	965.89'	1127.35'	1544.14'

NOTES: ① RUNOFF LENGTHS SHOULD BE 150' FOR V=45 MPH OR V=50 MPH, 160' FOR V=55 MPH, AND 175' FOR V= 60 MPH.
② FOR W OTHER THAN 12' OR X DISTANCES NOT SHOWN IN TABLES OR BOTH, APPLY FORMULAS SHOWN ON THIS STANDARD DRAWING.

CURVE DATA (W=12', S.E.=0.04'/' OR 4 %)

DESIGN SPEED	55 M.P.H.								60 M.P.H.							
D	1°30'								1°							
R	3,819.72'								5,729.58'							
X	30'	36'	40'	48'	64'	70'	100'	200'	30'	36'	40'	48'	64'	70'	100'	200'
Δ	6°00'39"	6°25'34"	6°41'20"	7°11'08"	8°05'19"	8°24'09"	9°49'23"	13°31'46"	4°54'25"	5°14'46"	5°27'38"	5°51'57"	6°36'09"	6°51'31"	8°01'02"	11°02'18"
T	200.54'	214.43'	223.22'	239.84'	270.07'	280.58'	328.24'	453.09'	245.50'	262.49'	273.23'	293.55'	330.49'	343.33'	401.52'	553.63'
L.C.	400.53'	428.19'	445.67'	478.73'	538.79'	559.66'	654.07'	899.88'	490.55'	524.42'	545.84'	586.32'	659.88'	685.44'	801.07'	1102.12'
L	400.72'	428.41'	445.93'	479.04'	539.24'	560.16'	654.87'	901.97'	490.70'	524.61'	546.04'	586.58'	660.25'	685.85'	801.72'	1103.83'
E	5.26'	6.02'	6.52'	7.52'	9.54'	10.29'	14.08'	26.78'	5.26'	6.01'	6.51'	7.51'	9.52'	10.28'	14.05'	26.69'
Y	799.97'	855.03'	889.83'	955.58'	1074.90'	1116.31'	1303.34'	1787.23'	980.21'	1047.75'	1090.44'	1171.11'	1317.58'	1368.42'	1598.22'	2194.02'

FHWA
APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD
DRAWING
DEPARTMENT OF TRANSPORTATION

GEOMETRIC MEDIAN
CROSS-OVER
DETAIL ON
DIVIDED HIGHWAYS

10-26-98T-WZ-20