**Glossary**
The purpose of this glossary is to define terms as used for ODOT-specific analysis. It is written in plain language as much as possible to enhance understandability. It is not intended to change definitions in other engineering publications.

**30th Highest Hour (30 HV)** – Also see Design Hour Volume. This is the 30th highest hour of the year, which is typically the design hour for ODOT plans and projects. It is typically the average p.m. peak hour for most urbanized areas. Hours higher than the 30th are typically holidays and other high-traffic days of the year. The concept of using the $30^{th}$ highest hour is that it would not be appropriate to design for the highest hours of the year as the design may be overbuilt.

**$95^{th}$ Percentile Queue Length** – Queue length (in vehicles) that has a 5% probability of being exceeded during the analysis period. This is typically defined as the design queue length.

**Accessibility** – degree to which the system is usable to as many individuals as possible.

**Access Management** – The proactive management of vehicular access points to land parcels adjacent to all manner of roadways.

**Access Spacing** – The practice of increasing the distance between intersections to improve the flow of traffic on major arterials, reduce congestion, and improve air quality within heavily traveled corridors.

**Active Traffic Management (ATM)** – The ability to dynamically manage recurrent and non-recurrent congestion based on prevailing and predicted traffic conditions.

**Active Transportation and Demand Management (ATDM)** – The dynamic management, control, and influence of travel demand, traffic demand, and traffic flow on transportation facilities utilizing the following three components: Active Traffic Management, Active Demand Management, and Active Parking Management.

**Adaptive Signal Control Systems** – Traffic signal systems that self-adjust to traffic conditions, demand, and capacity.

**Advanced Public Transportation System (APTS)** - Applies advanced technologies to the operations, maintenance, customer information, planning, and management functions for the transit agency. APTS includes advanced communications between the transit departments and the public, personnel, and other operating entities such as emergency response services, and traffic management systems; automatic vehicle locator (AVL); traffic signal priority; transit operations software; advanced transit scheduling systems (ATSS); transit security; and fleet maintenance.

**Advanced Traveler Information System (ATIS)** - Ranges from simply providing fixed transit schedule information to multimodal traveler information, including real-time

traffic conditions and transit schedules, and information to support mode and route selection.

**All Roads Transportation Program (ARTS)** – A safety program addressing safety needs on all public roads in Oregon (formerly known as Jurisdictionally Blind Safety Program).

**Annual Average Daily Traffic (AADT)** - The total traffic for the year divided by 365 (or 366 in a leap year). Can either be actual values from automatic traffic recorders or estimated with seasonal factors.

**Annual Average Weekday Traffic (AAWDT) –** AADT considering only Monday-Thursday volumes.

**Average Daily Traffic (ADT)** – The total traffic volume during a given period (1-365 days) divided by the number of days in that period.

**Average Weekday Daily Traffic (AWD or AWDT) – ADT** considering only Monday-Thursday volumes.

**Air and Noise (Traffic) Data** – An assembly of hourly and daily volumes, speeds, and level-of-service for peak vehicle and truck hours broken down by directional links by analysis year for a build or no-build alternative. These are input into specific models by environmental specialists to determine impacts of air quality and noise.

**Air Quality Conformity** – a method to ensure that Federal funding and approval goes to those transportation activities that are consistent with air quality goals. Conformity applies to transportation plans, transportation improvement programs (TIPs), and projects funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) in areas that do not meet or previously have not met air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide.

**Alternate Mobility Standards** – Adopted by the Oregon Transportation Commission and developed in accordance with Action 1.F.1 in the Oregon Highway Plan, these modify the mobility targets for a specified corridor/area/intersection via an adopted plan. These can be volume-to-capacity ratios or based on other substituted performance measures.

**Aggregate Probabilistic Limiting Velocity Model (APLVM)** – HERS-ST model used to calculate free-flow speed based on curve geometry, pavement roughness and posted speed.

**Area Type (Urban/Rural) -** The area type is determined from the FHWA's functional class for the highway segment.

**Arterial** – A roadway with primary function being mobility rather than property access.

**Arterial Management** - Applies State and local planning, capital, and regulatory and management tools to enhance and/or preserve the transportation functions of the arterial roadway using surveillance devices, advanced signal algorithms, and coordination.

**Automatic Traffic Recorder (ATR)** – Electronic counting site on a roadway that counts vehicles continuously.

**Assignment (Model)** – The placement of travel demand model volumes on the model roadway network typically by shortest path by time.

**Automatic Vehicle Classifier (AVC)** – Similar to an ATR, but these new installations also record the 13 FHWA vehicle types including passenger cars, buses, and trucks.

**Advanced Vehicle Control Safety System (AVCSS)** - Includes vehicle safety systems such as vehicle or driver safety monitoring; longitudinal, lateral, or intersection warning control or collision avoidance; pre-crash restraint; and automated highway systems.

**Auxiliary Lane (Aux Lane)** – An extra lane that restores mainline throughput and improves safety diminished by local operations.

**Auxiliary Through Lane (ATL) –** A limited through lane added midblock upstream and dropped downstream of a signalized intersection.

**Back of Queue** – Refers to how far back it is to the last car lined up at a traffic signal. Maximum extent of the queue relative to the stop line during a signal cycle. The last queued vehicle that joins the back of queue is the last vehicle that departs at the end of the saturated part of green interval or the available gap interval.

**Benefit Cost Ratio (B/C or BCR)** – The relative monetized (can be tangible or non-tangible) benefits divided by the cost, typically expressed as a decimal. Accepted ratios are 1.0 or greater.

**Bicycle Level of Stress (BLTS)** – Multimodal methodology that breaks roadway segments into four classifications for measuring the effects of proximity to motorized traffic on bicycle riders.

**Blocking Percentage –** The proportion of time expressed as a percentage of the peak hour that a queue obstructs an upstream turn lane or intersection or other significant point (i.e. railroad crossing).

**Bottleneck** - A specific location where roadway performance is reduced due to a physical or temporary constraint, which when activated reduces the throughput of the roadway segment.

**Broad Brush Level Analysis** - A high-level roadway capacity analysis requiring minimal amounts of data and incorporating several assumptions or default values.

**Buffer Index** – The percentage additional travel time (or time cushion) users must add to

their average travel time to ensure on-time arrival 95 percent of the time.

**Build Volume** – The volume used for a build alternative. Also known as the design hour volume (DHV).

**Built Environment** – refers to the human-made surroundings that provide the setting for human activity, ranging in scale from buildings and parks (green space) to neighborhoods and cities. This includes supporting infrastructure such as water supply, and energy networks.

**Bus Lane** - Highway or street lane reserved primarily for buses during specified periods (may be used by other traffic under certain circumstances, such as for making a right or left turn, or by taxis, motorcycles, or carpools that meet the requirements of the jurisdiction's traffic laws).

**Bypass Lane** – A lane that allows through vehicle to pass a slowing or stopped left-turning vehicle.

**Calibration** – Calibration refers to comparing the output from travel demand models run using data on existing population, employment, and travel patterns with current traffic counts. Adjustments are made to the model when inconsistencies are identified between the models and actual counts. Calibration also applies to micro-simulation models.

**Capacity** – The maximum sustainable flow rate at which vehicles or persons can reasonably be expected to traverse a point or uniform segment of a lane or roadway during a specified time period under given roadway, geometric, traffic, environmental, and control conditions; usually expressed as vph, pcph, or pph. In other words, capacity is the maximum number of cars per hour that can travel on a particular stretch of roadway, with consideration given to the number of lanes, lane width, traffic signals, speed limit and other features.

**Car Following Model** - Driver behavior model that controls how a following vehicle adjusts its speed in relation to the leading vehicle.

**Centroid Connectors** – Links that connect centroid nodes with the model network. These can represent local streets and accesses not included in the model network. Centroid Connectors provide the linkage between the trips associated with the TAZ land uses and the roadway segments (or links).

**Centroids** – They represent the center of activity for a transportation analysis zone (TAZ). This is not the geometric center of the zone.

**Channelized Intersection** – intersection with restricted turn movements either by signs, pavement markings, medians, or other types of traffic control.

**Climbing Lane** – (or truck lane) A type of auxiliary lane that allows heavy or underpowered vehicles to ascend a steep grade without slowing other traffic. These do not affect the overall system capacity of a roadway.

**CMF Clearing House** – A database produced by the FHWA that contains over 2500 crash modification factors for over 700 safety countermeasures as part of the Highway Safety Manual's crash analysis methodologies.

**Collision Diagram** – See Crash Diagram

**Commercial Goods Transport -** Simulates how commodities are moved as freight by different modes of transport, such as marine, rail, and truck for a typical weekday.

**Commercial Vehicle Operations (CVO) -** Performs advanced functions that support commercial vehicle operations, including communications between drivers, fleet managers, and roadside officials; automates identification and safety processing at mainline speeds; and timely and accurately collects HazMat cargo information after a vehicle incident.

**Comprehensive Plan** – A generalized, coordinated land use map and policy document of a local government that interrelates all functional and natural systems and activities relating to the use of lands, including but not limited to sewer and water systems, transportation systems, educational facilities, recreational facilities, natural resources and air and water quality management programs.

**Conflict Points** – The crossing, merging, or diverging of two vehicular, bicycle, or pedestrian traffic movements on a roadway. These are the points where collisions are likely to occur.

**Congestion** – A condition on road networks that occurs with increased traffic volumes, and is characterized by slower speeds, longer trip times and increased queueing.

**Congestion Management System (CMS)** – A systematic process which provides information on transportation system performance and alternative strategies to alleviate congestion and enhance the mobility of persons and goods.

**Congestion Pricing** – The policy of charging drivers a fee that varies with the level of traffic on a congested roadway. Congestion pricing is designed to allocate roadway space more efficiently. Congestion pricing is also known as relief tolling, variable pricing, and road pricing.

**Context Sensitive Solutions (CSS)** – a collaborative interdisciplinary approach involving all shareholders to provide a transportation facility that integrates well within the physical environment and preserved the local scenic, aesthetic, historic and environmental resources while maintaining safety and mobility.

**Coordinated (Signals)** – Signals that are adjusted or connected so that they provide for continuous flow of traffic between intersections at a given speed. Coordinated signals all have the same speed. Coordinated signals can be timed, interconnected, or controlled from a central operations center.

**Cordon** – An imaginary boundary (non-linear) strategically drawn across an area. The

volumes on the links crossing the cordon are typically summed to understand the number of trips entering and exiting an area.

**Corridor Plan** – A transportation plan that addresses a specific segment of the transportation system. Can address a single roadway or more likely, parallel multimodal facilities.

**Corridor/Small Network** - Expanded study area that typically includes one major corridor with one or two parallel arterials and their connecting cross-streets, typically less than 200 square miles ($mi^2$).

**Cost Effectiveness Index Analysis Spreadsheet** – adaptation of the HSM spreadsheets to analyze countermeasures for bicycle and pedestrian crashes on urban and suburban arterials.

**Crash Coding Manual** – A publication produced by ODOT that compiles data from reported motor vehicle traffic crashes occurring on city streets, county roads, and state highways.

**Crash Diagram** – A graphical illustration of historical crashes at a location including position, time of day, number of injuries and other conditions present.

**Crash Decoder Tool** – a macro-based spreadsheet tool that converts information from the PRC crash listing. This tool eliminates the need to use the ODOT Crash Code Manual.

**Crash Modification Factor (CMF)** – A multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure at a specific site.

**Crash Reduction Factor (CRF)** – As used in ARTS, the inverse of CMF.

**Critical Crash Rate** – a crash rate that has been statistically adjusted based on other roads with similar characteristics to remove random chance elements.

**Critical Hour Listing** – Typically the top 100- 500 hours at a location used to determine when the 30th highest hour or other chosen design hour occurs.

**Cycle Length** – The time it takes for a signalized intersection to go through all movements and indications.

**Critical Movement Analysis** – A planning-level analysis methodology to estimate capacity of a signalized intersection with existing or forecasted volumes.

**D-Factor -** Percent of traffic in a single direction

**Delay** – The additional travel time experienced by a vehicle, bicycle, or pedestrian with reference to a base travel time, e.g., the free-flow travel time.

**Detailed Level Analysis** - A low-level analysis in which all or nearly all input data are known, and the analysis results will be used to make final decisions about roadway design elements, traffic control, and/or project approval.

**Demand to Capacity Ratios (D/C)** – Similar to the volume-to-capacity ratio (See Volume to Capacity Ratio) but is allowed to exceed and be reported at levels greater than 1.0. Typically used in transportation demand models in preliminary screening exercises as link volumes may exceed capacity.

**Design** - This project phase includes approved and funded projects that are going through analysis of the alternatives or preliminary design to determine the best option for implementation. This phase also includes the analysis of roadway features needed to operate at a desired level of service (LOS). The final design phase (e.g., horizontal/vertical alignments, pavement design, etc.) are not included in this category.

**Design Hour Volume** – The design hour volume is the amount of traffic that a new facility is designed to accommodate. The 30th highest hour traffic is generally used as the design hour for most highway facilities; however it also could be the average weekday volume, or average summer weekday, etc. as decided upon by each application.

**Design Life** – The number of years into the future that a project element operates satisfactorily considering increases in traffic demand volumes.

**Design Speed** – The maximum safe speed that can be maintained over a specified section of highway. The design speed of a roadway dictates which geometric design standards are used, such as stopping sight distance, radius of curves, and banking (super-elevation) of road surfaces. This differs from posted speed.

**Desirable Condition** – The ideal maneuver and PIEV distance used for calculating intersection functional area.

**Detector** – A device by which vehicle or pedestrian traffic registers its presence. The most common detectors are the inductive loop detectors in the pavement for vehicles and the push-button detectors for pedestrians. The most common use of detectors is at intersections where they can be used to manage the traffic and pedestrian signals. However, detectors are also used on freeways and freeway ramps to provide information such as speed and volumes for freeway traffic.

**Deterministic** – A mathematical model that is not subject to randomness. For a given set of inputs, the result from the model is the same with each application.

**Diurnal Factors** – Time of day factors used to estimate travel by hour of the day by splitting the daily demand into hourly components. They can be shown as peak (1 hour) or multi-hour.

**Diverge** – A movement in which a single stream of traffic splits into two separate streams without the aid of traffic control devices.

**Division 51** – General reference to OAR 734-051, which pertains to Highway Approaches, Access Control, Spacing Standards and Medians.

**Downstream Functional Area** – Functional area for vehicles leaving an intersection.

**Downtown Plan** – A type of area plan focusing on the central business district usually evaluating pedestrian/bicycle/vehicle safety and operations and parking.

**Dynamic Traffic Assignment (DTA) -** A process for assigning vehicle routes in a simulation model based on network conditions. It is an iterative process that converges to a path assignment based on vehicle travel time and delay between origin and destination (O-D) points in the network. While sometimes used in practice to refer to the macro-or mesoscopic traffic assignment in a travel demand model such as Visum, for the purposes of this document, DTA refers to the microscopic dynamic traffic assignment within Vissim.

**Economic Model** – Model based on the state revenue forecast

**Electronic Payment System** - Allows travelers to pay for transportation services by electronic means, including tolls, transit fares, and parking.

**Emergency Management** - Represents public safety and other agency systems that support coordinated emergency response, including police, fire, emergency medical services, hazardous materials (HazMat) response teams, Mayday service providers, and security/surveillance services that improve traveler security in public areas.

**Enhanced Interchange Safety Analysis Tool (ISATe)** – tool from the HSM used to predict the frequency and characteristics of crashes on freeways and interchanges.

**Environmental Justice** – Process that ensures that highway projects do not disproportionately impact one segment of the population, e.g., low-income or minorities.

**Exponential (compound)** – Compound growth is an accelerating growth curve typically associated with brand new growth in an area that has plenty of land and road capacity. Application is typically limited to five years or less as use over a prolonged period can substantially overestimate future growth.

**Expressway** – An expressway is a divided highway facility usually having two or more lanes for the exclusive use of traffic in each direction and incorporating partial control of access.

**External Goods Transport –** Simulates freight movement for exports, imports and through the state.

**External Station** – A location where a roadway crosses the outside boundary of a travel demand model or zonal cumulative analysis.

**Facility Analysis** – Used to evaluate performance measures such as travel time, travel

speed, vehicle hours of delay, and measures of congestion. Roadway operations are also evaluated when demand exceeds capacity (e.g. identifying bottlenecks and queue extents).

**Facility Plan** – A study that focuses on a specific facility. A facility can be any roadway, bikeway, or pedestrian path made up of multiple segments.

**Fatal Flaw** – A flaw in the design that would ultimately keep the facility from functioning as intended and/or violates certain policy or minimum design standards (where design exceptions would be unsafe).

**Floating Car** – A probe vehicle traveling with the traffic flow for the purpose of recording travel times, where the car is driven such that the number of vehicles that pass the "floating car" is equal to the number of vehicles that the "floating car" passes. This is how the floating car approximates the average travel time of the given section.

**Flyover** – A directional ramp structure that is typically used to remove a left turn movement out of an at-grade intersection to improve operations.

**Focusing Model** – A model with additional refinement and detail within a subarea. The additional resolution may be added to the transportation network or the zone structure.

**Follower Density -** the number of followers in a directional traffic stream over a unit length of highway.

**Free-Flow Speed** – Speed at which vehicles travel unimpeded by effects of other vehicles. Typically taken as five mph over the posted speed for planning and preliminary engineering applications.

**Freeway** – Divided highway with a minimum of two lanes for exclusive use of traffic in each direction, with grade-separated connections, and with full access control.

**Freeway Management** - Controls, guides, and warns traffic to improve the flow of people and goods on limited-access facilities. Examples of freeway management include the integration of surveillance information with freeway road geometry; vehicle control, such as ramp metering; dynamic message signs (DMS); and highway advisory radio (HAR).

**Freight Route** – A highway that has been recognized for its overall importance in intra and interstate commerce. May have specific mobility and design considerations applied.

**Frontage Road** – A roadway that parallels a major transportation facility, such as a freeway, and provides access to residents and businesses.

**Functional Classification** – FHWA (federal) classification of the urban and rural roadways based on the type of service the road provides.

**Functional Area** – (See: Influence Area) The area in which an intersection affects vehicle paths such as influencing driver decisions, vehicle movements, and vehicle

queues.

**Future Volume Table** – Table that shows future AADT volumes for state highway segments based on historical traffic counts or travel demand model-based growth trends.

**Gap** - The time or distance between the back end of a leading vehicle and the front end of the following vehicle.

**General Transit Feed Specification (GTFS)** – Defines a common format for public transportation schedules and associated geographic information.

**Goals and Objectives (G & O)** – Primary desired outcomes on a project or plan. Evaluation criteria are based on these.

**Grade** – The slope (ratio of change in elevation to change in distance) of a roadway typically given in percent. For example, a 2% grade represents a 2-foot elevation change over a 100-foot distance.

**Grade Separation** – A vertical separation between intersecting roads or railroad tracks. One facility travels over the other via an overpass or other structure.

**Gravity-Based Distribution** – Trip distribution based on the gravity model which illustrates the distance, time and cost relationship between activities and their respective locations.

**Growth Factor** – A percentage increase applied to current traffic demands to estimate future demands. Expressed as 1 + the decimal percentage of the change (i.e. 1.34).

**Growth Rate** – This is the rate at which traffic volume is expected to increase annually on a specific facility.

**Headway** – The time between two successive vehicles as they pass a point on the roadway, measured from the same common feature of both vehicles (for example, the front axle or the front bumper), expressed in seconds.

**Heavy Vehicle Percentage** – Percentage of heavy vehicles within the traffic count (FHWA classifications 6 – 13).

**Highway** – High-speed roadway connecting major areas or arterials, with little or no traffic signal interruption (e.g., two-lane highway, expressway).

**Highway Classification (Per OHP)** – Classification based on FHWA (federal) Functional Class.

**Highway Economic Requirements System (HERS-ST)** - HERS-ST is a high-level planning analysis tool used for statewide, regional, and corridor planning studies.

**Highway Safety Improvement Program (HSIP)** – FHWA program that provides

federal aid for safety projects on all public roads.

**Historical Trends** – Long-term trends identified from analysis of historical data

**Hot/Cold Start Percentages** – These are calculations used in air quality analysis. They provide an estimate of the amount of time vehicles have been running when they enter a section of roadway.

**HOV Bypass Lane** – Exclusive on-ramp lane for vehicles with a defined minimum number of occupants (more than one), including buses, taxis, carpools, for specified time periods.

**HOV Lane** – An exclusive road or traffic lane limited to buses, vanpools, carpools, emergency vehicles, and, in some cases, single occupant motorcycles. HOV lanes typically have higher operating speeds and lower traffic volumes than adjacent general-purpose lanes.

**Incident** – An event or condition on a roadway that impedes the normal flow of traffic.

**Incident Management** - Manages unexpected incidents so that the impact on the transportation network and traveler safety is minimized. Includes incident detection capabilities through roadway surveillance devices and incident response through coordination with freeway service patrols and emergency response agencies.

**Induced Demand –** A long-term economic response that typically occurs outside of a particular study area based on improvements or lack of to the transportation system infrastructure.

**Influence Area** – The overall length of a segment controlled by the operation of a geometric or other traffic control feature. This is much longer than the feature itself. Typically involves merge/diverge points or traffic signals.

**Integrated Corridor Management (ICM)** – An approach to managing the transportation network that encourages multi-agency coordination and combines arterial and freeway strategies to balance and manage travel demand across networks (freeway, arterial, transit, and parking).

**Intelligent Transportation Systems (ITS)** – Transportation technology that allows drivers, vehicles, devices, and system operators to gather and use real-time information to improve vehicle navigation, roadway system operations, or both.

**Interchange Area Management Plan (IAMP)** – A plan to determine transportation solutions or land use/policy actions needed in an interchange area and how best to balance and manage transportation and land use issues over time.

**Interim Year** – A forecast year between the base/existing year and the design or horizon year.

**Isolated Intersections** – Single crossing point between two or more roadway facilities with typical greater than a two-mile spacing to adjacent intersections.

**J-turn** – An intersection design to facilitate a minor street left turn onto a major street where a non-traversable median is present. This design accommodates all vehicles including trucks via a right turn followed by a larger radius U-turn.

**Jam Density** – Queue forming upstream of the bottleneck (maximum density)

**K-Factor -** Percent of ADT in the peak hour

**KABCO** – A scale of crash injury severities.

**Latent Demand –** A short-term driver-based response to added or removed constraints typically within a particular study area. This can be shown as change of route, time, or mode.

**Land Development Model** – Identifies land availability based on floor space prices and vacancy rates to rent or purchase.

**Least Cost Planning** – The process of comparing direct and indirect costs of demand and supply options to meet transportation goals, policies, or both, where the intent of the process is to identify the mix of options with the best value.

**Light-Rail Line -** Electric-powered railway system operating single cars or short trains on a variety of alignment types on a partially controlled right-of-way.

**Link Diagram** – A link and node representation of an intersection or transportation facility.

**Links** – A length of roadway between two nodes or points.

**Logarithmic** – A decelerating growth curve which tapers off as land approaches built-out status and capacity of roadways. Future growth is mainly contributed by growth in background (through) traffic.

**LOS (Level of Service)** – A quantitative measure describing operational conditions within a traffic stream and motorists' perceptions of those conditions. For example, LOS A represents free flow - almost complete freedom to maneuver within the traffic stream. LOS F represents forced flow - more vehicles are attempting to use the highway than can be served, resulting in stop-and-go traffic.

**LOS C Volume** – Term used in noise analysis. LOS C represents the level of congestion where speeds begin to reduce in a meaningful way. Therefore, LOS C represents the maximum volume at the maximum speed that produces the maximum noise.

**Macroscopic** Model – an aggregate model with a high-level view of the transportation system, which does not include many transportation network details. Macroscopic models

are generally large and focus on the general flow of travel and route/mode choice from one area to another. System details usually approximates, or averages including number of lanes, free-flow speed, and vehicle capacity.

**Managed Lanes -** A lane that is restricted or controlled for a particular purpose (e.g., HOV lanes, bus only lanes, and regular and high-capacity toll lanes/HOT).

**Merge**– A movement in which two separate streams of traffic combine to form a single stream without the aid of traffic signals or other right-of-way controls.

**Mesoscopic Model** – A hybrid model that includes combinations or approximations of elements from both macroscopic and microscopic models. May include a routable network similar to a macroscopic model, while also incorporation more detailed operation elements of the transportation network to better estimate travel time based on traffic operation similar to a microscopic model. Accounts for queuing on each link but not at the individual vehicle level.

**Methodology & Assumptions Memorandum** – A memorandum describing all the volume development and analysis assumptions for the existing and future no-build and build conditions. Submitted for approval before analysis tasks begin.

**Microscopic Model** – A calibrated highly detailed model simulating individual vehicles and driver behaviors on a transportation network requiring a high degree of detail.

**Microsimulation** - Modeling of individual vehicle movements on a second or sub-second basis for the purpose of assessing the traffic performance of a transportation network.

**Mitigation** –An action that avoids, addresses, or modifies a negative impact. Typically used in environmental analysis and development review.

**Mobility** – The ability of the transportation system to facilitate the movement of people, goods and services to and from desired destinations.

**Mobility Target** – An Oregon Highway Plan volume-to-capacity ratio that indicates a desirable level of performance on a facility.

**Mode Choice** – The process used to determine the modeled choice in which a user will reach their intended destination (i.e. Car, bus, bike, walk...etc.).

**Model Area** - The total area to be modeled to accurately analyze the study area (an area equal to or greater than the study area).

**Modernization** – The process of updating current infrastructure for the purpose of increasing safety or functionality of the system.

**Metropolitan Planning Organization (MPO)** – An association of local agencies established by federal law to coordinate transportation planning and development

activities within a metropolitan region.

**Multi-Criteria Evaluation (MCE) –** A tool used by Metro and ABM models to provide consistent output sets.

**Multi-Modal** – Multiple modes of transportation consisting of but not limited to automobile, bus, bicycle, and pedestrian travel.

**Multi-Resolution** – An integrated series of models, each built or scaled for the appropriate level of detail given the context of the project application and need.

**National Transportation Communications for Intelligent Transportation System Protocol (NTCIP)** – A family of standards designed to achieve interoperability and interchangeability between computers and electronic traffic control equipment from different manufacturers.

**National Electrical Manufacturers Association (NEMA)** - Vissim's default emulator for standard signal controller logic (prior to Vissim version 5.0). NEMA was developed internally by PTV America to replicate the common features of a signal controller.

**No-build Volume** – Can refer to existing conditions or more commonly to a set of future conditions without any of the subject plan/project improvements in place. The no-build will usually include other projects in the area that might be in a funded capital improvement and/or financially constrained plan. In the context of a travel demand model, no-build is thought of as a "do nothing" with no other project improvements assumed.

**Nodes** – Indicates the intersections of links.

**Nomograph** – a graph containing three parallel scales graduated for different variables so that when a straight line connects values of any two, the related value may be read directly from the third at the intersection point.

**Non-Attainment Area** – An area where air pollution levels persistently exceed the nation ambient air quality standards.

**OHP Mobility (V/C) Target** – Thresholds set by the Oregon Highway Plan for the volume to capacity ratio performance measure for each specific facility classification.

**Operational Analysis** – An application of a methodology where the user supplies all or nearly all required inputs to the procedure instead of using defaults. Should not be confused with the analysis of operations which could occur at any detail level.

**Operations** – Strategies and solutions that optimize or preserve the existing transportation system for mobility and safety through the process of improving the flow of the existing system.

**Operations/Construction** - These projects share many similar characteristics with

design projects but are performed to determine the best approach for optimizing or evaluating existing systems.

**Oregon Highway Plan (OHP)** – A plan which establishes long-range policies and investment strategies for the State Highway System.

**Oregon Transportation Plan (OTP)** – Oregon's long-range multimodal transportation plan with the overarching goal of providing a safe efficient and sustainable transportation system that enhances Oregon's quality of life and economic vitality.

**Origin** – **Destination (O-D) Study**- Conducted as a part of an overall regional transportation study to identify travel patterns between the starting (origin) and ending (destination) points of trips within the region.

**ORS 366.215** – Oregon Revised Statute written to restrict permanent reductions of vehicle-carrying capacity of over-height and oversize trucks along identified (i.e. Reduction Review Routes) freight routes.

**Overlay Zone** – Area established with special regulations that address specific subjects in addition to and used to modify the regulations of the base zone. Overlay Zones can exist in multiple types such as Buffer Zones, Environmental Zones…etc.

**Park-and-Ride** – Park-and-Ride lots are designed for automobile parking at outlying locations along transit routes.

**Passing Lane** - A type of auxiliary lane that allows vehicles to overtake slower ones. These do not impact the system capacity of the overall roadway. Passing lanes in steep terrain are also termed as a climbing lane.

**Pedestrian Hybrid Beacon (PHB)** – A user-actuated traffic control device with a "red" indication designed to help pedestrians safely cross busy roadways at midblock crossing and uncontrolled intersections.

**Pedestrian Level of Traffic Stress (PLTS)** – Multimodal methodology to classify pedestrian facilities according to their condition and proximity to motorized traffic on users.

**Peer Review** – An evaluation of work performed by one or more individuals of similar field and competence to the producers of the original work. Peer review is used as a method to maintain standards of quality, improve accuracy, and provide credibility.

**Performance Measure** – An individual quantitative or qualitative value that identifies the degree that a facility/strategy/action meets a certain goal, objective, or policy.

**Person Travel** – Person activities for a typical weekday simulated by a population synthesizer in an activity or tour-based travel demand model.

**Phase** – The part of the signal cycle allocated to any combination of traffic movements

receiving the right-of-way simultaneously during one or more intervals. A phase can include green, yellow change, red clearance, pedestrian, and bicycle intervals.

**Phase Split (Length)** – Duration of an individual interval in a signal cycle.

**Phase Sequence (or Phase Rotation)** - the order in which the various signal phases are served.

**Planning** - This phase includes short- or long-term studies or other State, regional, or local transportation plans (e.g., master plans, congestion management plans, ITS strategic plans, etc.).

**Planning Analysis** – An application of a methodology where most or all required inputs are defaulted.

**PLANSAFE** – A regional scale safety analysis tool.

**Point Capacity** – Capacity of a roadway section at a specific location typically within an auxiliary lane section.

**Posted Speed** – The posted speed is a regulatory sign identifying the legal speed on a roadway. It is based on a statistical sampling of existing traffic speeds, safety issues, etc., and is typically lower than design speed.

**Population Synthesizer** – simulates the population with observed Oregon characteristics.

**Post-processing** – Refers to additional processing of data after it's been collected to enhance the data or make the original data easier to understand. In the context of the APM this refers to the future volume development process merging traffic counts with relative changes between different travel demand model scenarios.

**Practical Design** – A design philosophy that is used to conserve resources while meeting system needs, balancing cost with system value, and following business practices.

**Pre-breakdown Capacity –** Segment capacity determined through application of CAFs relative to the freeway segment's base (ideal) capacity at the bottleneck

**Predictive Method** – A detailed Highway Safety Manual Part C methodology that calculates future crash frequency.

**Preservation** – Projects that maintain facilities but do not add significant safety or capacity improvements. Typically these are pavement, shoulder, curb/gutter/sidewalk and striping/signing projects.

**Probe Data Analysis Tools** – The range of tools available to evaluate existing or historical travel time and speed-based measures (e.g. travel time reliability) from commercial sources of probe data.

**Production Location Model** – Simulates where businesses (i.e. employment) are located.

**Progression Analysis** – Study conducted to optimize speed and delay in the traffic flow along a signalized corridor.

**Project Development Stage** – Final traffic analysis decisions are made using detailed operational methods (i.e. HCM, HSM, and others) about roadway design features, multimodal aspects, and traffic control.

**Project Limits** – the physical boundaries of a project usually defined by milepoints.

**Project Prospectus** – document that defines the major features of a project and includes enough detail to fairly scope the project.

**Purpose and Need (P & N)** – Explanation of what the project intends to address (purpose) and why it is necessary (need).

**QCEW (Quarterly Census of Employment and Wages) Data** – A quarterly report on employment and wages by industry, provided by the Oregon Employment Department.

**Qualitative Multimodal Assessment (QMA)** – A methodology that uses roadway characteristics and applies a context-based subjective "excellent/good/fair/poor" rating. This method applied when comparing different alternatives side-by-side or applied to a single scenario to compare the proposed improvement to existing conditions and to applicable standards.

**Queue** – A line of vehicles or pedestrians waiting to proceed through an intersection or bottleneck. Slow-moving vehicles or pedestrians joining the back of the queue are usually considered part of the queue.

**Queue Discharge Rate –** The average flow rate during oversaturated conditions

**Queue Spillback** – When traffic queues at an intersection or bottleneck build up to the point that they block turn lanes, driveways, or even upstream intersections. See Blocking Percentage.

**Rail Grade Crossing Monitors** - Manages traffic at highway-rail intersections where operational requirements demand advanced features. Includes the capabilities from the Standard Rail Crossing equipment package and augments these with additional safety features, including positive barrier systems and wayside interface equipment that detects or communicates with the approaching train.

**Ramp** – Short segment of roadway connecting two grade-separated roadway facilities often with mixed traffic characteristics of both.

**Ramp Acceleration/Deceleration Lane Lengths** – The distance from the ramp gore point to the ending/starting point of the taper.

**Ramp Metering –** (or ramp signal/metering light) is a device, usually a basic traffic light or a two-section signal light together with a signal controller, that regulates the flow of traffic entering freeways according to current traffic conditions.

**Random Seed** - A micro-simulation parameter in Vissim and other software that initializes a random number generator.

**Rectangular Rapid Flashing Beacons (RRFB)** – User-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks.

**Reference Phase –** Coordinated phases for an actuated signal

**Refinement Plan** – Level of transportation plan that focuses on a specific topic, feature, mode, or highway segment in a sub-area usually at a high level of detail.

**Region (Regional)** – Citywide or countrywide study area involving all freeway corridors and major arterial.

**Regional Transportation Plan (RTP)** - Identifies the long-term (20-year or longer horizon) transportation needs of a metropolitan area exceeding 50,000 population, incorporating projects from local TSPs, developing actions to address those needs, and prioritizing recommended projects in a financially constrained plan.

**Reversible Lane** – Roadway lane that changes directions during different hours of the day. These are typically used to help alleviate congestion by accommodating the peak direction of traffic.

**Ring-Barrier Controller (RBC)** - Vissim's default emulator for standard signal controller logic. RBC is a direct implementation of an actual real world signal controller firmware (D4) and includes more advanced features than the NEMA emulator.

**Riparian** – relating to or situated on the banks of a waterway.

**Road Diet** – A reduction in through-lanes for a given roadway; occurs within a "complete street" process that optimizes the available pavement width across all modes. Typically occurs with the conversion of a four-lane street down to two travel lanes and a two-way left turn lane. It is also known as roadway reconfiguration.

**Roadway Functional Class** – Federal classification of a roadway according to a jurisdiction by typical use and volume. Major categories typically include Interstates, other freeways, arterials, collectors, or locals.

**Roundabout –** Unsignalized intersection with a circulatory roadway surrounding a central island with all entering vehicles yielding to circulating traffic.

**Rural** – Areas with less than a population of 5,000 outside of established urban growth or metropolitan planning boundaries.

**Safety Priority Index System (SPIS)** – A method developed by ODOT to flag safety issues on state highways.

**Safe Routes to School** – A set or programs sustained by community leaders, local, state and federal governments to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school.

**Saturation Flow Rate** – The maximum departure (queue discharge) flow rate achieved by vehicles departing from the queue during the green period at traffic signals.

**Screening/Screening Level Analysis** – The process of evaluating and reducing the potential number of alternatives.

**Screenlines** – Imaginary lines that are strategically drawn across network links. The volumes on the links crossed by the screenlines are summed. Typical use of a screenline is to compare the volume of traffic entering and leaving the study area for each alternative.

**Scoping** – the process of identifying approach, tools and efforts based on analysis need prior to beginning a project.

**Seasonal Adjustment** – the process to adjust traffic volumes to reflect a specific time of year. This is typically the summer peak or the average weekday conditions.

**Seasonal Factor** – the calculated value used for adjusting traffic volumes to specific time of year.

**Seasonal Trend Table** – An ODOT-produced table of factors calculated from yearly patterns of automatic traffic recorder data used to estimate seasonal traffic count adjustments.

**Seeding Period** - The time between the start of the micro-simulation and when the network has the necessary number of vehicles in the system for the representative time period.

**Segment** – Typically a distance between two features (e.g. speed limit change, intersection, or off-ramp, etc.)

**Segment-Based Analysis** – Facility analysis performed between intersections or ramp junctions.

**Sight Distance** – A distance a vehicular driver needs to be able to see to have adequate room to stop or otherwise avoid an obstacle or collision.

**Signal Progression** – The timing of signals such that a group or platoon of cars arrives at a succession of green lights and proceeds through multiple intersections without stopping.

**SimTraffic** – performs micro simulation and animation of vehicle traffic, modeling travel

through signalized and unsignalized intersections and arterial networks, as well as freeway sections, with cars, trucks, pedestrians, and buses. SimTraffic includes the vehicle and driver performance characteristics developed by the Federal Highway Administration for use in traffic modeling.

**Special Events** – Management of planned events so that the impact on the transportation network and traveler safety is minimized through coordination with other traffic management, maintenance and construction management, and emergency management centers, and event promoters.

**STIP (State Transportation Improvement Program)** – A multi-year, statewide, multi-modal program of transportation projects. The STIP must be consistent with the Oregon Highway Plan, Oregon Transportation Plan and regional and local transportation system plans.

**Stochastic** – Describes an outcome derived from random probability distribution that may be analyzed statistically but may not be predicted precisely (repeated attempts result in different results).

**Storage Length** – The available lane distance for holding queued vehicles.

**Straight-Line Growth –** Steady (linear) growth over time.

**Study Area** – The geographical area selected for analysis.

**Sub-Area Modeling** – Process for increasing the detail level in an existing travel demand model. The two major methods are Focusing and Windowing.

**System Capacity** – The general capacity of a roadway section outside of (i.e. upstream and downstream) of an auxiliary lane section.

**System (Systemic) Level** – Consideration of all transportation facilities and modes in a particular region.

**System Peak Hour** – The predominant peak hour used for all locations within a study area.

**Terrain Class (Specific Grade)** – Using ODOT's Vertical Grade Report for any segment that contains a grade that is either (1) between 2–3% and longer than ½ mile, or (2) steeper than 3% and longer than ¼ mile, should be analyzed as a specific grade (where the slope and grade length are required) rather than as a general terrain class.

**TFlowFuzzy** - A matrix estimation utility used to adjust a given O-D matrix in such a way that the result of the assignment closely matches desired volumes at points within the network.

**Traffic Analysis Narrative Report (TANR)** – Comprehensive traffic analysis report compiled at the end of a project serving as a legacy document supporting the final

recommendations for the project.

**Traffic Incident Management (TIM)** – A multi-disciplinary effort to practice planned and coordinated detection, response, and clearance of traffic incidents.

**Traffic Message Channel (TMC)** –Refers to the ID number of predefined road segments that probe vehicle data is referenced to, used by HERE and other third-party transportation data providers as a commercial industry standard.

**Transportation Analysis Zone (TAZ)** – A geographic unit used in travel demand models. These contain data population, employment, and household characteristics, as well as other land use attributes.

**Transportation Demand Management (TDM)** – Actions or programs that encourage people to travel at alternative times or with fewer vehicles, e.g., rideshare/carpool programs, transit fare discount programs, and flextime.

**Transportation System Plans (TSPs)** – The long-range (20-yr) transportation plan for a city or county which contains (ideally) a financially constrained project list covering all applicable modes as the transportation element of the jurisdiction's comprehensive plan.

**Travel Time** – The time taken to travel between two points.

**Transportation Strategy** – A general approach to solving a transportation problem which can consist of policies, plans, and /or physical projects.

**Transportation System Management (TSM)** – Operation-based actions (e.g., ramp metering) that control or improve the flow and safety on the roadway system.

**Transportation Systems Management & Operations (TSMO)** – An integrated program to optimize the performance of existing multimodal infrastructure through implementation of systems, services, and projects to preserve capacity and improve the security, safety, and reliability of our transportation system.

**Transportation System Plan (TSP)** – A plan required by the Transportation Planning Rule (TPR) establishing a system of transportation facilities and services to meet state, regional and local needs.

**Travel Demand Management (TDM) -** TDM strategies are designed to maximize person throughput or influence the need for or time of travel. They are typically implemented in urban areas to reduce traffic congestion and air pollution, and to increase the efficiency of the transportation system. TDM strategies include employer trip reduction programs, vanpool programs, the construction of park-and-ride lots, and alternative work schedules.

**Travel Demand Models** – Computerized model that represents travel decisions that are consistent with the actual travel trends and patterns.

**Travel Time Reliability** - measures the extent of this unexpected delay or the consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day.

**TripCheck Local Entry (TLE)** – A TripCheck feature that allows transportation agencies within Oregon to share information about construction and maintenance projects between one another.

**TripCheck Traveler Information Portal (TTIP)** – A portal which provides incident and road and weather data, in Extensible Markup Language format at no cost to over 175 public and non-public subscribers.

**Trip Distribution** – The number of trips that occur between each origin zone and each destination zone.

**Trip Generation** – The number of trips created from a specific type of land use. The ITE Trip Generation Manual provides the accepted source for estimates of vehicular traffic generation for various land use types. It is also the first step in the transportation forecasting process for travel demand models that estimate person trips based on housing and employment data.

**Truck Lane** – A designated lane for commercial vehicles, but not for public transit vehicles.

**Unconstrained Assignment** – A model run that has no link capacity constraints and uses free-flow speeds instead of congested speeds.

**Upstream Functional Area** – functional area for vehicles approaching an intersection.

**Urban** – Areas with moderate to high densities of development and population.

**Volume-to-Capacity Ratio (v/c)** – The ratio of the traffic flow rate to the capacity of the road. Volume to capacity ratios are limited to a maximum of 1.0. A v/c ratio reported over 1.0 is actually a demand-to-capacity ratio. See Demand to Capacity Ratio.

**Validation** –Testing a calibrated model under different conditions for reasonability.

**Variable Advisory Speed (VAS)** – Speed limits determined with a two-stage speed reduction scheme. It is intended to advise motorists to slow down because there is slowed or stopped traffic on the road ahead.

**Variable Messaging** – practice of using variable message signs with the capability of displaying a different message based on system needs or changing conditions.

**Vehicle- Carrying Capacity** – the horizontal and vertical distance above the road (a.k.a. "the hole in the air") for oversize trucks.

**Vehicle Hours of Travel (VHT)** – the sum of the travel times incurred by all motor

vehicles in a specified system of highways for a given distance. VHT is calculated by multiplying the AADT value for each section/segment of road by the section/segment travel time (in hours) and summing all sections to obtain the VHT for the complete route.

**Vehicle to Everything (V2X)** – is when connected vehicles "talk" to anything besides roadside infrastructure or other vehicles on the road, like mobile devices.

**Vehicle to Infrastructure (V2I)** – is when connected vehicles "talk" to roadside infrastructure, like traffic signals.

**Vehicle to Vehicle (V2V)** – is when connected vehicles "talk" to other vehicles on the road.

**Vissim Protocol** – The ODOT document used to guide the proper creation of Vissim-based microsimulations.

**Vehicle Miles of Travel (VMT)** – the sum of the distances traveled by specific motor vehicles in a specified system of highways for a given period of time.

**Volume Balancing** – Mathematically balancing the traffic volumes between two points.

**Weather Management** - Includes automated collection of weather condition data and the use of that data to detect hazards such as ice, high winds, snow, dense fog, etc. This information can be used to provide road condition information and more effectively deploy maintenance and construction resources.

**Weave** – A section of a highway where two or more vehicle flows must cross each other's path. Weaving areas are usually formed when merge areas are closely followed by diverging areas.

**Weaving Lane** – A type of auxiliary lane typically occurring within an interchange between successive on and off ramps.

**Weigh-In-Motion (WIM)** – a permanently installed device for weighing vehicles in the traveled lanes.

**Windowing Model** – A cut out portion or "window" of an existing model that contains a subarea of the transportation network and creates cordon areas at the edge of the subarea. The window allows additional refinement, and greater detail while still maintaining consistency with the original model.

**Work Zones** - Uses traffic control devices (signs, channeling devices, barriers, etc.) and traveler information to maximize the availability of roadways during construction or maintenance while minimizing the impact on the traveling public and highway workers.

**Zero-Volume Delay** – Delay associated with traffic control devices. This is the expected delay that a single vehicle would encounter even if it were the only vehicle on the road.

**Zonal Cumulative Analysis** – A manual three-step analysis that involves the creation of zones and utilizes ITE Trip Generation methodologies, external trip O-D pairs, and gravity-based distribution.

**Zoning Maps** – Map of the local geographic area that defines current zoning designation and land use.