

# **AGENDA**

**So What is Crossrail?**

**Why Crossrail?**

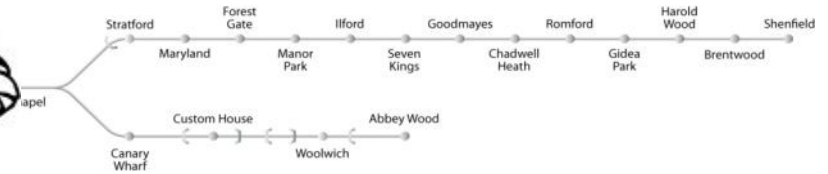
**Key Dates**

**How to achieve Crossrail?**

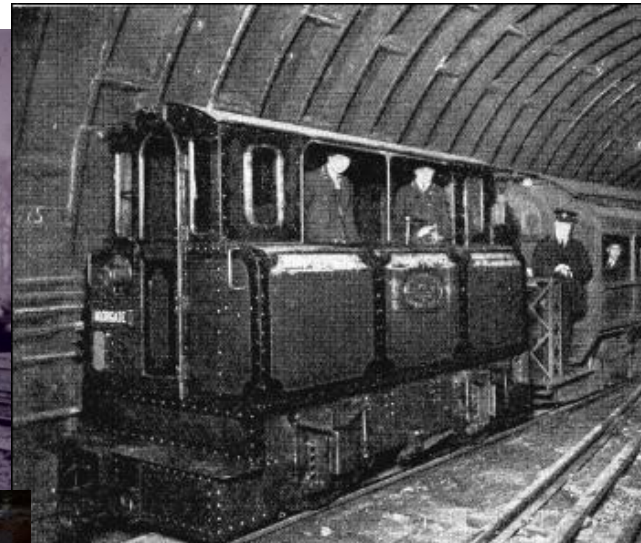
**Engineering and Technology**

**Where are we today?**

# So What is Crossrail?



# Evolution of London's System





# The Route





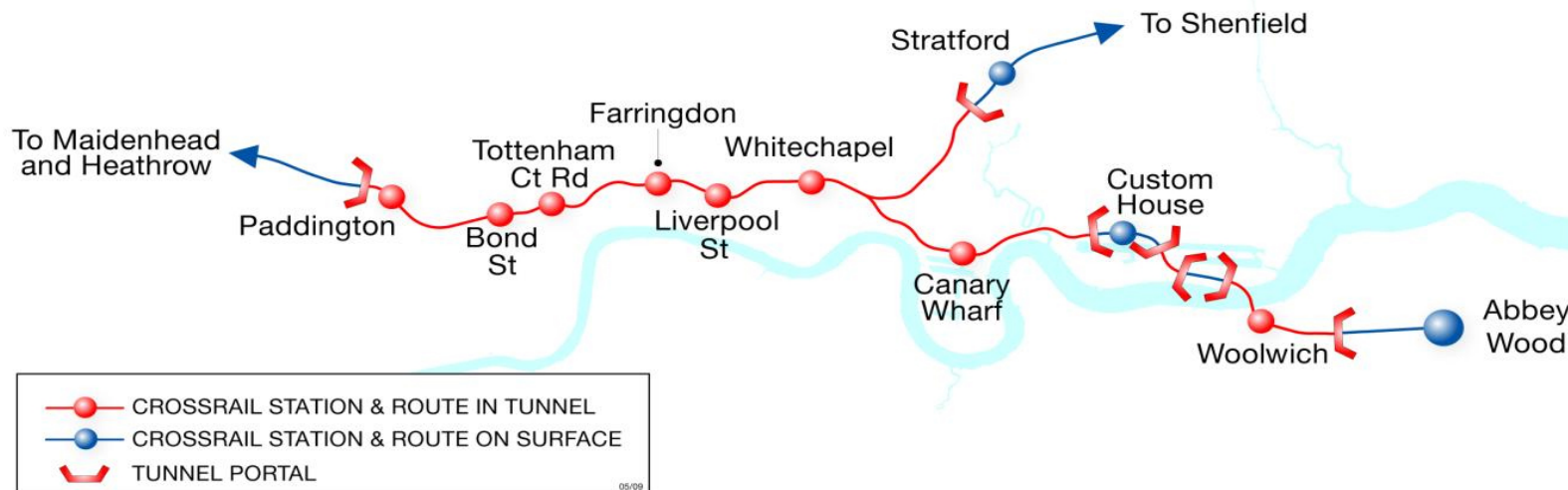
# New Infrastructure

**28 existing surface stations upgraded  
(11 major reconstructions)**

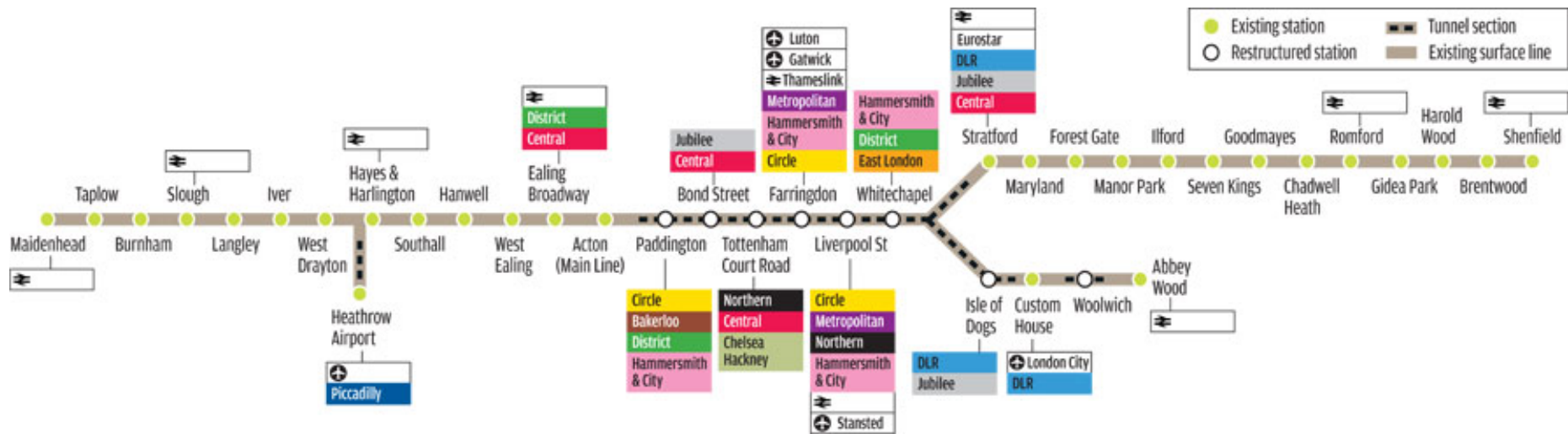
**90km of existing surface network upgraded**

**21 km of new sub-surface twin-bore railway**

**8 major sub-surface stations**

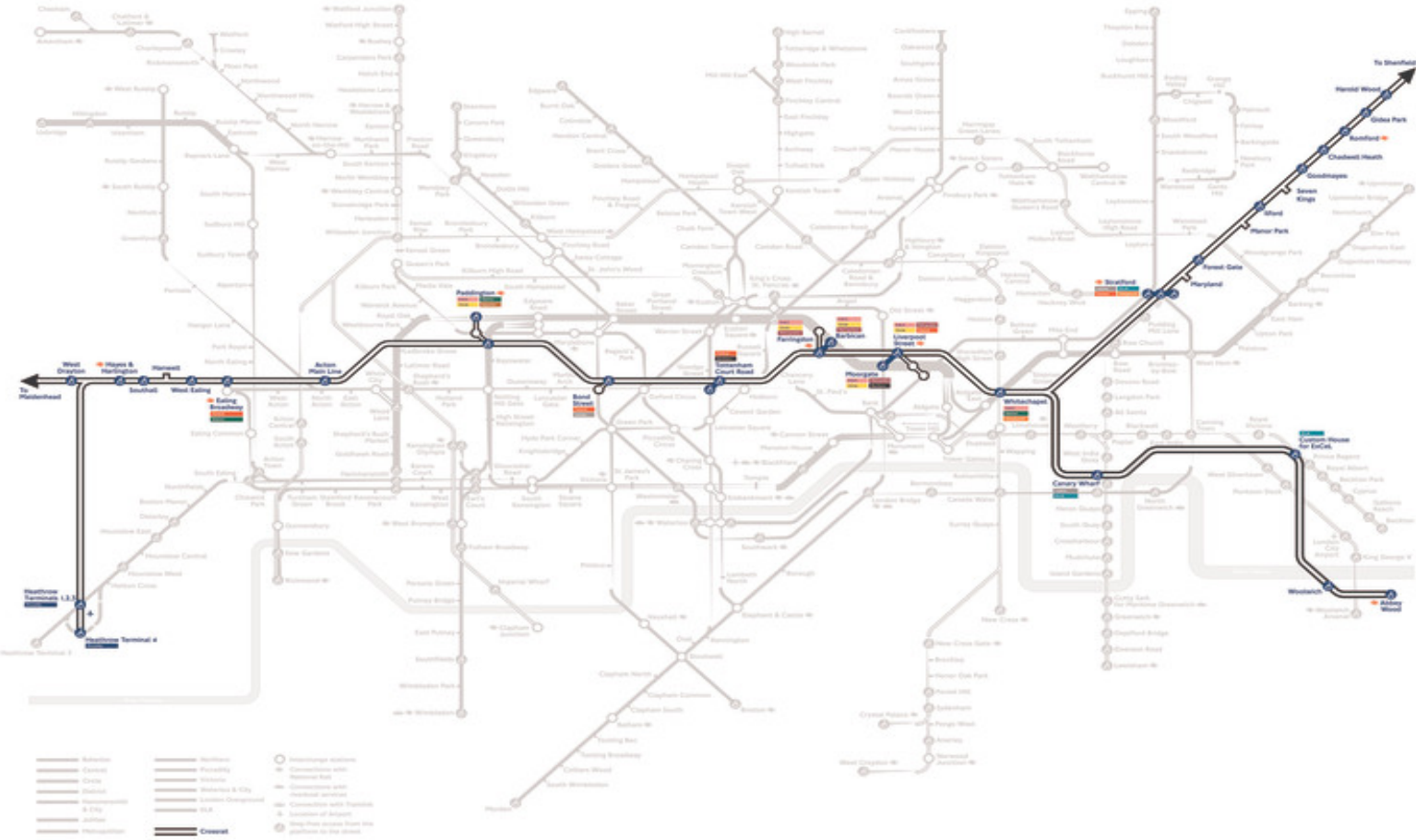


# Interchanges



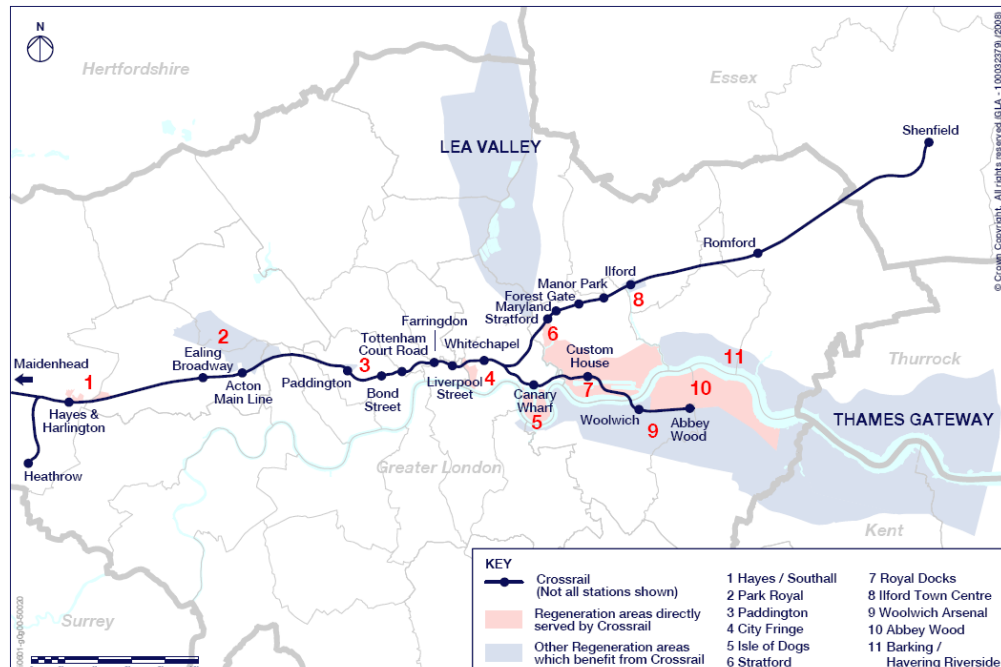
# Overlay on Existing System

## Crossrail Route

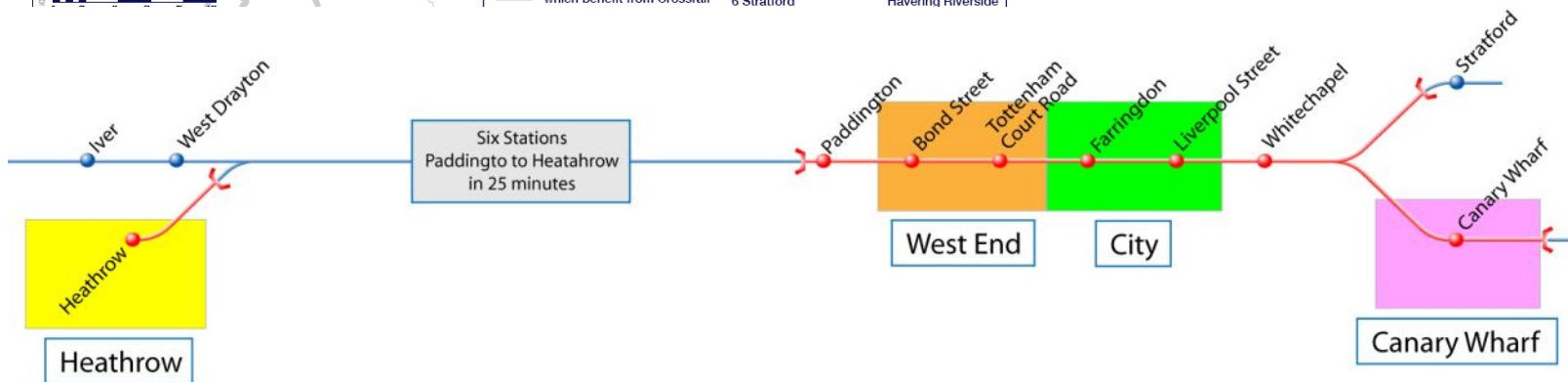




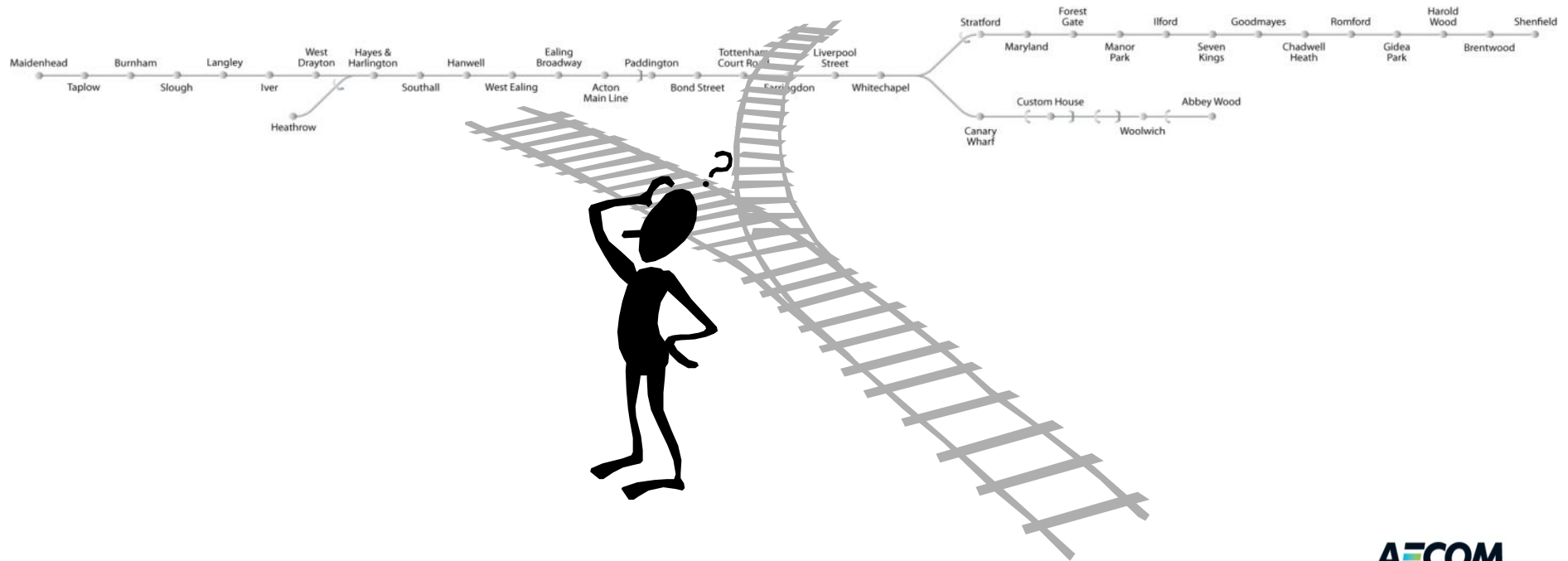
# Key Nodes



**Linking London's key business and regeneration areas**



# Why Crossrail?

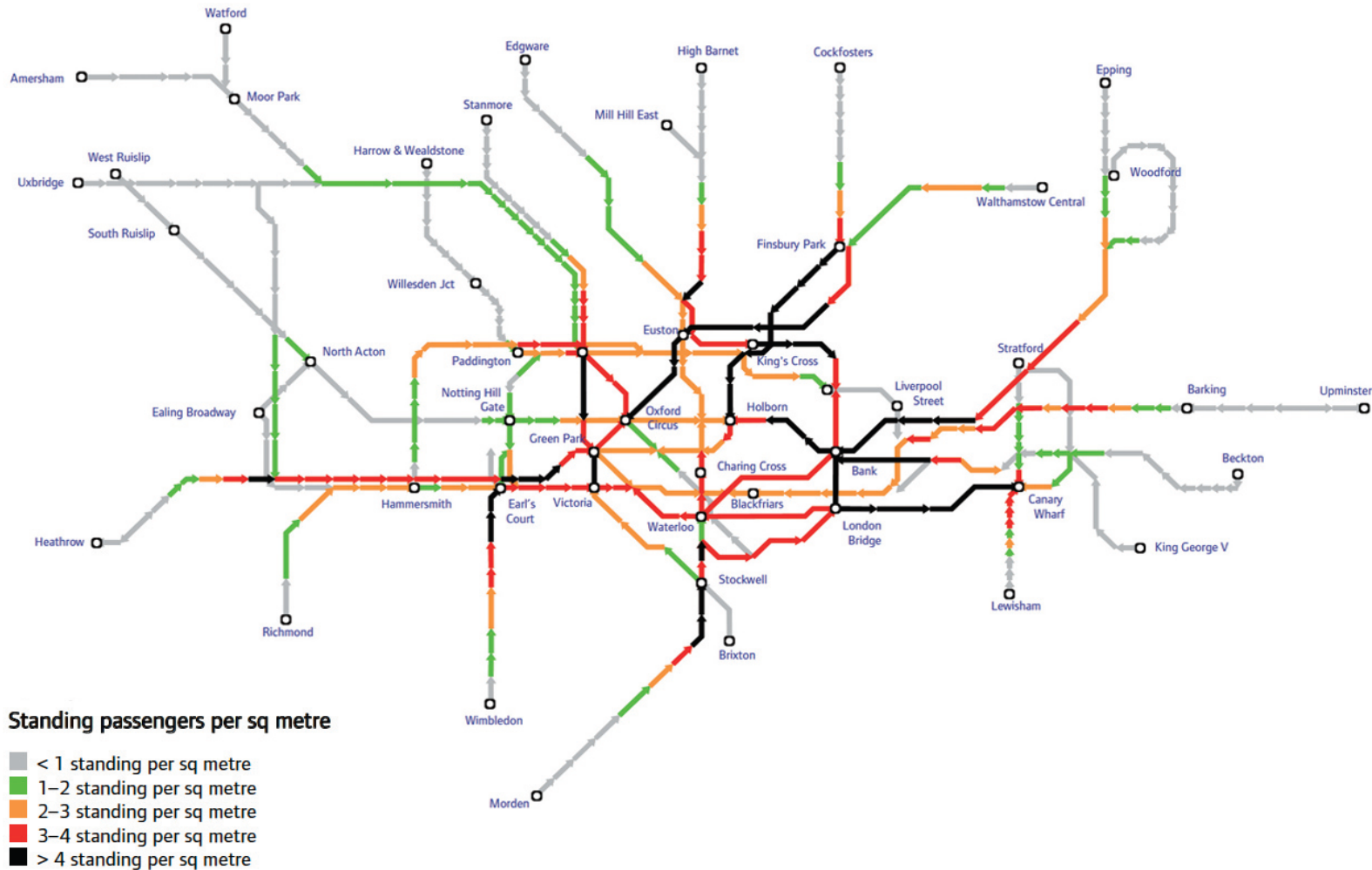


# Congestion



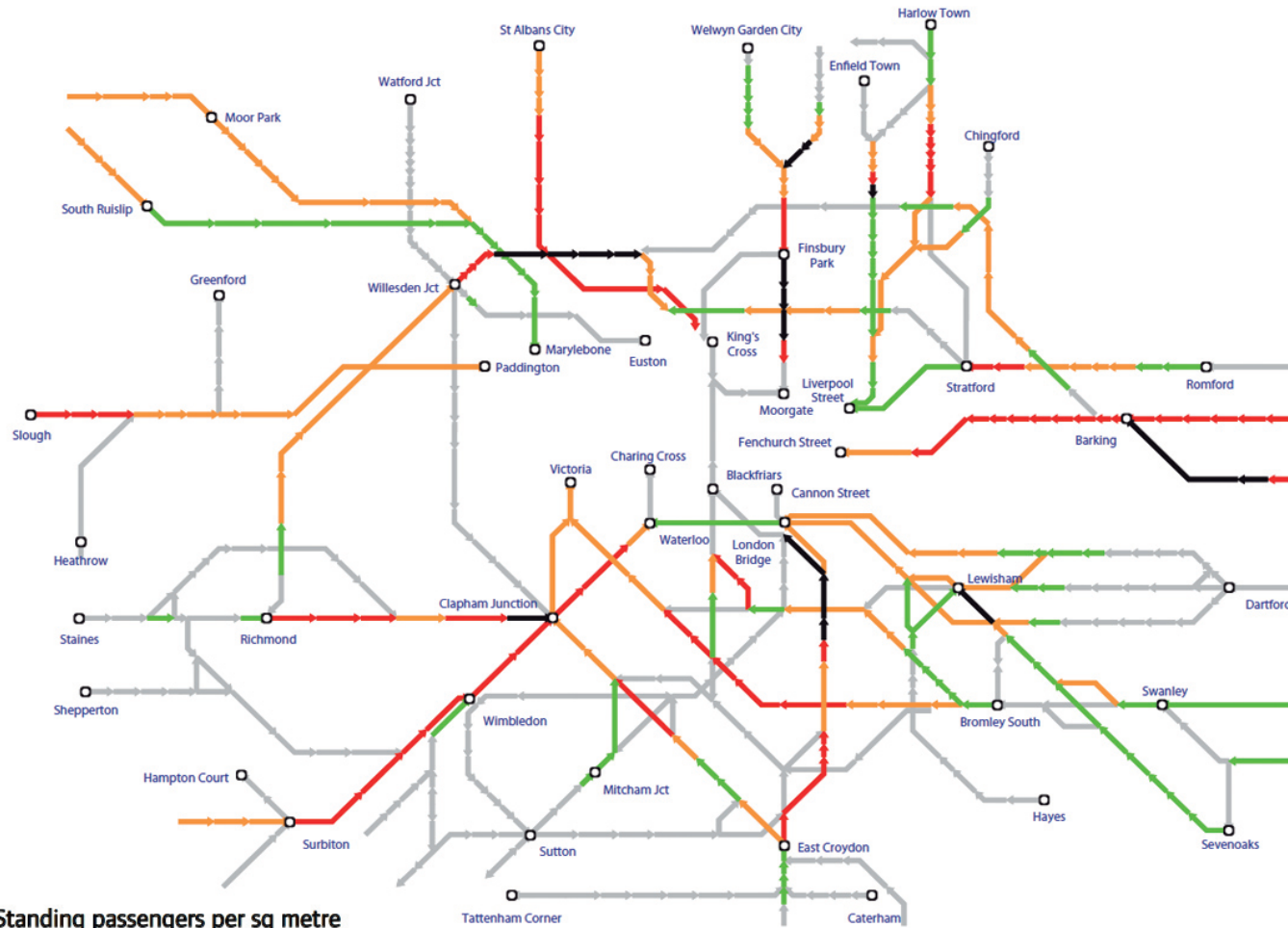


# Tube/DLR Crowding 2006



This schematic map does not include all details of the network

# Regional Rail Crowding 2006

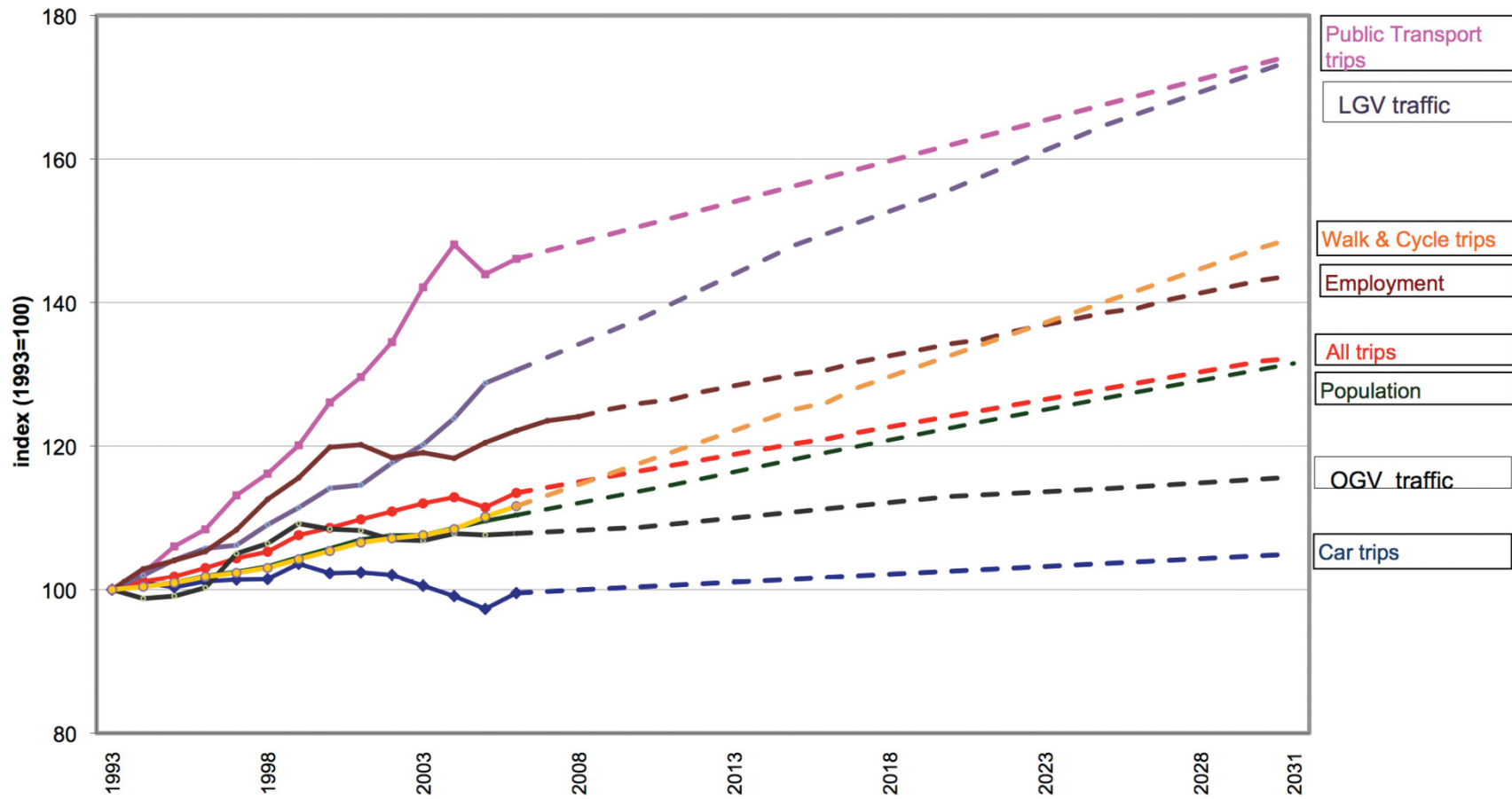


## Standing passengers per sq metre

- < 1 standing per sq metre
- 1–2 standing per sq metre
- 2–3 standing per sq metre
- 3–4 standing per sq metre
- > 4 standing per sq metre

This schematic map does not include all details of the network

# Predicted Increase in Trips

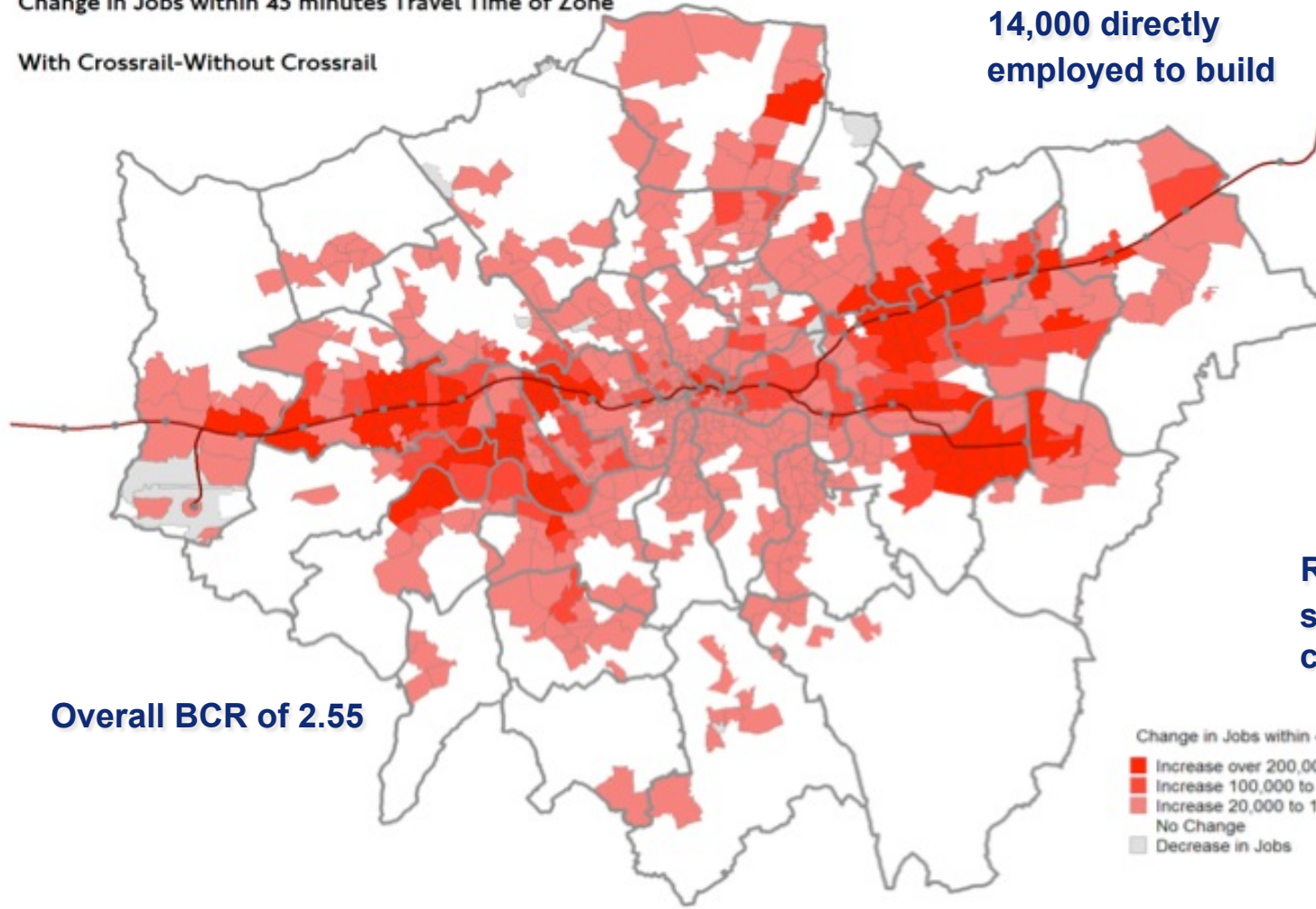




# Access to Employment

Change in Jobs within 45 minutes Travel Time of Zone

With Crossrail-Without Crossrail



**14,000 directly  
employed to build**

**100,000 new jobs  
to the East**

**From 5m to 6.5m  
within 45 minutes  
of work**

**93% of Crossrail  
trips step-free**

**Reduced system  
stress = reduced  
costs**

**Overall BCR of 2.55**

Change in Jobs within 45 mins

- Increase over 200,000
- Increase 100,000 to 200,000
- Increase 20,000 to 100,000
- No Change
- Decrease in Jobs

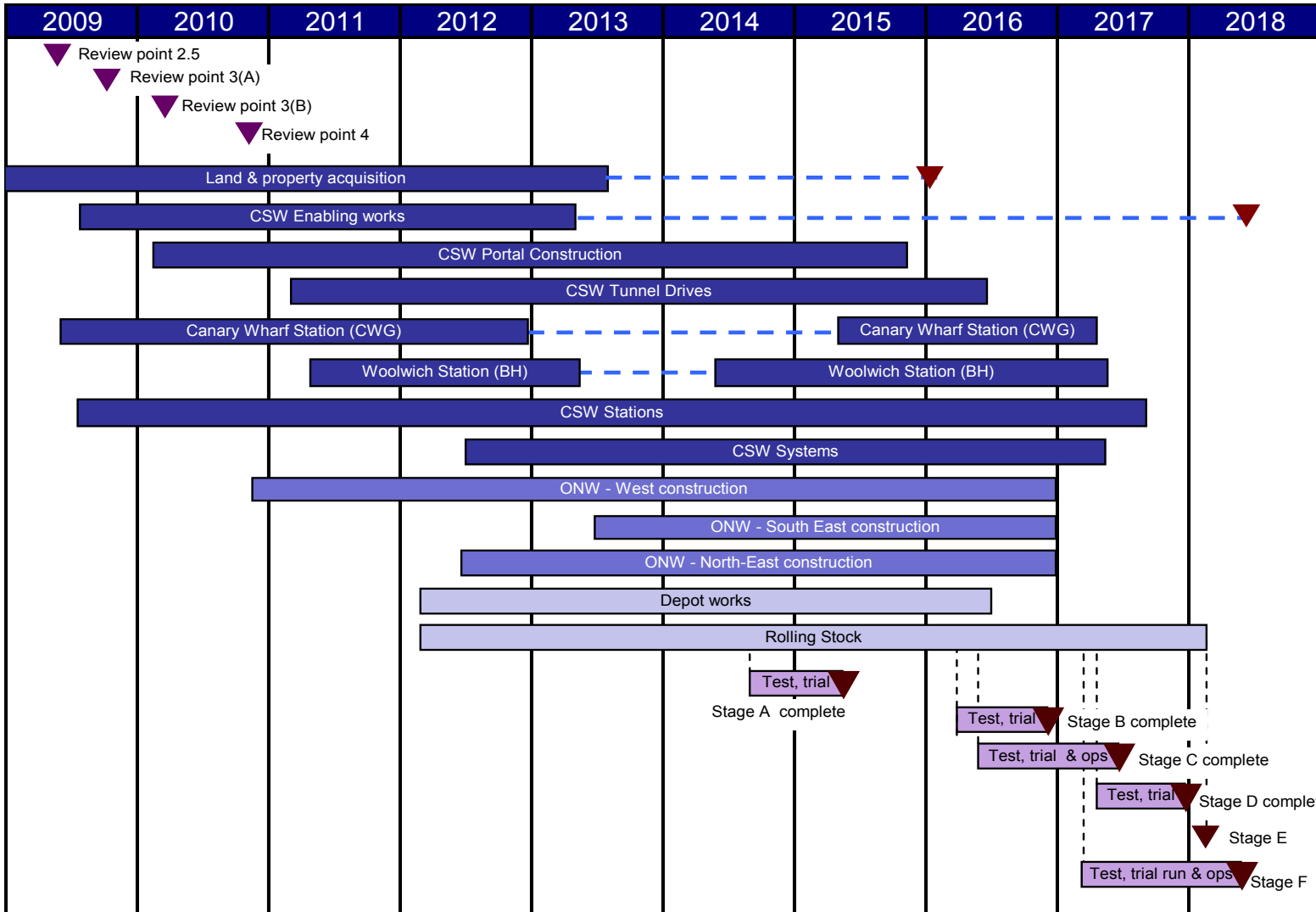
# Key Dates

- Royal Commission for London in 1904
- Central London rail Study 1989
- Private Bill prepared for November 1989
- Rejected in May 1994
- Hybrid Bill deposited on 22 February 2005
- Royal Assent awarded in June 2008

Opening  
2018



# Our Plan

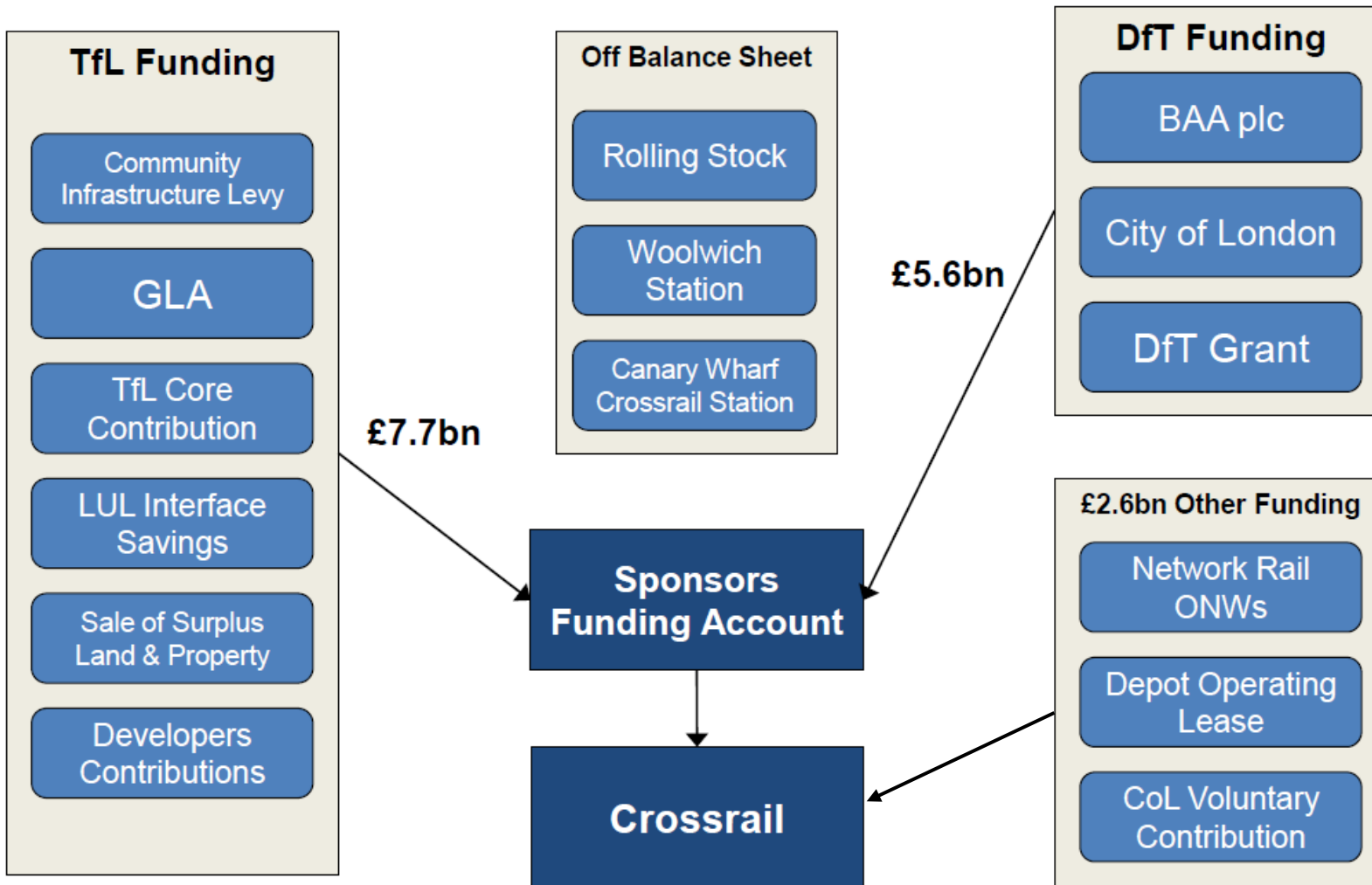




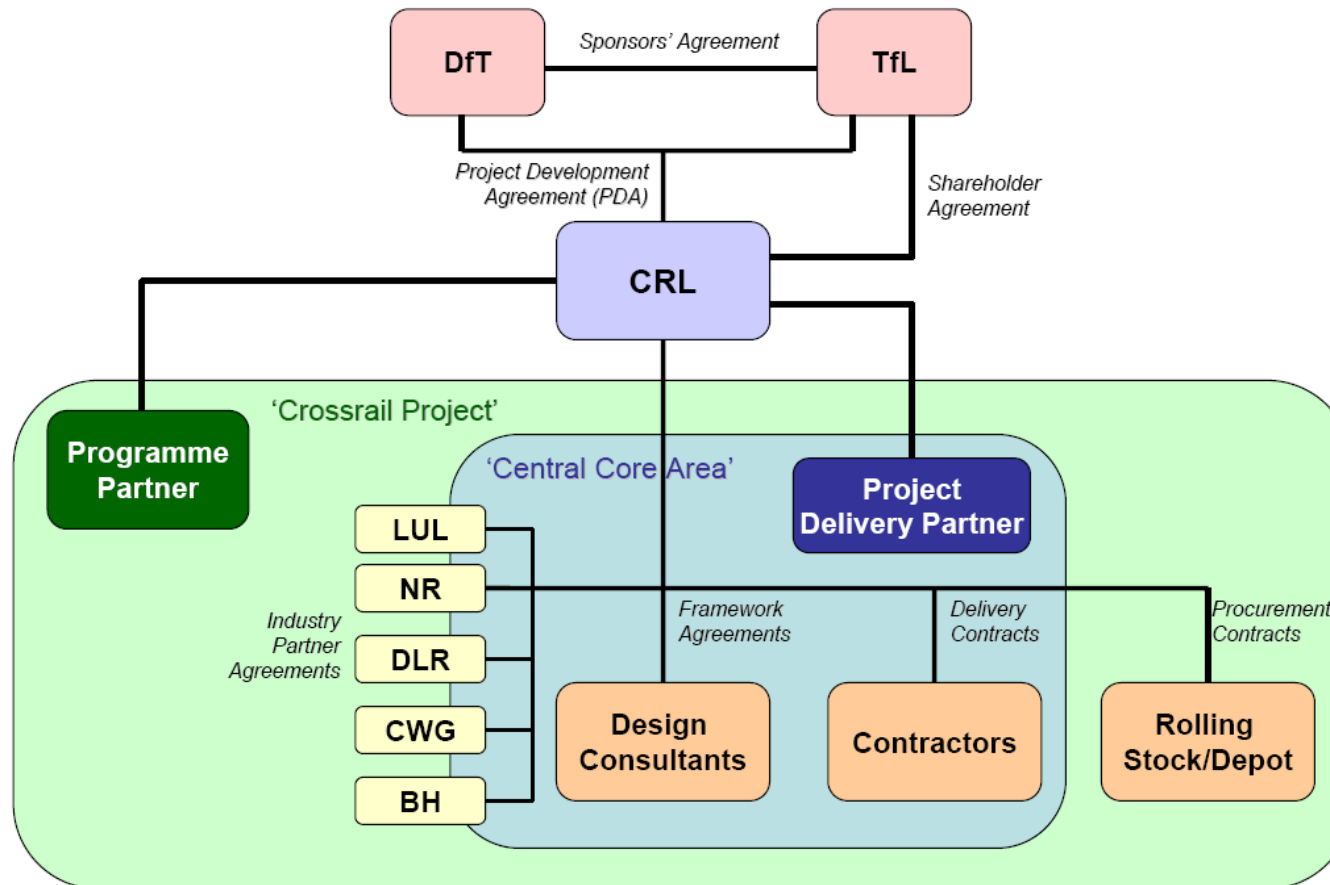
# How to Achieve Crossrail?



# Funding Deal



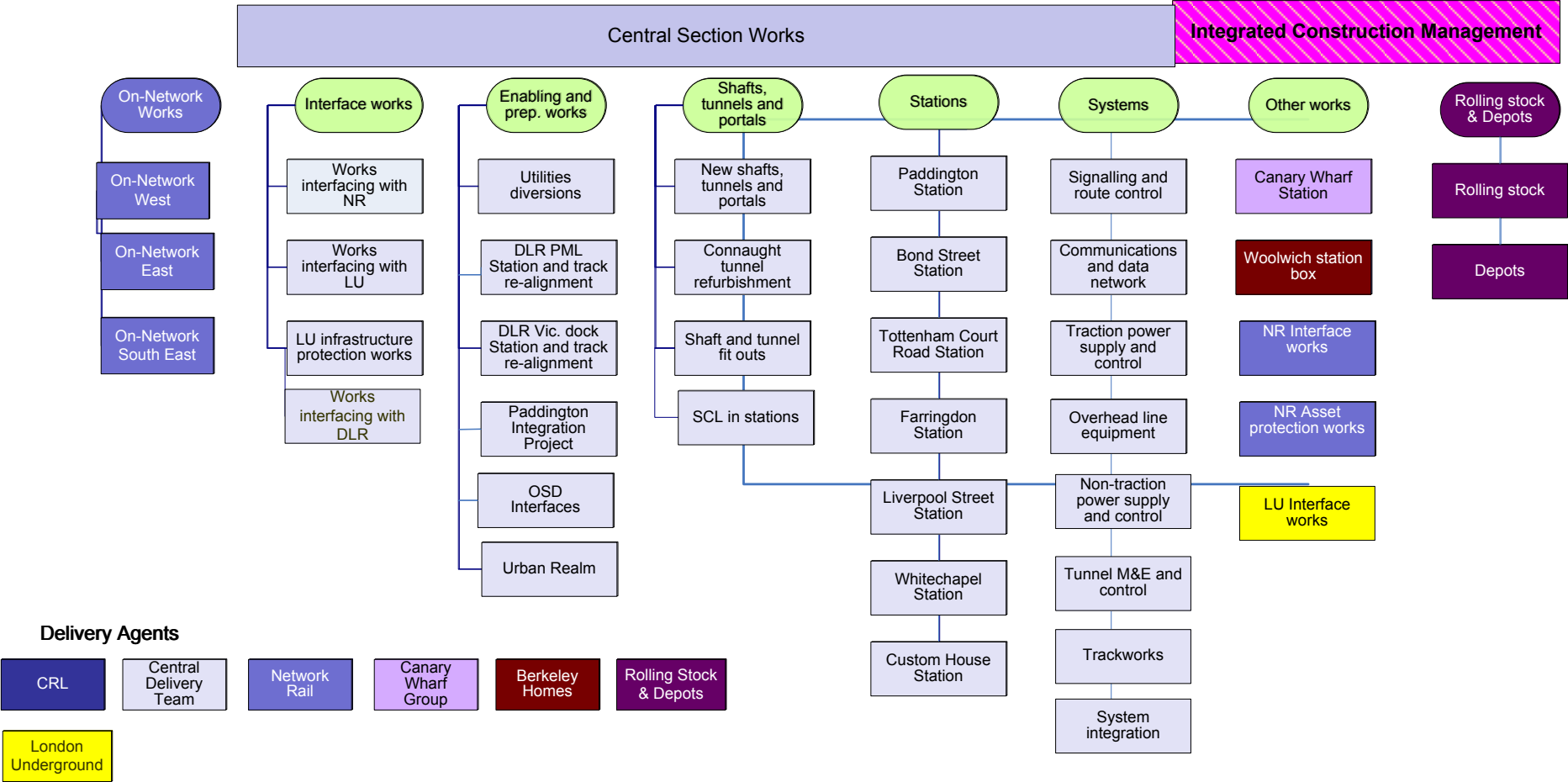
# Programme Governance



# Proposed operating model

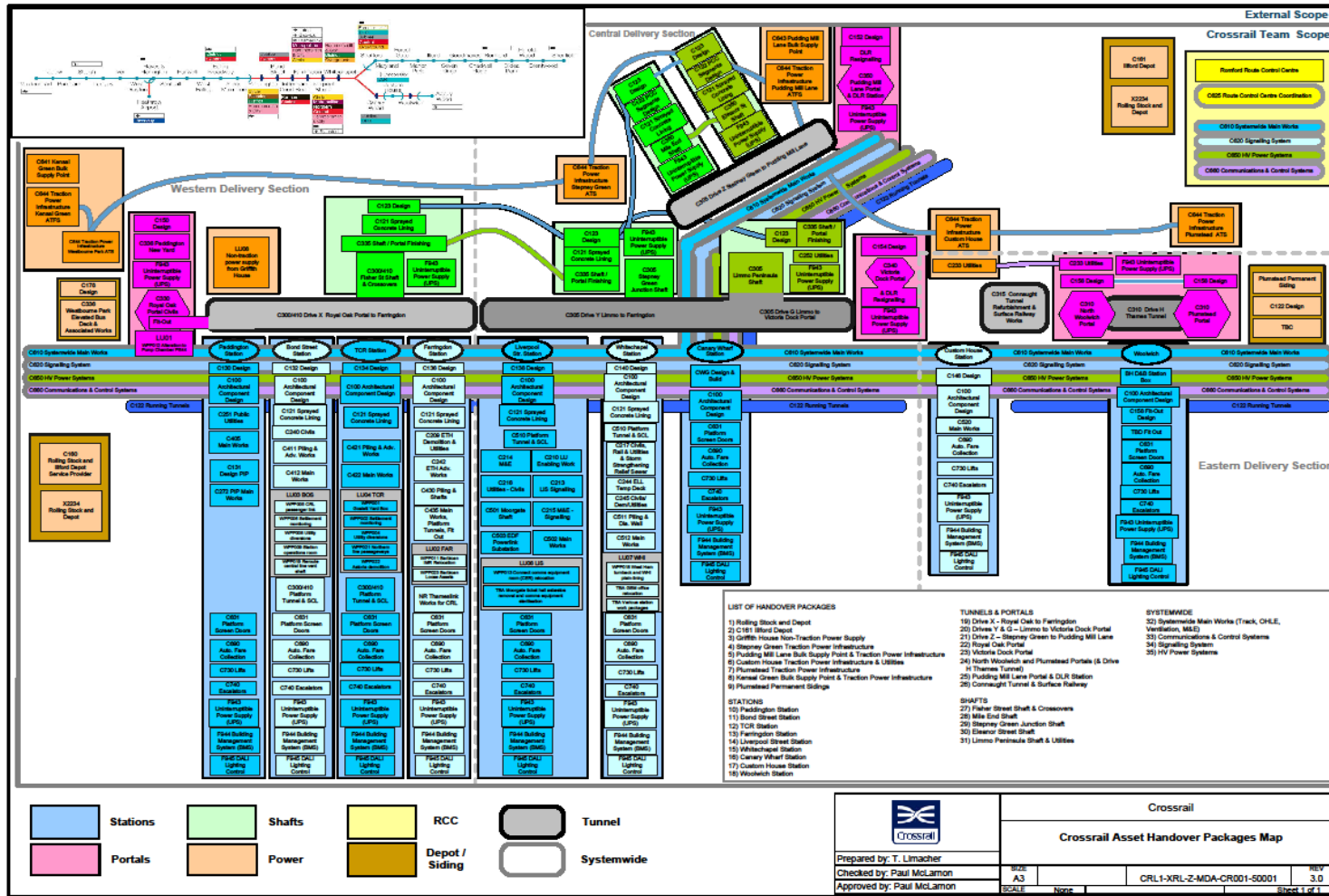
## Crossrail Programme

CRL – overall delivery responsibility for programme management, design, construction, testing, handover, trial running and completion

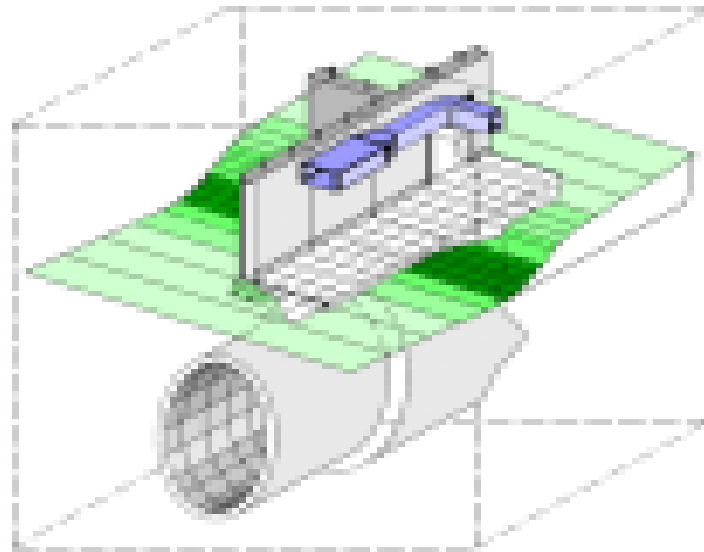




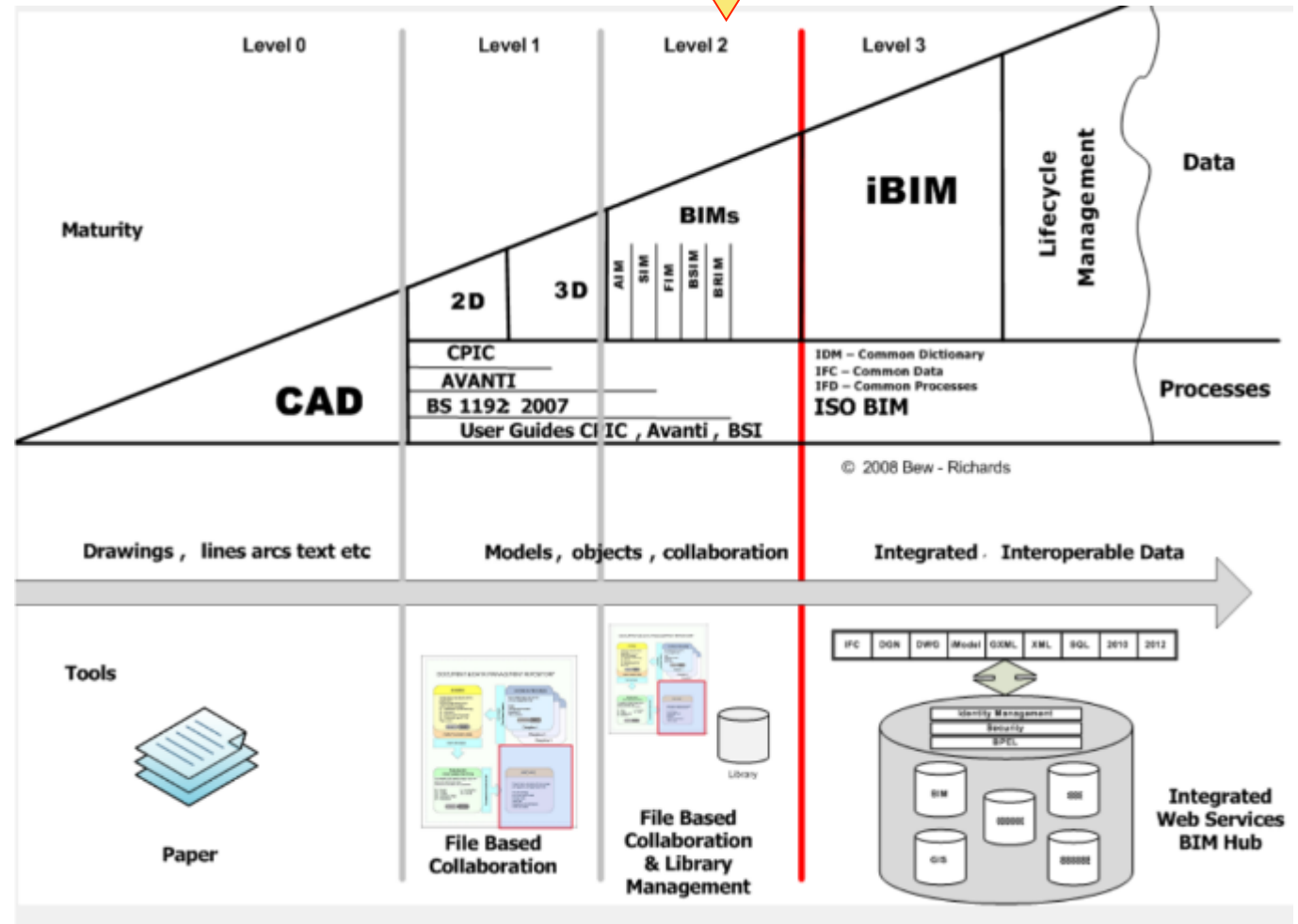
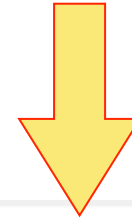
# Contract Structure – WBS (don't worry this is a handout)



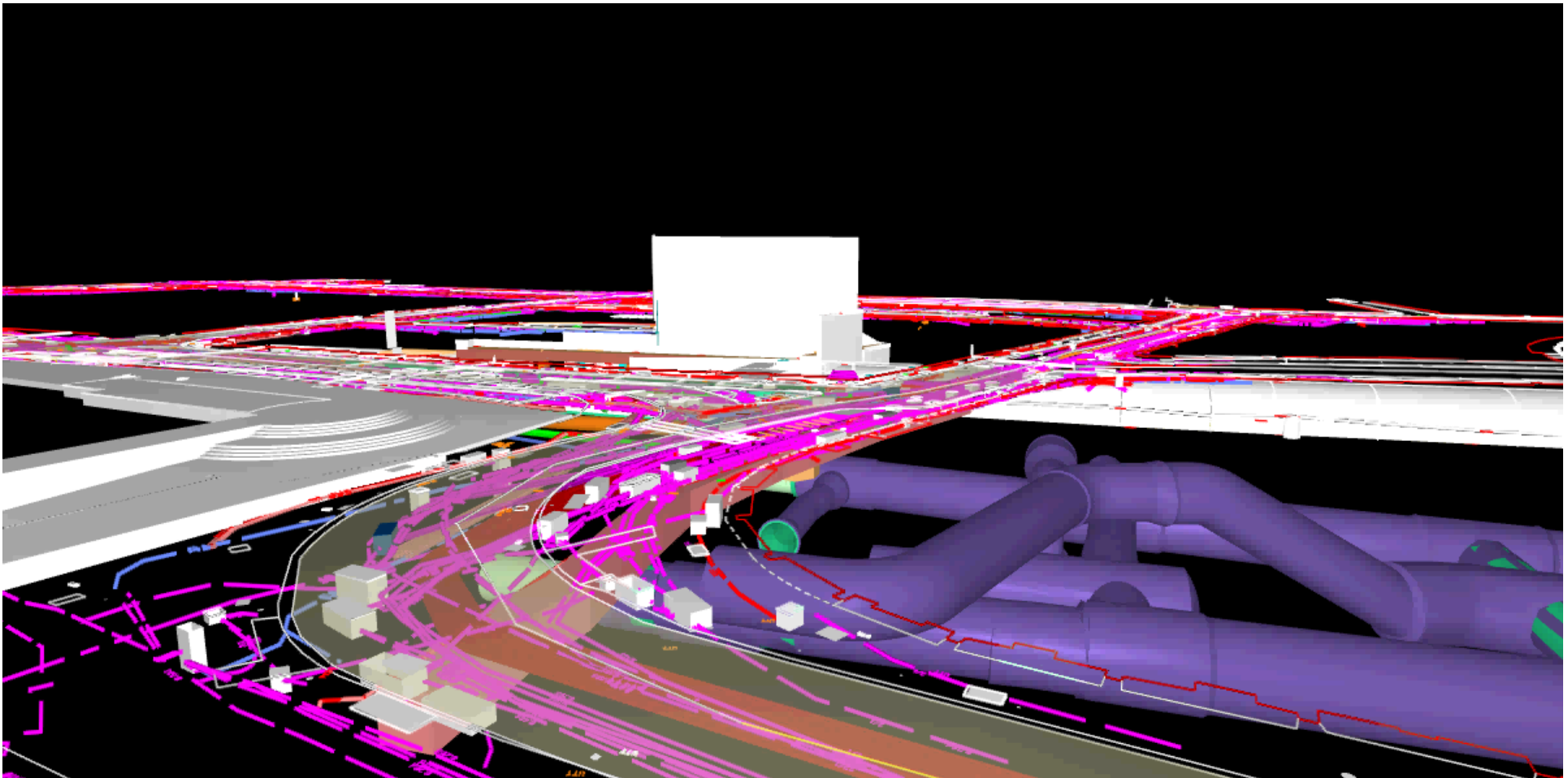
# Engineering and Technology



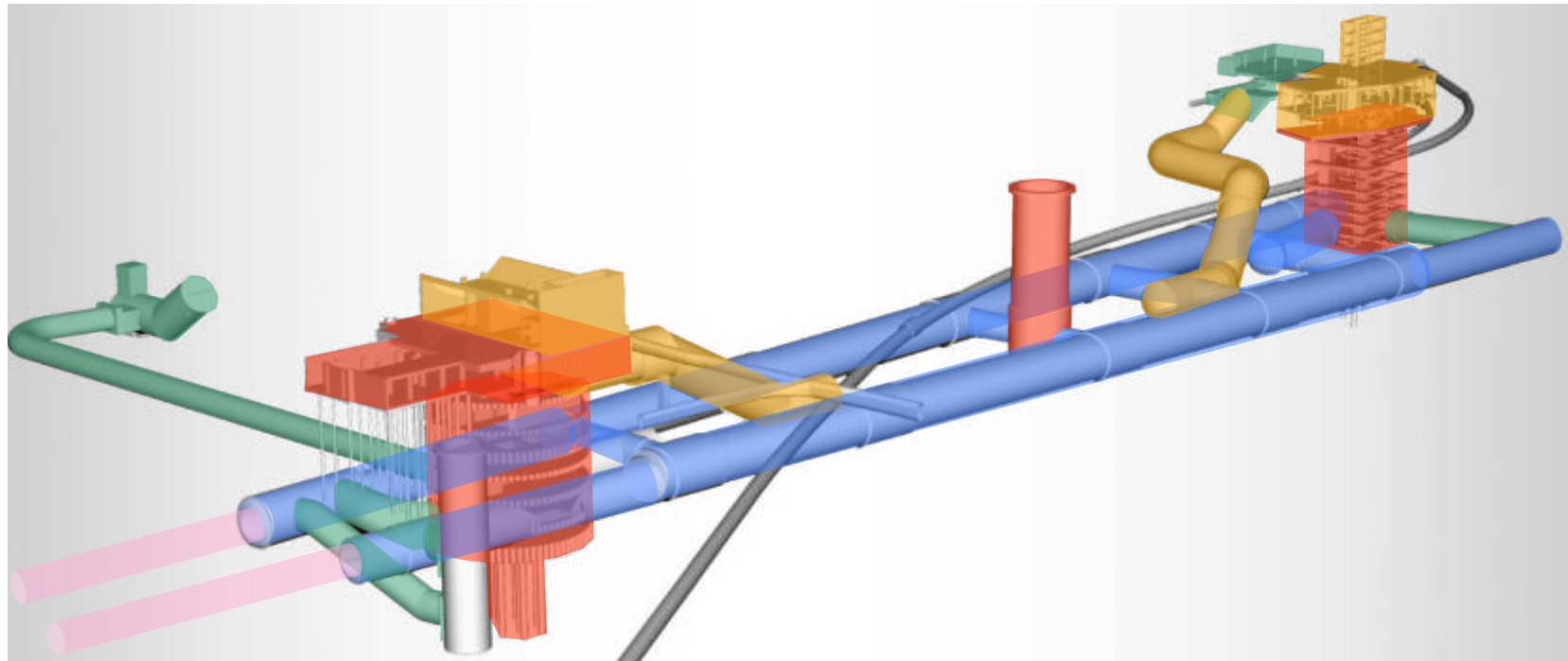
# Crossrail Virtual World - BIM



# Data Collection: Identifying Clashes in Public Utilities



# Typical Station Construction Strategy



## Stage 1

- Shafts and boxes

## Stage 4

- Escalator Shafts
- Ticket Halls

## Stage 2

- Platform Tunnels
- Cross Passages

## Stage 5

- Running Tunnels

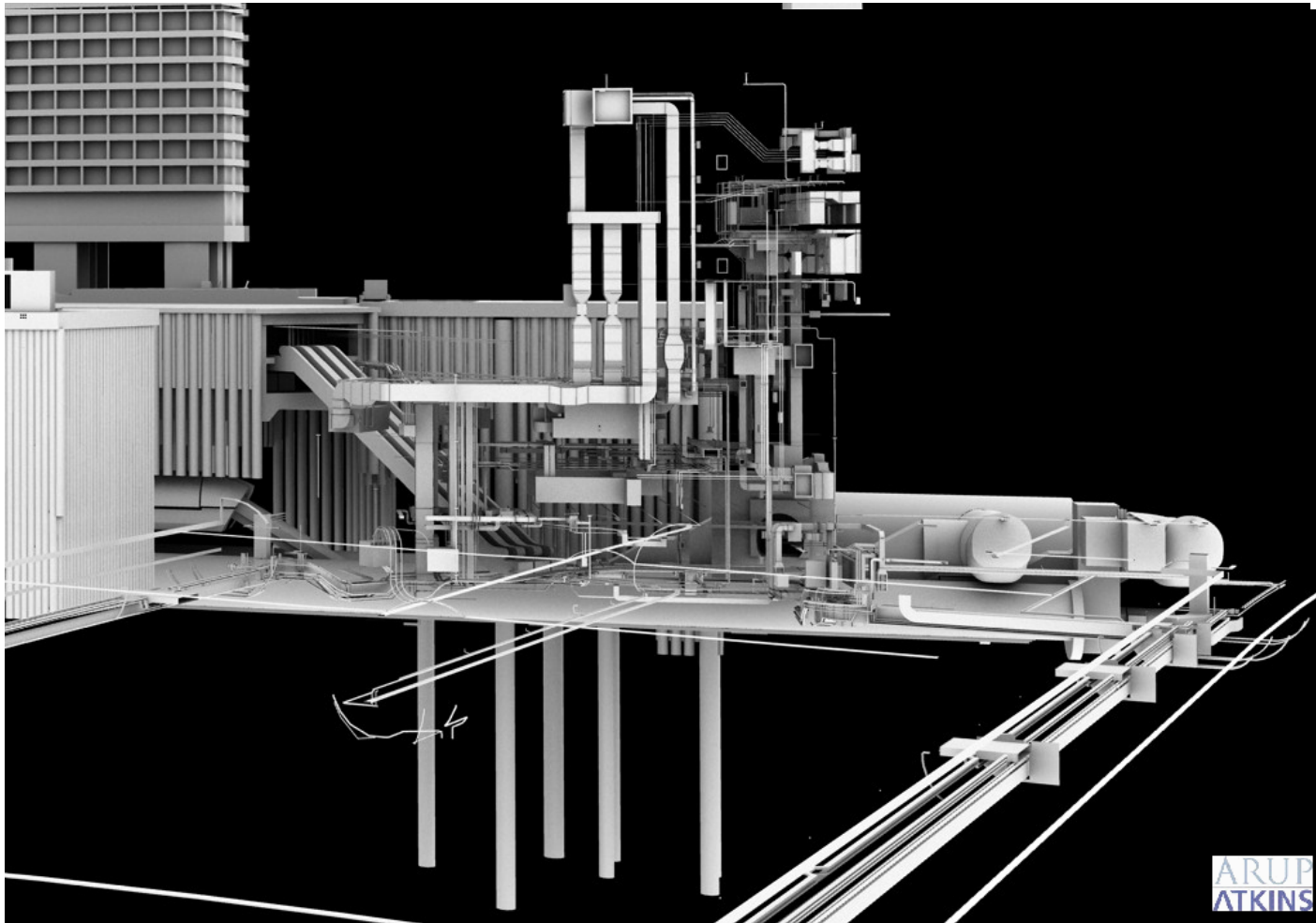
## Stage 3

- Vent adits
- Links

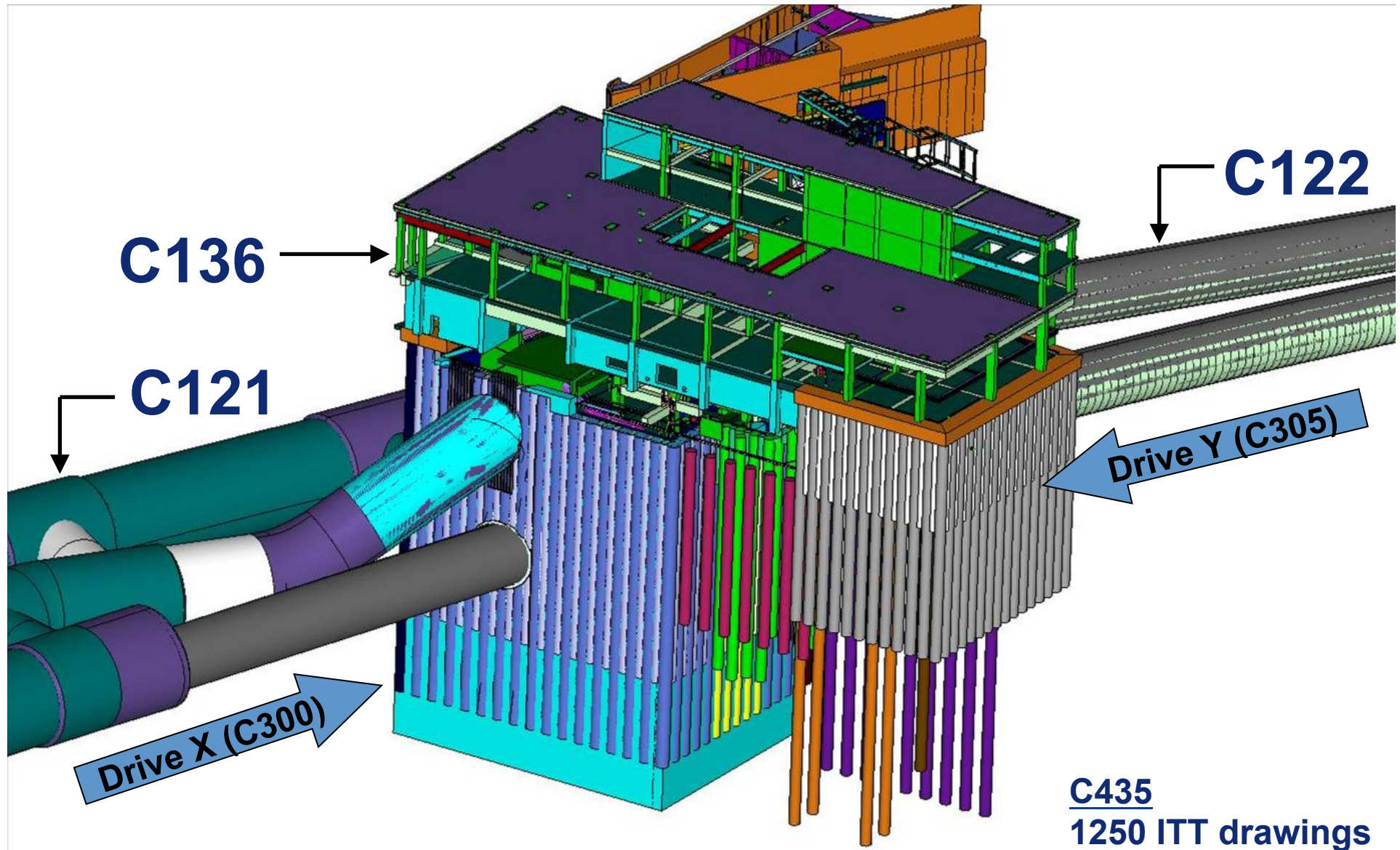


# 3D Asset Information Model

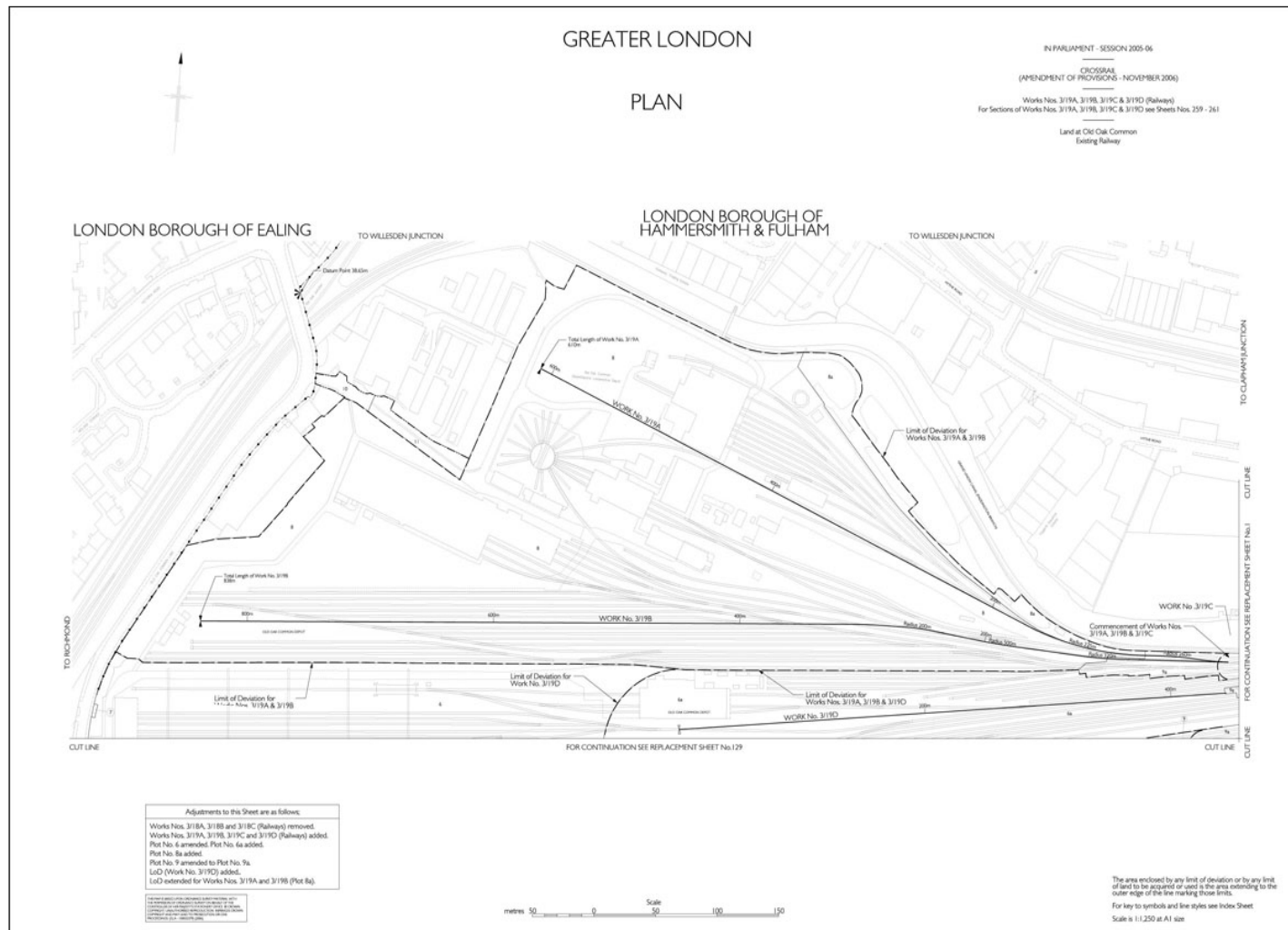
Tottenham Court Road Station



# Farringdon – Contractors Tender

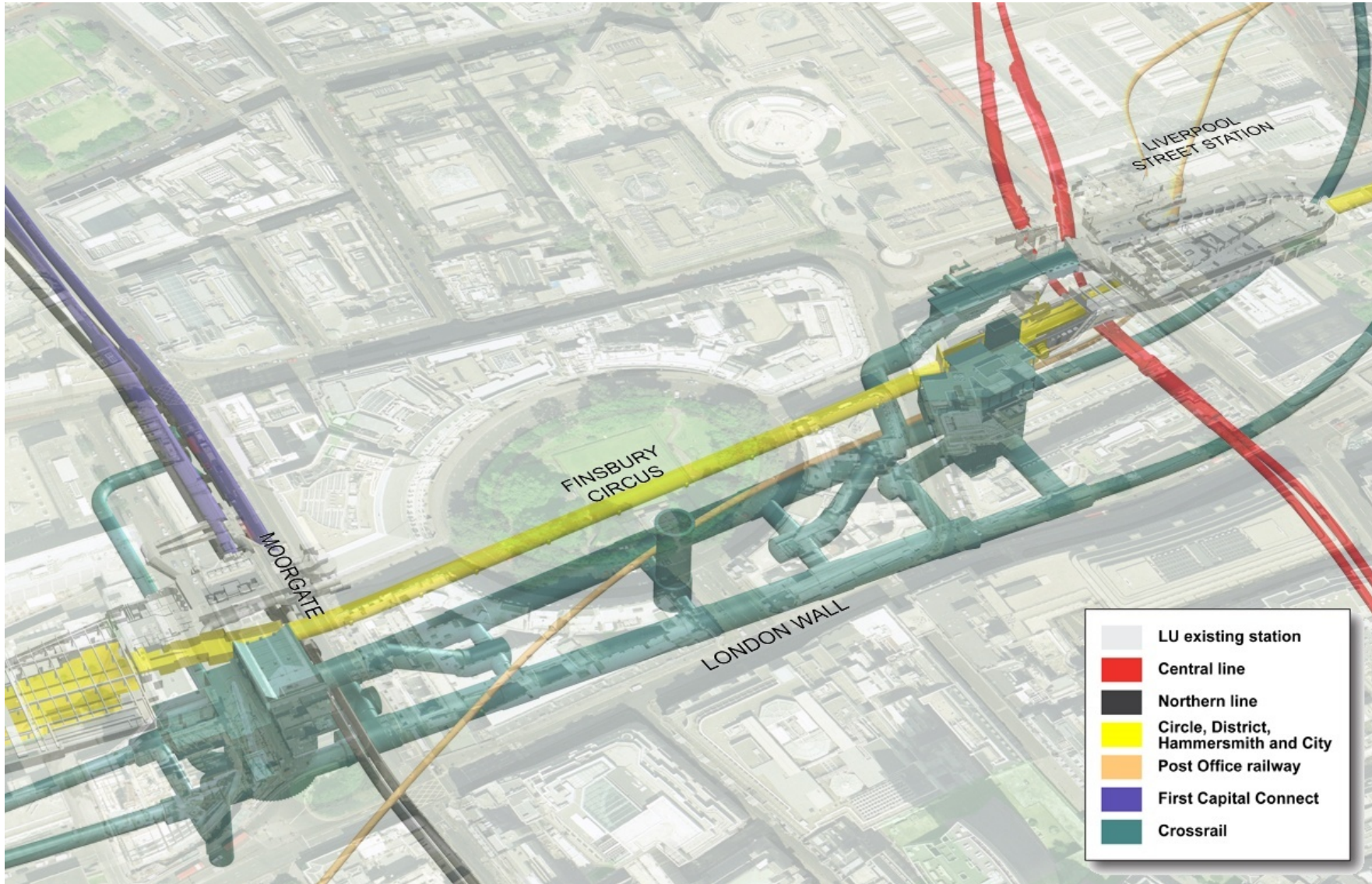


# Joined-up data: Planning to Delivery



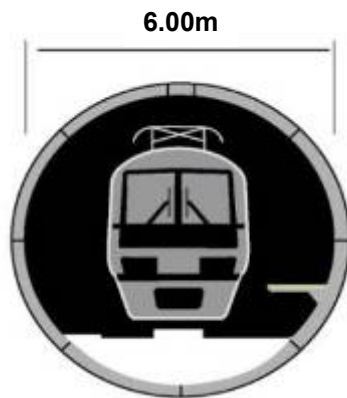


# Liverpool Street – Interface Planning





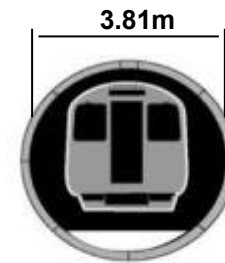
# Running Tunnel Dimensions



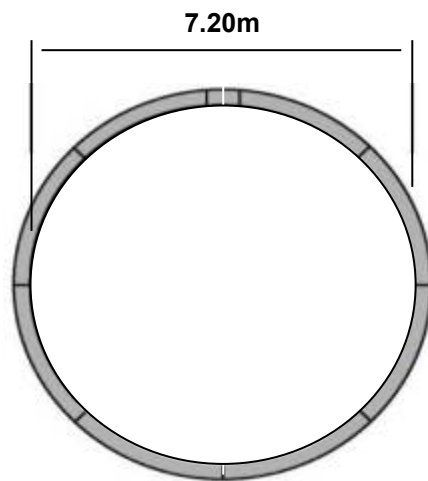
Crossrail



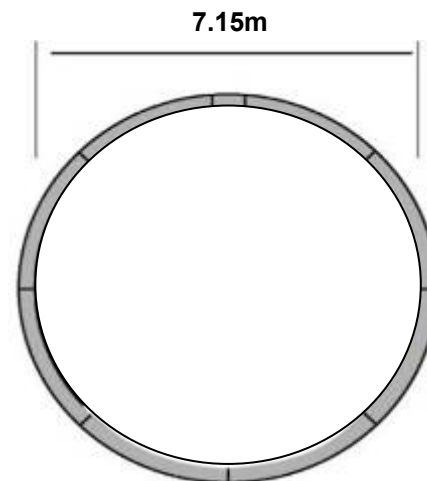
Jubilee Line Extension



Victoria Line



Thames Tideway



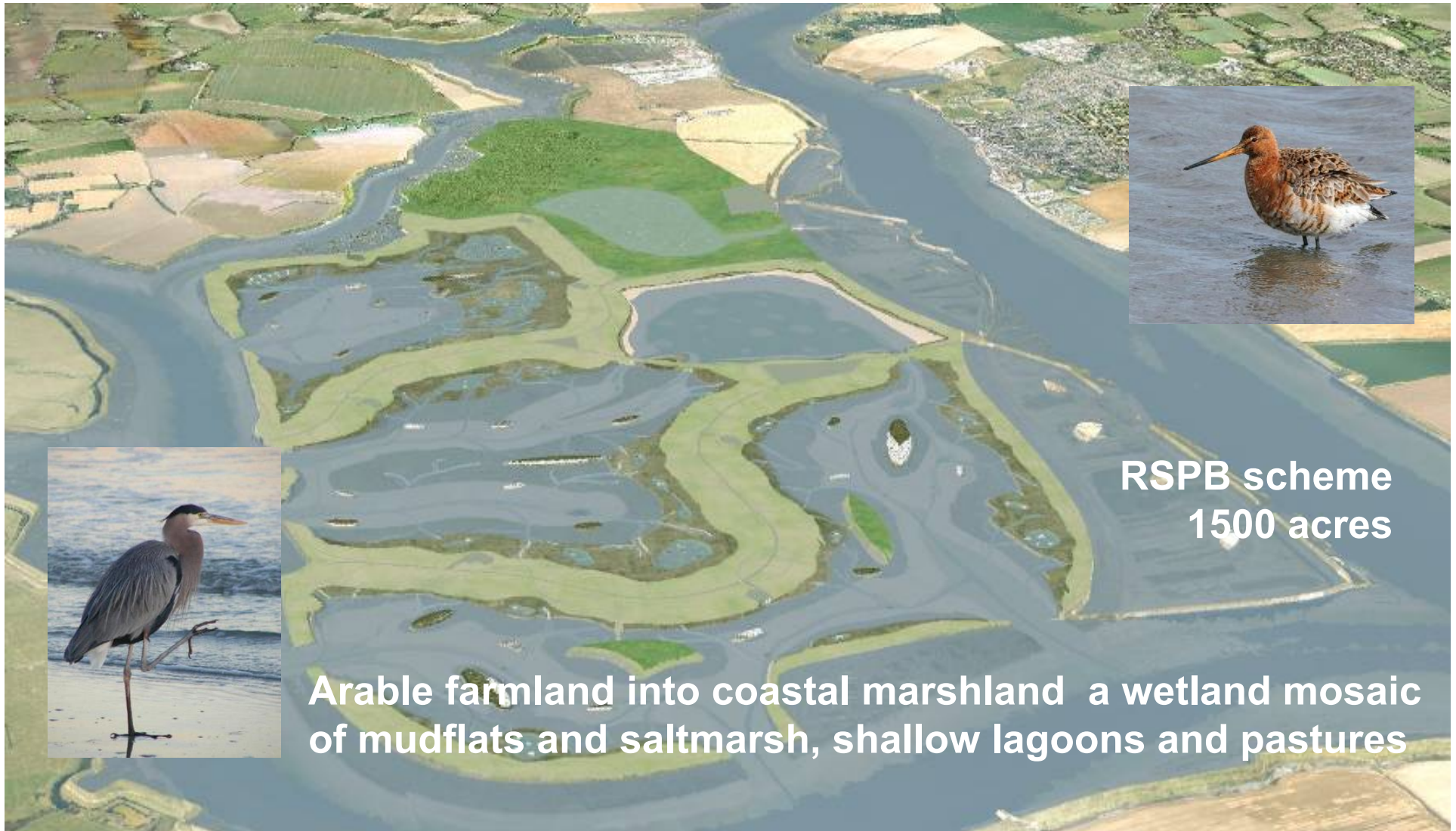
Channel Tunnel Rail Link

All dimensions  
internal diameter

# Excavated Materials

- Over 200k m<sup>3</sup> per month at peak
- Material generated 2010 – 2015
- Initial transport
  - 14% by rail.....1M m<sup>3</sup>
  - 39% by water.....2.9M m<sup>3</sup>
  - 47% by road..... 3.4M m<sup>3</sup>
- Overall 85% of transport is by water and rail on a volume/mileage basis

# Wallasea Island – Thames Estuary

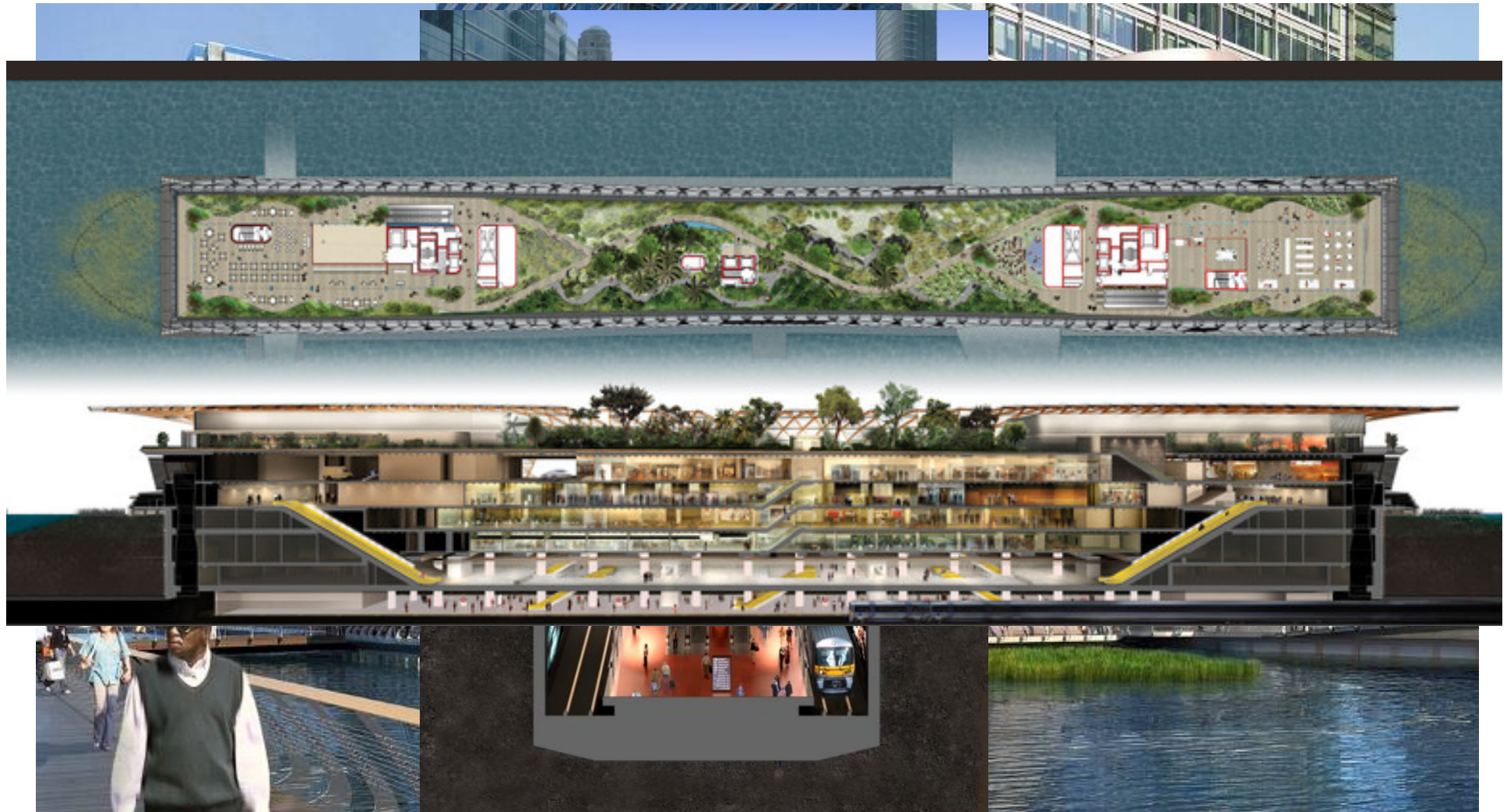


RSPB scheme  
1500 acres

Arable farmland into coastal marshland a wetland mosaic of mudflats and saltmarsh, shallow lagoons and pastures

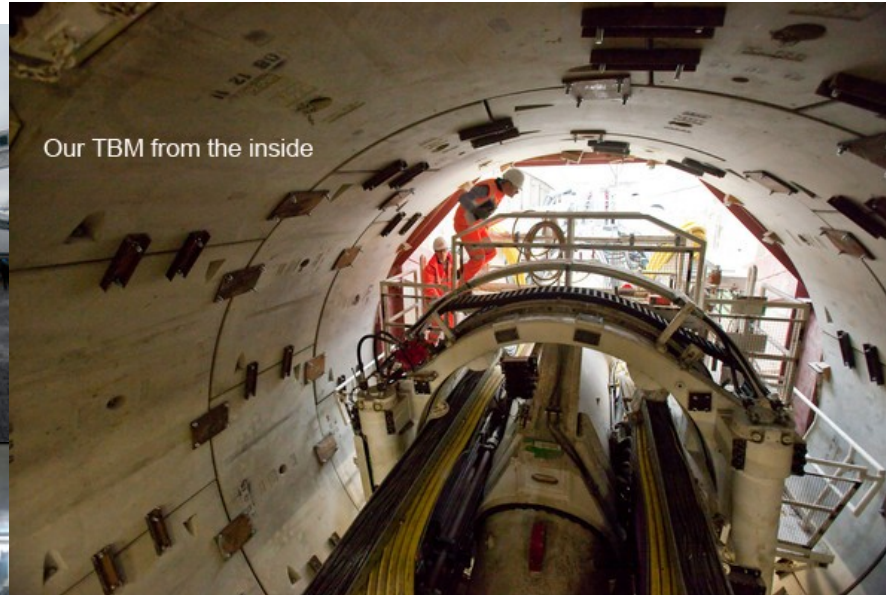


# Canary Wharf Station/over-site development





# Where are we today?



# Construction Legacy





# Whitechapel – Supporting Regeneration

- Whitechapel – most famous resident: Jack The Ripper 1880's

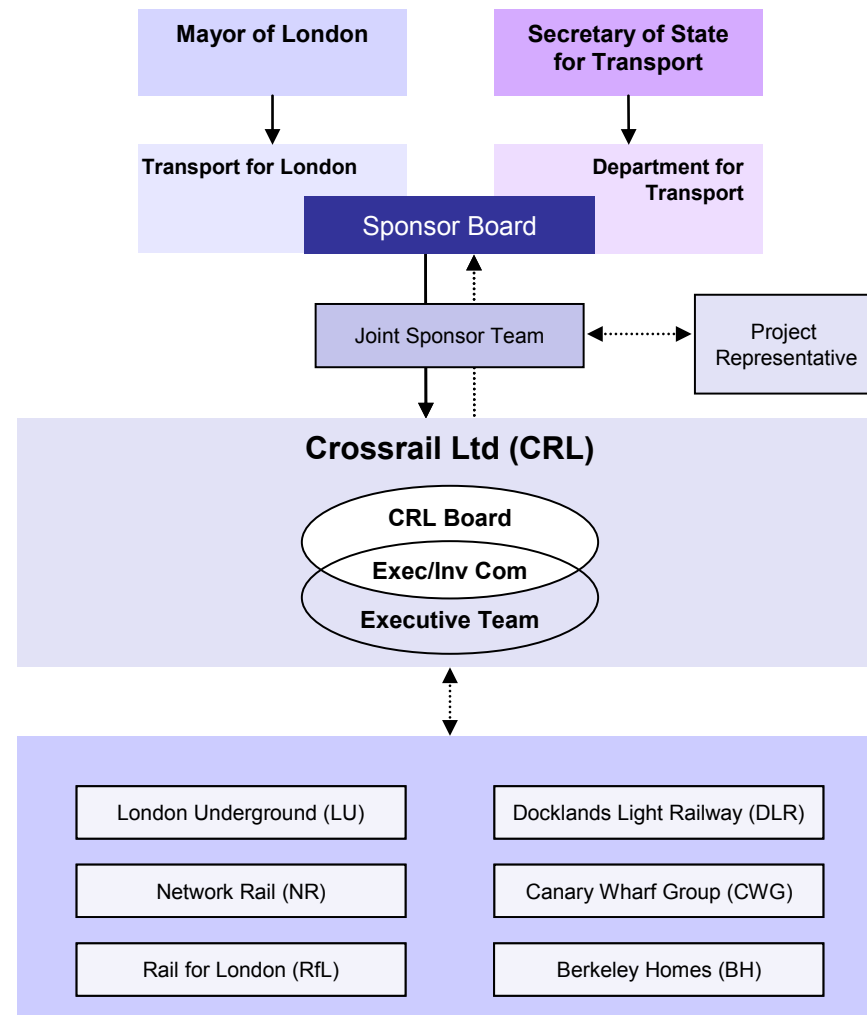


# Next 6 Years – Our Challenge

- Deliver Safely
- To time and to budget
- Meet our Sponsor's requirements: Create a world class railway
- Handover to Operations and Maintenance – migration of data (BIM)



# Sponsor Governance





# Archaeology

- Largest archaeological programme ever undertaken in the UK
- A significant opportunity to increase knowledge regarding the history of London

**Excavation of a 200,000 year old Straight-Tusked Elephant jaw bone from the Canary Wharf worksite – July 2010**

