INDEX

Abbreviations 1-1, 8-1, 8-14, 8-23, 8-29, 8-33, 8-37
Access control ....*See* Control of Access
Accident data..... 3-7
Aerial photography 8-17
Airport clearance..... 5-6
Alignments..... 4-4, 4-5, 4-7, 4-22, 5-17, 8-8, 8-18, 8-38, 8-40, 8-41
Combination of horizontal and vertical 4-13, 4-15
Horizontal4-2, 4-3, 4-4, 4-13, 4-15, 4-26, 8-19, 8-21, 8-24
Curves..... 4-4, 4-6, 4-7
Broken-back 4-5
Circular 4-4
Compound..... 4-4, 4-27
Maximum deflection with no curve..... 4-4
Minimum length 4-5
Minimum tangent between curves..... 4-4, 4-5
Reverse 4-4, 4-27
Small deflection angles 4-5
Spiral 4-5
Plotting 8-16
Vertical4-2, 4-3, 4-8, 4-11, 4-12, 4-13, 4-15, 4-26, 6-5, 8-19
At railroad crossing 6-12
Clearances 4-12, 5-5, 5-6
Curves..... 4-7, 4-8
Effective length of grade 4-2
K values 4-7, 4-8
Maximum break at intersections 5-5
Minimum curve length 4-8
Minimum elevation above high water..... 4-12
Minimum grade 4-8
Plotting 8-16
Spacing between curves 4-11
Asphaltic concrete types..... 5-1
Average daily traffic 3-2, 4-23
Bench mark.....8-30
Bird baths.....4-15
Bridge plans.....8-2, 8-42
Numbering 8-2
Capacity.....3-4
Centerline
plotting 8-18
Channel relocations 4-14, 8-42
Channelization
Pavement markings.....6-3
Raised islands 6-3
Clear zone 4-14, 5-2, 5-3, 5-4, 5-17
Clearing and grubbing 8-42, 9-1
Plan preparation 9-1
Concrete barriers.....5-11
Construction notes..... 8-17, 8-20, 8-28
Construction signing . 4-20, 8-38, 8-39
Construction signing layout..4-20, 8-7
Construction signs and barricades 4-19
Control of access 3-6, 5-15, 8-26
Control section 8-2, 8-8
Control-of-access.....5-13
Cost estimate 4-21, 8-13, 8-45, 8-46
Cross section sheets 8-44
Cross sections
Numbering 8-2
Cross-slope..... 4-12, 4-26, 5-3, 5-5
Shoulders.....5-3
Curb 5-6, 5-7, 5-10, 6-3, 8-27, 8-29, 8-44
At driveways 5-8, 5-9
Barrier 5-7, 5-8, 5-9, 5-10
Curb and gutter.....5-7, 5-8
Curbed islands..... 5-8, 5-9, 8-36
Integral.....5-7
Medians 5-9
Mountable 5-7, 5-8

Offset from travel lane 5-9
Parking areas 5-8, 5-9
Curbed islands ..... *See* Curb
Curves ..... *See* Alignments
Design drainage map 8-30, 8-31
Design exceptions 2-4, 3-7, 5-2, 5-4, 5-12
Design high water elevation 4-12, 5-2, 8-23
Design hourly volume 3-2
Design speed 3-4, 4-1, 4-11, 4-25, 6-12, 8-10, 8-42
Design standards 2-2, 2-4, 3-4, 4-1, 4-2, 4-5, 4-6, 5-1, 5-2, 5-4, 5-10, 5-12, 5-13, 5-14, 6-5, 8-11
Design vehicles 4-2
Classes 3-1
Dimensions 3-2
Detours 4-21, 4-22, 4-24, 5-15, 8-13, 8-21, 8-38, 8-40, 8-41, 8-42, 8-44
Alignments 4-22, 4-23
Design criteria 4-22, 4-23
Drainage design 4-23, 4-24
Length 4-22, 4-24
Types 4-23, 8-41
Typical sections 4-22
Directional distribution 3-**3**
Ditch blocks 5-4
Ditches ..... *See* Roadside ditches
Drainage design 4-14
Drainage layers 5-2
Drainage structures 4-12, 6-9, 8-14, 8-17, 8-19, 8-21, 8-24, 8-30, 8-32, 8-33, 8-34, 8-44
Driveways 5-4, 5-8, 5-15, 5-17, 6-7, 6-10, 8-26, 8-27, 8-36
Commercial 6-10
Dry ramps 8-22
Grades 6-10
Locations 6-7
Maximum widths 6-9
Rural 6-9
Urban 6-10
Earthwork 4-12, 8-2, 8-11, 8-14, 8-15, 8-25, 8-27, 8-44, 8-45
Earthwork balance 4-11, 4-12
EDSM Manual 1-3
Engineer's estimate 8-45
Environmental concerns 3-8, 4-3, 4-12, 5-12, 5-14
Equations 8-8, 8-18
Plotting
In plan 8-19
In profile 8-20
Erosion 4-16, 4-18, 4-24, 8-13, 8-22, 8-27, 8-44
Exceptions 6-12, 8-8, 8-15
Existing drainage map 8-30
Final plan preparation 1-17, 8-9, 8-13, 8-20, 8-21, 8-22, 8-27, 8-28, 8-32, 8-34, 8-35, 8-36, 8-37, 8-42, 8-43
Frontage roads 5-13, 8-8, 8-12, 8-21, 8-28
Geometric layouts 8-7, 8-13, 8-21, 8-35, 8-37, 8-40
Graphical grade layouts 8-36
Graphical grades 8-36, 8-37
Guardrail 5-4, 5-11, 8-34
Handicap ramps 5-10
Headlands 6-8, 6-9, 8-14, 8-26
Height
Eye 4-1, 4-3
Object 4-1, 4-2, 4-3
Vehicle 4-1
High water elevations 8-23
Highway Classifications .... *See* Roadway classifications
Horizontal clearance 5-2
Intersecting roads 4-12, 6-4, 8-39
Intersection design 4-2, 4-3, 6-1
Intersection sight distance .... *See* Sight distance
Joint layouts 6-5, 8-37
Lane width transitions 4-6

Lane widths 5-2,
..... *See* Typical sections
Lateral ditches..... 5-15, 6-8
Lettering
Size and type 8-2
Level of service 3-5
Limits of construction .....
.....5-14, 8-16, 8-25, 8-26
Median openings..... 6-6, 6-9
Medians.....4-26, 5-7, 5-12, 5-13
Mucking..... 5-2
Operating speed..... 3-3
Parking..... 5-18
Types 5-18
Passing lanes 4-2
Pavement
Structure design 5-1
Type 5-1
Pavement crown
Cross-over break..... 5-5
One-way tangent crown 5-4
Two-way tangent crown 5-4
Pavement joints..... 6-5
Layout procedure 6-6
Maximum slab width..... 6-6
Through utility structures..... 6-6
Pavement markings 4-20, 8-37
Pavement widening on roadway curves..... 4-5
Peak hour traffic..... 3-2
Permanent erosion control 4-18
Plan changes..... 6-9, 8-6
Plan Preparation Activities..... 1-10
Plan revisions.....
..... 8-3, 8-4, 8-5, 8-45, 8-46, 8-47
Plan sheets
Numbering..... 8-2
Plan-in-hand .....
1-15, 4-20, 4-22, 5-2, 5-3, 5-9, 6-8, 8-11, 8-21, 8-22, 8-28, 8-29, 8-32, 8-34, 8-42, 8-45, 9-1
Plan-profile sheets.....
..... 6-12, 8-11, 8-21, 8-24, 8-28, 8-34
Format and material 8-17
Numbering 8-2
Storm sewer.....8-28
Posted speed 3-4
Pre-Design Conference.....
.....1-13, 4-21, 5-1, 5-3, 5-10
Preliminary plan preparation.....
.....1-14, 8-42
Profiles .....
.....4-13, 6-10, 8-19, 8-23, 8-29, 8-40
Project information checklist 5-1
Railroads .....
.....4-12, 5-5, 6-11, 6-12, 8-8, 8-30
Right-of way monuments.....8-25
Right-of-way.....
1-17, 4-12, 4-19, 4-22, 5-2, 5-9, 5-13, 5-14, 5-15, 5-16, 5-18, 6-1, 6-8, 6-9, 6-10, 6-12, 8-7, 8-9, 8-13, 8-14, 8-16, 8-17, 8-25, 8-26, 8-27, 8-29, 8-35, 8-41, 8-42, 8-43, 8-44, 9-2
Control of access.....5-17
Disposal of excess.....5-17
Encroachments.....5-17
Expropriation.....5-16
Flares
Rural 6-2
Urban 6-2
Special types
Construction servitude 5-15, 8-26
Control of access 8-26, 8-35
Drainage servitude.....5-15, 8-26
Right-of-way agreements.....5-15
Width.....5-13, 5-14
Roadside barriers 5-11
Roadside ditches.....
4-14, 4-15, 5-2, 5-4, 8-21, 8-22, 8-25, 8-26, 8-44, 8-45
Ditch grades.....4-14, 4-26
Paved.....8-43
Plotting.....8-17
Roadside slopes 5-4
Roadway classifications 2-2
Rumble strips.....5-3
Running speed.....3-4, 4-1
Safety end treatments 4-14
Sanitary sewer ... 4-15, 4-19, 8-20, 8-24

Sequence of construction 4-20, 4-21, 8-2, 8-38, 8-40, 8-42
Sewer effluent..... 3-8, 4-1**5**
Shoulder drainage systems 5-2
Shoulders..... 4-6, 5-3, 6-9
Sidewalks..... 5-7, 5-10, 5-11, 5-14, 5-16, 8-14, 8-27
Cross-slope 5-10
Location..... 5-10
Width 5-10
Sight distance..... 4-1, 6-1
Adjustment for grade..... 4-2
Decision sight distance 4-2
Intersection sight distance..... 4-3
Passing sight distance 4-2
Passing signt distance 4-7, 4-12
Stopping sight distance4-2, 4-3, 4-7, 6-1
Stopping signt distance 4-1
Special details 8-34
Specifications..... 4-19, 4-22, 6-11, 8-7, 8-10, 8-14, 8-16, 8-34, 8-40, 8-46, 8-47
Standard plans 8-34, 8-36, 8-43
Numbering..... 8-2
Standards..... *See* Design standards
Storm sewer pipes 8-23, 8-29
Storm Water Pollution Prevention Plan..... 4-18
Subgrade soil survey..... .....1-14, 5-1, 8-39, 8-40
Summary of drainage structures. 8-32
Summary of estimated quantities..... .....8-1, 8-14, 8-15
Summary sheets 8-13, 8-14, 8-26, 8-27, 8-28, 8-32, 8-35
Degree of accuracy 8-15
Numbering..... 8-2
Tables
Drafting..... 8-13
Layout 8-14
Types 8-14
Superelevation..... 4-7, 4-8, 4-15, 4-25, 4-26, 6-2, 6-12, 8-10, 8-12, 8-27
Edge profiles.....4-25, 4-27
Lane factor.....4-29
Maximum relative gradient.....4-28
Methods of attaining 4-25
Reverse crown.....4-26, 6-2
Rotation 4-25, 4-27
Runoff 4-25, 4-26, 8-31
Shoulder rates 4-25, 5-3
Tangent runout 4-26
Transition length 4-27, 4-28
Survey..... ..4-19, 5-16, 8-2, 8-3, 8-11, 8-28, 8-30
Survey reference points.....8-29
Symbols..... 8-1, 8-23, 8-28, 8-29, 8-30
Taper length 4-6, 6-2, 6-3
Temporary erosion control.....4-16
Temporary widening 4-21, 8-41
Title sheet..... 6-12, 8-3, 8-6, 8-7, 8-10, 8-11, 8-19, 8-27, 8-28, 8-43, 8-45
Index.....8-6, 8-9
Layout map 8-7, 8-8, 8-9, 8-11
Length of project.....8-10
Project caption.....8-9
Schedule of revisions.....8-10
Type of construction 8-10
Vicinity map 8-9
Traffic control devices 4-19
Traffic control plan 4-20
Traffic data 1-13, 3-2, 5-1, 8-9, 8-36
Projections.....3-3
Traffic Data
Composition.....3-3
Traffic signals 4-20, 6-3, 8-40
Turn lanes 6-2, 8-37
Storage 6-2, 6-3
Turning templates 3-1
Turnouts..... 4-6, 5-7, 6-4, 6-8, 6-10, 8-20, 8-29, 8-36, 8-37
Rural 6-5
Turning radii.....6-4, 6-5

Urban 6-5
Type of construction..... 4-21
Typical section design..... 1-14, 8-11, 8-39
Typical section design data 8-12
Typical sections 5-1, 5-2, 8-7, 8-12, 8-13, 8-26, 8-37, 8-40, 8-42
Lane widths 5-2
Normal crown 4-25, 5-3
Numbering..... 8-2
Scale.....8-12
Undercutting 5-2
Underground storage tanks 3-8
Utilities..... 1-17, 4-19, 5-14, 5-16, 8-29, 8-42, 9-1
Plotting.....8-20
Value engineering.....3-8
Widening ..... *See* Pavement widening on roadway curves