

Tables-Part I

Table 2-1 Pedestrian Group Characteristics and Behaviors	2-11
Table 3-1 Stopping Sight Distance on Grades	3-2
Table 3-2 Minimum Width of Traveled Way and Usable Shoulder for Rural Arterials	3-4
Table 3-3 Minimum Width of Traveled Way and Shoulders for Collector Roads	3-5
Table 3-4 Minimum Width of Traveled Way and Shoulders for Two-Lane and Local Roads in Rural Areas	3-5
Table 3-5 Superelevation Guidelines	3-7
Table 4-1 Normal Shoulder Widths for Locals and Collectors	4-3
Table 4-2 Normal Shoulder Widths for Arterials, Interstates, and Freeways	4-3
Table 4-3 Median Shoulder Widths	4-4
Table 4-4 NCDOT Paved Shoulder Guidance	4-5
Table 4-5 Suggested Clear-Zone Distances from Edge of Through Traveled Lane	4-14
Table 4-6 Median Widths for Highways other than Freeways	4-20
Table 4-7 Desirable and Minimum Sidewalk and Berm Widths	4-29
Table 5-1 Minimum Clear Roadway Width and Vertical Clearances for Existing Bridges to Remain in Place	5-2
Table 5-2 Clear Bridge Deck Widths for SRTG Projects	5-4
Table 5-3 Vertical Clearances for Highway Bridges	5-33
Table 5-4 Standard Design Cored Slab and Box Beams Parameters	5-37
Table 5-5 Typical Usage of Standard Bridge Approach Fill Details	5-53
Table 6-1 Barrier Guidelines for Non-Traversable Terrain and Roadside Obstacles	6-3
Table 6-2 Typical Barrier Placement for Various Median Widths	6-14
Table 8-1 Design Widths and Modifications for Edge Conditions of the Traveled Way for Turning Roadways	8-14
Table 9-1 Guide Values for Ramp Design Speed as Related to Highway Design Speed	9-7
Table 9-2 Desirable Curvature for Ramps in the Vicinity of the Gore Area	9-8
Table 9-3 Vertical Sight Distance Control for Crest Curves at Interchanges, Single Unit Vehicle Criteria	9-15
Table 9-4 "c" Distance Required from End of Bridge to Ramp Terminal	9-16
Table 9-5 Recommended Minimum Ramp Terminal Spacing	9-23
Table 10-1 Reaction Time and Distances for Functional Area of Intersections	10-2

Tables-Part II

Table 2-1 Labeling Precision Preferences for Typical Sections	2-1
Table 2-2 Labeling Precision Preferences for Plans	2-2
Table 2-3 Labeling Precision Preferences for Profiles	2-2
Table 2-4 Labeling Precision Preferences for Cross Sections	2-3
Table 3-1 Final Plan Sheet Arrangement Index of Sheets	3-8
Table 3-2 Code Letters for Pavement Schedule	3-12
Table 3-3 Minimum and Maximum Pavement Thickness	3-15
Table 3-4 Properties of Asphalt Mix Types	3-15
Table 3-5 Permitted Construction Type	3-9
Table 5-1 Master Pay Items List Information	5-4
Table 6-1 Counties with Listed Bat Species	6-10
Table 6-2 Additional Resources	6-11

Figures-Part I

Figure 2-1 Bicyclist Design User Profiles	2-12
Figure 2-2 Fully Separated Bikeways	2-13
Figure 2-3 Pavement Edge Construction with Flexible Pavement.....	2-16
Figure 2-4 Pavement Edge Construction with Shoulder Drains.....	2-17
Figure 4-1 Normal and Total Shoulder Width for Locals and Collectors	4-3
Figure 4-2 Normal and Total Shoulder Width for Arterials, Interstates, and Freeways.....	4-4
Figure 4-3 Typical Shoulder Cross Slopes	4-7
Figure 4-4 Criteria for Roadway Typical Section and Slopes	4-9
Figure 4-5 Detail Guide for Vehicle Recovery Areas	4-16
Figure 4-6 Berm Width.....	4-18
Figure 5-1 Interstate System Bridge Deck Widths for Four or More Lanes Divided Shoulder Approach	5-10
Figure 5-2 Freeway System Bridge Deck Widths for Four or More Lanes Divided Shoulder Approach	5-11
Figure 5-3 Arterial System Bridge Deck Widths for Two-Lane Two-Way Traffic	5-12
Figure 5-4 Arterial System Bridge Deck Widths for Four or More Lanes Divided Shoulder Approach and Curb and Gutter Approach	5-13
Figure 5-5 Arterial System Bridge Deck Widths for Four or More Lanes Divided Shoulder Approach and Curb and Gutter Approach with Auxiliary Lanes	5-14
Figure 5-6 Arterial System Bridge Deck Widths for Four or More Lanes Undivided.....	5-15
Figure 5-7 Collector Roads and Streets Bridge Deck Widths for Two-Lane Two-Way Traffic.....	5-16
Figure 5-8 Local Roads and Streets Bridge Deck Widths.....	5-17
Figure 5-9 Local and Collector System Bridge Deck Widths for Four or More Lanes Divided.....	5-18
Figure 5-10 Local and Collector System Bridge Deck Widths for Four or More Lanes Divided with Auxiliary Lanes	5-19
Figure 5-11 Local and Collector System Bridge Deck Widths for Four or More Lanes Undivided Two-Way Traffic.....	5-20
Figure 5-12 One Way Ramp Bridge Deck Widths	5-21
Figure 5-13 Interstate System Horizontal Clearances for Divided Traffic	5-24
Figure 5-14 Freeway System Horizontal Clearances for Divided Traffic	5-25
Figure 5-15 Arterial System Horizontal Clearances for Undivided Traffic.....	5-26
Figure 5-16 Arterial System Horizontal Clearances for Divided Traffic Shoulder Approach....	5-27
Figure 5-17 Arterial System Horizontal Clearances for Divided Traffic Curb and Gutter Approach	5-28
Figure 5-18 Local and Collector System Horizontal Clearances for Design Year ADT	5-29
Figure 5-19 One Way Ramp Horizontal Clearances.....	5-30
Figure 5-20 Shoulder Detail Under Bridge with Bridge Pier and Concrete Barrier or with End Bent Slope and Guardrail	5-42
Figure 5-21 Shoulder Detail Under Bridge with 6-Inch Slope Protection or Abutment Wall.....	5-45
Figure 5-22 Berm Detail Under Bridge.....	5-47
Figure 5-23 Standard Method of Shoulder Construction Under Bridges	5-50
Figure 5-24 Paved Shoulder Taper at Bridges	5-52
Figure 5-25 Typical Retaining Wall Section	5-58
Figure 5-26 Example Retaining Wall Envelope Drawing	5-62
Figure 5-27 Offsets for Steel Beam Guardrail at Retaining Walls.....	5-64
Figure 5-28 Concrete Barrier Rail with Moment Slab on Retaining Wall	5-65
Figure 6-1 Detail of Guardrail Placement on Approach End of Rigid Obstacle Warrant.....	6-5
Figure 6-2 Detail of Guardrail Placement on Trailing End of Rigid Obstacle Warrant	6-6
Figure 6-3 Detail of Guardrail Placement on Approach and Trailing End of Fill Slope Warrant.....	6-7

Figure 6-4 Detail of Guardrail Placement on Approach End of Hazard Located on Horizontal Curve	6-8
Figure 6-5 Special Grading in Superelevated Location	6-16
Figure 7-1 Minimum Pipe Cover Requirements	7-3
Figure 7-2 Minimum Box Culvert Cover Requirements	7-3
Figure 7-3 Skew Angle Designations	7-4
Figure 7-4 Clear Roadside Recovery Area for Access Roads	7-8
Figure 7-5 Example of Endwall Treatment	7-9
Figure 8-1 Typical Single Lane Roundabout	8-3
Figure 8-2 Reduced Conflict Intersection	8-5
Figure 8-3 Reduced Conflict Intersection – Inset “A”	8-6
Figure 8-4 Reduced Conflict Intersection – Inset “B”	8-7
Figure 8-5 Desirable Intersection Skews	8-8
Figure 8-6 Profile Rollover at Intersections	8-10
Figure 8-7 Intersection Sight Distance	8-12
Figure 8-8 Right Turn Lane Warrants	8-17
Figure 8-9 Turn Lanes	8-18
Figure 8-10 Recommended Treatment for Turn Lanes	8-20
Figure 8-11 Guidelines for Offsetting Opposing Left Turn Lanes on Divided Roadways with a 20' Median	8-23
Figure 8-12 Guidelines for Offsetting Opposing Left Turn Lanes on Divided Roadways with a 30' Median	8-24
Figure 8-13 Guidelines for Offsetting Opposing Left Turn Lanes on Divided Roadways with a 36' Median	8-25
Figure 8-14 Guidelines for Offsetting Opposing Left Turn Lanes on Divided Roadways with a 46' Median	8-26
Figure 8-15 Roundabout Typical Section	8-32
Figure 8-16 Modified WB-62 Truck	8-33
Figure 9-1 Ramp Gore Grade Control Points	9-12
Figure 9-2 Maximum Grade Control Points in Gore Area	9-13
Figure 9-3 Vertical Sight Distance Control for Crest Curves at Interchanges, Single Unit Vehicle Criteria	9-15
Figure 9-4 Design Requirements for Crossroad Sight Distance at Interchanges, Single Unit Vehicle Criteria	9-16
Figure 9-5 -Y- Line Transition at Ramp Terminal for Three-Lane -Y- Line Section	9-18
Figure 9-6 Ramp Terminal Design	9-19
Figure 9-7 Plan for Loop Ramp Terminal Combination	9-20
Figure 9-8 Section View for Loop Ramp Terminal Combination	9-21
Figure 9-9 Acceptable Ramp Terminal Skews	9-22
Figure 10-1 Functional Area of an Intersection	10-3
Figure 10-2 Intersection Turn Radii	10-4
Figure 10-3 Three Lanes at Major Drives	10-5
Figure 10-4 Example Driveway Scenario for Corner Business	10-7
Figure 10-5 Angled Driveways on One-Way Streets	10-8
Figure 10-6 Driveway with Controlled or Restricted Entry	10-9

Figures-Part II

Figure 3-1 False Cut in Draw Between Cut Slopes	3-18
Figure 3-2 False Cut to be Used on Waste Projects Where Fill Height Exceeds 30"	3-18
Figure 3-3 Example for Computing Quantity of Masonry Drainage Structure	3-8
Figure 4-1 Existing Right of Way Line and Monuments	4-6
Figure 4-2 Proposed Right of Way Line and Monuments	4-6
Figure 4-3 Control of Access	4-7
Figure 4-4 Control of Access with C/A Monument	4-7
Figure 4-5 Temporary and Permanent Easement Lines	4-9
Figure 4-6 Permanent Easement Monuments	4-9
Figure 4-7 Guide for Fence Locations at -Y- Line over Freeway	4-10
Figure 4-8 Guide for Fence Locations at Freeway over -Y- Line	4-11
Figure 5-1 Shrinkage Factors	5-12
Figure 5-2 Blank Earthwork Balance Sheet	5-13
Figure 5-3 Borrow Project Example	5-14
Figure 5-4 Waste Project Example	5-15
Figure 5-5 Sample Bid Item Schedule	5-23
Figure 5-6 Guardrail Summary Examples.....	5-27