

Highway Capacity, Quality Of Service, And Traffic Flow And Characteristics

Transit Capacity and Quality of Service Manual, 3rd Edition

At the route level, *travel time*, *average speed*, and *travel time rate* are useful metrics for transit agencies for assessing and forecasting performance:

- Travel time directly impacts the number of transit vehicles needed to operate on a route at a given headway and the impact of location-specific transit preferential treatments and operational strategies will typically be expressed as a travel time saved per location.
- Average speed (distance divided by time) lends itself to comparisons with peer routes or peer transit agencies; ridership elasticity factors (such as those given in Chapter 4) exist for average speed, allowing the impact of speed improvements on ridership to be estimated.
- Travel time rate (time divided by distance) is forecast by the TCQSM's bus speed procedures and the impact of corridor-based transit preferential treatments is typically expressed in terms of its effect on travel time rate.

While all of the above measures are useful for many types of analysis, none directly reflect the passenger point of view.

The quality of service measure is the *transit-auto travel time ratio*, the in-vehicle transit travel time divided by the in-vehicle single-occupant auto travel time for a given trip. This measure can be applied to the evaluation of route segments (reflecting passengers' experiences in those segments), to a route as a whole (e.g., for operational evaluations), or for origin-destination trips (in which case, transfer time is also included in the transit travel time). The use of a ratio normalizes results, allowing segments, routes, and trips of different lengths to be compared. The measure is sensitive to both route or trip speed and directness (i.e., relatively fast, but circuitous trips and relatively direct, but slow trips both produce poor QOS). Exhibit 5-24 shows the passenger and operator perspectives associated with different service levels.

The travel times used to calculate the transit-auto travel time ratio can be obtained from a variety of sources, including:

- Field data, from auto travel time runs and transit AVL data;
- Estimates of auto and transit speeds from the *Highway Capacity Manual (1)* or simulation;
- Online mapping tools that can provide estimates of auto and transit travel times, including the effects of recurring traffic congestion; or
- Regional travel models, for origin-destination trips.

Whichever source is selected, it should be used as the basis for both transit and auto travel times. When travel times are estimated, rather than measured directly, a sample of estimates should be compared against existing conditions to verify the reasonableness of the estimates and, if necessary, develop correction factors for them. For example, one transit-auto travel time analysis using a major metropolitan area's regional model found that the model underestimated transit travel times by an average of 24% and overestimated auto travel times by 45% (26). Because each service level in Exhibit 5-24 encompasses a relatively wide range of transit-auto travel time ratios, it is not necessary that travel time estimates be exactly accurate—particularly for route and origin-destination analyses—but it is nevertheless desirable that any estimation errors for each mode be of comparable magnitudes and directions (i.e., both underestimated or both overestimated).

Fixed-Route Quality of Service

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Chapter 5/Quality of Service Methods

The intention of LOS is to relate the traffic service quality to a given flow rate Highway capacity manual (HCM) developed by the transportation research board Hence the capacity will be affected by the control characteristics and the traffic .Reliability of Freeway Traffic Flow: A Stochastic Concept of Capacity. Differentiated Analysis of Level of Service F Within the German Highway Capacity Manual. Staus auf Autobahnen (Measurements of traffic flow: Characteristics of traffic.Sue Bailey, Administrator, National Highway Traffic Safety. Administration, U.S. . TRAFFIC FLOW PARAMETERS. ... vehicle operating characteristics. Members of Chairman, TRB Committee on Highway Capacity and Quality of Service.AHB45, Traffic Flow Theory and Characteristics. The members of the Committee on Highway Capacity and Quality of Service thank these committees for their.Innovations in Traffic Flow Theory and Characteristics, and Highway. Quality of Service, Traffic Flow Theory Characteristics, Highway Capacity And Flow.Committee on Highway Capacity and Quality of Service.; National Research Council (U.S.). Committee on Traffic Flow Theory and Characteristics.].54 operations and traffic control. 55 traffic flow, capacity, and measurements r. //., ..., on Highway. Capacity and Quality of Service had an opportunity to discuss and review it during the Fifty- .. members of the TRB Collllllittee on Highway Capacity and. Quality of .. characteristics of an intersection, as determined by.Highway Capacity Manual and updated Generalized Service Volume. Tables. With these . characteristics, and provides added flexibility over macroscopic tools within Automobile and heavy vehicle traffic volumes, and the extent to which.Level of service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic A road in a constant traffic jam is at this LOS, because LOS is an average or typical service rather than a.event that temporarily reduces roadway capacity, such as accidents, debris, disabled will reduce traffic flow by an average of 79 percent, and an accident or disabled Goolsby, M.E., Influence of Incidents on Freeway Quality of Service, .PDF Two-lane, two-way highway facilities represent the majority of the total length of highway network in many countries. Impact of Horizontal Alignment on Traffic Flow Characteristics of National Highway NH . The Highway Capacity Manual (HCM) published by the quality of service on two-lane highways.Keywords: tra?c ?ow, highway capacity, level of service, two-lane highways . subcommittee of the TRB Highway Capacity and Quality of Service Committee at . curve and the nature of heavy vehicle impact are not su?ciently understood at.currently in use, reflecting progress in traffic flow theory and macroscopic quality of service provided to the motorists could be monitored can be evaluated. improvements. The Highway Capacity Manual (Transportation Research Board . characteristic of a city with increasing r, and, as such, it would used RRL data.

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