

BACK ON TRACK

HOW TO BUILD NEW TRAMS IN THE UK AND GET BRITAIN MOVING

Plus, a vision for a new Leeds



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EXECUTIVE SUMMARY

Trams are experiencing a renaissance around the world, with 21 French cities building a tramway this century. 60 German cities now have a tram. China has built 35 tramlines since 2010 and even America has 27 light rail systems, the larger counterpart to trams. Britain has fallen behind. Only seven British cities have a tram, which means that the UK is missing out on the many benefits that tramways bring.

The case for trams

Trams have a higher capacity, lower emissions, and better ride quality than either cars or buses. A single lane of a city street could carry 1,500 people per hour in cars, 8,000 people in buses, or up to 22,000 people if it was used as a tramway. With more doors, longer carriages, larger stops, and signal priority, trams can easily move thousands of people along a busy corridor in Britain's cities. Trams can combine the capacity advantages of trains with the immediacy and lower cost of buses.

Trams lower emissions by encouraging motorists to switch to public transport for some or all of their journey, with 30% of Nottingham tram users switching from their car to public transport. The tram in Tours, France has led to 25,000 fewer cars on the city's streets and an annual 40,000 tonne reduction in CO2 emissions. Trams do not produce tailpipe emissions, unlike diesel buses, and only produce negligible particulate emissions, unlike buses' rubber tyres.

With reliable and predictable service patterns, trams offer a better commute, and the visibility and ease of understanding service patterns encourages more users, especially tourists. With people voting with their feet when it comes to transport, trams outperform buses. Munich's East Tangent tram enjoyed 50% greater ridership than the bus it replaced.

Outside London, Britain's cities are not meeting their high potential. This is in large part because fewer British cities are served by rapid transport than any other wealthy western country, including America. Without rapid transport, fewer people are able to reach the city centre easily and take up jobs, which best match their skill sets. Trams can also encourage densification of city centres and regeneration of distressed areas, like the Salford Quays area of Greater Manchester, which was formerly run-down docks and now is a rejuvenated business centre.

The cost challenge and how to fix it

The biggest issue holding Britain back from the benefits that trams bring is cost. The European average cost per mile of tramway is £42mn. The average British cost is more than twice as high at £87mn. To make tram projects more affordable in the UK the Government needs to set common standards and

encourage a pipeline of projects, devolve the current Transport and Works Act Order process that approves new projects and fix current utility guidelines that make tram projects move almost all pipes and wires, while paying 92.5% of the cost.

To help encourage standardisation and develop a pipeline of projects:

- The Department for Transport (DfT) should create a specialist delivery unit responsible for trams, metro and light rail within its new public transport directorship.
- This team should work with industry bodies to develop a national tram standard modelled after the German common set of standards, their VDV Blue Books and BOStrab.
- This unit should encourage replicable and low cost engineering solutions and capture lessons where trams were delivered cheaply both in the UK and abroad, as well as advocate for cheaper, simpler tram stop designs.
- Additionally, the Competition and Markets Authority should issue guidance explicitly allowing cooperation of tram promoters to jointly procure new tram vehicles.

To speed up the planning process for new trams, which can take up to 14 years and costs millions of pounds, the Government should:

- Devolve the Transport and Works Act Order approval process to allow regional mayors to sign off on new projects instead of the Transport Secretary.
- Remove the requirement to complete environmental statements for areas where the tram runs on existing roads or through built up areas.

To avoid the costly process of moving too many utilities in the road:

- The Government should update the Code of Practice to give clear rules on which utilities to move, reducing the cost and time of negotiation with utility companies.
- The Department for Transport should adopt a nationwide waiver specific for utilities left in place on tram routes for Section 82 of the NRSWA 1991, which currently burdens utility companies with liabilities if tram services are suspended because of a need to access the utilities.

- This currently makes utility companies sceptical of leaving utilities beneath tramways.
- Tram services should terminate at the two stops nearest any disruption caused by utility access, enabling a quick walk between stops.
- The Government should update the statutory instrument *The Street Work (Sharing of Costs of Works) Regulation 2000* to rebalance the cost of diverting utilities from tram projects to utility companies.
- Future British tram projects should study and, provided it is feasible, implement cheaper shallower trackbeds used in cities like Portland and Vienna, and consider Coventry's experimental very light rail.

How to fund Britain's new trams

The UK currently has one of the most centralised funding systems in the world for new local transport infrastructure. This encourages higher infrastructure costs because the group that is funding the proposal (the Treasury) is different from the group that is designing the system (local leaders). Making the right trade-offs between price, delivery and design becomes harder to achieve. Instead we should hand power back to those with skin in the game. Funding powers for local transport should be in the hands of the local decision makers, and new trams should principally be funded by the people who benefit the most from lines opening.

To fund a tram renaissance:

- Central government should enable councils to collect stamp duty uplifts for houses sold near tram stops and add targeted council tax precepts, subject to a referendum. Councils should also levy Business Rate Supplements on businesses near the new line, with the requirement to get approval from the majority of authorities within a combined authority removed.
- Councils should engage in Tax Increment Financing to borrow against future revenues from the uplift in property values around the line. The Government should expand these powers to council tax precepts and stamp duty uplifts.
- To develop in-house capacity and give local authorities the ability to kickstart the development of tram projects while encouraging a national pipeline of projects, the Government should create similar grants to America's RAISE, TIGER, and BUILD grants.
- The Government should also allow Metro Mayors to levy an extra penny on employer's national insurance, modelled after France's Versement Transport. This should be conditional on ring fencing it for new infrastructure and approval at a local referendum.
- Future tram projects should look to Nottingham's example and introduce Workplace Parking Levies directly tied to the

new tram. The Government should remove the requirement of Transport Secretary approval by fully devolving the sign off down to the local authority level.

Leeds 2035 and Leeds 2050

Leeds is the largest city in Europe without rapid transit. Around 830,000 live in the wider metropolitan area and must choose between insufficient local trains, crowded buses, or creaking and congested roads. New homes tend to be low density, land-hungry and car-dependent. Poor public transport is often withdrawn when s106 funding ends.

No other European city of this size accepts this. Here is our vision for a transport system which would deliver 39 miles of tram lines; 21 by 2035 and an additional 18 miles of tram lines by 2050 to serve Leeds's citizens, boost productivity, unlock sites for new homes and offices and deliver beautiful 'gentle density' development throughout the city so that Leeds can grow and flourish.

It is an unapologetically big and bold vision that responds to the ambitions of national and local government. This is essential to permit between 8,800 to 17,760 new homes by 2035 and 19,455 to 38,910 gentle density homes by 2050 as well as a dense web of shops, offices and other uses. This transport system can in turn, be funded by the value uplift associated with transport-linked development and intensification, and is an approach that would benefit other cities in the UK.

WHY DOES BRITAIN NEED A TRAM RENAISSANCE?

The fall and rise of trams

Britain was the first country in the world to build railways and tramlines. The horse-drawn Swansea and Mumbles Railway was the world's first passenger tram when it opened in 1807. In 1860, Birkenhead, over the River Mersey from Liverpool, became the first town in Europe to operate a street tramway, still horse-drawn. Leeds introduced Europe's first overhead electric tram service in 1891. Shortly after the turn of the century, when electrification made trams much cheaper and faster to run, trams were ubiquitous across Britain and the world. In the 1920s, there were over 300 tramway operators in the UK, running 14,000 trams¹ across thousands of lines in over 200 towns and cities.²

Yet all these cities, except Blackpool, would go on to tear up their tram tracks. The rise of private cars and improvements in buses meant that city planners thought that trams were just taking up too much space on Britain's streets. They were the past. Cars were the future. High maintenance costs as the first generation trams aged discouraged further investment.

Yet that didn't spell the end of trams in the UK. Britain has begun to restore its trams, with projects in Edinburgh, Manchester, Sheffield, Nottingham, London, and the West Midlands. But some continental competitors have seen a full tram renaissance over the past generation. Cities that had torn up their tram tracks in the 1950s realised they had made a strategic mistake. Twenty-one French cities have built a tramway system this century. Sixty German cities now have trams.

Further afield, China has built 35 tramlines since 2010, with ten more currently being built. Even the United States, land of the automobile, has been investing in new trams and their larger counterpart, light rail. America now has 27 light rail systems, the most in the world.

France's building spree means that every French urban area with a population above 150,000 now has a tram or metro. In Britain we've failed to keep pace. Thirty British cities are larger than 150,000 people and go without reliable rapid transit, forcing their residents to rely on crowded buses or congested roads.

Right now, trams are more visible and admired around the world than they have been since the early-20th century. However, in Britain, trams remain marginal politically and barely in the public eye. In the UK, only seven cities have a tram, and many large cities like Leeds, Bristol, and Cardiff lack a mass transit system altogether. At the time of writing, not one of the Department for Transport's 18,245 staff has direct responsibility for promoting new trams and light rail.

Cities across Europe and America are returning to trams because of their higher capacity, environmental benefits, improved ride quality and the prosperity boost they can bring. The rest of Chapter One will answer the question of why cities around the world are choosing to build new tramways and what the economic benefits for Britain's towns and cities could be if we joined the global tram renaissance.

Why hasn't Britain followed suit? One factor is cost. A new mile of tramway in Britain costs £87mn, more than double the European average of £42mn. The previous Government committed £2.5bn towards a West Yorkshire tram. At current UK prices, this could build 29 miles of tramway. If we got costs down to European averages, we could build 59 miles, and at German costs, we could build a massive 102 mile network, which would be the seventh longest in the world. Reducing the cost of building new trams is essential if we are to follow France, Germany, and the US in having a tram renaissance. Chapter Two will delve into these cost challenges and the policy solutions Britain should take to build trams cheaply.

Another challenge is funding. In Britain, new transport infrastructure is almost always funded by HM Treasury, meaning the national taxpayer. Other countries like France, Spain, and America have local funding mechanisms, which allow local leaders to get on with building new projects instead of having to continually appeal to the Treasury for further funding. So Chapter Three will offer our policy suggestions to fund Britain's tram renaissance by linking funding to benefits.

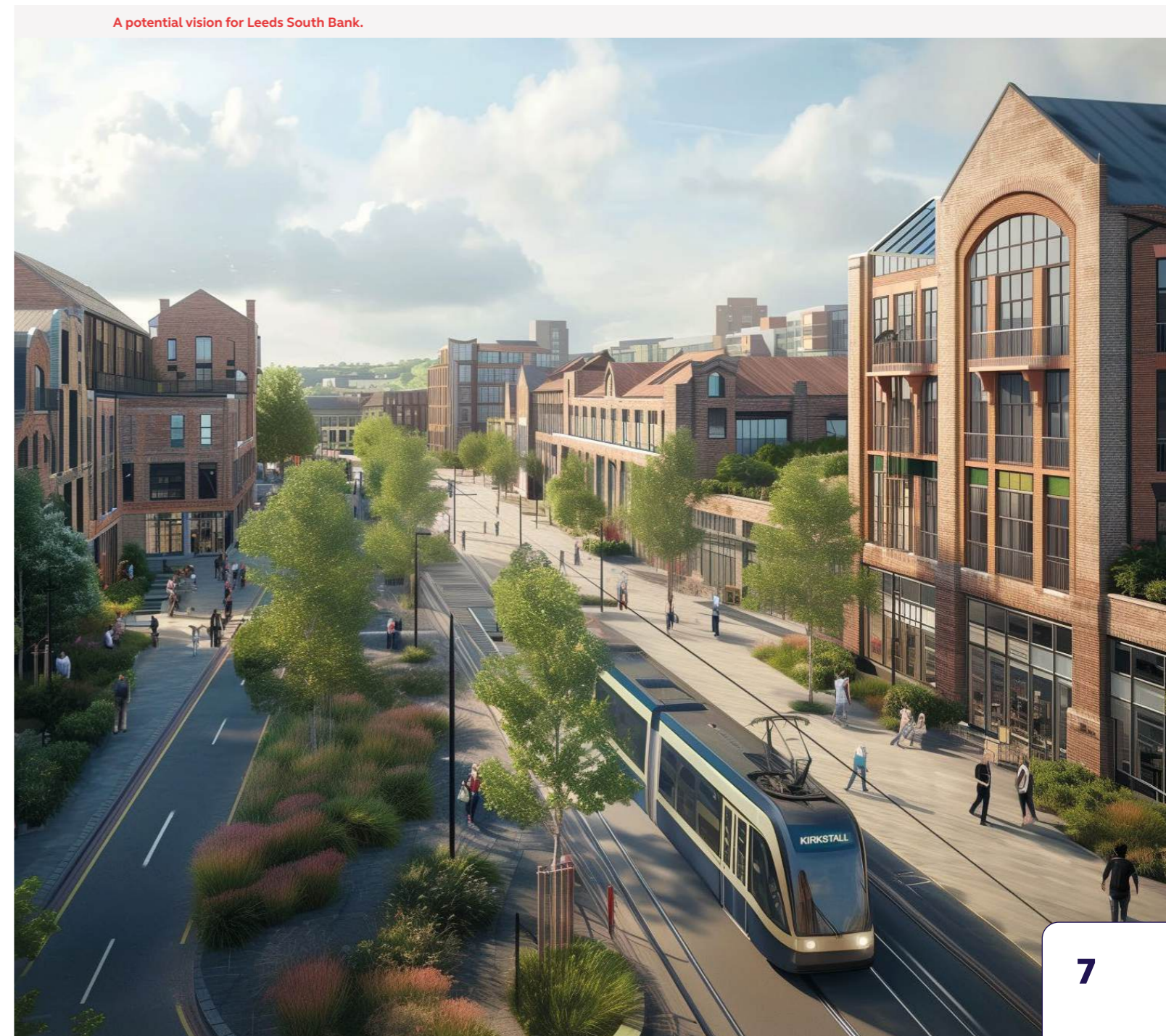
Leeds is Europe's largest city without a tram or metro, despite having more than 20 tram lines in 1945. Leeds was the penultimate English city to shutter its trams in 1959 (Sheffield would follow in 1960 and Glasgow in 1962). But only a few decades after tearing up the tracks, city leaders changed their minds, and have been pushing for a new tram since the 1980s.

The Leeds SuperTram Act of 1993, gave the West Yorkshire Passenger Transport Executive and Leeds City Council all the powers necessary to authorise construction. But it took nine years to get funding and then a doubling of costs led the Transport Minister to scrap the project in 2005.

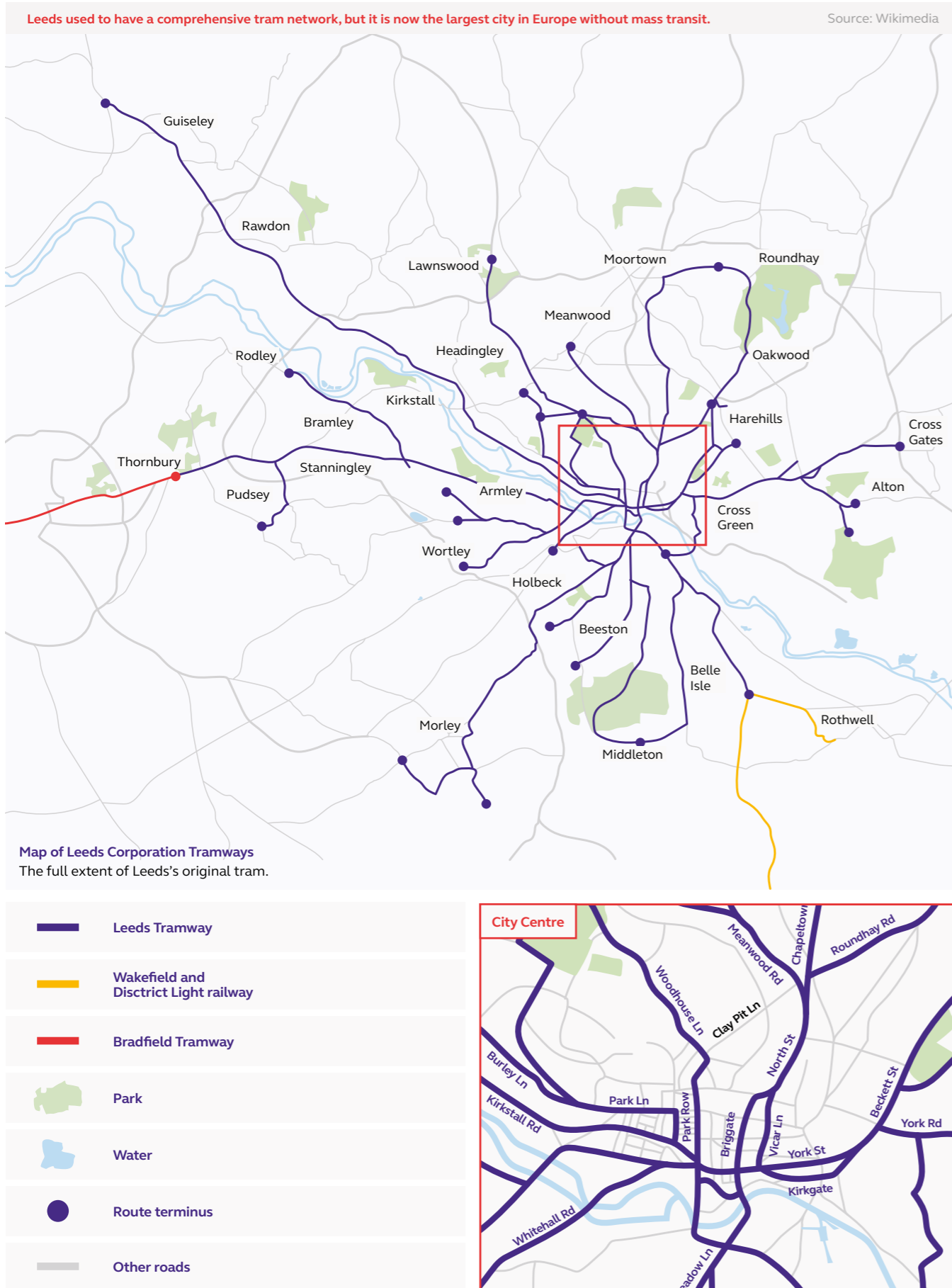
The high cost of building trams in the UK and a lack of consistent funding have hindered Leeds's attempts to build a tram in the past – holding back the economy of the 800,000 person strong metropolitan area. Chapter Four sets out our vision for three new tramlines in Leeds and how delivering mass transit can spur a prosperous and beautiful future for the city.

There is significant potential for new and restored tram networks to grow local economies, revive communities, and get us to net zero. *Back on Track* is our plan to cut the cost of building new tramways and devolve funding and approval power to usher in a British tram renaissance.

A potential vision for Leeds South Bank.



1 Kobie, N. (2018). *Trams are great for city transport - why doesn't the UK have more?*. Wired.
 2 Wikipedia. (2024). *List of modern tramway and light rail systems in the United Kingdom*.



Why trams have made a comeback

In the last 35 years, 148 cities in 40 different countries have built a new tramway or light railway system. Add them altogether and you get 4,100 new kilometres of track, about the distance across the United States.

People who are sceptical of trams will argue that buses can do everything that a tram can, while avoiding expensive track installation and being able to divert around parked cars or street works. Yet cities across the world have chosen to install (or re-install) trams for three key advantages: higher capacity, lower emissions, and better rider experiences.

Capacity: trams carry three times more people than buses

Consider a single lane of a city street, 3.5m wide. We might use it as a corridor for cars, or perhaps a bus lane or a tramway. If we used it as a car lane, we could move 1,500 people per hour. If we turned it into a bus lane, we could move five times more people. Yet that is blown away by the number of people that a tram could move, with its longer carriages, increased number of doors aiding faster boarding, larger stops, and higher likelihood of having signal priority over other traffic. Trams could move up to 22,000 people on this corridor, nearly three times more than buses and 15 times cars.³ The ability to move more people can support new developments, housing, and higher density in our city centres. For higher capacity routes in British cities, we need to build trams.

Emissions: trams reduce emissions more

Not only do trams move more people than buses or cars, they also have positive environmental effects. Trams lower emissions through encouraging people to take public transport instead of cars and their steel wheels limit tyre particulate emissions. The Nottingham tram has free parking at park and rides near the M1, which makes the switch to public transport cheaper and more convenient. Consequently, Nottingham has been one of the few cities in the UK to see a reduction in car usage over the past decade, with 30% of tram users switching from their car for part or all of their journey.⁴ Likewise, in Manchester 29% of respondents to an evaluation report said that if the Manchester Metrolink wasn't available, they would have travelled by car.⁵

The move (known in the professional jargon as 'modal shift') from private cars to trams and active travel in our cities reduces carbon emissions. Since the tram in Tours, France opened in 2013, car use has fallen, with 25,000 fewer cars on the city streets resulting in a 40,000 ton reduction in annual carbon dioxide emissions.⁶ A study in Portland, USA found that those living in homes near the streetcar had 65% lower personal carbon footprints than an average suburban house due to their reduced car use, and increased active travel.⁷

Trams, unlike diesel buses, produce no tailpipe emissions. Even if we electrify our buses, trams will still be better for the local environment as their steel wheels on steel rail produce negligible particulate emissions, unlike buses' rubber tyres. 52% of all small particle pollution from road transport comes from tyre and brake wear, plus a further 24% from road and paint marking abrasion.⁸ Trams avoid these emissions that can pollute the environment and the air and water in our cities.

Rider experience: people like trams and use them

Trams provide reliable service patterns regardless of the time of day, while peak hour bus journeys can take more than twice as long as off peak trips.⁹ The visibility of the transport and the improved legibility of the system encourage more people to use the service, especially tourists who can more easily understand a tram network than bus routes. Trams are also normally smoother with fewer bumps and jolts.

People vote with their feet when it comes to transport, and it's easy to see that the travelling public prefers trams. Munich's East Tangent tram had 50% more users than the bus it replaced.¹⁰ Houston's trams carry 40% more people than a like for like bus service, and many of the new public transport riders were drivers choosing to switch to the tram for their commute.¹¹

What economic benefits could trams bring to Britain's cities?

Outside London, Britain's cities are not meeting their potential. In most countries, major non-capital cities are at least as productive as the national average. Yet the gross value added per worker in cities other than London was just 86% of the UK average.¹² These cities have GVAs per worker 30% lower

3 Boys Smith, N., Vadera, A., Noble, T., and Milner, D. (2024). *Move Free*. Create Streets.
 4 Urban Transport Group (2019) *Light rail: keeping city regions moving during the pandemic – and building back better afterwards*.
 5 Transport for Greater Manchester. (2021). *Metrolink Phase 3: Monitoring and Evaluation Second Report*.
 6 The Local France. (2023). *Why France is falling in love with trams again*.
 7 Portland City Council. (2009). *Portland Streetcar System Concept Plan*.
 8 Carrington, D. (2023). Health Impact of Tyre Particles Causing 'Increasing Concern', Say Scientists. The Guardian.
 9 Forth, T. (2019). *Birmingham is a Small City*.
 10 Muncher Verkehrsgesellschaft mbH MVG. (2008). The Modern Tram in Europe.
 11 US Transportation Research Board. (1989). Research in Bus and Rail Transit Operations, TRB Report No. 1221. Transit Research Record.
 12 Hopkinson, B. (2024). *Britain's Second Cities Are Stuck: Let's Get Them Moving Again*. Yes and Grow.

than similar cities in Germany, 23% lower than French cities, and 18% lower than Italian cities. This is a key part of Britain's productivity puzzle.

Britain's towns and cities are under-performing in part, because they lack reliable and quick local transport. Only nine British cities have a tram or metro, compared to 30 French cities and 60 German cities. Every French city larger than 150,000 people has a light-rail or metro system, while there are 30 British cities and towns that large which lack any form of rapid transit. In fact, a smaller proportion of British cities are served by rapid transport than any other wealthy western country, including America.¹³

In Leeds, fewer than 40% of people can reach the city centre in 30 minutes or less on public transport. In the similarly-sized Marseille, which has two metro lines and three tram lines, this figure jumps to 90%.¹⁴ Easy access to the city centre helps Marseille enjoy over 20% higher gross value added per worker than Leeds.¹⁵

By allowing more people to reach the city centre easily, trams increase the size of a city's labour market. With a larger labour market, people can specialise more by finding jobs that best match their skill set, which improves their productivity. Higher productivity means that people living in cities with good public transport connections can earn higher salaries. Trams are already making it easier for commuters to easily access new jobs. 10% of the commuters who used Nottingham's trams who changed jobs in the previous five years said that they would not have been able to move jobs without the trams.¹⁶

But trams don't just benefit existing residents and businesses. They also encourage changes in land use, allowing for a denser and more vibrant city centre, in turn creating more space for new businesses and facilitating the seamless and serendipitous mutual transfer of ideas which is so crucial to innovation and prosperity.

After Portland, Oregon built their streetcar, the American term for tram, new construction near the tramline was over twice as dense as construction further afield, with private developers investing \$3.5bn within two blocks of the tramway.¹⁷ Likewise, Phoenix's Valley Metro Light Rail attracted \$11bn of private investment, creating over 35,000 jobs and 25,000 new homes

within half a mile of the line.¹⁸ This density means more offices could be built and more people could live and work in the city's most productive neighbourhoods.

Tram systems can be the catalyst for private investment and regeneration of a downtrodden area. By being a permanent and visible investment that greatly improves accessibility, trams are able to unlock transformational private investment into regeneration, which buses alone fail to do.

For example in Greater Manchester, the Salford Docks used to be the third-busiest port in Britain. After decades of falling traffic, they shut in 1982. Renaissance arrived with Manchester Metrolink in 1999. This created a direct link to the city centre, in turn attracting private investment into the docks and creating a new business district. The total Gross Value Added of the new Salford Quays doubled over the two decades since the tram opened with more than 1,250 businesses employing more than 30,000 people now open in the Quays.¹⁹ ²⁰ The Quays include the flagship MediaCityUK site, where one in seven BBC employees now work. The area's population more than quadrupled since the tram opened as new residential developments were built.²¹

Trams are an ideal choice for Britain's cities. They can combine the speed and reliability of trains with the immediacy and lower cost of buses. Trams are able to move more people, reduce both greenhouse gas and particulate emissions, and provide a better rider experience. Importantly they can spur economic growth by increasing the number of people who can reliably and pleasurably reach the city centre and encourage intensity, productivity, regenerative development and growth.

13 Burn-Murdoch, J. (2023). *The Nimby Tax on Britain and America*. The Financial Times.

14 Foster, P. (2022). *How Sprawling Suburbs are Stunting Productivity in UK Cities*. The Financial Times.

15 Bessis, H. (2016). *Competing with the Continent*. Centre for Cities.

16 Steer. (2021). *Leading Light: What Light Rail Can Do City Regions*. The Urban Transport Group.

17 Portland City Council. (2009). *Portland Streetcar System Concept Plan*.

18 Reagor, K. (2019). *Love or Hate the Trains, Light Rail Boosts Home Values in Metro Phoenix*. AZ Central.

19 Forth, T. (2023). *Achieving Less with Much Less*.

20 Urban Transport Group. (2021). *Light Rail: Keeping City Regions Moving During the Pandemic- and Building Back Better Afterwards*.

21 Forth, T. (2023). *Achieving Less with Much Less*.

BRITISH TRAMS ARE TOO EXPENSIVE, HERE'S HOW TO MAKE THEM CHEAPER

Building trams in Britain is too expensive

Over the last three decades, trams have made a remarkable comeback across Europe. However, Britain has been left behind. Why have cities like Lyon, Helsinki, and Madrid been able to build tram systems while Leeds, Bristol, and Belfast haven't? Put simply, it's cost. Building new tram systems is more expensive in Britain than almost anywhere else in the world.

Birmingham's eastside extension is a 1.05 mile addition due to open to the future HS2 station at Curzon street. Barring any further price rises, it will cost £245mn, just a little less than the £260mn Besançon spent on its entire nine mile network.

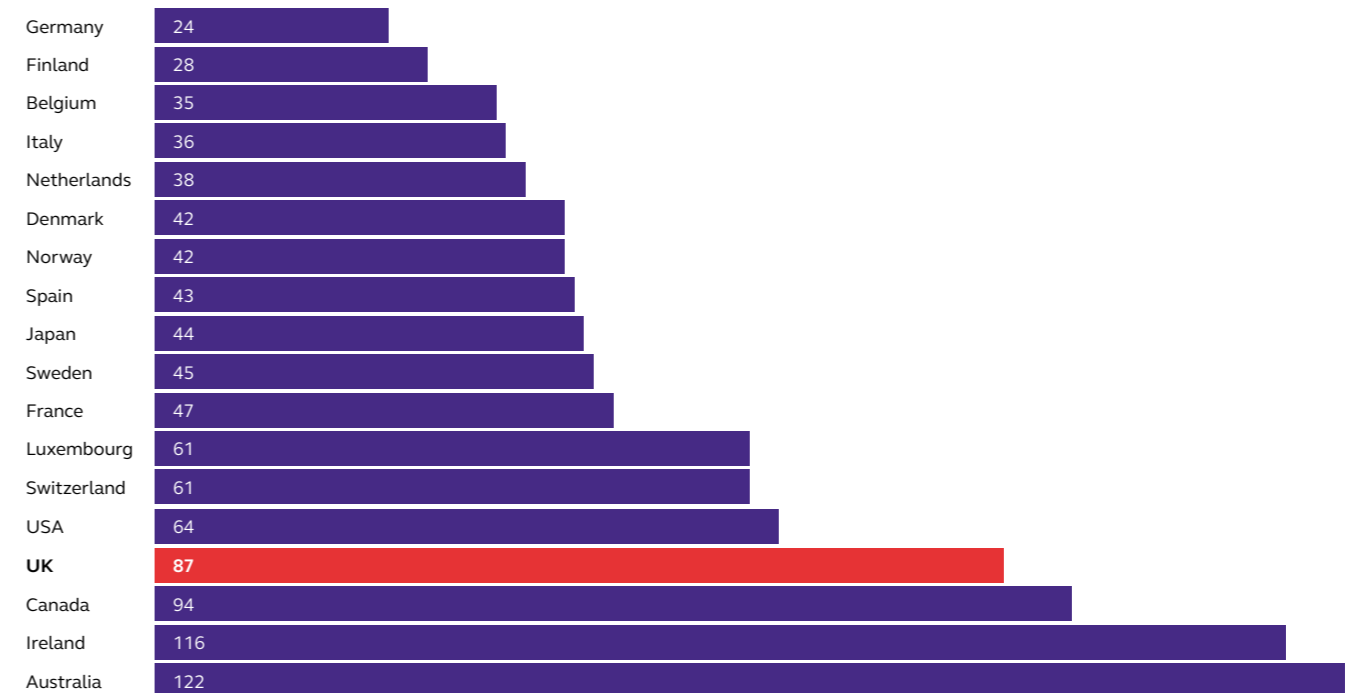
British projects are bogged down by excessively long planning processes, regulations that lead to moving almost all of the buried utilities at the expense of the project, and a lack of shared standards that limits the sharing of cost-saving lessons. Projects that are funded centrally lack the incentives to make cost-saving tradeoffs (e.g. simpler station designs or more basic

trams) as the costs are borne by the Treasury not the tram promoter. This latter point often means that trams are seen as a catalyst to do large urban realm improvements, at the expense of the tram project.

To determine the extent of Britain's cost problem, we've looked at 100 different tram projects built this century across 18 different countries. The database covers all of Britain's completed projects within this period that have reliable cost data and selected projects from Europe, Japan, America, Canada, and Australia. The results do not reflect well on Britain.

Germany and Finland come out the best, building a mile of tramway for £24mn and £28mn, respectively. The European average, without Britain, is £42mn. Yet Britain builds for more than double this amount at £87mn per mile, which is more than three times the cost at which Germany and Finland can build. Only Canada, Ireland, and Australia are more expensive than the UK.

Average Cost of a Mile of New Tramline
Measured in inflation adjusted £

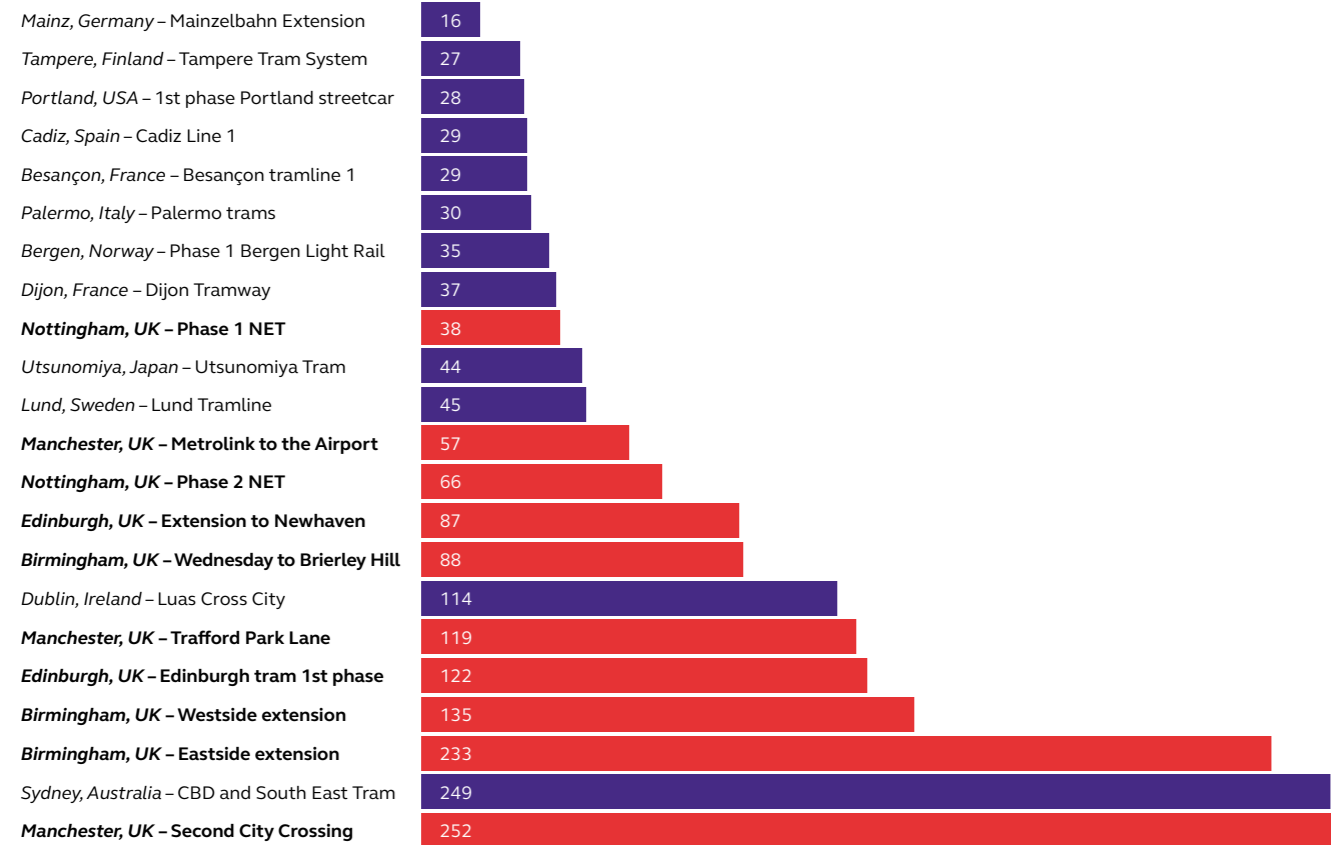


Source: Britain Remade

Of the ten most expensive projects per mile, five of them are British. Only one British project, out of a total of 12, Nottingham's first phase, cost less than the global average.

Selected Tram Projects

Cost per mile of tramline adjusted for inflation in £mn



Source: Britain Remade

High construction costs make it harder for the UK to build the tramlines that we need. In our database, Britain has built 71 miles of tramway at an inflation-adjusted cost of £6.15bn. If Britain could build as cost-effectively as the European average, Britain would have an extra 75 miles of tramway without spending a penny more. At German costs, Britain could have built 181 miles more. That's like having an extra three Manchester Metrolinks, which is Britain's largest tram network. That could mean new trams in cities like Leeds, Bristol, and Cardiff.

Today, trams are set up to fail

Many city regeneration projects begin with glossy CGI images about what a tram network could look like. Yet, following political leaders' first briefing about the current costs and timescale of trams, the gleaming tram images quickly become watered down into a halfway house of bus rapid transit or are dropped entirely.

Delivering a tram renaissance will require us to tackle three key regulatory and system changes.

- Firstly, Britain needs to work out shared standards between new tramways and encourage a pipeline of projects to be built.
- Secondly, the planning process for new trams is too slow and burdensome, so we need to speed up and devolve the current Transport and Works Act approval process so elected mayors can start building quicker.
- Finally, we need to move fewer utilities ahead of laying tram tracks and share these costs fairly between the tram project and utility companies.

Scaling and standardising tram networks

We aren't building tram networks often enough or big enough and we're failing to capture lessons across different projects and systems. Our timid approach to new schemes increases costs in the long run and creates a lack of delivery expertise as new network extensions are delivered in phases years apart, often once the previous team has retired. Each British tramway has its own standards, which dictate features like platform height, turning radius, and operational concerns. This limits

knowledge sharing, and requires each tram project to start from scratch on engineering and design work.

Germany, the country which builds new trams for the lowest cost, has a better approach. The Association of German Transport Companies (VDV)²² dictates a common set of standards set out in VDV Blue Books, which complement the German Government's Tram Construction and Operating Regulations (BOStrab). Britain would benefit from such a standardised approach.

The issue: the UK fails to build tram delivery expertise and create economies of scale

Edinburgh's first phase of its tram construction was characterised as 'hell on wheels' by its former Chairman and went £450mn over budget.²³ Yet its second section was delivered on time and to budget, for 30% less per mile. By gaining experience from the initial failures, Edinburgh realised cost savings in construction. However, such improvement rarely happens in Britain.

Across the UK, tram projects are not arranged into a steady pipeline of projects, which limits opportunities to build experience between projects. The expertise and skill that is gained through a project is often lost as teams are disbanded. Future projects have to effectively start from square one each time.

Existing UK tram projects lack design standardisation. This leads to different approaches to track and rolling stock design project by project. This limits opportunities to reduce mobilisation costs and create economies of scale through 'bulk buying' of rolling stock, machinery for construction and tracks. Britain's seven tramways place orders for new rolling stock individually, often electing to customise aesthetics. By contrast, French tramways can cooperate between them to bulk order the same type of rolling stock and achieve discounts. Last year, Toulouse, Brest, and Besançon cooperated to buy new trams together with the goal of lowering costs.²⁴

When Britain does build, extra nice-to-haves are often added on to projects, which raises costs. For example, compare the Central Park Metrolink Station in north-east Manchester with the standardised Portland, Oregon tram stops. The Metrolink station is striking and unique. However, it cost £48mn adjusted for inflation.²⁵ The Portland stop is functional and inexpensive to construct. New standards should encourage elegance and civic pride but they should normally also be simple, easy to use, and replicable. It is much more important to actually build an affordable and functional tramway that serves its users than being bogged down building expensive and unnecessarily complex stations.



The architecturally interesting, but very costly, Central Park Station on the Manchester Metrolink (left: source David Dixon, [wikimedia](#)) versus the standardised, inexpensive, and easy to use Moody and Gibbs stop of the Portland Streetcar (right: source: Steve Morgan, [wikimedia](#)).

22 Verband Deutscher Verkehrsunternehmen (Association of German Transport Companies).
 23 Hopkinson, B. (2023). "Hell on Wheels": the Edinburgh Trams Story. Yes and Grow
 24 Metro Report International. (2023). Three Cities Place Joint Tram Order to Reduce Costs. Railway Gazette.
 25 Manchester Evening News. (2013). We're back on track.

“A forward pipeline would help e.g., allowing experienced teams to move between cities and projects, you retain the knowledge and capability of the team. Teams are usually disbanded after projects – and subsequently some [new] teams have never built a tramway. They scratch their heads to find out what works, and design from first principles. We don’t learn our lessons and transfer the learning from one project to another.”

The solution: support tram delivery at a national level with ambition and nationwide standards

The DfT should create a specialist tram delivery unit responsible for trams, metro and light rail within its new public transport directorship. This team should work with industry bodies, such as the Light Rail Safety and Standards Board, to develop a national tram standard modelled after the German common standard VDV Blue Books and BOStrab. It should support cities with their design and planning.

Introducing standards across British projects would lower engineering and design costs. It would permit experience to be more easily transferred between cities. ‘You can have any tram as long as it’s black’ to paraphrase Henry Ford. The tram delivery unit would turbocharge tram projects using a repeatable process, maintaining knowledge and arranging projects into a pipeline across UK cities.

This tram delivery unit should encourage replicable and low cost engineering solutions and capture lessons where trams were delivered cheaply both in the UK and abroad. This involves capturing lessons from where trams are successfully built in Britain and encouraging knowledge sharing between British systems and promoters. To avoid potential gold plating, where fancy stations raise costs, the delivery unit should advocate for cheaper but dignified and safe, replicable tram stop designs.

“On the continent they’ve had continuity, Paris has had 10 or 11 tramway extensions during the life of the Nottingham scheme. They were initially buying 400 trams in Berlin, whilst Transport for Greater Manchester were initially buying 12 in Manchester (ultimately up to 147 albeit over several years).”

The Competition and Markets Authority should issue guidance explicitly allowing cooperation of tram promoters to jointly procure new tram vehicles. This would mollify concerns that cooperation could breach competition law.

Planning: bringing decision making closer to those who benefit

Permission for new tram lines is currently granted at a national level and kills many projects at the first hurdle. The approval, known as a Transport and Works Act Order (TWAo) can take up to four years to approve, cost millions to draft in consultant and legal fees and places unnecessary burdens on the project.

The challenge: Though it has its uses, the Transport and Works Act creates delays.

The Transport and Works Act (TWAo) 1992 created an alternative process to approve rail projects instead of individual acts of Parliament which were previously the only way to authorise projects. Whilst cumbersome and expensive, TWAos provide several benefits to transport authorities creating tram schemes. They can:

- enable the tramway to enact byelaws (such as penalising fare evasion);
- give tramways statutory defence against ‘actions in nuisance’, which can prevent individuals winning injunctions against a new tramway because of disruption like noise or lights; and
- permit compulsory purchase powers where necessary.²⁶

However, despite these undoubted benefits, the TWAo process, and its many required reports, creates too many delays and costs too much. Tram projects have to complete long environmental statements that run into the thousands of pages even for short extensions. This is especially damaging because tramways generally run through already built up areas and are much more environmentally friendly than the car alternatives. Moreover, extensive consultation is mandated, requiring outreach to every single door along the route. The process is a deterrent against new schemes and increases costs for extension projects of existing tramways. These challenges also apply to demonstrator projects. Coventry City Council were quoted a cost of £5 million to construct a half mile demonstrator track by DfT due to TWAo requirements.

The West Midlands Metro in Birmingham wanted to add a 1.05 mile extension to their tram network to intersect with the planned HS2 station at Curzon Street, and continue into Digbeth. Plans for this started in November 2013. The Metro submitted their TWAo application in October 2016. This application included at least 5,718 pages across 52 different documents, not including pages submitted ahead of the public inquiry. If laid end to end, these pages would be the same length as the tram extension itself. The Environmental Statement, and its 31 appendices, account for 3,201 of these pages. The Transport Secretary granted the TWAo in January 2020, after 40 months spent determining if Birmingham could build a mile extension *on top of* existing roads.

In total from the beginning of planning to the completion of construction, the Birmingham Eastside Extension will take 13 years to build one mile of tramway. In comparison, Dijon built a 12 mile tramway network in just two years, after two years of planning.

“The average time from an idea of a tram scheme to spades in the ground is about 14 years.”

Martin Fleetwood

Board member of UK Tram
February 2024

Ultimately, laying a tram track in a carriageway need be no more intrusive than any other normal road works, which are devolved and signed off at the local level. We are treating trams like high speed rail. We do not need to.

The solution: devolve approval for tram schemes

The Ministry of Housing, Local Government, and Communities and Department for Transport recently began a review of whether the Transport and Works Act 1992 (TWA) is fit for purpose.²⁷ They should **devolve the Transport and Works Act and create a ‘TWAo light’ to streamline the delivery of tram schemes and remove unnecessary ‘heavy rail’ regulatory asks.** Regional mayors should be in charge of signing off on new tram projects, not the Secretary of State. This would speed up the delivery of trams and light rail in their towns and cities and allow local elected leaders to champion the project throughout its planning. As the new Prime Minister Sir Keir Starmer put it, ‘those with skin in the game know what’s best for their communities, and that does require us to be bold about pushing power and resource out of Whitehall.’

Trams have significant environmental benefits. For example by encouraging people to switch to public transport from their cars, Nottingham’s tram contributed to a 25% fall in the city’s emissions.²⁸ **Requirements to complete environmental statements should be removed for areas where the tram runs on existing roads or through built up areas.**

“Can we challenge the transport works act. DfT have offered to work with us but there is significant work to do to reduce the cost and timescales of the TWAo process.”

Colin Knight

Coventry City Council
April 2024

26 Tramways & Urban Transit. (2019). *UK Barriers to Progress*.

27 Department for Levelling Up, Housing and Communities. (2023). *Getting Great Britain building again: Speeding up infrastructure delivery*.

28 Bounds, A. (2019). *How Nottingham cut air pollution with UK’s only workplace parking levy*. The Financial Times.

May 2008
Dijon council begins planning tram system.

September 2008
Transport Tax of 1.8% on employer's payroll enacted.

November 2008
Council votes with large majority for a new tramway. Dijon signs a group order agreement with Brest to buy trams together and lower cost.

Spring 2009
Public inquiry held.

November 2009
Project Declaration unanimously adopted by the community council.

December 2009
Project was declared of public utility giving it final approval.

October 2010
Construction begins.

August 2012
Construction on Line 1 completed.

September 2012
Line 1 opens for passengers.

November 2012
Construction on Line 2 completed.

December 2012
Line 2 opens for passengers.



November 2013
Proposal for a tram or Bus Rapid Transit Route to East Birmingham.

July 2014
Greater Birmingham and Solihull Growth Deal includes initial £40mn funding from the Treasury.

October 2014
Centro, the predecessor to Transport for West Midlands, unveils Eastside extension plans with two route options.

October 2016
Transport and Works Act Submission (TWAO).

November 2017
Public Inquiry as part of TWA.

January 2018
Planning Inspectorate Report.

January 2020
TWAO granted.

June 2021
Preparatory work gets underway.

2026
Line opens for passengers.

Utilities: gold plating trams to death

Before a tram project even begins laying the tracks, the project encounters one of the costliest parts of the whole construction. There are many pipes and wires that run beneath streets and currently a British tram project generally has to dig up the road and move all of them.

All of this digging of the roadway doesn't come cheap. The utility bill for the Sheffield tram in 1994 was £60 million (£154m in 2024).²⁹ Moving utilities can regularly cost up to a third of the construction costs.³⁰

While dealing with utilities is always going to be a challenge for any tram project, new trams in Britain face three extra and unnecessary hurdles compared to projects in Europe and America:

1. Tram projects have to move nearly all of the utilities.
2. They are required to pay for almost all of the cost of the relocation.
3. Trackbeds are dug much deeper than in other countries out of excessive caution.

The issue: We replace too many below ground utilities

British tram projects move too many of the utilities that are beneath the future line. This is partly a consequence of utility companies having such favourable terms on the cost division of moving utilities that they prefer to replace as much as possible with new apparatuses. Utilities are moved for two primary

reasons: firstly it allows for easier access for repairs, and secondly because the track may physically conflict with utilities. New projects in the UK start from an approach of moving every utility in case access is needed in the future.

Utility diversion is legislated by section 84 part three of the New Roads and Street Works Act 1991 (NRSWA). The legislation is sound, but a code of practice written by the Highway Authorities and Utilities Committee (HAUC), now over thirty years old, has created a cost burden to tram schemes by establishing a default position that all utilities should be moved from beneath new tram tracks at far greater cost to the tram project than the utility company.

As one tram engineer put it, "we're spending fifteen to twenty million pounds for a once a decade occurrence of repairing utilities." Another added that "It's more likely the track will be replaced before the utilities."

The solution: adopt a do not move by default approach to utilities

Future British tram projects should take a more pragmatic approach to diverting utilities and accept that maintenance may close networks overnight. We should only replace what is necessary. While iron Victorian pipes should be replaced, funded to a greater extent by the utility company, modern plastic water pipes, telecoms and electrics should, by default, not be moved.

"When we get the utilities moved they effectively have new for old and that is generally really expensive, [which is] a significant portion of the cost, up to a third of the cost of the track works."

Martin Fleetwood
Board member of UK Tram
February 2024

"We (the U.K.) just went down the route of you need to move all the utilities to remove the disruption risk."

Martin Fleetwood
Board member of UK Tram
February 2024

²⁹ Source CS and BRM interview with independent tram sales representative (7th February 2024).

³⁰ Source CS and BRM interview with Martin Fleetwood, Board member of UK Tram (February 2024).

The HAUC should update the Code of Practice to give clear rules, based on the principles below, on which utilities to move and which to replace. This will remove the cost and time burden of utility negotiation.

- **Telecoms: do not move by default.** Slew cables and lower if necessary and ensure tram tracks are not built on the pavement.
- **Electrics: do not move by default.** Add backup ducting alongside new track. The default position that anything under one metre deep should be moved should be updated. **A National Grid statement should be issued updating this position.**
- **Gas and Water: only move metallic pipes.** Leave plastic pipes that are not in physical conflict with track beds.
- **Waste water: do not move pipes, but align manhole covers between or next to tracks.** At the moment, manholes and their pipes are moved further away from tracks to permit access out of a belief that manholes close to the track are more dangerous for workers. If access is needed, night time works should be prioritised, and in emergencies, the line should be severed, and services on each of the branches should run.

Section 82 of the NRSWA 1991 deals with the cost of damaging a utility asset. At present if a utility company were to temporarily need to remove track and access utilities, they may be liable for loss of revenue of the tram company were services suspended or any subsequent repairs to the track. The West Midlands addressed this with Severn Trent via a waiver for section 82. **The DfT should adopt a nationwide waiver specific for utilities left in place on tram routes for Section 82 of the NRSWA 1991.**

We should accept there will be times when access to buried utilities is needed. Works will be done at night or **in some instances, tram services should terminate at the two stops nearest the disruption, enabling a quick walk between them.** This is the norm in continental Europe if sections of the tramway have to close for works. When significant work is required on Vienna's trams, the tramline will be divided into multiple sections that each run services.³¹ It is far better to bring down the cost of building a tram line that occasionally must be severed than to build no tram because it is too expensive to replace and move every utility. We are letting the best tram be the enemy of the good tram or indeed of any tram at all.

The issue: The cost and liability burden falls on the developer or council.

Since 2000, tram promoters have had to pay 92.5% of the cost of moving utilities, while the rest is covered by the utility companies.^{32 33} With utility companies only picking up 7.5% of the cost, there is no incentive for them to keep the costs of work down or to be selective about which pipes actually need to be moved or replaced. Instead, the utility companies get newly installed apparatuses, using expensive sub-contractors, at the expense of the tram project. This results in a significant subsidy to utility companies. Perversely, were utilities diverted for highways improvements not tram improvements, companies are obliged to pay 18% of the costs.

Other countries have more reasonable approaches to splitting the costs of any utility diversions. In France, utility diversion costs for private utilities like electricity, gas, and telephones are covered by the private owners of utilities.³⁴ Of Lyon's €34 million spend on moving utilities for 16 miles of new tramway, the electricity and gas companies covered €12 million of these costs, while the telecom company covered another €11 million. Utility companies are most able efficiently to reroute their cables and pipes because of their experience and incentive to do so cheaply. Since they are covering the costs, they will only divert the utilities that need to be moved. Private companies are also encouraged to keep detailed records of their utilities, which limits the chances of unexpected delays due to unknown utilities being found.

The solution: ask utility companies to contribute a fairer share of diversion costs

Update statutory instrument 'The Streets Works (Sharing of Costs of Works) Regulation 2000' to rebalance the cost of diverting utilities from tram projects to utility companies.



Left: workers completing the track bed on the West Midlands Metro, which is deeper than the European norms, requiring significant concrete (source: Midlands Metro Alliance). Right: the shallower and simpler track bed of Vienna's trams (source: courtesy of Amey Ltd).

The issue: we build our tracks too deep.

British tram track beds are often deeper than European or American counterparts. The West Midlands Metro rides on top of 600mm of concrete, which is following British standard practice of protecting utilities which go under tram tracks with large concrete slabs of between 500 to 1000mm in depth. This is borne out of a cautious desire to protect against Heavy Good Vehicles running over the tracks. Yet, digging this deep and pouring this much concrete adds significant cost.

The solution: take advantage of shallower track beds

Many non-British projects use shallower trackbeds that create fewer conflicts with utilities. Constructed for only one quarter as much per mile as the average British tram, Portland, Oregon's streetcar, only dug 12 inch (305mm) deep trackbeds, which were built as shallow slabs.³⁵ Strasbourg, France and Vienna, Austria have both laid tram tracks in a shallow bed and then covered them with grass, which are approximately 300-400mm deep. Coventry's experimental Very Light Rail uses 300mm trackbeds that can be laid in weeks, not years. These tracks are far easier to remove if future utility access is required and demonstrate resilience to heavier vehicle loads.

Future British tram projects should study and implement cheaper, shallower trackbeds such as Portland and Coventry's low cost shallow-slab method of track construction. These track beds are proven to sustain heavy HGV vehicles without damage or disruption to utilities.

31 Wiener Linien. (2024). *Track Construction Work*.

32 Department for Transport. (2011). *Green Light for Light Rail*.

33 The Street Works (Sharing of Costs of Works) (England) Regulations 2000.

34 Egis Semaly and Faber Maunsell (2003), *Comparative Performance Data From French Tramway Systems*. Urban Transport Group.

35 Henry, L. (2007). *Rapid Streetcar: Rescaling Design and Cost for More Affordable Light Rail Transit*. Light Rail Now.

HOW TO FUND A TRAM RENAISSANCE

Britain is one of the most centralised countries in the world when it comes to funding new transport infrastructure. From funding the business case through to detailed planning for the Transport and Works Act Order process and paying for construction, HM Treasury foots the vast majority of the cost of delivering a tram system. This is a slow process, requiring multiple stages of negotiation with central government, which increases centralised meddling and undermines local decision making.

Andy Street, the former Mayor of the West Midlands, described the current system of funding local transport as a “begging bowl culture.”³⁶ Instead of getting spades in the ground, local governments, who know the type of transport their area needs, are forced to appeal to central government for money. Being completely at the discretion of central government means local leaders can’t champion the project effectively from start to finish. In the 1980s, when traffic congestion began clogging the streets of Leeds, city leaders drew up plans for a supertram, which were passed by Act of Parliament in 1993,³⁷ but central government dithered over whether to fund it until 2001.

After the Government finally agreed to fund the scheme in 2001, the proposal’s costs spiralled, and the Transport Secretary, Alistair Darling, scrapped the project in 2005, after £40mn had already been spent.³⁸ Costs spiralling after the Treasury agreed to fund the scheme is a common occurrence and demonstrates how this centralised funding model actually encourages cost overruns.

Transport construction involves making politically difficult tradeoffs to save money. Choosing to move all of the utilities, have non-standardised stations, automated trams, or to run fully-segregated from the street are very expensive decisions. When the body spending the money is different from the funding body, these tradeoffs are less likely to be made. There’s much weaker incentives to choose the less flashy, but more affordable option, especially after the Treasury has committed to funding the project. If funding and decisions were both at the local level, many expensive nice-to-haves would be abandoned.

Across the world, trams are funded differently with local governments directly raising revenue. France uses payroll tax supplements. Across America, cities have used sales tax increases and property taxes alongside federal grant support.

In France, the *Versement Transport* is a 0.9% to 2.85% payroll tax which is charged to companies with eleven or more employees. The tax raises 45% of local transit authorities budgets.³⁹ This tax is ring-fenced to be solely for the development and operation of public transport. For a city like Lyon with a population of around 1.4 million, the tax raises over £100 million from local businesses every year, just for public transport.⁴⁰

In the US the first step for many of the new trams that have been built over the past two decades is a Federal Transit Authority grant. These have gone by a number of different pithy acronyms like TIGER, BUILD, or RAISE grants, but all enable local authorities to kickstart development. Unlike Britain, the national government does not fund all of, or even a majority of, the construction costs.⁴¹ Instead, local and state funding mechanisms are responsible for half to two-thirds of the cost.

With many different systems around the country, there have been a variety of mechanisms used to fund the local government’s role in the project. Phoenix and Los Angeles both used sales tax increases that were approved by voters in local referendums.^{42,43} Omaha’s streetcar is going to be funded by Tax Increment Financing (TIF), which allows the city to borrow against future commercial property taxes.⁴⁴ Land near stations will be more valuable after the construction of a tram, so TIF allows municipalities to borrow against this expected uplift in

future property taxes. TIF has also been used in London to help fund the Northern Line Extension to Battersea Power Station.

Britain also sees the uplift in property values that trams create. Two years after a tramline opened, prices of homes near the tramline in Manchester, Edinburgh, and the West Midlands were on average 15% higher.⁴⁵ This is compared to essentially no house price changes in the two years prior to the tramline opening. The Manchester extension to the airport increased house prices by a whopping 20.6%.⁴⁶ America has also seen rises in the value of offices built near new tramlines. Offices near the Dallas Area Rapid Transit increased by 24.7% after light rail opened, compared to 11.5% for offices that were further from the light rail line.⁴⁷

But at the moment, local authorities struggle to capture the value of this uplift. **Central government should enable councils who are planning a tram project to collect stamp duty uplift for houses on sale nearby the tramlines, as well as targeted council tax precepts subject to a referendum. Councils should also consider using the powers given to them by the Business Rate Supplements Act 2009 to levy increased rates on businesses located near the new tramline.** To make it easier for metro mayors to levy business rate supplements, **the requirement to have approval from the majority of authorities within a combined authority should be removed.**

Critically, costs are immediate and upfront, while the benefits in increased land values and economic activity are slower and subsequent, only delivered after the tram starts running. **Councils should use the ability to engage in Tax Increment Financing to borrow against future revenues from the uplift in business rates. The Government should also expand Tax Increment Financing to council tax precepts and stamp duty uplifts for projects that boost property values like trams.** The Local Government Finance Act 2012 gives councils this power, but it has so far been underused because local governments lack the in-house capacity to develop the funding mechanisms and business cases.⁴⁸ **To develop this in-house capacity, give local authorities the ability to kickstart the development of tram projects and encourage a pipeline of projects, the**

Government should adopt similar grants to America’s RAISE, TIGER, and BUILD grants. America’s grants helped enable local leaders to begin the planning and early parts of delivery of projects, as well as develop local financing mechanisms to cover their share of the costs. A pipeline of projects would lower costs by encouraging standardisation and private investment into skills and equipment.

The Government should also allow Metro Mayors to levy an extra penny on employer’s national insurance, modelled after France’s *Versement Transport*. This should be conditional on ring-fencing it for new transport infrastructure and approval at a local referendum. The *Versement Transport* was instrumental for France’s tram renaissance as it provides predictable revenues that can be used for longer term investment. Such a tax could raise more than £70mn a year for a city like Leeds to invest in new transport infrastructure.

In 2012, Nottingham introduced their Workplace Parking Levy (WPL), which raises around £9 million per year by charging employers £550 per parking space for workplaces with more than 10 spaces, which is often passed to employees.⁴⁹ The levy enabled 10.5 miles (17 kilometres) of tramway to be built through a Private Finance Initiative, combined with additional funding from the Treasury. Yet the WPL took 12 years to implement and included getting national regulations adopted. If another city wants to adopt a WPL, a power given to them by the Transport Act 2000, they have to get the approval of the Transport Secretary, with the process taking up to three years.⁵⁰ **Future tram projects should also introduce Workplace Parking Levies that are tied directly to funding the tram.** To speed up the implementation process, the Government should remove the requirement to get Transport Secretary approval by fully devolving the sign off down to the local authority level. **If councils are planning on bringing in a Workplace Parking Levy, they should update their Local Transport Plan to include the tram project,** as currently WPL revenue can only be spent in accordance with their local transport plans, which tend not to be regularly updated.

36 Street, A. (2023). *My Views on Today’s Levelling Up Fund Announcement*. Twitter.

37 *Leeds Supertram Act 1993*.

38 Yorkshire Evening Post. (2007). *The Not So Super Tram*.

39 Baverez, F. *Energy Transition: What Funding For Public Transport?*. Keolis.

40 Egis Semaly and Faber Maunsell (2003), *Comparative Performance Data From French Tramway Systems*. Urban Transport Group.

41 Bell, R. (2017). *Understanding Streetcar Costs, Funding, Operations and Partnerships*. Metro Magazine.

42 Crum, W. (2018). *Weekend-Long Celebration to Mark Oklahoma City Streetcar Debut*. Masstransit Mag.

43 Phoenix Metro. (2007). *Frequently Asked Questions About Light Rail*. Valley Metro.

44 P World News Network. (2023). *Understanding the Omaha Streetcar Project and TIF Funding*. Newsbreak.

45 Britain Remade analysis of Property Wire. (2017). *Research Finds New Tram Routes in Cities Boost Nearby House Prices*.

46 Nellthorpe, J., Ojeda Cabral, M., Johnson, D., Leahy, C. and Jiang, L. (2019). *Land Value and Transport (Phase 2): Modelling and Appraisal*. Final Report to TfN, WYCA and EPSRC. Leeds: Institute for Transport Studies, University of Leeds.

47 Clower, T. and Weinstein, B. (2002). *The Impact of Dallas (Texas) Rapid Transit Light Rail Stations on Taxable Property Valuations*. Australasian Journal of Regional Studies, 8(3).

48 Breach, A. and Jeffrey, S. (2020). *Re-writing the Green Book for levelling up*. Centre for Cities.

49 Nottingham City Council. (2022). *A Decade of Inspiring Growth in Our City: Nottingham’s Workplace Parking Levy 10 Year Impact Report*.

50 Hopkinson, B. (2024). *Devolving Local Transport Infrastructure: The Track to Better Cities*. UK Day One.

51 Create Streets and Britain Remade interview with Sue Flack, former Director of Planning and Transport Nottingham City Council.

LEEDS 2035 AND LEEDS 2050

Leeds is the largest city in Europe without rapid transit. Around 830,000 people live in the wider metropolitan area and must choose between insufficient local trains, crowded buses, or creaking and congested roads. No other European city of this size accepts this. This chapter sets out a vision for a transport system that serves Leeds's citizens, boosts productivity, unlocks sites for new homes and offices and delivers beautiful 'gentle density' development throughout the city so that Leeds can grow and flourish. It is an unapologetically big and bold vision that responds to the ambitions of national and local government as outlined in *A vision for Leeds* published in March 2024.⁵² It takes that vision and asks how it can be achieved on the ground. As West Yorkshire Mayor, Tracy Brabin, put it:

'We are committed to building new homes and communities that are bold, beautiful and affordable... we are committed to delivering the West Yorkshire Mass Transit system, connecting more people to Leeds City Centre, opening up jobs, education, training and leisure opportunities across the region. This initiative will unlock greater prosperity as we create a greener, more sustainable transport system that better connects our towns and cities, enabling our regional economy to thrive.'

Leeds today: a city constrained

Leeds's extensive tram system was dismantled in 1959. Since then there have been two attempts to reintroduce comprehensive public transport: the Leeds Supertram in 1991 and The New Generation Travel trolleybus in 2007. Both failed and were scrapped due to rapidly increasing costs.

There is now a renewed commitment from the Government, the West Yorkshire Combined Authority (WYCA) and Leeds City Council to regional 'mass transport' with £2.5 billion committed. WYCA are currently consulting on phase one which includes three route options for a 'The Bradford Line' a new tram link between Leeds and Bradford and seven route options for 'The Leeds Line' (four to the north and three to the south of the river Aire) which would run between St.James's hospital to Leeds's north east through to Elland Road and the White Rose Shopping Centre to the city's south.⁵³

Leeds unleashed: a vision for Leeds in 2035 and 2050

Our vision for Leeds in 2035 and 2050 has eight key components.

1. **Reinventing the age of the tram.** Leeds's citizens deserve world-class commuter infrastructure with approximately 21 miles of tram radial and orbital connections to the city's north, south, east and north-west in addition to buses and trains by 2035 and an additional 18 miles by 2050. Some trams can run on guided bus routes or former tram ways. The existing railway network should be improved by a new station in Armley.
2. **Creating 'gentle density' new homes.** Thanks to the use of trams, Leeds can transform its approach to creating new homes relying more on walkable terraced homes and mansion blocks at 'gentle densities' of 40 to 100 homes per hectare and less on drive-to cul-de-sacs at about 25-30 homes per hectare. This would permit more homes on less land. By 2035, we estimate this approach can fund between 8,880 and 17,760 homes. By 2050, we estimate this approach can fund between 19,445 and 38,910 new homes.
3. **Creating mixed-use neighbourhoods not separate zones.** By creating neighbourhoods in which people can live and work not disparate 'employment zones' and 'residential zones' separated by acres of roundabout and dual carriageways we can develop at greater density and also support local prosperity.
4. **Creating homes along tram and train lines not dual carriageways.** Many new homes will be clustered around train and tram stations, high streets, and pre-existing employment centres. In addition to existing site allocations, we propose growth along proposed tram lines not heavy road infrastructure with four focal areas in the Kirkstall Valley to the west, Mabgate to the north, the Aire Valley to the east and Beeston to the south.
5. **Creating deeply green and resilient streets and squares.** New and existing streets should be tree-lined and with a dense web of green squares, village greens and private gardens. Buildings should be created to last for over 300 years, not just 60; neighbourhoods should be designed for the perennial needs of human beings, not the passing fads of technology or fashion.

6. **Falling back in love with a prosperous and beautiful future.** Too many people believe that new development will be loveless and ugly, lumpish and careless of their context. Leeds needs to change this by creating homes rather than 'units', gentle density' not shiny new tower blocks and walkable neighbourhoods rather than drive to cul-de-sac 'estates'. There is an opportunity for Leeds to rediscover its fine architectural heritage, reflecting the rich built heritage and industrial legacy of the city to create a new vernacular. By deploying an inspiring and popular pattern book of blocks, streets and house and building types, Leeds could de-risk development and draw on the construction talents of the widest ever range of local developers, social landlords, self-builders, community land trusts and national developers.
7. **Making it natural and joyful, swift and safe to walk and cycle.** Leeds should continue to emulate the cycling successes of the Netherlands and Denmark. We propose extending and creating a richly interwoven pattern cycle routes along tram lines and tree lined streets into and around the city, to stations, parks, high streets, laboratories and employment hubs. Streets will prioritise pedestrians and cyclists. Some will be car-free. Humans, not cars, will be the dominant species.
8. **Creating a virtuous circle of growth boosting local jobs and productivity.** All the economic literature suggests that the combined effects of more homes, freer intra and inter-town movement and more attractive and greener neighbourhoods together with more places to work, meet and shop will support 'agglomeration effects' whereby well connected neighbourhoods create clusters of expertise and enhanced productivity.⁵⁴

White Rose Shopping centre today and in 2035 as a beautiful, tree lined street with gentle density homes, shops and offices.



54 See Create Streets (2024), *Move Free*.

52 Department for Levelling Up, Housing & Communities. (2024). *A vision for Leeds: a decade of city centre growth and wider prosperity*.

53 WYCA (2024), *West Yorkshire Mass Transit Phase One*, Accessed 18th July.

Reinventing the age of the tram

We propose reintroducing trams to Leeds's city centre and beyond. While we recognise that routes and sites should be developed through local stakeholder engagement, this exercise is designed to illustrate what is possible. Our suggested routes take account of West Yorkshire Combined Authority (WYCA) proposed tram route options and the original proposal for Leeds Super Tram though we have expanded this network to factor in new opportunities for housing and employment growth. This is essential to permit the 19,455 and 38,910 homes we propose by 2050 at the 'gentle density' we suggest and it can, in turn, be funded by the value uplift associated with transport-linked development and intensification. We have prioritised routes that:

- *Link* existing neighbourhoods with high indices of deprivation or at highest risk of Transport Related Social Exclusion to city centre jobs and services;⁵⁵
- *Get people where they need to go* connecting to existing hospitals, universities, sports grounds and the like;
- *Are easy to build* running along wide roads that could accommodate trams with minimal disruption; and
- *Make new homes possible* linking to already allocated or potential additional sites for new 'gentle density' homes and mixed use neighbourhoods.⁵⁶

55 *Transport for the North* defines TRSE to mean that "transport issues have a fundamental impact on everyday life and limit the ability to fulfil everyday needs." It is most often caused by a "vicious cycle of poor quality local public transport, poor conditions for active travel in car-dominated environments, and the high levels of car dependency that result from this.

56 As set out in *Vision for Leeds*.

Tram on the streets of Amsterdam. Trams and light rail can fit into the web of a bustling city centre, improving public transport and local air quality.



BRITAIN REMADE

Opportunities to create 'gentle density' new homes

We have identified 71 sites over 390 hectares (about the same as 390 rugby pitches) for new homes and neighbourhoods. These could provide between 8,800 and 17,760 new homes by 2035 and between 19,455 and 38,910 by 2050 as well as a dense web of shops, offices and other uses. There are five main types of opportunities.

1. **Creating 'gentle density' on allocated sites.** Thanks to new trams many existing sites can be improved and intensified from drive-to low density to walk-and-ride-to 'gentle density'. We estimate that this can provide between 6,815 and 13,630 homes on 20 potential sites.
2. **From car parks to homes.** We estimate that between 960 to 1,920 new homes are possible on five sites thanks to reduced need for car parks in a future better-connected Leeds and from managing car parking more efficiently.
3. **Reinventing boxland.** By helping low density big box monocultures of shops or offices evolve to mixed use neighbourhoods with more storeys which combine both equivalent ongoing commercial and retail uses and new homes we estimate that between 5,540 to 11,080 new homes are possible on 25 potential sites.

4. **Creating boulevards.** Some of Leeds's wide roads have the potential to transform into tree-lined boulevards with trams running along them fronted by 'gentle density' homes, shops and offices. We estimate that between 1,370 to 2,740 new homes are possible on Leeds's new boulevards.

5. **From greybelt to well-connected homes.** Thanks to new trams, carefully selected low quality greenbelt sites (so-called 'greybelt') close to proposed tram lines can also be released for new homes on well-connected low quality sites. We estimate that between 4,770 to 9,540 new homes are possible on around three sites.

In addition, this vision for Leeds would render viable many opportunities to intensify and densify suburban neighbourhoods through development of back land or mews or through intensification from semi-detached to terraced homes and the like. Such intensification would need to be conducted with local consent. We have neither mapped out nor precisely quantified the additional housing potential via suburban intensification for this report however we judge it to be considerable.

Duncan Street today and in 2035 with a tram and improved public realm.



Three new radial tram lines by 2035

We suggest creating three new radial tram routes by 2035 with over 21 miles built in several phases. Most can run along green ways, occupying the central lanes of tree-lined boulevards, being delivered quickly within wide existing roads with little disruption.

1. **The Pudsey Line from Leeds to Bradford** follows the potential alignment of one of the new route options proposed by the West Yorkshire Combined Authority.⁵⁷ Six miles long (within Leeds), the Pudsey Line partly makes use of existing train lines and runs through Pudsey west along the Bradford Road (A657). Applying a density of 50-100 homes per hectare to 18 newly unlocked sites along the route provides 935 to 1,870 new homes.

2. **The Aire Valley Line** runs east-to-west from Kirkstall transforming Kirkstall Road into a tree-lined boulevard through the city centre to development at Skelton Gate (1,100 homes approved) to the city's east. This line is just over 6 miles long and unlocks 10 potential sites on 62 hectares. Current proposals on these sites only amount to 396 homes but by moving to 'gentle density' between 50 to 100 homes per hectare between 3,110 and 6,220 homes are possible as well as shops and offices.

3. **The Billy Bremner Line** runs north from Leeds city centre past St James's hospital and through to new homes at East Leeds Extension. To the south of Leeds city centre it passes Elland Road and runs on to the white rose shopping centre in Beeston. The line is 9 miles long and includes 14 potential development sites of 97 hectares unlocking 4,835 to 9,670 homes at 'gentle densities' of 50-100 homes per hectare as well as 3,310 square metre of office space and seven hectares of employment.

Two new orbital tram lines by 2050

We suggest extending Leeds's tram network by a further nineteen and half miles with two new orbital lines by 2050.

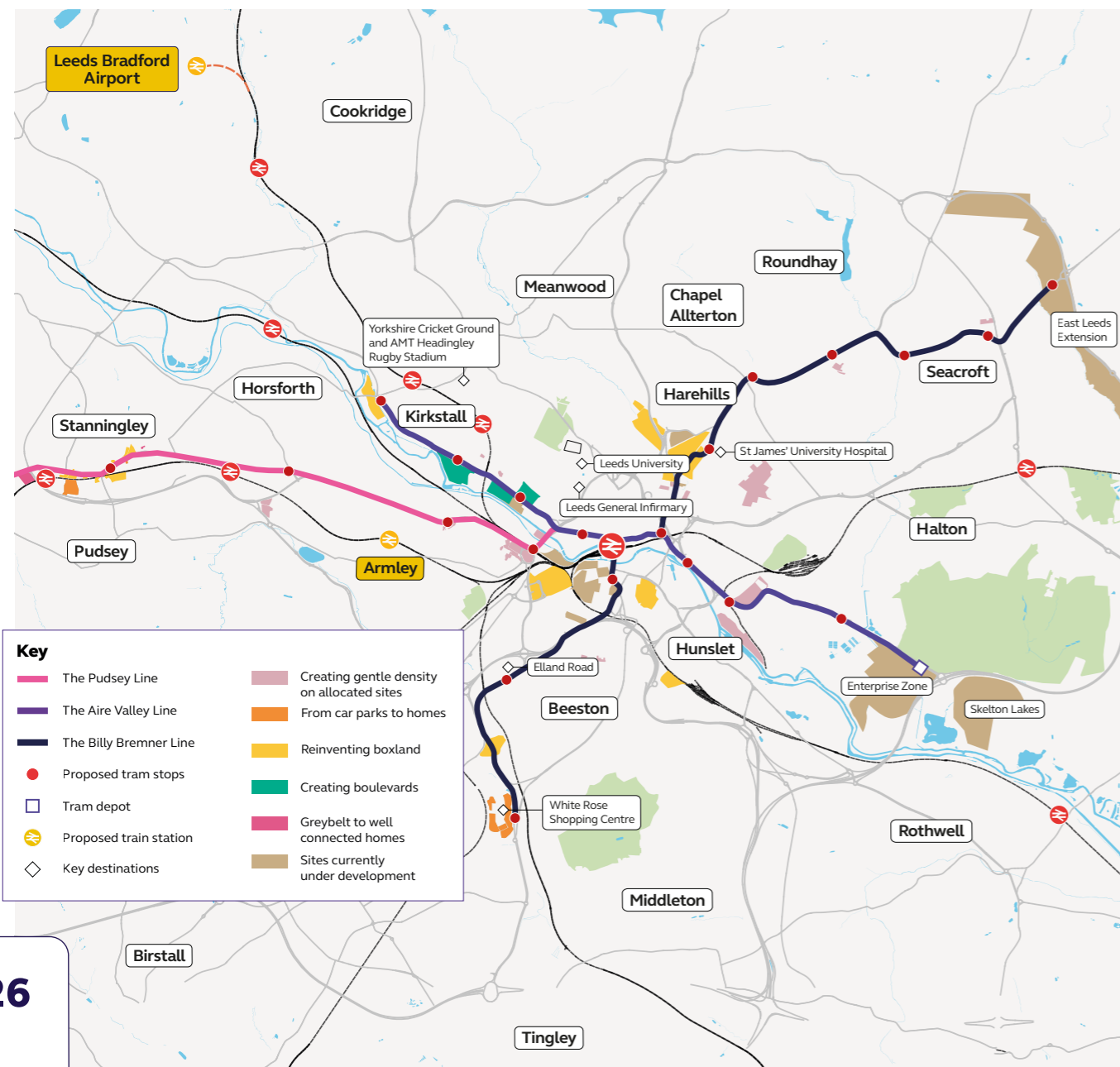
1. **The Billy Bremner Line orbital extension** runs just over seven miles through to Beeston, Bramley and Tingley. It could partially run along existing rail lines. It unlocks 14 sites with approximately 167 hectares delivering between 8,345 and 16,690 homes at 'gentle density'. Current plans only target 1,673 homes.

2. **The Loiner Line** is an orbital route which connects the city centre with Leeds University, Leeds Beckett University, Hyde Park Headingley Cricket and Rugby ground through to Weetwood, Moortown and Scotthall Road. Just over ten miles long, it unlocks 14 sites, 45 hectares and between 2,230 and 4,460 homes. Current proposals only amount to 851 homes and 19,535 square metres of office space.

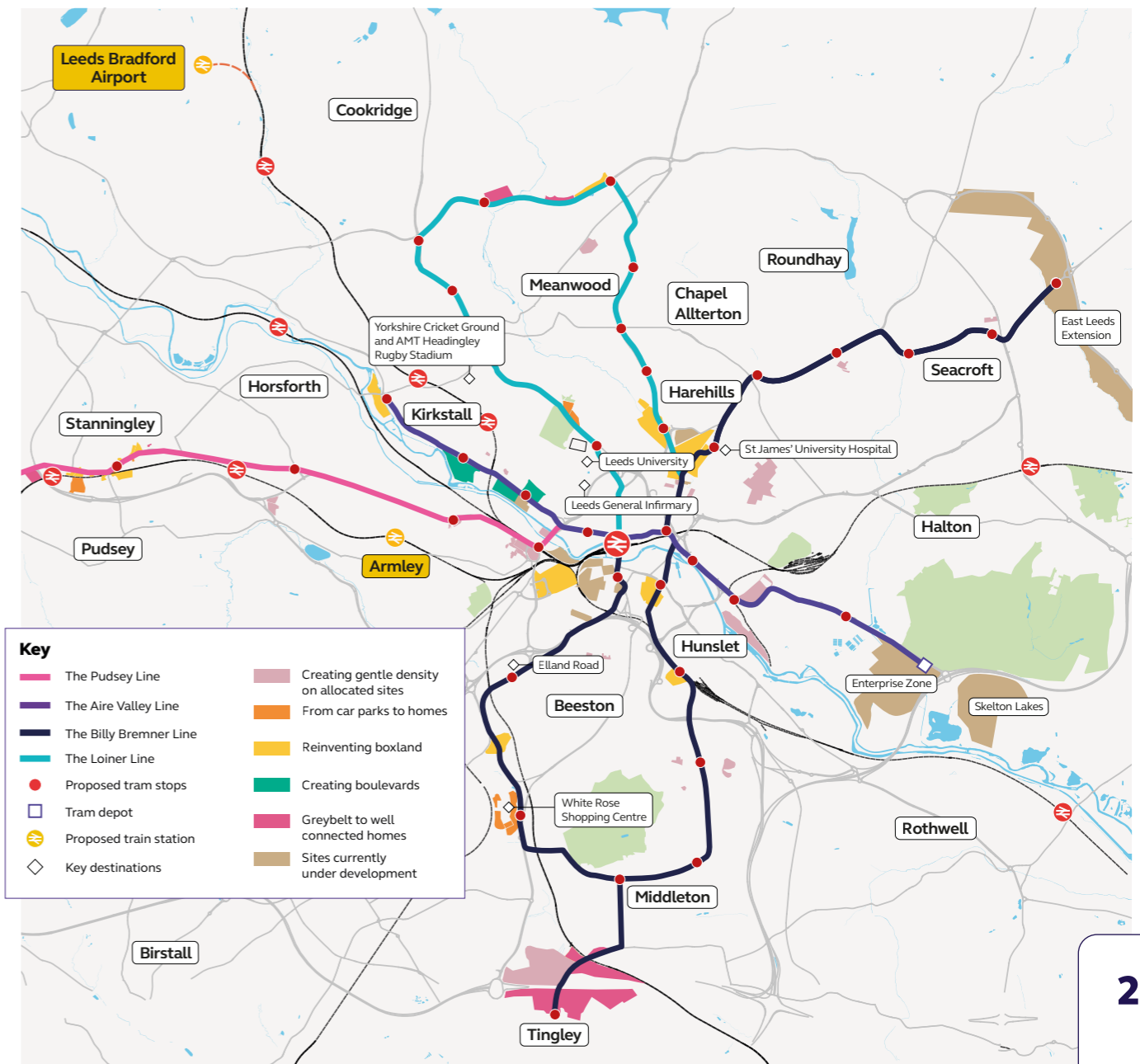
Site Type	No. of sites	Total hectares	Approx. no. of homes at 50-100 homes per hectare
Creating 'gentle density' on allocated sites	26	136.3	6,815-13,630
Reinventing boxland	25	110.8	5,540-11,080
From car parks to homes	6	19.2	960-1,920
Creating boulevards	3	27.4	1,370-2,740
From 'greybelt' to well-connected homes	11	95.4	4,770-9,540

57 Marlow, A. (2024). 'Major Step Forward' as Plans for Tram System Connecting Bradford and Leeds Announced by Mayor. Leeds Live.

Our vision for Leeds in 2035 with 21 miles of three new radial tram lines.



Our vision for Leeds in 2050 with an additional 18 miles of tram tracks in two radial and two orbital tram lines.



Three types of 'gentle density' neighbourhood

We propose three types of 'gentle density' development for the new neighbourhoods and homes made possible by Leeds's new tram lines.

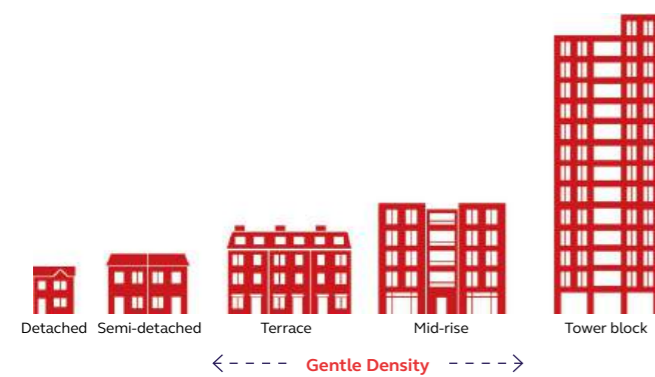
- 1. City centre.** Five to ten storeys tall. Courtyard blocks, mansion blocks and warehouses with ground floor shops, restaurants, offices and cafes. Beautiful and efficient, enclosing public streets on one side and communal gardens or courtyards within.
 - **Approximate density:** 100 to 150 homes per hectare (broadly similar to areas of Hyde Park, Woodhouse and Armley).
 - **Cars and parking:** No 'by right' resident parking but disabled and some limited underground and car club parking available.
- 2. Greater Leeds.** Predominantly streets of tall, slender-fronted terraced houses, interspersed with small mansion blocks and mews. Typically between three to six storeys.
 - **Approximate density:** 75 to 100 homes per hectare (broadly similar to parts of Headingley and Chapel Allerton).
 - **Cars and parking:** less than one car per home on average with some car-free flats.
- 3. Outer Leeds.** Predominantly streets with a mix of terraces and some semi-detached houses with longer front and back gardens and more local greens. Typically between two and a half to four storeys.
 - **Approximate density:** 50 to 75 homes per hectare (broadly similar to Pudsey, Meanwood and many Victorian inner suburbs).
 - **Cars and parking:** one car per home on average.

All new neighbourhoods should be designed with five guiding principles.

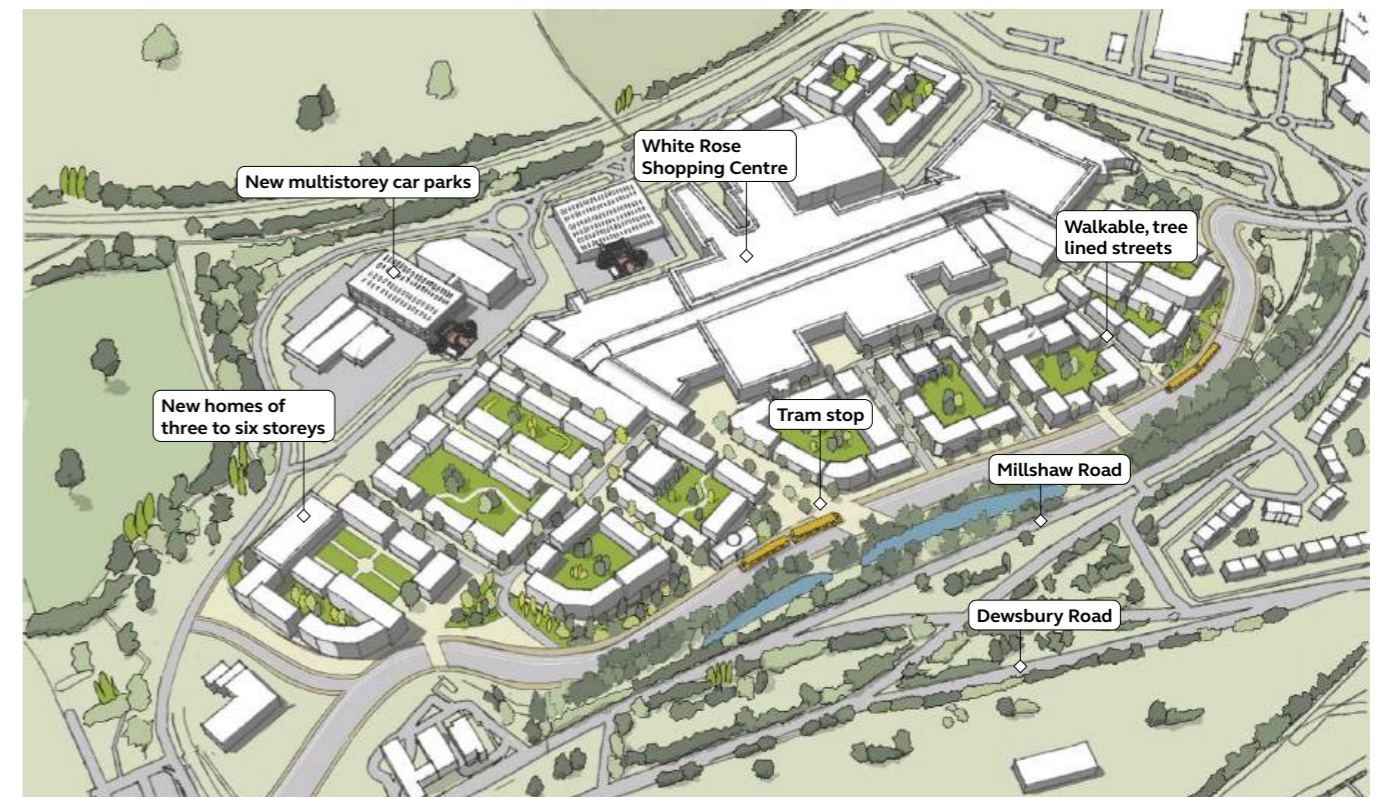
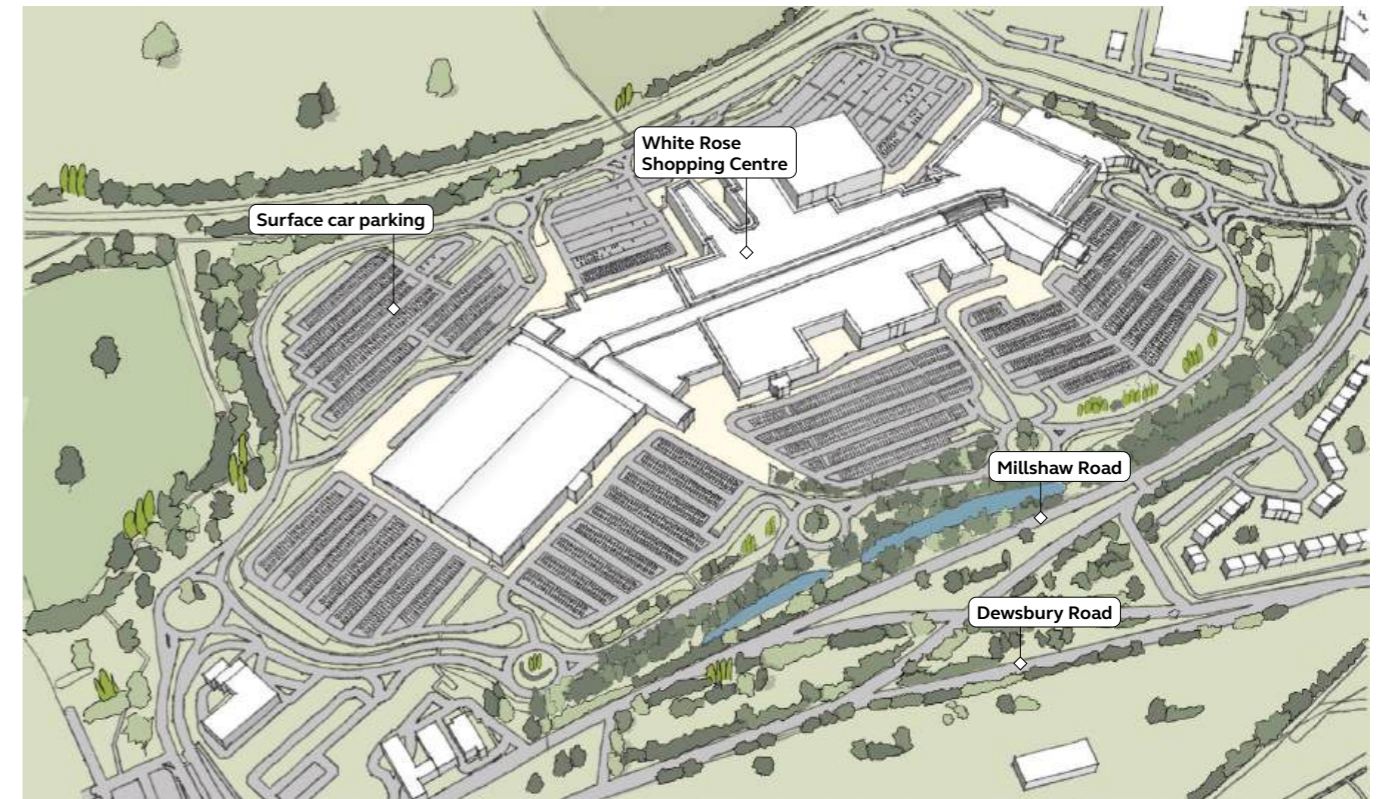
- **Streets that 'plug in'.** A well-connected, highly walkable, traditional street pattern of differing types and sizes with multiple junctions and route choices.
- **Greenery little and often.** Frequent green spaces interwoven into the neighbourhood either as private gardens, communal gardens or well-overlooked squares between blocks and where people really need, use and frequent them. Many street trees.
- **Height.** Most buildings at human scale height (four to ten storeys) with only a few at two and half or three storeys. Very sparing use of residential towers and only in well-connected locations for the small number of people who seek them. All towers built in such a way as not to disrupt the streetscape but to enhance it - for example terminating vistas.
- **Blocks with faces.** Blocks that are neither too deep nor long and appear to be composed of separate buildings rather than one gargantuan edifice with long blank walls or vast frontages. Streets should be composed of narrow fronts with many doors and a strong 'sense of the vertical' in the design to break up the scale of terraced blocks. The most popular traditional neighbourhoods have clear fronts and backs with internal private or communal gardens in the centre of street blocks.
- **Popular beauty.** Ignoring popular aesthetic appeal is missing a key trick. Good places have a sense of place. People have chosen to live in Leeds - often at some expense. We need more homes but people need to like the places they create. Streets that bend and flex with contours of the landscape, a variety of street types, design and green spaces which obey Leeds's scale and geography will help achieve this. Some surprises, not designed by committee.

Reinventing boxland: a worked example

As an example of what is very possible, we have selected a 'boxland' site and re-planned it.⁵⁸ We have selected this site as it is likely to be on the tram line between St James' Hospital and The White Rose shopping centre proposed by West Yorkshire Combined Authority. It is currently a very low density 'boxland' retail site with expansive surface car parks. It is not currently allocated for development. We have re-planned it to show how a 'gentle density' approach could produce around 700 to 1,000 homes whilst keeping retail and commercial uses. A similar approach could be taken to many of the sites unlocked by the 37 miles of Leeds's new tram lines.



Gentle density is your friend: optimising the advantages of propinquity and personal space.



White Rose reborn: from boxland retail with sprawling seas of surface parking to a walkable neighbourhood with tram links, more homes and more jobs and multi-storey parking.

58 We should stress that this is purely illustrative and that we have not spoken to the landowners or operators.

Reimagining Leeds City Centre, Wellington Street today and in 2035 with a tram.



Reimagining boxland, Roseville Road today and in 2050 with a tram.



Reimagining Headingley High Street, Otley Road today and in 2050 with a tram.



Reimagining suburban Leeds. Easterly Road today and in 2050 with a tram running on the central grass verge.



CONCLUSION

For too long Britain has failed to build the local transport that its towns and cities need to thrive. Building more trams would enable more people to more easily get to where they need to go, reduce carbon and particulate emissions, and make travelling by public transport a more pleasant experience. More trams could spur economic growth, by making it easier to get to and around the most productive areas of our cities. More trams could encourage and catalyse more regeneration and investment.

However, Britain will fail to realise these benefits if we cannot solve our cost problem. New trams in the UK cost more than double the European average. To lower the cost of new trams and fund Britain's tram renaissance, the Government needs to:

- 1 **Create consistent standards between tram networks and encourage a pipeline of new tram projects;**
- 2 **Reform the current planning system for trams, which is too expensive and slow, by devolving powers to metro mayors;**
- 3 **Fix utility guidelines to make sure only the pipes and wires that need to be moved are moved, with utility companies paying their fair share of the costs; and**
- 4 **Give local leaders new powers to fund local transport extensions so they can get on with building instead of constantly having to appeal to Central Government for funding.**

If Britain follows this plan, we can reinvent the age of the tram as is becoming the norm internationally. Cities like Leeds could be transformed with new gentle density homes, readier movement and more mixed-use neighbourhoods which intermingle shops, offices and homes.

Our relative lack of trams is the exception not the norm and is explained by high costs and poor governance. Exceptionalism is justifiable when it works. Ours isn't working. It is time to change that.

