



The Positive Choice

A photograph of a modern high-speed train, likely a TGV, stopped at a station platform. The train is white with blue accents and has the number "717016" on its front. The platform is visible on the right, with a person standing near the edge. The background shows trees and a clear sky. A large blue diagonal graphic is overlaid on the left side of the image.

# AEGIS Case Study AsBo for the replacement of existing tripcock train protection with TPWS

Client name: Govia Thameslink Railway (GTR)

## AEGIS Certification Services

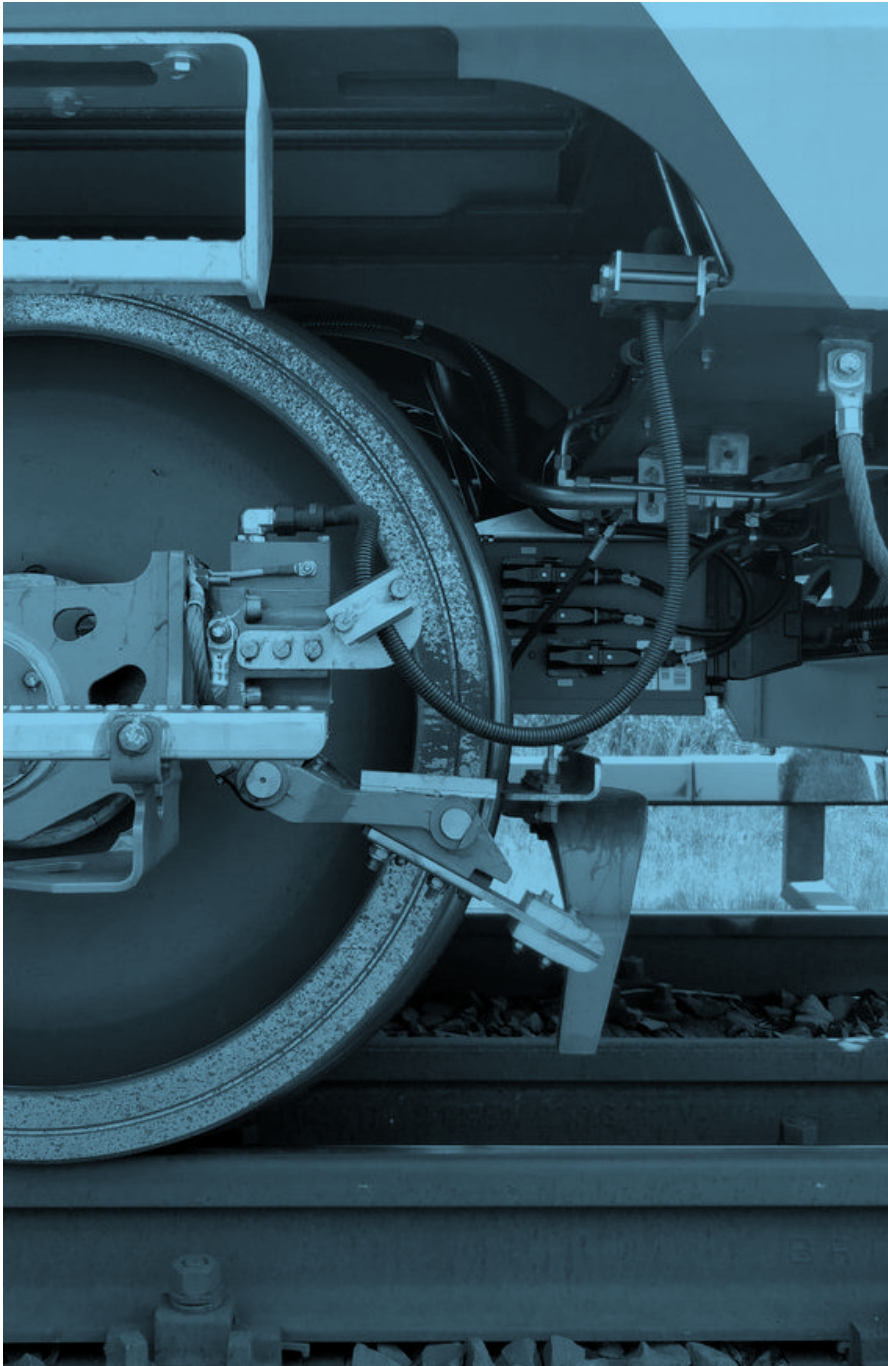
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## SCOPE/OBJECTIVE

GTR currently operates a passenger commuter services on the Northern and City Line (NCL) between Drayton Park and Moorgate.

Network Rail, on its side, is progressing a scheme to progressively implement the European Rail Traffic Management System (ERTMS) on the East Coast Main Line (ECML), including NCL.

This scheme has started with the replacement of the NCL's current colour signalling with a Level 2 European Train Control System (ETCS).

Replacement of existing tripcock train protection with Train Protection Warning System (TPWS) was the first milestone for this project.

GTR has assessed this change to its operation as significant, and therefore is required to retain the services of an independent Assessment Body (AsBo) to provide assurance that the Common Safety Method for Risk Assessment (CSM-RA) has been suitably applied to the management of the change.

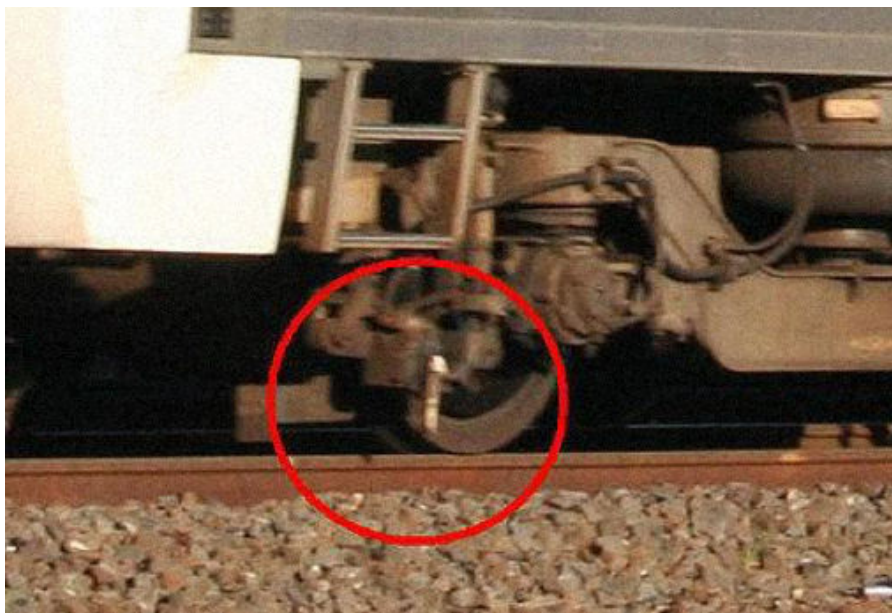
AEGIS Certification Services, in the role of Assessment Body is carrying out an independent assessment of the suitability of both the application of the risk management process as set out in Annex I of the CSM-RA and of its results in accordance with CSM-RA Article 6.



GTR currently operates commuter services between Stevenage, Hertford, Letchworth and Moorgate.

The line, before the change, operated with tripcock train protection, a train protection device based in two basic components. One is the trip arm mechanism, mounted on the ground adjacent to the rail, which essentially consists of a spring-loaded arm connected to an electric motor (or pneumatic cylinder in electro-pneumatic systems). The other is the train-mounted trip cock, which is connected either directly or electrically to the train's braking system.

The trip arm is raised automatically whenever a train should be brought to a halt. If a train attempts to pass the signal with

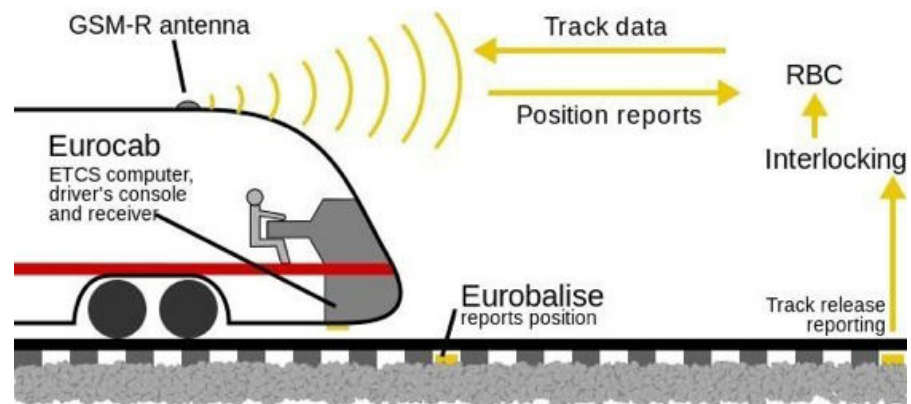


the trip arm in the raised position, the trip arm makes mechanical contact with the trip cock on the train, causing the train's brakes to be automatically applied, thereby bringing the train to a halt.

Tripcock train protection is about to be decommissioned and replaced with Train Protection Warning System (TPWS). On top of the TPWS, the ETCS Level 2 is going to be implemented.

ETCS Level 2, in comparison, is a more modern signalling system. It involves continuous supervision of train movement with constant communication via GSM-R between the train and trackside.

ETCS Level 2 displays signalling and movement authorities in the cab. The train is continuously sending data to the Radio Block Centre (RBC) to report its exact position and direction. Eurobalises are used as passive positioning beacons. Trains refine their position with additional sensors such as accelerometers, odometers or radar.



# HOW WE HELPED

AEGIS supported GTR by providing its services as AsBo throughout the whole project. The activities being undertaken in each stage of the project were:

## **1. Project Initiation**

AEGIS supported the iterative review of these documents for compliance with the requirements of the CSM-RA.

## **2. Hazard Identification**

AEGIS attended a sample of the hazard identification workshops to provide assurance that they are being completed in a manner suitable to elicit all hazards.

## **3. Hazard Closure Planning**

AEGIS reviewed the proposed closure measures and provided guidance as to the likely acceptability and success of them.

## **4. Interim Safety Assessment Reports**

We delivered the findings from the review and assessed the suitability and completeness of the applied risk management process.

# OUTCOME

Our strong relationship with GTR and system expertise allows us to effectively manage the assessment project.

The joint work with GTR has led to the issue of the interim Safety Assessment Report for the introduction of TPWS which is an important stage on the way to the Final Assessment Report which will be required to put ERTMS Level 2 Operations into passenger service.

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