



Transportation System Plan



A Glossary of Terms

ADT: Average Daily Traffic. The term used to describe the number of vehicles on a roadway segment during a non-holiday week day.

Bike Lane: A lane devoted to non-motorized bicycles.

DOT: Department of Transportation. Most state departments of transportation place one or two letters before the DOT in their name. For instance, Oregon DOT is ODOT.

Geometric Improvements: Improvements to roads such as widening, adding signals to intersections, or adding turning lanes. These are required to mitigate traffic impacts and maintain a required level of service (LOS).

ITE: Institute of Transportation Engineers. Organization for professional transportation engineers. ITE publishes the Trip Generation Manual, which provides information on trip generation for land uses and building types. For instance, if an individual needs to know the number of trip ends (see definition below) produced by an industrial park,

the report provides a trip rate based upon the size of the building. The report also divides the trip rate into peak hour rates, weekday rates, etc.

ISTEA: Inter-modal Surface Transportation Efficiency Act of 1991. This Congressional act requires states to develop a Statewide Transportation Plan and a Statewide Transportation Improvements Program (STIP) that identifies short-term project needs and priorities. It has also been a major source of funding for transportation planning and encourages the linking of transportation and community planning. (See also TEA-21 and SAFETEA-LU below).

Level of Service (LOS):

Intersection. This is a measure of the average delay experienced by each vehicle passing through an intersection. It can be measured for the vehicles making each directional turning movement, using each approach leg, or as a composite average value for all vehicles using the intersection. Similar to roadway level of service, it is reported with a letter grade designation ranging from A to F. An LOS A represents insignificant delay (less than 10 seconds per vehicle); LOS F represents significant waiting. This means more than 50 seconds per vehicle for intersections with non-existent or

inadequate signals or more than 80 seconds per vehicle for intersections with signals.

Roadway/Street. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be. LOS serves as a benchmark to determine whether new development will comply with an existing LOS or if it will exceed the preferred or adopted LOS. As part of planning for new projects or developments, transportation professionals conduct a Traffic Impact Study (TIS). The TIS determines how specific streets and intersections will function with increased traffic volumes either with or without improvements.

There are six levels of service letter grades typically recognized by transportation planners and engineers. They are as follows:

Level of Service A

Level of Service A describes a condition of free flow, with low volumes and high speeds.

Level of Service B

Level of Service B is the zone of stable flow, with operating speeds beginning to be restricted

somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation.

Level of Service C

Level of Service C is the zone of mostly stable flow, but speeds and maneuverability are more closely constricted by the higher volumes.

Level of Service D

Level of Service D is a zone that approaches unstable flow, with tolerable operating speeds, however driving speed is considerably affected by changes in operating conditions.

Level of Service E

Level of Service E is a zone that cannot be described by speed alone. Operating speeds are lower than in Level D, with volume at or near the capacity of the highway.

Level of Service F

Level of Service F is a zone in which the operating speeds are controlled by stop-and-go mechanisms, such as traffic lights. This is called forced flow operation. The stoppages disrupt the traffic flow so that the volume carried by the roadway falls below its capacity; without the stoppages, the volume of traffic on the roadway would be higher, or in other words, it would reach capacity.

It should be noted that LOS is a measure of a roadway segment's (zone's) efficiency at moving automobiles through the zone. By definition, it places a high emphasis on the free-flowing speeds of autos and does not give consideration to the comfort or safety other roadway users such as bicyclists or pedestrians.

Link Volumes: The number of vehicles using a specific street segment. It is typically expressed as average daily traffic (ADT) or vehicle per peak hour (VPH).

Linked Trip/Trip Chain: The sequence of grouping stops between the origin and ultimate destination. The intermediate stops made while enroute to the ultimate destination are referred to as pass-by trips. The term is used in the evaluation of the operation of the accesses or driveways serving the uses at the intermediate stops.

Median: A physical divider separating lanes of traffic that typically are traveling in opposite directions. A median is often installed to prohibit unsafe turning movements. It can also be used to beautify a streetscape.

MPO: Metropolitan Planning Organization. The agency which administers the federally required

transportation planning processes in a metropolitan area. An MPO must be in place in every urbanized area with a population over 50,000, and is responsible for the 20-year long-range plan and the Transportation Improvement Program (TIP). The MPO is the coordinating agency for grants, billings and policy-making for transportation.

Multimodal: More than one mode of transportation in the same geographic area.

NHS: National Highway System.

Peak Hour: The one hour period during which the roadway carries the greatest number of vehicles. Traffic impacts are typically evaluated during the morning and afternoon peak hours when the greatest number of motorists are traveling to and from work.

Pedestrian LOS: Level of service for pedestrians can also be studied as part of a transportation or traffic analysis. This is less common. It is typically only an issue in larger urban areas. Exhibit 1 illustrates the congestion of a proposed pedestrian walkway LOS.

Platoon: A grouping of vehicles traveling in the same direction at the same approximate speed.

Reverse Commute: The travel from the city center to suburban locations, moving counter to the primary or major volume of traffic flow.

SAFETEA-LU: On August 10, 2005, the Federal “**Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users**” (SAFETEA-LU) was signed into law. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009.

Stacking: The process of vehicles forming a line or queue. If the stacking extends into the through-lanes, delays and unsafe conditions become prevalent.

SOV: **S**ingle **O**ccupant **V**ehicle or one person per vehicle.

Street Cross-Section: A term used to describe the total number of lanes on a street. For instance, a street that has two lanes of north bound traffic, two lanes of southbound traffic, and a refuge lane is commonly referred to as a five-lane cross-section.

Traffic Calming: The process of designing streets or adding design elements to tame fast traffic and address unsafe traffic conditions. Design elements include, for example, speed humps, narrowed streets, added traffic

circle. Good initial design and street layout can prevent the need to install traffic calming measures after the street is built.

Traffic Impact Study (TIS): A study conducted by a transportation professional using transportation modeling and analysis software to predict the volumes and associated impacts from traffic generated by a proposed land use or development project. The study analyzes the impacts to roads and intersections and include recommendations for roadway improvements that may be needed to mitigate unsafe situations and comply with the regulations of the reviewing jurisdiction.

TAZ: **T**ransportation **A**nalysis **Z**one. A geographic area that identifies land uses and associated trips that is used for making land use projections and performing traffic modeling.

TEA21: **T**ransportation **E**quity **A**ct of the 21st Century. TEA 21 was enacted June 9, 1998 as Public Law 105-178. TEA-21 authorizes and funds the Federal surface transportation programs for highways, highway safety, and transit for the 6-year period 1998-2003. The TEA 21 Restoration Act, enacted July 22, 1998, provided technical corrections to the original law. (See also ISTEA above).

Trip End: The term used to describe trips in terms of their common origins or destination.

Turn Lane: A lane devoted to vehicles making a turning movement to go in a different direction. Turn lanes are necessary to ensure the free-flow of traffic in the through lanes by providing a separate area/lane for turning traffic to slow down and complete the turning maneuver without impeding the through traffic.

VMT: **V**ehicle **M**iles **T**raveled. Increases in VMT from existing residents are occurring every year, contributing to added congestion on roadways.

VPH: **V**ehicle **p**er **p**eak **h**our. This relates to Link Volumes (see above).

Volume-to-Capacity Ratio: Expressed as v/c, this is a measure of traffic demand on a facility (expressed as volume) compared to its traffic-carrying capacity. A v/c ratio of 0.7, for example, indicates that a traffic facility is operating at 70 percent of its capacity. In evaluating the performance of a roadway, v/c ratios should be considered together with the letter grade system, which is more of a qualitative assessment based heavily on speeds and travel time. With traffic moving at an acceptable rate of speed, roadways will

perform at favorable Level of Service grades. However, even with an acceptable LOS grade, a v/c ratio may indicate that the same facility is operating at or near full capacity (e.g., 0.95 to 0.99). Conversely, road segments operating at deficient levels of service (e.g., peak-hour LOS E and F) may have an acceptable v/c ratio in cases where the adjoining intersections are not operating efficiently (e.g., cycle lengths on the traffic signals are long or the signal progressions are poor). Consequently, a high v/c ratio does not always imply that a facility has more volume than it can handle nor does a deficient LOS grade necessarily indicate that there is insufficient roadway capacity available.

Weaving: The process of exiting a site and merging across multiple lanes "with traffic" to reach an intersection and go in a different direction.