

A

Abutter - Owner of a contiguous property

Access Aisle - Aisle which runs the full length of a handicap parking space and is marked with a series of diagonal lines

Access Control - Tool used to maintain safe and efficient roadway operations; exercised by statute, zoning, right-of-way purchases, driveway controls, turning and parking regulations, and geometric design

Access Control - Full Control - Priority given to through traffic by providing access only at grade-separated interchanges with selected public roads; no at-grade crossings or private driveway connections are allowed; freeway is the common term used for this type of highway

Access Control - Partial Control - An intermediate level between full control of access and regulatory restriction; priority given to through traffic, but a few at-grade intersections and private driveway connections may be allowed; may be provided for certain rural arterials

Access Control - Statute, Zoning, Regulation - Zoning may be used to effectively control the adjacent property development so that major generators of traffic will not develop; driveway regulations and permits are used to control the geometric design of an entrance, driveway spacing, and driveway proximity to public road intersections

Access Management - Broad set of techniques that balance the need to provide efficient, safe and timely travel with the ability to allow access to an individual destination

Access, Controlled - Access control applied to freeways or other major arterials where access to the roadway is limited to interchange points or major intersections

Access, Full - Access control applied to arterials or collectors where access is provided to adjoining properties without restrictions on turning movements

Access, Limited - Access control applied to arterials where intersections are widely spaced and driveway connections are limited

Access, Uncontrolled - Refers to collectors and local roads where access controls are not employed

Accommodation - Provision of safe, convenient, and comfortable travel roadway users

Aesthetic Pavement Surface - Decorative pavements used to reflect architectural materials and details in historically significant areas, to beautify otherwise significant downtown locations, or to highlight pedestrian zones

Alignment, Horizontal - Horizontal location of a road

Alignment, Vertical - Vertical location of a road

Allowable Headwater (AHW) - Maximum allowable ponding elevation at the culvert entrance, as measured from the culvert invert

All-Way Stop Control - Traffic calming measure providing stop control to all legs of an intersection

Alteration - Modification made to an existing facility that goes beyond normal maintenance activities and affects or could affect usability

Alternatives Analysis - Analysis of project alternatives, selected from those advocated by interested groups or recommended by local or State government; could include various transportation facility types for all modes of transportation (pedestrian, bicycle, motorist, or transit) and range of management strategies

Americans With Disabilities Act Architectural Design Standards (ADAAG) - Requirements for accessibility to buildings and facilities by individuals with disabilities under the Americans with Disabilities Act (ADA) of 1990

Angle of Intersection - Angle formed by the centerlines of intersecting streets, at the center of their jointly used pavement

Approach Leg - Side of an intersection leg used by traffic approaching an intersection

Architectural Access Board (AAB) - Regulatory agency within the Massachusetts Executive Office of Public Safety with a legislative mandate to develop and enforce regulations designed to make public buildings accessible to, functional for, and safe for use by persons with disabilities

Area-Sensitive Species - Species which will not use a habitat patch (such as forest, grassland or marsh) unless it is above a particular size threshold

At-Grade Intersection - Intersection at which two or more roadways meet or cross at the same elevation

Automatic Traffic Recorder (ATR) - Recorder which provides continuous traffic monitoring and collects traffic data for analysis, including volume, speed, classification, and gaps

Auxiliary Lane - Portion of the roadway adjoining the traveled way for speed change, turning, storage for turning, weaving, truck climbing, and other purposes supplementary to through-traffic movement

Average Annual Daily Traffic (AADT) - Total yearly volume of automobiles and trucks divided by the number of days in the year

Average Daily Traffic (ADT) - Daily traffic volumes in a time period greater than one day and less than one year, divided by the number of days counted

Axis Of Rotation - Line about which the pavement cross-section is rotated to

B

Bankfull Width - Elevation on a stream bank where flooding begins; in many stream systems, the stage associated with the flow that just fills the channel to the top of its banks and at a point where the water begins to overflow onto a floodplain

Base Mapping – Plan or geographic information

Basic Design Controls - Foundation for establishing the physical form, safety and functionality of a roadway

Basic Number of Lanes - Minimum number of lanes needed over a significant length of a highway based on the overall capacity needs of that section

Bearing Ratio - Load required to produce a certain penetration using a standard piston in a soil, expressed as a percentage of the load required to force the piston the same depth in a selected crushed stone

Bedload Material - Material transported by a stream

Berm (1) - Raised mound of earth used in different ways; as a site barrier, to separate roadway embankment from a drainage way, as a sound barrier, or for architectural reasons; **or**

(2) - A shoulder curb on rural and urban highways which do not have continuous curb and require control of drainage; directs water to closed drainage systems, prevents sloughing of the pavement edge, and provides additional lateral support

Bicycle Count/Demand – Data collection to determine bicycle flow and patterns usually conducted during peak hours when vehicle turning movement counts are being conducted

Bicycle Lane - Delineated road space for preferential use by bicyclists traveling in same direction as the adjacent motor vehicle traffic

Biotechnical Stabilization - Method of stabilization which integrates plant material with layered geogrid reinforced systems, riprap, and/or gabion systems; provides the benefits of vegetative systems with the more predictable benefits of non-living structures and measures

Bituminous Concrete - Paving material composed of a petroleum derivative and crushed stone or crushed gravel

Blockloading - Completely closing a street

Boat Section – A subgrade structure with an open top used to convey a roadway or other facility

Bollard - Most common type of barrier used to control motor vehicle access to a path; a pole

Boring - An earth-drilling process used for installing conduits or pipelines

Borrow Pit - Excavation site outside the limits of construction that provides necessary material, such as fill material for embankments

Box Culvert - Culvert with a square or rectangular cross-sectional profile having four sides, including a bottom

Bridge - Structure which carries pedestrians, bicycles, and/or vehicles over various types of transportation facilities or natural features

Bridge, Historic - A bridge that is of a rare type, is unusual from an engineering perspective, has historic significance because of location or association with an important event or person, or is 50 years of age or older is a candidate for classification as a historic bridge

Broken Back Curve - Awkward combination of curves and tangents in both the horizontal and vertical planes

Buffer - Area which provides separation between higher speed vehicular traffic and lower speed users such as pedestrians and bicyclists

Bulk Stone Deposit - Energy dissipators installed at culvert outlets for erosion control purposes

Bus Bay - Bus stop that requires buses to exit from and re-enter an adjacent lane of traffic, a pull-off

Bus Stop, Far-Side - Bus stop located immediately after passing through an intersection

Bus Stop, Midblock - Bus stop located within the block, not necessarily associated with an intersection, and generally adjacent to major generator of transit ridership

Bus Stop, Near-Side - Bus stop located immediately prior to an intersection

C

Call Button - Button used to initiate a pedestrian crossing phase at traffic- actuated signals

Canopy - Branches and foliage formed collectively by the crowns of adjacent trees

Capacity - Transportation facility's ability to accommodate a moving stream of people or vehicles in a given time period

Catch Basin - Inlet structure in which a grate is used to intercept storm runoff which is delivered to an underground structure (usually an inside diameter of 4 feet) with a 2-3 foot sump

Causeway - Bridge or roadway constructed over marshy land or water which may be either an earth fill or bridge type structure

Centrifugal Force - Outward pull, here referring to the outward pull of a vehicle traversing a horizontal curve

Channel - A waterway with bed and banks, either naturally or artificially created, which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water; also called a watercourse

Channel Capacity – Limit capacity of an open channels ability to accommodate the peak flows

Channel Cross Section - Physical measurements (width and depth) across the channel and floodplain

Channel Lining – Material linings which protects the channel section from erosion and reduces maintenance

Channel, Bottom of Slope - Channel provided at the bottom of a slope to convey the storm runoff from roadway channels to a discharge point

Channel, Intercepting - Channel provided longitudinally at the top of a cut to intercept runoff from a hillside before it reaches the roadway

Channel, Roadway - Channel provided in cut sections to remove storm runoff

Channelizing Island –Short median added to an intersection to help delineate the area in which vehicles can operate; can also provide for pedestrian refuge

Check Dam -Small dam constructed in a gully to decrease the flow velocity, minimize channel scour, and promote deposition of sediment

Chicane - A series of deflections involving the narrowing of one side of the street by an amount that requires the through traffic to deflect from its previously straight path

Clear Recovery Zone - Area provided along highways to allow vehicles veering off the travel lane opportunity for safe recovery or stopping

Clear Zone - Traversable, unobstructed roadside area beyond the edge of the traveled way, available for safe use by errant vehicles; also called a recovery area

Clear Zone - Recovery area adjacent to the roadway

Community - Group of people with common interests living in a particular area

Composite Pavement - Combination of bituminous concrete over portland cement concrete

Compound Curve - A series of two or more simple curves with deflections in the same direction immediately adjacent to each other, used to transition into and from a simple curve and to avoid some control or obstacle which cannot be relocated

Concept – See alternative

Concurrent Pedestrian Phasing – Traffic signal operation that allows pedestrians to cross at the same time as parallel traffic movements

Constituent - Group or individual that is involved in, has an interest in, or is affected by a proposed project

Construction - The building or assembly of infrastructure

Context Sensitive Design - Collaborative, interdisciplinary approach to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility for all users

Contextual Classification - System of identifying and classifying land uses and other characteristics adjacent to a roadway

Control Delay - Delay which is the result of traffic control devices needed to allocate potentially conflicting flows at an intersection; reflects the difference between travel time through the intersection at free flow versus travel time under the encountered conditions of traffic control

Corner Clearance - Distance from roadway intersections to the nearest driveway entrance

Corner Marker - Permanent marking of the corner of a roadway, typically a durable stone, concrete, or metal marker

Corridor - A transportation pathway, often including surrounding areas

Corridor Study - Study of a corridor including, social, economic, and environmental considerations, and project alternatives

Course, Base - Layer of asphalt below the surface course

Course, Friction - Asphalt mixture applied to existing pavement with low measured skid resistance; may eliminate the need for corrective work; in some instances a friction course may be placed on new or reconstructed pavements

Course, Surface - Top layer of asphalt used on a roadway

Crash Cushion - Crash impact protection system which can be designed to redirect a vehicle impacting the side of the cushion (redirective) or to decelerate the vehicle to a stop when impacted on the side (non-directive)

Critical Cross Section - Points where structures and resources are avoided or impacted by the typical section

Critical Depth - Depth of flow at which the discharge is maximum for a given specific energy, or the depth at which a given discharge occurs with minimum specific energy

Critical Flow - When the discharge is maximum for a given specific energy head or, conversely, when the specific energy head is minimum for a given discharge

Critical Slope - Slope which will sustain a given discharge at uniform, critical depth in a given channel

Critical Velocity - Mean velocity when the discharge is critical.

Cross Section - View of a vertical plane cutting through the roadway, laterally perpendicular to the center line, showing the relationship of various roadway components

Cross Slope - Slope measured perpendicular to the direction of travel

Cross Street - The minor street in an intersection

Crossing Island - Short divisional islands located at crosswalks

Crossover - At-grade connection between opposing lanes of traffic on a median-divided highway

Crosswalk, Textured - Crosswalk which uses non-slip bricks or pavers to raise a driver's awareness through increased noise and vibrations; colored pavers, which increase the visibility of the intersection, may also be used

Crown - Convex road surface that allows runoff to drain to either side of the road prism

Crown Integrity - Assessment of crown's healthy foliage, which typically signifies a healthy tree

Cultural Resources - Sites, structures, landscapes, and objects of importance to a culture or community for social scientific, traditional, religious, or other reasons

Culvert - A metal, wooden, plastic, or concrete conduit through which surface water can flow under or across roads

Curb - A raised device used extensively on urban streets and highways, controls drainage, restricts vehicles to the pavement area and defines points of access to abutting properties

Curb Extension - Extension of curb which shortens the crossing distance, provides additional space at the corner (simplifying the placement of elements like curb ramps), and allow pedestrians to see and be seen before entering the crosswalk; sometimes called curb bulbs or bulb-outs

Curb Radius - Measurement of the sharpness of a corner at an intersection

Curb Ramp - Short ramp cutting through or built up to a curb

Curb Ramp Flare - Graded transition from a curb ramp to the surrounding sidewalk

Curb Ramp, Diagonal - Single perpendicular curb ramp that is located at the apex of the corner

Curb Ramp, Parallel - Curb ramp used where the available space between the curb and the property line is too tight to permit the installation of both a ramp and a landing

Curb Ramp, Perpendicular - Curb ramp oriented so that the fall line of the ramp is both parallel to the crosswalk and perpendicular to the curb

Curvature - Sharpness of a curve

Curve Number - Method of expressing the retention characteristic of soil

Curve Radius - Distance from a point on a highway curve to the center of a circle formed by that curve

Cut-To-Fill Transition - Earth-moving process that entails excavating part of an area and using the excavated material for adjacent embankments or fill areas

D

Decree Plan - Documentation required when existing railroad crossings are abolished or altered in conjunction with highway work

Deflecting - Introducing curvature to the vehicle path

Density - Amount of development per acre on a parcel either existing or permitted under the zoning law

Departure Leg - Side of an intersection leg used by traffic leaving an intersection

Design Bearing Ratio (DBR) – A strength measure used to design the pavement

Design Discharge - Design flow of a storm drain system for the same frequency as the pavement drainage

Design Flood - The flood, observed or synthetic, that is chosen as the basis for the design of a hydraulic structure

Design Hourly Volume (DHV) - One-hour volume in the design year selected for determining the highway design

Design Speed - Selected speed used to determine the various design features of the roadway

Design Vehicle - Type and size of vehicle expected to be regularly accommodated on a roadway

Design Volume - A volume determined for use in design, representing traffic expected to use the highway 20 years in the future; unless otherwise stated, it is an hourly volume

Designer – Engineer responsible for developing a project and preparing project plans including specifications, and estimates

Detention Basin -Basin that can provide additional storage in order to mitigate increases in peak stormwater discharge

Direct Ramp Connection – Interchange ramp that does not deviate greatly from the intended direction of travel (as does a loop, for example)

Discharge - Flow from a culvert, sewer, channel, or other watercourse

Diversion Channel - Temporary channel to divert water around an ongoing construction site for a permanent drainage structure; keep the worksite dry and minimize the chance for erosion

Divided Highway - Highway with separated roadways for traffic in opposite directions

Drainage -Removal of water from the highway right-of-way

Drainage Area - Total surface area that drains to a point of interest, typically reported in acres (small watersheds) or square miles

Drainage Blanket (permeable base) - An open-graded aggregate subbase used to intercept and/or transfer the water to subsurface drain pipes

Drainage Design - Comprehensive plan to adequately drain the roadway and also protect adjacent landowners, wetlands, and public water supplies from drainage related problems

Drainage Structure - Any device or land form constructed to intercept and/or aid surface water drainage

Driveway - Point of access from a public street to private property

Driveway Closure - Method of eliminating conflicts with an arterial, elimination of a driveway

Drop Inlet - Inlet structure in which a grate and side-opening "throat" are used with a 2-3 foot sump; typically used in ditches

Drop Structure - Type of energy dissipator which involves a series of gentle slopes with intermittent vertical drops into a stilling basin

E

Ecopipe - Small, dry tunnel (1 foot to 1.3 foot diameter) used to facilitate movements of small and medium sized animals

Edging - Pavement edge treatment

Embankment - Mound of stone or earth, often built to support a road

Endangered Species - Species which is threatened with extinction by man-made or natural changes in their environment; identified in accordance with the Endangered Species Act of 1973

Energy Dissipator - Device used to reduce the energy of flowing water

Energy Grade Line - Line defined by a distance of one velocity head above the hydraulic grade line; slope of the line is the energy gradient

Energy Grade Line (EGL) - A line representing the total energy (potential plus kinetic) of the water flow

Energy Gradient - Slope of the energy grade line, usually parallel to the hydraulic gradient

English Units - System of measurement widely used in the United States; the primary alternative to the metric system

Environmental Justice - Fair treatment and meaningful involvement of all people—regardless of race, ethnicity, income or education level—in environmental decision making, including protection of human health and the environment, empowerment via public participation, and the dissemination of relevant information to inform and educate affected communities

Erosion - The process of wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep; the detachment and movement of soil or rock fragments by water, wind, ice, or gravity

Erosion Control - Protection of soil from dislocation

Estimate - Documentation prepared for project budgeting and to evaluate responses to project advertisements

Estimate, Contract - Estimate for the project showing the total project cost, including total contract items, construction engineering, contingencies, force counts, non-participating costs, and a summary of project costs which include the requested federal funds

Estimate, Federal Aid Bridge - Estimate required for each bridge and for walls which are assigned a structure number by the Bridge Section

Estimate, Federal Aid Roadway - Estimate required for roadway construction items, exclusive of bridge items

Estimate, Non-Participating - Estimate required for items which will be paid for with other than state and federal funds

Exclusive Pedestrian Interval - Stops traffic in all directions, eliminating pedestrian conflicts with turning vehicles; most applicable to downtown areas with high pedestrian volumes (e.g., more than 1,200 pedestrian crossings per day); also called scramble timing

F

Fatality Sign - Roadway sign updated on a regular basis to reflect the current number of motorist fatalities from moose and deer collisions

Fencing - Common practice used to keep wildlife off highways

Flow (1) - Measurement of the number of pedestrians, bicycles, and/or motor vehicles moving through a transportation network; quality of flow stated as "level of service" and maximum flow stated as "capacity"

(2) - Also a measure of conveyance for a watercourse

Flow, Non-Uniform - When the depth of flow changes along the length of the open channel

Flow, Steady - When the quantity of water passing any section is constant with time; at any point, the rates of inflow and outflow must be constant and equal

Flow, Uniform - Flow which results from a constant channel cross section, grade, and roughness; depth, slope, and velocity will remain constant over a given length of channel; the slopes of the channel bottom, hydraulic gradient, and energy gradient are equal

Flow, Unsteady - When there are variations in the discharge with time

Footprint Bridge Program - Program to replace bridges roughly within their existing location to expedite replacement of deficient structures

Freeboard - Distance between the allowable headwater and some reference point (e.g., the edge of the pavement surface)

Freeway - Roadway primarily for interstate travel (very high mobility, limited access)

Freeway Lane Drops - Where the basic number of lanes is decreased

Frontage Road - Local street or road along an arterial highway allowing control of access and service to adjacent areas and property; also called a service road

Frost Heave - Raising of a pavement surface due to the accumulation of ice in the underlying soil or rock

Functional Boundary - Referring to intersections, the lengths of auxiliary lanes, the storage needs for queuing vehicles, and acceleration and deceleration distances

Functional Classification - Classification of roadway types based on the degree of access and mobility provided

Functionally Obsolete - Refers to a bridge which has no structural deficiencies but does not meet standards to adequately serve current user demands

G

Gabion - Galvanized wire box filled with stones used to form retaining walls

Gateway - Street-side feature, located close to the pavement edge, which appears to narrow the road and therefore reduce the operating speed of approaching motorists

Geographic Information System (GIS) - Computer system capable of assembling, storing, manipulating, and displaying geographically referenced information

Geometric Improvements - Improvements which focus on increasing intersection capacity and enhancing safety; often involve widening to provide auxiliary turn lanes and the installation or modification of traffic signals

Glare Screen - Device which may be used as part of a median barrier to eliminate headlight projection from oncoming vehicles; plantings often considered as an alternative

Gore - Area where a ramp diverges from the mainline; normally considered to be both the paved triangular area between the through lane and the exit lane and the unpaved graded area which extends downstream beyond the gore nose

Grade - Slope of roadway surface

Grade Separation - A crossing of two roadways, a roadway and railroad, or a roadway and a pedestrian/bicycle facility at different levels

Gradient - Percent of vertical or longitudinal slope

Greenway - Generally an unpaved trail that serves hikers, mountain bikers, equestrians, or other off-road users

Groundwater - Water beneath the earth's surface that is stored naturally in aquifers, or that flows through and saturated soil and rock, supplying springs and wells

Growth Center - Area designated by the Federal Highway Administration for the purpose of studying economic growth performance

Guard Rail - Steel rail at the shoulder edge of a highway, usually in front of roadsize hazards

Gunite - Mixture of cement, sand, and water that is sprayed on a surface under pneumatic pressure

H

Habitat Fragmentation The subdivision of once large and continuous tracts of habitat into smaller patches

Habitat Loss - Loss of habitat which occurs when an area previously providing food, cover, shelter, or breeding habitat is developed

Haul Road - Temporary or permanent road over which freight or construction materials are transported from a loading site to a public road; also know as an access road

Hay Bale – A conglomeration of cut grasses bound together installed as method of erosion control during construction

Hazardous Material - Substance or material that poses a risk to the safety and health of the community and the environment and has been identified and listed by the USDOT or other agency

Hazing - Non-lethal approach for reducing roadway conflicts between traffic and wildlife, i.e. annoyance

Headwall - The supporting structure at the end of a drainage structure

Headwater (HW) - Vertical distance between the invert at the culvert inlet and hydraulic gradeline (water surface)

Herbicide – Chemical used to kill unwanted plants

High Occupancy Vehicle (HOV) Lane - Lane designated for the exclusive use of high-occupancy vehicles, such as carpools, vanpools, other ridesharing modes, and buses

High-Speed Roadway - Roadway with a design speed of 45 mph or greater

Highway Corridor Overlay District (HCOD) - Set of zoning regulations for parcels within a certain distance from a roadway, usually an arterial highway, which govern access, visibility, and corridor aesthetics

Historic District - An area, usually classified through zoning, with an identifiable geographic boundary that contains a significant concentration or continuity of sites, buildings, structures or objects united by past events or aesthetically by plan or physical development

Horizontal Curve - Bend from a straight line along a roadway

Hydraulic Analysis - Analysis to determine hydraulic adequacy of the structure or the effect on the floodplain where bridges or structures are involved

Hydraulic Design - A branch of engineering dealing with liquids in motion

Hydraulic Grade Line (HGL 1) - Line defined by the water surface in an open channel

(2) - A line representing the potential energy of the water flow; in closed pipes, also called the pressure line

Hydraulic Gradient - Slope of the hydraulic grade line

Hydraulic Jump - Abrupt, turbulent, transition from super-critical flow to sub-critical flow

Hydraulics - Study of the properties, movement, and behavior of water flowing in open channels or pipes

Hydrograph - Graph showing flow, stage, velocity or discharge with respect to time, for a given point in the stream

Hydrologic Analysis - Analysis performed to determine the peak discharge of a water way for the selected design year

Hydrologic Method - Method used to provide the estimated discharge expected at a specific location for a given design year, frequency, drainage area, and set of hydrologic conditions

Hydrology - Study of the properties, movement, and behavior of water on the land surface and underground

I

Impact - Effect of any direct man-made actions or indirect repercussions of man-made actions on existing physical, environmental, social, or economic conditions

Impact Energy Attenuator - Protective system that prevents an errant vehicle from impacting a hazard by either gradually decelerating the vehicle to a stop when hit head-on or by redirecting it away from the hazard

Infrastructure - Basic facilities, services, and installations needed for the functioning of a community or society, including water and sewage systems, lighting, drainage, parks, public buildings, roads and transportation facilities, and utilities

Inlet - Structure with an opening allowing for water to enter

Inlet Control - Discharge capacity which is controlled by the conditions at the culvert entrance, including the depth of headwater and entrance geometry (barrel shape, cross-sectional area, and type of inlet edge)

Interchange - Provides access between roadways by incorporating a network of ramps

Interchange Spacing - Distance measured along the main roadway between the centerlines of the intersecting roadways

Interchange, Cloverleaf - Interchange used at four-leg intersections which combines the use of one-way diagonal ramps in each quadrant for right turns with loop ramps in each quadrant to accommodate left turn movements; an interchange with loops in all four quadrants is called full cloverleaf

Interchange, Compressed Diamond - Diamond interchange where the nearest ramp terminal is less than 200 feet from the bridge; often used where right of way is restricted

Interchange, Diamond - Interchange which uses one-way diagonal ramps in each quadrant with two at-grade intersections provided on the minor road

Interchange, Directional - Interchange where one or more left-turning movements are provided by direct connection, even if the minor left-turn movements are accommodated on loops

Interchange, Fully Directional - Interchange where all left-turning movements are provided by direct connections

Interchange, Semi-Directional - Interchange where one or more left-turning movements are provided by semi-direct connections, even if the minor left-turn movements are accommodated on loops

Interchange, Service - Interchange which connects a freeway to a lesser facility; typically diamond, cloverleaf, or partial cloverleaf interchanges

Interchange, Single Point Urban (SPUI) - Interchange which consolidates left-turn movements to and from entrance and exit ramps at a single intersection

Interchange, Systems - Interchange which connects freeway to freeway; typically three-leg, full cloverleaf, or directional interchanges

Interchange, Three-Leg - Interchange provided where major highways begin or end; also known as T- or Y-interchanges

Inter-Parcel Connections - Driveway and sidewalk connections between commercial sites, so that traffic moving from one to the other need not access the public street

Intersection - Area where two or more streets cross at grade, including areas needed for all modes of travel (pedestrian, bicycle, motor vehicle, transit)

Intersection Alignment - Alignment which controls the centerlines of both the main and cross streets, in turn establishing the location of all other intersection elements (for example, edge of pavement, pavement elevation, and curb elevation)

Intersection Leg - Segment of roadway adjacent to an intersection

Intersection Sight Triangle - Triangular-shaped zone, sufficiently clear of visual obstructions to permit drivers entering the intersection to approach and negotiate it safely

Intersection Spacing - Spacing of intersections, particularly for urban streets, to minimize the possibility of conflicts in traffic operations between adjacent intersections

Intersection, Channelized - Intersection which uses raised islands to designate the intended vehicle path

Intersection, Flared - Intersection in which the typical cross section of the street (main, cross or both) is expanded, often to accommodate a left-turn lane

Intersection, Multi-Leg - Intersection with five or six legs

Intersection, Simple - Intersection which maintains the street's typical cross section and number of lanes throughout the intersection, on both the main and cross streets.

Intersection, Skewed - Intersection in which the angle of intersection departs significantly (more than approximately 20 degrees) from right angles

Invasive Species - A species that is non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health

Island, Central - Island which consist of a core area not intended to be traversed by vehicles, bordered by an apron of a slightly raised pavement not intended to be used by the design vehicle, but readily useable by the inner rear wheel track of larger vehicles

Island, Divisional - Island useful in dividing opposing directions of traffic flow at intersections on curves, or with skewed angles of approach

Island, Refuge - Pedestrian refuge within the right-of-way and traffic lanes of a highway or street; also used as loading stops for light rail or buses

Island, Splitter - Island which guides traffic into a roundabout, separates the entering and exiting traffic streams, assures a merge between entering and circulating traffic at an angle of less than 90 degrees, and assists in controlling speeds; may also provide a refuge for pedestrians and bicyclists, and can be used as a place for mounting signs or landscaping

K

K-Factor - Percent of daily traffic that occurs during the peak hour; $PH = (ADT)(K)$

L

Land Use - Occupation or utilization of land or water area for any human activity purpose, typically classified under a system which designates the appropriate uses of particular properties

Lateral Clearance - An area relatively flat and free of obstacles beyond the edge of the travel way for the recovery of out-of-control vehicles

Layer Coefficient - Relative structural value of each pavement layer per inch of thickness; multiplied by the layer thickness to provide the contributing structural number for each pavement layer

Leading Pedestrian Interval - Advance walk signal for pedestrians before motorists get a green signal, giving the pedestrian several seconds to start in the crosswalk where there are vehicular turning movements across the crosswalk

Left-Turn Lane - Lane which removes stopped or slow-moving left-turning vehicle from the stream of through traffic

Level of Service - Measure of user satisfaction with degrees of movement through a transportation network

Live Crown Ratio - Ratio of length of live crown to the height of the tree

Living Fence - A barrier of native plantings created to minimize or mitigate potential wildlife or visual impacts as part of the retrofitting of roadways

Loam - Soil composed of sand, silt, clay, and organic matter, with particles of various sizes, evenly mixed; generally contain more nutrients than sandy soils and retain water easily

Local Road/Street - Roadway that permits access to abutting land (high access, limited mobility)

Longitudinal Drain - Perforated pipe running beneath the roadway to collect the subsurface water

Longitudinal Slope - Either a foreslope, which occurs when the roadway is located on a fill and the clear zone slopes down from the roadway, or a backslope, which occurs when the roadway is located on a cut and the clear zone slopes up from the roadway

Low-Speed Roadway - Roadway with a design speed of less than 45 mph

M

Macadam - Roadway surface pioneered in the early 1800s comprised of small pieces of stone compacted with a heavy roller; tarmacadam, or tarmac, is macadam combined with tar to bind the stones; often erroneously used in reference to bituminous concrete

Macrotexture - A function of aggregate gradation; provides passages for water to escape from the tire-pavement interface, thereby reducing hydroplaning; becomes more important as speed increases

Main Street - Intersecting street with greater traffic volume, larger cross section, higher functional class, and greater continuity

Major Arterial - Roadway that services statewide travel as well as major traffic movements within urbanized areas or between suburban centers (high mobility, limited access)

Major Collector - Roadway that links arterial roadways and provides connections between cities and towns (moderate mobility, moderate access)

Major Fork - Area where a freeway separates into two freeways

Manhole - Underground structure with an opening for manual access

Match Line – A plan element which designates where the information ties to another sheet

Median - Portion of a roadway separating opposing directions of the traveled way, with purpose and design varying depending on roadway type may be traversable or nontraversable

Median Barrier - Double faced longitudinal barrier system normally used in narrow medians for separating opposing traffic or for separating traffic flowing in the same direction, i.e. collector-distributor roadways and High-Occupancy Vehicle lanes

Median Barrier, Blocked-Out Thrie Beam - System which may be used on highway facilities with design speeds over 40 mph

Median Barrier, Blocked-Out W-Beam - System which may be used as median barrier on roadways with design speeds of 40 mph or less

Median Barrier, Concrete Double-Faced - Reinforced concrete barrier in which the sloped shape of the face is designed to minimize occupant injury, redirection into traffic, and the possibility of rollover; the F-shape and Jersey shape are used for this barrier systems, though the F-shape is preferred because it better redirects passenger vehicles

Median Swale - Shallow, depressed area in a median which drains the median area of a divided highway

Median, Depressed - Unpaved median which is lower in elevation than the traveled way and provides for a drainage ditch below the roadway gravel subbase

Median, Flush - Painted or delineated through a contrasting surface material such as scored white concrete; generally paved and may or may not have a barrier depending on traffic conditions; normally crowned to provide positive drainage and discourage parking.

Median, Raised - Median which is higher in elevation than the traveled way and usually outlined with a berm or curb

Metropolitan Planning Organization (MPO) - Federally mandated transportation decision-making organization charged with allocating federal funding to transportation projects

Microclimate - A local zone in which the climate differs from the surrounding area

Microhabitat - Immediate surroundings and other physical factors of an individual plant or animal within its habitat

Microtexture - Determined by the surface roughness of aggregate particles; roughness penetrates the water film on the road surface to provide direct contact with the tire, ensuring skid resistance at low speeds

Minor Arterial - Roadway that links cities and towns in rural areas and interconnects major arterials within urban areas (moderate mobility, limited access)

Minor Collector - Roadway that connects local roads to major collectors and arterials (moderate mobility, high access)

Mobile Work Zone - Activities that progress along the road either intermittently or continuously, often involve frequent stops for litter cleanup, pothole patching, or utility operations

Mobility - Ability to move or be moved from place to place

Mode - Particular means of transportation (e.g., transit, automobile, bicycle, walking)

Multi-modal - Serving multiple user groups, including motor vehicles, pedestrians, bicyclists, and transit vehicles

N

Native Species - Species that occur in a region as result of natural forces rather than as having been brought in by humans, either intentionally or accidentally

Natural Site - Location (urban or rural) where the principal objectives concern natural systems

Neighborhood - Group consisting of all persons who live in local proximity; neighborhoods form the more or less cohesive cells of a larger community

Newsletter - Forum for public meeting notification and periodic updates of project status and decisions, either traditionally mailed or electronically distributed

Noise Wall - Wall installed where traffic noise exceeds or is expected to exceed established threshold levels

Non-Traversable Median - Median which separates opposing traffic

O

Off-Road Path - Dedicated pedestrian facility, often in rural and suburban low density areas, which follows but is set back from the roadway and can deviate around sensitive environmental areas

Office Calculation Book (OCB) - Documentation which contains all calculations together with locations of the contract quantities as listed in the proposal

Open Channel - Roadside drainage channel which removes and diverts surface runoff from the highway right-of-way

Open House - Informal conversation about a project, the design elements, and its potential impacts which often involves discussion of details of interest to particular individuals

Operating Speed - A speed measurement that reflects the majority of motorists

Outfall – Location where a river, drain, or sewer discharges into the sea, lake, etc.

Outlet Control - Discharge capacity which, in addition to the entrance conditions, is controlled by the culvert characteristics and outlet conditions, including culvert length and slope and depth of tailwater

Overbank - Water flow over the top of a bank

Overdesign – Selection of design values for infrastructure to meet conditions that will rarely occur, if ever

Overpass - Grade separation where a roadway passes over an intersecting roadway or railroad; also called over-crossing

Overpass, Railroad - Structure that carries a roadway over railroad traffic

Overtopping - Flow of water over the top of a dam or embankment

P

Paratransit - Alternative mode of high occupancy passenger transportation that does not follow fixed routes or schedules

Park and Ride Facility - Lot which provides a collection point for travelers to transfer between the automobile mode and transit, or between the single occupant vehicle (SOV) and high occupancy vehicle modes; other modes potentially supported include pedestrian, bicycle, paratransit, intercity bus transit, airport service, and intercity and commuter rail

Parking, Back-In Diagonal - Method of parking whereby cars are parked at an angle with the front bumper of each car facing the roadway and the rear bumper facing the curb

Parking, Diagonal - Method of parking whereby cars are parked at an angle with the front bumper of each car facing the curb and the rear bumper facing the roadway

Parking, Parallel - Method of parking a vehicle in parallel to other parked cars; cars parked in parallel are in one line, parallel to the curb, with the front bumper of each car facing the back bumper of an adjacent one

Patch – A small, isolated section of habitat

Path Crossing, Mid-Block - Path which crosses a street at a location other than an intersection

Paved Waterway – An open channel which conveys water using a durable lining such as concrete

Pavement – The constructed surface for the facilitation of vehicular movement

Pavement Corner Radius - Curve connecting the edges of pavement of intersecting streets

Pavement Design - Design of the foundation and surface of pavement

Pavement Drainage - Storm discharge from pavements

Pavement Marking - The lane lines or symbols affixed to pavement surfaces

Pavement Overlay - Needed thickness of hot mix asphalt is placed on an existing pavement

Pavement Structure - Combination of sub-base, base course, and surface course placed on a subgrade to support the traffic load and to distribute it to the roadbed

Pavement, Flexible – Hot mix asphalt; consists of three layers - subbase (foundation), base, and surface

Pavement, New - Pavement structure placed on a previously undisturbed subgrade

Pavement, Reconstructed - Existing pavement structure is completely removed to the subgrade and replaced with a new pavement structure

Pavement, Recycled - Existing pavement structure (from which all or part of the pavement is removed on or off site), is combined with new materials and replaced; recycling is performed in conjunction with a pavement overlay or reconstructed pavement

Pavement, Rigid - Portland cement concrete placed on a granular subbase; portland cement pavements are either plain and jointed or reinforced

PDE - MassHighway Pavement Design Engineer

Peak-Hour Factor (PHF) - Ratio of the volume occurring during the peak hour to the maximum rate of flow during a given time period within the peak hour; typically five minutes for freeways and 15 minutes for intersections

Peak-Hour Traffic (PH) - Highest number of vehicles passing over a section of highway during 60 consecutive minutes; T(PH) is the PH for truck traffic only

Pedestrian Count/Demand – Data collection to determine sidewalk demands, crossing demands, and corner reservoir demands (total number of pedestrians waiting to cross the street); usually conducted when vehicle turning movement counts are completed

Permanent Sedimentation Basin - Basin designed for use during construction, but intended to remain as a permanent facility; may be used for stormwater once it is cleaned out after construction

Permeability (1) – The degree to which a material allows the passage of another material

(2) – The degree to which a road presents a barrier to wildlife or other activity

Plan - Documentation prepared to convey physical information so that designers, reviewers, and the public can understand both the existing conditions and the project; plan also allow a contractor to construct the project and define the right-of-way available or to be acquired

Planning - Phase of the project in which the proponent identifies issues, impacts, and potential approvals so that subsequent design and permitting processes are understood

Plan, Base - Plan which shows all man-made and natural features located within the proposed project limits

Planimeter - Technical drawing instrument used to measure the surface area of an arbitrary two dimensional shape by tracing the perimeter

Planting Pit - Pit for planing of a tree which extends beneath and provides structural support to sidewalks, allowing sufficient room for root growth

PONTIS - System used by most state transportation departments to record, organize, and analyze bridge inventories and inspections

Population Fragmentation - Fragmentation of plant and animal species into smaller isolated populations

Profile - Side view of roadway or ditch grade; line showing ground elevations or a vertical section along a horizontal survey line

Project Area - Area to which proposed activities are limited

Project Development - The process that takes a transportation improvement from concept through construction

Project Information Board - Board posted at project site which illustrates project details and provides contact information to facilitate community involvement

Project Need - Condition, deficiency, situation or opportunity, that indicates the need for action

Project Review - Formal review which gives full consideration to the project's viability and design details

Proponent - Individual or organization that proposes, prepares, manages, and implements a project

Public Hearing - Legally recognized formal meeting held at particular time(s) during the project development and design phases

Public Meeting - Informal gathering of designers, officials, and local citizens to share and discuss proposed actions; a forum for public participation in a project

R

Rail Trail - A former railway line converted to a path designed for pedestrian, bicycle, skating, equestrian, and/or light motorized traffic (snowmobiles, etc.)

Raised Crosswalk -Speed hump frequently used to complement pedestrian crossings, particularly where curb extensions are in place, also called flat-top speed hump

Raised Intersection - Flat-top hump extended to an entire intersection, raising the entire intersection to sidewalk height or nearly so

Ramp -All types, arrangements, and sizes of turning roadways that connect two or more legs at an interchange

Ramp, Entrance - One-way roadways which allow traffic to enter a freeway

Ramp, Exit - One-way roadway which allows traffic to exit from the freeway and provide access to other crossing highways

Recharge - Addition of water to the aquifer by natural or artificial means

Recovery Area - Traversable, unobstructed roadside area beyond the edge of the traveled way, available for safe use by errant vehicles; also called a clear zone

Reclamation - Reusing existing paving materials for the rehabilitation and maintenance of pavements, conserving energy, aggregates, and asphalt

Reflectorized Drum - Plastic drum, sometimes with a steady-burn light or flashing, used in roadway work zones

Regional Transportation Plan - Plan which summarizes regional transportation goals and objectives, describes the regional transportation system and existing conditions, evaluates alternative courses of action, and recommends short- and long-term strategies and actions; prepared by MPOs every three years

Rest Area - Area that provides a location for travelers to relax and take a break from highway travel; often serves multiple purposes, providing comfort stations, and in some cases, food and beverage services

Restoration - The repair and/or replacement of specific lost functions within a natural system, such as habitat, water buffers, and soil function

Resurfacing - Application of an additional surface to an existing base pavement or wearing surface to improve the ride, strength, or safety of the pavement

Reverse Curve - Two simple curves joined together, but curving in opposite directions

Rhizomes - A usually-underground, horizontal stem of a plant that often sends out roots and shoots from its nodes

Right-of-Way - The land (usually a strip) acquired for or devoted to highway transportation purposes

Right-Turn Lane - Lane which removes decelerating right-turning vehicles from the traffic stream

Riparian Zone - Interface between land and water; area adjacent to water courses that are prone to flooding

Riprap - Rock or other large aggregate that is placed to protect streambanks, bridge abutments, or other erodible sites from runoff or wave action

Riprap Basin - Large angular and rounded stones are used at the culvert outlet to dissipate the kinetic energy

Road Closure - Closing of a roadway during construction; often the most efficient arrangement from a construction perspective as it isolates construction from the public

Road Diet - Allocation of the pavement width of the street in a manner that gives more space to pedestrians, bicycles, and parking, reducing the width of the motor vehicle traveled way

Road Ecology - The study of the interaction of organisms and their environment linked to roads and vehicles

Roadside Barrier - Longitudinal barrier used to shield motorists from natural or manmade obstacles located along either side of a roadway; occasionally used to protect pedestrians and bicyclists from vehicular traffic

Roadside Barrier, Blocked-Out Thrie Beam - Barrier system which is similar to the normal steel beam guardrail, except a deeper corrugated metal face is used to minimize the possibility of underride or vaulting by impacting vehicles

Roadside Barrier, Blocked-Out W-Beam - Barrier system which uses a heavy post (steel or wood) with a block out and corrugated steel face (W-beam)

Roadside Barrier, Concrete Safety Shape - Most commonly the F-shape concrete barrier which is preferred because of its better performance with small vehicle impact with respect to vertical roll and redirection

Roadside Barrier, Steel-Backed Timber Rail - Barrier system which consists of heavy wood rail backed with a steel plate installed on heavy wood posts; rustic appearance is sometimes compatible with the surrounding area, but it may be used only on low volume facilities with design speeds under 55 miles per hour

Roadway Alignment - The vertical and horizontal location of a road

Roadway Landscape - Interface between the functional area of a road and the community or environment through which it passes

Roughness Coefficient - A factor in the Kutter, Manning, and other flow formulas representing the effect of channel (or conduit) roughness upon energy losses in the flowing water; abbreviated "n"

Roundabout - Channelized intersection that creates a one-way traffic stream circulating around a central island

Routine Maintenance - Preserving a roadway, roadside, structure, and facility as close as possible to its original condition as constructed

Sub-rail - Part of a physical barrier adjacent to a shared use path often installed to prevent snagging of handlebars

Rumble Strip - Strip of painted, ridged, or grooved road surface to warn drivers when they stray from their lanes onto the shoulder

Runoff - Portion of precipitation that makes its way toward waterways, lakes, or oceans as surface or subsurface flow

Runoff Coefficient - Fraction of total rainfall that will appear as runoff

Runout Length - Distance of barrier needed to adequately shield a roadside hazard

Rural - Refers to areas with large expanses of undeveloped or agricultural land, dotted by small towns, villages, or any other small activity clusters

S

Sag Vertical Curve - Curve that connects descending grades, forming a bowl or a sag

Sand Asphalt - Asphalt consisting of bitumen and sand

Scenic Road - Designation of roadway to ensure that any alterations maintain its historic and natural features and character

Scour - Soil erosion when it occurs underwater, as in the case of a streambed

Sediment - Solid soil material, both mineral and organic, that is being moved or has been moved from its original site by wind, gravity, flowing water or ice

Sediment Basin - Detention areas used to intercept runoff and allow its sediment to settle out; installed to protect streams, rivers, ponds and lakes from the excess sediment produced during construction.

Sediment Control - Control measures designed to collect displaced soil during construction

Sedimentation - The action or process of depositing particles of waterborne or wind-borne soil, rock, or other materials

Semi-Direct Ramp Connection - Ramp that is indirect in alignment yet more direct than loops

Serviceability Index - Measure of a pavement's ability to serve automobile and truck traffic on a scale of 0 to 5; reflects the extent of pavement distress

Shared Lane - Vehicular travel lane shared by pedestrians, particularly on low-traffic and low-speed roadways

Shared Street - Street designed to be fully part of the public realm and integrated into the surrounding context; examples include plazas in a town center, market places with street vending, streets regularly used for festivals, and places of unusual civic interest

Shared Use Path - Facility for non-motorized users that is independently aligned and not necessarily associated with parallel roadways; designed to accommodate a variety of users, including walkers, bicyclists, joggers, people with disabilities, skaters, pets and sometimes equestrians.

Shoulder - Portion of a roadway adjacent to a traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of the base and surface courses

Sidewalk - Path for pedestrian travel which follows a street and occupies the border between the vehicular travel ways and private property

Sight Distance - Line of sight available to the driver to see another roadway user or a fixed object

Sight Distance, Decision - Distance required for a driver to detect an unexpected or otherwise difficult-to-perceive information source or hazard in a roadway environment that may be visually cluttered, recognize the hazard or its threat potential, select an

appropriate speed and path, and initiate and complete the required safety maneuver safely and efficiently

Sight Distance, Intersection - For a two-lane highway, the operator of a vehicle approaching an intersection should have an unobstructed view of the entire intersection, including any traffic control devices, and an adequate view of the intersecting highway to anticipate and avoid potential collisions

Sight Distance, Passing - For a two-lane highway, the distance needed to enable a driver to pass a vehicle without interfering with an oncoming vehicle which appears when the passing vehicle begins its maneuver

Sight Distance, Stopping - Absolute minimum sight distance that should be provided at any point on the highway; the sum of two distances: (1) the distance traveled during driver perception/reaction time and (2) the distance traveled during brake application

Signal Timing – The operational program for a traffic signal and resulting assignment of right-of-way to different users

Silt Fence - Temporary barrier made with a geotextile filter fabric which traps sediment before it leaves a construction area

Simple Curve - The most frequently used curve because of its simplicity for design, layout, and construction; has a constant circular radius which achieves the desired deflection without using an entering or exiting transition

Siphon - Continuous tube that allows liquid to drain from a reservoir through an intermediate point that is higher than the reservoir, the up-slope flow being driven only by barometric pressure without any need for pumping

Skid Number - Measure of skid resistance

Skid Resistance - A function of the pavement surface texture, which is a combination of fine (or micro-) texture and coarse (or macro-) texture

Soil Quality - Evaluation of soil for texture, pH, moisture and biology

Soil Support Value (SSR) - Index of the relative ability of a soil or stone to support the applied traffic loads

Sound Attenuation - Reduction in the intensity or in the sound pressure level of sound

Special Provisions - Developed by the project designer to explain conditions or special construction practices not covered in the current edition of the Massachusetts Standard Specifications for Highways and Bridges or Supplemental Specifications to the Standard Specifications for Highways and Bridges.

Specific Energy - Total energy head at a cross section measured from the bottom of a channel; the sum of the potential head (depth) and the velocity head (kinetic energy)

Specifications - Define the materials and methods to be used by the contractor when constructing a project

Speed Cushion - Variety of flat-top hump that does not extend fully across the street, but rather affects only one side of the vehicle

Speed Hump - A measure which controls vehicle speed by allowing vehicles operating at intended speeds (typically 15-20 miles per hour) pass with little discomfort to the driver

Speed Hump, Flat-Top - Speed hump frequently used to complement pedestrian crossings, particularly where curb extensions are in place; also called raised crosswalk

Speed Hump, Round-Top - Speed hump that are 12-14 feet in length and rise to a height of 3-4 inches with a parabolic crown profile

Splash Pad - Energy dissipator installed at culvert outlets for erosion control purposes

Spot Narrowing - Narrowing of a street at a mid-block location to reduce the speed of vehicles

Spot Traffic Calming - Measures applicable to only a small segment of street

Stakeholder - Individual having an interest or share in a project, or who may be impacted by the outcome of a project, either directly or indirectly

Station - Unit of measurement consisting of 100 feet in horizontal distance

Stationary Work Zone - A location where construction activity proceeds in-place for a certain duration

Stilling Well - Device which dissipates the kinetic energy by forcing the flow to travel upward to reach the downstream channel

Stop Control, All-Way - Traffic on all approaches controlled by "STOP" signs

Stop Control, Two-Way - Traffic controlled by "STOP" sign on the cross street approaches; main street traffic is not controlled; typically applied to "T" intersections, even though there may be only one approach under stop control

Storage Area - Auxiliary lane approaching an intersection which stores turning vehicles expected to accumulate during an average peak period

Storage Area - Water storage within the banks of the channel (channel storage)

Storm Drain System - Closed system which conveys storm runoff

Street Furniture - Elements such as trees, signs, signals, street lights, walls, fencing, and pedestrian furnishings such as benches, shelters and trash receptacles

Streetscape - The road and its surrounding built environment as a whole

Structural Capacity - Capacity of a facility to support the traffic load

Structural Number (SN) - Measure of the structural strength of the pavement section based on the type and thickness of each layer within the pavement structure

Structurally Deficient - Refers to a bridge structure that has a defect requiring corrective action

Subcritical Flow - Flow which occurs when the depth is greater than critical and the velocity is less than critical

Substructure - Part of a bridge structure that includes the cap and foundations of the abutments and the cap, columns, and foundations for bridge piers or support columns

Subsurface Drainage - Drainage system below the roadway surface provided to maintain the integrity of the roadway structure

Suburban - Refers to fringes of metropolitan areas that are typically lower density than cities and where land uses are widely variant

Supercritical Flow - Flow which occurs when the depth is less than critical and the velocity is greater than critical

Superelevation - Geometric design element employed to counterbalance the centrifugal force, or outward pull, of a vehicle traversing a horizontal curve; refers to the method of banking the roadway by attaining a vertical difference between the inner and outer edges of pavement

Superelevation Runoff - Length of highway needed to accomplish the change in cross slope from a section with adverse crown removed to a fully superelevated section, or vice versa

Superstructure - Part of a bridge structure that includes bridge deck and beams

Survey - Process by which boundaries are measured and land areas are determined; drawing showing the legal boundaries of a property

Sustainable Development - Development that meets the needs of the people today without compromising the ability of future generations to meet their own needs

T

Tailwater (TW) - Vertical distance between the invert at the culvert outlet and depth of water; often be determined by conditions downstream from the culvert

Tangent Runout -Length of highway needed to accomplish the change in cross slope from a normal section to a section with the adverse crown removed, or vice versa

Temporary Berm - Ridge of compacted soil which intercepts and diverts runoff from small construction areas

Temporary Sediment Trap - Small sediment basin intended for short-term use, often at a construction site

Temporary Sedimentation Basin - Sedimentation basin intended to remain operational during the entire construction period

Temporary Slope Drain - System which carries water from a work area to a lower elevation, typically down an embankment; helps prevent erosion of the slope until permanent protection is established

Terminal Serviceability Index - Pavement design factor which indicates the acceptable pavement serviceability index at the end of the selected design period (usually 20 years)

Terracing - Grading technique that reduces erosion and enhances soil stability; in general, terraces should be provided at approximately 20 foot intervals

Terrain - Physical features of a tract of land

Textured Pavement - Pavement which encourages motorists to be aware of an area of special concern due to the appearance of the texture, vibration, more noticeable motion of the vehicle, and tire noise

Thickly Settled District - Area in which houses or buildings are, on average, fewer than 200 feet apart for a length of ¼ mile

Time Restriction - Restriction of construction activities to off-peak travel periods

Traffic Calming - Physical road design elements intended to reduce vehicle speeds and improve driver attentiveness

Traffic Control Device - Any sign, signal, or marking installed for the purpose of regulating, warning, informing, or guiding traffic

Traffic Forecast - Technical analysis and policy consensus on future traffic volumes resulting from the type and intensity of land use, future regional economic activity, presence of transit service, the needs of pedestrian and cyclists, and many other factors

Traffic Impact and Access Study (TIAS) - Assessment of the impacts on nearby roadways of new development proposals, often resulting in commitments for access design and offsite roadway improvements

Temporary Traffic Control Plan - Plan which depicts the basic layout of the worksite, the resulting configuration of lanes, and the placement of signage, barriers, and other traffic control devices

Traffic Signal – Electronic device which assigns right-of-way to both motorized and non-motorized traffic through the use of alternating visual indicators

Transit - Public transportation, especially rail and bus services

Transit Center - A multi-modal facility, often located within major activity center, connecting various regional, express, circulator and local bus services with each other and providing vehicular, bicycle and pedestrian access to these services

Transportation Demand - Demand by motorists, pedestrians, and bicyclists for a facility, assessed in terms of volume, composition, and patterns

Transportation Demand Management (TDM) - Programs designed to reduce demand for transportation through various means, such as the use of transit and alternative work hours

Transportation Improvement Program (TIP) - Five year funding program that allocates state and federal transportation funds, both highway and transit, for the region; prepared by MPOs every year

Transverse Drain - Lateral pipes used to carry subsurface water away from the pavement structure or side slope

Transverse Slope - Slope of a line parallel to the roadway, offset into the clear zone, created by median crossovers, berms, driveways, or intersecting side roads

Travel Lane - Portion of a roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes

Traversable Median - Median typically built of textured or contrasting materials such as stamped concrete, bricks, pavers, or cobblestones; flush with the travel lanes but notably different in appearance and in feel to the driver; can be an effective traffic calming device

Treadway - Portion of a pathway designated for a particular user or set of users

Tree Grate - Decorative element installed around the base of a street tree, typically where pedestrian traffic is expected to occur over the tree pit

Turning Movement Count (TMC) - Level of service analysis at an intersection to determine how the intersection operates under different traffic conditions

Turning Roadway - Short segment of roadway accommodating a right turn, delineated by channelizing islands; used where right-turn volumes are very high, and where skewed intersections would otherwise create a very large pavement area

Typical Section - Section which shows usual roadway (or bridge) cross sectional features including lane and shoulder widths; limits of surfacing; pavement structure data including subgrade treatment type and depth, base course(s) thickness(es) and type of surfacing material; travel lane and shoulder cross slopes; side slope rates for cut and fill sections; ditch or storm sewer location and depth; typical right-of-way limits; profile grade line location; typical traffic barrier location median width and slopes; and curb location and geometry

U

Underdesign – A facility that does not adequately serve its user demands

Underpass - Grade separation where a roadway passes under an intersecting roadway or railroad; also called under-crossing

Underpass, Railroad - Structure that passes a roadway under a railroad

Urban - Refers to central business districts, residential districts and open space parks typical of larger cities.

USGS Wandle Method - A hydrologic method used in Massachusetts to estimate peak discharge

Utilities - Facilities, such as sewer/water pumping, storage, substations, switching stations, generation, transformer, relay and electric devices, and transmission or distribution facilities, for telephone, gas, electric, sewer and water

V

Vertical Clearance - Minimum unobstructed vertical passage space required along a roadway, sidewalk, or trail

Vertical Curve - Parabolic curve used to provide a gradual change in grade between roadway segments with differing grades

Viaduct - Elevated roadway span over a valley, floodplain, wetland, or gorge which provides unrestricted wildlife movements or passage of other activity

Volume - Number of vehicles or persons that pass over a given section of a lane, roadway, or other traffic way during a time period of one hour or more; can be expressed in terms of daily traffic or annual traffic, as well as on an hourly basis

W

Walking Speed - Speed at which a pedestrian passes through an intersection or along a facility

Walkway - Interior or exterior pathway with a prepared surface intended for pedestrian use, including but not limited to general pedestrian areas such as plazas, courts and crosswalks

Wasted Pavement - At an intersection, area of pavement unusable by either vehicles or pedestrians

Water Resource Protection - Protection of water quality for public water supply and marine aquatic life

Watercourse - A waterway with bed and banks, either naturally or artificially created, which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water; also called a channel

Watercourse - Any flowing body of water, including rivers, lakes, streams etc.

Watershed - An area of land which contributes flows to a particular watercourse

Weaving Section - Highway segments where the pattern of traffic entering and leaving at contiguous points of access results in vehicle paths crossing each other

Wetland - Land that is transitional between aquatic and terrestrial ecosystems and is covered with water for at least part of the year

Wildlife Crossing Structure - Structure designed to safely move wildlife either over or under a roadway

Wildlife Overpass - Buried highway section that functions by providing a wildlife "bridge" over a highway

Wingwall - Wing portion of a culvert headwall or the wall adjacent to a bridge abutment

Workshop - Informal gathering of designers, officials, and local citizens, usually in smaller groups, to facilitate problem solving around design issues for which several options are available and the best solution is unclear

Work Zone Traffic Control - The planning, design, and preparation of contract documents for modification of the normal traffic and pedestrian patterns during construction

Y

Yield Control - Traffic controlled by "YIELD" signs on the cross street approaches; main street traffic is not controlled