



Newport Area Signalling Renewal (NASR) Phase 1

Project

Newport Area Signalling Renewal (NASR) Phase 1

Client

UK Department for Transport and Welsh Government

Location

Newport, South Wales, UK

Start Date

2008

End Date

2011

Duration

35 months

Contract Value

£154m

Services Provided

Signalling, train control & telecoms, feasibility design, programme management

Background

NASR 1 was the first phase of a major re-signalling programme of works in Newport and part of the South Wales re-signalling programme; in total a £400m investment.

The prime purpose of the project was the renewal of life expired signalling and signalling power supply assets in the Newport Power Signal Box (PSB) controlled area.

The project also delivered improved reliability of assets and improved operational flexibility at Newport Station (bi-directional signalling on all platforms) and Severn Tunnel Junction (STJ).

This was one of the first signalling renewals projects to incorporate strategic network enhancements as part of the scope of works.



Scope of Works

The work in this project included:

- ▶ renewing interlockings (Westlock), signals and signal structures, lineside equipment, associated cabling and the provisioning of new signalling power supplies & telecommunications systems to support the signalling renewals
- ▶ provisioning of a new Visual Display Unit (VDU) based control system (Westcad), covering all 379 Signalling Equivalent Units (SEUs) renewed
- ▶ employing new train detection throughout the area using axle counters which replaced track circuits
- ▶ renewing the signalling, optimising the track layout and reducing the total number of renewed SEUs by 160. 71 of the reduced SEUs are related to the net reduction in Switches and Crossings (S&C)
- ▶ renewing 27 units of S&C and providing new S&C layouts at Severn Tunnel Junction, East Usk and Maindee East, including a new platform 4 at STJ
- ▶ re-instating a crossover on the main lines at Gaer Junction
- ▶ enhancing signalling and S&C / track assets between Park Junction and Gaer Junction to allow timetable operation of passenger services from Ebbw Vale to and from Newport Station.

Key Project Outputs

Phase 1 works split into 2 parts, Phase 1A which was commissioned in Christmas 2009 and Phase 1B commissioned at the end of May 2011.

The key outputs of this project were:

- ▶ renewal of signalling system, including the renewal of 379 SEUs
- ▶ simplified track layouts at East Usk, Maindee and Newport
- ▶ improved flexibility of train operations for all operators at the key node at Newport Station – achieved through bi-directional signalling of all platform lines and through both the Main & Relief line tunnels between Newport Station and Gaer Junction
- ▶ to provide improved reliability of new signalling, power assets and interlockings with Mean Time Between Failures (MTBF) evaluated at a 29% improvement rate.