

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>A</b>	
Access Control.....	1-20, 15-7
Access Control Design .....	2-14, 15-8
Access Control on Interstates and Freeways .....	5-9, 15-12
Access Control on Expressways and Four-Lane Divided Highways .....	15-12
Access Control on All Other Highways .....	15-12
Access Control on Side Streets and Roads .....	15-13
Access Control Spacing .....	15-14
Preliminary Access Control Determination .....	2-9
Public Notification.....	15-13
Access Control Letter.....	15-9, 15-10
Accessibility Requirements for Handicapped Individuals.....	Chapter Sixteen, 17-44
Acronyms, Abbreviations & Symbols.....	See the Glossary
ADA (Americans With Disabilities Act)	
Accessibility Guidelines .....	16-1
Pedestrian Access During Construction .....	16-13
Pedestrian Access Review .....	16-13
Special Provisions .....	16-15
3R Projects .....	17-44
ADA Upgrades – Cost Sharing.....	16-15
Added Sheet .....	11-35, 11-42
Addendums.....	11-28
Additional Survey .....	2-4, 2-7, 2-8, 2-13, 2-25
Aerial Lines .....	10-27
Aerial Sheets .....	2-10, 11-20, 13-8
Aerial Photo Sheet Preparation .....	2-9
Aggregates	
Gravel Embedment .....	8-4, 12-25, 14-9
Surfacing Aggregates.....	8-4
Surfacing Aggregates, Quantity Computations .....	8-12, 12-29, 12-34
Agreements .....	2-13, 2-20, 12-2, 13-22
Agreement Checks.....	2-27, 2-28
City Agreements.....	2-13, 10-31
Covenant Relinquishment Agreement .....	15-25
Final Relinquishment Agreement (FRA) .....	2-27, 2-29, 2-31
Initiate Agreements .....	2-13
Irrigation Agreements .....	2-14
Railroad Agreements.....	2-14
Air Quality .....	13-17
Airway Highway Clearances.....	10-12
Alignment	
Alignment Design Values .....	3-40
Combination of Horizontal and Vertical Alignment.....	3-39
Alignment and Control Point Sheets.....	11-21
Application of Design Criteria .....	1-12
Appraisal.....	15-19
Appraisal Plans .....	15-5

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>A</b>	
Archeological and Historical Features .....	13-19
Archiving the Project File .....	2-35
Arterial Roadways.....	1-5, 1-7, 1-8
Asphalt (Flexible Pavement) .....	8-4, 8-6, 8-12
Asphaltic Concrete Pavement Patching.....	8-10
Flexible Pavement Surfacing Quantity Computations .....	8-12
Asphalt Surfacing Under Guardrail .....	9-17
Cold Milling .....	8-9
Mailbox Turnouts.....	10-24
Overlays.....	8-10
Pavement Item Checklist.....	12-30
Template Correction.....	8-10
At-Grade vs Interchange Recommendations.....	14-2
Auxiliary Lanes.....	6-24, 17-31
Clear Zone Requirements for Auxiliary Lanes .....	6-25
Climbing Lanes .....	3-22
Lane Configuration .....	14-2
Left-Turn Radii .....	4-26
Transition .....	4-31, 6-20
Turn Lanes .....	See Turn Lanes
Axis of Rotation.....	3-6, 6-22
<b>B</b>	
Balance Factors (Earthwork).....	7-3, 17-32
Balance Points (Earthwork).....	7-2, 11-26
Barriers (Roadside).....	5-8, 9-1, 9-4, 17-34
Barrier Offsets in Construction Zones.....	14-6
Concrete Protection Barrier .....	9-5, 9-26
Inertial Barriers.....	9-41
Justification .....	9-2
Median Barrier Treatments.....	9-25, 9-26
Benefit/Cost Analysis .....	9-4, 9-25, 17-2
Beveled Edge .....	5-3, 6-5, 17-33
Bicycle Accommodation (Interchanges) .....	5-19
Bicycle Facilities (Interstate).....	5-9
Bid Comparison and Analysis .....	12-2
Bike Lane - Highway Intersections .....	4-27
Bikeways.....	16-2, 16-4
Border Sheets .....	11-7
Borrow Pits .....	7-7, 8-6
Borrow Alternatives .....	7-7
Borrow Pit Restoration .....	7-7
Excavation-Borrow Pay Item .....	7-16, 7-17
Brick Removal.....	8-9

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>B</b>	
Bridge Approach Sections .....	9-5, 9-21
Bridge Pay Items (Preliminary Cost Estimate) .....	12-20
Bridge Plan Sheets .....	11-28
Bridge Preventive Maintenance .....	1-15
Bridge Replaced with a Box Culvert .....	7-10
Bridge Routine Maintenance .....	1-15
Bridge Structures .....	6-33, 10-6, 17-5, 17-11, 17-26, 17-37
Bridge Channel Work .....	13-16
Bridge Grades .....	3-22, 10-8
Grade Separations .....	5-14, 10-8
High Embankments .....	10-9
Horizontal Curvature .....	10-6
Intersections .....	10-9
Pedestrian Underpass .....	16-7
Skewed Structures .....	10-7
Stream Crossings .....	10-9
Superelevation .....	3-5, 10-6
3R Projects .....	17-5, 17-11, 17-26, 17-37
Underpass Sight Distance .....	3-38
Vertical Clearances .....	10-8
Vertical Curvature .....	10-8
Broken Back Curves .....	3-3
Build Notes for Intersections and Driveways .....	4-46
Bullnose Attenuators .....	9-5, 9-21, 9-27
<b>C</b>	
Cable Guardrail .....	9-5, 9-14, 9-25, 9-27
Anchorage .....	9-14
Deflection Distance .....	9-14, 9-27
Length of Need .....	9-10
Pay Item Quantities .....	9-44
Capacity Analysis .....	4-19, 14-1
Capital Improvement .....	1-12
Categorical Exclusions (CE) (Class II Projects) .....	2-18, 2-21, 13-6
Cattle Passes .....	10-21, 10-22
Changes in Pavement Determination .....	8-2, 12-10, 12-25
Change in Project Concept (Estimates) .....	12-7, 12-8, 12-10
Change in Project Scope (Estimates) .....	12-7, 12-8, 12-10
Changes to Design Plans .....	2-33, 15-6
Plan Revisions .....	2-33, 11-30, 15-6
Channel Changes .....	13-15
Bridge Channel Work .....	13-16
Channelization (Roadway) .....	4-2, 4-47, 17-25
Islands .....	4-4, 4-50, 6-17
Medians .....	4-51, 17-26

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>C</b>	
CICS1 .....	2-7, 10-26, 12-6
City and/or County Officials Meeting .....	2-22
City/County Utility Cost Reimbursement.....	10-27
Class I Environmental Classification .....	2-15, 2-18, 13-6
Class II Environmental Classification .....	2-18, 2-21, 13-6
Class III Environmental Classification .....	2-15, 2-18, 13-6
Clean Air Act.....	13-17
Clean Water Act.....	13-8, 13-14, 13-17, 13-20
Clearances	
Bridge Vertical Clearances .....	10-8
Minimum Vertical Clearances for Overhead Facilities.....	3-38, 10-27
Underpasses.....	3-38, 5-14, 16-7
Vertical Clearances (Alignment Design) .....	3-38
Clear Zone .....	See Lateral Obstacle Clearance
Climbing Lanes .....	3-22
Cold Milling .....	8-9
Collector-Distributor Roads .....	1-6, 1-8
Comfort Criteria - Sag Vertical Curves .....	3-38
Communication Lines.....	10-27, 10-28
Compound Curves .....	3-3
Concrete (Rigid) Pavement.....	8-2
Concrete Shoulders.....	8-2, 8-6
Joining Existing Pavement .....	8-4
Pavement Joints.....	8-3
Pavement Patching .....	8-10
Portland Cement Concrete Pavement Design Policy.....	8-2
Quantity Computations.....	8-11
Surfacing Elevations and Grades .....	11-22
Thickness .....	5-3, 5-8, 8-2
Tining .....	8-4
Concrete Median Barriers .....	9-5, 9-26
Concrete Protection Barriers .....	9-5, 9-26
Condemnation.....	15-19
Construction Engineering (Cost Estimating) .....	12-11, 12-14
Construction Items for Cost Estimates .....	12-15
Bridge Items.....	12-20
Items Affecting Construction Costs.....	12-22
Maintaining Traffic During Construction.....	12-23
Mobilization .....	12-15
New Materials .....	12-16
Other Construction Items .....	12-22
Quantities .....	12-17
Sole Sourcing.....	12-17
Special Provisions .....	12-15
Specifications .....	12-15
Standard Pay Items.....	12-16
Traffic Control Items .....	12-19

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>C</b>	
Construction Location .....	12-22
Construction Joints .....	8-3, 8-4
Construction Notes .....	See Standard Notes
Construction Schedule .....	12-22
Construction Under Traffic .....	12-23, 14-6, 16-13
Consultants .....	13-23
Contaminated Soils .....	13-21
Contents of Cost Estimates .....	12-11
Contingencies .....	12-14
Construction Items .....	12-15
Construction Engineering .....	12-14
Preliminary Engineering .....	12-11
Railroad .....	12-14
Right-of-Way .....	12-12
Utilities .....	12-14
Contingencies .....	12-14
Contract Preparation (Right-of-Way) .....	15-19
Contraction Joints .....	8-3
Control Access .....	See Access Control
Controlling Design Criteria .....	1-21
Corridor Protection .....	15-2
Corridor Protection Plans .....	15-2
Cost Estimate Contents .....	12-11
Cost Estimate Request Procedures .....	12-10
Changes .....	12-10
Estimate Review .....	12-10
Routing from Designer .....	12-10
Timeliness .....	12-10
Cost Estimating .....	12-1, 17-41
Change in Project Concept .....	12-10
Change in Project Scope .....	2-5, 12-10
Construction Items .....	12-15, 12-22
Contents of Cost Estimates .....	12-11
Items Often Overlooked or Omitted .....	12-23
Level of Estimate Detail .....	12-7
Request Forms .....	12-9
Request Procedures .....	12-10
Schedule of Estimates .....	12-7
Standard Pay Items .....	12-16
Uses of Cost Estimates .....	12-1

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>C</b>	
Cost Sharing .....	12-3, 17-38, 17-41
CICS1 Lookup.....	12-6
Federal Funding Programs.....	12-3
Funding Splits Defined by Stations.....	12-6
Lump Sum Funding Splits .....	12-6
Nonparticipating Items (Federal Funding).....	12-5
Participating (Federal Funding) .....	12-4
Participation by Others .....	12-5
Railroad .....	12-5
Routing from Designer .....	12-10
Salvaging Items.....	12-4
Statewide Transportation Improvement Program (STIP) .....	12-4
Utilities .....	12-5
Cost Updates .....	2-10, 2-16, 2-26, 12-8
Covenant Relinquishment Agreement.....	2-16, 2-29, 15-25
Crash Cushions and Impact Attenuators .....	9-41
Crest Vertical Curves .....	3-24, 3-32
Cross-Section Sheets	
Drainage Structure Cross-Section Sheets .....	11-27
Roadway Cross-Sections Sheets .....	11-29
Typical Cross-Section Sheets .....	11-6, 11-18
Cross-Sections (Typical) .....	See Typical Cross-Sections
Crossovers.....	5-8, 14-7
Crosswalks .....	4-27, 5-19, 14-3, 16-3, 16-7
Crowned Cross Slopes .....	6-2
Crushed Rock Quantity Calculations.....	8-12
Culverts (Rural Driveway) .....	4-39
Hydraulic Design .....	4-39
Culverts (3R).....	17-45, 17-46
Curbs .....	6-16
Curb Cuts (Driveway) .....	4-41
Curb Design Considerations.....	6-19
Curbs and Flumes (Erosive Soils) .....	6-19, 17-21
Curb Heights .....	6-17, 17-26
Curb Types .....	6-17
Curb Warrants.....	6-16
Guardrail and Curbs .....	9-39
Roundabouts.....	4-5, 6-17
Curb Ramps.....	4-27, 16-3, 16-8
Curves .....	See Horizontal Curves or Vertical Curves
Cut Slopes .....	6-27

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
D	
Daylighting .....	6-32, 7-7
Definitions & Terms .....	See the Glossary
Deleted Sheet .....	11-36, 11-42
Delineators.....	14-4
Departure From Standards .....	1-32
Design Exceptions .....	1-32
Design Relaxations of the MDS.....	1-33
Desirable Design Conditions .....	1-34
Design Alternatives (Cost Estimating).....	12-2
Design Controls .....	1-18
Access Control.....	See Access Control
Design Speed.....	1-18, 5-2, 14-7, 17-5
Design Vehicle .....	4-4, 4-25, 5-2, 14-7
Design Year Forecast Traffic.....	1-18, 5-2, 17-5
Fixed Obstacle Clearance (3R) .....	1-19, 6-25, 17-29
Horizontal Clear Zone (Clear Zone).....	1-19, 6-25, 9-2, 17-29
Rural/ Municipal .....	1-19
Sight Distance .....	See Sight Distance
Terrain.....	1-18
Design Exceptions .....	1-32
Design Plan-In-Hand (Activity 5315)	
..... 2-10, 17-20, 17-21, 17-25, 17-26, 17-34, 17-37, 17-38, 17-39,17-45	
Conduct the Plan-In-Hand Inspection.....	2-11
Plan-In-Hand (Design Detail) Plans.....	2-10, 11-3
Plan-In-Hand Plan Distribution .....	2-11
Plan-In-Hand Report (Activity 5318/5338) .....	2-5, 2-12, 17-20, 17-26, 17-34, 17-40
Design Plans.....	11-1
Design Plans to Utility Unit .....	11-3
Functional Design Plans.....	11-2
Design Detail Plans .....	11-3
Preliminary Design Plans .....	11-2
Pre-PS&E Plans.....	11-4
PS&E Plans .....	11-4
Right-of-Way .....	See Right-of-Way Design Plans
Design Plans to Utilities Section (Activity 5350) .....	2-28
Design Preparation for Public Hearings (Activity 5323/5324) .....	2-17
Design Process Outline (DPO).....	2-1
Design Relaxations of the MDS .....	1-33
Design Review Support Processes (Activity 5340).....	2-27
Design Speed .....	1-18, 5-2, 14-7, 17-5
Interstate .....	5-2
Temporary Roadway .....	14-7
3R Projects .....	17-5
Design Standards .....	1-3
Departure From.....	1-32
3R Projects .....	17-3

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>D</b>	
Design Vehicle (Intersection Turning Template).....	4-25
Interstate .....	5-2
Roundabouts.....	4-4
Temporary Roadway .....	14-7
Design Year Forecast Traffic.....	1-18
Interstate .....	5-2
3R Projects .....	17-5
Desirable Design Guidance.....	1-26
Departure From.....	1-34
Detail Sheet .....	11-36
Detours .....	12-23, 14-13
Dikes.....	6-27, 17-30
Distribution Analysis (Earthwork) .....	7-3
Ditch Widening .....	7-7
Diverging Diamond Interchange .....	5-15
Dowel Bars .....	8-2, 8-3, 8-4
Downloadable Plan Border Sheets.....	11-7
Drainage .....	2-8, 6-30
At Superelevation Transition .....	3-6, 3-22
Interstate .....	5-9
Minimum Grades.....	3-22, 3-26
Pavement Subdrains .....	8-5
Temporary Roads .....	14-8
3R Projects .....	17-45
Drainage Structure Cross-Section Sheets.....	11-27
Drainage and Hydraulic Information .....	11-10
Driveways .....	4-35
Build Notes for Driveways .....	4-46
Driveway Earthwork .....	7-17
Driveway Surfacing .....	4-43
Rural Driveways .....	4-36
Rural Driveway Culvert Pipes.....	4-39
3R Projects .....	17-25
Urban Driveways.....	4-41
Dry Run (Public Hearing) .....	2-17

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>E</b>	
Easements	
Permanent Easements.....	15-4
Railroad Easements.....	15-5
Temporary Easements .....	15-4
Earthwork.....	7-1, 17-32
Balances .....	6-32, 7-1
Balance Factors .....	7-3
Borrow Alternatives .....	7-7
Borrow Pits.....	7-7, 7-16, 7-17
Bridge Replaced with a Box Culvert .....	7-10
Check Earthwork Information .....	2-32
Computations .....	7-2
Contaminated Soils .....	13-21
Data Requirements (Computations) .....	7-2
Distribution Analysis .....	7-3
Driveways .....	7-17
Earthwork Around Guardrail .....	9-17
Earthwork Measured in Embankment.....	7-16
Established Quantities.....	7-16
Example Calculations.....	7-18
Excavation (Established Quantity).....	7-16
Excavation and Excavation Borrow .....	7-16
Finalizing Roadway Earthwork .....	7-21
Haul Considerations .....	7-5
Moisture Content.....	7-5
Need for Additional Cross-Sections.....	7-11
Roadway Grading .....	7-17
Settlement Surcharge.....	7-32
Shear Lines.....	7-13
Staged Construction/Phasing .....	7-9
Subsidiary Earthwork .....	7-17
Temporary Roads .....	7-5, 14-9
3R Project Earthwork .....	17-32
Unsuitable Materials.....	7-10
Waste Alternatives .....	7-8
Waste Sites .....	7-7
Earthwork Data Sheets .....	11-26
Electrical Power Lines.....	10-27, 10-28
Embankment.....	7-16, 7-17
Embankment Foundation Report .....	7-31
End Anchorage Assembly .....	9-21
End Treatments (Guardrail Terminal Section) .....	9-21
Endangered Species (Wildlife Issues).....	13-18
Engineering and Contingencies .....	12-14
Engineering Review .....	2-2, 13-2
Locations Studies.....	13-3

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>E</b>	
Environmental Classification .....	13-6
Class I Projects .....	13-6, 13-19
Class II Projects .....	13-6
Class III Projects .....	13-6, 13-19
Environmental Assessment (EA).....	13-6
Environmental Impact Statement (EIS) .....	13-6
Environmental Permits	
Section 10 of the Rivers and Harbors Act of 1899 .....	13-15
3R Projects .....	17-42
Wetlands and Section 404 Permits.....	13-8, 13-14
Environmental Studies	
Air Quality .....	13-17
Archeological and Historic Features .....	13-19
Environmental Classification .....	13-6
Flood Plains .....	13-16
4 (f) Evaluation .....	13-7
Noise.....	13-17
6 (f) Lands.....	13-7
Social, Economic and Environmental Impacts .....	13-19
Water Quality .....	13-17
Wetlands .....	13-8
Wildlife Issues .....	13-18
Erosion Control .....	6-31, 13-14, 17-48
Temporary Roads .....	14-9
Erosive Soils .....	6-19
Established Quantities .....	7-16
Estimate Review .....	12-10
Estimating (Cost) .....	12-1
Estimating	
Cost Update 1 (Status Code 30) .....	2-10, 12-8
Cost Update 2 (Status Code 40) .....	2-16, 12-8
Cost Update 3 (Status Code 45) .....	2-26, 12-8
Excavation .....	7-16, 7-17
Expansion Joints.....	8-3
Expressway System.....	1-11
3R Standard for Access only at Interchanges.....	1-3
Access Control.....	5-9, 15-12
New Four-Lane Divided Highway Using Existing Two-Lane Highway.....	6-24

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>F</b>	
Federal Agencies .....	13-22
Federal Aviation Administration (FAA) .....	10-2
Federal Funding Programs.....	12-3
Highway Safety Improvement Program (HSIP).....	12-3
National Highway Performance Program (NHPP) .....	12-3
Rail Highway Crossings (RRZ).....	12-3
Surface Transportation Block Grant Program (STBG).....	12-3
Fencing .....	10-21
Behind Retaining Walls .....	10-22
Cost Estimates .....	12-13
Interstate .....	5-8, 10-21
Sidewalks Adjacent to Steep Slopes .....	16-6
Snow Control.....	10-20
Festoon Outlets.....	10-32
FHWA Design Discipline Support Tool for Interchanges .....	5-12
Field Entrances	
Access Control.....	15-7
Earthwork.....	7-17
Grading .....	4-36
Surfacing.....	4-43
Type D Median Break.....	4-54
Width.....	4-36
Fill Slopes	
Fill Slopes (Parallel) .....	6-26
Fill Slopes (Transverse) .....	6-27
3R Projects .....	17-30
Final Plan Review for P.S.& E.....	2-31, 2-33
Final Relinquishment Agreement (FRA).....	2-29
Finalizing Roadway Earthwork .....	7-21
Finding of No Significant Impact (FONSI).....	13-6
Fixed Obstacle Clearance .....	6-25, 17-29
Flare Rates (Guardrail) .....	9-13
Flexible Pavement .....	See Asphalt
Floodplains .....	13-16, 17-42, 17-47
Floodplain/Floodway Permit.....	13-16, 17-42
Flumes (Erosive Soils) .....	6-19
Foundation, Base and Surface Courses.....	8-13
4(f) Evaluation.....	13-7
Freeway .....	5-15, 15-12
3R Standards .....	1-3
Free-Flow Right Turn Lanes.....	4-34
Frontage Roads .....	4-17
Functional Classification	
National Highway Functional Classification Map (Nebraska).....	1-3
State Highway Functional Classification Map (Nebraska).....	1-4
Functional Design Plans .....	11-2

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>F</b>	
Funding.....	12-3
Federal Funding Programs.....	12-3
Lump Sum Funding Splits .....	12-6
Nonparticipating Items (Federal Funding).....	12-5
Participating (Federal Funding) .....	12-4
Participation by Others .....	12-5
Railroad.....	12-5
State of Nebraska Funding.....	12-5
Utilities .....	12-5
Funding Splits Defined by Stations.....	12-6
<b>G</b>	
General Information Sheets .....	11-21
Geotechnical Features .....	6-32
Grade Control Structures (Channel Changes).....	13-15
Grades.....	3-22
Bridge Grades .....	10-8
Critical Length of Grade .....	3-22
Maximum Grades .....	3-22
Minimum Grades for Drainage .....	3-6, 3-22
Rural Driveways .....	4-36
Sidewalk.....	16-5
Temporary Roads Grades .....	14-8
Urban Driveways.....	4-41
Grade Separations.....	5-11, 17-26
Grade Separation Structures.....	5-14
Underpass Roadways .....	5-14, 6-33
Overpass Roadways .....	5-14
Grading (Roadway).....	7-17
Gravel and Crushed Rock Quantity Calculations.....	8-12, 12-31
Gravel Embedment.....	8-4, 12-25, 14-9
Guardrail.....	9-1
Bridge Approach Sections/Special Bridge Approach Sections.....	9-5, 9-21
Bullnose Attenuators .....	9-5, 9-21, 9-27
Cable Guardrail .....	See Cable Guardrail
Concrete Protection Barrier .....	9-5, 9-26
Cost Effectiveness Analysis (RSAP) .....	9-4, 17-34
Culvert Mounted Guardrail Posts.....	9-37
Curve Correction Factor for Lateral Obstacle Clearance .....	9-7
Deflection Distance .....	9-14
Earthwork Around Guardrail.....	9-17
Fixed Obstacle Clearance .....	6-25, 17-29
Flare Rate .....	9-13
Grading for Guardrail.....	7-11, 9-17
Guardrail Components .....	9-13
Guardrail and Curbs .....	9-39

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>G</b>	
Guardrail (Continued)	
Guardrail Design Procedures .....	9-6
Guardrail Design at Culverts .....	9-37
Guardrail at Intersections .....	9-37
Guardrail Over Low-Fill Culverts.....	9-37
Guardrail Spans with Posts Eliminated.....	9-37
Interstate Guardrail .....	5-8
Justification .....	9-2
Lateral Extent of Obstacle .....	9-7
Lateral Obstacle Clearance (Clear Zone) .....	6-25, 9-2
Midwest Guardrail System (MGS) .....	9-5, 9-13, 9-38
MGS Installed Near Slopes .....	9-38
Median Barrier Treatments.....	9-5, 9-25, 9-26
Options.....	9-2
Pay Item Quantities.....	9-44
Remove Guardrail .....	9-44
Runout Length.....	9-7
Runout Path .....	9-10
Semi-Rigid Guardrail.....	9-5, 9-27
Surfacing Under Guardrail.....	9-17
3R Projects .....	17-34
Thrie-Beam Guardrail.....	9-5, 9-13
Types of Barriers Used in Nebraska.....	9-5
W-Beam Guardrail .....	9-5, 9-13
W-Thrie Beam Transition Section .....	9-5
Guardrail End Treatments .....	9-21
End Anchorage Assembly .....	9-21
Guardrail End Treatment, Type I .....	5-8, 9-21
Guardrail End Treatment, Type II .....	9-21
Low-Speed Roadways .....	9-21
<b>H</b>	
Habitat (Wildlife Issues) .....	13-18
Handrails for Pedestrian Ramps and Stairs.....	16-12
Haul Considerations.....	7-5
Hazardous Materials .....	13-20
Guidelines for Handling Contaminated Soils on Highway R.O.W.....	13-21
Guidelines for Handling Petroleum Tanks/Leaks .....	13-20
Materials Prohibited or Restricted as Fill Materials .....	13-20
Headlight Distance .....	3-34, 3-38
Highway Commission Statement.....	2-19, 15-13
Highway Improvement Programming Request (NDOT Form 73).....	12-6
Highway Inventory System (CICS1).....	2-7, 10-5, 12-6
Highway Safety Improvement Program (HSIP) .....	12-3
Highway Classification .....	1-3
Historic Sites .....	13-7, 13-19

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>H</b>	
Horizontal Alignment	
Combination of Horizontal and Vertical Alignment.....	3-39
Design Values .....	3-40
Horizontal Alignment Data.....	3-40, 11-8
Horizontal Alignment Design .....	3-2
Horizontal Alignment, Intersections and Driveways .....	4-20
Maximum Deflection Without a Curve .....	3-2
Preliminary Horizontal Alignment Design .....	2-6
3R Horizontal Alignment Design.....	17-22
Horizontal Clear Zone .....	1-19, 6-25, 9-2, 9-7, 17-29
Horizontal Curvature .....	3-2
Bridge Structures .....	10-6
Broken Back Curves.....	3-3
Compound Curves .....	3-3
Pavement Widening on Curves (Off-Tracking) .....	3-6, 17-23
Reverse Curves .....	3-3
Simple Curves.....	3-2
Spiral Transitions .....	3-3, 5-24, 11-8, 17-23
Superelevation .....	3-5, 17-23
HSIP (Highway Safety Improvement Program) .....	12-3
Hydrated Lime for Asphalt Mixtures .....	8-6, 12-26
Hydraulic Considerations (3R Projects).....	17-45
Hydraulic Design of Driveway Culverts .....	4-39
<b>I</b>	
Impact Attenuators.....	9-41
Improvement Values (Right-of-Way) .....	12-13
Individual Construction Notes.....	11-7
Inertial Barriers.....	9-41
Information Meeting Prior to Appraisal and Acquisition .....	2-21, 2-28, 15-19
Initial Project Review and Setup (Activity 5308) .....	2-2
Intelligent Transportation System .....	14-5
Interchanges .....	5-11, 17-26
Adaptability .....	5-13
Fencing .....	5-8, 10-21
FHWA Design Discipline Support Tool .....	5-12
Lighting .....	5-19, 10-33
Pedestrian and Bicycle Accommodation.....	5-19
Spacing .....	5-19
Interchange Configurations .....	5-15
Diverging Diamond Interchange .....	5-15
Single Point Urban Interchange.....	5-15
Interchange Design Considerations .....	5-12
Interchange Justification Report.....	5-11
Interchange Lighting .....	5-19, 10-33
Interchange Modification Report .....	5-11
Interchange Ramps.....	5-19, 5-26
Interchange Warrants.....	5-13

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
I	
Intersections .....	4-1
Intersection Build Notes .....	4-46
Intersection Design Considerations	
Bike Lane/Highway Intersections.....	4-27
Bridges.....	10-9
Capacity and Level of Service .....	4-19
Design Vehicle .....	4-25
Guardrail at Intersections .....	9-37
Horizontal Alignment.....	4-20
Intersection Skew.....	4-20
Intersections on Curved Alignments .....	4-24
On-Street Parking .....	4-26
Pedestrian Crossings .....	4-27, 16-7
Profile.....	4-24
Radius Returns .....	4-25, 4-26
Railroad-Highway Crossings .....	4-27, 10-2
Sight Distance .....	3-32, 3-34, 4-16
Signs .....	4-27
3R Projects .....	17-25
Traffic Control .....	4-34, 14-2
Transit Services .....	4-26
Turn Lanes .....	4-27
Intersection Locations	
Frontage Roads .....	4-17
Intersection of Two State Highways .....	4-14
Rural Intersections .....	4-16
Urban Intersections .....	4-16
Intersection Surfacing .....	4-43
Intersection Types.....	4-2
Channelized Intersections .....	4-2
Reduced Conflict Intersections .....	4-6
Roundabouts.....	4-3
Unchannelized Intersections .....	4-2
Interstate System .....	1-9, 5-2
Access Control.....	5-9, 15-12
Alignment .....	5-2
Bicycle Facilities.....	5-9, 16-4
Design Speed.....	5-2
Design Year .....	5-2
Design Values .....	5-2
Design Vehicle .....	5-2
Drainage Design .....	5-9
Fencing .....	5-8, 10-21, 12-13
Guardrail .....	5-8
Median Crossovers (Left-in-Place) .....	5-8
Median Width .....	4-52, 5-3

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>I</b>	
Interstate System (Continued)	
Pedestrian Facilities .....	5-9
Plans .....	5-9
Rest Areas .....	5-9
Right-of-Way .....	5-9
Surfacing .....	5-3, 8-2
3R Projects .....	17-6
Typical Cross-Section .....	5-3
Utilities .....	5-8
Water Quality .....	5-8, 13-17
Weigh Stations .....	5-9
Irrigation Agreements .....	2-14
Islands .....	4-4, 4-50
Items Affecting Construction Costs .....	12-22
Construction Location .....	12-22
Construction Schedule .....	12-22
Construction Under Traffic .....	12-23
Detours .....	12-23
Items Often Overlooked or Omitted .....	12-23
Site Specific Features .....	12-22
Urban/Rural Location .....	12-22
ITS .....	11-26, 14-5
<b>J</b>	
Jacking Pipes .....	12-26
Joining Existing Pavement .....	8-4
Joint Access (Driveways) .....	4-36, 15-8
Joint Diagram .....	8-3
Joints (Pavement) .....	8-3
<b>K</b>	
K Values (Vertical Curves) .....	3-26
<b>L</b>	
Landscaping .....	10-18
Plans .....	11-26
Roundabout Landscaping .....	10-19
Tree Planting and Removal .....	10-19
Land Values .....	12-12
Lane Configuration .....	14-2
Large Scale Plan Sheets .....	11-11, 11-22
Large Tree Removal .....	12-26, 12-27
Lateral Clearance to Work Zones (Temporary Roads) .....	14-8
Lateral Obstacle Clearance (Horizontal Clear Zone) .....	1-19, 6-25, 9-2, 9-7, 17-29
Clear Zone Requirements for Auxiliary Lanes .....	6-25
Lateral Offset to Obstruction .....	1-23
Shoulder Width .....	1-23
Lateral Extent of Obstacle .....	9-7

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>L</b>	
Left-in-Place Median Crossovers .....	5-8
Level of Estimate Detail .....	12-7
Level Terrain.....	1-18
Liaison with other Agencies/Organizations.....	10-25, 13-22
Lighting .....	5-19, 10-31, 11-26
3R Projects .....	17-11, 17-38
Limits of Construction (Design Detail) Plans .....	11-3
Load Transfer Devices .....	8-3
Local and Regional Agencies.....	13-22
Local Roads .....	1-6, 1-8
Location Studies .....	13-3
Lump Sum Funding Splits .....	12-6
<b>M</b>	
Mailbox Turnouts and Supports .....	10-23, 17-30
Maintaining Traffic During Construction .....	12-23, 14-6
Construction Under Traffic.....	14-6
Crossovers.....	5-8, 14-7
Detours .....	12-23, 14-13
Temporary Surfacing.....	14-7
Temporary Roads .....	12-23, 14-7
Maintenance Projects.....	1-14
Bridge Preventive Maintenance Activities.....	1-15
Maximum Grade Raise.....	1-15, 17-3
Preventive Maintenance .....	1-15
Routine Bridge Maintenance Activities .....	1-14
Routine Maintenance .....	1-14
Major Collector Roadways .....	1-6, 1-8
Markings (Traffic) .....	14-4
Maximum Grades.....	3-22
Rural Driveways .....	4-36
Maximum Horizontal Deflection Without a Curve .....	3-2
Maximum Superelevation Rate .....	3-5
Bridge Structures .....	3-5, 10-6
Temporary Roads .....	14-8
3R Projects .....	17-23
Meetings .....	See Public Meetings
Median Barriers.....	9-5, 9-25, 9-26
Median Breaks .....	4-53
Drainage .....	4-53
Type A.....	4-53
Type B.....	4-53
Type C .....	4-54
Type D .....	4-54
Median Types .....	4-51

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>M</b>	
Medians .....	4-51
Median Barrier Treatments.....	9-25, 9-26
Median Breaks.....	4-53
Median Break Drainage.....	4-53
Median Crossovers (Left-in-Place).....	5-8, 14-7
Median Uses .....	4-51
Median Width .....	4-52, 5-3
Median Maintenance Turnarounds (Rural).....	10-24
3R Projects .....	17-26
Two-Way Left-Turn Lanes.....	4-28, 4-51
Midwest Guardrail System (MGS).....	9-5, 9-13, 9-38
Migratory Bird Act .....	13-18
Minimum Design Standards .....	See Nebraska Minimum Design Standards
Minimum Grades.....	3-23
Minimum Horizontal Curve Radius .....	3-2, 3-5
Minor Arterial Roadways .....	1-5, 1-8
Moisture Content (Earthwork) .....	7-5
MSE Walls .....	10-22, 12-26
Municipal Cost Sharing .....	12-5, 12-6, 17-38, 17-44
<b>N</b>	
National Environmental Policy Act (NEPA).....	12-2, 13-6, 13-19
National Highway Freight Network .....	1-10
National Highway Functional Classification Map (Nebraska).....	1-4
National Highway Performance Program (NHPP) .....	12-3
National Highway System (NHS).....	1-9, 17-6
Need for Additional Cross-Sections.....	7-11
NDOT Form 65 (Request for Agreement).....	2-13
NDOT Form 73 (Highway Improvement Programming Request).....	12-6
NDOT Form 76 (Principal Controlling Design Criteria) .....	1-28
Instructions.....	1-28
NDOT Form 280 (PS&E Required Sheet) .....	2-32
NDOT Form 342 (Project Information Sheet) .....	12-9
NDOT Form 343 (Project Quantity Sheet).....	12-9
NEPA (National Environmental Policy Act).....	12-2, 13-6, 13-19
Negotiation Plans.....	15-2,
New and Reconstructed Bridges .....	10-6
New and Reconstructed Design Criteria.....	1-12
New Construction Materials .....	12-16
Non-Controlling Design Criteria.....	1-22
"No Rise" Certificate.....	13-16
Noise .....	13-17
Notes .....	See Standard Notes

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>O</b>	
Object Markers.....	14-4
Offset Right-Turn Lanes.....	4-32, 17-31
Off-Tracking (Pavement Widening on Curves).....	3-7, 17-23
Old Road Obliteration.....	10-22
On-Street Parking .....	4-26, 10-34
Overhead Signs .....	3-38, 14-3
Overhead Clearance.....	3-38, 10-8
Overlays.....	8-10, 17-3
Taper Rate .....	8-10, 17-22, 17-33
Overpass Roadways.....	5-14
Roadway Cross-Section.....	5-14
Ownership Plans.....	15-3
<b>P</b>	
Parking .....	4-26, 10-34
Passing Sight Distance .....	3-33
Pavement Design Determination .....	8-1
Pavement Design Input .....	8-1
Pavement Determination Development .....	8-1
Pavement Edge Dropoffs .....	8-10
Pavement Edge Profile .....	3-7
Pavement Item Checklist .....	12-30
Pavement Item Quantities	
Flexible Pavement Items (Asphalt).....	12-30
Gravel and Crushed Rock Quantity Computations .....	8-12, 12-31
Hydrated Lime for Asphalt Mixtures.....	12-26
Pavement Item Checklist.....	12-30
Rounding of Pavement Quantities.....	12-29
Pavement Joints .....	8-3
Construction Joints.....	8-3
Contraction Joints .....	8-3
Expansion Joints .....	8-3
Joining Existing Pavement .....	8-4
Policy for Longitudinal Joints .....	8-4
Pavement Markings .....	14-4
Pavement Patching.....	8-10
Pavement Rehabilitation .....	8-9
Pavement Subdrains.....	8-5
Pavement Types and Thicknesses.....	8-2
Pavement Widening on Curves (Off-Tracking).....	3-7, 17-23
Pedestrian Access During Construction .....	16-13
Pedestrian Accommodation (Interchanges).....	5-19
Pedestrian Crossings .....	14-3, 16-7
Pedestrian Crosswalks.....	4-27, 5-19, 16-7
Pedestrian Facilities (Interstate).....	5-9
Pedestrian Ramps .....	16-11
Pedestrian Signals .....	14-5
Percentage of Work Near Railroads.....	10-1, 12-2
Permanent Easements.....	4-36, 15-4, 15-8

<b>SUBJECT</b>	<b>PAGE NUMBER</b>
<b>P</b>	
Permits (Utilities on DOR Right-of-Way).....	2-7, 10-26
Petroleum Tanks /Leaks .....	13-20
Phasing.....	5-12, 7-4, 7-9, 12-23, 14-6
Phasing Plan Sheets.....	11-21
Piggyback Plan Sheets (Plan over Plan).....	11-7, 11-10, 11-25
Pipelines .....	10-29
Plan and Profile Sheets.....	11-7, 11-8, 11-11, 11-25
Plan Border Sheets (Downloadable) .....	11-7
Plan-in-Hand .....	2-10
3R Projects .....	17-20, 17-21, 17-25, 17-26, 17-34, 17-37, 17-38, 17-39, 17-45
Plan-in-Hand Plans (Preliminary Design Plans) .....	2-10, 2-11, 11-1, 11-2
Plan-in-Hand Report .....	2-12, 17-20, 17-26, 17-34, 17-40
Plan Revisions .....	2-33, 2-34, 11-30, 12-6, 15-6
Plan Set Organization .....	11-11
A Sheet (Title Sheet).....	11-18
B Sheets (The Typical Cross-Section).....	11-6, 11-7, 11-18
C Sheets (Summary of Quantities).....	11-20
D Sheets (Soil and Materials Survey).....	11-20
E Sheets (Environmental or Aerial Sheets) .....	2-9, 11-2, 11-7, 11-20
F Sheets (Alignment and Control Point) .....	11-7, 11-21
G Sheets (General Information) .....	11-2, 11-6, 11-7, 11-21
H Sheets (Phasing Plan).....	11-21
J Sheets (Large Scale Plans) .....	5-9, 11-7, 11-11, 11-22
K Sheets (Utilities Plan Sheets).....	11-25
L Sheets (Plan, Plan over Plan, and Plan and Profile).....	11-7, 11-11, 11-25
M Sheets (Traffic Plans).....	11-26
N Sheets (Roadway Lighting Plans) .....	11-26
O Sheets (Intelligent Transportation System Plans) .....	11-26
P Sheets (Landscaping and Erosion & Sediment Control Plans) .....	11-26
Q Sheets (Earthwork Data) .....	11-26
R Sheets (Drainage Structure Cross-Sections) .....	11-27
S Sheets (Bridge Plans) .....	11-28
T Sheets (Bridge Special Plans).....	11-28
U Sheets (Roadway Special Plans).....	11-28
V Sheets (Other Plans as Needed) .....	11-28
W Sheets (Right-of-Way Plans).....	11-28, 15-1
X Sheets (Roadway Cross-Sections) .....	11-29
Plan Sheet Scales.....	11-11
Rural .....	11-11
Urban .....	11-11
Planning, Allocation, and Funding (Cost Estimating).....	12-1
Planning and Scheduling .....	13-2
Plans.....	See Design Plans
Posted Speed (Design Speed as a Function of).....	1-18, 5-2, 5-12, 14-7
Power Lines .....	3-38, 10-27, 10-28, 12-14
Practical Design .....	1-2, 17-17
Preliminary Alignment Design for Bridge Hydraulics (Activity 5306/5312) .....	2-4
Preliminary Design Plans .....	11-2

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>P</b>	
Preliminary Engineering (Cost Estimates) .....	12-11
Preliminary Roadway Design (Activity 5307/5309) .....	2-4
Preliminary Right-of-Way Design .....	15-3
Preliminary Right-of-Way Plan Review (Activity 5345) .....	2-27, 15-5
Pre-PS&E Plans.....	11-4
Preparation of Final Plans Package/Final Plan Review for P.S. & E. (Activity 5369/5368) ....	2-31
Preventive Maintenance.....	1-15
Principal Arterial Roadways .....	1-5, 1-7
Priority Commercial System.....	1-11
Shoulder Width.....	6-2, 17-28
Professional Engineer Seal and Signature .....	11-30
Profile Grade Line (Vertical Alignment) .....	3-21
Project Coordination Meetings .....	13-5
Project Information Sheet (NDOT Form 342) .....	12-9
Project Rejected or Withdrawn From a Letting .....	11-42
Project Scope .....	2-5, 12-10
Project Scoping Changes.....	2-5, 12-10
Project Scope Review .....	2-5
Project Quantity Sheet (NDOT Form 343).....	2-9
Property Owners Pre-Hearing .....	2-19, 2-22
PS&E Plans .....	11-4
PS&E Required Sheet (NDOT Form 280) .....	2-32
Public Hearings.....	2-17
Dry Run.....	2-17
Public Information Meetings .....	2-19, 2-21, 13-12, 13-22, 15-19
Public Interest Letters .....	15-20
Public Meetings.....	2-19, 16-14
City and/or County Officials Meeting .....	2-22
Information Meeting Prior to Appraisal and Acquisition.....	2-21, 15-19
Plan Requirements .....	2-20
Property Owners Pre-Hearing .....	2-22
Public Information Meetings .....	2-21, 15-19
Public Notification of Wetlands Procedures .....	13-13
Public Participation and Input.....	13-22

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>Q</b>	
Quantity and/or Pay Item Changes .....	11-36
Quantities (Cost Estimating).....	12-17
Quantity Calculation Guidance.....	12-19
<b>R</b>	
Radius Returns .....	4-25, 4-26
Rail Highway Crossings (RRZ).....	12-3
Railroads.....	10-1
Cost Estimates .....	12-5, 12-14, 12-26
Funding .....	12-3, 12-5
Percentage of Work Near Railroads .....	10-1, 12-2
Railroad Agreements.....	2-14
Railroad Easements, Rights or Leases.....	15-5
Railroad-Highway Crossings .....	4-27, 10-2, 14-13
Railroad-Highway Crossing Surfacing .....	10-3
3R Projects .....	17-37
Raised Medians .....	4-51, 17-26
Ramps (Pedestrian).....	16-11
Ramps (Interchange) .....	5-19
Baseline .....	5-26
Design Vehicle .....	4-25, 5-2
Earthwork.....	5-26
General Design Considerations.....	5-20
Identification .....	5-26
Spiral Transition Curves .....	5-24
Stationing .....	5-26
Types .....	5-20
RBP (Risk Based Project) .....	1-32, 11-32, 12-4, 15-20, 15-21
Reduced Conflict Intersections.....	4-6
Re-establish Land Monuments and Property Corners .....	15-24
Rehabilitation (Pavement).....	8-9
Related Construction Items .....	12-27
Relaxations of the MDS .....	1-33
Relinquishment and Abandonment .....	2-16, 2-29, 15-25
Relocation Assistance (Right-of-Way).....	12-13, 15-19
Removal Items .....	2-27, 15-20
Removal Notes .....	2-27, 11-8
Removal of Existing Surfacing .....	7-4, 7-8, 8-9
Cold Milling .....	8-9
Brick Removal.....	8-9
Rural Projects.....	7-8
Urban Projects .....	7-9
Remove Guardrail.....	9-44
Remove Sign, Post, and Footing.....	12-27

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
R	
Request for Agreement (NDOT Form 65).....	2-13
Request Forms (Cost Estimating) .....	12-9
Highway Improvement Programming Request (NDOT Form 73) 2-2, 2-4, 2-5, 8-1, 12-6, 13-2	
Initial Project Data (NDOT Form 333).....	2-4, 2-16, 2-26
Project Data Revision (NDOT Form 334) .....	2-16, 2-26
Project Information Sheet (NDOT Form 342).....	2-10, 2-16, 2-26, 12-9
Project Quantity Sheet (NDOT Form 343).....	2-10, 2-16, 2-26, 12-9
Request Procedures (Cost Estimating) .....	12-10
Rest Areas .....	5-9
Resurfacing, Restoration and Rehabilitation (3R) Projects .....	17-1
ADA .....	17-44
Balance Factors (Earthwork) .....	17-32
Benefit/Cost Analysis .....	17-2
Bridges.....	1-14, 17-5, 17-11, 17-26, 17-37
Cost Estimating .....	17-41
Cost Sharing .....	17-38, 17-44
Cross-Sections.....	17-27
Culverts.....	17-45, 17-46
Curbs and Flumes.....	17-21
Curb Heights .....	17-26
Design Criteria .....	1-13, 17-3
Design Speed.....	17-5
Design Year .....	17-5
Dikes .....	17-30
Drainage .....	17-45
Driveways .....	17-25
Earthwork.....	17-32
Environmental Permits .....	17-42
Erosion Control .....	17-48
Fill Slopes .....	17-30
Fixed Obstacle Clearance .....	17-29
Floodplains.....	17-42, 17-47
Floodway Permit .....	17-42
Grade Separations .....	17-26
Guardrail Design Criteria.....	17-34
Horizontal Alignment Design .....	17-22
Horizontal Clear Zone .....	17-29
Hydraulic Considerations .....	17-45
Interchanges .....	17-26
Intersections.....	17-25
Intersection Sight Distance.....	17-25
Interstate .....	17-6
Lighting .....	17-11, 17-38
Mailbox Turnouts and Supports.....	17-30

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>R</b>	
Resurfacing, Restoration and Rehabilitation (3R) Projects (Continued)	
Mainline Surfacing Taper Rate .....	17-33
Medians .....	17-26
National Highway System (NHS) .....	17-6
Pavement Widening on Curves (Off-Tracking) .....	17-23
Plan-in-Hand .....	17-20, 17-21, 17-25, 17-26, 17-34, 17-37, 17-38, 17-39, 17-45
Plan-in-Hand Report.....	17-20, 17-26, 17-34, 17-40
Priority Commercial System Shoulder Width .....	17-28
Practical Design .....	17-17
Project Templates .....	17-19
Railroads.....	17-37
Raised Medians .....	17-26
Right-of-Way .....	17-43
Roadside Barriers .....	17-34
Roadside Geometry (Side Slopes) .....	17-30
Rumble Strips.....	17-33
Seeding.....	17-48
Shoulder Construction.....	17-28
Side Slopes .....	17-30
Spiral Transitions .....	17-23
Stopping Sight Distance .....	17-21
Superelevation .....	17-23
Super 2 Projects.....	17-12
Surfacing Equivalent .....	17-3
Surfacing Taper Rate .....	17-22, 17-33
Surfacing Quantities .....	17-33
Traffic .....	17-43
Transverse Slopes .....	17-25, 17-30
Traveled Way .....	17-28
Turn Lanes .....	17-31
2 + 2 Projects .....	17-11
Utilities .....	17-39
Vertical Alignment Design .....	17-21
Wetlands .....	17-42
Retaining Walls (MSE Wall) .....	6-32, 10-22, 12-26
Fencing Behind Retaining Walls.....	10-22
Reverse Curves .....	3-3
Revised Sheet.....	11-35
Revisions .....	2-33, 11-30, 15-6
Added Sheet .....	11-35
Deleted Sheet .....	11-36
Detail Sheet .....	11-36
Procedures.....	11-33
Project Rejected or Withdrawn From a Letting .....	11-42
Quantity and/or Pay Item Changes.....	11-36
Revised Sheet.....	11-35
Right-of-Way Revisions .....	15-6

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
R	
Right-of-Way .....	6-30, 15-1, 17-43
Right-of-Way Acquisition .....	15-19
Right-of-Way Certification .....	15-20
Right-of-Way Preliminary Cost Estimates.....	12-12
Fencing .....	12-13
Improvement Values .....	12-13
Other Right-of-Way Costs .....	12-13
Relocation Assistance .....	12-13
Rural Land Values.....	12-12
Urban Land Values .....	12-12
Right-of-Way Design (New).....	15-4
Right-of-Way Design Plans (W) .....	15-1
Appraisal Plans .....	15-5
Corridor Protection Plans .....	15-2
Negotiation Plans .....	15-5
Ownership Plans .....	15-3
Preliminary Right-of-Way Design.....	15-3
PS&E Plans .....	15-6
Revisions .....	15-6
Right-of-Way Design Review (Preliminary) .....	2-27, 15-5
Right-of-Way Markers .....	15-24
Right-of-Way Plan Sheets .....	11-28, 15-1
Right-of-Way Survey .....	15-1
Right-of-Way for Temporary Roads.....	14-7
Rigid Pavement.....	See Concrete Pavement
Risk Based Project (RBP) .....	1-32, 11-32, 12-4, 15-20, 15-21
Roadside Barriers .....	5-8, 9-1, 17-34
Roadside Geometry (Side Slopes).....	6-26, 17-30
Roadside Safety Analysis Program (RSAP) .....	9-4, 17-34
Roadway Cross-Section Sheets.....	11-29
Roadway Design (Activity 5325/5327).....	2-25
Roadway Design Review/Limits of Construction Plans (Activity 5335/5336) .....	2-25
Roadway Functional Design (Activity 5316/5326) .....	2-12
Roadway Grading .....	7-17

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>R</b>	
Roadway Lighting .....	10-31
Costs.....	10-32, 10-33
Festoon Outlets.....	10-32
Guidelines for the Installation of Roadway Lighting .....	10-31
Interchange Lighting.....	10-33
Plans.....	11-26
Rural Continuous Lighting.....	10-33
Rural Intersection Lighting.....	10-32
3R Projects .....	17-11, 17-38
Urban Lighting.....	10-31
Roadway Signs .....	4-27, 14-3
Minimum Vertical Clearance for Overhead Signs .....	3-38
Roadway Transitions.....	6-19, 6-22, 8-10, 14-8
Roller Coaster Profile .....	3-39
Rolling Terrain.....	1-8
Rollover Rates .....	5-20, 6-22
Roundabout Intersections .....	4-3, 10-19, 16-2
Rounding of Pavement Item Quantities .....	12-29
Routine Maintenance .....	1-14
RRZ (Rail Highway Crossings).....	12-3
RSAP (Roadside Safety Analysis Program) .....	9-4, 17-34
Rumble Strips .....	8-13, 17-33
Runoff Length (Superelevation) .....	3-6, 3-40
Rural Context.....	1-19
Rural Driveways.....	4-36
Culvert Pipes.....	4-39
Earthwork.....	4-36, 7-17
3R Projects .....	17-25
Rural Intersections .....	4-16
Design Vehicle .....	4-25
Intersection Radius .....	4-25
Lighting .....	10-31
Offset Right-Turn Lanes .....	4-32, 17-31
3R Projects .....	17-25
Turn Lanes.....	4-27
Rural Land Values .....	12-12
Rural Median Maintenance Turnarounds .....	10-24
Rural Plan Sheet Scales .....	11-11
Rural Town Context .....	1-19
<b>S</b>	
Safe Drinking Water Act.....	13-17
Safety Improvement Projects .....	1-17
Sag Vertical Curves .....	3-34
Salvage and Place Topsoil.....	12-27
Salvaging Items .....	12-4
Sawing Pavement .....	8-13
Scales (Plan Sheets).....	11-11

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>S</b>	
Schedule of Cost Estimates .....	12-7
Scoping Changes.....	2-5
Section 404 Permits.....	13-8, 13-14
Section 10 of the Rivers and Harbors Act.....	13-15
Seeding (3R Projects).....	17-48
Semi-Rigid Guardrail (W-Beam and Thrie-Beam) .....	9-5, 9-27
Settlement (Earthwork) .....	7-30, 7-32
Shared Use Paths.....	16-4
Shear Lines (Earthwork) .....	7-13
Shoulders.....	6-2, 8-6
Asphalt Shoulders .....	8-6
Concrete Shoulders.....	8-6
Priority Commercial System .....	6-2
Rollover Rates.....	5-20, 6-22
Shoulder Construction (Earth) .....	8-6, 12-27
Shoulder Construction (3R Projects) .....	17-28
Shoulder Cross Slopes.....	6-5
Shoulder Subgrade Preparation .....	12-27
Shoulder Width and Type .....	6-2
Shoulder Width for Lateral Offset to Obstruction .....	1-23
Side Slopes.....	6-26, 17-30
Sidewalks .....	16-5
Curb Ramps.....	16-8
Design Considerations .....	16-5
Fencing at Steep Slopes .....	16-6
Handrails for Pedestrian Ramps and Stairs .....	16-12
Municipal Cost Share .....	16-15
Pedestrian Crosswalks.....	4-27, 14-3, 16-7
Pedestrian Ramps.....	16-11
Pedestrian Underpass .....	16-7
Sight Distance.....	1-18, 3-1
Intersection Sight Distance.....	4-19, 17-11, 17-25
Passing Sight Distance .....	3-33
Stopping Sight Distance .....	3-32, 3-34, 17-21
Temporary Road Sight Distance.....	14-8
Underpass Sight Distance .....	3-38, 5-14
Signal Control .....	4-34
Signalized Intersections .....	4-35, 14-5
Sign Supports .....	12-27
Signs .....	3-38, 4-27, 14-3
Simple Curves.....	3-2
Single Point Urban Interchange .....	5-15
6 (f) Lands.....	13-7
Skew Angle (Intersection) .....	4-20
Skewed Structures.....	10-7
Smoothing of Pavement Edge Profile .....	3-7
Snow Control .....	6-32, 10-20
Social, Economic and Environmental Impacts.....	13-19

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>S</b>	
Soil and Materials Survey Information Sheet.....	11-20
Soil, Subgrade and Situation Reports .....	7-29
Embankment Foundation Report.....	7-31
Soil Survey/Soil Situation Report.....	7-29
Subgrade Survey/Subgrade and Situation Report.....	7-30
Sole Sourcing .....	12-17
Special Ditches .....	6-30, 7-7, 7-11, 11-8
Special Plans .....	11-5
Special Provisions.....	2-13, 12-15, 16-15
Specifications.....	12-15
Spiral Transitions .....	3-3, 5-24
3R Projects .....	17-23
Splitter Island .....	4-4, 6-17
Staged Construction/Phasing (Earthwork).....	5-3, 7-9
Standard Notes .....	11-7
Drainage and Hydraulic Information .....	11-10
Horizontal Alignment Data.....	11-8
Individual Construction Notes.....	11-7
Tabular Notes.....	11-7
Vertical Alignment Data.....	11-9
Standard Pay Items .....	12-16
Standard Symbols.....	11-7
Standard Typical Cross-Section Sheet.....	11-6
Standard Plan Formats .....	11-7
Standard Plans .....	11-5
Standardized Special Plans .....	11-5
Standards (Design).....	1-3
State Agencies.....	13-22
State Highway Functional Classification Map (Nebraska) .....	1-4
Statewide Transportation Improvement Program (STIP) .....	12-4
Station Equations.....	3-40, 11-9
Statutory Authority .....	1-1
Steps and Stairs.....	16-12
STIP (Statewide Transportation Improvement Program) .....	12-4
Stop Control.....	4-20, 4-34
Stopping Sight Distance.....	3-32, 3-34, 14-8
Headlight Distance .....	3-34, 3-38
Strategic Highway Network (STRAHNET).....	1-9
Subdrains (Pavement) .....	8-5

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>S</b>	
Subgrade Preparation .....	12-27
Subgrade Stabilization .....	12-27
Subgrade Survey/Subgrade and Situation Report .....	7-30
Subsidiary Earthwork .....	7-17
Suburban Context .....	1-20
Summary of Quantities Sheet .....	11-20
Superelevation .....	3-5
Axis of Rotation .....	3-6
Bridge Structures .....	10-6
Maximum Superelevation Rate .....	3-5
Runoff Length .....	3-6
Smoothing of Pavement Edge Profile .....	3-7
Spiral Transitions .....	.5-24, 3-3, 17-23
3R Projects .....	17-23
Tangent Runout .....	3-6
Transition Length .....	3-6
Temporary Roads .....	14-8
Super 2 Projects .....	17-12
Surfacing .....	8-1
Intersections and Driveways .....	4-43
Interstate .....	5-3
Mailbox Turnouts .....	10-23
Quantity Computations .....	8-11, 17-33
Railroad/ Highway Crossing .....	10-3
Removal .....	8-9
Surfacing Aggregates .....	8-4, 8-12
Taper Rate .....	8-10, 17-22, 17-33
Temporary Roads .....	14-7, 14-9
Under Guardrail .....	9-17
Surfacing Elevations & Grades .....	11-22
Surfacing Equivalent (3R Projects) .....	17-3
Surfacing/Pavement Item Quantities .....	See Pavement Item Quantities
Surfacing Under Guardrail .....	9-17
Survey (Right-of-Way) .....	15-1
System Preservation .....	1-12

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
T	
Tabular Notes .....	11-7
Tangent Cross Slopes (Travel Lanes).....	6-2
Tangent Runout .....	3-6
Taper Rate (Surfacing).....	8-10, 17-22, 17-33
Template Correction.....	8-10
Temporary Easements.....	15-4
Temporary Roads .....	12-23, 14-7
Right-of-Way .....	14-7
Temporary Access .....	12-28
Temporary Access (ADA) .....	16-13
Temporary Railroad Crossings/Signals (Railroad Involvement).....	12-26
Temporary Shoring .....	12-28
Temporary Surfacing .....	14-7, 14-9
Terrain .....	1-18
Three-leg Intersection .....	4-2
3R Projects .....	See Resurfacing, Restoration and Rehabilitation Projects
Thrie-Beam Guardrail.....	9-5, 9-13
Timing .....	8-4
Title Sheet.....	11-18
Traffic Control .....	4-34, 14-6
Signalized Intersections .....	4-35
Traffic Control Studies .....	14-2
Unsignalized Intersections.....	4-34
Traffic Control Items (Preliminary Cost Estimates) .....	12-19, 12-28
Traffic Control Studies.....	14-2
Traffic Engineering Review .....	2-8, 17-43
Traffic Engineering Studies .....	14-1
At-Grade vs Interchange Recommendations .....	14-2
Capacity Analysis .....	14-1
Lane Configuration .....	14-2
Pedestrian Crossings .....	14-3
Safety Analysis.....	14-1
Traffic Control Studies .....	14-2
Volume Studies .....	14-2
Weaving Section Analysis .....	14-2
Traffic Plan Sheets.....	11-26
Traffic Signals .....	4-35, 12-19, 12-28, 14-5
Pedestrian Crossing Signals .....	14-5
Traffic Through Construction.....	14-6
Transit Services .....	4-26
Transitions for Temporary Roads .....	14-8
Transition Lengths	
Auxiliary Lanes.....	4-31, 6-22
Superelevation .....	3-6
Transverse Slopes .....	6-27, 17-25, 17-30

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>T</b>	
Travel Lanes .....	6-2
Cross Slopes.....	6-2
Widths.....	6-2
Tree Planting and Removal.....	10-19
Trenched Widening.....	12-28
Turn Lanes.....	4-27, 17-31
Free-Flow Right-Turn Lanes.....	4-34
Offset Right-Turn Lanes .....	4-32
Turn Lane Bay Taper Rate.....	4-31
Turn Lane Length.....	4-31
Two-Way Left-Turn Lanes.....	4-28, 4-51
Twenty-eight Foot Top System .....	1-11
2 + 2 Projects .....	17-11
Two-Way Left-Turn Lanes.....	4-28, 4-51
Type _ Median Break .....	4-53
Typical Cross-Section Sheets .....	11-6, 11-18
Typical Roadway Cross-Sections (Interstate).....	5-3
Typical Roadway Cross-Sections (3R Projects) .....	17-27
<b>U</b>	
Unchannelized Intersections .....	4-2
Undercutting (Earth Shoulder Construction, Trimming of Subgrade) .....	8-6
Underground Electrical Power and Communication Lines .....	10-28
Underpasses .....	6-33
Pedestrian Underpasses .....	16-7
Underpass Roadways .....	5-14
Roadway Cross-Section .....	5-14
Sight Distance .....	3-38, 5-14
Vertical Clearance .....	3-38, 5-14
Underpass Sight Distance .....	3-38, 5-14
Unsignalized Intersections .....	4-34
Unsuitable Materials .....	7-10
Unusual Circumstances (Cost Estimating) .....	12-28
Urban Context.....	1-20
Urban Core Context .....	1-20
Urban Driveways.....	4-41
Urban Intersections .....	4-16, 4-25
Urban Land Values .....	12-12
Urban Lighting.....	10-31
Urban Plan Sheet Scales .....	11-11
Uses of Cost Estimates .....	12-1
Agreements.....	12-2
Bid Comparison and Analysis.....	12-2
Design Alternatives .....	12-2
NEPA .....	12-2
Planning, Allocation, and Funding .....	12-1
Railroad Protective Liability .....	12-2

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>U</b>	
Utilities.....	2-9, 2-28, 5-8, 6-33, 10-25, 12-5, 12-14, 12-28, 17-39
Aerial Lines .....	10-27
Cost Estimates (Preliminary) .....	12-14, 12-28
City/County Utility Cost Reimbursement.....	10-26
Funding .....	12-5
Minimum Vertical Clearances for Overhead Facilities.....	3-38
Pipelines .....	10-29
Underground Electrical Power and Communication Lines .....	10-28
Utility Accommodation on State Right-of-Way .....	10-26
Utility Liaison .....	10-25
Utility Permits on CICS1 .....	2-7, 10-26
Utility Rehabilitation Plan Review .....	10-25
Utilities on Urban Projects .....	2-9, 12-28
Water Mains.....	10-30
<b>V</b>	
Vertical Alignment	
Combination of Horizontal and Vertical Alignment.....	3-39
Preliminary Vertical Alignment Design (Bridge Hydraulics).....	2-4
Railroad / Highway Grade Crossings.....	10-2
3R Vertical Alignment Design.....	17-21
Vertical Alignment Data.....	3-40, 11-9
Vertical Alignment Design .....	3-21
Vertical Alignment (Profile) at Intersections and Driveways.....	4-24
Vertical Clearances .....	3-38, 5-14, 10-8, 10-27
Vertical Curves.....	3-24
Bridge .....	10-8
Crest Vertical Curves .....	3-32
Crest Vertical Curves, Stopping Sight Distance.....	3-32
Crest Vertical Curves, Passing Sight Distance .....	3-33
Design.....	3-26
Sag Vertical Curves.....	3-34
Sag Vertical Curves, Comfort Criteria.....	3-38
Sag Vertical Curves, Underpass Sight Distance.....	3-38
3R Projects .....	17-21
Vertical Curve Computations .....	3-24
Vertical Curve with Obstructions.....	3-38
Vertical Taper Rate (Surfacing) .....	8-10, 17-22, 17-33
Volume Studies.....	14-2

<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBER</u></b>
<b>W</b>	
W-Beam Guardrail .....	9-5, 9-13
W-Beam to Thrie-Beam Guardrail Transition Section.....	9-20
Walls (Retaining).....	6-32, 9-3, 10-22
Waste Sites.....	7-7
Waste Alternatives .....	7-8
Water Mains.....	10-30, 12-14
Water Quality .....	5-8, 13-17
Waterway Permits	
Floodway/Floodplain Permit .....	13-16
Nationwide Permit (NWP) .....	13-14
"No Rise" Certificate .....	13-16
Section 404 Permits .....	13-8, 13-14
Weaving Section Analysis.....	14-2
Weigh Stations.....	5-9
Wetlands.....	12-28, 13-8
Public Notification of Wetland Mitigation.....	13-12
3R Projects .....	17-42
Wetlands Definitions.....	13-8
Wetlands Procedures .....	13-8
Wildlife Issues .....	13-18
Work Zone Significant Projects .....	14-12
Working Days for Construction (Estimated).....	2-27
<b>Y</b>	
Yield Control .....	4-34

