Session Report

Date: 02/11/2022
Authors of these conclusions: Jeff Purdy

TECHNICAL SESSION SP3 TITLE BRIDGE AND TUNNEL STRIKES BY OVERSIZED VEHICLES
FRIDAY, FEBRUARY 11, 12:30 TO 14:00 PM

1. KEYWORDS

Bridges strikes, tunnels, oversize vehicles, reporting bridge strike occurrences, Low Middle Income Countries (LMICs), Cost Benefit Analysis (CBA), bridge warning signs, crash beams, Intelligent Transportation Systems (ITS), Early Warning Detection Systems (EWDS), driver-based mitigation practices, driver education.

2. PRESENTATION OF THE SESSION (XX COPY THE SAME TEXT AS ON THE WEBSITE XX)

SP 3 Overweight vehicles / Bridge and tunnel strikes by oversized vehicles

3. PROGRAMME OF THE SESSION

Session Chair: Hugh Gillies, CEO Transport Scotland, UK & Jeffrey Purdy, FHWA, USA
Session Organiser: Miguel Caso Flórez, PIARC Technical Director
Session Secretary: Jeffrey Purdy, FHWA, USA

Person	Organisation, Position…	Title of the presentation
Bernard Jacob	TC 2.3 Freight Secretary, University Gustave Eiffel, France	Overweight Vehicles: Impact on Road Infrastructure and Safety
Ilaria Bernardini	Roughan & O'Donovan, Ireland	Bridge and Tunnel Strikes By Oversized Vehicles

4. TECHNICAL FINDINGS AND DEBATE

The Bridge and tunnel strikes by oversize vehicles Special Project involved a detailed review of the causes, consequences and mitigation measures available in relation to the bridge and tunnel strike problem. The objective of the study was to examine proven countermeasures, practices, and technologies used to reduce the incidence of oversize vehicles striking bridges and tunnels along with effective processes for accurately reporting and tracking bridge strike occurrences. Specific consideration was given to LMICs, with an aim to cater to these regions with specific recommendations.

Data was gathered through a combination of surveys, interviews and desk-based research. The review indicated that while active systems and technology have promise in effectively dealing with this issue in the future, further research is needed to demonstrate their effectiveness and reduce cost of installation. In the

majority of strike cases, it appears that the driver is at fault. Driver-based countermeasures such as driver training, legislation and improved route guidance appear to be the single most effective measure to address the issue at present. While drivers' education, advertising and engagement are essential to address the issue, enhancements to vehicle technologies are required. Future technologies such as on-board navigation systems in combination with CAV technology and vehicle-2-infrastructure communication were found to have significant promise in tackling the bridge / tunnel strike problem.

In order to develop a business case, the economic situation was evaluated by way of Cost Benefit Analysis (CBA). A formal CBA methodology was developed for road administrators in order to discern the best mitigation practices for a given scenario. CBA was also carried out in a global approach to demonstrate the methodology and to draw broad conclusions about effective mitigation measures.

5. RECOMMENDATIONS FOR DECISION MAKERS, FOR PIARC OR FOR INTERNATIONAL ORGANISATIONS

While various recommendations were made to High Income Countries (HICs), the key finding of the study was that the current state of the art is to move toward driver-based mitigation practices such as better driver education, advertising of the consequences and informing legislation in relation to the bridge / tunnel strike problem. The development of a multi-sectoral panel should be formalised in both LMICs and HICs, allowing all key actors to work together to provide a coordinated response to bridge and tunnel strikes. The primary goal of the panel would be to provide better driver education, advertising of the consequences and informing legislation in relation to the bridge / tunnel strike problem. Adoption of mitigation measures is still recognised as essential and required in vulnerable sites.

It is recommended that Low Middle Income Countries (LMICs) ensure adequate and accurate overheight clearance signage be installed on all structures, in addition to mitigation measures such as flashing beacons and obstacles related to dimensional loads, and providing adequate advanced warning allowing drivers to redirect in case of excessive dimensions. The key long-term recommendation to road administrators and governments in LMICs would be the development of a multi-sectoral panel to address and share / disseminate knowledge on the issue. Involvement from road administrators, hauliers, government, and police in a collaborative way is essential. The primary goal of the panel would be to provide better driver education, advertising of the consequences and informing legislation in relation to the bridge / tunnel strike problem. Some HICs already have panels of this type in place, which would provide a good starting point for LMICs to initialise the approach.

The study made the following recommendations to PIARC:

1. PIARC should perform a sample case study, focusing on a single network or list of structures, showing how the required data can be gathered, and how to use it in a detailed risk analysis and CBA to decide on appropriate interventions.

2. PIARC should champion the development of a data capture guide for bridge and tunnel strikes, coordinating the data internationally to better describe the business case.

6. PREPARATION OF THE SESSION

This session was planned, designed and organised as follows.

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