The Evolution of Luas Cross City

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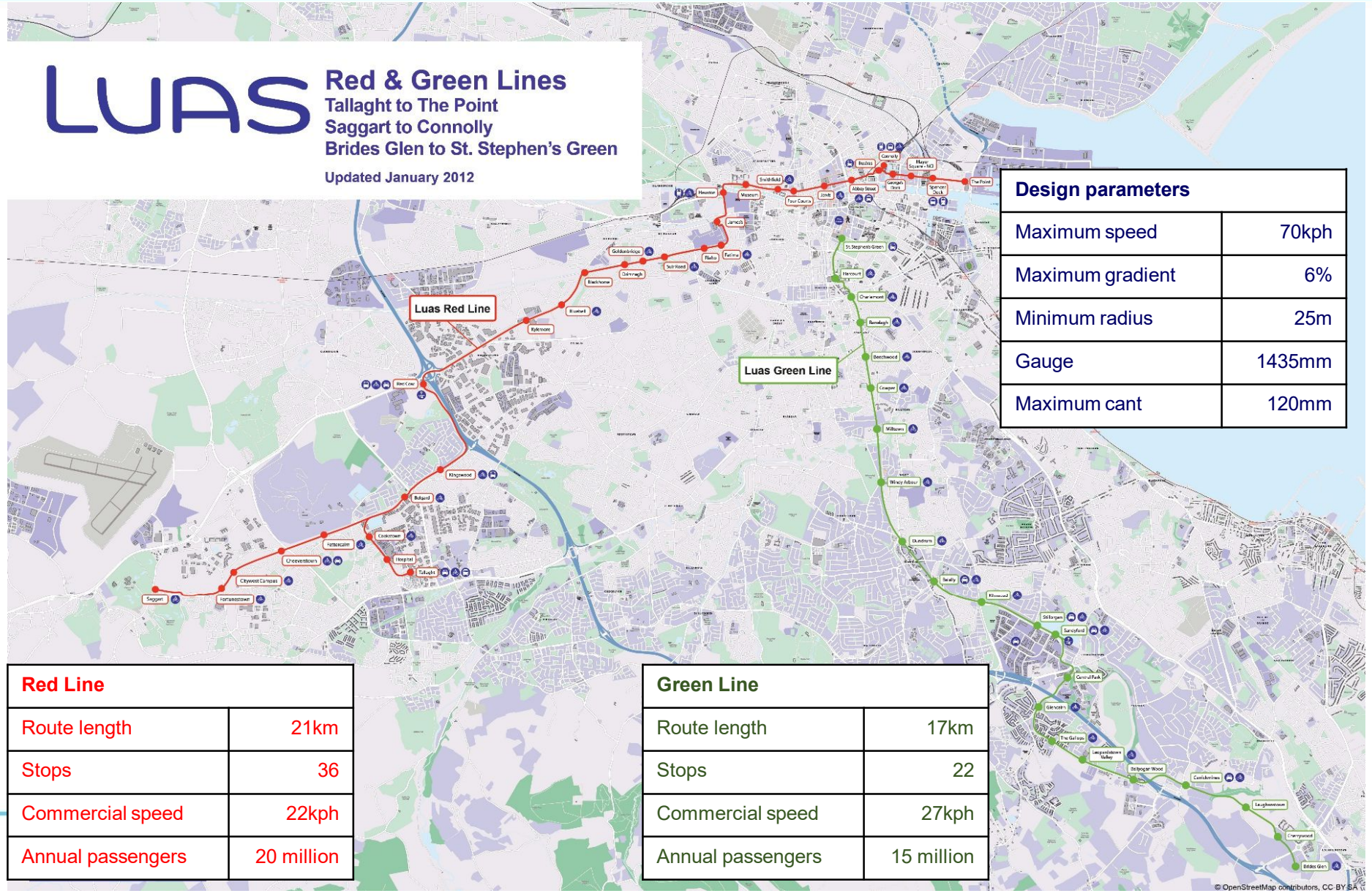
LCC Main Infrastructure Contract

Transport Infrastructure Ireland

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Luas - A Tale of Two Lines

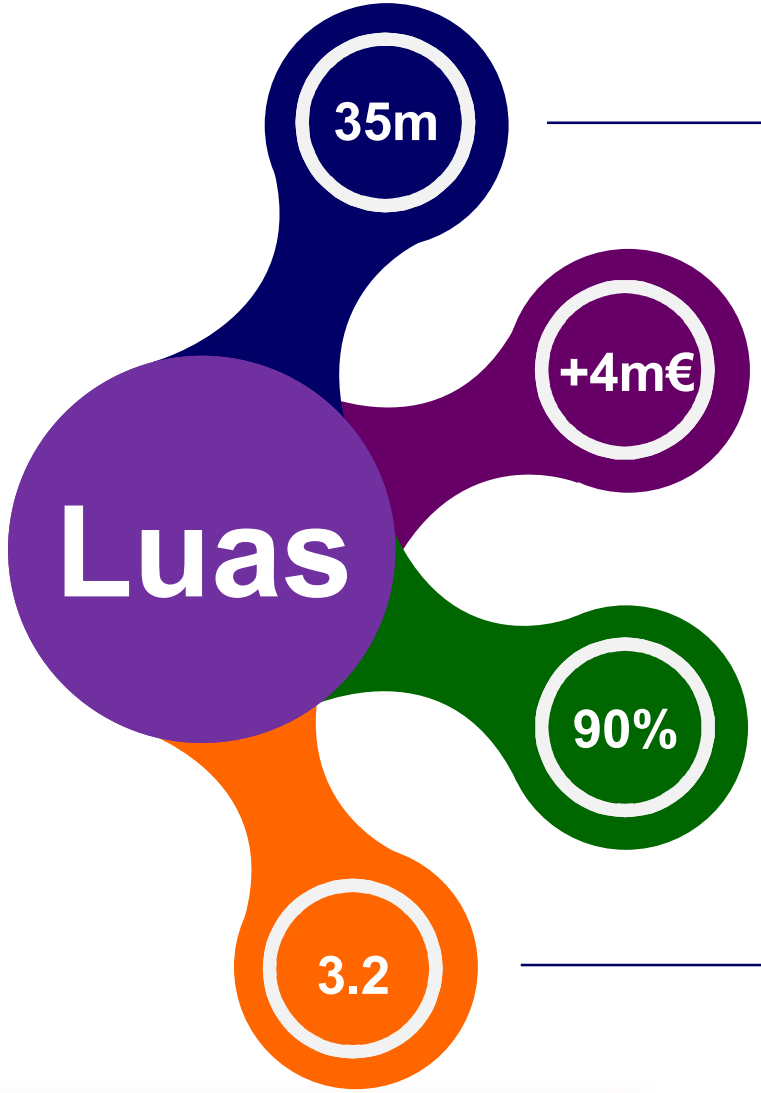


Design parameters	
Maximum speed	70kph
Maximum gradient	6%
Minimum radius	25m
Gauge	1435mm
Maximum cant	120mm

Red Line	
Route length	21km
Stops	36
Commercial speed	22kph
Annual passengers	20 million

Green Line	
Route length	17km
Stops	22
Commercial speed	27kph
Annual passengers	15 million

Performance



Patronage

- Exceeded projected demand from inception
- Luas Cross City will add 8-10 m passengers per year to the network

Operating surplus / deficit

- Significant surplus generated 2004 - 2009
- Operating deficits 2010 - 2013
- Return to operating surplus by 2014 through passenger growth, cost savings and fare adjustments
- Accumulated surpluses funded deficits

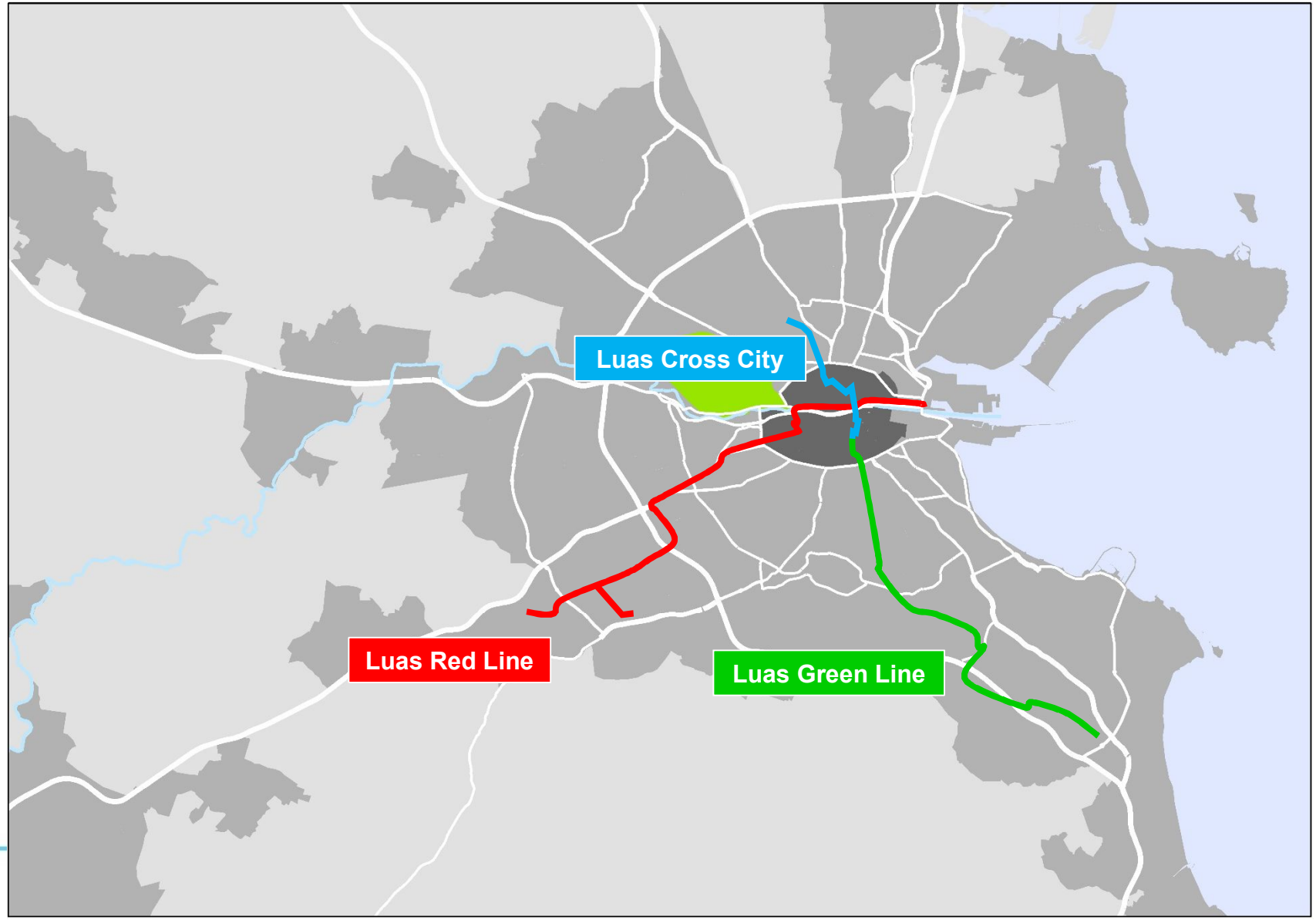
Customer satisfaction

- Customers with very positive overall journey experience

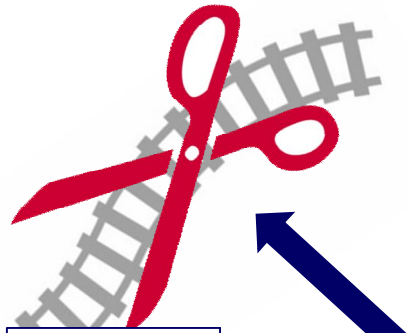
Safety record

- Road Traffic Collisions per million vehicle km
- Decrease through specific safety initiatives

The Missing Link

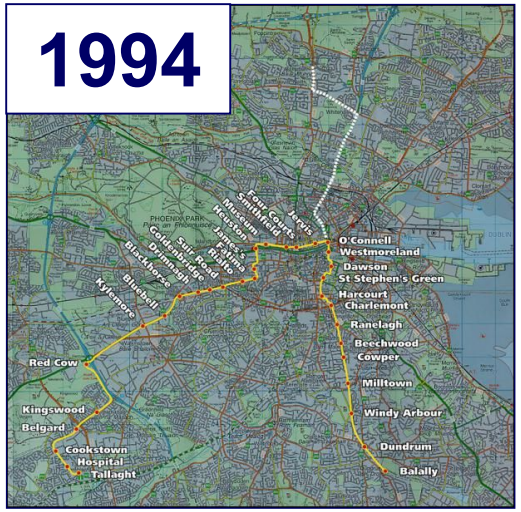


A bit of Dublin History…



1997

1994



2004

2013

2012 GO

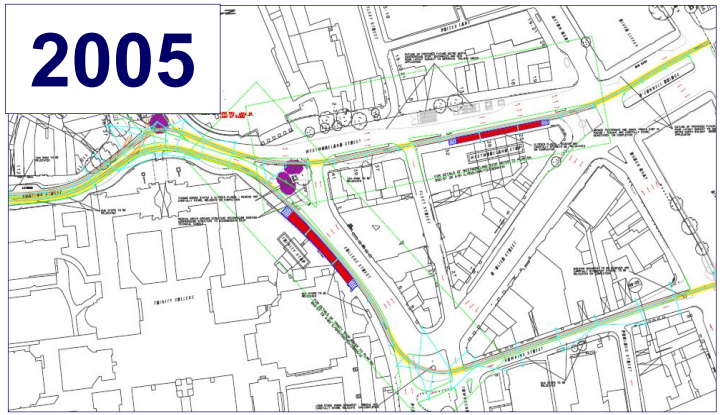
2010

An Bord Pleanála

RAILWAY ORDER

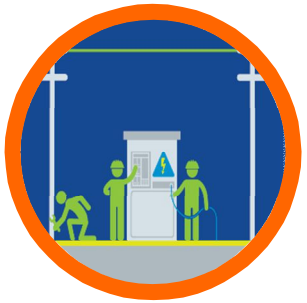
TRANSPORT (RAILWAY INFRASTRUCTURE) ACT 2001 - 2006

2005



Countdown to Commercial Launch

April – May
315 OCS poles
13.8 km Overhead wires



May
33 road junctions

June
Gauge run

July – Aug
Testing with trams

September – November
Testing and trial running
Drivers training

December
Commencement of service

Collaboration with all Contractors & Stakeholders
Partnership with Dublin City & National Transport Authority

LCC in Numbers

368 → million Euro budget

5.9 → km total route

13.6 → km single track equivalent

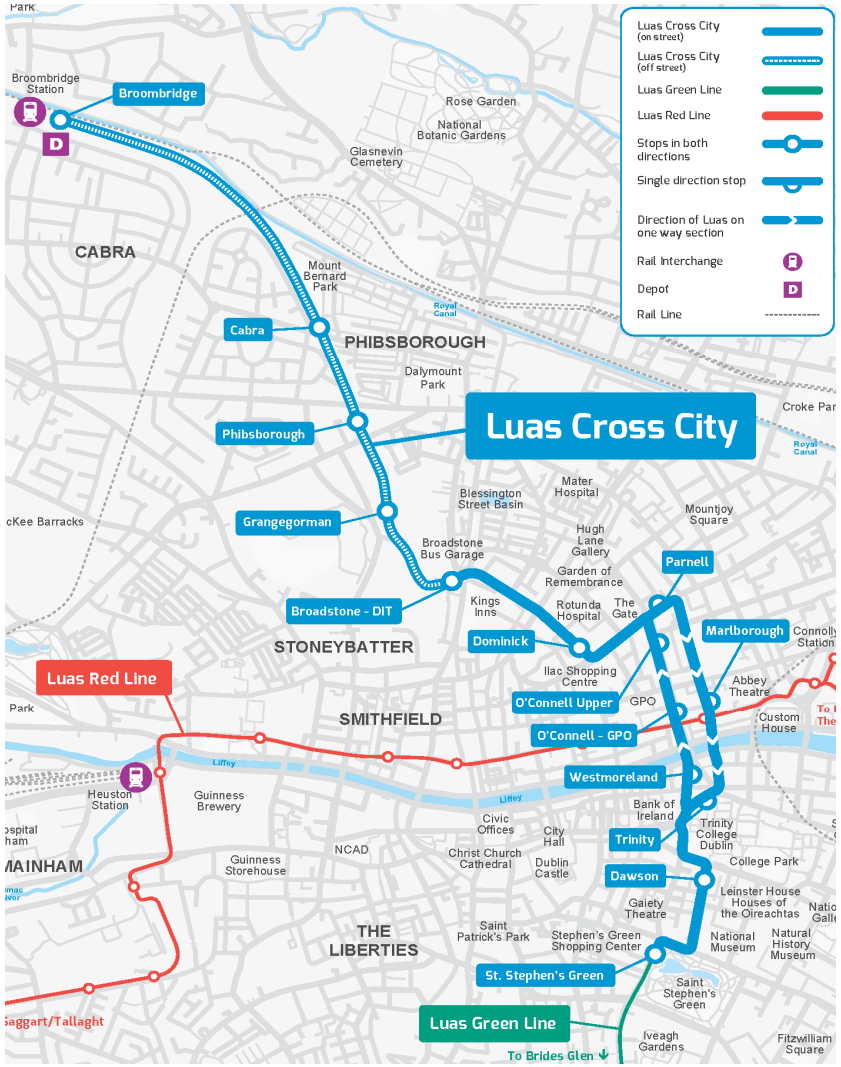
13 → stops

6.9 → km off street track from Broadstone to Broombridge

6.7 → km embedded on-street track in the city centre

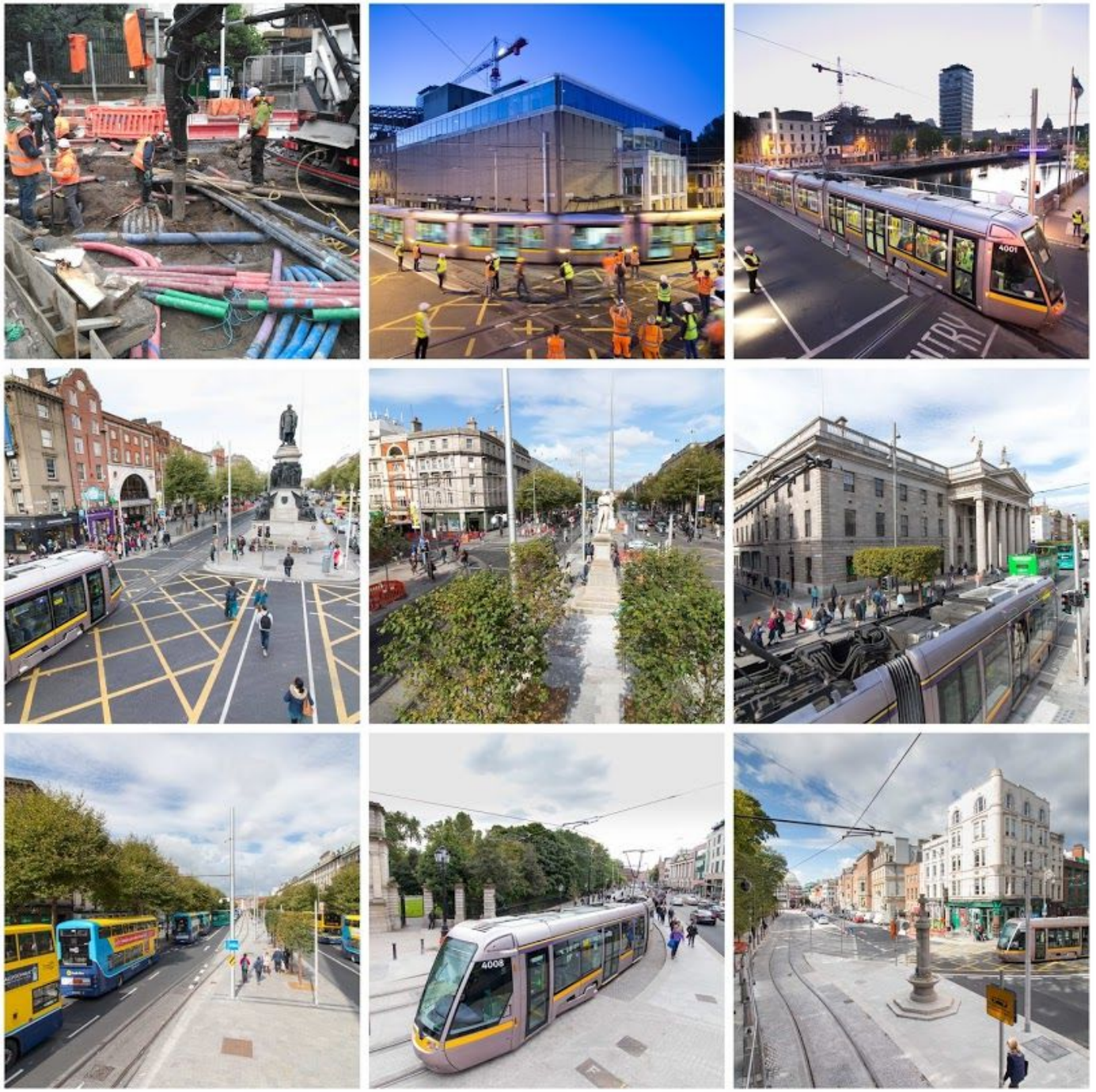
3 → bridges to be upgraded

1 → new depot building, sanding shed and wash plant

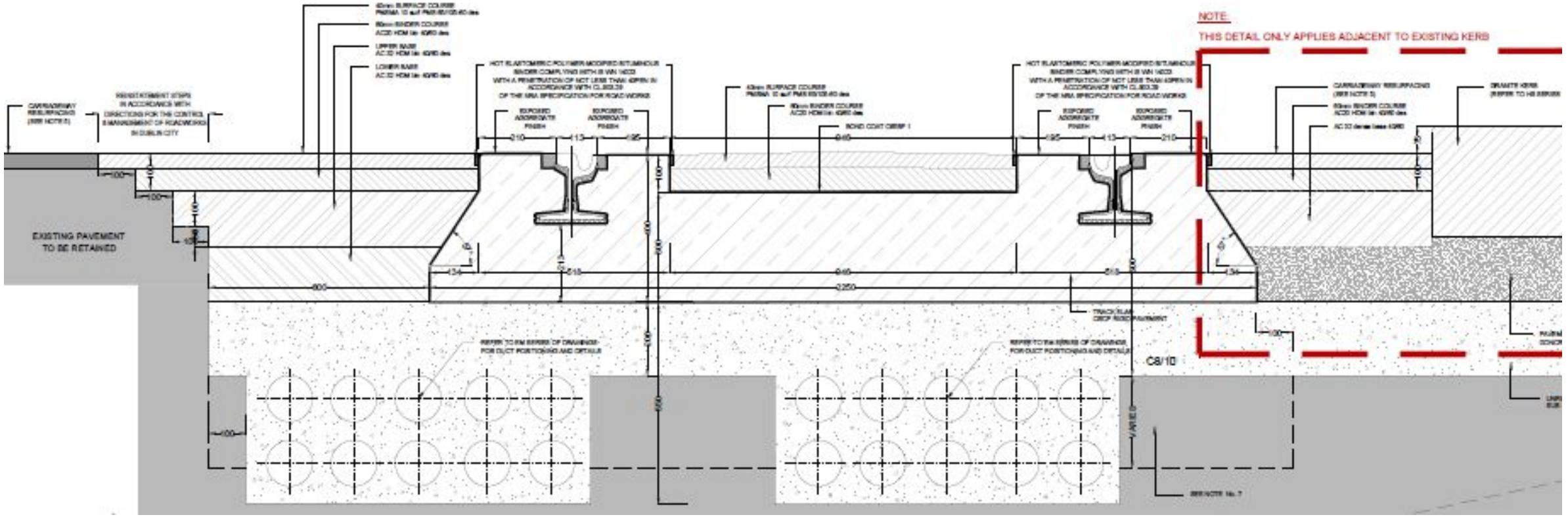


Main Challenges

- Multiple Stakeholder Interfaces and Project Promotion
    - NTA, DCC, Dublin Bus, Grangegorman Development, Irish Rail, Businesses and General Public, Gardaí, OPW, Utility Providers……
- Design and Construction Challenges – D&B Contract (Sisk Steconfer JV)
- Contract Administration



Adapting DMRB Road Standards – Hybrid Design



Difficult Road/Rail integration – geometrical constraints, thresholds

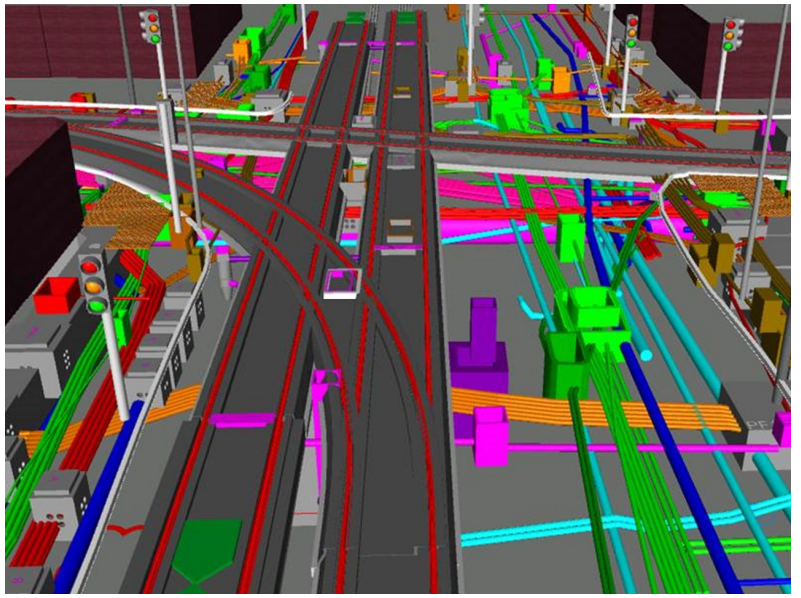
Design

What worked well:

- In house expertise
- Detailed Reference Design
- Design integration across contracts
- Approvals in principle from Stakeholders
- Close DCC liaison

Could be improved:

- Project constraints including mandated elements
- Early contractor involvement
- Line-wide use of BIM and collaboration tools
- Difficulties integrating new Traffic/LRT Signalling Designs



Construction

What worked well:

- High quality delivery
- Collaborative approach with TII/SSJV
- Strong interfaces with Systems Contractor (Efacec) and other Contractors
- Public Relations

Could be improved:

- More informed tendering using BIM, e.g. change orders due to unforeseen conditions: 75% utilities
- Conflicts with applying standards
- Traffic Management Constraints and Phasing
- Use of NEC form of Contract

Contract Administration

- Conject
- BIM (Red Line Tie In)
- SnagR
- 4Projects and File Exchanges
- In-house tools

Red Line Tie-In
Marlborough Street – Abbey Street Junction

Adding a New Chapter to the Luas Tale


Thank
you!
2004
LUAS