Index

Symbols

511 Internet and Telephone Traffic Reports...3-9
511 Traveler Information...5-18
A
“A” Base defined...10-2
Acceleration Lane Signing...6-30
Adopt-A-Highway Sign Program (I-X1)...6-58
Adopt-A-Rest Area Sign Program...6-58
Advanced Public Transportation Systems (APTS)...5-37
Advanced Vehicle Safety Systems (AVSS)...5-45
Advance Warning Signs...6-31
Advertising Device defined...2-4
Advisory Curve Study...14-15
Advisory Exit and Ramp Speed Signs...6-31
Advisory Speed Plaque (W13-1P)...6-31
A-Frame defined...6-6
Airport Impacts on Roadway Lighting...10-13
Alternate Pedestrian Route (APR) defined...8-4
Ambient Light defined...10-2
Automated Facilities Management System (AFMS)...9-36
Automatic Vehicle Identification (AVI) defined...5-4
Average Initial Illumination defined...10-2
Average Maintained Illumination defined...10-2
B
Ballast defined...10-2
Ball Bank Indicator defined...14-2
BA Pole and Mast Arm...9-9
Barricade Mounted Signs defined...8-4
Bent Straw Pole defined...10-2
Bicycle defined...2-4
Bicycle Lane defined...2-4
Bicycle Path defined...2-4
Bicycle Route defined...2-4
Bicycle Trail defined...2-4
BICYCLE WARNING Sign (W11-1)...6-37
Bikeway defined...2-4
Blank-Out Sign (BOS) defined...5-4
Bottleneck defined...3-2
Boundary Signs...6-45
Breakaway defined...10-2
Breakaway Support Coupling defined...10-3
Breakaway Supports defined...6-6
BRIDGE ICES BEFORE ROAD Sign (W8-13)...6-32
Bridge Lighting...10-12
Bridge Width and Clearance Requirements...2-18
BUG Rating defined...10-3
Bus Arrival Signs...5-37
Buses on Shoulder Sign...6-38
Business District defined...2-4
Business Panel defined...2-4, 6-6
Bus Parking in Rest Areas...6-62
Bus Shoulder Sign (R4-X7)...6-24
BYPASS AND TURN LANE Sign (R4-X8a)...6-24
BYPASS LANE Sign (R4-X8)...6-24
Candela defined...10-3
Capacity defined...3-2
Cattle Passes/Large Culverts...6-64, 6-67
Centerline Markings...7-13
Central Electrical Service Unit (CESU)...9-35
Changeable Message Sign (CMS) defined...5-4
Changeable Message Signs (CMSs)...3-8...6-15
Chevron Alignment Sign (W1-8)...6-32
Claimant defined...12-2
Claim defined...12-2
Classification by Sign Design Type...6-11
Closed Circuit Television (CCTV)...5-12, 5-20
Closed Circuit Television (CCTV) defined...5-4
Commercial Radio...3-9
Commercial Vehicle Operations (CVO)...5-38
Commissioner defined...2-4, 14-2
general powers...2-5
Community Recognition Signing Program...6-46
Community Wayfinding Sign Program...6-59
Complete Interchange Lighting...10-3, 10-11
Cone of Vision defined...6-6
Conspicuity of Standard Signs...6-63
Contrast Marking defined...7-2
Controlled Access Highway defined...2-4
Controlled Burning Signs...6-33
Conventional Road = Multilane defined...6-6
Conventional Road = Single Lane defined...6-6
County Highway Engineer defined...14-2
County Highways defined...2-4
County State Aid Highway...2-4, 14-2
Crash Data...11-6
Crash Modification Factor...11-12
Crash Rate...11-9
Crash Reporting...11-5
Crash Report Processing...11-5
Crosswalk Block defined...7-2
Crosswalk defined...2-4
Crosswalk Markings and Enhancements...13-6
Crosswalk Markings Installation Criteria...13-6
Curb Ramp Installation...13-2
Curve Warning Systems...5-14
Davit Pole and Mast Arm defined...10-3
Defendant defined...12-2
Delay defined...3-2
delineators...6-66
Guardrail...6-66
Horizontal Curves...6-66
Interchanges...6-66
Intersections...6-67
Lane Reductions...6-67
Tangent...6-67
Vertical Curves...6-67
Demand defined...3-2
Density defined...3-2
department defined...14-3
Designated Roadways...6-51
Detection Systems...5-21
detector loops (loop detector amplifiers) defined...5-4
directional Sign defined...2-4
District Engineer defined...14-3
district State Aid Engineer defined...14-3
district Traffic Engineering...1-8
General Functions...1-8
Specific Functions...1-8
DO NOT PASS Sign (R4-1)...6-24
durable Markings defined...7-2
dynamic Message Signs (DMS)...5-4, 5-12, 5-23
dynamic Pricing defined...5-4
dynamic Shoulder Lane defined...2-4
dynamic Speed Display Signs (DSDS)...5-13, 5-24
dynamic Way-Finding Systems...5-18
Hazardous Waste Disposal defined...7-3
Headway defined...3-2
High Base defined...10-3
High Intensity Discharge (HID) Luminaire defined...10-3
High Occupancy Toll Lanes (HOT lanes) defined...5-5
High Occupancy Vehicles (HOVs)...3-7, 5-5
Preferential Treatment Ramps...3-7
Highway Advisory Radio (HAR)...5-13, 5-19
Highway Safety Improvement Program (HSIP)...11-15
Highway Safety Manual...11-13
Highway Traffic Signals...9-1
General Description...9-5
Jurisdiction...9-4
Legal Authority...9-4
Types...9-5
Horizontal Alignment/Advisory Exit and Ramp Speed Signs...6-31
Horizontal Lux defined...10-4
HOV Lane defined...5-5
Illuminance defined...10-4
Incident defined...3-3
Incident Management...3-8, 5-5
Incident Detection and Response...3-8
Independent Route Marker Assemblies...6-42
Intelligent Lane Control Signals (ILCS)...5-26
Intelligent Roadway Information System (IRIS)...3-10
Intelligent Transportation System (ITS)...5-3, 5-5
Intelligent Work Zones (IWZ)...5-14, 5-39, 8-4
Intersection Collision Diagram...11-11
Intersection Conflict Warning Systems (ICWS)...5-15
Intersection Control Alternatives...9-19
Intersection Control Evaluation (ICE)...9-18
Intersection defined...2-4, 6-6
Intersection Lighting...10-13
Investigations...12-7
IP Rating (International Protection Rating) defined...10-4
Isolated Intersection defined...10-4
Iso-tacs defined...6-6
ITS Development...5-47
ITS Planning Guidance...5-11
ITS Project Solicitation...5-48
ITS SYSTEMS...5-15
ITS Systems Power, Communications, and Control...5-46
Junction Signing Layouts...6-41
Lamp defined...10-4
Lane Controller defined...5-5
Lane Control Signals...3-6
Lane Designations Statute...2-11
Laned Highway defined...2-4
Lane Line and Channelizing Line Markings...7-13
Lane Management Tools defined...5-5
Lane Reduction Markings...7-15
Lane-Use Control Signals...9-7
Laws and Regulations...2-3
Lawsuit defined...12-2
LED Luminaire defined...10-4
LEFT LANE MUST TURN LEFT Sign (R3-7)...6-27
Legal Hold defined...12-2
Level-of-Service (LOS) defined...5-5
Lighting of Traffic Facilities...10-1
Lighting Operation and Maintenance...10-20
Lighting Project Procedures...10-5
Lighting System Design...10-10
Lighting Unit defined...10-4
Light-Loss Factor (LLF) defined...10-4
Litigation Hold defined...12-2
Load Restrictions...2-13
Local Authorities defined...2-4
Leg. responsibilities...2-6
LOGO Sign Franchise Program...6-54
Low Clearance Sign (W12-2)...6-35
Lumen defined...10-4
Luminance defined...10-4 Lux defined...10-4
Maintenance and Construction Management (MCM)...5-39
Malfunction Repair...9-35
Mast Arm...9-9
Metering Rate defined...3-3
Metro Electrical Services Unit (MESU)...9-35
Metropolitan Planning Organization (MPO) defined...5-6
Minnesota Manual on Uniform Traffic Control Devices...2-7
TEM Relationship to MN MUTCD...1-2
Rumble Strips and Rumble Stripes...7-3, 14-3, 14-12
Rural Residential District defined...2-5, 14-4
Rural Section defined...14-4

S
Safety Set-Aside Funds...11-16
SCHOOL BUS STOP AHEAD Sign (S3-1)...6-36
School Crossing Protection...14-5
School Safety Patrols and Crossing Guards...14-5
School Site Plan Review...14-5
School Speed Limits...14-5
School Zone defined...2-5
Seasonal Load Restrictions defined...2-5
Seat Belt Sign...6-63
SHARE THE ROAD Plaque (W16-1P)...6-37
Sharks Teeth defined...7-3
Shockwave defined...3-3
Shoe Base defined...10-4
Shoulder defined...14-4
SHOULDER NARROWS Sign (W5-X1)...6-37
Sidewalks or Trails...13-3, 14-4
Sight Distances at Crossroads...14-14
Signal Agreement...9-27
Signal Cabinet and Control Equipment...9-10

Controller...9-10
Flasher...9-10
Malfunction Monitor Unit...9-10
Preemption...9-10
Signal Cabinet...9-10
Solid State Load Switches...9-10
Vehicle Detector Units...9-10
Signal Computer Aids...9-37
Signal Construction...9-33
Signal Indication Failures...9-36
Signalized Pedestrian Crossings...13-4
Signal Maintenance...9-35
Signal Maintenance Log...9-36
Signal Operations...9-34
Signal Pedestals...9-9
Signal Plans and Specifications...9-32
Signal Removal Justification Criteria...9-21
Significant Project defined...8-5
Sign Lighting...10-19
Signs, Signals, Markings...2-7
placement and maintenance...2-7
unauthorized...2-7
Sign Variance Committee...6-57
Slip Base defined...10-5
SLOWER TRAFFIC MOVE RIGHT Sign (R4-3a)...6-28
Snowmobile Trail Signing...6-29
Specific Service defined...2-5
Specific Service Sign defined...2-5
Specific Service Signing Program...6-54
Speed Limits, Establishing or Changing...14-16
Speed Limits in Work Zones...8-15
Speed Limits, Statutes...2-8
establishment of zones by Commissioner...2-9
local roads having established bicycle lane...2-10
manufactured home parks and recreational camping areas...2-11
minimum speed limits...2-10
school speed limits...2-9
segments in urban districts...2-10
speed zoning within local areas...2-9
work zone when workers present...2-10
Speed Monitoring...5-28
Speed Reduction Sign (W3-5)...6-37
Speed Restrictions...2-8
Speed Trend Studies...14-13
Speed Zone Signing...6-28
Speed Zones on Gravel Roads...14-19
Speed Zoning, Principles of...14-16
State-Aid Engineer defined...14-4
State Entry Monument (SEM) Program...6-49
State Exit Monuments and Signs...6-50
State Traffic Engineer defined...14-4
Statutory Discretionary Immunity...12-4
Strategic Highway Safety Plan (SHSP)...11-4
Street or Highway defined...14-4
Supplemental Guide Signing Programs...6-8, 6-53
Surveillance Systems...3-4
closed-circuit television (CCTV)...3-4
electronic vehicle detectors...3-4
radio relay of visual observations...3-5
Systems Engineering...5-9

T
Team Transit...3-8
Tele typewriter (TTY) Facility Signing in Rest Areas...6-62
Temporary Lighting...10-18
Temporary Pavement Markings...7-5
Temporary Pedestrian Access Route (TPAR) defined...8-5
Temporary Raised Pavement Marker (TRPM) defined...8-4
Temporary Traffic Control...8-1
General Responsibility...8-5
Legal Responsibility...8-5
Planning and Implementation...8-6
Strategies and Controlling Criteria...8-8
Closures and Detours...8-10
Crossovers and Bypasses (Diversion)...8-9
Delay Time...8-12
Flagging Operations...8-13
Lane Width...8-9
Lighting...8-16
Positive Protection...8-15
Speed Limits in Work Zones...8-15
TTC Plans...8-38
TTC Reviews...8-38
Temporary Traffic Control Devices
General Requirements...8-22
Signals...9-8
Signs...8-24
Business Signing...8-25
Guide Signs...8-24
Regulatory and Warning Signs...8-24
Temporary Traffic Control Goals...8-6
Temporary Traffic Control Signals...9-8
Tenon defined...10-5
Test Section Signing...6-63
Through Highway defined...14-4
Tolling - MnPASS HOT Lanes...5-29
Tort Claims...12-1
Tort defined...12-2
Tort Liability...12-2, 12-3
Tourist-Oriented Business defined...2-5
Toward Zero Deaths (TZD)...11-3
Town Roads defined...2-5
Traffic Control Signal defined...2-5
Traffic Control Signal Design...9-29
Traffic Control Signal Project Procedures...9-22
Flowchart...9-22
Traffic Control Signals...9-5
Flashing Yellow Arrow for Left Turns...9-8
Poles, Mast Arms, and Pedestals...9-9
Signal Indications...9-8
Timing and Coordination...9-12
Traffic Crash Toolkit...11-8
Traffic Engineering Organization (TEO)...1-12
TEO Standing Committees...1-15
Traffic Engineering (TE)...1-6
Traffic Research...4-2
Traffic Signal Control. See Chapter 9
Traffic Signal Detection...9-11
Detector Functions...9-11
Detector Types...9-11
Installation...9-11
Pedestrian Pushbutton...9-11
Traffic Signal Justification Process...9-15