

Transportation Terminology

Average Vehicle Delay: Average vehicle delay is an estimation of the delay the average vehicle experiences when traveling through an intersection. Average delay can be defined for lane movements, approaches, and the entire intersection. With this concept, it is understood that some vehicles will experience no delay (i.e. vehicles traveling through the intersection during a green phase) and others may experience more delay (i.e. vehicles sitting through one or more red phases). Delay can be caused by many factors such as waiting at a signal during a red phase, slowing down when approaching stopped/queuing vehicles, slowly accelerating at the start of a green phase, and reduced speeds when navigating the road with relatively high volumes of traffic. To calculate delay, traffic engineers typically use computer software to calculate the estimated average delay based on inputs such as observed traffic volumes (peak hour traffic counts), the total number of lanes in each direction, the width of the lanes, the length of the traffic signal cycle, etc. The software then applies the calculations as outlined in the Highway Capacity Manual to estimate the average amount of delay experienced by vehicles traveling through the intersection. To calculate intersection delay, a weighted average is determined for the intersection as a whole.

Average Vehicle Delay Standard: The Adequate Public Facilities Ordinance (APFO) requires the County to review private and public development proposals to ensure there is adequate public infrastructure to accommodate the proposed increase in density. The APFO requires this evaluation for transportation and public school infrastructure. The Subdivision Staging Policy (SSP) sets the standards for infrastructure capacity. In 2016, the County Council updated the SSP and determined level of service standards by policy area for intersections using average vehicle delay. In most of the county, the standard is set at an average of 80 seconds of delay. In urban centers and metro station policy areas, the standard for average vehicle delay is 120 seconds, as there is a higher tolerance for traffic congestion. If the proposed development is projected to exceed the applicable standard, the project will need to reduce the travel demand or propose strategies to mitigate average vehicle delay.

Highway Capacity Manual (HCM): The Highway Capacity Manual is a publication of the Transportation Research Board and it provides guidance for computing capacity and level of service for roadways and intersections. The Highway Capacity Manual addresses multiple travel modes including motor vehicles, transit, and pedestrian.

Level of Service (LOS): A qualitative measure used to represent the quality of traffic flow at an intersection. It is a performance metric that can be correlated into a letter grade or a volume to capacity ratio when using average vehicle delay. Unlike a school letter grade, a LOS with a grade of A-C translates into an underused or overbuilt intersection; therefore, an intersection with a LOS D or E represents a more efficient public investment. Level of service F is indicative of long delays and relatively heavy congestion.

Metropolitan Washington Council of Governments (MWCOG) Regional Model: A regional transportation model, also known as a regional travel demand forecasting model, is a mathematical representation of the supply and demand for travel in an urban area. The travel supply is generally represented by a highway network and a transit network. The highway network represents all major roads in the region and the transit network represents all public transportation service in the region, such as bus, Metrorail, and commuter rail. In addition to transportation networks, the other major input to the travel model is the land activity data for each transportation analysis zone (TAZ).

Travel/4 Local Model: A local, County-focused adaptation of the MWCOG Regional Model maintained by the Planning Department. Adjustments to the regional model travel network are made to include locally significant roadways that are not included in the regional model. These additions to the modeled transportation network increase the accuracy of the applied model and is more appropriate for use in the County. A refinement of the regional model reflecting the disaggregation of the TAZs is also part of the Travel/4 Model. These refinements more accurately model how people travel to and from destinations within the County.