

IISc questions Bengaluru Metro Phase-3 double-decker plan, flags Rs 2,864 crore cost increase and lower ridership

Technical assessment by IISc transportation expert Prof Ashish Verma says integrating elevated roads with Metro Phase-3 could push commuters towards private vehicles, weaken metro ridership, increase emissions and add nearly Rs 2,864 crore to project costs.



Karnataka CM DK Shivakumar

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- IISc warns double-decker metro-road plan may cut metro ridership
- Proposal could raise project cost by Rs 2,864 crore
- Fuel use and emissions likely to rise with more private vehicles

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A technical assessment by Indian Institute of Science (IISc), Bengaluru, has raised concerns over Karnataka government's proposal to integrate elevated road corridors with Bengaluru Metro Phase-3, arguing that the double-decker model could undermine public transport objectives while substantially increasing project costs, fuel consumption and emissions.

The presentation, delivered by IISc transportation expert Prof Ashish Verma on June 28, is based on transport modelling carried out by the IISc Sustainable Transportation Lab and a technical note submitted to the Union Ministry of Housing and Urban Affairs (MoHUA) in January 2026. It compares two scenarios for the design year 2041-one with Metro Phase-3 alone and another combining the metro corridor with elevated road infrastructure.

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According to the assessment, adding road capacity alongside the Metro could induce greater use of private vehicles, reducing the effectiveness of investments aimed at promoting sustainable urban mobility.

Metro ridership projected to decline

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The study projects a decline in metro ridership across the two Phase-3 corridors under double-decker scenario. Metro mode share is estimated to fall from 28.1 percent to 26.7 percent, while bus mode share could decline from 29.24 percent to 22.84 percent.

In contrast, car mode share is projected to increase from 3.65 percent to 7.45 percent, while two-wheeler mode share could rise from 18.31 percent to 19.59 percent.

According to the assessment, Metro Phase-3 could lose about 11,000 daily passengers if the elevated road component is built. Although the reduction appears modest in absolute numbers, the report argues that lower ridership could weaken fare revenues and reinforce long-term dependence on private vehicles.

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The study also estimates that the combined impact of the proposed double-decker corridors and the planned north-south tunnel road could reduce the combined share of public transport and non-motorised transport from 81.87 percent to 75.56 percent by 2041.

Fuel consumption and emissions likely to rise

According to the report, greater reliance on private vehicles would increase vehicle kilometres travelled (VKT), fuel consumption and emissions. The assessment estimates that double-decker proposal could increase fuel consumption by around 7,000 litres a day, resulting in an additional daily fuel cost of about Rs 6.45 lakh.

It also projects an increase of nearly 17 tonnes of carbon dioxide emissions a day, along with higher emissions of carbon monoxide, hydrocarbons, nitrogen oxides and particulate matter. The study argues that these outcomes would run counter to the core objective of metro rail projects, which are designed to reduce congestion, pollution and dependence on private vehicles.

Project cost could increase by Rs 2,864 crore

The assessment also contends that integrating elevated roads with Metro Phase-3 would significantly increase construction costs for Bengaluru Metro Rail Corporation Ltd (BMRCL).

According to the analysis, the cost of the Metro Phase-3 project could increase from Rs 6,683.8 crore under a metro-only configuration to Rs 9,547.34 crore under the double-decker design-an additional expenditure of Rs 2,863.54 crore.

The report attributes the higher costs to the need for stronger foundations, larger piers, taller station structures and additional multimodal integration works required for the elevated configuration.

Economic viability under scrutiny

The study further argues that the project may struggle to meet the economic benchmarks prescribed by MoHUA.

It estimates the Economic Internal Rate of Return (EIRR) at 9.07 percent for BMRCL's investment, below the ministry's benchmark of 14 percent. When investments by the road agency are also taken into account, the EIRR falls further to 5.43 percent, according to the assessment.

The presentation also raises concerns over compliance with conditions attached to earlier approvals granted by MoHUA. It argues that the proposal could weaken metro ridership, multimodal integration, pedestrian accessibility and transit-oriented development while increasing project costs beyond the approved framework.

The assessment further contends that the proposed double-decker road component is not part of Bengaluru's approved Comprehensive Mobility Plan and that the revised design would require fresh approval from the Centre.

Verma argued that expanding road capacity alongside metro corridors could work against Bengaluru's long-term mobility goals by encouraging private vehicle use instead of strengthening public transport.

Karnataka government has been pushing the double-decker concept for upcoming Metro corridors. CM DK Shivakumar has strongly backed the model, arguing that it would help address Bengaluru's worsening traffic congestion and the limited scope for road widening. As part of Metro Phase-3, Bengaluru is planning double-decker corridors along Outer Ring Road West and Magadi Road, covering about 44.6 km. The state government has also approved an additional 37-km double-decker road component at an estimated cost of Rs 9,700 crore, to be fully funded by the state.

However, the revised design requires fresh approval from the Centre because it alters the originally sanctioned Metro alignment. Shivakumar has already discussed the proposal with Prime Minister Narendra Modi and Union Housing and Urban Affairs Minister Manohar Lal Khattar.

BMRCL floated tenders in January 2026 for civil works covering 18.5 km of the Phase-3 Orange Line in three packages, although the contracts are yet to be awarded. The Karnataka government approved the two Metro Phase-3 corridors in November 2022, while the Centre granted approval in August 2024.