London Overground

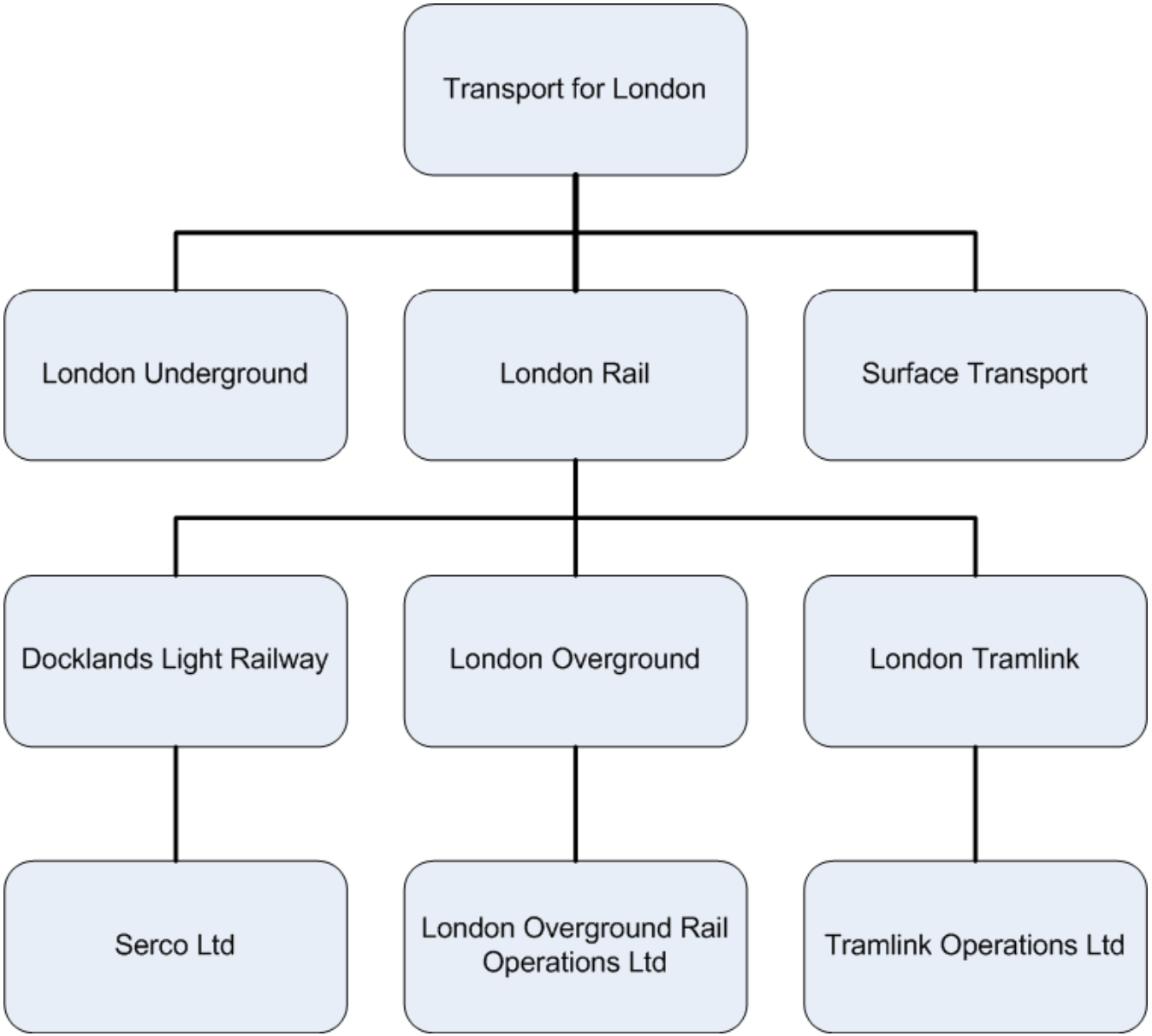
Safety on the East London Line Project

Andrew Petrie – Safety Manager

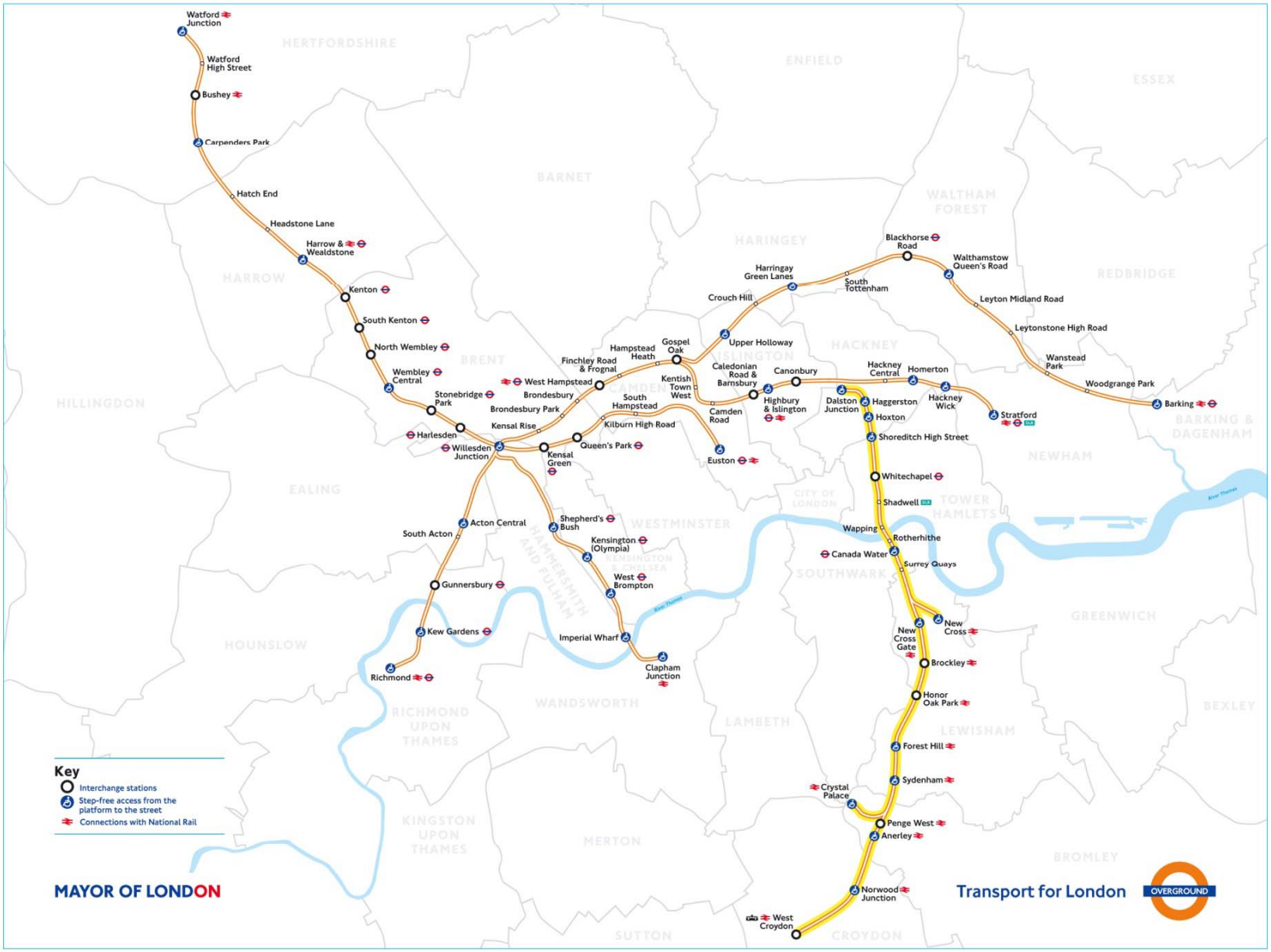
Presentation agenda

- London Overground & East London Line Project
- History of the ELLP
- Construction
- Rolling Stock
- Engineering Safety
- IM Safety Management System
- Testing & Trial Operations

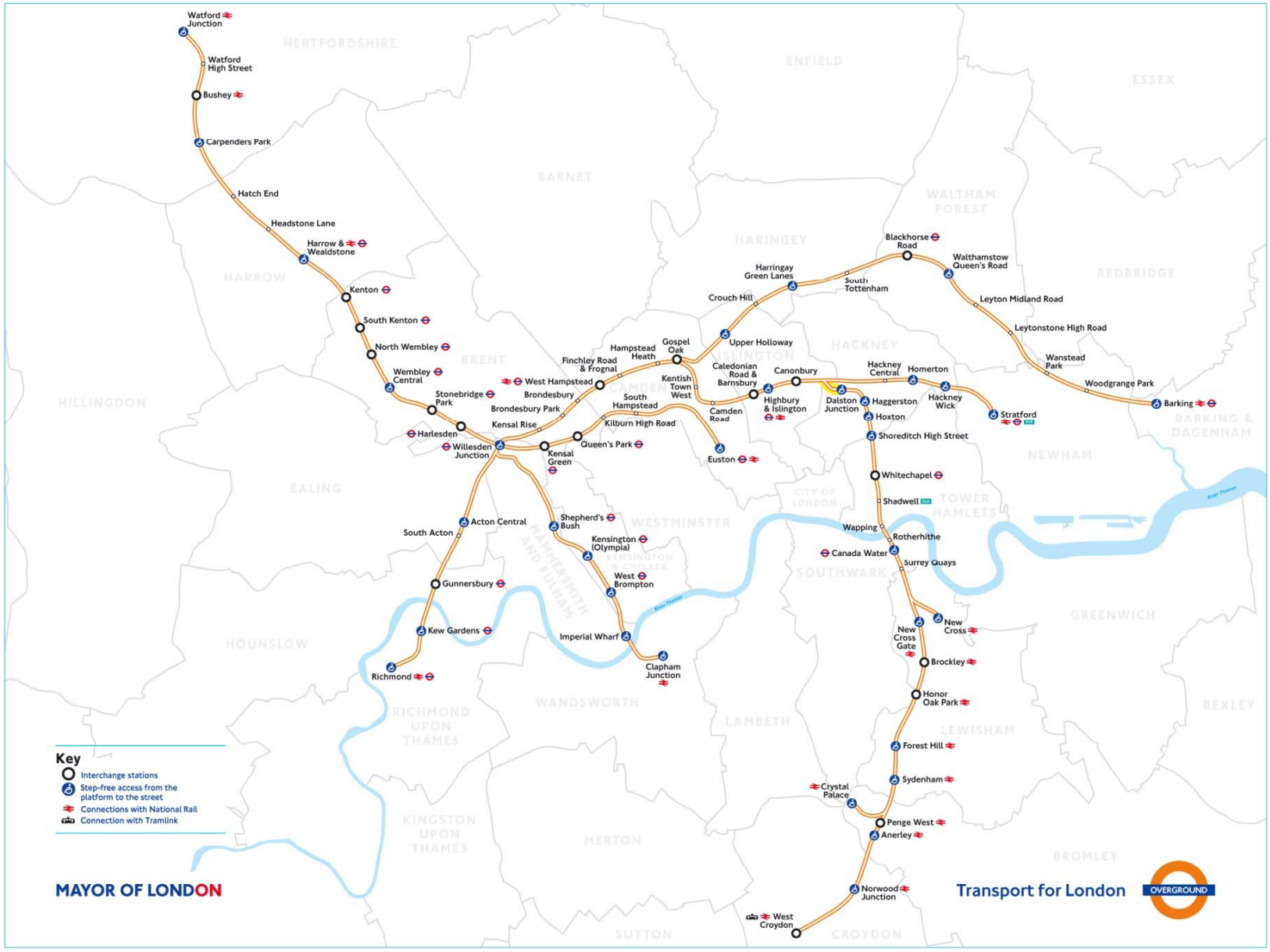
London Overground



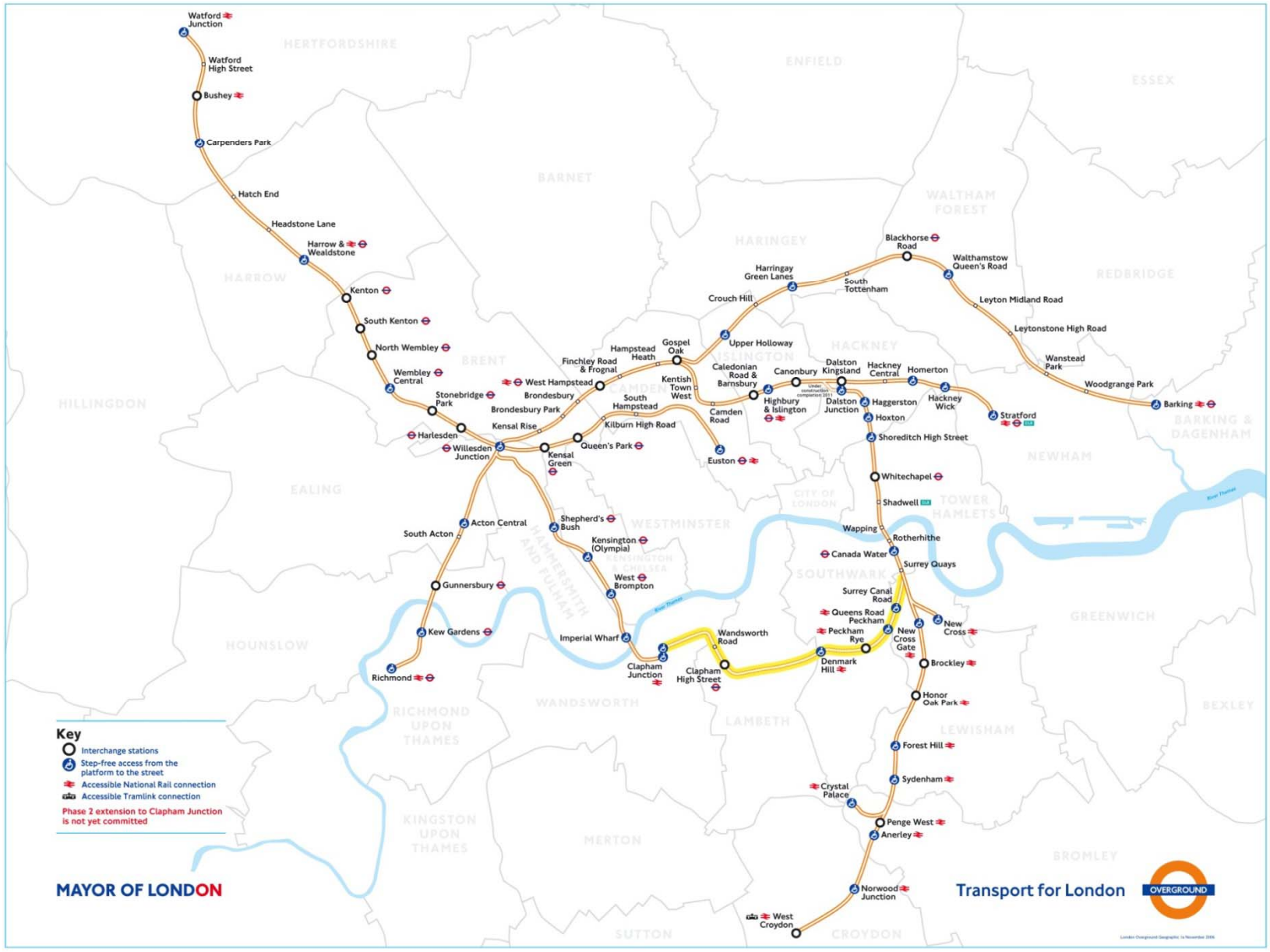
Phase 1 (June 2010)



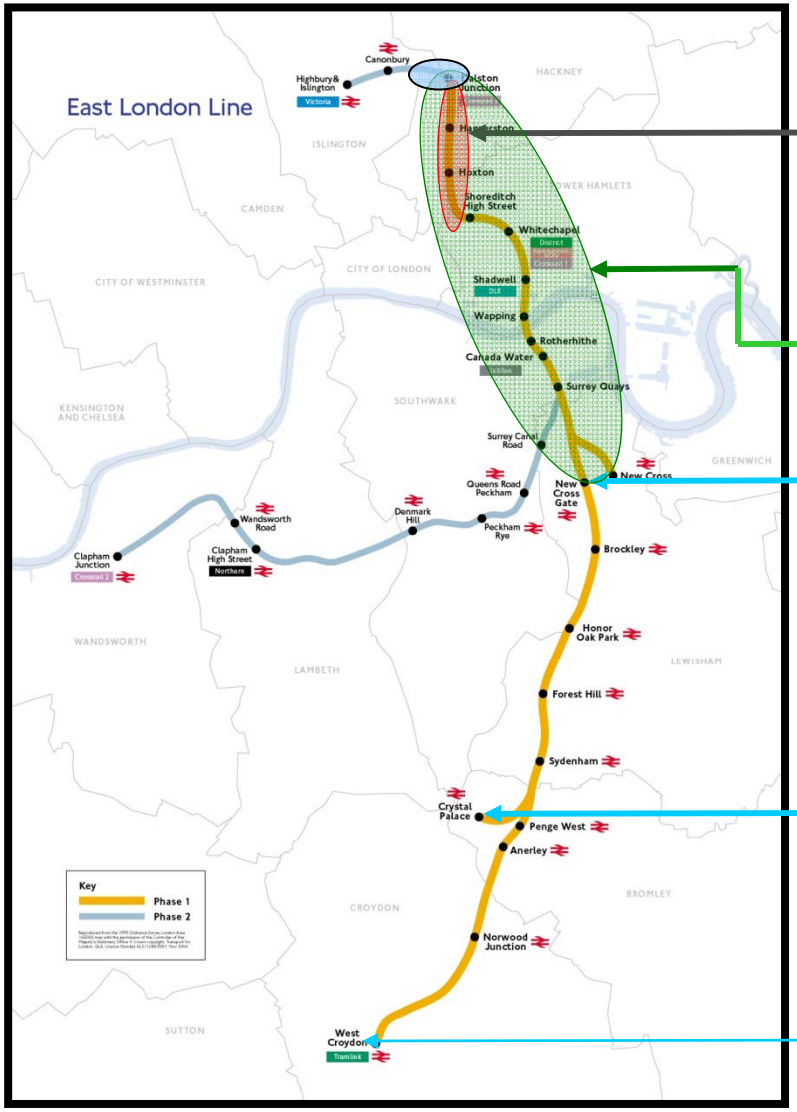
Phase 1a (Feb 2011)



Phase 2 (May 2012)



ELLP breakdown of works



Stage 2 Enabling Works

Phase 1 Main Works

NR (on-network) Works

Rolling Stock

Passenger Service Operator

Maintenance

OVERGROUND

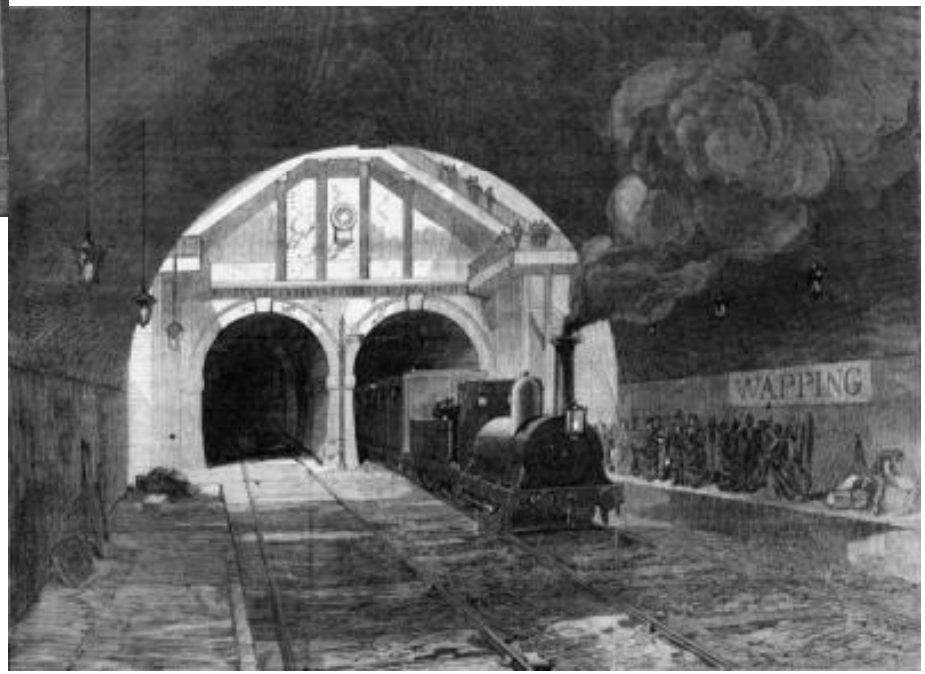
Stations

Depot

Rolling Stock – Class 378

OVERGROUND

History of the ELL



History of the ELL

History of the ELL

History of the Project

- ELL Project first came about in the early 80s
- Strategic Rail Authority 1999
- TfL (London Underground) 2004
- London Rail would build on behalf of LU
- 2008 decision was taken that London Rail would be Infrastructure Manager for the Core Route.

Key Safety Features

- Slab Track with Derailment Protection
- SME at all Stations
- Level Platforms and MIP Lifts at all new stations
- Fire Hydrants at all platforms and in the tunnels
- Passenger Help Points at all Stations
- Fire Alarms at all Stations
- CCTV at all Stations
- Remote monitoring & communications capability

Key Site Safety Issues

- Access & Egress
- Security
- Contaminated Water
- Smoking & Eating
- Mandatory Eye Protection
- Ventilation
- Engineering Train Movements

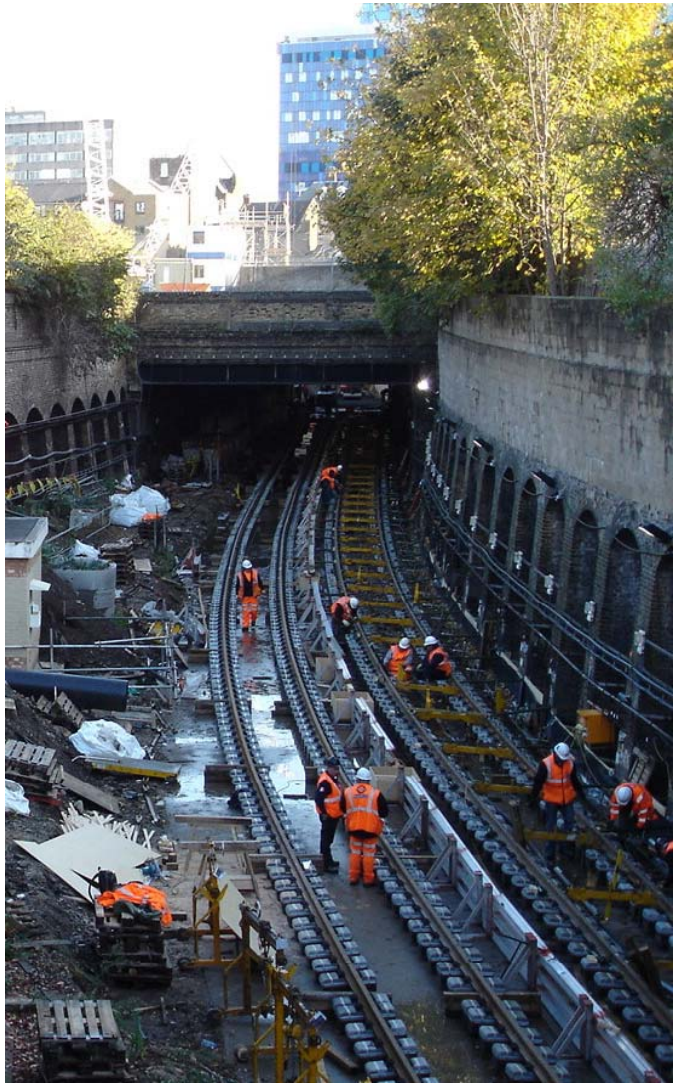
Construction

- Main Work Contractor to manage construction, a joint venture of Balfour Beatty & Carillion.
- The JV is the Principal Contractor for the site and responsible for Safety.
- The JV responsible for producing processes & procedures etc.
- TfL has a Site Safety Coordinator and Site Engineers
- TfL Senior Management undertake Safety Tours
- TfL Project Safety Committee & JV Safety Committee

Preparing the Tunnel

Installing the Track

Trackworks



The Finished Product

Shoreditch High Street Bridge

NXG Flyover

NXG Flyover

NXG Flyover

Launching GE19

Launching GE19

Dalston Junction – July 08

DJ – May 09

DJ – Oct 09

DJ – Future Development

SHS – April 07

Archaeology - SHS

SHS – Nov 08

SHS – July 09


Shoreditch High Street London Overground Station
opening Summer 2010

Whitechapel – Route Protection

Depot Stabling Area

Construction

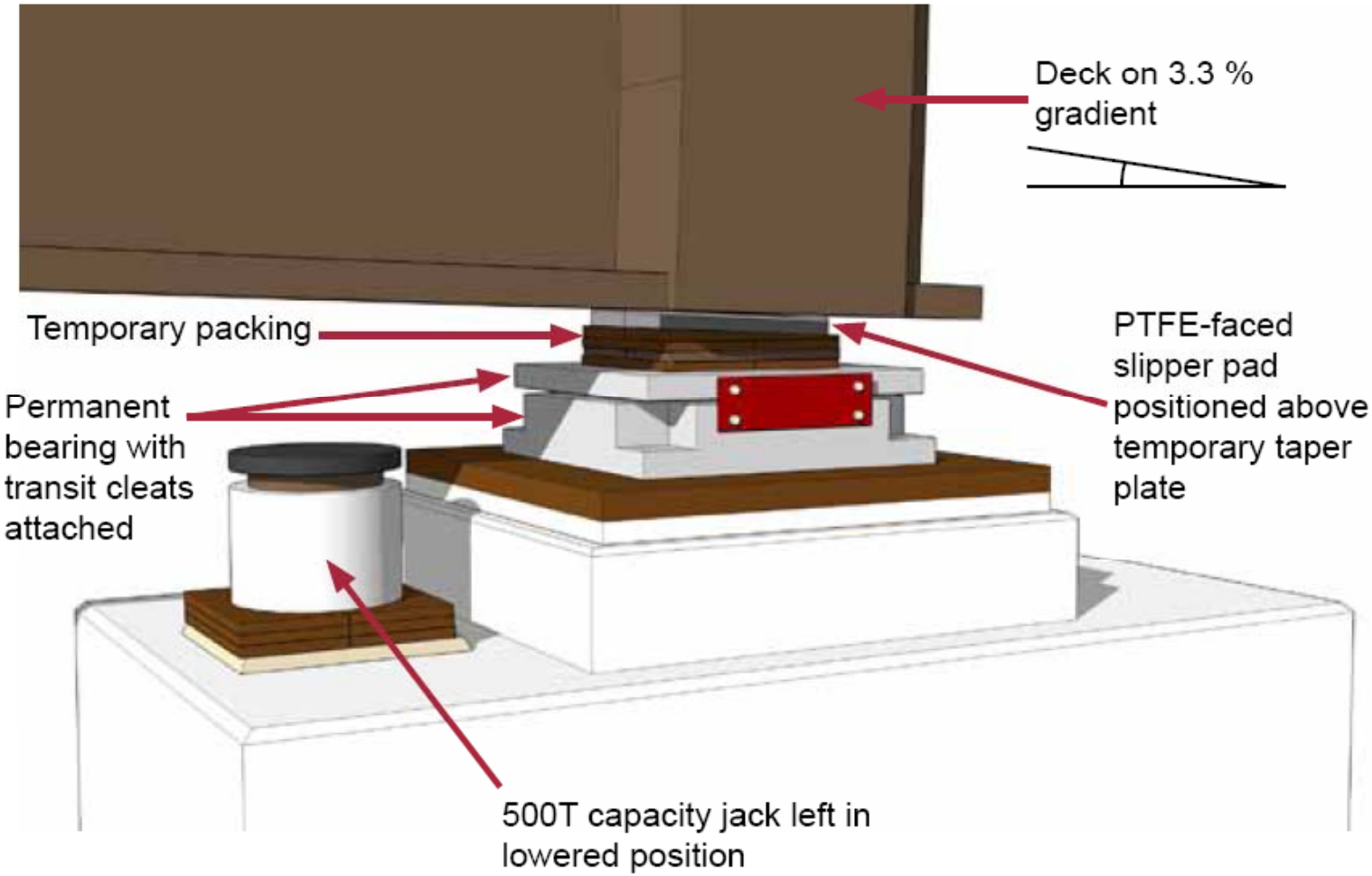
Construction

Construction

Working at Height

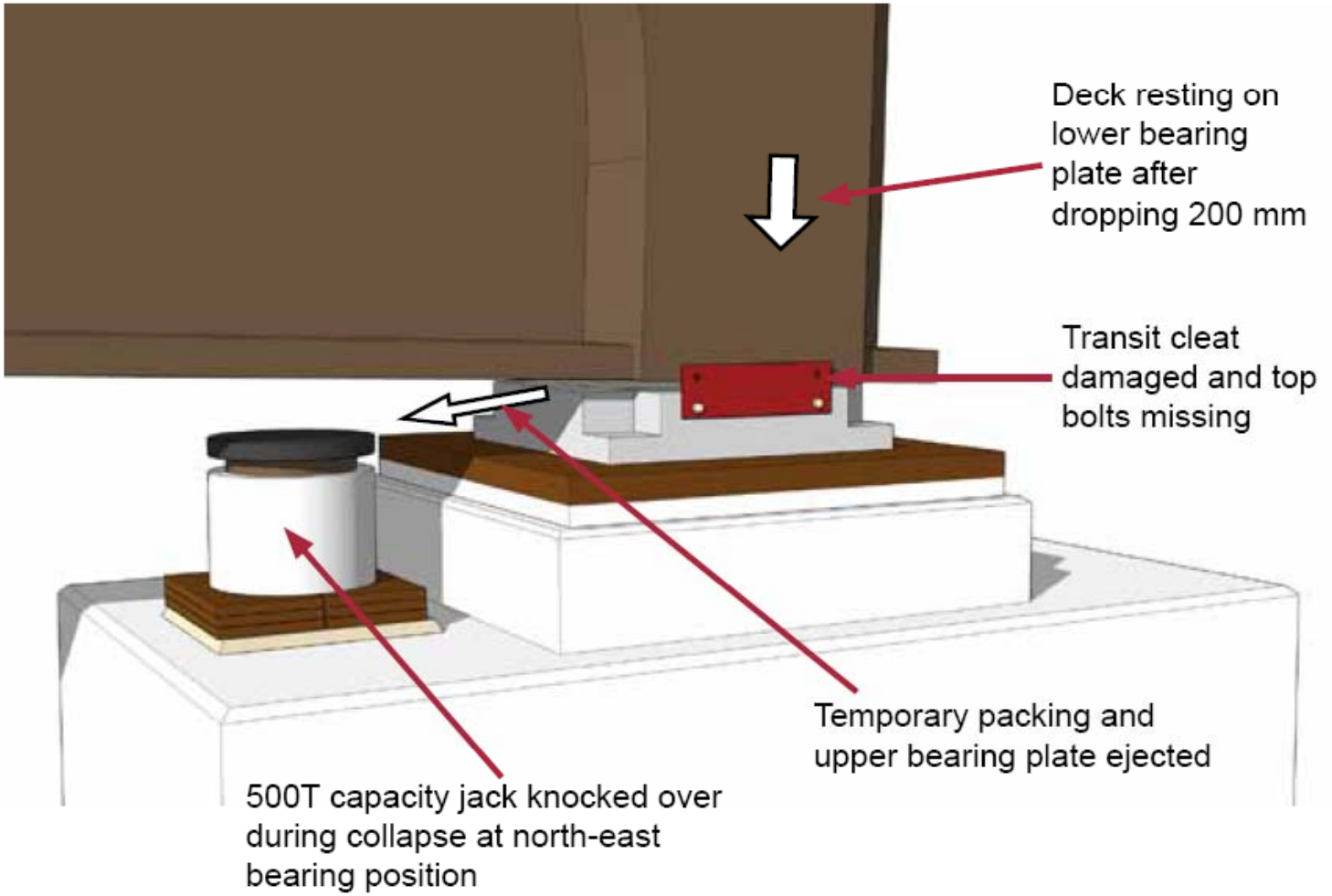
When Things Go Wrong

GE19 Incident



A) Before collapse

GE19 Incident

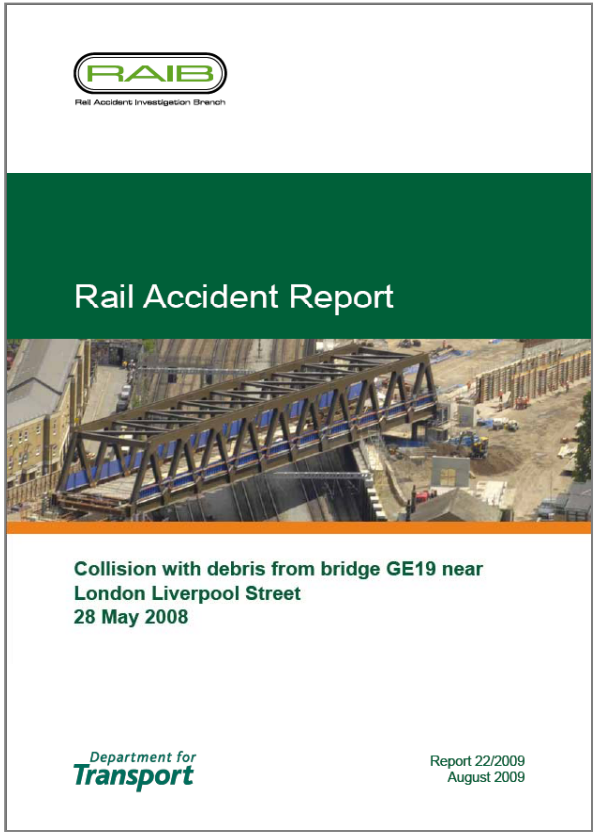


B) After collapse

GE19 Incident

Investigation by the Rail Accident Investigation Branch

- Management of Works by Contractors
- Temporary Works
- Reliance on Specialists
- Modifications to Design
- Lack of Experience of Site Staff



OVERGROUND

Phase 2

Rolling Stock Contract

- Deliver Rolling Stock
  - ELR / NLR - Phase I
    - 24 x 3 car NLR – Dual voltage trains
    - 20 x 4 car ELR – dc only
  - ELR / NLR - Phase II
    - Up to 90 additional cars – 64 already ordered

- Provide for long-term maintenance – 30 year deal
- Bombardier awarded contract on 31 August 2006
- Rolling stock contract value = £291 million for phases I and II

OVERGROUND

Rolling Stock Features

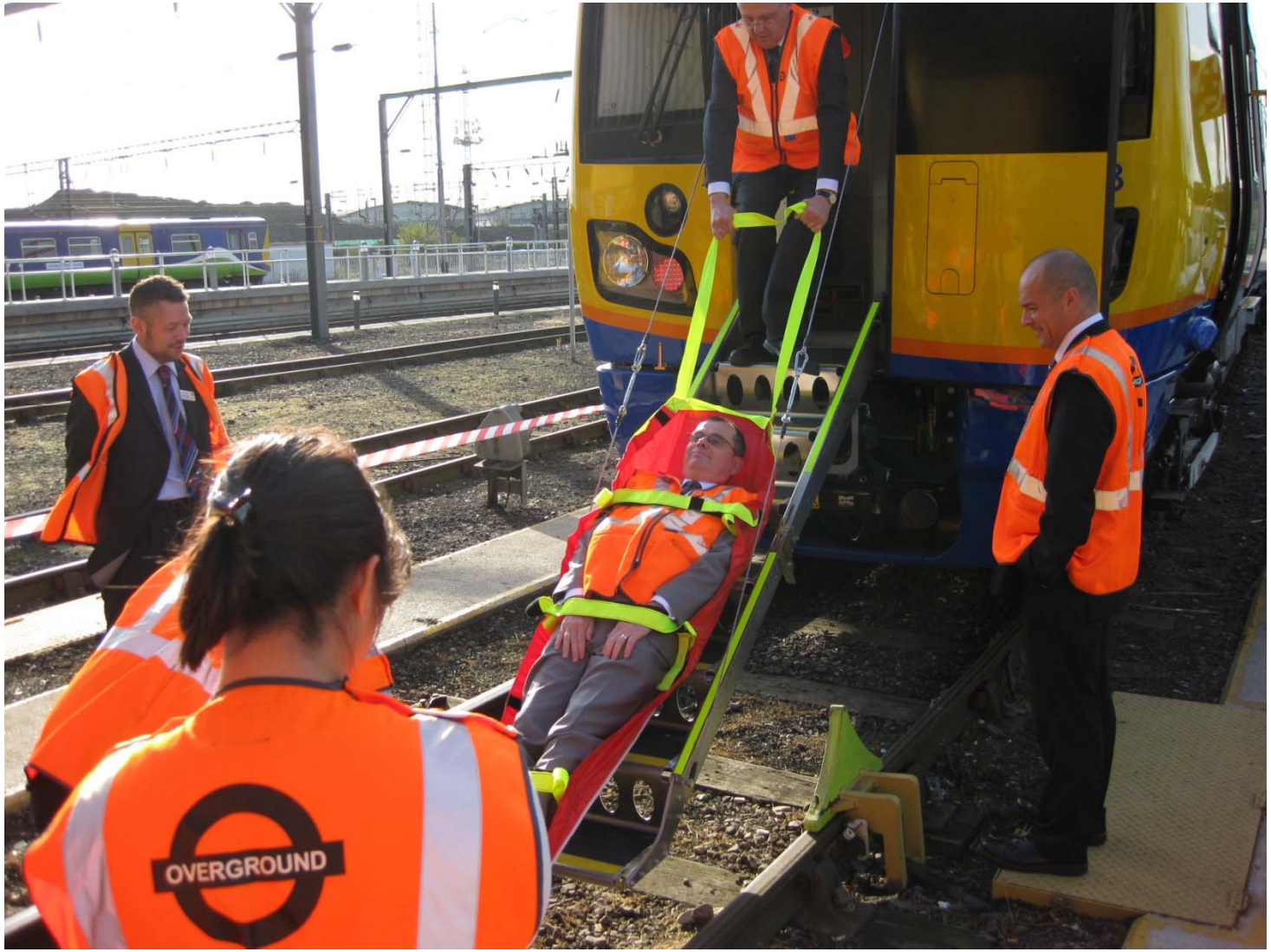
- Open Wide Gangways
- Longitudinal Seating
- RVAR Compliant
- Driver Only Operation
- CCTV
- GSM-R
- Air Conditioning
- Cat 1a Fire Rating
- End Detrainment Door

OVERGROUND

Rolling Stock Features

378 In Service

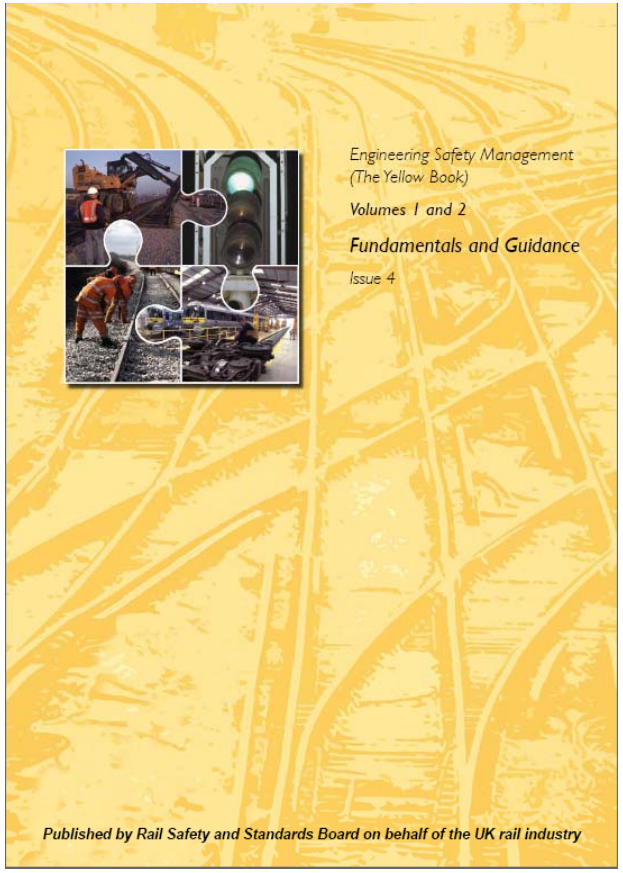
Detrainment Device



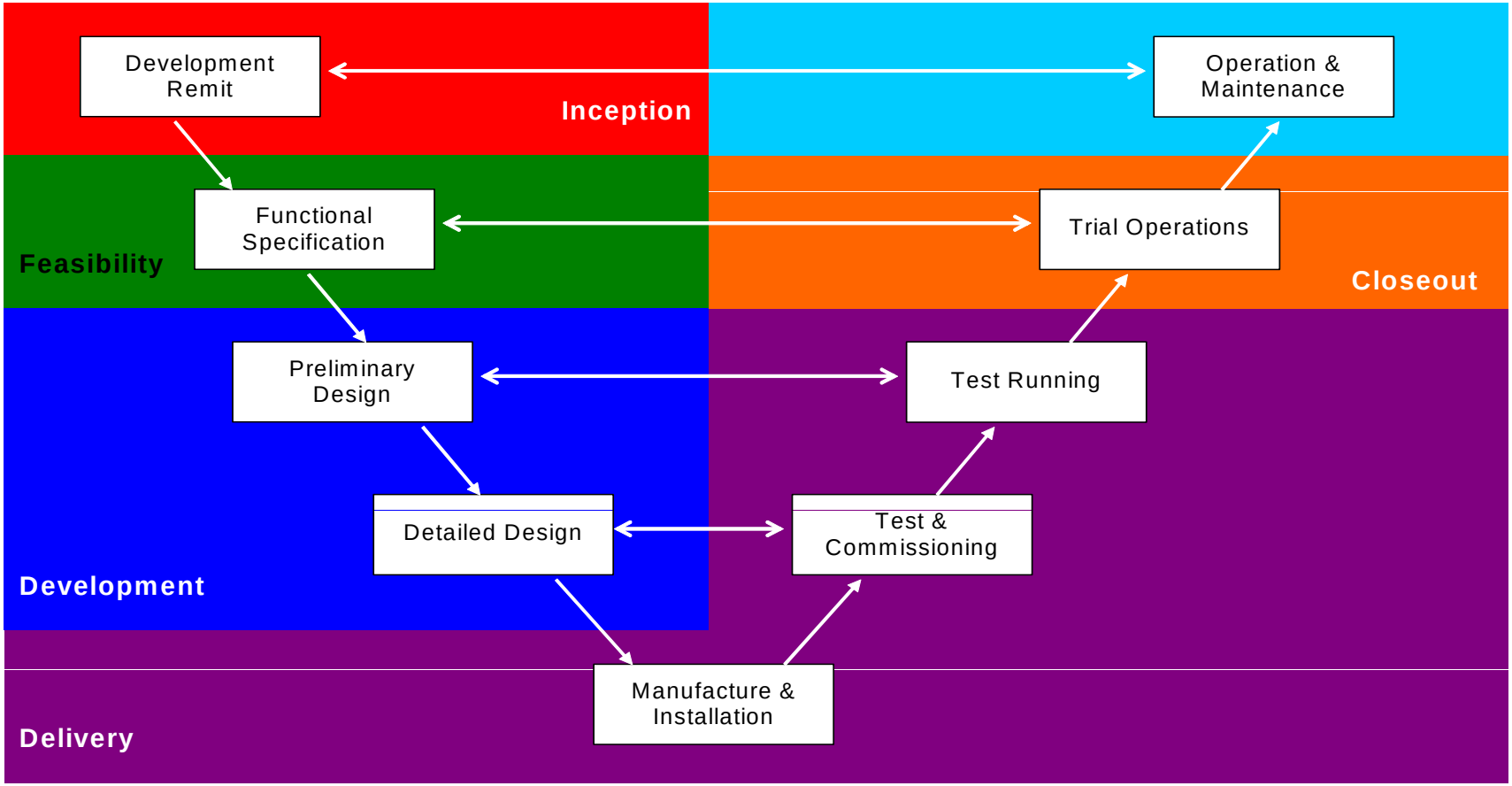
Detrainment Device

Engineering Safety Management

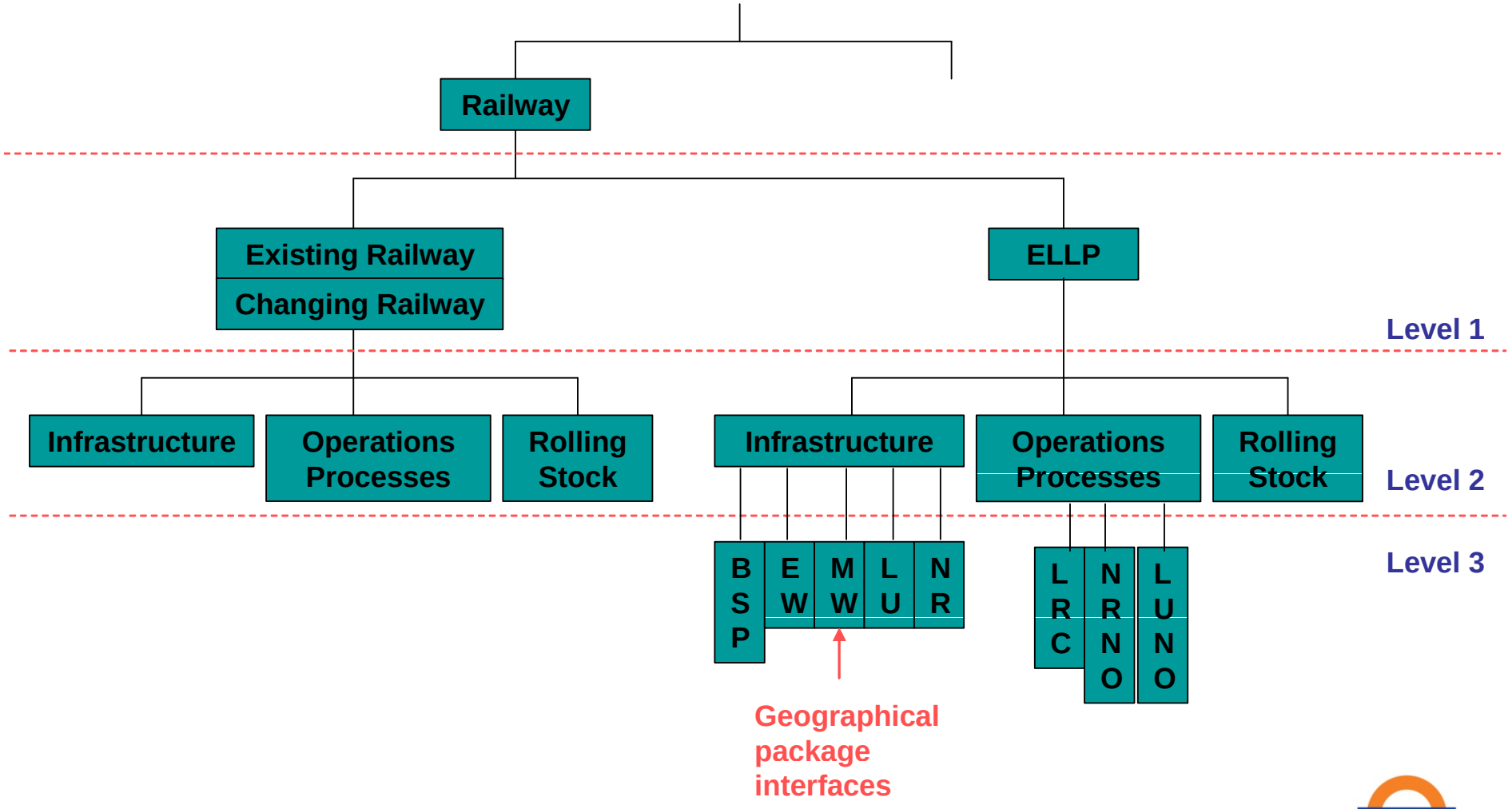
- Based on the ‘Yellow Book’
- Project Hazard Log
- AD&C Register
- Risk Model (QRA)
- Cases for Safety
- Systems Assurance
- Progressive Assurance



Project Lifecycle

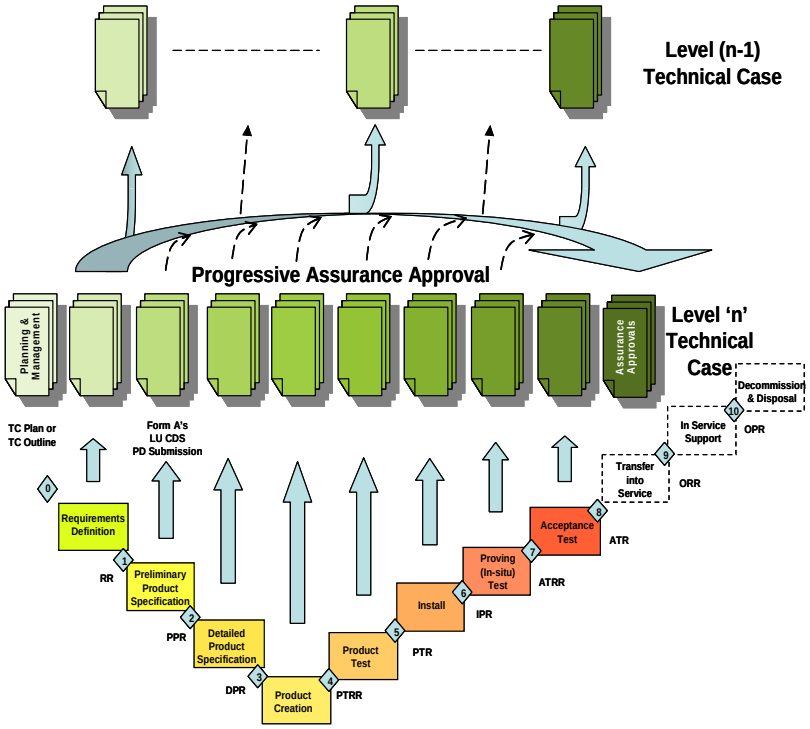


Levelling


Railway
Existing Railway
Changing Railway
ELLP
Level 1
Infrastructure
Operations Processes
Rolling Stock
Infrastructure
Operations Processes
Rolling Stock
Level 2
BSP
EW
MW
LU
NR
LRC
NRNO
LUNO
Level 3
Geographical package interfaces

Technical Case

- To demonstrate that requirements are met and fitness for purpose of the system/asset;
- Supports the use of:
  - Levelling;
  - Lifecycles;
  - Progressive Assurance (TC Release – SAP);
- Does **not** require the application of new or modified engineering or assurance processes; uses LU (CDS), NR (Form A) plus manufacturing (Prelim Design); and
- Collects and presents existing assurance evidence in a consistent way.



Level 'n' Engineering Product Lifecycle

LO as Infrastructure Manager

- Required under ‘ROGS’
- LO took over from LU
- Responsible for the Core Infrastructure
- Had to develop an SMS from scratch
- Applied for Safety Authorisation from ORR
- Currently writing detailed procedures

LO as Maintainer

- Set up a Maintenance Contract
- Procure Maintainer
- Define Maintenance Standards & Requirements
- Work as a Joint Team
- Safety & Env Inspection Regime
- Positive Safety Culture

Test Running

- To Test the Train & Infrastructure
- Exemption from Railway Legislation
- Working under ‘Construction Site’ Rules
- New Operating Rules Introduced
- Re-Training of All Staff
- ‘Test Track’ Conditions

Trail Operations

- 3 Months of Trial Operations
- To Train Drivers, Station Staff & Signallers
- Finish off Outstanding Work
- Trial Runs with Passengers
- Emergency Exercises (Vanguard)
- Begin Maintenance
- Partial Opening

First Test Train – Gauging Test

First Test Train at Dalston

First Train at GE19

May 2010

ELL Phase 1 Opens May 2012

Look Forward to Seeing You

Any Questions?