

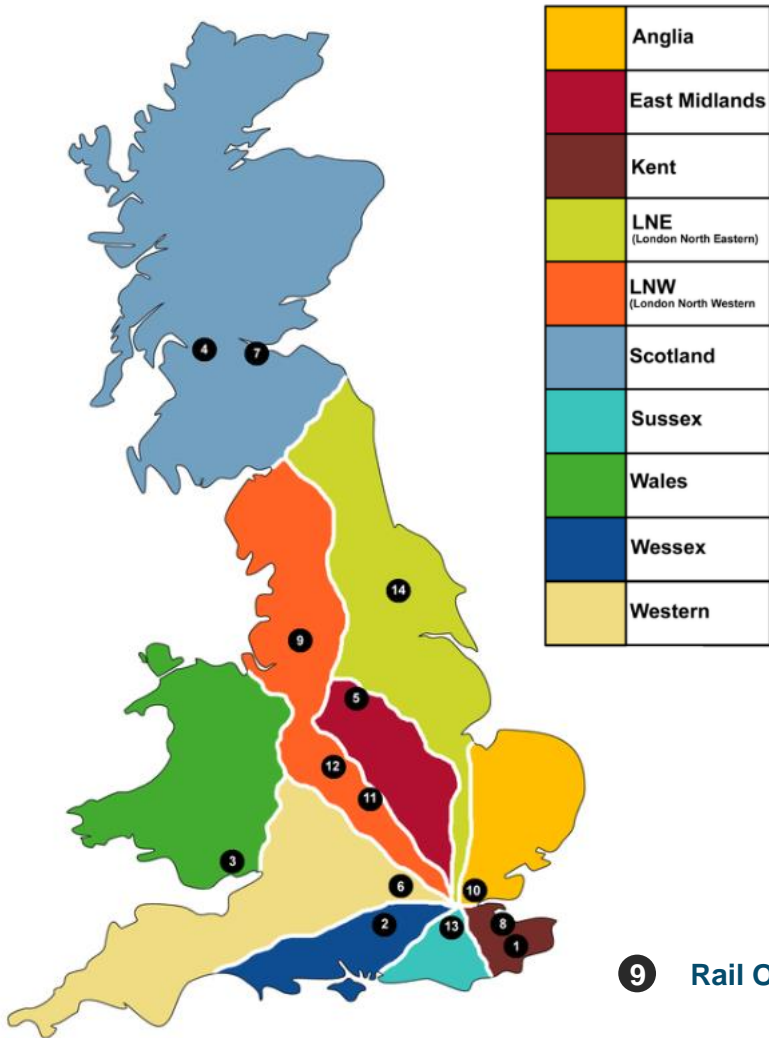
# ***Bridge Strikes – Risk, Consequences and Costs***

**Mark Wheel CEng MICE**

**Senior Engineer.**



# Network Rail & Train Operators



- Network Rail maintains and operates the Railway Network.
- Reclassified as “An Arm’s-Length Central Government Body” in 2014. Covered by Framework Agreement with DfT.
- Train Operating Companies (TOC’s) and Freight Operating Companies (FOC’s) maintain and run the trains and most Stations.
- For purpose of Management Network Rail divides the Country in to 10 Strategic Routes.
- Each with Bridge Strike Champion.

**9** Rail Operating Centres (ROCs)

# When it all goes wrong!!



- Typically 5 Strikes per day nationally.
- 14 strikes were recorded in one day in 2019
- 1,787 strikes were recorded in 2019
- Significant Safety Issue for both road and rail users.
- Affects bridges both under and over the railway.
- Estimated cost to the UK economy circa £23 million.







# Consequences – Bus and Coach





# Effect on Drivers / Road Users



# Cost to the Business - Damaged Loads





# Damage to Bridges





# Overturned Vehicles at Skew Bridges



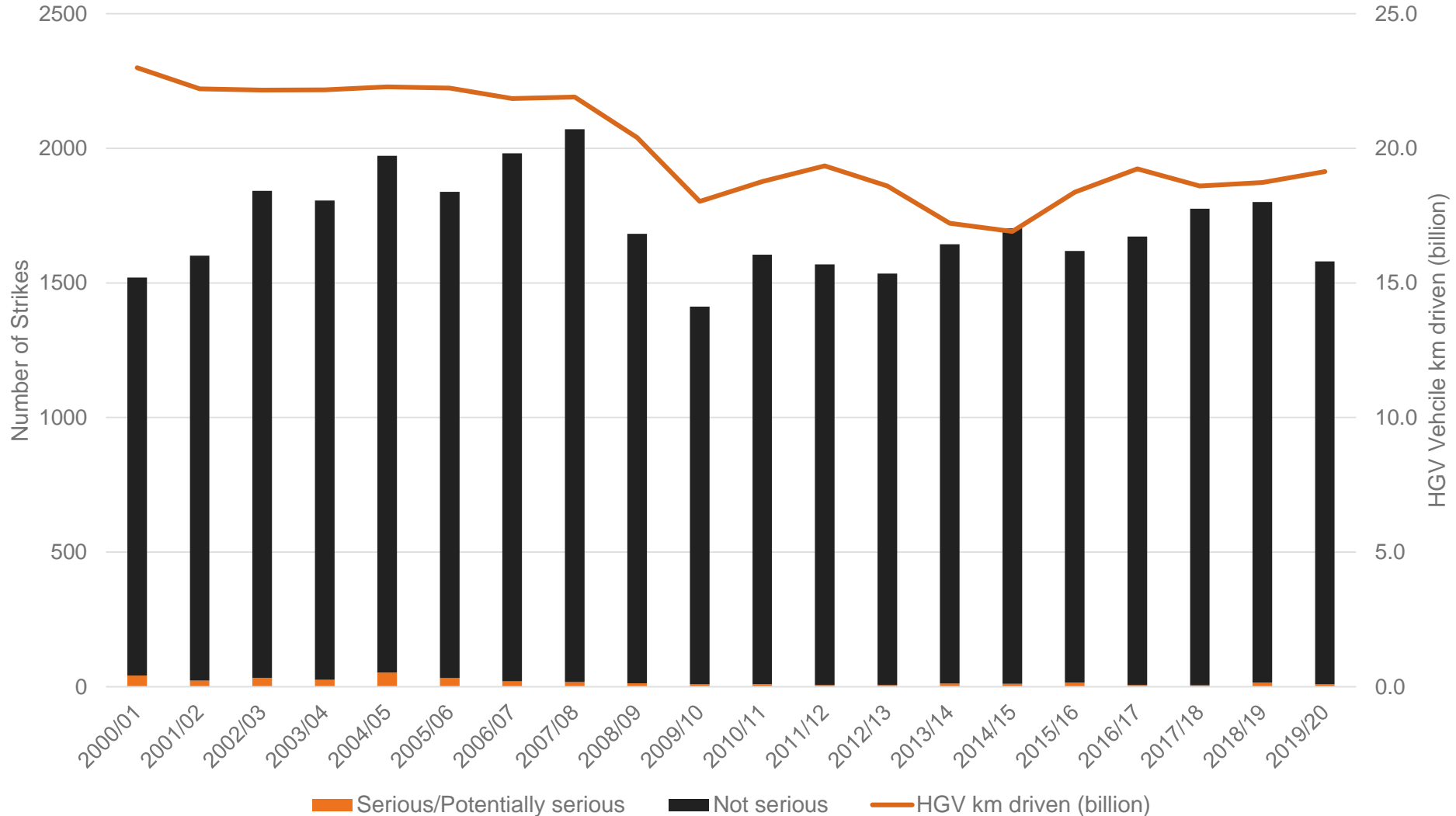


# Over Line Bridges

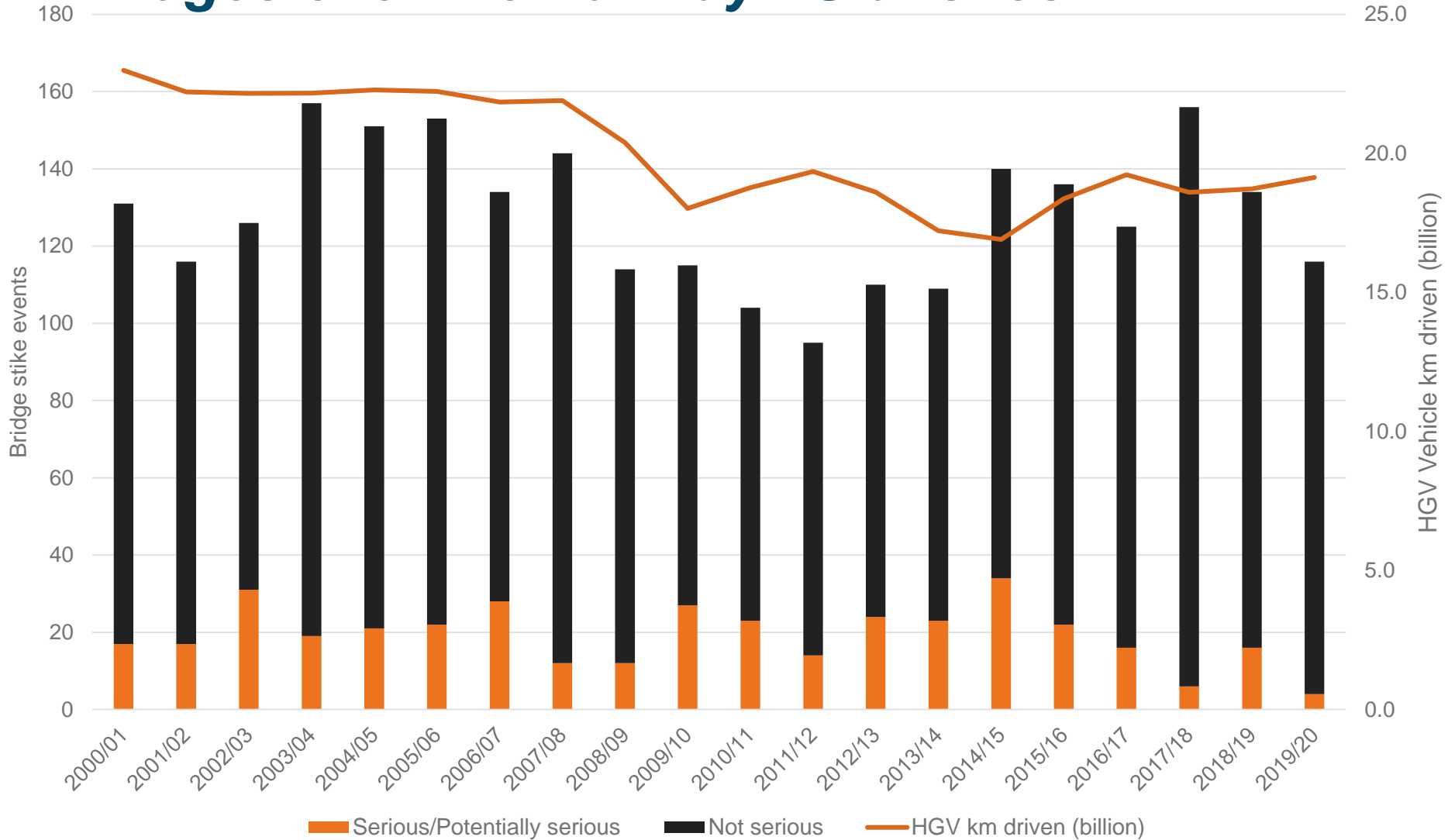




# Bridges under the Railway – Statistics

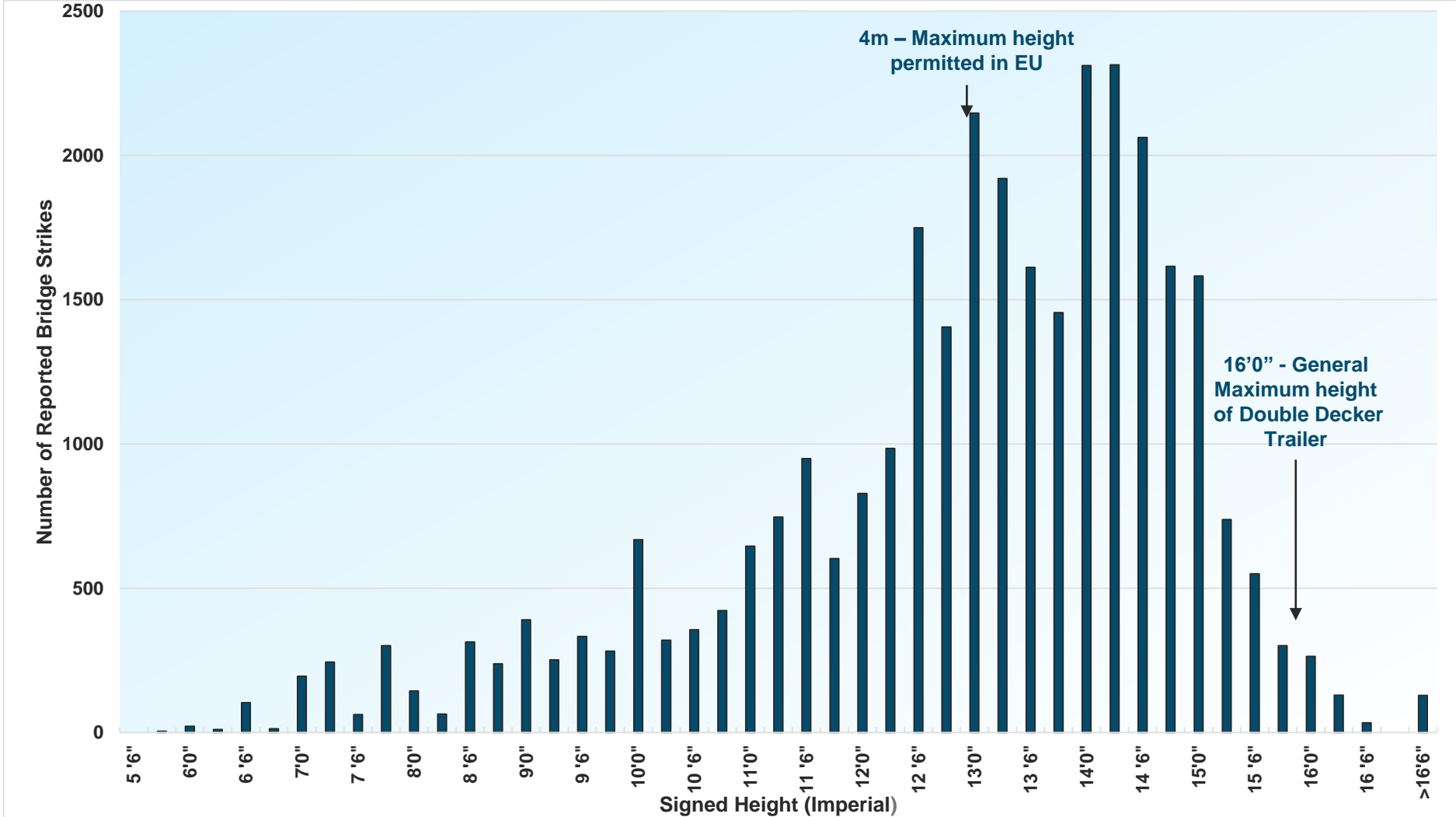


# Bridges over the Railway - Statistics

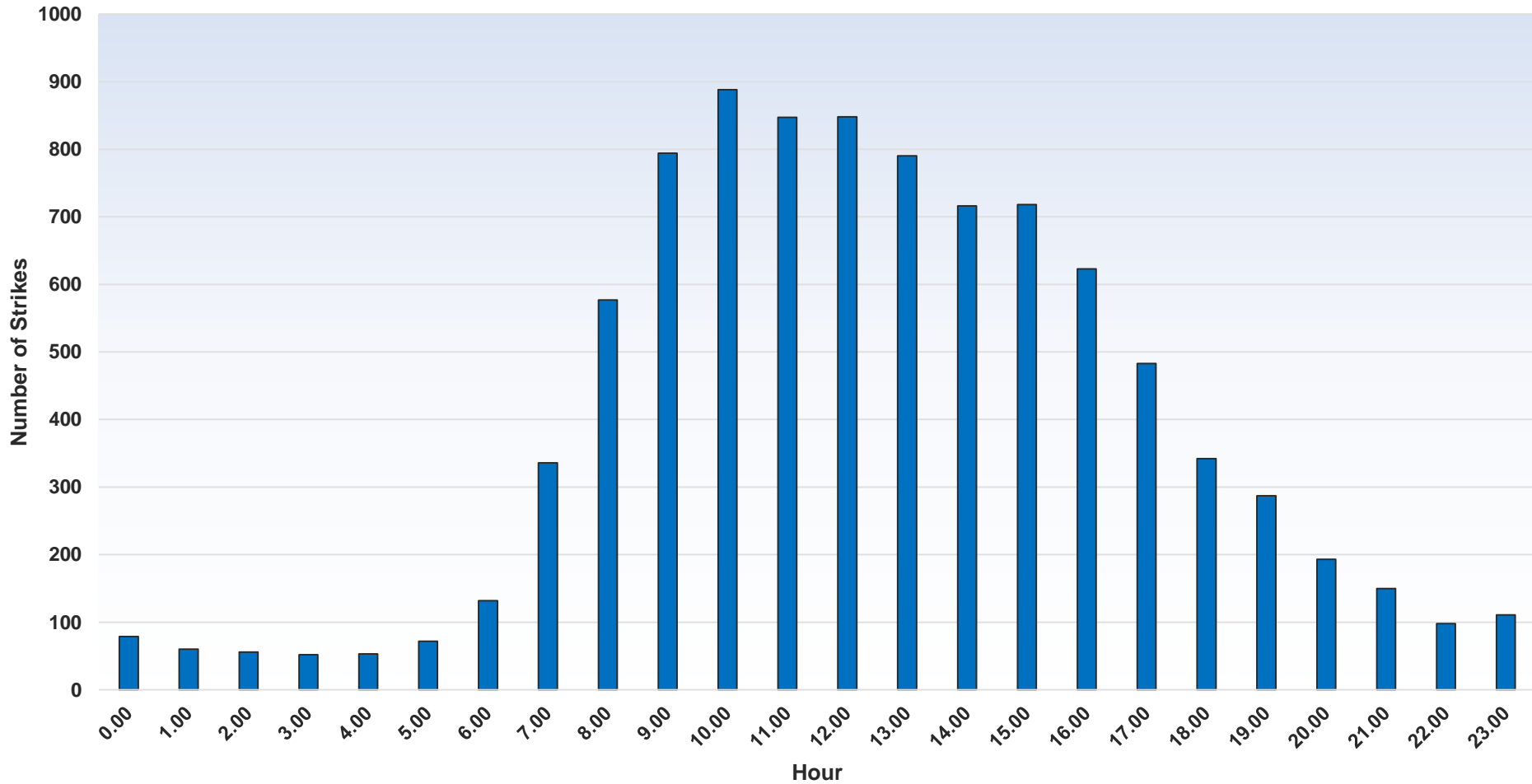




# Number of Strikes by Signed Height on Bridge



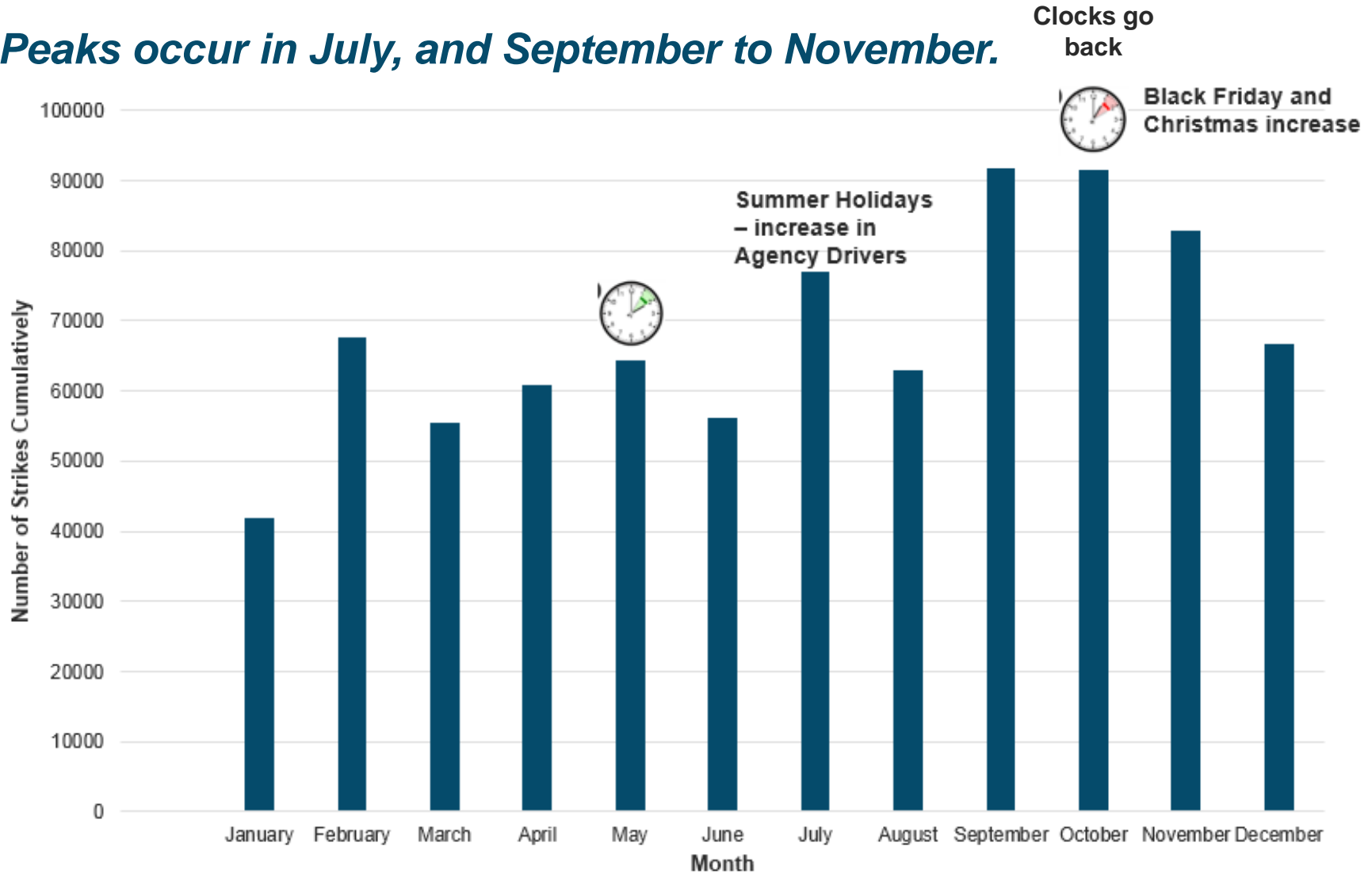
# Number of Strikes by Hour of the Day



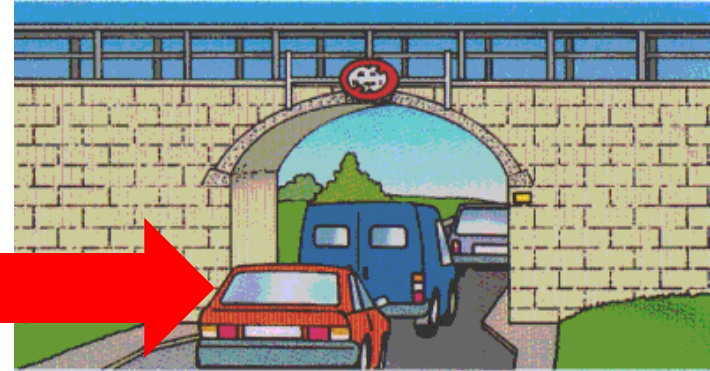


# Bridge Strike Trends by Month

- Peaks occur in July, and September to November.



# What Network Rail Does.



Theoretically drives a lorry into a bridge at a certain speed and assesses the Bridge Robustness. What will happen?

Output of this assessment defines what actions are to be taken.



**Red** – Stop trains

**Amber** – First train examines track at 5mph.

If track alignment not affected and no debris trains permitted at 20 mph until bridge examined

**Double Amber** – As for Amber but subsequent trains at Normal Speed

**Green** – Continue to operate at Normal Speed

- Fit these signs to Bridges.

# Typical chain of events.



- Bridge Strike reported to Network Rail Control Centre
- Control contact Signaller who implements Operating Instructions
  - Signal box special instructions.
  - Special instruction for light vehicles
  - Rules for late reported bridge strikes
- Control arranges for bridge examination.
  - Bridge Strike Nominees (BSN)
  - Bridge Strike Examiners (BSE)
- Control advises Highway Authority and Emergency Services as required.
- Decisions are communicated to Signaller from site and trains signalled accordingly.
- Report Produced. Data captured. Claims Team advised.



# At what point does it go wrong?

- Bridge 15' 3"
- Height on Trailer Headboard 15' 10"
- Height displayed in cab 15' 10"
- So was it due to poor route planning?
- Was the driver taken off Route?
- Was the driver distracted?





## **Research Brief T854 - August 2012**

**Rail Safety and Standards Board (RSSB) - Reducing the number and impact of vehicle strikes on railway underline bridges. **Key results:****

- Errors or violations during load stowing
- Errors in measuring the height of vehicles
- Errors in Route Planning.
- Failure to notice or interpret signs relative to vehicle height
- Poor Signage at low bridges.
- Poor vehicle alignment at low bridges.
- 32% of Drivers did not know their vehicle height
- 43% of Drivers do not use anything to measure vehicle heights.
- Drivers tend to use maps with no bridge heights marked
- 56% of Drivers didn't think about Low Bridges when Route Planning.
- 31% of Drivers received no information or guidance from their employer regarding Bridge Strike prevention.
- About 10% of Drivers used Sat Nav's.



# Research Brief T854 - August 2012...

## Rail Safety and Standards Board (RSSB) - Reducing the number and impact of vehicle strikes on railway underline bridges. **Conclusions:**

- Development, provision and use of height measurement tools, route planning tools and in cab low bridge warnings.
- Improvements to the bridge environment, traffic signs turning locations etc.
- Improvements to vehicle operators' policies and practices to ensure drivers are supported in vehicle height measurement and route planning.
- Training to prevent bridge strikes and raise awareness of their consequences and what to do in the event of a bridge strike.
- Engagement and co-ordination between the Rail Authority, product manufacturers, vehicle operators and highway authorities.
- Improved incident reporting and data gathering.
- Trial different bridge strike prevention measures.
- Effective enforcement of current regulations; for example: spot checking vehicle height indicators, detection and punishment of those who have been involved in a bridge strike incident.



# There is some really good Guidance.

- Available through the GOV.UK Web site.
- Also the Network Rail Web site. Search Bridge Strikes.

**Prevention of bridge strikes**

A good practice guide for passenger transport operational staff

Logos: DfT, Network Rail, Arriva, London Buses, etc.

**Training Course**

**Prevention of bridge strikes**

Name of presenter here  
May 2014

**Police bridge strike protocol – initial actions**

Image of a bus overturned under a bridge.

Logos: ACPOS, British Transport Police, Network Rail, etc.

**Prevention of bridge strikes**

A good practice guide for transport managers

Image of a bridge with 'LOW BRIDGE' signs.

Logos: CPA, RfA, UNITE, NFU, HTA, etc.

**PREVENTION OF STRIKES ON BRIDGES OVER HIGHWAYS**

A PROTOCOL FOR HIGHWAY MANAGERS & BRIDGE OWNERS  
ISSUE 2

Logos: Department for Transport, ADEPT, Transport for London, Network Rail, etc.

**Evitare la collisione con i ponti**

**Unikanje kolizij z mostami**

**Brückenkollisionen vermeiden**

**Preventing bridge strikes**

**Предотвращение столкновения с конструкциями мостов**

**Prévention des collisions avec les ponts**

# Underwriting and Risk Management - Insurance

- Historically Network Rail struggled to claim Back Schedule 8 payments from Insurers.
- Following Court cases: Network Rail v Conarken and Farrell Transport (2010), Court of Appeal (2011) and Network Rail v Handy & Others (2015). Network Rail is now in a stronger position.
- Network Rail now seeks to claim 100% of all costs including Schedule 8.
- Hauliers are required to declare accident history – typically the last 5 years.
- No doubt this will affect premiums.....



**Briefing**  
**Rail**  
BURGES SALMON  
June 2016

### Conarken reaffirmed: negligent drivers liable to pay for rail network delays

Schedule 8 of a Track Access Contract is 'logical, well-researched, carefully constructed, and well supported'. Those are the words of Mr Justice Akenhead in *Network Rail v Handy* and other meaning drivers (jointly insured) of road vehicles are liable for Network Rail's TAC Schedule 8 loss if they negligently damaged rail track or other installations and cause consequential TOC delays.

**Background**  
According to Network Rail, in 2013/14 road vehicles struck overhead railway bridges on 1,726 occasions. A further 133 strikes occurred on road bridges crossing railway lines. Bridge strikes and line incursions (where a vehicle is driven onto or over lines and damages the track and/or coaches with a train) have obvious potential consequences, including damaged and destroyed tracks, structures, and vehicles and the serious injury or death of a train or vehicle driver and/or passengers. The industry is alert to safety risks in this respect and generally takes all necessary steps to minimise them.

The secondary consequences of bridge strikes and line incursions are that the track is temporarily unusable and later trains on the same line will be delayed, causing knock-on effects around the rail network. This causes delay to passengers and financial losses to operators.

In the Track Access Contracts (TAC) between Network Rail and TOCs, one party will have to make payments to compensate for any delay. Network Rail is generally liable for any delay arising from the track not being available through no fault of the relevant TOC. The amount it pays to the TOC is calculated in accordance with Schedule 8 of the relevant TAC.

Network Rail is therefore on the hook to TOCs for delay caused by negligent drivers who hit bridges, level crossing incidents and other road related interferences with the rail network. The recoverability from negligent drivers of the amount NR pays to the affected TOCs under Schedule 8 was the subject of a landmark ruling in 2011 (*Conarken*) and has recently been the subject of further Court scrutiny and judgment.

The Court of Appeal decision in *Conarken Group Ltd v Network Rail Infrastructure* in 2011 stated that where a third party had negligently damaged the track – such as a car or lorry striking a railway bridge – and caused a delay on the rail network, Network Rail's liability to TOCs under the TAC (Schedule 8) was recoverable as damages from the negligent driver (unless there are exceptional or unreasonable circumstances).

All drivers must carry insurance, which at a minimum must include cover for damage to a third party's property. *Conarken* therefore ultimately makes a negligent driver's insurer liable to pick up Network Rail's Schedule 8 payments to TOCs under the TAC. These can in some circumstances be very large, if disruption across the network is significant (e.g. when a bridge supporting a main inter-city line is struck). Insurers therefore are concerned about the potential financial impacts of such incidents.

*Conarken v Network Rail*

continued over

**Schedule 8 – Compensation paid by Network Rail to Train Operating Companies.**

# So how much does a bridge strike cost?



- Depends on location and extent of any damage.
- Routes into / around London cost most...

Schedule 8 (Compensation)	= £690,599.44
Repairs.	= £ 13,439.99
Bridge Examiner call out.	= £ 193.19
<b>Total Monies recovered by Network Rail.</b>	<b>= £ 704,231.63</b>



# Impact on the Driver / Operator



- 29<sup>th</sup> March 2016 - Bridge 2/79 near Byfleet in Surrey.
- Delayed Trains for 41 minutes. At a cost of £3,069.
- Driver received 5pts & £454 fine for Careless Driving.

*Enforcement Legislation available: Failure to comply with road traffic sign & Careless Driving – Section 3 RTA 1988 Max £2,500 + 3-9 penalty points*

# Network Rail aims to promote Bridge Strike Prevention through the Four E's

## Education...

- HGV and Bus Drivers & Operators
- MP's and decision makers
- Insurance Industry.

## Engineering

- Traffic signs – Highway Authority
- Assessing the impact of a Strike
- Removing driver distractions

## Enablement

- Route planning Tools
- Truckers' Atlas
- Satellite navigation / Fleet Telematics.

## Enforcement

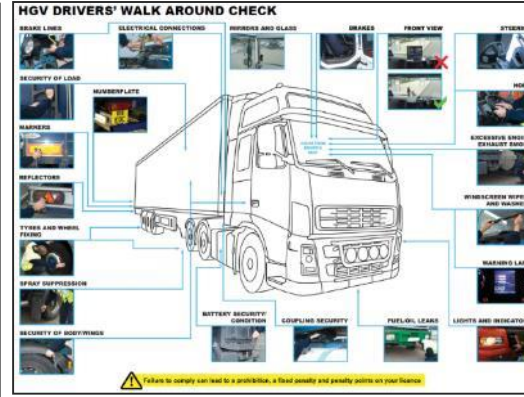
- Route 1: Police and Courts
- Route 2: DVSA and Traffic Commissioners

To achieve:

**Safe HGV, Bus  
movements.**

**Reduction in  
frequency of  
strikes**

# So can you do to prevent Bridge Strikes?



- Consider Bridge Strike Prevention Training for Drivers and Transport Managers
- Ensure drivers are supported in vehicle height measurement and route planning. Provide / purchase measuring devices.
- Ensure the Driver's Daily walk around check includes height checking and recording.
- Plan your route to take Low Bridges into account.
- Consider what you would do if you were taken off route.
- Consider utilising Systems or maps with Low Bridge locations.
- “Zero on exit” – at the end of a shift, set the height indicator to zero.



*Thank you*

