

Preventing, mitigating and assessing bridge strikes

What is the situation?

Network Rail's budget for management and renewal of structure assets within Control Period 5 (2014-2019) is circa £2bn

Bridge strikes occur whereby a vehicle impacts a bridge that carries the railway or a road over the railway. The challenge is to reduce the number of collisions that take place, ensure that those collisions that still occur do not impact on the railway, and to reduce the level of disruption caused when these incidents arise. After a bridge has been hit, no trains can travel over it until checked to make sure that it's safe. Bridge strikes are always costly and can be fatal for both the driver of the vehicle and the people on or under the bridge.

On average, in a four-weekly period there will be 130 collisions, of which 83 are by a heavy goods vehicle. 9 of these collisions will cause structural damage to the asset; with 2 of them rendering the parapet unsafe. There will be 5 instances of additional service disruption post inspection, with approximately 2.5 speed restrictions put in place.



fig. 2

In 2014/15 there were just over 1,800 reported bridge strikes of which 46 strikes were classified as either "Potentially Serious" or "Serious"



fig. 1

Top 10 bridge strike incidents account for 30,892 delay minutes in CP5 Y2
*Up to end of 2015

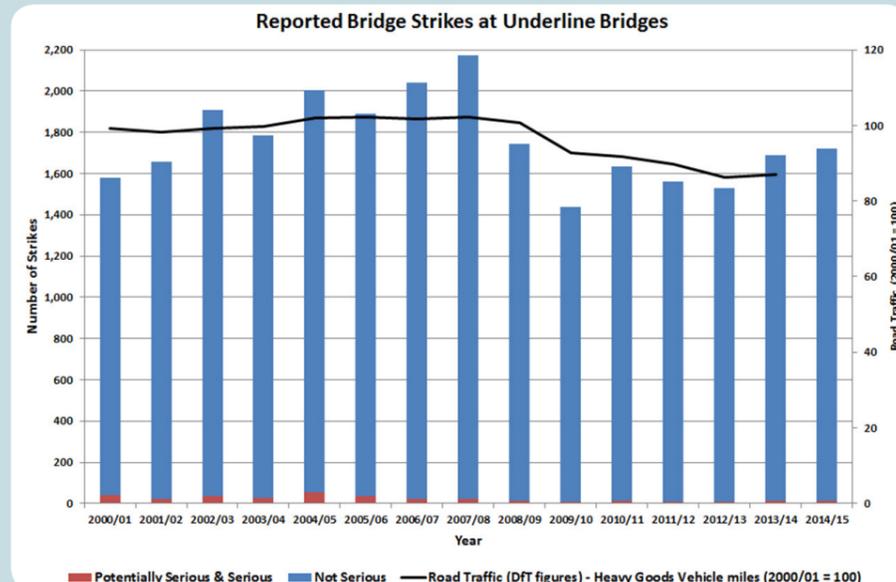
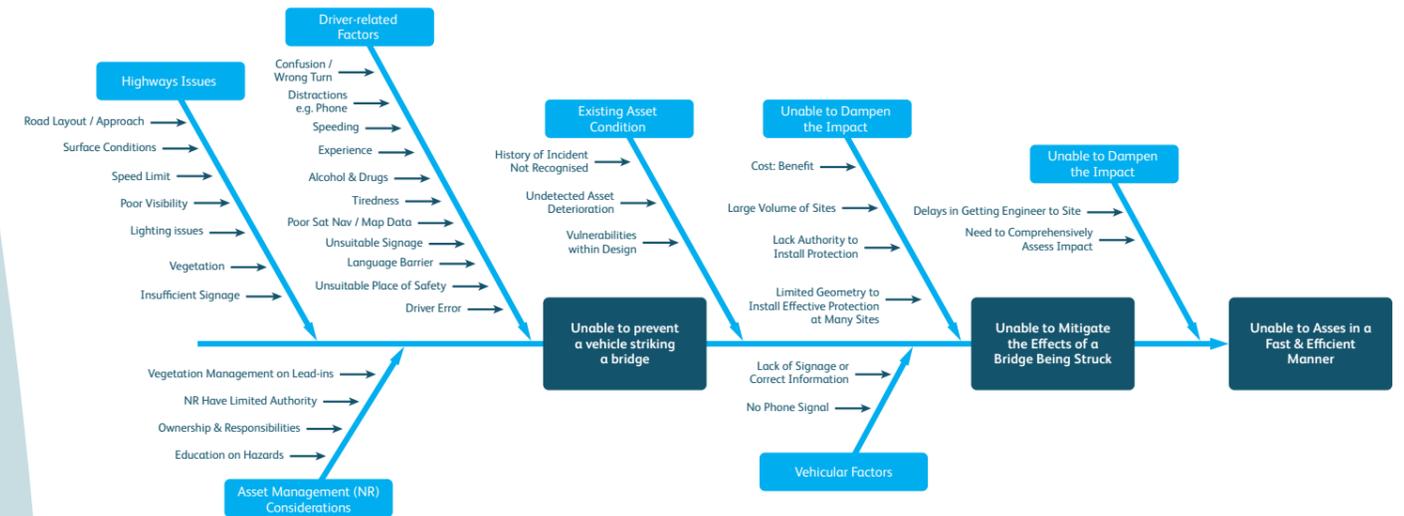


fig.3

Analysis of causes



Priority problems

Specific priority problems

- Highway geometry
- Driver related factors
- Unable to reduce impact of bridge strike
- Giving the 'OK' following incident

Related goals

- Reduce number of bridge strikes
- Reduce the effect of bridge strikes upon bridges
- Faster responses and re-opening of lines following incidents

Size of problem

- Reduced delays
- Improved safety
- Less need to repair structures

Scope

To address these challenges it is expected that R&D actions will need to address the following proposals and questions:

- A standard design for free standing bridge protection structures to prevent damage occurring to the bridge and need to stop trains running on the bridge. Consideration should be given to installation costs as well as the requirement for approval from Local Authorities.
- The implementation of a remote condition monitoring solution to allow the inspection of incidents enabling structures to be given the 'all clear' in a reduced timescale.
- How can we increase the awareness of professional drivers, especially those driving Heavy Goods Vehicles (HGVs), to the dangers of bridge strikes?