



*Engineering Guide*

# The Language of Traffic Engineering

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Traffic Engineering, and Traffic Engineers, often use technical terms or jargon that may be confusing or tough to understand even within the context of a sentence. We try to avoid using jargon but have put together the following guide in case you need to translate what other traffic engineers are trying to say.

## Key organizations

**AASHTO** – American Association of State Highway and Transportation Officials. A nonprofit, nonpartisan association representing transportation departments with a primary goal of fostering the development, operation, and maintenance of an integrated national transportation system.

**DOT** – Department of Transportation. Government organizations within federal and state agencies dedicated to serving the transportation needs of the community and typically responsible for study, design, operation, and maintenance of all facets of transportation.

**FHWA** – Federal Highway Administration. An agency within the US Department of Transportation that supports State and local governments in the design, construction, and maintenance of the highway system.

**ITE** – Institute of Transportation Engineers. An international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs.

## Important manuals/guides

**HCM** – *Highway Capacity Manual* (released by the Transportation Research Board, or TRB). The guide for engineers and planners to assess traffic and environmental effects of highway projects. This manual presents the foundation of traffic analysis procedures in the United States.

**MUTCD** – *Manual of Uniform Traffic Control Devices*. A document that sets minimum standards and guides the uniformity of traffic control devices (such as messages, location, size, shapes, and colors) across the nation. All roads in the United States are subject to its jurisdiction.





## Types of studies

**Access Management** – Access management is the practice of government agencies limiting the number of intersections (both public roadway crossings and private driveways) along a roadway corridor based on the function of the roadway to improve safety and mobility while streamlining access.

**Corridor Study** – A transportation review and analysis of the existing and future traffic operations of a roadway segment. Varies in length from a couple of blocks to a few miles and typically covers all modes of travel.

**Intersection Control Evaluation (ICE) Report** – A document that examines and determines the most appropriate type of control (stop sign, signal, roundabout, or other) at one or more intersections.

**Safety Study** – An examination of crash records to identify potential trends, issues, and problem intersections/corridors. Usually, includes potential mitigation options expected to decrease crash rates in the future.

**Speed Study** – A review of existing travel speeds and the corridor characteristics to determine if

speeding is an issue, the appropriate speed to post as the limit, and/or areas to provide reduced speed warnings.

**Traffic Impact Study (TIS)** – A document that addresses the expected traffic impacts of a development and, if necessary, mitigation options that will reduce or eliminate negative impacts. Also referred to as a Traffic Impact Analysis (TIA).

**Transportation Plan** – A document developed by a government agency to take inventory of their transportation network, identify concerns or issues and lay out the path for improvement of the system.

**Travel Demand Management Plan (TDMP)** – A plan that documents the existing infrastructure around a site, including transit and non-motorized vehicle options, and develops measures to be implemented to encourage those alternative modes of travel.

**Warrant Evaluation** – Review of traffic volumes and other characteristics at an intersection against thresholds in the MUTCD to determine if a traffic signal or other traffic control option is needed/warranted.

# Results

**85th Percentile Speed** – Speed at which 85 percent of drivers are traveling at or below. Speed limits are typically set at the 85th percentile speed.

**95th Percentile Queue** – The distance, measured in either feet or number of vehicles, which will be exceeded in a lane, typically at an intersection, only five percent of the time. Usually used to help determine intersection turn lane lengths.

**Control Delay** – The total amount of time a motorist takes to get through a road segment or intersection minus the time it would take without stopping due to traffic controls (like stop signs or traffic signals). Control delay includes decelerating and accelerating back to full driving speed.

**Functional Classification** – the grouping of streets and highways into categories according to their characteristics and emphasis on mobility or access. Categories include arterials (emphasizing mobility and fast travel), local roads (emphasizing access to adjoining properties), and collector roads (emphasizing a balance between the two and usually connecting arterials to local roads).

**Intersection Delay** – The average amount of time, usually expressed in seconds, experienced by any vehicle traveling through an intersection.

**Level of Service (LOS)** – Qualitative measure of traffic operations related to the amount of average delay experienced. Expressed in letter grades with LOS A representing the best operations with little to no delay and LOS F representing the worst operations with excessive delays and congestion. What's considered unacceptable varies by region.

**Measures of Effectiveness** – Performance measures that define how well traffic is moving along a corridor or through an intersection. The common MOEs are travel time, corridor speed, delay, and queues.

**Mitigation** – Measures intended to reduce the impact of development or improve an identified traffic issue by either improving capacity (like adding lanes) or reducing demand (like encouraging carpooling).

**Queue** – Length of the line of cars waiting at an intersection or bottleneck in a corridor, typically measured for each lane of traffic as a distance (feet) or a number of vehicles.

**Volume to Capacity (v/c) ratio** – the number of vehicles through an intersection or roadway segment in a specific amount of time divided by the expected capacity of the road. Less than 1.0 indicates available capacity and above 1.0 indicates more vehicles than can be accommodated. Typically, a v/c ratio of 0.85 or higher suggests operational issues.

**Trip Generation** – The amount of vehicle traffic generated by a land use. One trip is equal to one vehicle traveling from an origin to a destination (traveling to and from work equals two trips).

**Warrants** – Criteria based on volumes and other Measures of Effectiveness for determining when to install all-way stop signs, roundabouts, traffic signals, or another type of control.