



Yards
challenge through growth and changed landscape

ProRail

ASPECT2019///

Folkert Bouma

48 years

Since 2004 in Railway Industries
(NS, Lloyds Register Rail
Europe, Spoorbranche,
ProRail)



Dutch Railway Network

- Corridors and junctions

Forecast 2030: 40% growth

(New) Yards

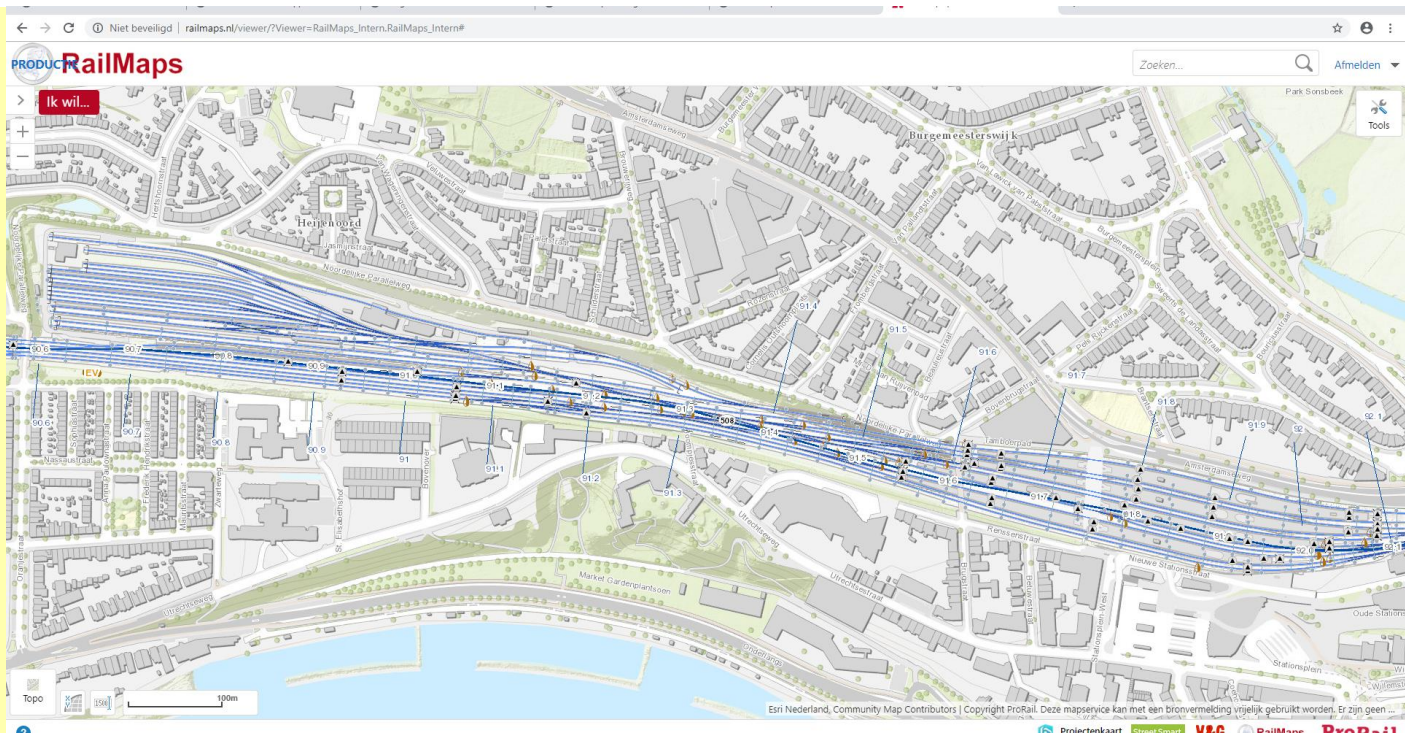


Overview of presentation

- History
- Railway Design
- Examples
- Interlocking challenges

Arnhem

Transfer station with stabling yard in the network



History

2014 1st Release of LWA system
2015-2017. NCBG LWA Arnhem Berg
–development due to System
Release upgrade and integration
of functionality

Train Wash Installation
Technical Center



History

2017-2019. Changed perspective

2017. Start PvE Yards

2018. First application forecast: ZwolleRGS, Groningen Vork, Amsterdam Watergraafsmeer, Amsterdam Westhaven

2019. PvE Yards almost completed, ZwolleRGS → ZwolleSpoort (scope extension RGS + Oosterhaven + GE), Amsterdam Watergraafsmeer changes in project



Guideline Railway Design

Overhaul (NCBG) to CBG	Greenfield development
Current situation not adapted in regulations	Adapt to regulations
Hard to expand	Additional regulations to provide uniformity in service
	Opportunity to build integral system in relation to nearby emplacement or main line

Railway design

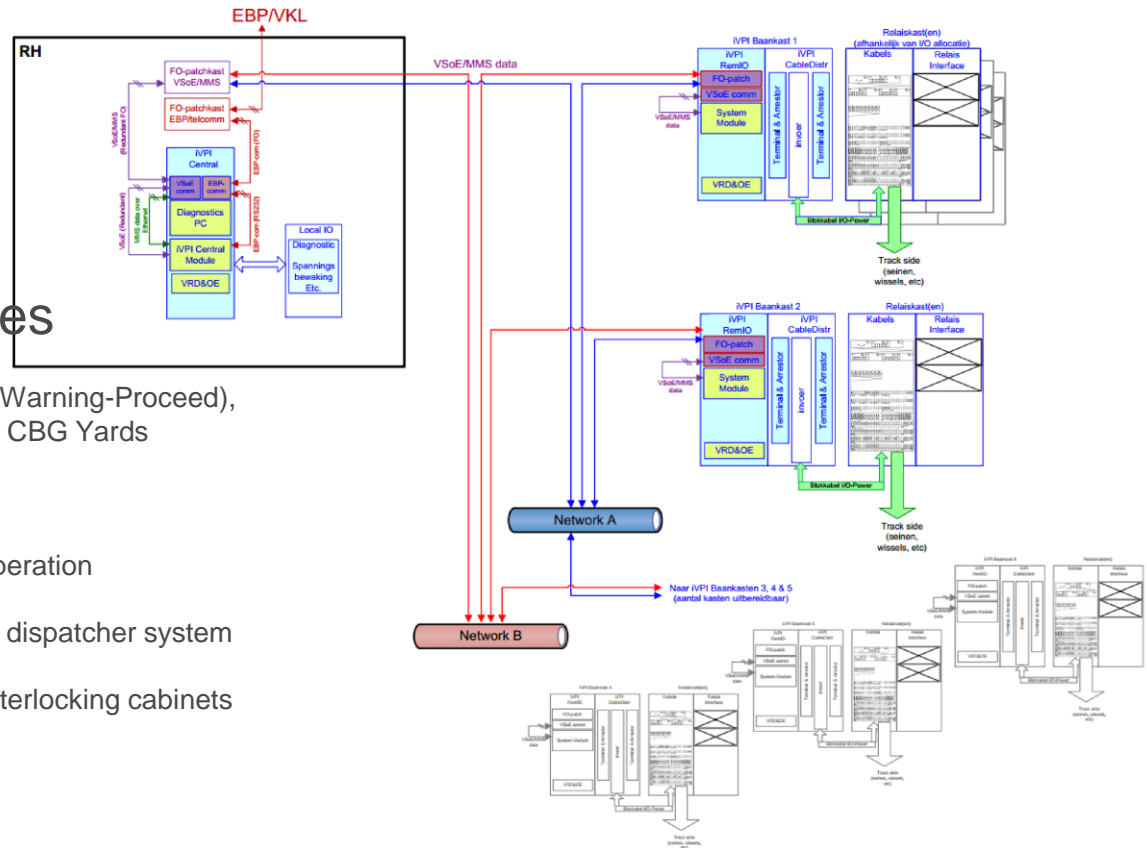
Challenges / Opportunities

Signal distance < 400 m,
Simplified signal aspects (Stop-On-Sight-Warning-Proceed),
no need to provide speed information on CBG Yards
mixed use of signals for NCBG LWA

Different speeds at Yards
Only NCBG LWA has fallback manual operation

NCBG LWA not integrated with common dispatcher system

New architecture reduces hardware in interlocking cabinets



Example 1

Wash installation Amsterdam Watergraafsmeer

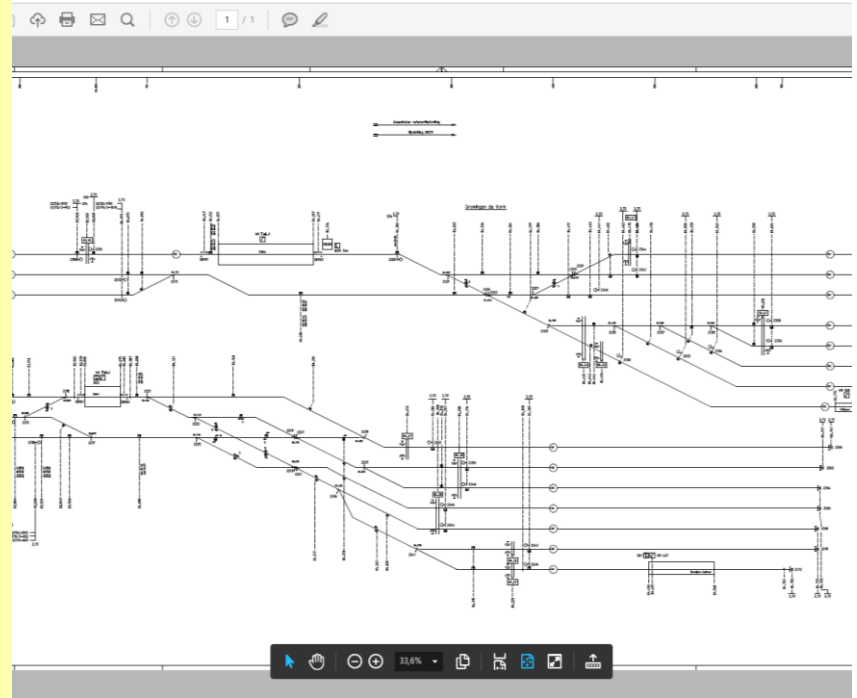
- No Electric Catenary
- Train(sets) hauled by radio controlled NS700 locomotive
Shunting in wash area vs Daily plan



Example 2

Generic Wash installation

- (switchable) catenary
- Trains through installation by self traction
- Movement Authority from signal
- In rear of installation sufficient space is needed to park a train, therefore no effect on other processes at the yard



Thank you for listening

Questions?

