

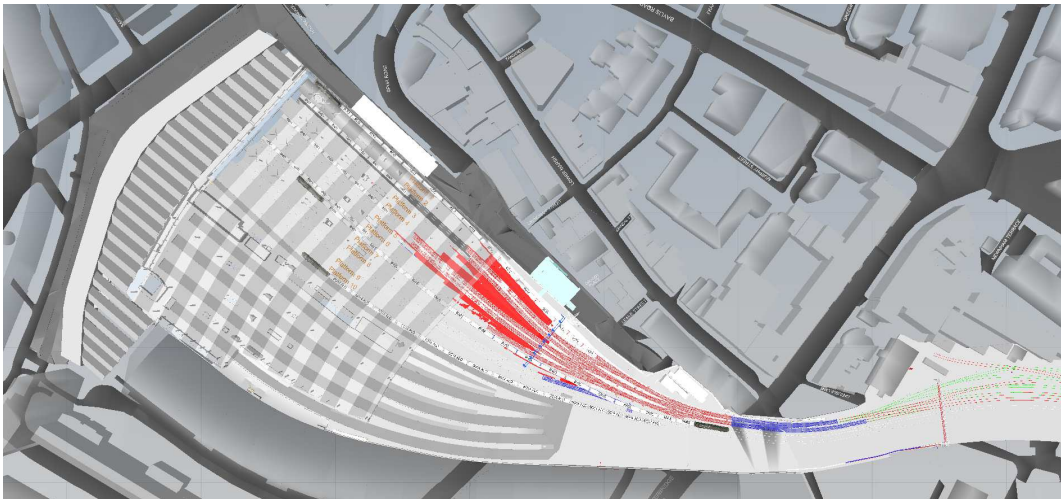


## **2017 Digital Planning Awards Submission**

Wessex Capacity Alliance - Waterloo Upgrade 5th-28th August 2017

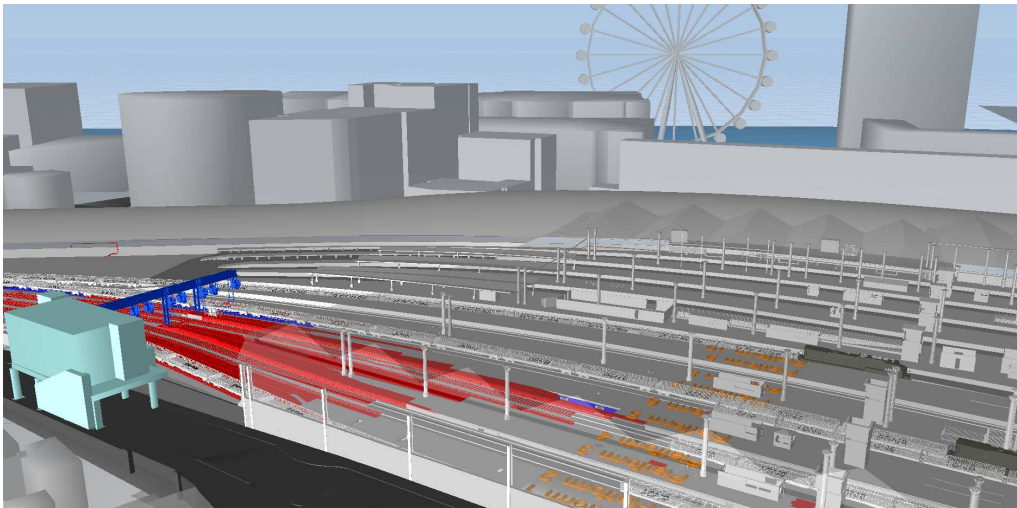
### **Project Overview:**

London Waterloo Station is the busiest station in the UK. Over 99 million passengers used the station in 2014/15, an increase of 70% since 1998. There is a forecasted increase of 40% in demand by 2043. The Department of Transport has invested heavily to upgrade the entire Wessex Route. The Wessex Capacity Alliance is responsible for delivering £430 million of upgrades in order to increase the frequency of trains and ease congestion at Waterloo Station. To complete some of these works, an engineering possession was required. This resulted in the closure of 10 platforms for 23 days (5th August - 28th August 2017). The works included lengthening of Platforms 1-4, adjustments to platforms 5-8 and a complete renewal of track along with new signalling systems.

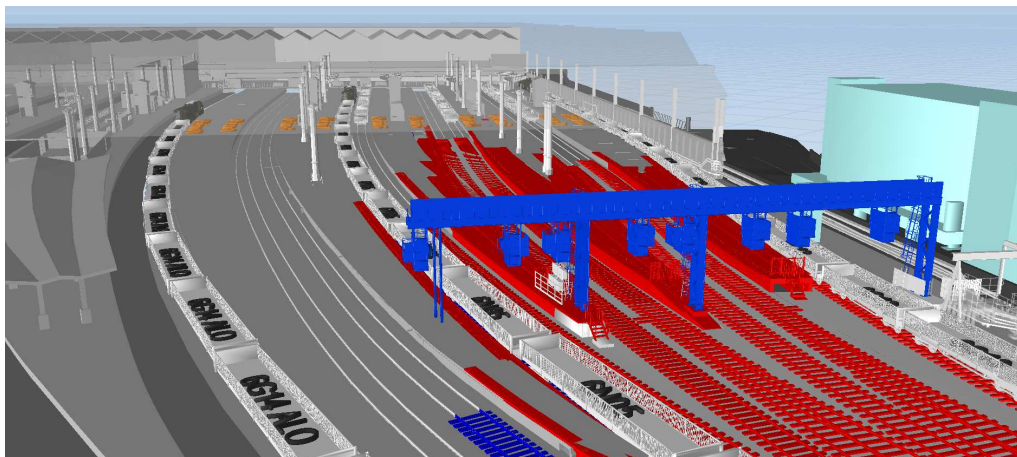


### **Synchro Integration:**

The concept of 4D modelling was introduced towards the beginning of the project in 2015. At this stage, the programme was very high level with changes continuously being made to the plan. One of the major lessons learnt on this project was having early engagement with the project team, particularly the planners, and educating them on the benefits of using Synchro. Full integration of Synchro Pro on the project started approximately 6 months prior to the start of the works. As the works were fast approaching and the various discipline teams were busy preparing and planning their own works, it was challenging to get team members to embrace and adopt the 4D tools available to them. However, one of the biggest benefits was that the BIM team were able to verify the highly dynamic Primavera P6 plan using Synchro.

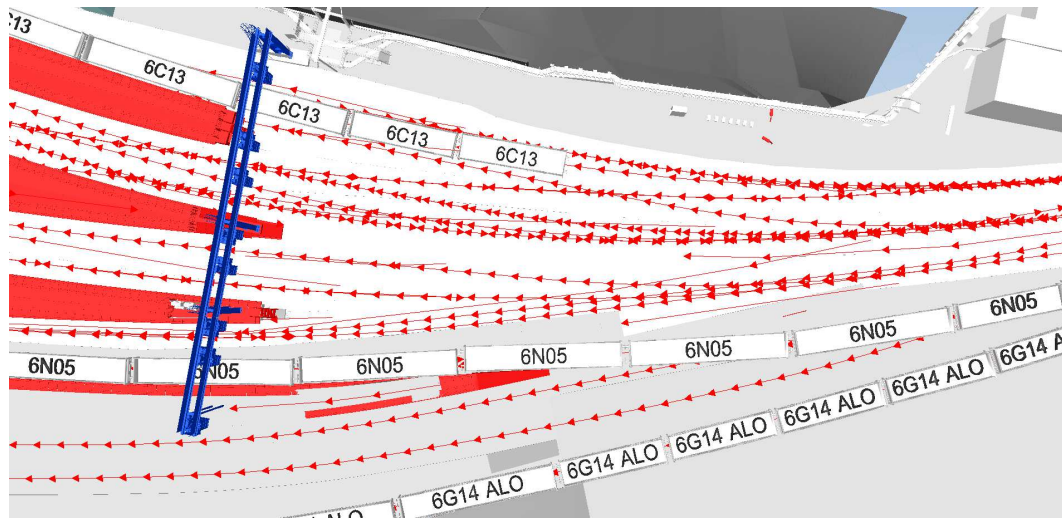


During the blockade, works took place 24 hours a day and the programme was updated every 6 hours, recording not only changes looking forward but reporting what had happened on the previous shift. Again, the 4D model was used to verify the changes made to the programme. By bringing in the new P6 and going to the present time, this was used to verify the state of the 4D model against the state of the site. This highlighted tasks missing changes, as well as tasks needing to be split up. The 4D model was shared with the project team on a large screen and was often used as a tool for briefing the next shift team as well as engagement for stakeholders and high profile visitors.



Another challenge that occurred during the blockade was looking ahead logistically. By updating the 4D and knowing what tasks were happening alongside others that may have fallen behind allowed the team at WCA to ensure that the new contingency plan was enacted with success! This plan consisted of making optimal use of an engineering train, allowing the site team to remove debris to continue

works. This saved time and allowed other tasks to proceed without having to endure further delays.



Post-blockade the BIM team is planning to produce an animation tracking the proposed against the actual works and report this to the delivery team as well as contribute towards the lessons learnt.

The facts about the Waterloo upgrade:

<https://www.youtube.com/watch?v=hhQqKqpESYA>

### **Looking ahead:**

The next big milestone for the WCA is upgrading the Waterloo International Terminal. The Waterloo International Terminal is being re-opened, and part of this renewal to the station included a new extension to the Waterloo International Terminal roof. With the experience of using 4D on the Waterloo upgrade, we are adjusting the planning process for this area of the job. This includes bringing in the planners early in the programme's development, getting used to visualising the plan in 4D as well as using this to verify changes up until the project start date on February 2018. In addition to this, we will be looking to implement further engagement with both client and contractors by utilising the link to the Microsoft Hololens.