

Completing the Elizabeth line

5 April 2023



Crossrail Recovery Programme

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The Emerging Crisis & The Earliest Opening Programme

Late 2018- Late 2019

First half 2020

Mid to late 2020

First half of 2021

Late 2021 & Early 2022

24 May 2022, 6 November 2022 & 21 May 2023

- In late 2018 the programme was being demobilised.
- Crossrail announced the Elizabeth line would not open in December 2018.
- A new CEO and Board were brought in
- It took over a year for the CEO to bring in the team with the required expertise to complete Crossrail.
- Initial fixes were made: Earliest Opening Plan and Delivery Control Schedule 1.0 were developed, staging the service delivery. However CRL still weren't hitting the recovery plan (typically 33% planned v actual).

Entering the commissioning phase required a different leadership team

Technical & programme integration must be Client led

Create collaborative environments:
Plateau 1 (&2)

Staged DCS 1.0 and opening windows

How deep is the hole? COVID-19, the crisis that became an opportunity

Late 2018- Late 2019

First half 2020

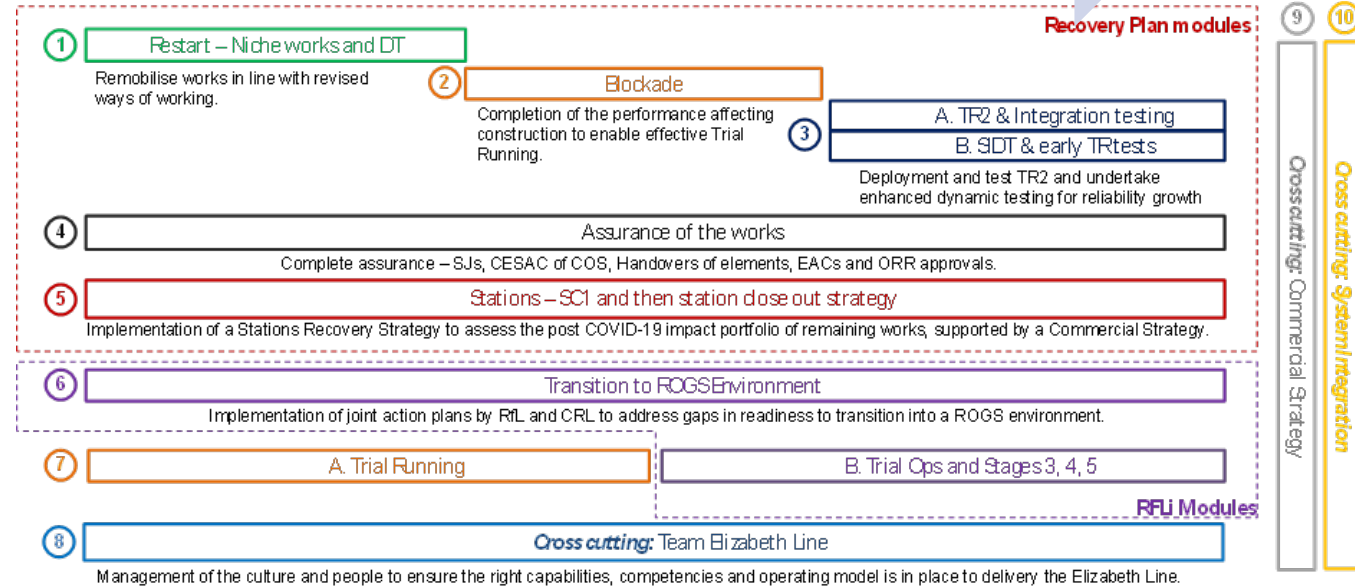
Mid to late 2020

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- Planning to address poor productivity commenced January 2020
- Right to left (backward pass) schedule reviews
- Prioritisation began: Shafts & Portals first
- On 26 March 2020, COVID-19 stopped Crossrail
- True Recovery Plan started, DCS 1.1 was built, we delivered to this plan.
- Controlled restart from 20 April 2020 as the strategy emerged



‘Right to left’ schedule assessment key to identify essential entry criteria for next phase

Never waste a crisis
COVID-19 allowed CRL to stop and reset

Weekly strategic direction sessions prioritised IDT effort

Panel of independent advisors that can be deployed quickly on key programme issues

A new approach –solidifying scope, increased productivity, emerging confidence

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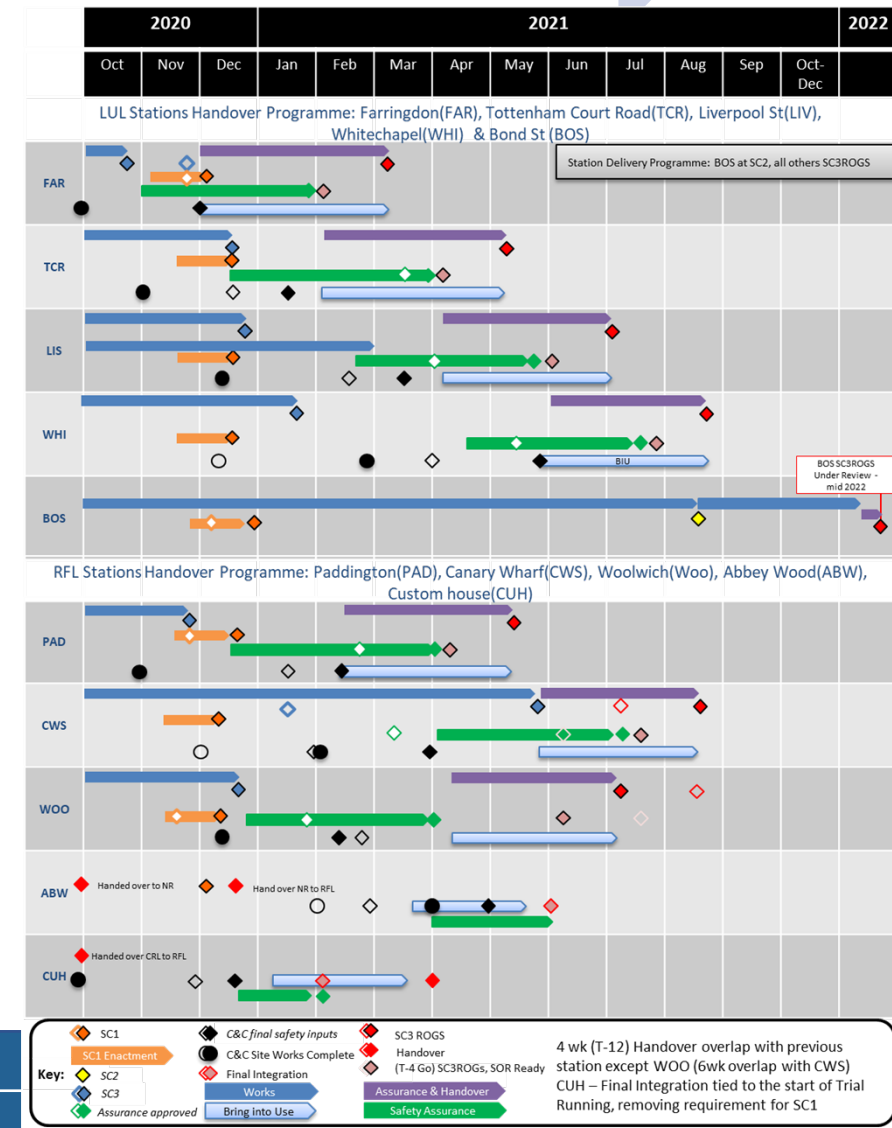
- Summer blockade productivity: 97%, Overall productivity rose to +70%
- Regular supplier forums with Tier 1 & Tier 2 suppliers to get buy-in
- System Integrated Dynamic Testing reduced integration risk
- The station schedule was reworked based on critical resource availability
- The CRL Board endorsed the strategy and DCS 1.1 September 2020
- Entry into Trial Running & ROGS set at 26 March 2021
- An opening window was declared as ‘first half of 2022’

The DCS included all the work, testing, rework & commissioning

Demonstrated performance doesn't lie – use it to act

A staged opening strategy with opening windows & prioritisation

Ultimate client (Commissioner) pulling the EL into TfL



From civils to systems, testing and asset handovers

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- A T-minus countdown process with all stakeholders for Entry into ROGS
- A new Rule Book, Infrastructure, Maintainer & train Operator
- Trial Running achieved 26 March 2021 target date
- However Maintenance needed 6 weeks before trains could run
- Access to the railway significantly reduced, & jobs took longer

Plan for rework – it will happen.
Include client float for handovers

Supplier engagement in the Recovery plan is essential

Think like a maintainer & operator when handing over, hold joint T-minus reviews

Light at the end of the tunnel – Trial Running & Trial Operations

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- Learning from the previous year indicated significant issues still to be addressed
 - Access restrictions
 - Critical resource
 - Work to go, particularly driven by integration testing and operational feedback
- DCS 1.1 was reworked to include this new information (DCS 1.2)
- The original Opening Window was held, but the programme was adjusted
- Stations continued to be handed over on a 12 week drumbeat T-minus countdown cycle

Reset the Schedule
when sufficient
information is
available

Resist the
temptation to
narrow the
opening window

Recognise lower
productivity when
moving to an
operational railway

Crossing the winning line together

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- The expected 'baton pass' became a photo finish
- The Elizabeth Line Central Operating Section opened on 24 May 2022 to great acclaim (12 TPH)
- A revising staging strategy introduced stage 5B Minus - 22 TPH end to end running connecting to the fringes (target December 2022) commenced 6 November 2022
- We are on target for 24 TPH end to end running on 21 May 2023
- Bond Street station was opened on 24 October, within the original DCS 1.1 opening window (second half of 2022).



Summary

- Through a combination of Recovery Strategy, organisational change and an agile DCS, CRL and its partners were able to deliver a truly world-class railway through one of the world's busiest cities to great acclaim.
- We have taken the 43 strategic insights, lessons learned and avoidable risks, and developed a matrix of 20 high-level lessons learned aligned with the DfT paper on *Lessons from Transport for the Sponsorship of Major Projects*
- To the 5 key themes from the DfT Sponsorship paper we have added two extra programme management themes.
- Summary lessons learnt can be found in appendix C of the paper

