

Transforming the former Waterloo International Terminal for commuter services

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Abstract

Waterloo International Terminal is to be reopened as a domestic railway station offering high frequency commuter services from south west England into London as part of the Wessex Capacity Programme. Modifying the viaducts on the approach to the terminal while minimising disruption to passengers was critical to allow the necessary platform, track and signalling changes. This paper describes the challenges presented by the site and some of the innovative ideas our collaborative team implemented in order to deliver an efficient and effective solution.

Keywords: Alliancing; bridge assessment; bridge repurposing; conceptual design; Network Rail standards; Soil-Structure Interaction; Track-Bridge Interaction; Fast-Track Construction.

1 Introduction

Nearly 110,000 people commute into London Waterloo station in each morning peak period from south west London, Surrey, Hampshire and beyond. Since 1996, more than 100 extra services and 500 extra carriages have been added to meet growing demand. In the last 20 years however, the number of passenger journeys on this railway has more than doubled and it is expected to continue growing, putting it under considerable operational pressure in the years to come.

Under the Wessex Capacity Programme (WCP), Network Rail (NR) is now investing £800m to increase the capacity by 30% during peak times and improve reliability by the end of 2018. The Programme includes works in Waterloo and Vauxhall stations as well as procuring 30 brand new

trains providing 150 extra carriages between London Waterloo and Windsor. Existing 8-car trains on the main suburban lines are being lengthened to 10-cars and older trains are being fitted with new traction motors and control equipment. The former Eurostar platforms at the Waterloo International Terminal (WIT) are being brought back into use to enable 20 trains per hour (tph) run on the Windsor line, the line that runs from London Waterloo to Reading via Windsor.

To provide this high frequency commuter service, the 400 m long platforms designed for Eurostar services needed shortening to make space for a revised track layout. This required significant structural alterations to the approach viaduct structure that resulted in very different loads and load paths.