

ULTRALIGHT / VERY LIGHT RAIL

A Sustainable Public Transport Campaigning Game-Changer?

An emerging LRTA Tramforward campaigning initiative

Professor Mike Gibson MSc BA DipTP MRTPI

Chair of Lightweight Community Transport Ltd
A registered Community Benefit Society

Chair of Hove Station Neighbourhood Forum
A statutory neighbourhood planning organisation



www.lrta.org

INTRO: A TRAMFORWARD CAMPAIGNING INITIATIVE

LRTA is a **major influencer** in the world of light rail development via its international magazine, books, annual conference, webinars and **TramForward Campaigns Group**

- consultation responses via press releases – typically on transport policy development at both national and local levels, and
- the work of its national network of Regional Liaison Officers – generating and supporting campaigns for new or extending light railways and tramways, including pro-actively engaging with local politicians and officials.

Recently established a ULR-VLR ‘Special Interest Group’- **developing a ULR-VLR Project** - adding a new dimension to TramForward campaigning activities

At the LRTA Officers Annual Conference in April, Paul Rowen, Chair of LRTA Council, invited a presentation of the initial work.



TRAMFORWARD ULR-VLR PROJECT

Aims:

Promote a wider, informed conversation and debate about the prospect of ULR-VLR emerging as a public transport game-changer during the next few years.

Support tram campaigns groups to take full account of ULR-VLR's potential role in improving public transport and reducing car use in their area.

Audience:

Decision makers in central & local **government** and the **private sector**, together with a wide range of **campaigning organisations** at national and local levels.



Initial Output:

a ‘**state of the art**’ profile of the emerging technology and its potential applications in a range of urban, suburban, and rural locations – a continuously updated and website accessible ‘**living document**’

Innovative, targeted campaigning material

Possible Second Stage:

Independent TramForward Information Exchange

CREATING A LIVING DOCUMENT FOR CAMPAIGNERS

An overview campaigning document (15-20 pp)



Possible title:

'Very Light Rail for Beginners & Potential Early Adopters'

Components:

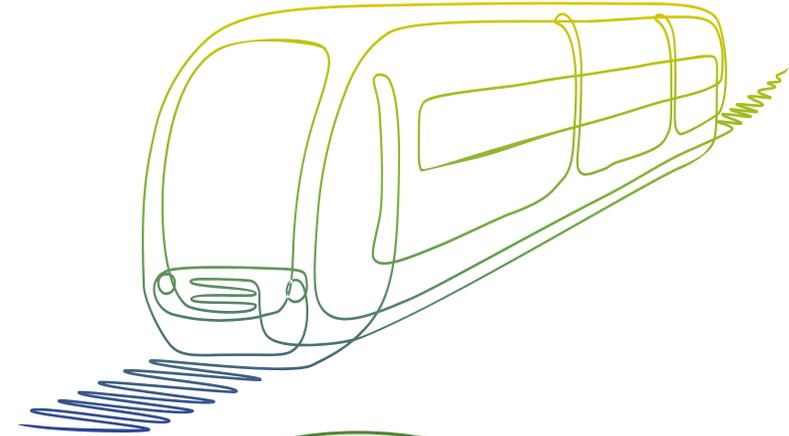
- **Why Trams:**
the overarching case for new light railways and tramways
- **What is ULR-VLR :**
an overview of emerging UK vehicle and track technology
- **Where will ULR-VLR be operational:**
potential applications, early adopters
- **How campaigning activities respond** to the prospect of moving from R&D to operational routes within the next 2-3 yrs?

Briefing Papers & Presentations - more detailed material to support campaigning activities, including local case studies

WHY TRAMS:

THE OVERARCHING CASE FOR EXTENDED & NEW LIGHT RAILWAYS & TRAMWAYS

Only an **integrated system with light rail at its core** can deliver the three interlinked components of sustainable transport



ECONOMIC

Modal shift to reduce car dependency and urban congestion

Permanence of steel incentivises development & regeneration investment to deliver local jobs

SOCIAL

Connecting left behind neighbourhoods and deprived communities

Alleviating transport poverty

Accessibility for the disabled, and people with small children or heavy luggage

ENVIRONMENTAL

Less exhaust emissions

Less emissions from tyres and brakes

Less microplastic water pollution

WHY TRAMS NOW?

TECHNICAL INNOVATION IN A TURBULENT NATIONAL POLICY ENVIRONMENT

Light railways and modern tramways tick a lot of boxes in current and rapidly-developing policy areas:

- ✓ **Levelling up** between regions and within cities
- ✓ **Mitigate Climate Change** - decarbonising urban transport
- ✓ **Tackling air & water pollution**

Dramatic reductions in installation & operating costs could change the terms of the public transport policy debate.

ULR-VLR is an idea whose time has come in the UK



Mass-transit rail and tram are key to levelling up North's cities

WITH the worst of the Covid-19 pandemic now hopefully behind us, the Government is beginning to turn its attention to its major policy pledge: levelling up the UK economy.

**City Region
Connectivity**



The role of transport infrastructure in driving regeneration and levelling up

MailOnline



Dust from car BRAKES is as harmful as diesel fumes: Pollution 'damages the immune system and raises the risk of lung infections'

WHY TRAMS?

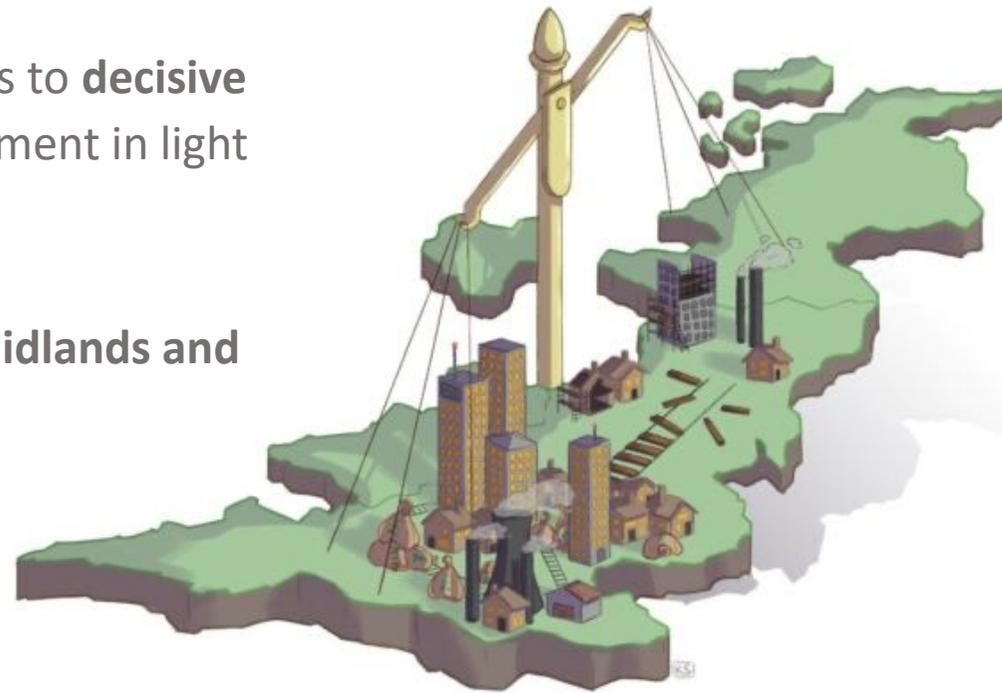
ULR-VLR CHANGING THE TERMS OF THE TRANSPORT POLICY DEBATE?

Potentially decisive **50% reduction in the cost** of installing and operating tramways

The catalyst for going beyond warm ministerial words to **decisive re-allocation of funding** from road building to investment in light rail

Levelling up in regional terms – **more trams in the Midlands and the North** to go beyond warm words

Now is the time for joined up advocacy and campaigning



WHAT IS ULR-VLR?

OVERVIEW: CHARACTERISTICS

Affordable:

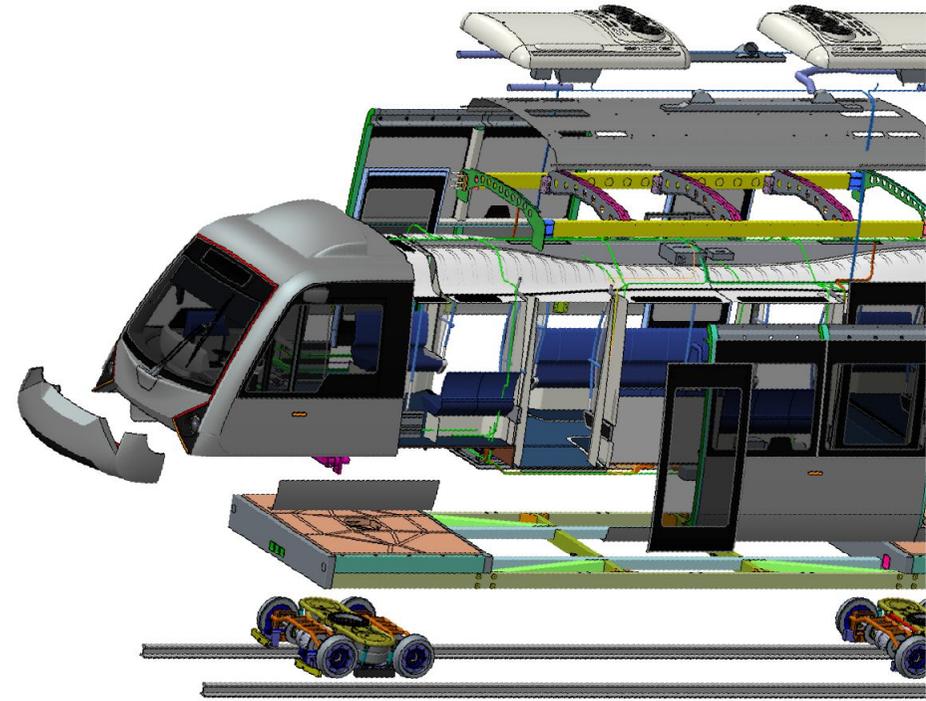
Lightweight (12-20 tonnes); shallow track (300mm)
= less disruption = lower cost @ £10m/km
60 – 200 passengers

Flexible:

On-street with traffic as low floor tram cars,
or dedicated rail with platforms.
Overhead Line / On-board Battery / Flywheel /
Hydrogen or Biomethane-powered

Climate-friendly:

Steel on steel: energy efficient, non-polluting



WHAT IS ULR-VLR?

OVERVIEW: PIONEERS

Parry People Movers PPM

Sustraco Ltd - Bristol Electric Rail Bus

Prototype PPM 60

street running shuttle service in Bristol Docks

1998-2000

Premetro Operations Ltd - Stourbridge Branch Line

PPM Class 139 - flywheel/LPG powered

10 yrs operation – 6m passengers,

97% satisfaction

Lightweight Community Transport Ltd (LCT)

A Community Benefit Society established to raise social investment funds for the purchase and leasing of lightweight vehicles alongside consultancy and light rail campaigning.

PPM Class 139 - community investment funded refurbishment

Into service 2022-23?



WHAT IS ULR-VLR?

OVERVIEW: PIONEERS



biomethane

Ultra-Light Rail Partnership Ltd

Government grant-funded conversion of the Bristol PPM 60 prototype to deliver the 'first of a kind' biomethane powered railcar



Trampower Ltd – City Class Tram

Developed the City Class Tram 150-200 passenger capacity, street running with innovative LR55 no dig 'glue in the road' track formation.

Preston Trampower Ltd, private promoter raising private finance to apply this technology to create the Guild Line to be operated by PMOL

WHAT IS ULR-VLR?

OVERVIEW OF UK VEHICLE & TRACK TECHNOLOGY: EMERGING

ULR-VLR is moving from margins to mainstream

The Second National VLR Conference in June 2022 was a major milestone event which brought R&D work much more fully into the public domain.

In the past 5 years ULR-VLR R&D driven by three West Midlands organisations:

1. Coventry City Council in partnership with Dudley Council, WMG at Warwick University, and the Black Country Innovative Manufacturing Organisation
2. Transport Design International Ltd (TDI) led consortium including Eversholt Rail and WMG
3. Ultra Light Rail Partnership (ULRP)



The ULR-VLR project will draw on this work and incorporate it in the proposed ***TramForward Briefing Papers***

WHAT IS ULR-VLR?

OVERVIEW OF UK VEHICLE & TRACK TECHNOLOGY: EMERGING

1. Coventry Very Light Rail - CVLR

Lightweight vehicle and innovative track development in the context of a Coventry City council vision of an affordable mass transit tram network and strategic local authority partnerships.

The Vehicle: Similar size to the Parry People Mover – an ‘urban shuttle’. Lightweight and battery drive. Working to develop autonomous solutions – reduce operational costs and increase frequency.



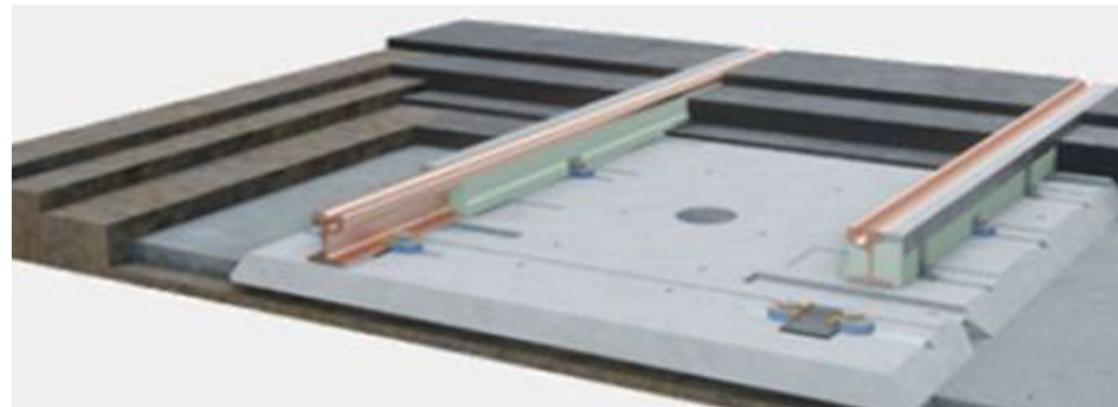
The Track: 300mm inside the road surface – minimising disruption to under-street services. £10m per kilometre compared to traditional light rail schemes £25m per km up to £100m

Prospective Applications:

Maximising local supply chains and local job creation – “green employment”. Total systems approach - developing last mile solutions including e-scooters and mini transport hubs

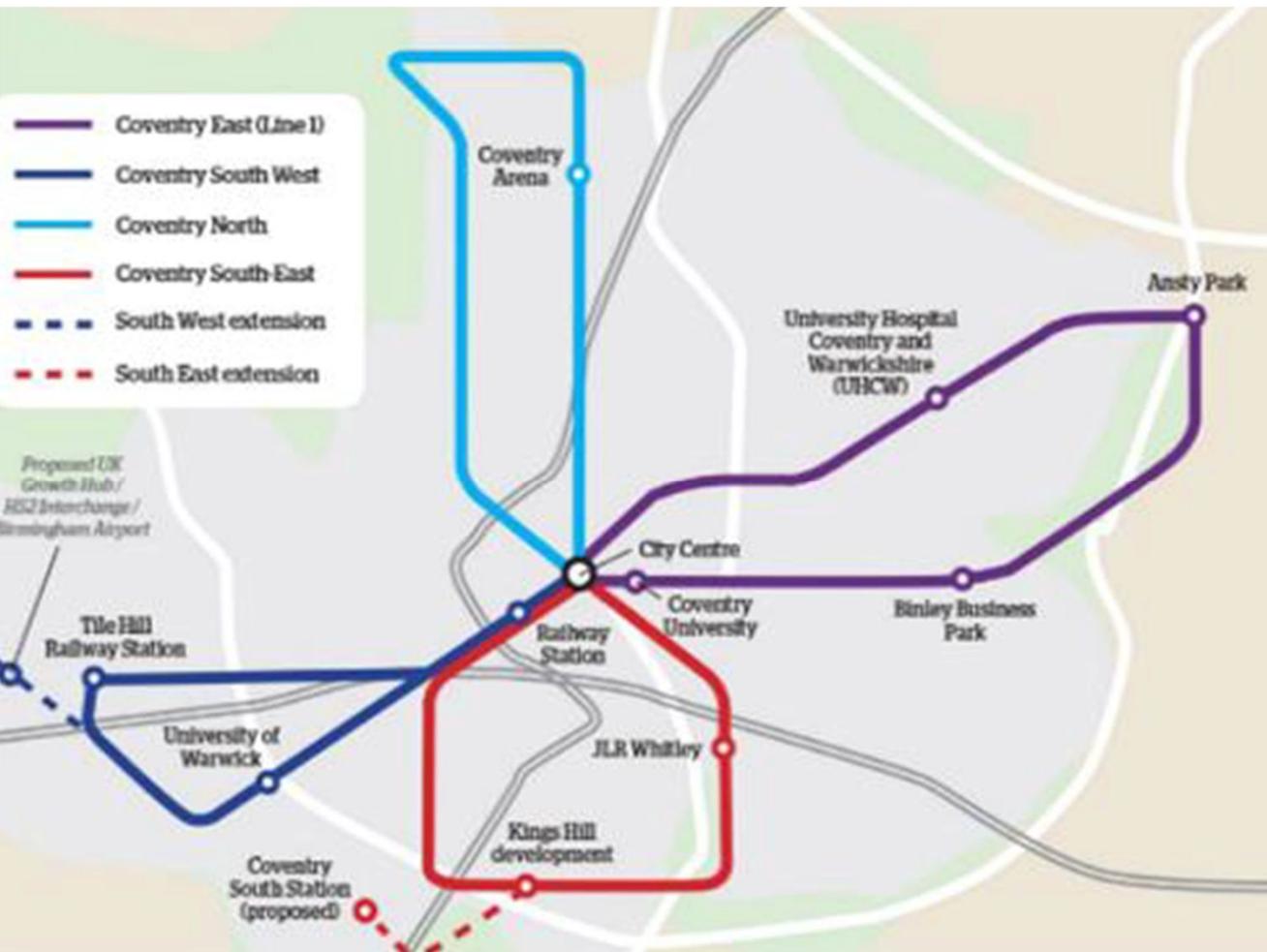
City centre demonstrator by end 2023

Operational Line 1 by end of 2024



WHAT IS ULR-VLR?

COVENTRY VERY LIGHT RAIL



Credit:

June 2022

Briefing Paper on Coventry Very Light Rail

WHAT IS ULR-VLR?

OVERVIEW OF UK VEHICLE & TRACK TECHNOLOGY: EMERGING

2. Revolution Very Light Rail – RVLR

Bi-directional - double-ended, high floor vehicle
56 seats – total 120 passengers, weight 22 tonnes

Prospective application

Designed for traffic routes or closed or underutilised branch lines

Into service by 2024 as opportunities emerge

<https://www.railengineer.co.uk/very-light-rail-a-revolution>



3. Ultralight Rail Partners – Biomethane ULR

Project Bio-Ultra - second *Innovate UK* grant to develop a feasibility study and design for a PAX 120 tram.

120 passengers, weight 24 tonnes

Biomethane powered railcar

ULRP
ULTRA LIGHT RAIL
PARTNERS



WHERE WILL ULR-VLR BE OPERATIONAL?

POTENTIAL URBAN, SUBURBAN AND RURAL EARLY ADOPTERS

Game-changing impact will involve applications in a variety of situations – on a ‘horses for courses’ basis

TramForward can contribute to ‘market-making’ by raising awareness, but will avoid product endorsement.

We will identify potential ‘early adopters’ in four types of locations:

1. **Smaller Cities & Towns**
2. **Restoring Railways**
3. **Heritage Railways**
4. **Light Rail for New Homes**



www.lrta.org

WHERE? POTENTIAL EARLY ADOPTERS:

2. RESTORING RAILWAYS – A PIPELINE OF EARLY ADOPTERS?

38 successful bids now preparing feasibility studies and business plans

- e.g **Cirencester Community Rail** to connect Cirencester and the main line at Kemble
<https://cirentain.org.uk/railscheme>
- a ground-breaking model - grassroots promoters envisage operating VLR vehicles
- fully participating in the development of strategic transport policy for Gloucestershire with a strong light rail component

100+ failed bids important - reveal local support for light rail

- e.g Heathfield bid revealed potential for **Heath Rail Link** – strong local community with Teignbridge Town Council support – now needs transport authority funding
www.heathraillink.org
- A cohort of MPs supportive of ULR-VLR

Need for a Restoring Railways Campaign Network to develop mutual support

WHERE? POTENTIAL EARLY ADOPTERS:

3. HERITAGE RAILWAYS

Adopting a multi-purpose business model

Tourism plus a public transport service?

Building in resilience Post-Covid

The Heritage Railway Association (HRA) is a voluntary run trade association representing Heritage & Tourist railways and related organisations. Some 150 operate with passengers.

Need to liaise with the Heritage
Railway Association



WHERE? POTENTIAL SUBURBAN EARLY ADOPTERS:

4. LIGHT RAIL FOR NEW HOMES

Transport for New Homes

An innovative rail-based public transport model:

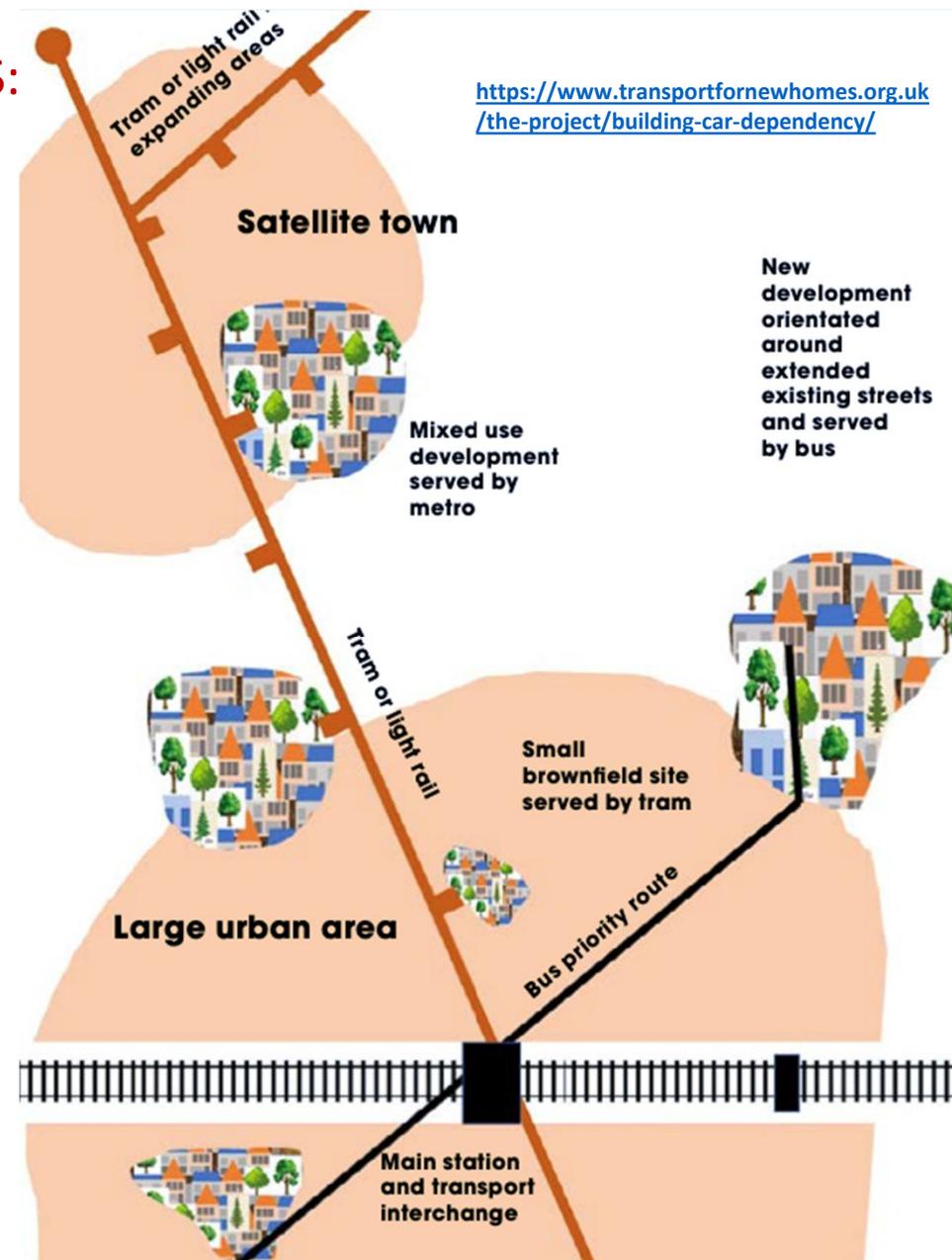
- re-allocating public funds and 'land value capture' developer contributions (including Section 106 and CIL) from road building to public transport
- reform of National Planning Framework to better integrate spatial planning and transport planning

Railfuture promoting innovative practice which leverages in S106 developer contributions to deliver new and extended rail lines.

Master Developers role in large scale urban extensions

Potential application of VLR to large scale housing provision where one major eco-extension site could generate £40m Community Infrastructure Levy.

Need to identify good practice case studies to demonstrate innovations and opportunities for light rail funding from a share of land value uplift



WHERE? POTENTIAL URBAN EARLY ADOPTERS:

EXPERIENCE OF EUROPEAN CITIES & TOWNS

Aarhus, Copenhagen and Dublin

Academy of Urbanism2021 - lessons from light rail systems in mid-sized European cities

<https://www.theaou.org/resources/309-rapid-transit-and-urban-recovery>

Besancon

(twinned with Huddersfield, West Yorkshire Combined Authority)

Successful application of low-cost vehicles and infrastructure

<https://www.urban-transport-magazine.com/en/due-to-big-success-besancon-is-expanding-its-tramways/>

Gorlitz

Example of a successful tramway in a small city circa 100,000 population.

LRTA System Factfile TAUT April 2022



Need to promote awareness of campaigners and draw lessons from light rail systems in Europe

HOW?

ULR-VLR - A GAME CHANGER FOR LIGHT RAIL CAMPAIGNING?

A Coventry city centre VLR demonstrator line by the end of 2023 and a first line in service in 2024, together with the Revolution VLR ready to carry passengers on rural and branch lines in 2024 - a **game changing challenge for the development of light rail campaigning.**

The prospective availability of new options for light rail **should energise** campaigning at both local and national levels.

From campaigning **against** roadbuilding and exclusive reliance on modernising bus fleets it will be possible to campaign **for a do-able, feasible very light rail alternative**

The **challenge** for TramForward is to help campaigners keep track of the increasingly rapid development of ULR-VLR and where appropriate, generate and support **campaigns for the application of ULR-VLR technologies as a local game change**

The initial TramForward Campaigning Group response will be the launch of the **'living document'** and first **Briefing Papers** by the end of year – voluntary and pro-bono resources

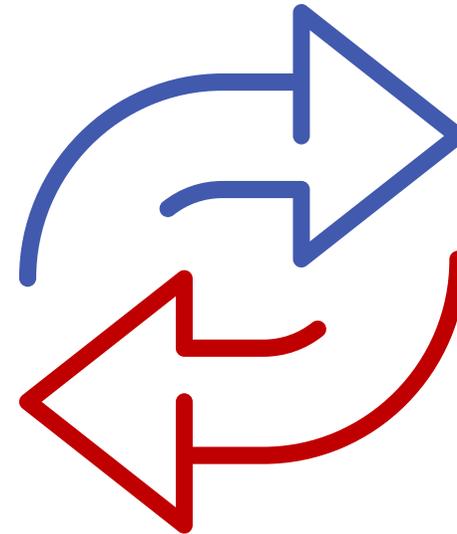


HOW?

ULR-VLR - A GAME CHANGER FOR LIGHT RAIL CAMPAIGNING - 2

As a **second stage** the ULR-VLR Project would to prepare a more ambitious proposal for an independent **TramForward Information Exchange (TIE)** - this will require development funding

- the **'go to' place** for tram campaigners at both local and national levels
- **promote awareness of and draw lessons** from local campaigns – particularly those which use pre-feasibility studies as a tool to press for the inclusion of light rail modes, including ULR-VLR where appropriate in Local Transport Plans.
- **develop alliances** with national campaigning organisations promoting sustainable light rail based public transport



HOW?

LOCAL CAMPAIGNS FOR LIGHT RAIL - SHARE NETWORKS & CASE STUDIES

Examples from different places and stages on the campaign trail

Aberdeen South Harbour 2022

ongoing pre-feasibility study by the Light Rail UK (Group) which presents an outline proposal for a tram line to link Aberdeen South Harbour and the city centre via the railway station
lightrailuk.co.uk

Bath and Bristol Trams Association

exemplar local campaigning organisation - with a national reach – running local meetings, national conferences, e-mail discussion networks and a petition. Has commissioned a tram feasibility study and is backed by a board of recognised experts.
bathtrams.uk/

Dundee Tram Proposal 2022

pre-feasibility study developed by the Campaign for Dundee Trams proposing the phased introduction of a city-wide tram network. This is the basis of a petition to ask Dundee City Council, the Scottish Government, and the UK Government to work together to approve a feasibility study
www.dundeetrans.org

Kenex Tram

sustainable public transport proposal for an initial network to connect the transport hubs of Ebbsfleet International, Grays and Gravesend to Northfleet Swancombe Pensi and Purfleet on Thames via a tunnel connecting North Kent and south Essex
kenextransit.co.uk

Trams For Bristol - Building back better

A 2021 pre-feasibility study supporting the work of the Trams for Greater Bristol campaigning group which proposes a primary tram network phased over 10-15 years. Commissioned by the local environmental campaign group Zero West.
lightrailuk.co.uk



WHO?

TRAMFORWARD TO BUILD ALLIANCES

Academy of Urbanism

politically independent, not-for-profit and multidisciplinary organisation - draws out and disseminates examples and lessons of good urbanism.

www.theaou.org

Council for the Protection of Rural England (CPRE)

the countryside charity – promotes sustainable transport - national and local campaigns

www.cpre.org.uk

Friends of the Earth (FOE)

national and local environmental campaigns

www.foe.org

Examples of national campaigning organisations which support the development of modern public transport systems

Railfuture

major national independent, voluntary organisation campaigning for better rail services. 12 branches campaigning on local issues

railfuture.org.uk/Light-rail

Town and Country Planning Association (TCPA)

major national influencer - promotes the creation of healthy, sustainable and resilient places that are fair for everyone -through application of garden city principles. Publishes *The Journal of the Town and Country Planning Association*

www.tcpa.org.uk

Transport for New Homes

campaigns for rail-based public transport to deliver sustainable suburbs

<https://www.transportfornewhomes.org.uk/>