

**Coventry VLR: Delivering
the UK's first urban VLR
demonstration line.**



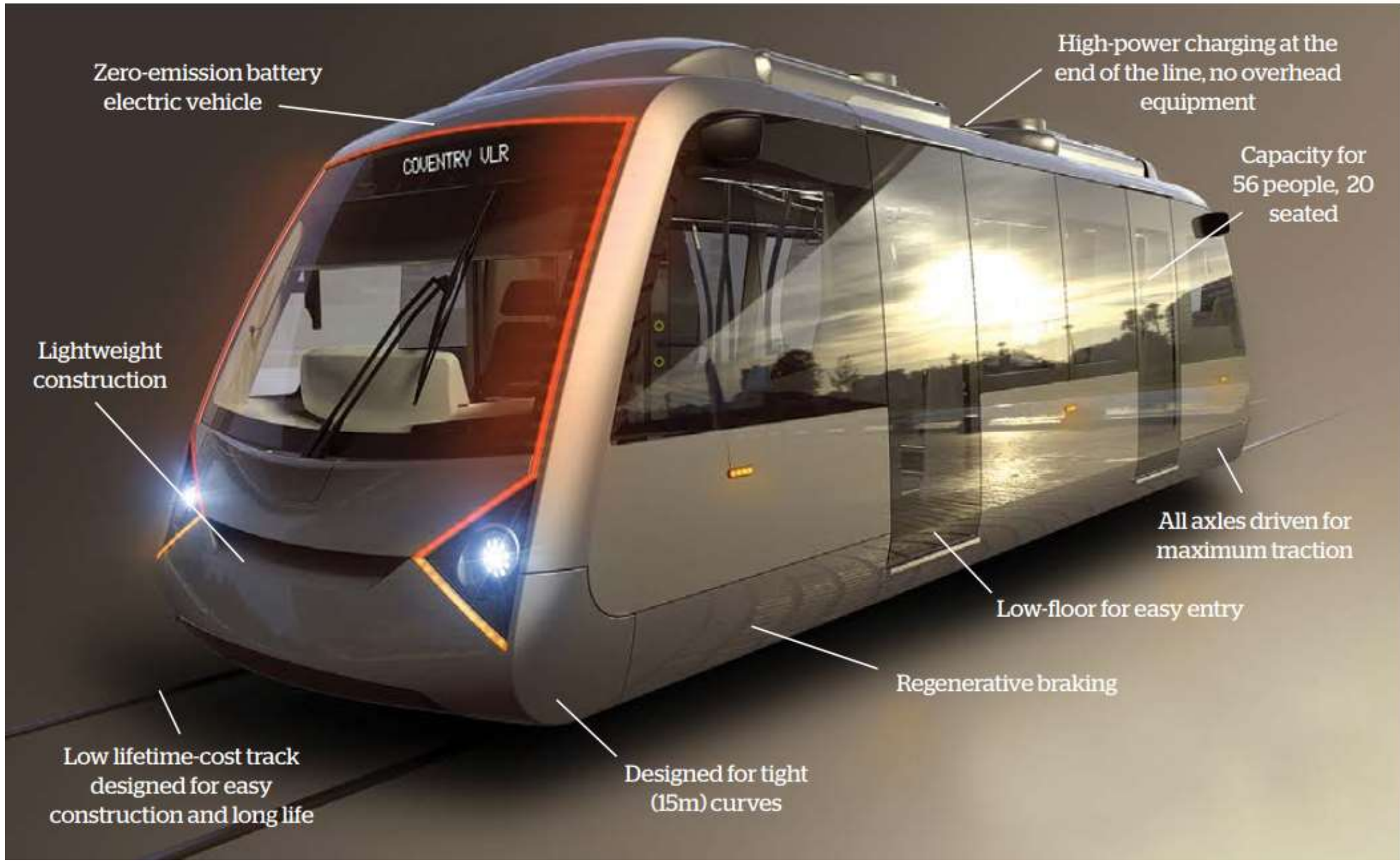
Major investment to kick-start very light rail revolution

Published: Friday 13 Jan 2023

The ground-breaking Coventry Very Light Rail (CVLR) transport system is to be showcased on the streets of Coventry as part of a real world testing programme following the approval of funding by regional transport bosses.

The West Midlands Combined Authority (WMCA) Board today agreed the first instalment of an expected £72 million investment in the emerging VLR technology – designed to be both faster and cheaper to build than traditional tram and rail systems.

<https://www.wmca.org.uk/news/major-investment-to-kick-start-very-light-rail-revolution/>



Zero-emission battery electric vehicle

High-power charging at the end of the line, no overhead equipment

Capacity for 56 people, 20 seated

Lightweight construction

All axles driven for maximum traction

Low-floor for easy entry

Regenerative braking

Low lifetime-cost track designed for easy construction and long life

Designed for tight (15m) curves

Vehicle Testing

Vehicle currently located at the VLR National Innovation Centre in Dudley



Coventry Very Light Rail vehicle at Motofest



Coventry Very Light Rail vehicle at Motofest



CVLR Track System

System designed to be integrated within existing highways and support HGV loads

CAPEX target: £4m / km double track installation

Designed for **Cost**
£

Designed for **Installation**
⚙️

Designed for **Maintenance**
📊

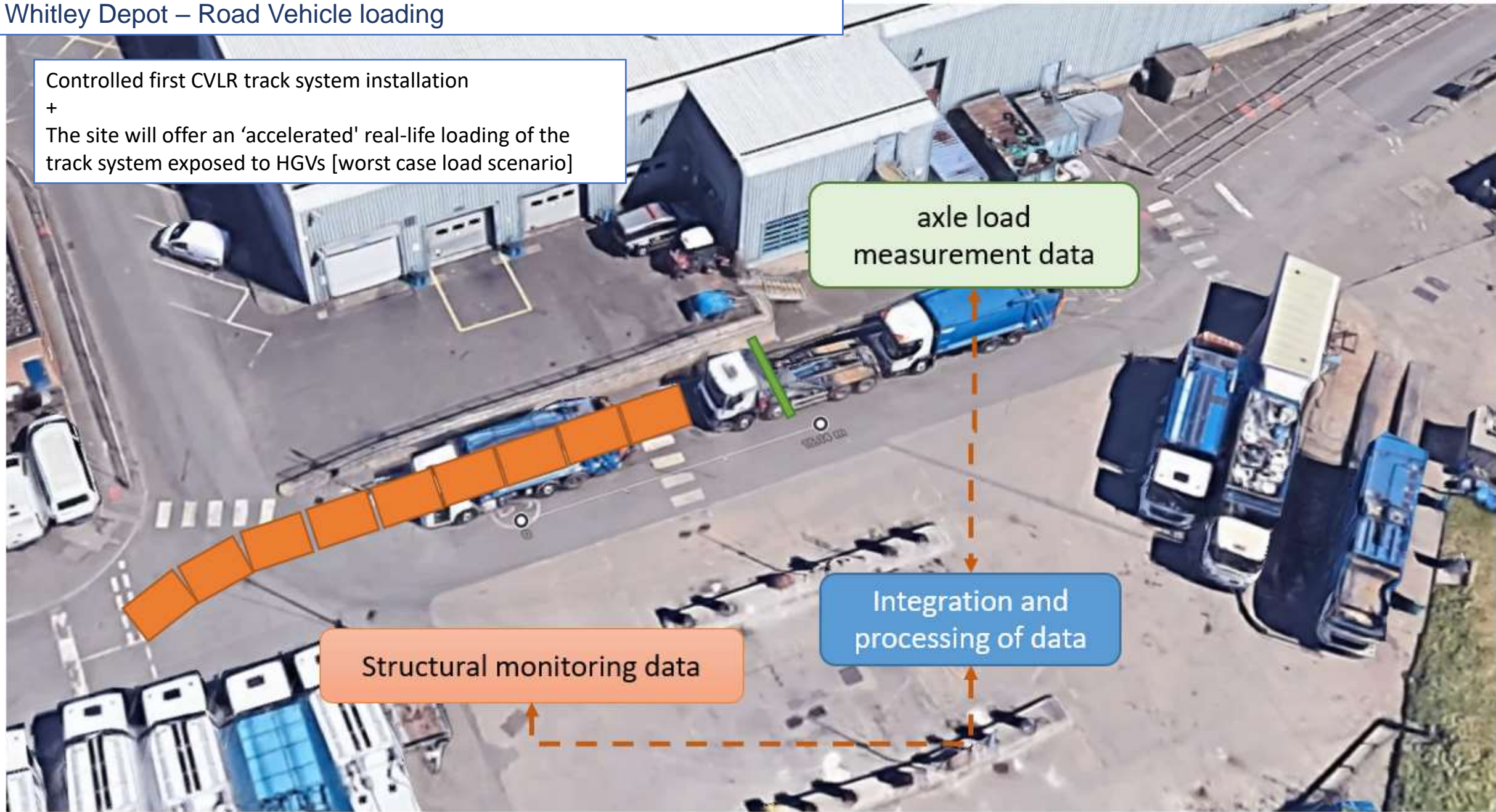
Standard grooved rail and fastening system exploiting existing supply chain efficiencies

Patent-pending embedded Slab Track system Enables any track alignment to be achieved using just one slab shape

A unique track system that eliminates the need for a concrete foundation layer. Total dig depth of 30cm avoids physical clashes with most buried utilities and easy to remove in the event emergency access is required.

Whitley Depot – Road Vehicle loading

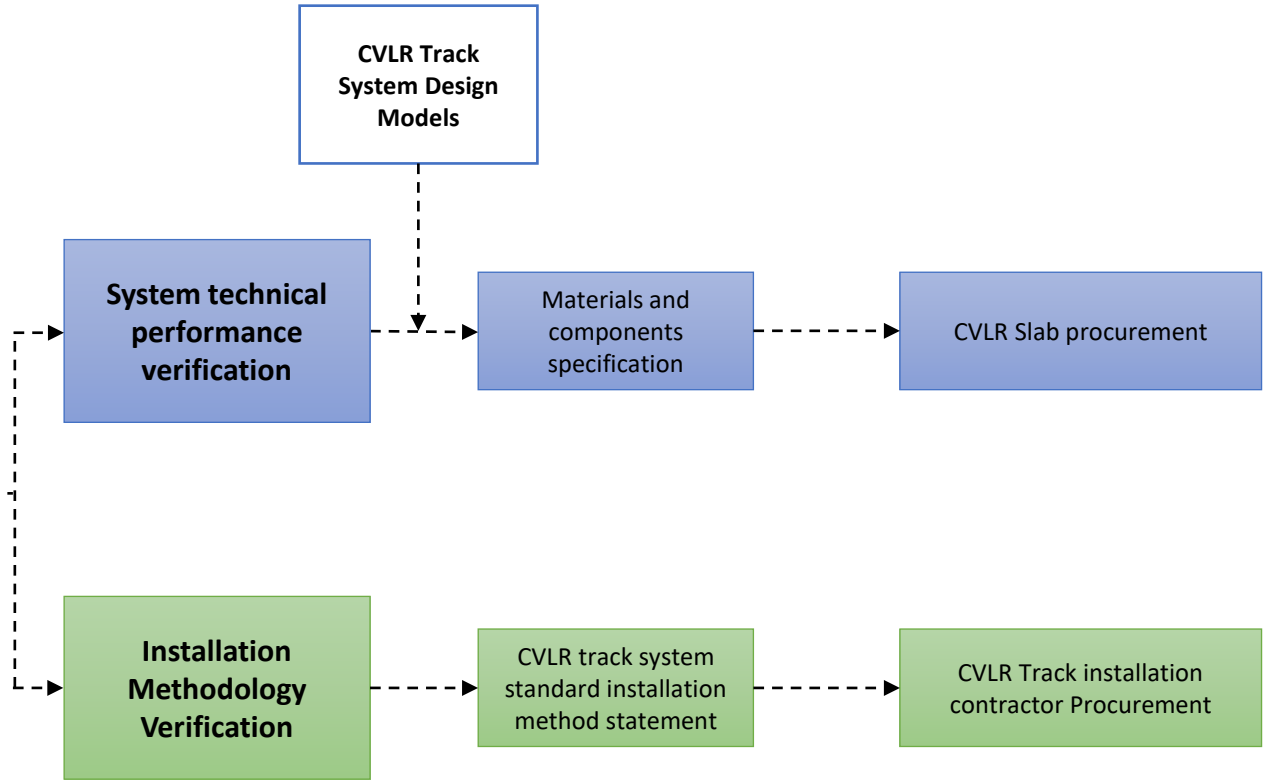
Controlled first CVLR track system installation
+
The site will offer an 'accelerated' real-life loading of the track system exposed to HGVs [worst case load scenario]



axle load measurement data

Integration and processing of data

Structural monitoring data



Coventry Very Light Rail Track Construction at test site at Whitley Depot



Coventry Very Light Rail Track test site at Whitley Depot since February 2023



Key Lessons Learnt

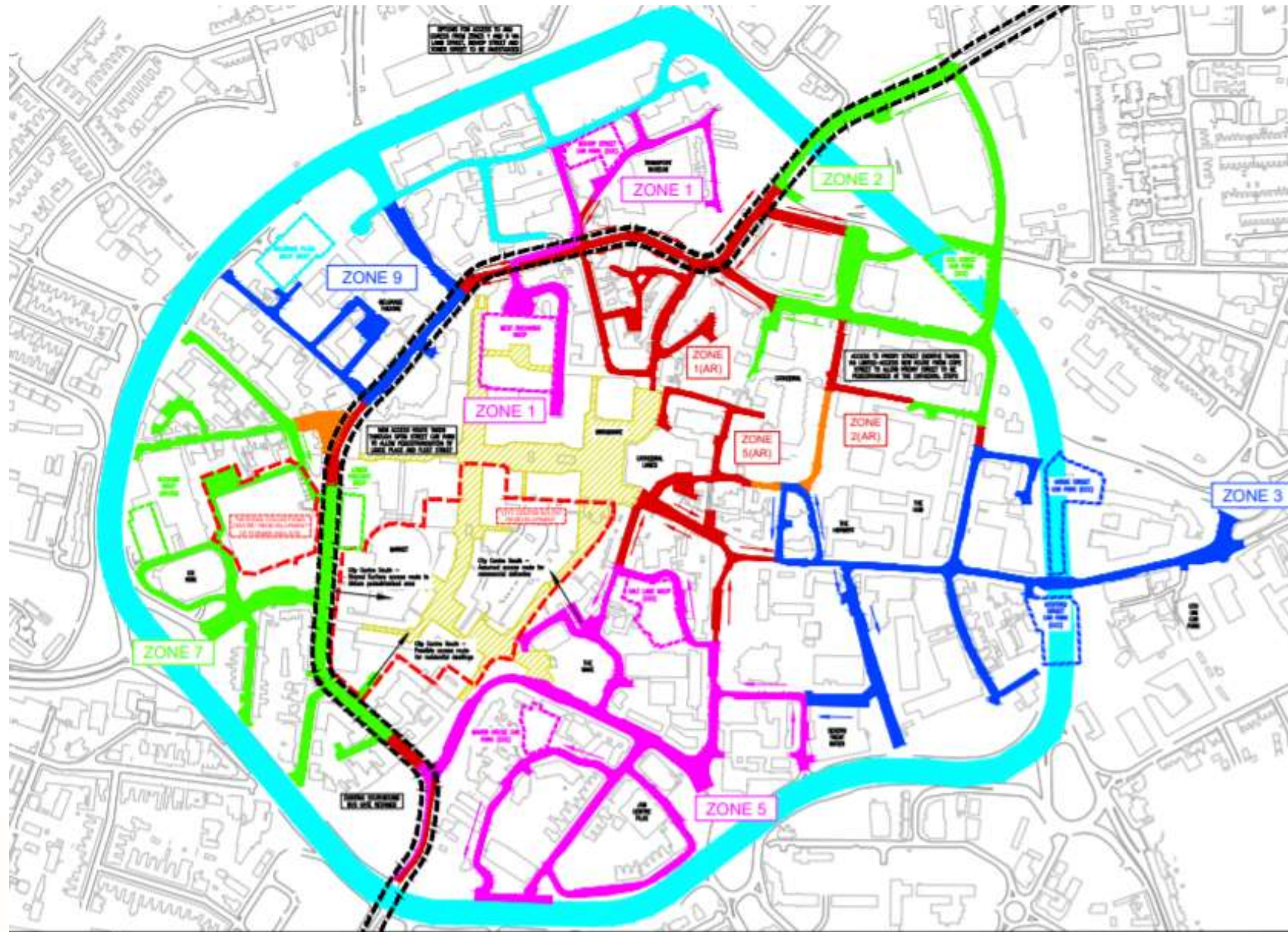
- ✓ Relatively complex installation of CVLR track including a 4.5% slope and a straight transitioning to 25m radius curve successfully delivered
- ✓ Installation complete against planned schedule in approx. 2 weeks including slack necessary for the complex instrumentation installation (only necessary on this testing facility)
- ✓ Expert rail contractor supporting the DLO claimed that it is by far the easiest and quickest track to install they have every dealt with
- ✓ Realistic forecast that a junction-to-junction section of approx. 100 m – 150 m double track can be delivered in 2 weeks with just normal day shift operation
- ✓ Efficient and cost effective rail joining/welding technique trialled out successfully
- ✓ Project specific materials developed by key partners (slab bedding mortars and pavement asphalt) performed successfully.
- ✓ Opportunities for optimisation identified relating to slab and encapsulation design

Coventry Very Light Rail future track test site at the VLRNIC



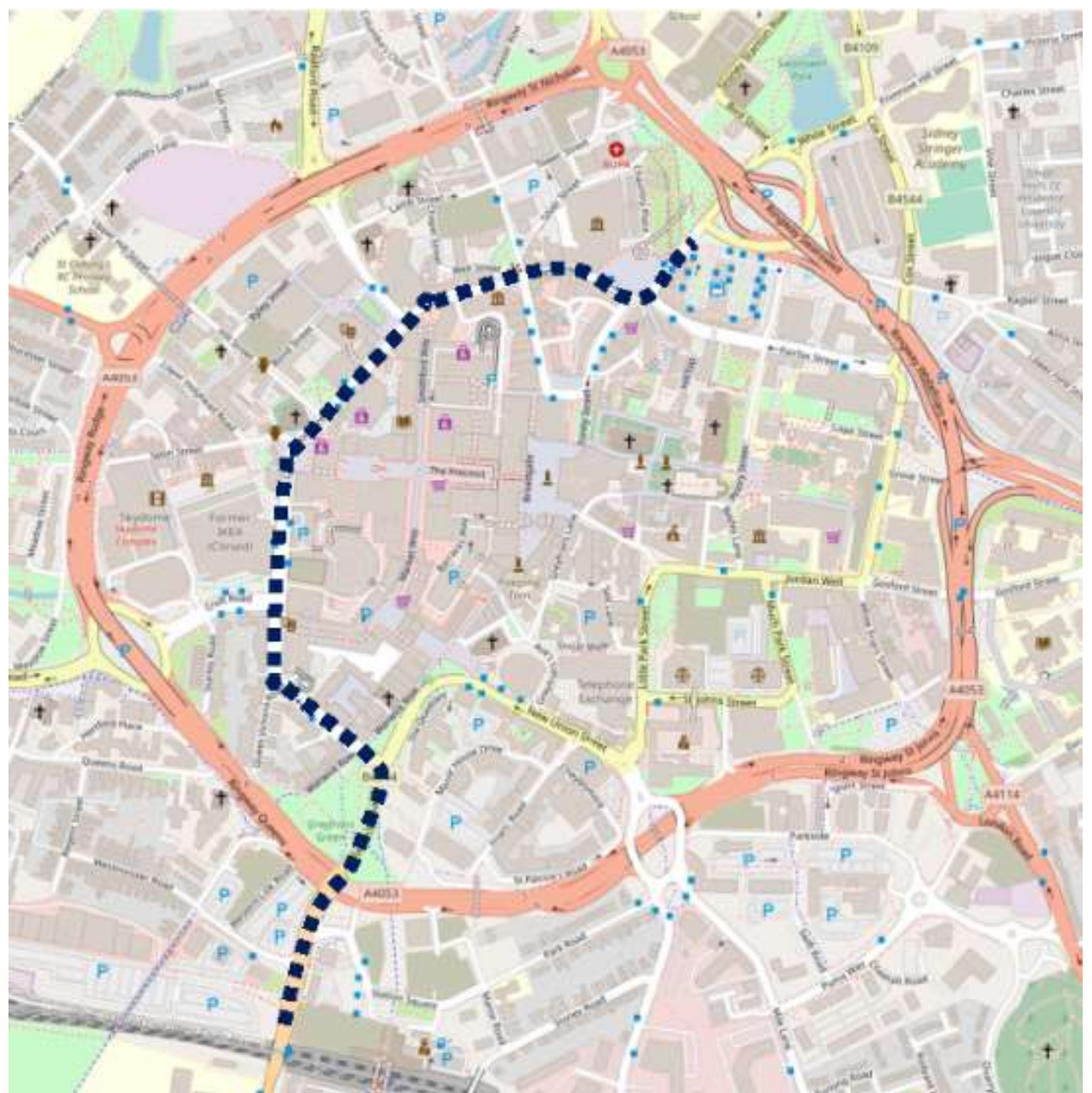
City Centre Traffic Management Plan

- Proposed low traffic zones to support Bus and CVLR operation - Red
- Pedestrianised zones – Orange
- Other colours show discreet zones in which traffic can move within but not between

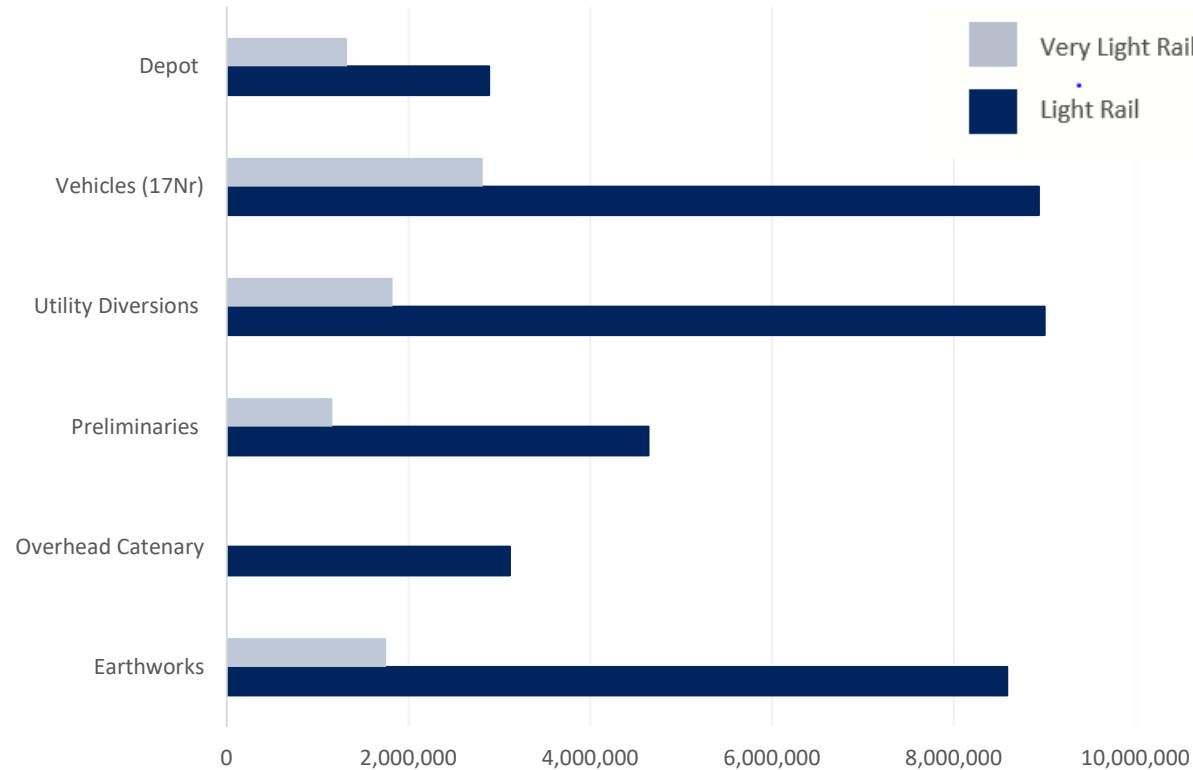


City Centre Demonstrator 2024/ 25

- Rail Station to City Centre
- Showcase Technology
- Operate Prototype Vehicle
- 800m twin track
- Stabling and charging in the City
- Demonstrate can achieve installation cost of circa £10m/km



URBAN VLR VS LIGHT RAIL



Benefits of VLR:

- ✓ Simplified depot
- ✓ Low cost vehicle
- ✓ No overhead catenary
- ✓ Minimal utility diversions
- ✓ Reduced preliminaries
- ✓ Reduced earthworks
- ✓ Estimated construction cost: **£10m/km**



