

ROAD DESIGN MANUAL

INDEX

-A-

	PAGE
Abbreviations.....	<u>1B-1, 1B-19</u>
Acceleration Lanes.....	<u>F-91</u>
Access Control Policy	<u>F-10</u>
Access, Limited	<u>2E-47</u>
Access Management Concepts	<u>F-7</u>
Accessible Parking Spaces	<u>.A(1)-89</u>
Accessible Routes.....	<u>.A(1)-91</u>
Accident Records	<u>A4-4</u>
Accommodating Pedestrians and Bicyclists.....	<u>F-61</u>
Activity Center Amenities Summary	<u>.B(2)-18</u>
Additional Data-Requesting	<u>2A-5</u>
Additional Survey Data	<u>2E-81</u>
Administration Approval	<u>2A-3</u>
Advertisement	<u>2G-31</u>
Aggregate Base Material	<u>2G-17</u>
Agritourism Entrance Standards.....	<u>F-126</u>
Airport Clearance Requirements	<u>2A-12</u>
Alternative Intersection and Interchange Policies	<u>.A3-1</u>
Approval of Noise Study	<u>C-3</u>
Approval of Project Plans.....	<u>2F-10, 2G-29</u>
Approved Plans to Scheduling & Contract Division for (final) Submission.....	<u>2G-29</u>
Approval Process for Roundabouts.....	<u>.A3-21</u>
Areas for Entrance Gutter - Standard CG-9D	<u>D-34</u>
Areas and Quantities.....	<u>2D-13</u>
Arranging Field Review (On-Site).....	<u>2A-8</u>
"As-Built" Plans.....	<u>2G-36</u>
Assembling Additional Available Data	<u>2A-6</u>
Assembling Photographs and Mapping.....	<u>2A-7</u>
Availability of Plans	<u>2B-12</u>

-B-

Barrier Type Selection.....	<u>J-20</u>
Baseline Stationing	<u>2C-6</u>
Bearings	<u>2C-6</u>
Bench Marks and Permanent Turning Points	<u>2C-10</u>
Bicycle Facility Guidelines	<u>2E-30, A(1)-3</u>
Bid Proposal	<u>2G-29</u>
Biddability Review	<u>2G-30</u>
Boarding and Alighting Areas	<u>A(1)-108</u>
Borrow Material	<u>2E-1</u>
Box Culvert "D" Numbers.....	<u>2E-61</u>
Bridge Design	<u>2D-20, 2E-80</u>
Bridge Identification Numbers.....	<u>2E-61</u>
Bridge Only Contract	<u>2G-28</u>
Buffer Strips.....	<u>A(1)-70</u>
Building Data Report	<u>2F-2</u>
Bulb-Outs.....	<u>B(1)-60, B(2)-13</u>
Bus Turnouts Design.....	<u>A(1)-103</u>
Bus Stops, Shelters and Boarding and Alighting Areas	<u>A(1)-108</u>

-C-

PAGE	
Cable Guardrail	J-4
Capacity Analyses.....	2B-6 , 2C-12 , 2D-8 , B(1)-2
Capital Outlay Code	2E-58
Cattle Passes	2E-36
Certification Acceptance	2A-2
Check for Accuracy and Completeness	2F-1 , 2G-23
Checklist-Quality Control	1E-2
Checklist For Site Plan Completeness	C-34
Chord Points (TC-5.01).....	See Road and Bridge Standards
Clear Zone.....	A2-1
Clear Zone Guidelines	A2-1
Clear Zone Cost-Effectiveness Analysis	A2-7
Clearing and Grubbing.....	2G-10
Coal Tar Pitch Emulsion	2G-17
Collector & Arterial Roadways	B(1)-5
Commercial Entrances	F-101
Commercial Entrance Channelization Island Options	F-109
Commercial Entrance Designs along Highways with Shoulders	F-119
Commercial Entrance Designs along Highways with Curb and Gutter	F-120
Commercial Entrance Designs along Local Streets with Curb and Gutter or Shoulders.....	F-121
Commercial Entrance Designs along Highways with Shoulders at Intersection	F-122
Commercial Entrance Designs along Highways with Curb and Gutter at Intersection	F-123
Commercial Entrance Designs to Serve A Private Subdivision Road / Street.....	F-118
Commercial Entrance Designs to Serve Drive-In Type Businesses	F-124
Commercial Entrance Separation from an Intersection	F-106
Commercial Entrance Sight Distance.....	F-105
Commercial Entrance Spacing	F-109
Compliance with Federal Regulations	2F-4
Complete Surveys.....	2B-2
Computation and Summarization of Earthwork Quantities	2G-8
Conducting the Public Hearing	2D-22
Constructability	2B-11 , A8-18
Constructability Quality Review	2B-11 , 2D-21 , 2E-75 , 2G-25 , E-1
Construction Areas.....	1C-1
Construction Cost Estimate	2E-74 , 2G-24
Construction Easements	2E-42
Construction Limits.....	2D-19
Construction Plan Revision	2G-33
Construction Plans	2G-1
Construction Quantities.....	2F-7
Construction Type Codes	2E-65
Contact with Construction Personnel	2G-32
Contacting Local Government and/or Agencies	2A-10
Contents of Information Brochures	2D-2
Continuous Left-Turn Lanes	F-81
Coordinating Time Schedules.....	2C-2
Coordination with Environmental Division	2B-3
Coordination with Landscape Architect	2B-3
Coordination with Other Divisions and Agencies	2B-8
Coordination with Other State Agencies	2B-3
Corner Clearance Downstream on a Minor Side Street	F-109
Correspondence Files	2G-35
Cost Estimate	2B-10 , 2E-74 , 2F-8 , 2G-24
Counties and Municipalities	1C-1
Crest and Sag Vertical Curves	A4-11 , 2D-10
Criteria for Placement of Right Of Way Monuments	C-6
Cross Sections and Earthwork Quantities	2D-12
Crossover Grades	F-55
Crossover Spacing	F-27
Crusher Run Aggregate	2G-17

	PAGE
Cul – De – Sacs and Turnarounds	B(1)-24
Curb and Gutter.....	<u>2E-8, 2E-35, B(1)-26</u>
Curb	2E-9, 2E-35
Curb Extensions	B(1)-51, B(2)-14
Curb Ramp and Pedestrian Access Route Goals and Objectives	A(1)-50
Curb Ramp Application Details.....	A(1)-57
Curb Ramp Elements and Types	A(1)-53
Curb Cut Ramps (CG-12)A(1)-51
Curve Data	2C-6

-D-

Data For Environmental Document	2B-9
Data Required For Plan Coordination Review	2G-28
Data Required From Project Manager (Ground surveys & R/W Authorization).....	<u>2B-2, 2F-9</u>
Data To Be Submitted (Environmental Evaluation)	2B-9
Deceleration Lanes	F-91
Definitions of Highway Terms	1B-6
Demolition of Buildings and Clearing of Parcels	2G-20
Demolition of Pavement - Obscuring Old Road	2E-31
Depicting Bridges on Plans	2E-38
Depicting Horizontal Alignment on Plans	2D-8
Depicting Limited Access Right of Way.....	2E-52
Depicting Tentative Design on Plans.....	2C-11
Depicting Vertical Alignment on Plans.....	2D-9
Description (Project From and To)	2E-60
Design Approval	2D-25
Design-Build Preliminary Engineering Guide	H-1
Design Exceptions	<u>2D-11, A1-11</u>
Design Features Note	2E-73
Design or Combined Location and Design Public Hearing.....	2D-2
Design Requirements – Subdivision Street Design Guide	B(1)-2
Design Speed	A1-5, A4-6
Design Vehicle	A1-10
Design Waivers	<u>2D-11, A1-10</u>
Design Traffic Volumes.....	A4-6
Detailed Drainage Design	2E-7
Determination of Roadway Design	2B-6
Determining Approximate Length of Bridge	2E-38
Determining Approximate Width of Bridge	2E-38
Determining Areas and Quantities.....	2D-13
Determining Clear Zone Width	A2-1
Determining Construction Quantities	<u>2B-10, 2F-7</u>
Determining Permanent Easements	2E-41
Determining Preliminary Engineering and Construction Cost	2B-10
Determining Project Limits	2D-15
Determining Right of Way and Utility Limits	<u>2D-18, 2E-43</u>
Determining Slope Easements	2E-40
Determining Surplus Right of Way	2E-55
Determining Width of Pavement.....	2D-13
Distribution of Copies of Permit Applications	C-20
Distribution of Prints	<u>2D-25, 2E-76, 2F-10</u>
Districts and Residencies.....	1C-1
Diverging Diamond Interchange	A3-23
Diversions.....	2G-21
Double (Dual) Left Turn Lanes	F-81
Draft EIS	C-2

	PAGE
Drainage-Box Culvert Numbers.....	<u>2E-62</u>
Drainage Summary	<u>2H-18</u>
Drawing Requirements for Permits.....	<u>C-12</u>

-E-

Earthwork	<u>2D-12</u>
Easements	<u>2E-40</u>
Effective Turning Radius	<u>B(1)-23</u>
Elements of Typical Section – Subdivision Street Design Guide	<u>B(1)-21</u>
Embankment Slopes.....	<u>A2-8</u>
Engineering Commentary	<u>2D-7</u>
Entrances	<u>.2D-15, B(1)-28, F-97, J-34</u>
Entrances Affected By Highway Construction Project	<u>F-116</u>
Entrance Connections on Opposite Sides of a Roadway	<u>F-112</u>
Entrance Consolidation (Shared Use Entrances)	<u>F-113</u>
Entrance Definitions	<u>F-97</u>
Entrance Design Principles	<u>F-97</u>
Environmental Consideration.....	<u>2B-3, 2B-8, A4-4, C-2</u>
Establishing Priorities (Coordinating Time Schedules).....	<u>2C-2</u>
Estimating Quantities - Preparation of Estimate	<u>2E-74</u>
Evaluating Alternatives.....	<u>2A-9</u>
Evaluation - Post Construction Review	<u>2G-38</u>
Exceptions	<u>A1-11, F-42</u>
Expansion Joints (Rigid Pavement).....	<u>C-78</u>

-F-

Federal Regulations	<u>2F-4</u>
Fence.....	<u>2E-15</u>
FHWA Approval	<u>2D-25</u>
Field Inspection	<u>2E-78</u>
Field Inspection Prints.....	<u>2E-82</u>
Field Review	<u>2A-8</u>
Field Reconnaissance	<u>2C-4</u>
Final Environmental Document.....	<u>2D-25</u>
Final Environmental Impact Statement (EIS).....	<u>C-2</u>
Final Estimate.....	<u>2G-24</u>
Final Notebook	<u>2G-36</u>
Final Preparation of Plans For Construction	<u>2G-28</u>
Final Right of Way Data Sheet	<u>2F-1</u>
Final Scoping.....	<u>2A-11</u>
Final Scoping Certification	<u>2D-26</u>
Final Submission	<u>2G-31</u>
Finalizing Plans	<u>2G-1</u>
Fixed Objects	<u>J-17</u>
Flexibility in Design.....	<u>A1-1</u>
Formal Construction Revisions	<u>2G-33</u>
Formal Plan Revisions	<u>2F-11</u>
Frontage Road (Service Road).....	<u>2C-11, F-115</u>
Functional Classification	<u>2E-63, A1-11, B(1)-2, F-8</u>
Future Construction (Project Terminii)	<u>2D-18</u>

-G-**PAGE**

General Construction Notes and Erosion and Siltation Control Narrative.....	C-20
General Intersection and Entrance Spacing Criteria.....	F-26
Geometric Design Standards.....	A1-1
Gore Details	C-73
Government Stream Gauging Stations	2G-28
Grading Contours	2E-36
Grading Diagram & Summary	2G-13, 2H-25
Greenways	2E-30
Ground Surveys	2B-1
Guardrail	J-2
Guidelines For Curb Ramp Location	A(1)-51
Guidelines For RRR Projects.....	A4-1

-H-

Hand Rail Requirements	A(1)-64
Hazardous Material/Waste Sites	2F-3
Highway Capital Outlay Code.....	2E-58
Highway Terms	1B-6
Historical Marker Relocation	2E-37
Holding the Field Inspection.....	2E-78
Horizontal Alignment	2A-9, 2B-7
Horizontal Traverse	2C-10
Hydraulic Commentary For Permit Applications	C-19
Hydraulics (Preliminary)	2B-3
Hydrologic Data Sheet	2E-72, 2H-7

-I-

Identification (Plan & Profile Sheets, Items)	2C-5, 2C-9, 2D-8, 2E-58
Illustration of Directional Median Opening for Left Turns and U-Turns	F-86
Impact Attenuators (Crash Cushions)	J-12
Incidental Items	2E-8
Incidental Items (Labeling)	2E-35
Incidental Summary	2G-18, 2H-26
Incorporating Changes into Plans	2B-13
Incorporating Comments into Design	2C-13
Index of Sheets	2E-66, 2H-4
Informational Brochure and Data for Environmental Document	2D-2
Informal Revisions – Plan Changes	2F-13
Initial Design	2C-11
Innovative Design Proposals – Subdivision Street Design Guide	B(1)-61
Innovative Intersections & Interchanges	A3-1, F-59
Integrated Project Manager	2F-7, 2G-1, 2G-23
Interchange Design	2B-7
Interparcel Vehicular Connections	F-113
Intersecting Cross Road Grades	F-58
Intersection Design	A3-1, F-14
Intersection Design Objectives	F-14
Intersection Design Principles	F-15
Intersection Sight Distances	A1-33, B(1)-19, F-50
Interstate Survey	2B-1
Interstate and Primary Projects	2A-2
Interstate, Primary, Urban and Secondary Projects	2D-3
Items Not in Contract	2F-4

-L-**PAGE**

Labeling Incidental Items	2E-35
Landscape Consideration	B(1)-45
Layout	2C-5, 2E-59
Lane Transitions	A1-14
Left and Right Turn Lane Criteria	F-65
Limited Access Establishment and Change Guidelines	2E-47
Limited Access Fencing	2E-51
Limited Access Lines	2E-51
Limits of Maintenance Responsibility for Private and Commercial Entrances	F-106
Local Roadways	A1-28, B(1)-5
Location Map	2E-68, 2H-3
Location Public Hearing	C-3
Location Corridor Study	2A-1

-M-

Mail Box and Cluster Box Units	B(1)-56
Match lines	2C-6
Median Barriers	J-15
Medians	2E-9, A1-29, F-84
Median Crossover Location Approval Process	F-44
Median Crossover Grades	F-55
Mini-Roundabouts	A3-13
Median Openings/Crossovers	F-55
Metes and Bounds	2C-8
Minimum Angle of Intersections	F-21
Minimum Plan Projects	A7-8
Minor Structure Excavation (Ratio)	D-17
Moderate Volume Commercial Entrance Design Along Highways with Shoulders	F-125
Mountable Curb	2E-35
Multimodal Design Standards for Mixed-Use Urban Centers	B(2)-1

-N-

No Plan Projects	A7-1, A7-6
Noise Abatement	C-2
Nomenclature	1B-1
Non-Recoverable Parallel Slopes	A2-12
North Arrow	2C-7
Notes	2E-64
Notice of Willingness to Hold Public Hearing	2D-5
Numbers - Parcels and Buildings	2F-1
Numbering (Plan & Profile Sheets)	2C-5, 2C-9

-O-

Obtaining Project Approval	2D-25
Obscuring Old Roadway	2E-31
Occupiable Space / Building on Roadway Projects	2B-4
Operating Speed	A1-9
Operational Analysis	2B-6, 2C-12, 2D-8, B(1)-2
Original Right Of Way Plans	2F-10
Other Design Considerations – Subdivision Street Design Guide	B(1)-41
Outdoor Advertising Signs on Plans	2F-3

-P-**PAGE**

Parcel Numbers and Building Demolition Numbers	2F-1
Parking Spaces	A(1)-79
Pavement Cross Slopes	2E-69, A4-13
Pavement Recommendations	2D-20
Pavement Summary	2G-16, 2H-24
Pavement Termination	2D-18
Pavement Transitions	A1-14, F-80
Pedestrian Access Routes	A(1)-50
Pedestrian Ramps	2E-35
Permanent Easements	2E-41
Permit Application Procedure	C-8
Permit Assembly	2F-7
Permit Determination	2B-8
Permit Sketches and Procedure	C-8
Plan Abbreviations and Symbols	1B-17
Plan Assembly (Field Inspection)	2E-76
Plan Changes	2F-13
Plan Operation - Post Construction Review	2G-38
Plan Process – Partial Take Parcel	2F-4
Plan Quantities – Determination of Plan Quantities	2G-14
Plan Revisions	2E-57, 2F-11, 2G-33
Plans Prepared by Other Divisions	2G-5
Plotting Construction Limits	2D-19
Plotting Cross Sections	2D-12
Plotting Edges of Pavement	2D-15
Plotting Entrances and Median Crossovers	2D-15
Plotting of Profile Sheets	2C-8
Policy - Final Scoping	2A-11
Post-Certification Plan Changes	2G-28
Post Construction Review	2G-38
Posted Speed	A1-9
Pre-advertisement Meeting	2G-27
Predetermined Design	2C-11
Pre-Public Hearing Meeting	2D-4
Preliminary Design	2C-1
Preliminary Engineering (Authorization)	2A-1
Preliminary Field Inspection	2B-12
Preliminary Plan Development	2A-5
Preparation of Construction Cost Estimate	2G-24
Preparation and Processing of Public Hearing Data	2D-3
Preparation of Engineering Commentary	2D-7
Preparation of Final Estimate	2G-37
Preparation of Inspection Reports	2B-13
Preparation of Plan Assembly For Construction	2G-28
Preparation of Plan and Profile Sheets	2C-5
Preparation of Project Cost Estimate and Report	2B-13, 2F-8
Preparation of Report	2A-10
Preparation of Informational Brochures	2D-2
Pre-Public Hearing Meeting	2D-4
Principal Abbreviations	1B-1
Private Entrance Detail	B(1)-28, F-98
Private Entrances (Existing State Highways)	B(1)-28, F-98
Procedures For An Informal (Open Forum) Public Hearing	2D-23
Procedures For Determining The Location and Design of Curb Ramps	A(1)-53
Procedures For A Formal Public Hearing	2D-22
Processing Formal Plan Revisions	2F-12
Profiles	2C-9, 2D-9
Project Approval	2D-25, 2F-10, 2G-29
Project Assignment and Field Reconnaissance	2C-4

	PAGE
Project Development.....	<u>2A-1</u> , <u>A4-5</u>
Project Development Process	<u>1D-1</u>
Project Final Scoping Certification.....	<u>2D-26</u>
Project Initiation	<u>2A-1</u>
Project Length Tabulation Block.....	<u>2E-60</u>
Project Limits.....	<u>2D-17</u>
Project Location Map	<u>2E-68</u> , <u>2H-3</u>
Project Management.....	<u>2C-4</u>
Project Managers Responsibilities	<u>2D-3</u>
Project Numbers	<u>2C-5</u> , <u>2E-64</u>
Project Review	<u>2C-1</u> , <u>2D-1</u>
Project Section Number	<u>2E-64</u>
Project Scoping	<u>2A-11</u>
Project Termini	<u>2D-17</u>
Projected Traffic	<u>B(1)-2</u>
Projecting Horizontal Alignment.....	<u>2A-9</u>
Projecting Vertical Alignment.....	<u>2A-9</u>
Proposed Conveyances of Residue Parcels.....	<u>2F-13</u>
Proposed Right Of Way and Limited Access	<u>2E-39</u>
Public Hearing Data	<u>2D-20</u>
Public Involvement Program	<u>2A-10</u>
Publishing Notice of the Public Hearing	<u>2D-6</u>
Pug Mill Mix Aggregates	<u>2G-16</u>
Purpose and Scope - Post Construction Review	<u>2G-38</u>

-Q-

Quantity Totals	<u>2E-74</u>
Quality Control (Review)	<u>1E-1</u>
Quality Control Checking Procedure	<u>2G-26</u>
Quality Control Checklist.....	<u>1E-2</u>

-R-

Rails With Trails	<u>A(1)-48</u>
Railroad Force Account – Railway Flagging and Watchman	<u>2G-4</u>
Railroads-Highway Construction Adjacent to Railway Tracks.....	<u>2E-28</u>
Railroads in Virginia	<u>1B-23</u>
Ramp Design.....	<u>A1-25</u>
Ramp Terminal and Speed Change Lane Design	<u>C-70</u>
Ratios for Minor Structure Excavation	<u>D-17</u>
Recommendation for Approval	<u>2F-10</u>
Recommending a Solution.....	<u>2D-24</u>
Record Retention	<u>2G-35</u> , <u>2G-36</u> , <u>2G-45</u>
Recreational Access Road	<u>A1-21</u>
Reference Block	<u>2C-7</u>
Reference Points.....	<u>2C-7</u>
Refining Horizontal Alignment	<u>2B-7</u> , <u>2D-8</u>
Refining Vertical Alignment.....	<u>2B-8</u> , <u>2D-9</u>
Reinforced Soil Slopes.....	<u>2E-21</u>
Reports - Post Construction Review.....	<u>2G-38</u>
Request for Additional Survey Data	<u>2E-81</u>
Request for Appropriate Environmental Document	<u>2B-9</u>
Request for Approval of Major Design Features	<u>2D-26</u>
Request for Cost Estimates	<u>2B-10</u> , <u>2F-8</u>
Request for Environmental Evaluation	<u>2B-9</u>
Request for Hydraulic Evaluation	<u>2B-3</u>
Request for Public Hearing	<u>2D-5</u>
Request for Right Of Way Authorization from FHWA.....	<u>2F-9</u>

PAGE

Request for Soils Data (Preliminary)	2B-3
Request for Sound Wall Design.....	2E-80
Request for Special Design Plans	2E-79
Request for Supplemental Data.....	2D-20
Request for Traffic Data.....	2A-6
Requesting Photographic Coverage/Topographic Mapping	2A-7
Resolution of Borrow/Surplus and Unsuitable Material.....	2E-1
Resolution of Pending Construction Details	2G-1
Resolution of Public Hearing Questions	2D-24
Responsibility of the Project Manager & the District Public Affairs Section	2D-3
Rest Areas.....	A(1)-97
Restricted Vertical Clearances	A1-31
Restricting Left Turn Movements and Commercial Entrances	F-108
Retaining Structure	2E-21
Retaining Walls	2E-17
Retaining Wall Excavation	2E-18
Retention of Design Files.....	2G-35
Review of Correspondence	2C-3
Review of Data-Setting Up Files.....	2C-3
Review of Draft Environmental Document	2D-2
Review of Plans.....	2F-1, 2G-23
Review of Public Hearing Transcript and Post-Hearing Correspondence	2D-24
Review of Work Load (Coordinating Time Schedules).....	2A-4, 2C-2
Review Process - Post Construction Review	2G-38
Reviewing and Setting Up Route File (Electronic)	2C-3
Reviewing Reports	2G-1
Reviewing The Proposed Method of Development	2B-13
Reviewing Work Load and Assembling Data	2A-4, 2C-2
Revision Data Sheet (Construction)	2G-44, 2H-6
Revision Data Sheet (Right of Way).....	2G-42
Revisions (Construction).....	2G-33
Right Of Way	2C-8, C-5
Right Of Way Data Sheet.....	2E-68, 2F-1, 2H-5
Right Of Way Monuments.....	C-5
Right Of Way Note on Title Sheet	2G-23
Right Of Way Plans.....	2F-1
Right Of Way Revisions	2F-11
Right Turn Lanes.....	F-86
Road and Street Names	2C-8
Roadside Development.....	2G-18, 2H-19
Roadway Geometric Design Criteria – Subdivision Street Design Guide	B(1)-5, B(2)-9
Roundabouts	2H-27, A3-10, B(1)-52, F-58
Route Files	2C-3, 2G-35
RRR Projects.....	A4-1
Rural Roadway Design	A1-2, A1-13

-S-

Safety Analysis	2B-6
Safety Items and Sequence of Construction	2E-78
Safety Projects	J-35
Safety Rest Areas	A(1)-97
Sag Vertical Curve	2A-9, 2B-8, 2D-10, A4-11
Scale.....	2C-7
Scheduling Preliminary Field Inspection.....	2B-12
Scheduling Project with Work Load	2A-4
Scheduling the Public Hearing.....	2D-6
Secondary Projects	2B-2, A1-4
Secondary Roads (Arterial-Collector-Local Roads)	2B-2
Security of Estimates	2E-74

	PAGE
Sequence of Construction.....	A1-8
Service Roads	<u>2C-11</u> , A1-24
Setting Project Termini.....	2D-18
Setting Up Correspondence Files (Electronic).....	2C-3
Setting Up Route Files	2C-3
Shared Entrances and Internal Site Interconnection	F-113
Shared Roadways.....	A(1)-16
Shared Use Path.....	A(1)-24
Sheet Numbers	2E-66
Shoulder Design (GS-11).....	<u>A1-27</u>
Showing Bridge Limits	2E-38
Showing Project Termini on Plans.....	2D-17
Sidewalk	<u>2E-28</u> , A(1)-72
Sidewalk Transition From Roadway onto Bridge	A(1)-78
Sight Distance	<u>2D-9</u> , A4-12, B(1)-19, F-50
Signalized Intersection Spacing.....	F-24
Signs.....	2F-3
Sign Islands	<u>2E-28</u>
Site Plan Review	C-34
Site Plans	<u>2C-8</u> , C-34
Slope Easement.....	<u>2E-39</u>
Slopes For Approach Barriers	J-24
Soil Data (Final).....	<u>2E-1</u>
Soil Data (Preliminary)	2B-3
Soil Survey and Pavement Design	2E-1
Soliciting Comments Within Division and Completing Design.....	<u>2C-13</u>
Sound Barrier Wall Design Procedure	<u>2E-24</u>
Spacing Standards for Commercial Entrances, Intersections, & Median Crossovers	F-14
Spacing Standards for Commercial Entrances, Intersections Near Interchange Ramps	F-33
Special Design Bridges.....	<u>2G-21</u>
Special Design Drawings	<u>2E-79</u> , 2G-2
Specialty Summaries	2G-18
Spline Grades.....	<u>2D-10</u>
Staking For Concrete Items	<u>2E-11</u>
Standard JB-1 Junction Box	D-16
Steps and Handrails.....	<u>2E-27</u>
Stippling	<u>2D-17</u>
Stone for Erosion Control.....	D-1
Stopping Sight Distance	<u>2D-9</u> , A4-12, B(1)-19, F-52
Stormwater Management	<u>2G-20</u> , 2H-20
Street Names	2C-8
Streetscape	<u>B(1)-43</u>
Studying Alternate Solutions	2A-9, 2D-24
Subbase End Areas at Curb and Gutter Locations	D-33
Subdivision Street Design Guide	<u>B(1)-1</u>
Submission of Plan Assembly	<u>2F-9</u> , 2G-31
Summary Sheets.....	2G-6
Supplemental Sheets	<u>2E-58</u>
Surplus Material	2E-1
Survey Authorization	2B-1
Systems Operations Regions	<u>1C-8</u>

-T-

Taper Lengths	F-80
Temporary Diversion.....	<u>2G-21</u> , A1-26
Temporary Easement (Construction)	2E-42
Temporary Traffic Control Plans	A8-7
Terminals.....	J-33
Title Sheet	<u>2E-58</u> , 2H-1, 2H-2
Topographic Mapping	<u>2A-7</u>

	PAGE
Topography	<u>2C-7</u>
Tort Liability	<u>A4-19</u>
Traditional Neighborhood Design – Subdivision Street Design Guide	<u>B(1)-58</u>
Traffic Barriers	<u>J-20</u>
Traffic Calming – Subdivision Street Design Guide	<u>B(1)-51</u>
Traffic Data	<u>2A-6</u>
Trails and Trailheads	<u>A(1)-45</u>
Transit (Bus) Facilities Design Criteria	<u>A(1)-103</u>
 Transit Signs, Benches, Stops and Shelters	<u>A(1)-108</u>
Transition Curves (TC-5.01)	See <u>Road and Bridge Standards</u>
Transitions and Turn Lanes	<u>A1-14, F-80</u>
Transportation Facilities (Rail Platforms and Station Signs)	<u>A(1)-114</u>
Tree Walls and Tree Wells	<u>2E-35</u>
Turning Lanes	<u>F-65</u>
Type Codes	<u>2E-65</u>
Types of Permits	<u>C-8</u>
Typical Section Sheet	<u>2E-69, 2H-16, 2H-17</u>

-U-

Underdrains	<u>2E-30</u>
Underground Storage Tanks	<u>2F-2</u>
Unsignalized Intersection Spacing	<u>F-27</u>
Unsuitable Material	<u>2E-1</u>
Updating Plan Information	<u>2D-8</u>
Urban Roadway Design	<u>A1-3, A1-13</u>
Urban Surveys	<u>2B-1</u>
Urban Projects	<u>2A-1</u>
Utilities	<u>2C-7, 2G-21</u>
Utility Adjustments	<u>2G-21</u>
Utility Easements	<u>2E-43</u>
Utility Field Inspection	<u>2E-83</u>

-V-

Value Engineering	<u>2B-14</u>
Vertical Alignment	<u>2A-9, 2B-8, 2D-9</u>
Vertical Clearance	<u>A1-31</u>
Vertical Control Data	<u>2C-10</u>

-W-

Warrants for Left Turn Storage Lanes on Four-Lane Highways	<u>F-67</u>
Warrants for Left Turn Storage Lanes on Two-Lane Highways	<u>F-68</u>
Water Related Permits	<u>C-8</u>
Wells	<u>2F-2</u>
Weights of Asphalt Concrete	<u>2G-17</u>
Widths, Roadway and Travelway	<u>A4-5</u>