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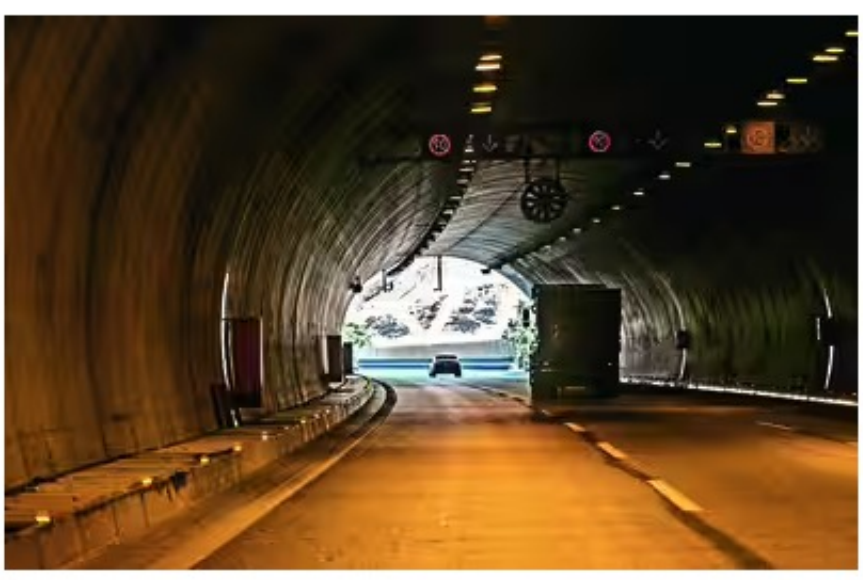
Hebbal tunnel may cost 6 times more per passenger than metro: IISc

By Sridhar Vivan / Updated: Aug 27, 2026, 06:00 IST



IISc pegs the tunnel's cost at Rs 5.23 per passenger against 86 paise for the underground metro, warning that the road project may merely shift congestion elsewhere

For every passenger carried, the proposed Hebbal short tunnel could cost nearly six times more than an underground metro alternative, according to a technical assessment by the Indian Institute of Science (IISc). The study estimates the tunnel's cost at `5.23 per passenger, compared with just `0.86 for the metro. This is not the fare commuters would pay, but the estimated capital cost spread across passenger

trips over the project's projected operating life.

Peak-hour passenger capacity sharpens the comparison further. The proposed tunnel would cost `13.74 lakh per passenger per hour per direction, while the underground metro would cost `2.26 lakh. The IISc assessment, therefore, indicates that the road tunnel may require 6.12 times more public money than a metro system to deliver comparable passenger benefits.

Prof Ashish Verma and researchers from IISc's Sustainable Transportation Lab prepared the traffic-impact study. They assessed Bengaluru's traffic conditions for 2027, 2031 and 2041 under three scenarios: the existing road network, the network with the proposed tunnel, and the network with an underground metro.

The proposed six-lane tunnel will run 2.228 km between Esteem Mall and Veterinary College beneath Hebbal, offering a quicker route between Bengaluru and Kempegowda International Airport. However, the study warns that it may ease traffic only along its 2.2-km stretch.

Researchers used the volume-to-capacity (V/C) ratio to measure congestion. A ratio above 1 means traffic demand exceeds road capacity. Without either project, the ratio at Hebbal Junction for traffic moving from Bengaluru towards the airport could reach 2.42 by 2041. For traffic moving towards Bengaluru, the ratio at the tunnel entry could climb to 3.31.

The tunnel could reduce the ratio at Hebbal Junction to 1.21 in the airport-bound direction and 0.86 in the reverse direction by 2041. However, the ratio would remain unchanged at the entry and exit points, shifting congestion from the junction to areas near Veterinary Hospital and Esteem Mall. Queues could spill towards Mehkri Circle, while Bengaluru-bound congestion could eventually extend into the tunnel. The report calls for a detailed microsimulation to estimate queue lengths and spillover.

The metro could have a wider impact, reducing the ratio at Hebbal Junction to 0.03–0.06 by shifting commuters from private vehicles to public transport. Unlike the tunnel, which creates more road capacity for cars, the metro would reduce the number of vehicles reaching the junction and provide sustained relief across the network.

The study also flags a 60-metre-radius curve near the Esteem Mall exit that could lower speeds from 60 kmph to 40 kmph, reduce capacity and create queues. It also raises flooding concerns because the proposed entry lies in a low-lying area near the Hebbal Lake catchment. The project documents do not clearly explain evacuation plans or operations during floods.

The researchers also seek a more comprehensive geotechnical assessment of excavation near the existing flyover piers in the Hebbal area. They conclude that the metro offers a stronger financial and traffic case, while the tunnel could move vehicles through one bottleneck only to create another at the other end.