

## Highway Capacity and Level of Service

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**Abstract :** Ethiopia is the second most densely populated nation in Africa, and about 121 million people as the 2022 Ethiopia population live report recorded. In recent years, the Ethiopian government (GOE) has been gradually growing its road network. With 138,127 kilometers (85,825 miles) of all-weather roads as of the end of 2018-19, Ethiopia possessed just 39% of the nation's necessary road network and lacked a well-organized system. The Ethiopian urban population report recorded that about 21% of the population lives in urban areas, and the high population, coupled with growth in various infrastructures, has led to the migration of the workforce from rural areas to cities across the country. In main roads, the heterogeneous traffic flow with various operational features makes it more unfavorable, causing frequent congestion in the stretch of road. The Level of Service (LOS), a qualitative measure of traffic, is categorized based on the operating conditions in the traffic stream. Determining the capacity and LOS for this city is very crucial as this affects the planning and design of traffic systems and their operation, and the allocation of route selection for infrastructure building projects to provide for a considerably good level of service.

**Keywords :** capacity, level of service, traffic volume, free flow speed

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