

Case Study: Digha Sonapur Bridge, Bihar

Enhanced visibility above the Ganges

The Digha Sonapur rail-road bridge, or J.P. Setu, is a bridge across the Ganges river that connects Digha Ghat in Patna, and Pahleja Ghat in Sonpur, Bihar. It was constructed in 2003 and inaugurated in 2017.

The 4,556-metre rail and road bridge is the second longest rail and road bridge in India, and has a total length of 20km inclusive of approaches that primarily traverse through flat, agricultural and urban settlement land. It soon garnered the nickname “Bridge of Sighs and Selfie Deaths” as there are extreme elevated and steep curves along its approaches.

In June 2017, 3M India Ltd. was commissioned by the Bihar Rajya Pul Nirman Nigam (BRPNL) and Bihar State Development Corporation Ltd. (BSRDC) to conduct road safety audits and propose road safety recommendations on existing and proposed stretches of the project.

Road safety challenges

- No existing traffic safety signboards
- Sharp bends which are potential hazards especially in night-time or in fog
- No median markings
- Objects adjacent to roads, such as trees
- Extreme elevated and steep curves

Solutions offered

- A road safety audit was conducted
- Installation of the following road safety features were recommended:
 - Cautionary/Mandatory road signs to warn of sharpness of road curves
 - 3M Flexible Median Markers (FMM) to help with better visibility in foggy weather and at night
 - To implement FMMs for crash barriers on approaching roads which had more steep and deep curve zones
 - Raised Pavement Markers to provide clear, definitive outlines of pavement markings
 - Chevron alignment signs to provide additional guidance for traffic, and to supplement delineators

Products Used

- [Twin Molded Shank RPMs \(Cat’s Eyes\)](#)
- [Aluminum-backed Flexible Prismatic Sheeting \(AFP\)](#)
- [Flexible Median Markers](#)
- [Type XI 3M™ Diamond Grade™ DG³ Retroreflective Sign Sheeting](#)

Case study snapshots



Clear indication of the road’s curve on the approach.



View of 3M road safety features in the daytime.

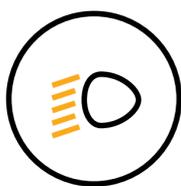


View of 3M road safety features at night. [Watch the video here.](#)

Results



Accidents and fatalities reduced



Increased visibility of curves and steep ascents and descents during night-time driving



Drivers can see their travel path from short and long distances



Easy delineation of road; drivers travelled well within the road alignment



After successful implementation, BRPNL started installing 3M FMMs on new and some older bridges within the state

“Product performance is satisfactory per IRC requirement(s), we recommend these products to enhance visibility on roads.”

- Gammon Engineers & Contractors Pvt. Ltd.

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