FIGURE 4-1

TYPICAL SECTION 6 LANE OR 4 LANE DIVIDED BITUMINOUS PAVEMENT TYPE AA AND A

MEDIAN

Z Y X Y' Z | Z Y' X Y Z

PRIME COAT
BITUMINOUS PAVEMENT

CL MEDIAN

TYPE A — 12' 10' 12' 12' 4' 12' | 12' 4' 12' 12' 10' 12' — TYPE A

TANGENT

TYPE AA — 12' 10'–12' 12' 12' 12' 12' | 12' 12' 12' 12' 10'–12' 12' — TYPE AA

10'± 10'±
Cut Slope
10:1 For Widened Ditch

NOTE:
CUT SLOPE NOT STEEPER THAN 3:1 EXCEPT IN SPECIAL CASES.

6:1
Profile Grade & Pivot Point
2%
10'–12'
Point of Slope Selection
Hinge Point
T
2%
Top of Subgrade
Hinge Point
Point of Slope Selection
Hinge Point
Top of Subgrade
2%
Hinge Point
T
Profile Grade & Pivot Point
Variable Slope
H
Point of Slope Selection

SUPERELEVATED

10'± 10'±
Cut Slope
Profile Grade & Pivot Point
6:1
e %
Point of Slope Selection
Hinge Point
T
e %
Top of Subgrade
Hinge Point
Point of Slope Selection
*
Point of Slope Selection
Profile Grade & Pivot Point
e %
Hinge Point
e %
Top of Subgrade
T
Hinge Point
6:1
H
Point of Slope Selection

NOTES

1. PAVEMENT THICKNESS DETERMINED BY PAVEMENT DESIGN; SEE CDOT PAVEMENT DESIGN MANUAL.
2. ALL SECTIONS SHOWN ARE SUBJECT TO MODIFICATIONS DEPENDING ON REQUIREMENTS FOR EACH PROJECT.
3. ALL THICKNESSES OF SUBBASE, BASE COURSE AND SURFACE COURSE ARE TO BE SHOWN ON PLANS AS APPROXIMATE.
4. DETAILS OF SPEED CHANGE LANES WILL BE SHOWN ON PLANS.
5. IF ADDITIONAL LANES WILL BE ADDED IN THE FUTURE IN THE MEDIAN AREA, FOR INITIAL MEDIAN WIDTHS OF 54 TO 80 FEET, THE TYPICAL SECTION SHALL PIVOT ABOUT THE MEDIAN CL INSTEAD OF THE PROFILE GRADE.
6. SEE TABLE 4-2 FOR FILL SLOPE STANDARDS.
7. INCLUDE APPROPRIATE TYPICAL SECTION GENERAL NOTES.
8. SEE FIGURE 4-3 FOR OTHER MEDIAN TREATMENTS.

EDGE OF PAVEMENT DETAIL

OUTSIDE EDGE OF SHOULDER
6"
6"
6"
Z
T
6:1
Point of Slope Selection
Hinge Point

DIMENSION TABLE

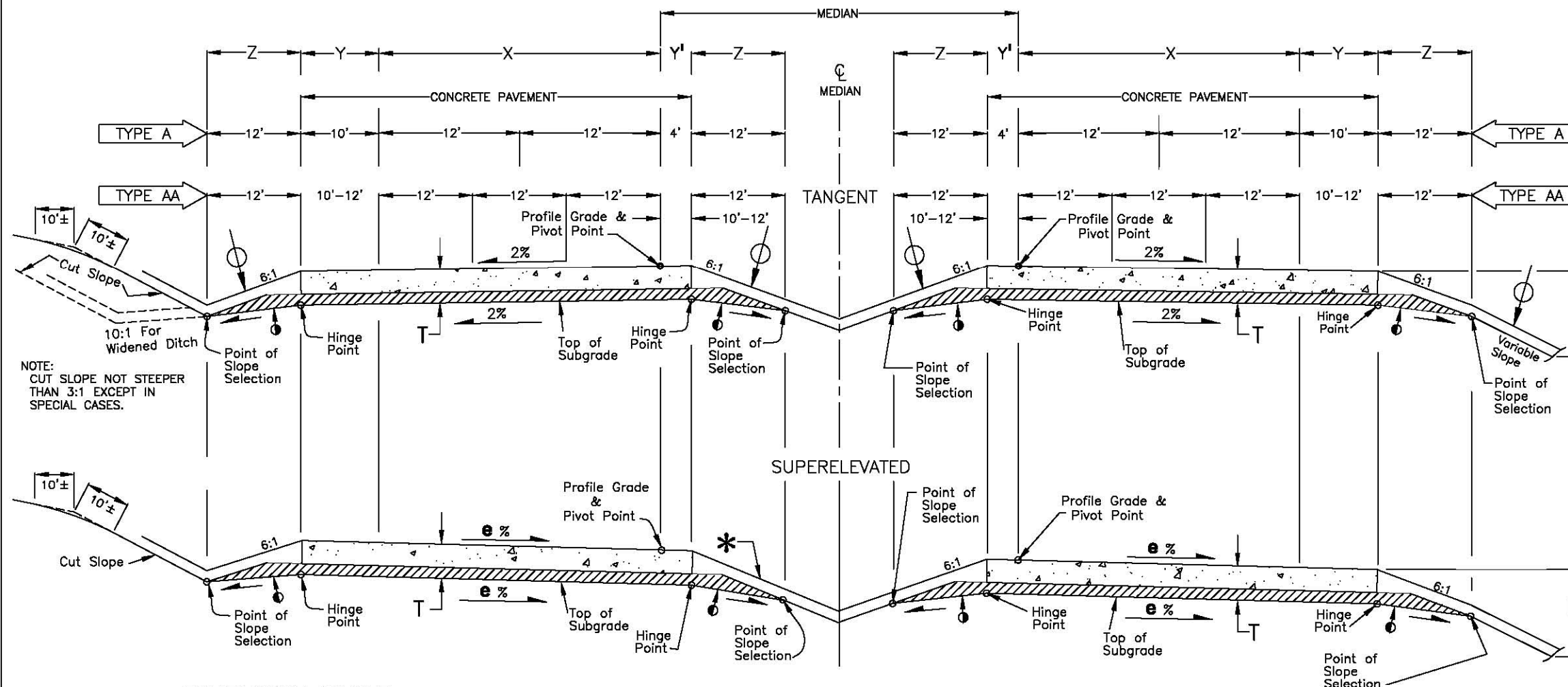| SECTION TYPE	X	Y	Y'	Z
	FEET			
AA (TRUCK DHV > 250)	36	12	12	12
AA (TRUCK DHV ≤ 250)	36	10	10	12
A	24	10	4	12

FORMULA FOR SUBGRADE Z SLOPE

$$\text{SUBGRADE Z SLOPE (ft/FT.)} = \frac{1}{\text{Z SLOPE}} + \frac{4'' - T}{\text{Z WIDTH}}$$

(NOTE: ALL DIMENSIONS FOR FORMULA ARE IN INCHES)

LEGEND

T = TOTAL THICKNESS OF THE PAVEMENT STRUCTURE FROM TOP OF PAVEMENT TO TOP OF SUBGRADE.

T_m = MAXIMUM THICKNESS OF T WHICH WILL ALLOW A 50:1 OR STEEPER SLOPE BETWEEN THE HINGE POINT AND THE POINT OF SLOPE SELECTION.

T_m FOR 12' Z SLOPE @6:1 = 25.12 inches

FOR T GREATER THAN T_m, DIMENSION Z MUST BE INCREASED TO THE DISTANCE AT WHICH A 50:1 SLOPE FROM THE HINGE POINT INTERSECTS THE 6:1 SLOPE FROM THE SHOULDER.

H = THE VERTICAL DISTANCE FROM THE TOP SURFACE OF THE EDGE OF OIL TO THE TOE OF SLOPE.

e = MAXIMUM SUPERELEVATION AS REQUIRED.

= SUBGRADE Z SLOPE 50:1 OR STEEPER. (2%)

= MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE.

* = 6:1 OR FLATTER.

= HOT MIX ASPHALT

= BASE COURSE

= SUBBASE

FIGURE 4-2

TYPICAL SECTION   6 LANE OR 4 LANE   DIVIDED CONCRETE PAVEMENT   TYPE AA AND A

MEDIAN

Z — Y — X — Y' — Z

₵ MEDIAN

Z — Y' — X — Y — Z

CONCRETE PAVEMENT

CONCRETE PAVEMENT

TYPE A   12'   10'   12'   12'   4'   12'   12'   4'   12'   12'   10'   12'   TYPE A

TANGENT

TYPE AA   12'   10'-12'   12'   12'   12'   12'   10'-12'   12'   12'   12'   10'-12'   12'   TYPE AA

10'±   10'±

Cut Slope

10:1 For Widened Ditch

NOTE:
CUT SLOPE NOT STEEPER THAN 3:1 EXCEPT IN SPECIAL CASES.

Point of Slope Selection

Hinge Point

T

2%

6:1

Profile Grade & Pivot Point

Top of Subgrade

Hinge Point

Point of Slope Selection

2%

Hinge Point

Top of Subgrade

Profile Grade & Pivot Point

2%

T

Hinge Point

Point of Slope Selection

Variable Slope

H

Point of Slope Selection

SUPERELEVATED

10'±   10'±

Cut Slope

Point of Slope Selection

Hinge Point

6:1

T

e %

e %

Profile Grade & Pivot Point

Top of Subgrade

Hinge Point

Point of Slope Selection

Point of Slope Selection

6:1

Profile Grade & Pivot Point

e %

Top of Subgrade

Hinge Point

T

Hinge Point

6:1

Point of Slope Selection

H

NOTES

1. PAVEMENT THICKNESS DETERMINED BY PAVEMENT DESIGN; SEE CDOT PAVEMENT DESIGN MANUAL.

2. ALL SECTIONS SHOWN ARE SUBJECT TO MODIFICATIONS DEPENDING ON REQUIREMENTS FOR EACH PROJECT.

3. ALL THICKNESSES OF SUBBASE, BASE COURSE AND SURFACE COURSE ARE TO BE SHOWN ON PLANS AS APPROXIMATE.

4. DETAILS OF SPEED CHANGE LANES WILL BE SHOWN ON PLANS.

5. IF ADDITIONAL LANES WILL BE ADDED IN THE FUTURE IN THE MEDIAN AREA, FOR INITIAL MEDIAN WIDTHS OF 54 TO 80 FEET, THE TYPICAL SECTION SHALL PIVOT ABOUT THE MEDIAN ₵ INSTEAD OF THE PROFILE GRADE.

6. SEE TABLE 4-2 FOR FILL SLOPE STANDARDS.

7. INCLUDE APPROPRIATE TYPICAL SECTION GENERAL NOTES.

8. SEE FIGURE 4-3 FOR OTHER MEDIAN TREATMENTS.

DIMENSION TABLE

SECTION TYPE	X	Y	Y'	Z
	FEET			
AA (TRUCK DHV > 250)	36	12	12	12
AA (TRUCK DHV ≤ 250)	36	10	10	12
A	24	10	4	12

FORMULA FOR SUBGRADE Z SLOPE

$$\text{SUBGRADE Z SLOPE (ft/ft.)} = \frac{1}{\text{Z SLOPE}} + \frac{4'' - T}{\text{Z WIDTH}}$$

(NOTE: ALL DIMENSIONS FOR FORMULA ARE IN INCHES)

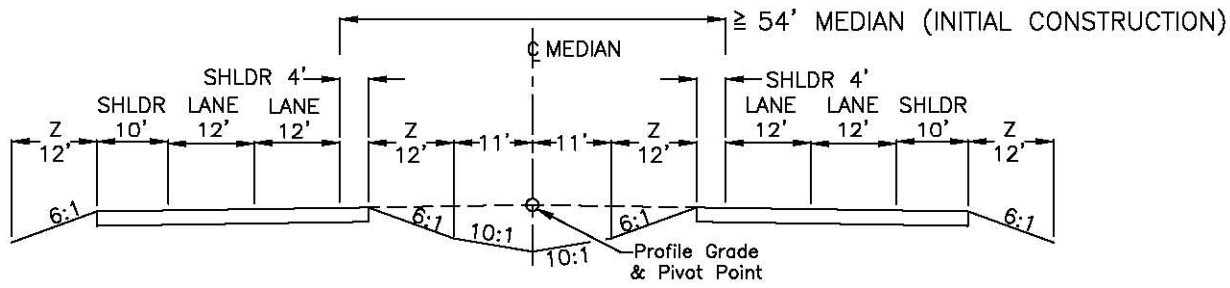## LEGEND

T = TOTAL THICKNESS OF THE PAVEMENT STRUCTURE FROM TOP OF PAVEMENT TO TOP OF SUBGRADE.

Tm = MAXIMUM THICKNESS OF T WHICH WILL ALLOW A 50:1 OR STEEPER SLOPE BETWEEN THE HINGE POINT AND THE POINT OF SLOPE SELECTION.

Tm FOR 12' Z SLOPE @6:1= 25.12 inches

FOR T GREATER THAN Tm, DIMENSION Z MUST BE INCREASED TO THE DISTANCE AT WHICH A 50:1 SLOPE FROM THE HINGE POINT INTERSECTS THE 6:1 SLOPE FROM THE SHOULDER.

H = THE VERTICAL DISTANCE FROM THE TOP SURFACE OF THE EDGE OF CONCRETE TO THE TOE OF SLOPE.

e = MAXIMUM SUPERELEVATION AS REQUIRED.

= SUBGRADE Z SLOPE 50:1 OR STEEPER. (2%)

= MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE.

* = 6:1 OR FLATTER.

= CONCRETE PAVEMENT

= BASE COURSE

= SUBBASE

INITIAL AND ULTIMATE CONSTRUCTION — LANES TO BE ADDED TO MEDIAN IN FUTURE

INITIAL CONSTRUCTION : FLUSH MEDIAN

≥ 54' MEDIAN (INITIAL CONSTRUCTION)

ℂ MEDIAN

SHLDR 4'
SHLDR LANE LANE   LANE LANE SHLDR
10' 12' 12'   12' 12' 10'

Z 12'   Z 12'   11' 11'   Z 12'   Z 12'

6:1   6:1 10:1   6:1   10:1   6:1

Profile Grade
& Pivot Point

ULTIMATE SECTION : FLUSH MEDIAN

≥ 26' MEDIAN
(ULTIMATE CONSTRUCTION) (FLUSH)

ℂ MEDIAN

1'-0"   1'-0"

SHLDR 12'   SHLDR 12'
SHLDR LANE LANE LANE   LANE LANE LANE SHLDR
12' 12' 12' 12'   12' 12' 12' 12'

Z 12'   Z 12'

6:1   6:1

Profile Grade
& Pivot Point

INITIAL CONSTRUCTION : DEPRESSED MEDIAN

≥ 80' MEDIAN (INITIAL CONSTRUCTION)

SHLDR 4'   ℂ MEDIAN   SHLDR 4'
SHLDR LANE LANE   LANE LANE SHLDR
10' 12' 12'   12' 12' 10'

Z 12'   Z 12'   24' 24'   Z 12'   Z 12'

6:1   10:1   10:1   6:1

Profile Grade
& Pivot Point
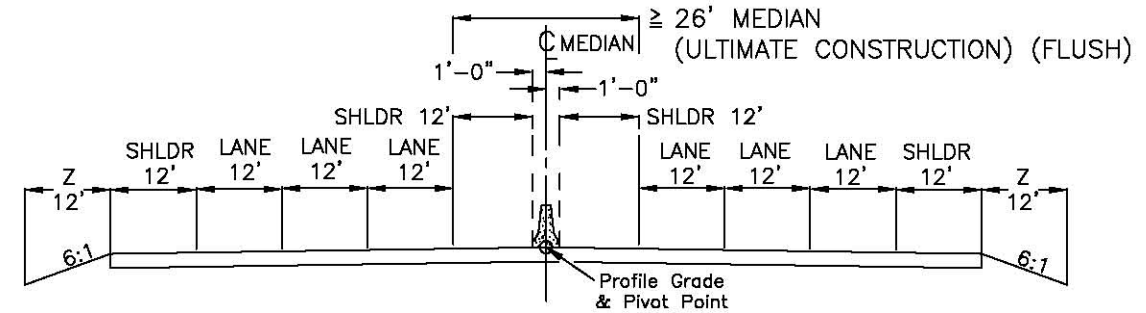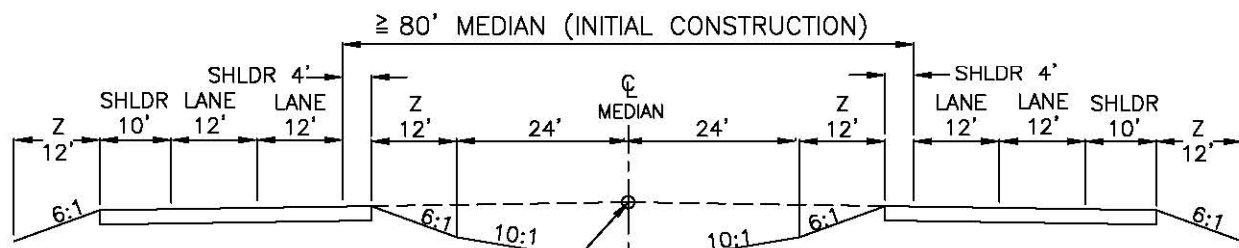
ULTIMATE SECTION : DEPRESSED MEDIAN

≥ 52' MEDIAN (ULTIMATE CONSTRUCTION)(DEPRESSED) ⊖

ℂ   2'   2'

SHLDR LANE LANE LANE   SHLDR 12'   SHLDR 12'   LANE LANE LANE SHLDR
12' 12' 12' 12'   12' 12' 12' 12'

Z 12'   Z 12'   Z 12'   Z 12'

6:1   6:1   6:1

Profile Grade
& Pivot Point

⊖ 52 FT. IS THE MINIMUM WIDTH FOR A
DEPRESSED MEDIAN WHEN 12 FT. SHOULDERS
ARE USED.
NARROWER ULTIMATE MEDIANS MUST BE PAVED
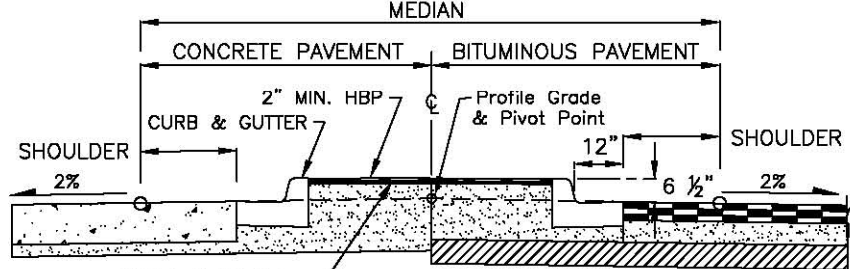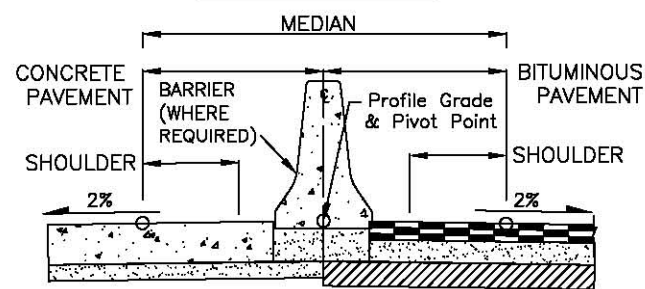FLUSH.
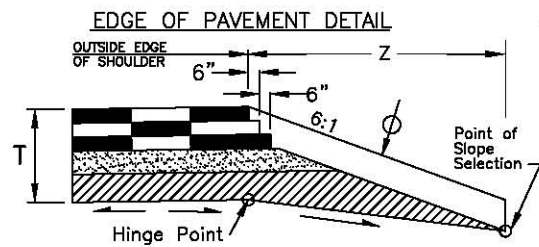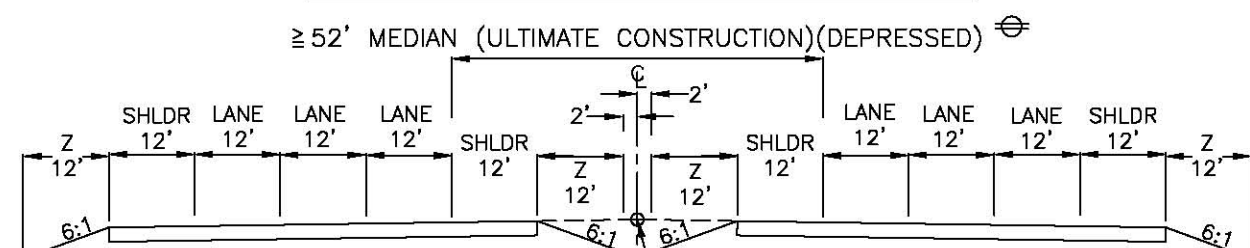
NOTE:
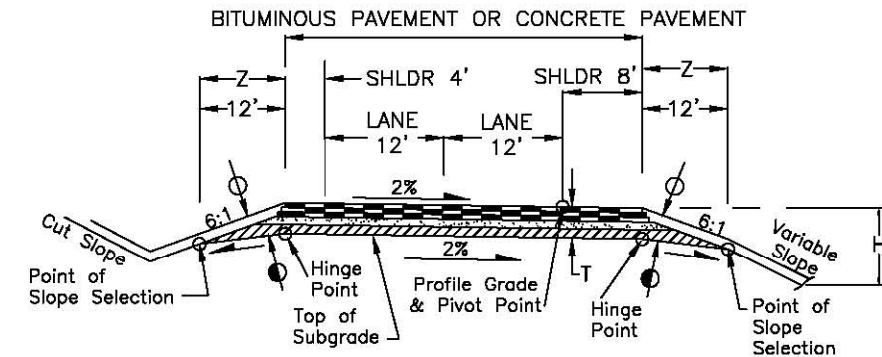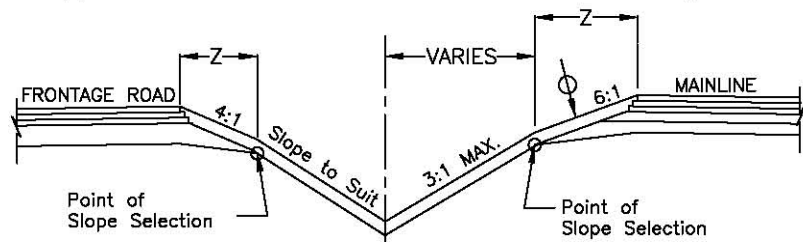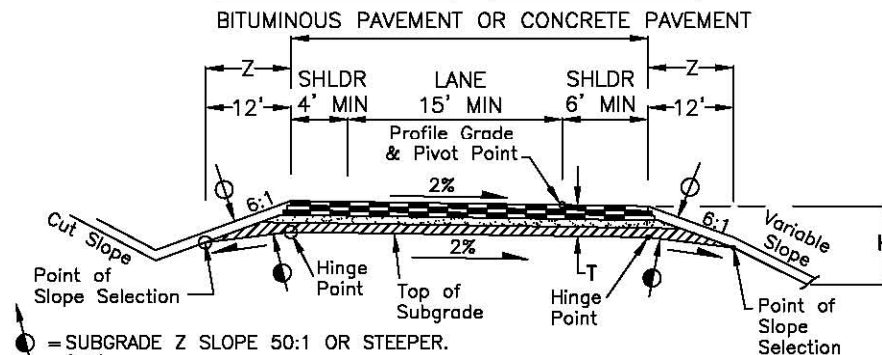THESE TYPICAL SECTIONS DEPICT THE METHOD USED FOR
PIVOTING SUPERELEVATION WHEN DEPRESSED MEDIANS MAY
ULTIMATELY BECOME FLUSH MEDIANS.
LANE AND SHOULDER DIMENSIONS SHOWN ON THE
"ULTIMATE" TYPICAL SECTIONS ILLUSTRATE MAXIMUM WIDTHS
WITH TRUCK TRAFFIC ≥ 250 DHV.

EDGE OF PAVEMENT DETAIL

OUTSIDE EDGE
OF SHOULDER
6"   Z
6"
6:1
T   Point of
Slope
Selection
Hinge Point

RAISED MEDIAN

MEDIAN
CONCRETE PAVEMENT   BITUMINOUS PAVEMENT
2" MIN. HBP   Profile Grade
CURB & GUTTER   ℂ   & Pivot Point
SHOULDER   12"   SHOULDER
6 ½"   2%
2%
OTHER TYPES OF
MEDIAN COVER MATERIAL
PERMITTED IN LIEU
OF HBP.

FLUSH MEDIAN

MEDIAN
CONCRETE   BARRIER   Profile Grade   BITUMINOUS
PAVEMENT   (WHERE   & Pivot Point   PAVEMENT
REQUIRED)
SHOULDER   SHOULDER
2%   2%

FRONTAGE ROAD
(HORIZONTAL PROXIMITY TO MAINLINE)

Z   VARIES   Z
FRONTAGE ROAD   6:1   MAINLINE
4:1   Slope to Suit   3:1 MAX.
Point of   Point of
Slope Selection   Slope Selection

MEDIAN BETWEEN OFFSET ROADWAYS

½ MEDIAN   ½ MEDIAN
ℂ MEDIAN
SHLDR   Z   SHLDR
Profile Grade   VARIES   Profile Grade
Z   6:1   Z   6:1
OFFSET
Hinge Point   3:1 MAX.   Hinge Point
& Pivot Point   Point of   & Pivot Point
Point of   Slope   Point of
Slope Selection   Selection   Slope Selection

RAMP SECTION
2-LANE EXIT OR ENTRANCE

BITUMINOUS PAVEMENT OR CONCRETE PAVEMENT

Z   SHLDR 4'   SHLDR 8'   Z
12'   LANE 12'   LANE 12'   12'
2%
Cut Slope   2%   2%   Variable
6:1   6:1   Slope
Point of   Hinge   Profile Grade   T   Hinge   H
Slope Selection   Point   & Pivot Point   Point
Top of   Point of
Subgrade   Slope
Selection

RAMP SECTION SINGLE LANE

BITUMINOUS PAVEMENT OR CONCRETE PAVEMENT

Z   SHLDR   LANE   SHLDR   Z
12'   4' MIN   15' MIN   6' MIN   12'
Profile Grade
& Pivot Point
2%
Cut Slope   2%   2%   Variable
6:1   6:1   Slope
Point of   Hinge   T   Hinge   H
Slope Selection   Point   Point
Top of   Point of
Subgrade   Slope
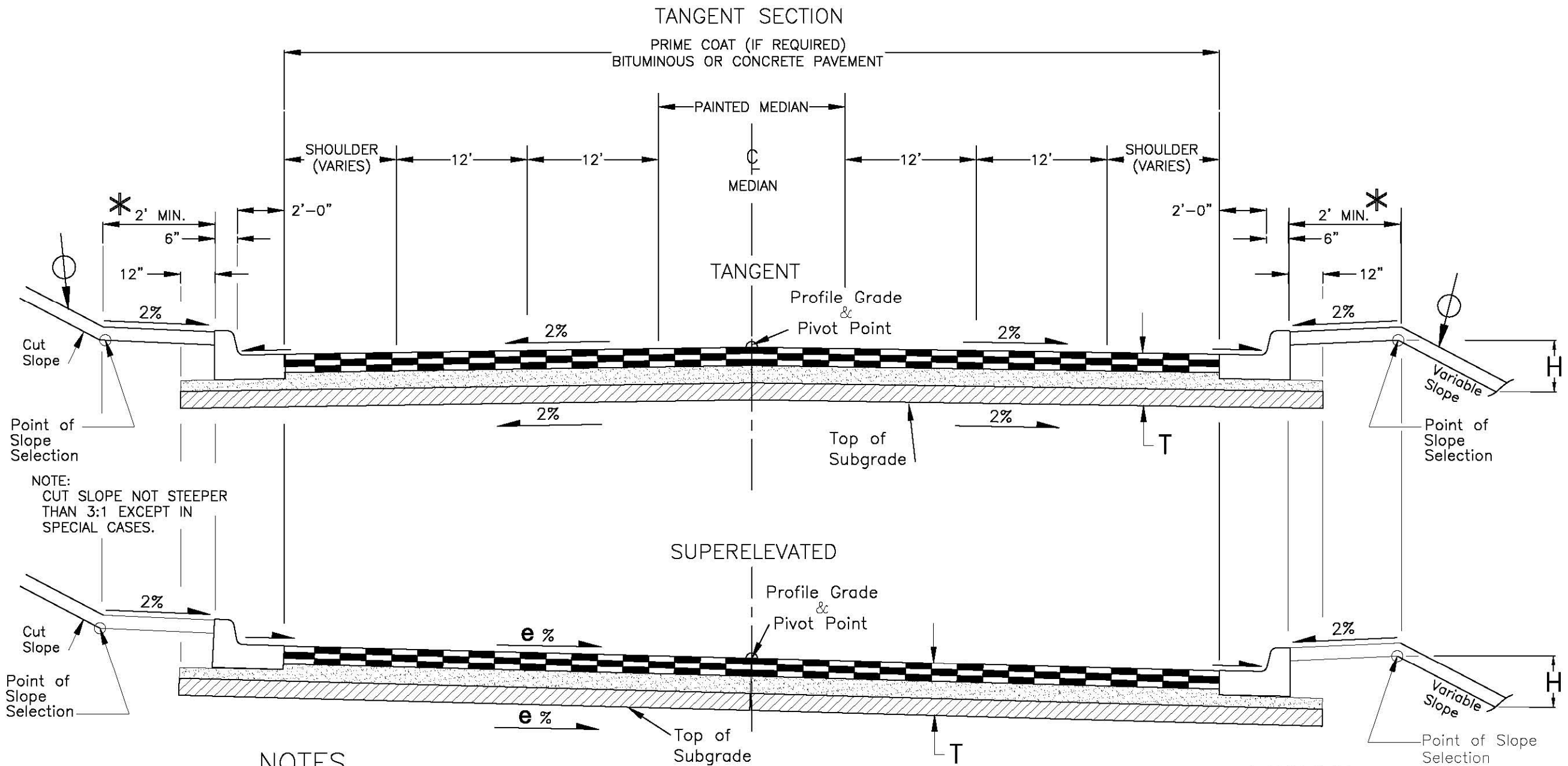Selection

⚫ = SUBGRADE Z SLOPE 50:1 OR STEEPER.
(2%)

⚡ = MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE.

TYPICAL SECTION   URBAN   BITUMINOUS OR CONCRETE PAVEMENT   FIGURE 4-4

TANGENT SECTION

PRIME COAT (IF REQUIRED)
BITUMINOUS OR CONCRETE PAVEMENT

PAINTED MEDIAN

SHOULDER (VARIES)   12'   12'   ℄ MEDIAN   12'   12'   SHOULDER (VARIES)

2' MIN.   2'-0"   2'-0"   2' MIN.

6"   6"

12"   12"

2%   TANGENT   2%   2%

Profile Grade
&
Pivot Point

Cut Slope

2%   2%   2%

Variable Slope   H

Point of Slope Selection

Top of Subgrade   T   Point of Slope Selection

NOTE:
CUT SLOPE NOT STEEPER
THAN 3:1 EXCEPT IN
SPECIAL CASES.

SUPERELEVATED

Profile Grade
&
Pivot Point

2%

Cut Slope

e %   e %

Point of Slope Selection

e %   e %   2%

Top of Subgrade   T   Variable Slope   H

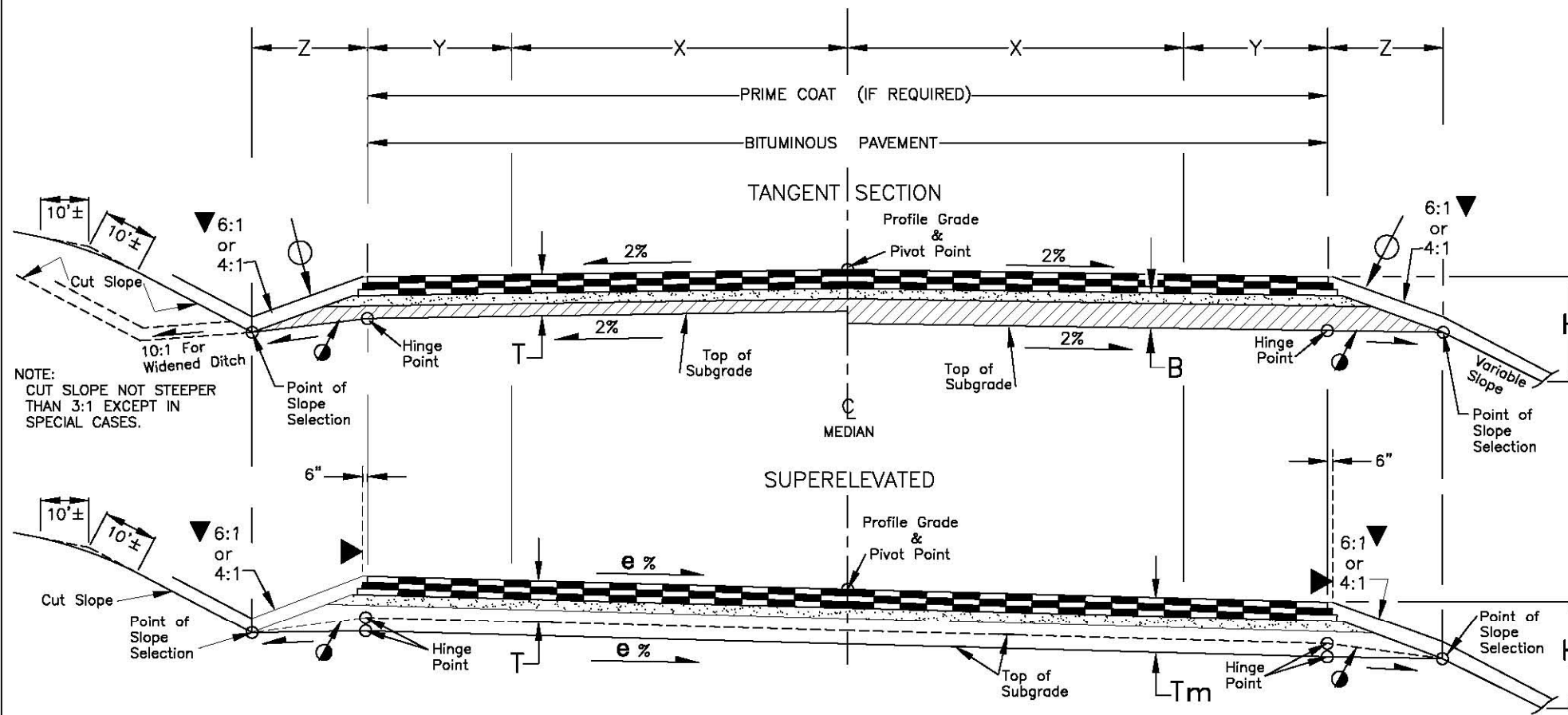Point of Slope Selection

NOTES

1. PAVEMENT THICKNESS DETERMINED BY PAVEMENT DESIGN; SEE CDOT PAVEMENT DESIGN MANUAL.

2. ALL SECTIONS SHOWN ARE SUBJECT TO MODIFICATIONS DEPENDING ON REQUIREMENTS FOR EACH PROJECT.

3. ALL THICKNESSES OF SUBBASE, BASE COURSE AND SURFACE COURSE ARE TO BE SHOWN ON PLANS AS APPROXIMATE.

4. SEE FIGURE 4-3 FOR OTHER MEDIAN TREATMENTS.

5. SEE TABLE 4-2 FOR FILL SLOPE STANDARDS.

6. SHOULDER WIDTH IS VARIABLE. BICYCLE TRAFFIC, SNOW STORAGE AND DRAINAGE SHOULD BE CONSIDERED.

LEGEND

T = TOTAL THICKNESS OF THE PAVEMENT STRUCTURE FROM TOP OF PAVEMENT TO TOP OF SUBGRADE.

H = THE VERTICAL DISTANCE FROM THE TOP SURFACE OF THE EDGE OF OIL TO THE TOE OF SLOPE.

e = MAXIMUM SUPERELEVATION AS REQUIRED.

⊘ = MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE.

✳ = 4 FOOT DESIRABLE, WIDER IF REQUIRED FOR FUTURE SIDEWALK.

▬▬ = HOT MIX ASPHALT

▒▒ = BASE COURSE

///// = SUBBASE

FIGURE 4-5

TYPICAL SECTION — CROWNED — BITUMINOUS PAVEMENT WITH TREATED BASE — TYPES B THRU D

LEGEND

T = TOTAL THICKNESS OF THE PAVEMENT STRUCTURE FROM TOP OF PAVEMENT TO TOP OF SUBGRADE.

T_m = MAXIMUM THICKNESS OF T WHICH WILL ALLOW A 50:1 OR STEEPER SLOPE BETWEEN THE HINGE POINT AND THE POINT OF SLOPE SELECTION.

Tm FOR 8' Z SLOPE @4:1= 25.58 inches
Tm FOR 6' Z SLOPE @4:1= 19.06 inches
Tm FOR 4' Z SLOPE @4:1= 13.54 inches
Tm FOR 8' Z SLOPE @6:1= 17.08 inches
Tm FOR 6' Z SLOPE @6:1= 13.56 inches
Tm FOR 4' Z SLOPE @6:1= 10.04 inches

FOR T GREATER THAN Tm, DIMENSION Z MUST BE INCREASED TO THE DISTANCE AT WHICH A 50:1 SLOPE FROM THE HINGE POINT INTERSECTS THE 6:1 SLOPE FROM THE SHOULDER.

H = THE VERTICAL DISTANCE FROM THE TOP SURFACE OF THE EDGE OF OIL TO THE TOE OF SLOPE.

e = MAXIMUM SUPERELEVATION AS REQUIRED.

= SUBGRADE Z SLOPE 50:1 OR STEEPER. (2%)

= MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE.

B = MAY INCLUDE BASE, SUBBASE, OR TREATED BASE.

▼ = SEE TABLE 4-2 FOR FILL SLOPE STANDARDS

▶ = SHOULDER EXTENSIONS FOR SUPERELEVATED SECTION ARE APPROXIMATELY LEVEL.

✳ = APPROPRIATE SECTION DETERMINED BY FUNCTIONAL CLASSIFICATION, DESIGN TRAFFIC VOLUMES AND DESIGN SPEED. SEE SECTION 100.

= HOT MIX ASPHALT

= BASE COURSE

= SUBBASE

TANGENT SECTION

PRIME COAT (IF REQUIRED)
BITUMINOUS PAVEMENT
Profile Grade & Pivot Point
2%   2%   2%   2%
Top of Subgrade
Hinge Point
Point of Slope Selection
Cut Slope
10'±   6:1 or 4:1
10:1 For Widened Ditch
NOTE: CUT SLOPE NOT STEEPER THAN 3:1 EXCEPT IN SPECIAL CASES.
MEDIAN
Variable Slope
6:1 or 4:1
H
T
B

SUPERELEVATED

Profile Grade & Pivot Point
e %   e %
Top of Subgrade
Hinge Point
Point of Slope Selection
Cut Slope
10'±
6:1 or 4:1
6:1 or 4:1
H
T
Tm
6"   6"

FORMULA FOR SUBGRADE Z SLOPE

SUBGRADE Z SLOPE (ft/FT.) =

$$\frac{(6")(.020 \text{ ft/FT.}) + \left(Z \text{ WIDTH} - 6"\right)\left(\frac{1}{Z \text{ SLOPE}}\right) + 4" - T}{Z \text{ WIDTH}}$$

(NOTE: ALL DIMENSIONS FOR FORMULA ARE IN INCHES)

EDGE OF PAVEMENT DETAIL

OUTSIDE EDGE OF SHOULDER
Z
6"   6"   6"
6:1 OR 4:1
Point of Slope Selection
T
Hinge Point

✳ DIMENSION TABLE

SECTION TYPE	X	Y	Z
	FEET		
B	12	10	8
B	12	8	8
C	12	6	8
C	11	6	6
D	11	4	6
D	10	4	4

NOTES

1. PAVEMENT THICKNESS DETERMINED BY PAVEMENT DESIGN; SEE CDOT PAVEMENT DESIGN MANUAL.

2. ALL SECTIONS SHOWN ARE SUBJECT TO MODIFICATIONS DEPENDING ON REQUIREMENTS FOR EACH PROJECT.

3. ALL THICKNESSES OF SUBBASE, BASE COURSE AND SURFACE COURSE ARE TO BE SHOWN ON PLANS AS APPROXIMATE.

4. DETAILS OF SPEED CHANGE LANES WILL BE SHOWN ON PLANS.

5. SEE STANDARD PLANS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.

6. SEE TABLE 4-2 FOR FILL SLOPE STANDARDS.

7. INCLUDE APPROPRIATE TYPICAL SECTION GENERAL NOTES.