

Wales's Public Transport Priorities Version 1.0

*An independent research report
for Peredur Owen Griffiths
of Plaid Cymru*

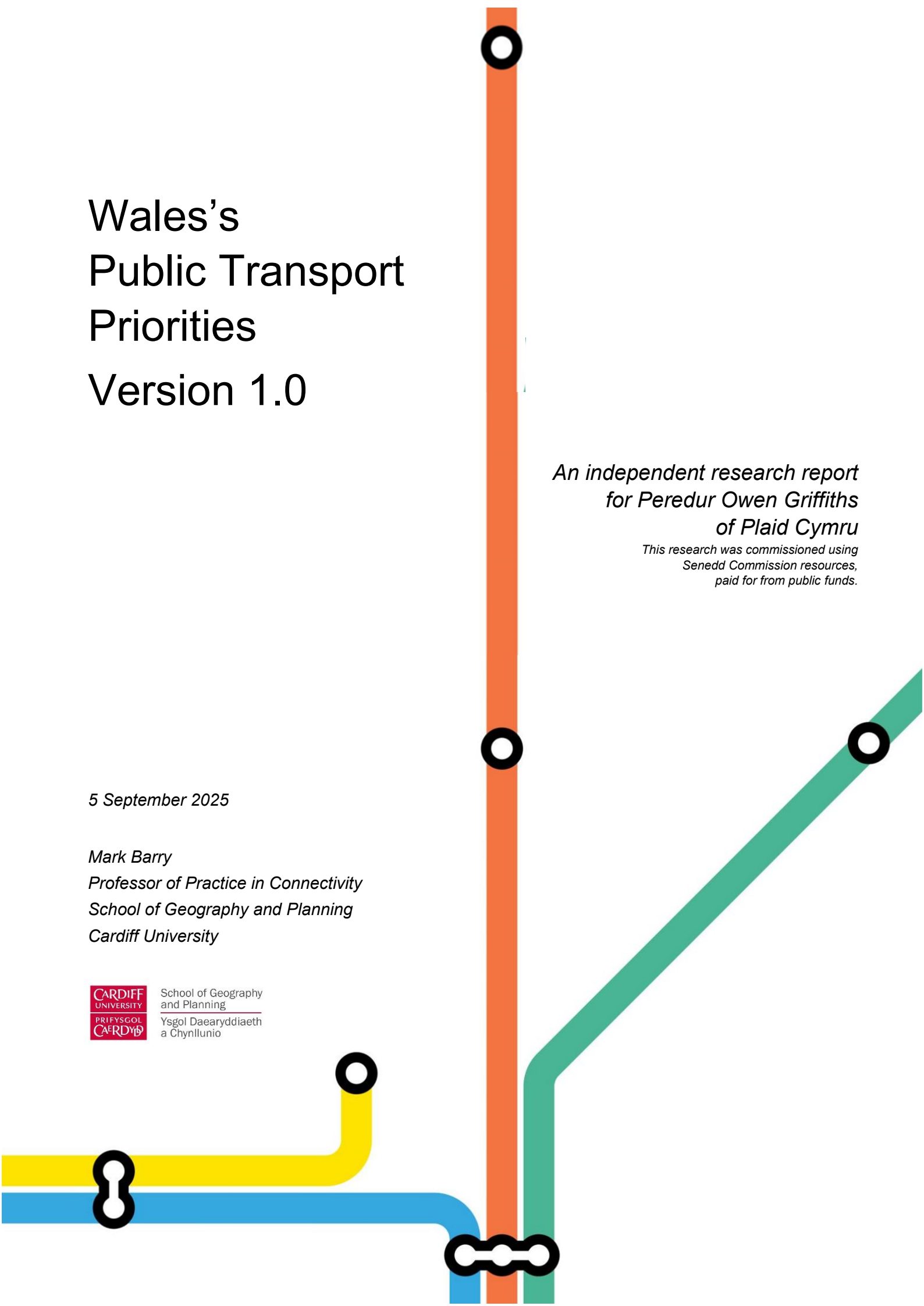
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5 September 2025

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About this report.

This independent report was commissioned by Peredur Owen Griffiths of Plaid Cymru in July 2025. The scope of the work is set out in the proposal from M&G Barry Consulting dated 4th July 2025.

This is not a formal academic report, but a qualitative assessment of the key issues and choices facing public transport officials and politicians in Wales, and some of the opportunities. It is based on evidence and data sourced from a range of reports and publications and on the expertise and experience of the author, Prof Mark Barry. To enable a more rapid and efficient production, some of the content of this report is updated and modified from other sources including, “How to build a Metro”¹ which was published in 2024.

Audience

The intended primary audience for this report is Peredur Owen Griffiths and his transport policy team.

¹ Prof Mark Barry, Mark Barry (Cardiff) Publishing, 2024 “[How to build a Metro](#)”

Executive Summary

The primary transport challenge facing an incoming Welsh Government (WG) in 2026 will be how to maximise the benefits of its transport investments, in particular connectivity, economic, regeneration and environmental (esp. carbon reduction), as well as ensuring equity in investment across the whole of Wales. More challenging perhaps is achieving this within the constraints on both revenue and capital funding, exacerbated by the persistent dysfunction of the UK rail ecosystem vis a vis funding in Wales - directly related its non-devolved status. This will need to be addressed if we want to see the bulk of the programme set out below delivered. The other stark financial reality is the increasing amount of the Welsh Government budget taken up by Health. Transport revenue funding is circa 3% of the total Welsh budget; Health is over 50%.

Nor we can we ignore the reality of Wales's demographic asymmetry, that over half its 3.1M population live within 30Km of Cardiff, and that much economic activity results from cross border movement to/from southeast and northeast Wales into England. Outside the main urban areas around Cardiff, Swansea and northeast Wales, the country is low population and density thereof making investment in new fixed infrastructure very challenging.

In developing a transport investment programme, clarity, focus and honesty is needed to systemically expedite; and in so doing navigate some tough choices and compromises. Principles also need to be established to help determine how constrained funding is allocated. For example do we want to maximise passenger numbers to enable the most mode shift and improve financial efficiency of operations, or ensure everyone gets a service of some kind; whether we wish to reduce operating costs of planned Core Valley Line(CVL) Metro services but in so doing probably have to deal with some Industrial Relations (IR) challenges; and noting the reduction of bus fares or making them free, will make the cost of the expanded bus services we need, more challenging given the additional subsidy per passenger required.

We also need to address the "elephant in the room" and the opportunity presented by Road User Charging (RUC) or proxy thereof, which is both "fair" (given the negative externalities of excess car use/dependency) and the quickest means to address congestion. In so doing we need to recognise that for many people and trips, especially in rural areas, the car will still be a vital and in some cases, the only option. So, any RUC has to be differentiated to reflect this reality and perhaps implemented in parallel with a reduction in another "tax".

In addition, some "popular" schemes need to be properly challenged and some relegated to the long term. This includes the proposed reopening of the Carmarthen-Aberystwyth railway; to allocate at least £1Bn of capital to deliver this scheme would then require very significant revenue support to operate given the relatively low population served. Progressing this scheme would also impact the opportunity to progress many more beneficial schemes across Wales that could be delivered more quickly as well as better value for money, and more innovative alternatives.

To navigate these choices, a strategic and largely qualitative triage process is proposed that combines an assessment of scheme impacts based on traditional data sets re demographics and the economy, as well as using transport considerations such as demand. It also includes economic development/ regeneration - especially more Transit Oriented Development (TOD) - and environmental benefits; and, relevant in Wales's asymmetric demographic landscape, some measure to ensure equity of funding and support. In that regard it is likely that capital funding per

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capita will be higher in more populated areas, but lower population areas will attract more revenue support per capita.

In respect of economic development and regeneration, and particularly around our public transport (PT) network and stations (so TOD) we also need to consider the need for additional institutional capability and capacity to help deliver these wider benefits; a “Metro Development Corporation(s)” perhaps. Such a body could augment Transport for Wales’s (TfW) development of the South Wales Metro (or Cardiff Capital Region Metro) with initiatives to bring forward the many more affordable homes we need and a programme of high street regeneration across the region.

Whilst costs have not been formally assessed, over 15 years, a programme of £3~4Bn of capital is anticipated; the implicit expansion of public transport capacity will also require more revenue support (perhaps an additional circa £100~150M pa) especially relevant in the context of bus reform that will need more revenue support to operate more bus services.

In setting out this illustrative programme of the larger strategic schemes, much detail has been drawn from the author’s knowledge, the work of Transport for Wales (TfW), the regional Corporate Joint Committees (CJCs) and Local Authorities (LA) over the last few years, and details included or referenced in, “How to build a Metro”. It is also assumed that many smaller local schemes, especially Active Travel (AT) and road space reallocation measures, will be managed via the CJCs and/or LAs and so are not addressed in this report.

The proposals below are also based on the presumption that TfW’s commitments and the schemes announced in the 2025 UK Government’s Comprehensive Spending Review (CSR) to circa 2029/30 will be delivered. Whilst these should be checked with TfW and the Department of Transport (DfT), it is understood these include:

- 2tph on Vale of Glamorgan (VoG) Line beyond Barry
- 4tph Metro services to the Heads of the Valleys (HoV) via Pontypridd & Caerphilly as part of the wider South Wales Metro
- Cardiff West Junction enhancement (combined with renewals) to enable 4tph on City Line
- Relief line upgrade and Burns (*Metro Impact Study*) stations & additional services to Bristol Temple Meads from Cardiff/Swansea (tbc)
- Metro Central
- Cardiff Crossrail Phase 1a
- New Lumo Open Access (OA) services from London to Carmarthen (reduced journey time)
- Padeswood sidings and 2tph Borderlands service
- NWML level crossings removal
- Increased service frequency on NWML and between Wrexham and Chester
- A direct Llandudno-Liverpool service
- Upgraded signals at Gobowen to increase Marches Line capacity.

Then, for the first five years of a new Welsh Government, and with some appreciation of supply chain capacity and scheme dependencies in rail, it is recommended that the focus is on “fixing” the

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Metro in Cardiff and delivering Bus Reform across the whole of Wales. So, to add to the commitments above, by 2029/30 or 2030/31 we also deliver:

- Cardiff Crossrail Phase 2: 4tph on City & Coryton Lines, new stations, "Station Link", OLE to Penarth & tram-trains for Penarth integrated with Crossrail
- Reverse some CVL Value Engineering
- 2tph on Maesteg branch
- All Wales bus revenue support, franchising & network redesign with more overall services (will include bus prioritisation measures and expanded fleet)
- N-S Express bus service in the west as part of all Wales Express bus network (an enhanced Traws Cymru).

Then from 2030/31 to 2035/36:

- Wrexham-Liverpool with Stadler electric 777s direct operations from Wrexham
- NWML Upgrade for more frequent and faster services (and more stations)
- Chester Station capacity measures
- Shotton Interchange
- Infrastructure improvements & additional rail services to Swansea/West Wales
- Swansea Metro Initial Phases: Bury-Port and Pontardulais to Swansea High Street
- Further CVL enhancements (further stations and Aberdare-Hirwaun)
- 4tph on Ebbw Valley line to Llanhilleth combined with upgrade of Marches line south of Abergavenny so Metro services can operate (inc new stations eg Caerleon)
- SWML Electrification & other infrastructure enhancements west of Cardiff
- Cardiff Crossrail: East to Newport Rd and Radyr/Coryton link (direct or indirect)
- Marches Line upgrade north of Abergavenny.

Out to 2040/41 we can consider the completion of Cardiff Crossrail (Northwest Corridor to RCT), Metro Cross-Valley, expansion of Swansea Bay Metro and the application of "longer distance" tram-train in northwest and northeast Wales and later perhaps for north-south in the west.

The funding challenges are well known, nonetheless, to make progress we need to address them (especially the rail devolution/funding issue) and consider new/additional funding sources. A RUC has been mentioned, but other local proxies (CF the Versement in France) ought to be examined. Similarly, the scale and focus of concessionary fares and discounts should be interrogated.

This paper should/could form the basis of a discussion that can ultimately lead to the development and implementation of an ambitious and equitable public transport investment programme for the whole of Wales. One that is explicitly linked to carbon reduction, economic development and regeneration - especially Transit Oriented Development.

Finally, whilst we need to inform the discussion and the debate with a robust evidence base, the ultimate decision will always be political. In that vein, as the mayor of Vancouver is reputed to have once said, *"better to focus your efforts on where you agree, and not where you don't, as you will always run out of money before you run out of agreement"*.

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1. Introduction

Background and Context

Transport and transport investment is a subject that can, and often does, generate heated debate, especially in Wales. Controversial proposals and competing arguments have been common, ranging from debates over new and/or expanded road capacity, speed limits, reopening rail lines and how we allocate resources between rail and bus.

We are also now becoming far more aware of the costs and benefits of the choices we face and especially the externalities associated with car use² (for example road traffic accidents, poor air quality, congestion, induced demand, carbon emissions, low vehicle utilisation, impact on urban form and decline of high streets, etc).

Developing coherent transport plans requires achieving a balance between data, evidence, informed policy and the politics and emotion of place. A challenge made more difficult by the increasing application of deliberate disinformation often propagated using social media.

Fifty years of car centric planning and development has also delivered, as Prof Ian Walker suggested³, a “motonomativity” in that we often subconsciously give priority to cars and roads in many of the decisions we make relating to public space (road junction design, crossing locations, need for parking, etc).

We also must acknowledge that in many places, especially in rural areas and places with insufficient public transport capacity and/or services, cars will continue to be vitally important for many people. However, it is also a reality that poorest households are more likely not to own or have access to a car⁴.

In Wales, we are also struggling, especially re rail infrastructure, with a compromised devolution settlement⁵, which has resulted in relatively less investment in the rail network in Wales Vs the rest of the UK over decades. This matters, as a functional and effective economy requires an effective transport network. It is no surprise that the major cities of Europe economically outperform major UK cities (including the Cardiff and Swansea city regions) given the far higher levels of capital investment in essential public transport (PT) infrastructure.

In the UK, over decades, we have experienced relatively high levels of capital investment per capita (especially transport) in London – with consequentially far less in other places; the economic impact is clear⁶ with London having a much higher GDP/capita than any other nation or region of the UK. In Wales, this issue is further compromised by a suboptimal constitutional arrangement (which in part also negatively impacts places like Leeds, Newcastle, Bristol, Manchester, etc) that sees too much decision making, funding capacity and power reside in London.

Starker, the welcome £1Bn Welsh Government (WG) contribution to the South Wales Metro (*CF the less than £200M each from Department for Transport (DfT) in London and European Regional Development Funding (ERDF)*) is drawn from a block grant that does not include any provision for rail infrastructure (as it is not devolved) and so is drawn from funds meant for schools, hospitals, etc. This is an unacceptable funding double whammy.

² From Mark Barry's 2024 “How to build a Metro” “[The climate emergency and car dependency](#)”

³ Ian Walker, Alan Tapp, Adrian Davis, 2023, *International Journal of Environment and Health*, Volume: 11, Issue: 1, Pages: 21 – 33 [Motonomativity: how social norms hide a major public health hazard \(swan.ac.uk\)](#)

⁴ ONS, [Percentage of households with cars by income group, tenure and household composition: Table A47](#)

⁵ From “How to build a Metro” [The rail industry, Wales & HS2 - and the Barnett Formula](#)

⁶ Centre for Cities, 2021 [Measuring up: Comparing public transport in the UK and Europe's biggest cities](#)
M Barry, 2024, [Why UK City Regions need Metros \(like the South Wales Metro\)](#)

Despite the challenges and the “we don’t build roads in Wales” narrative, in the last ten years Welsh Government has invested circa £2Bn⁷ to complete the Heads of the Valleys (HOV) Road, a Caernarfon bypass, a Newtown bypass, A40 improvements in West Wales, etc. What we are seeing through the Roads Review⁸, is a welcome policy rebalance with a greater emphasis on Public Transport (PT) and Active Travel (AT), but which still supports further road schemes that: support mode shift/carbon reductions, improve road safety, adapt to impacts of climate change, enhances connectivity and supports economic development activity.

The reality of public transport in Wales though, is that we have (especially re: rail) a depreciated asset and constraints (especially re: bus) on revenue support, and that there are always tough choices and compromises⁹ in making investment decisions. This brief paper attempts to set out some of the considerations and trade-offs we need to acknowledge, and in so doing sets out the outline a possible triage methodology to help qualitatively determine the larger short-, medium- and long-term strategic priorities for public transport investment in Wales. It is presumed that small local schemes (esp. local bus and AT) will be the responsibility of local authorities and/or the regions.

It should also be said that a good transport plan is a good land use plan and that the role of Transit Oriented Development¹⁰ is fundamental to reduce our transport and connectivity challenges over the longer term. See *Transit Oriented Development (TOD) in the CCR*

In support of some of the assertions and suggestions in this report, a range of references to formal studies and reports covering safety, 20mph, air quality, induced demand, etc have been included in the appendices.

Review of latest relevant transport policy and guidance

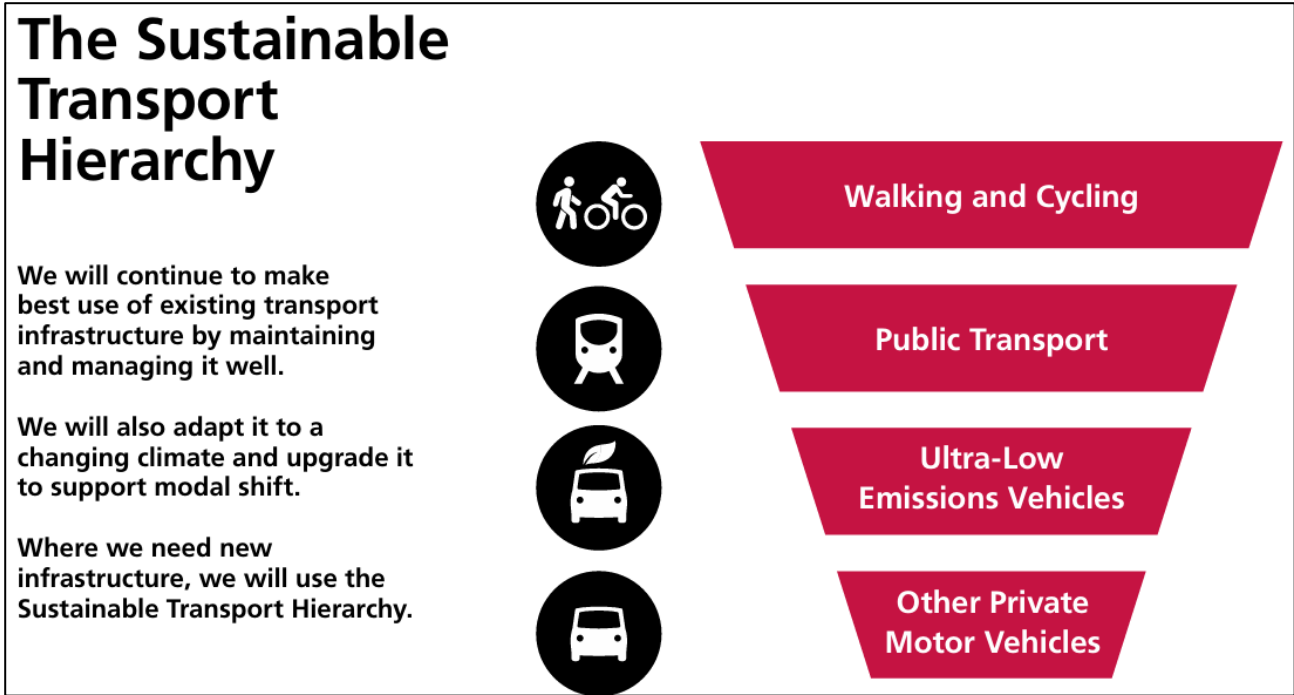


Figure 1 Wales Transport Strategy - Sustainable Transport Hierarchy

⁷ Welsh Government Road Investment [Roads and driving | Sub-topic | GOV.WALES](#)
⁸ Welsh Government, Roads Review and Response 2021, [Roads review | GOV.WALES](#)
2024, [Welsh Government response to the Roads Review \[HTML\] | GOV.WALES](#)
⁹ From “How to build a Metro”, [Transport Planning basics, compromises and choices](#)
¹⁰ From “How to build a Metro” [Why we need Transit Oriented Development](#)

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Over the last few years Welsh Government (WG) has set out its ambitions for public transport in Wales. For example, Welsh Governments: “A railway for Wales: the case for devolution”¹¹, “Mainline Railway-Enhancement Requirements”¹² and “The Rail Network in Wales - The Case for Investment”¹³ as well as the recommendations of the South East Wales Transport Commission (SEWTC)¹⁴ and the more recent North Wales Transport Commission (NWTC)¹⁵. The UK Government, 2021 Union Connectivity Review (UCR)¹⁶, in the main, endorsed the emerging programmes in respect of the South Wales Mainline (SWML). The Western Gateway 2050 Rail Vision also fully reflected the work of Transport for Wales’s (TfW) SWML Programme. Since 2023 the Wales Rail Board (*which needs a strategic overhaul*) has been working on a draft Wales Rail Enhancement Pipeline, which reflects some of this earlier work and development. Some of this work, although far too little, has trickled into the UK Government and Department of Transport (DfT) budgets via the UK Government 2025, Comprehensive Spending Review (CSR)¹⁷.

The primary policy foundation for transport in Wales is manifest in the Wales Transport Strategy – Llwybr Newydd¹⁸; which has changed the presumed priority of road use with Active Travel, Public Transport coming ahead of private car use *Figure 1*. Welsh Government has also in the last few years updated *its Transport Appraisal Guidelines*¹⁹.

Net Zero Wales (NZW)²⁰ also set out challenging mode shift targets *Table 1* which anticipates a 40% increase of Public Transport (from 5% to 7% mode share) by 2030 and a further doubling by 2040 (to 13%). These PT and AT targets will be higher in urban areas like Cardiff²¹ and a little lower in more rural areas where car accessibility will still be important. Climate mitigation is also an area that will draw increasing amounts of the public purse in the coming decades.

Table 1 Net Zero Wales Mode Share Targets

Mode	Current Share (2021)	By 2030	By 2040
Car	70%	60%	50%
Public Transport	5%	7%	13%
Active Travel	27%	33%	35%

Nor can we ignore the increasing body of evidence²² associated with poor air quality and the increase in a range of health conditions and premature deaths resulting from excessive car use.

As regards the “Metro” regional transport programmes, TfW have been leading work across the regions to develop a range of schemes (rail, bus and AT). These ambitions were illustrated in a series of Metro maps and narrative available on the TfW website²³. More recently WG also emphasised its ambition for North Wales, via “Network North Wales”²⁴.

¹¹ Welsh Government, 2019 “[A-railway-for-Wales-the-case-for-devolution](#)”

¹² Welsh Government, 2020, [mainline-railway-enhancement-requirements.pdf \(gov.wales\)](#)

¹³ Prof Barry, Welsh Government, 2018, [The Rail Network in Wales – The Case for Investment](#)

¹⁴ Lord Burns, Welsh Government, 2020 [South East Wales Transport Commission: Final Report](#)

¹⁵ Lord Burns, North Wales Transport Commission, Final Report, Dec 2023, [North Wales Transport Commission](#)

¹⁶ Sir Peter Hendy, UK Government, Union Connectivity Review, 2021, [Union connectivity review: final report](#)

¹⁷ UK Government 2025, Comprehensive Spending Review [Spending Review 2025 - GOV.UK](#)

¹⁸ Welsh Government, 2021, [Llwybr Newydd: the Wales transport strategy 2021 | GOV.WALES](#)

¹⁹ Welsh Government, 2025, [Welsh transport appraisal guidance \(WelTAG\) | GOV.WALES](#)

²⁰ Welsh Government, 2021, [Net Zero Wales | GOV.WALES](#)

²¹ Cardiff Councils 2020 Transport White Paper, [CCC Transport White Paper](#) has set out ambitious mode share targets of 33% PT, 43% AT and 25% car

²² Gary Fuller, Stav Friedman and Ian Mudway; Environmental Research Group, Imperial College London; 2023; [Impacts of air pollution across the life course – evidence highlight note \(london.gov.uk\)](#)

²³ Transport for Wales, [Metro | Transport for Wales \(tfw.wales\)](#)

²⁴ WG 2025 (via TfW), Network North Wales, [Network North Wales | Transport for Wales](#)

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However, it should be noted that very little of these ambitious programmes have any committed funding beyond the recent limited CSR announcements²⁵. That appears to provide £300m to 2029/30 for enhancement to the Network Rail (NR) managed rail network in Wales and cover some/all of: Padeswood sidings, Burns stations & services (also as recommended in the 2013 Metro Impact Study), Metro Central, Relief Line update and Cardiff West. There is also a potential £95M for the period thereafter and a £48M contribution over 4 years to Core Valley Lines (CVL) enhancement via a block grant adjustment.

In the Cardiff Capital Region (CCR) the nascent regional body has also set out its Passenger Rail Vision²⁶ and local authorities like Cardiff Council have set out ambitions for schemes like the Cardiff Crossrail²⁷ in its Transport White Paper²⁸. The emerging regional bodies and Corporate Joint Committees (CJC) will likely reflect much of the work of TfW in their upcoming regional Transport Plans. TfW has also reorganised its teams and resources to support this work.

There is also a major programme under way, both legislative and administrative, to develop the capacity for bus franchising across Wales as part of the *One Network, One Timetable, One Ticket* Policy²⁹. Bus Reform legislation is expected to pass through the Senedd in 2025, and TfW is already working across the regions to implement re-designed franchised bus networks – beginning in SW Wales. This is a major undertaking³⁰; it also has to be noted that without additional funding to support bus operations the impact of franchising and redesigned integrated network will be more limited.

Furthermore, the fact that rail powers are not devolved, is a hindrance to developing and delivering rail schemes in Wales consistent with WG objectives and especially in way that integrate with wider transport policy and proposals – especially bus and active travel.

There is also a very real need to secure Wider Economic Benefits³¹ (including agglomeration) from investment in transport and that a focus on Transit Oriented Development³² around the Metro network is essential. Perhaps the region's local authorities need to take a lead in this regard. This is an area of current weakness as these considerations must be applied to how all decision re: transport infrastructure investment decisions are made in Wales – this is not quite the case today.

UK Government is also updating its HMT Green Book³³ with a new version expected in 2026. As set out later, some of the emerging findings from the current review are relevant in Wales especially re: better place based multi-project appraisal and portfolio business case development.

Summary of the current landscape for rail funding in Wales

One of the major issues we face in Wales is a dysfunctional non-devolved rail funding³⁴ ecosystem that has systematically led to a relative underinvestment by UK Government in Wales's rail network Vs the rest of the UK for decades³⁵ - whilst there is debate on the precise figure there is no doubt

²⁵ M Barry, July 2025, [Post CSR, Rail Investment and Wales \(updated!\) – Mark Barry's blog site](#)

²⁶ M Barry, CCR Passenger Rail Vision, 2021 [CCR passenger-rail-vision-final](#)

²⁷ M Barry, 2019, [A Cardiff Crossrail...](#)

²⁸ Cardiff Council 2019 [White Paper for Cardiff Transport 2019.pdf](#)

²⁹ WG 2022, [Bus reform for Wales: our roadmap to franchising | GOV.WALES](#) and WG 2024, [Written Statement: One Network, One Timetable, One Ticket: Planning Buses as a Public Service for Wales \(5 March 2024\) | GOV.WALES](#)

³⁰ From “How to build a Metro” [Bus services, networks and integration”](#)

³¹ From “How to build a Metro” [Developing a Vision for the South Wales Metro - Why Metro](#)

³² From “How to build a Metro” [Why we need Transit Oriented Development](#)

³³ UK Gov, HMT, 2025, [Green Book Review 2025: Findings and actions - GOV.UK](#)

³⁴ For a summary of the different types of rail funding – esp. Enhancements, and Operations, Maintenance and Renewals (OMR) please see this section from, “How to Build a Metro” [Types of rail funding](#)

³⁵ From “How to build a Metro” [The rail industry, Wales & HS2 - and the Barnett Formula](#)

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this figure can be measured in the multiple £Bns. This does not appear likely to change any time soon, so working with UK Government and the Wales Office to secure more of the “England and Wales” rail enhancement investment (esp. post the current CSR period to 2029/30) is essential.

To exemplify, the recent CSR in effect allocated the Wales Rail network circa £350M for enhancements to the NR Wales Route to 2029/30 (which is welcome) and the CVL. However, over the same period £34Bn was allocated to enhancement of the rail network in England!³⁶. Also to note in the CSR, the DfT have signalled an intent to progress the circa £10Bn Lower Thames Crossing³⁷. This will squeeze rail funding, including in Wales given its non-devolved status.

Furthermore, it is anticipated that out to 2040 there will be circa of £80Bn of rail enhancements in England: to finish HS2, TransPennine Route Upgrade (TRU) East-West Rail, perhaps a launch of Northern Powerhouse Rail (NPR), etc. Putting aside the historic underspend, at the very least Wales should be seeking to secure a comparable figure of 5% – so up to £4Bn to 2040 or £270M per annum from 2026.

More pressing, Welsh Government also needs to secure a permanent and equitable block grant adjustment to cover Enhancements and Operations Maintenance and Renewals (OMR) of the CVL (which is “devolved”) The CSR allocation of just £12M pa for enhancement and circa £40M pa for OMR falls way short of an equitable arrangement. In contrast and as a benchmark, the NR Wales Route has a £400M pa OMR settlement (circa £1.9Bn for Control Period 7 (CP7) from 2024-2029).

If rail was fully devolved, then a full block grant adjustment would be needed. Given HS2 and NR spend is approx. £23Bn per year (out of a DfT budget of ~£37Bn³⁸) then this adjustment should, it could be argued, be the order of £1.1Bn pa. Yes, it would have to cover the £400M NR Route OMR and CVL, but still a lot more than is possible under the present arrangements.

In arguing this case we need to avoid being distracted by arguments like, “but the border” and “can Wales deal with the liabilities of the rail network”. On the former, borders and cross border infrastructure are common (look at the rail network and services in Europe). Mature countries work together to establish equitable governance and funding to cover such. For example, Copenhagen-Malmö, Maastricht-Aachen-Liege; the Basel tram system actually operates across three countries (one of which is not even in the EU). In contrast, in Wales we are left with Whitehall making all the decisions, often with little regard to Wales.

On the liabilities, yes, they are real (esp. future climate mitigation measures but also those related to UK Government under investment in Wales rail network over many years) and WG already has liabilities it manages associated with the road network. On this perhaps UK Government Treasury can establish an *economic infrastructure liability insurance fund* that the nations and regions can pay into to cover such eventualities. To conflate this issue with essential enhancement investment in rail infrastructure is unhelpful.

The transport problem

Building on the underlying data and broader context, and looking forward into the 2030s, the transport schemes we develop and deliver have to be focussed on addressing the primary transport issues in Wales. These include:

- High car dependency, mode share and consequential carbon emissions, air quality degradation, Road Traffic Accidents (RTAs), and wider external costs and impacts

³⁶ Mark Barry, 2025, [Post CSR, Rail Investment and Wales \(updated!\) – Mark Barry's blog site](#)
UK Government, June 2025, [Spending Review 2025 \(HTML\) - GOV.UK](#)

³⁷ National Highways (England) [About the Lower Thames Crossing - National Highways](#)

³⁸ See pages 75-78, UK Gov, HMT, 2025, “Statement of Funding Policy: Funding the Scottish Government, Welsh Government and Northern Ireland Executive” [Statement of Funding Policy PDF](#)

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- Multiple markets (local and long distance) on NWML, SWML and Marches Lines being sub optimally served by one train service product
- No dedicated commuter rail in Swansea Bay
- Poor/slow N-S PT connectivity in the West of Wales
- Poor Swansea - Cardiff - Bristol Temple Meads rail services
- Major network rail bottlenecks (Cardiff West Junction, Chester, etc)
- Limited bus/rail integration with fragmented bus services, networks and fares, planning and operations thereof, and need for Bus Reform
- Limited bus prioritisation, especially in urban areas, resulting in financially less efficient and less attractive bus services
- Limited Active Travel infrastructure – especially in our urban areas
- A planning system which is seemingly disconnected from transport with limited application of Transit Oriented Development
- Lack of equity in apportioning external costs & benefits across modes – especially car use
- Financial challenges and constraints in operating public transport services and especially bus, and particularly in rural and lower demand areas.

All the above have and will continue to influence Transport policy and more detailed transport scheme development and implementation in Wales. These challenges are further exacerbated by some policy and funding contradictions, for example:

- Some misalignments of policy and actions of, and between, WG and Local Authorities. For example, ambitious NZW targets constrained by limited funds resulting in reduced public support for bus services whilst at the same time we are supporting free or subsidised car parking; similarly, resistance in some cases to providing more bus lanes
- Securing levels of capital and revenue funding commensurate with NZW targets and that is reflective of the wider benefits of PT and that often get underplayed in formal appraisal.

Benefits of public transport

Taken from, “*How to build a Metro*”, it is worth summarising the wider benefits of good public transport. These are very relevant in making the wider case for PT investment and perhaps, should take precedence over the transport “problems”?

Traditional transport planning and the processes wrapped around it can appear to over emphasize the definition of “the transport problem”. Whilst this is important, it is also important to set out a vision, the opportunity, and the benefits that follow from them. In fact, there is a growing discussion related to Vision based transport planning³⁹ and a focus on targeting delivery of wider benefits. This in effect, was how the South Wales Metro was originally developed and positioned via the 2013 Metro Impact Study⁴⁰

³⁹ UWE [Vision led planning: how to plan development and transport infrastructure more sustainably | Centre for Transport and Society blog](#)

Mark Barry blog, May 2025, [Building the Vision: South Wales Metro Development Insights](#)

⁴⁰ Mark Barry, WG, 2013, “A Cardiff Capital Region - Impact Study” [South Wales Metro: impact study](#)

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Examples of the benefits (See *Bibliography and Useful References...* for further links and references):

- More people on buses or trains will help us reduce car use and move us toward a much lower car mode share by 2040 as set out in Net Zero Wales (NZW). This will play a big part in reducing our carbon emissions given that cars are currently 10~13% of total emissions (and ~60% of transport emissions)
- This reduction in car use will result in fewer road traffic accidents (RTA) which currently across the UK costs £18Bn each year⁴¹ (through direct cost of police, emergency services, hospital beds as well having economic costs, etc). The reduction in the cost of delivering health services is I think a material consideration. (*To note: unreported costs of RTAs take this to over £40Bn according to DfT figures*)
- Fewer cars on the road will also reduce the estimated 30,000 premature deaths per year⁴² resulting from poor air quality. Again, this will result in reducing the burden on the healthcare system. Worth noting that air quality is not just about tail pipe emissions from diesel or petrol engines; wear and tear of brakes and tyres resulting in plastic particulates in the environment is actually a bigger problem⁴³ (which EVs don't solve)
- Similarly, more people adopting Active Travel (AT) – so walking/cycling – also has long term health benefits⁴⁴ and in the longer term will reduce costs burden on Heath departments. It also reduces wear and tear on our roads. So, people choosing to walk or cycle are saving us all money
- More people using public transport will also improve the operational efficiency of public transport services as trains and buses should be fuller more of the time, so reducing operational costs per passenger
- Often overlooked by those opposed to the more PT/AT, is the reality that such mode shift will also enable our current road network to operate more efficiently with less congestion, so helping realise the economic benefits anticipated for new roads that are often compromised through induced demand. It will also result in less wear and tear on our existing roads that will reduce the prevalence and costs to address, of potholes
- More public transport can be aligned to more densified development around our public transport network and reduce the need to travel using a car – so called “Transit Oriented Development”⁴⁵ As we are now recognising, for 50 years our planning system has enabled huge amounts of low-density car dependant sprawl of homes, offices and retail locking in car dependency and decimating many of our high streets
- It is also important that we can secure the agglomeration benefits of improved public transport connectivity and the increase in net effective density of our urban areas. Such benefits can be as much as 10-20% of conventional user benefits⁴⁶.

All these benefits are shaping strategic transport planning across Wales, and especially at TfW.

⁴¹ DfT 2022, “Cost of prevention of road collisions and casualties [ras4001.ods \(live.com\)](#)
DfT 2019 [Reported road casualties in Great Britain: provisional results 2019 \(publishing.service.gov.uk\)](#)
DfT 2015 [Reported road casualties in Great Britain: main results 2015 \(publishing.service.gov.uk\)](#)

⁴² Kings Collage, 2018, [UK air pollution could cause 36,000 deaths a year - King's College London \(kcl.ac.uk\)](#)

⁴³ [Press Release: Pollution From Tyre Wear 1,000 Times Worse Than Exhaust Emissions — Emissions Analytics](#)

⁴⁴ The Health Foundation 2021, [Health benefits of active travel: preventable early deaths - The Health Foundation](#)

⁴⁵ Mark Barry, 2024, “How to build a Metro – [Why we need transit-oriented development \(TOD\)](#)”

⁴⁶ Daniel J Graham, Imperial College University of London, 2007, Discussion paper, “Agglomeration Economies and Transport Investment” [discussionpaper11.pdf \(itf-oecd.org\)](#)

2. Key Data to consider in making transport investment decisions

When talking about future transport scheme development in Wales, a little data is useful. *Table 2* and *Table 3* which draw on official ONS and/or Stats Wales data, provide some quantitative views. Too often misty-eyed romanticism for particular projects is propagated with little or no reference to the actual demographics and distribution and density thereof in Wales. This illustration from “Luminocity” at UCL *Figure 2* is very instructive in terms of where people actually live in Wales and the density thereof.

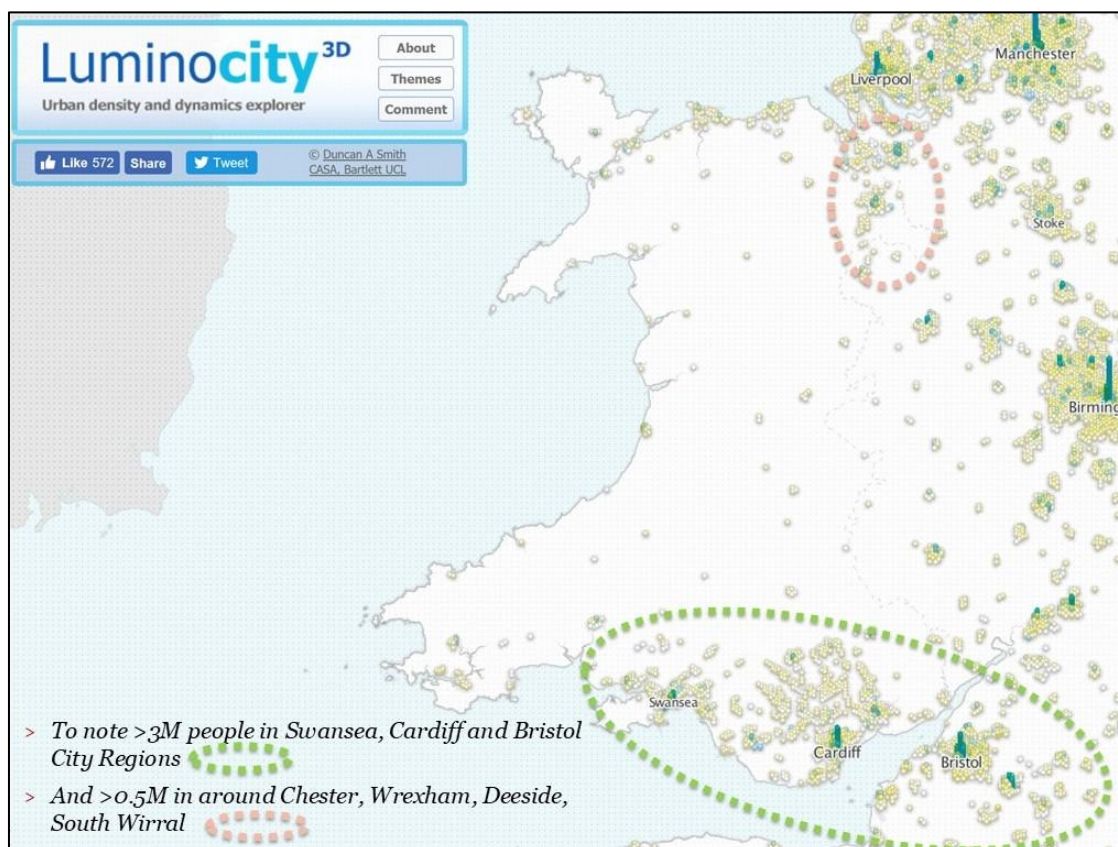


Figure 2 From UCL Luminocity⁴⁷ Population/Activity Density in Wales (2011 Census Data)

For reference, some of the key providers of such data that help shape thinking about broader demographic, economic and transport demand considerations in Wales, are:

- Welsh Government Stats Wales [Stats Wales - Catalogue \(gov.wales\)](https://gov.wales/stats-wales)
- Office of National Statistics (ONS) [Home - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk)
- Office of Road and Rail (ORR) [Home page | Office of Rail and Road \(orr.gov.uk\)](https://orr.gov.uk)
- ORR Data Portal [Home | ORR Data Portal](https://data.orr.gov.uk)
- NOMIS [Nomis - Official Census and Labour Market Statistics](https://nomis.co.uk)

⁴⁷ Duncan Smith, UCL, [LuminoCity3D - Urban Data Visualisations by Duncan Smith](https://luminocity3d.org)

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Table 2 Summary data for each "Region"

Region	Local Authorities	Population (2023 mid yr) ⁴⁸	GVA/head (UK=100) 2021 ⁴⁹	GDHI (UK=100) 2020 ⁵⁰	LSOA in top 10% WIMD 2021 ⁵¹
North Wales	Conwy, Denbighshire, Flintshire, Gwynedd, Yns Mon, Wrexham	691k (21.8%)	75.5%	83.4	23 (12%)
Cardiff Capital Region		1,561k (49.3%)	76.7%	82	126 (66%)
	VoG, Bridgend, RCT, Caerphilly, Torfaen, Merthyr Tydfil, Monmouthshire, Caerphilly, Blaenau Gwent, Newport	1,176k (37.2%)		(73>104)	87 (45.5%)
	Cardiff	383k (12.1%)		82.4	39(20.4%)
Swansea Bay & West Wales	Swansea, Neath Port Talbot, Carmarthenshire, Pembrokeshire	705k (22.3%)	71.2%	80.2	40 (21%)
Mid Wales	Powys and Ceredigion	207k (6.5%)	59.4%	84.4	2 (1%)
Total		3,164k	74.1	82.1	191

Note: LSOA – Lower Super Output Area are geographic subregions of different physical sizes, but of roughly equal population (approx. 1,500.), WIMD is the Welsh Index of Multiple Deprivation

Table 3 Wales Built Up Area (BUA) Population from "City Population" (ONS 2021 Census⁵²).

Urban Area	Population	Area (Km ²)	Density (/Km ²)
Top BUAs in Wales			
Cardiff	464,635	109	4,280
Newport	318,852	96	3,306
Swansea	299,871	98	3,048
Bridgend	66,749	21	3,133
Wrexham	65,200	18	3,655
Buckley	62,951	24	2,601
Tonypandy	61,545	13	4,760
Merthyr	43,000	13	3,499
Barry	56,000	16	3,579
Example BUAs outside Wales...			
Manchester	2,720,316	592	4,596
Leeds	1,860,546	447	4,160
Liverpool	891,211	204	4,362
Newcastle	790,636	189	4,177
Nottingham	762,786	183	4,177
Bristol	680,377	150	4,526

⁴⁸ Stats Wales, Population Estimates, [Population estimates by local authority and year \(gov.wales\)](https://gov.wales/population-estimates)

⁴⁹ Stats Wales, GVA, [Gross Value Added by measure, Welsh economic region and year \(gov.wales\)](https://gov.wales/gross-value-added)

⁵⁰ Stats Wales, GDHI, [Gross Disposable Household Income \(UK=100\) by area and year \(gov.wales\)](https://gov.wales/gross-disposable-household-income)

⁵¹ Stats Wales, Welsh Index Multiple Deprivation, [WIMD Local Authority Analysis \(gov.wales\)](https://gov.wales/wimd)

⁵² City Population 2023, [United Kingdom: Countries, Counties, Districts, Wards, Parishes, Cities and Conurbations - Population Statistics in Maps and Charts \(citypopulation.de\)](https://citypopulation.de)

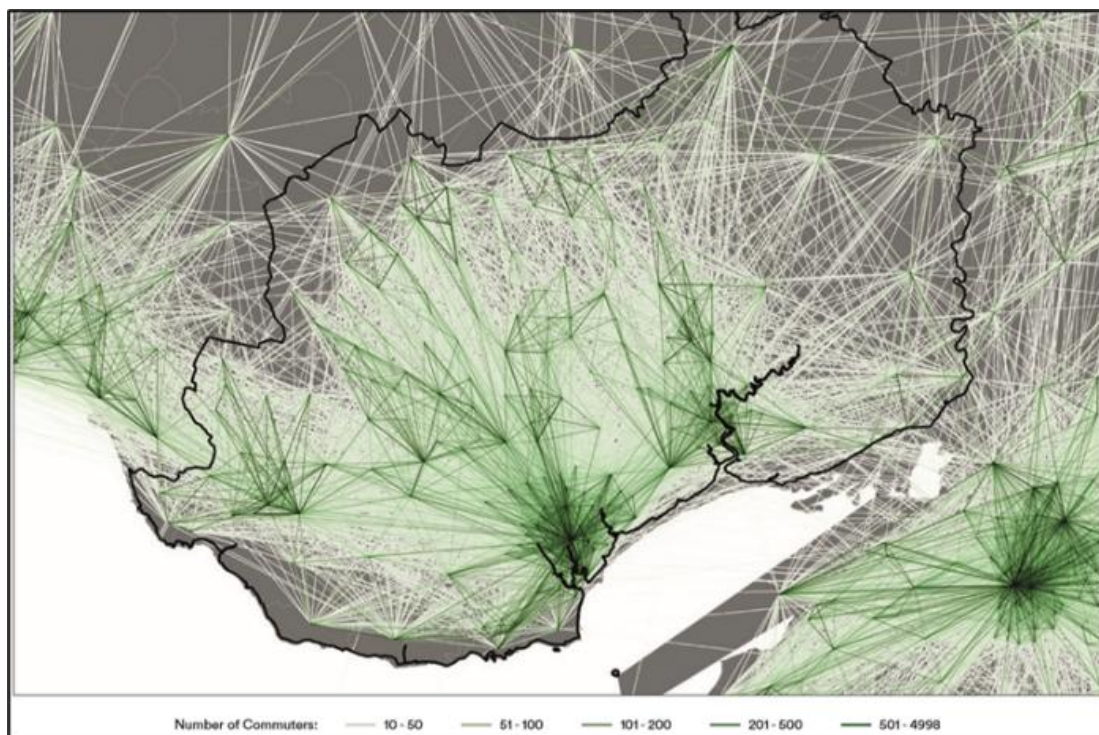


Figure 3 Commuting patterns in CCR (ONS Census 2011)

Population metrics

Based on the above data sets⁵³ and illustrations one can infer:

- Wales population of 3.1M is not evenly dispersed, in fact it is very asymmetric and concentrated in Cardiff/southeast Wales, Swansea Bay and northeast Wales
- 50% of Wales's population, over 1.5M people, live within ~35km of Cardiff, in the ten local authorities of the Cardiff Capital Region (CCR); the population of the Cardiff local authority is 383k and by far the biggest and the most densely populated
- Swansea Bay & West Wales (the local authorities of Swansea, Neath Port Talbot, Pembrokeshire & Carmarthen) has a population of ~700k (22% of Welsh pop.); North Wales (Conwy, Denbighshire, Flintshire, Gwynedd, Yns Mon and Wrexham) is nearly 700k (22%) and Mid Wales (Powys and Ceredigion) is only 207k (6.5%)
- Whilst the population of the Cardiff Local authority area is 383k (*ONS July 2024 estimate for mid-year 2023*) its Built Up Area (BUA) is ~470k with a density of nearly 43pph, amongst the highest in the UK and comparable with Liverpool, Nottingham, Manchester and Newcastle BUAs. Combining Cardiff BUA with adjacent & contiguous BUAs like Newport, Tonypany, Aberdare, Church Village, Merthyr, etc gives a total population over 1M; in fact, most of urban SE Wales has relatively high population density in UK terms
- Similarly urban Swansea, Neath and Llanelli has a high population (~350k) and density thereof, as does Wrexham/NE Wales area (although the absolute population is lower); See *Table 3* for main BUA stats for Wales

⁵³ Note the distinction between population data sets: Local authority – based on administrative boundaries only, Built Up Areas an ONS definition tightly restricted to areas of urban development; Agglomerations - a definition that can combine multiple closely associated urban areas and the “undeveloped” space between/around them [Other geographies - Office for National Statistics \(ons.gov.uk\)](#) [City Population - Glossary](#)

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- Looking beyond borders, over 3M people live in the region covering Swansea, Cardiff, Newport and Bristol; similarly, over 0.5M people live in the region spanning northeast Wales, Chester and South Wirral.

Given these population data, the implications, supported by the academic data, is that there is a large potential market for segregated high capacity “turn up and go” public transit in Cardiff and southeast Wales, in/around Swansea/Neath/Llanelli and in some of northeast Wales (esp. when cross border trips to Chester & the Wirral are included). These are evidently material considerations if we want to determine where we can most quickly and efficiently decarbonise our mobility choices.

The stark reality though, is that most of the rest of Wales is sparsely populated with low population densities *Figure 2* and certainly lower than one might typically require to invest in traditional fixed heavy rail systems, so we need to look to innovation in rail and more traditional bus services and the greater importance of car use in such areas. The topology of most of Wales is also challenging.

Economic metrics

On the economic metrics there are also some relevant observations. In 2023, Wales GVA was approximately 73% of the UK average (UK=100) with a total economy of about £80Bn⁵⁴ or circa £25,000 / capita (similar to places like Portugal, Estonia, etc). However, we should be cognisant that it is becoming increasingly clear to many economists (e.g., Kate Raworth⁵⁵ and the international student led Rethinking Economics movement⁵⁶) that GDP and GVA are a poor means of assessing an economy. More especially because they fail to properly account for many of the negative externalities associated with our economic activities (especially carbon emissions and environmental degradation). We also can't ignore the reality that the recent reduction per capita in the UK's carbon emissions, is due in part to offshoring much of the activities (esp. manufacturing) that generate such emissions⁵⁷.

Despite that, when looked at on a regional basis in Wales, GVA ranges from 60 to 77 (UK=100). The figure for Cardiff is actually 117 and Blaenau Gwent just 46, but this is not a useful analysis given that commuting distorts such figures, and such analysis are only really useful at a regional level or Travel to Work Area (TTWA).

More instructive perhaps is that there are more Lower Super Output Areas (LSOA)⁵⁸ in the top 10% of the Welsh Index of Multiple Deprivation (WIMD)⁵⁹ in Cardiff (39 out of 191 – so over 20% of the Welsh total) than anywhere else in Wales (albeit the %age is highest in Newport). Similarly, the highest Gross Domestic Household Incomes (GDHI UK=100) are in Flintshire (90) the Vale of Glamorgan (97) and Monmouthshire (104) and not Cardiff (82), which is at about the Welsh average. The lowest in Wales include places like Blaenau Gwent (68) and Gwynedd (75). The highest regional figures are for mid Wales (84) and north Wales (83).

⁵⁴ WG, 2025 [Regional gross domestic product and gross value added: 1998 to 2023 \[HTML\] | GOV.WALES](#)

⁵⁵ Kate Raworth, Cornerstone, 2018 “Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist”, [Kate Raworth | Doughnut Economics](#)

⁵⁶ Rethinking Economics, [About Us - Rethinking Economics \(rethinkeconomics.org\)](#)

⁵⁷ [The decoupling of economic growth from carbon emissions: UK evidence - Office for National Statistics](#)

⁵⁸ Note: LSOA – Lower Super Output Area are geographic subregions of different physical sizes, but of roughly equal population (approx. 1,500.), WIMD is the Welsh Index of Multiple Degradation

⁵⁹ WIMD [Local Authority Analysis](#)

Commuting statistics

Looking at the commuting data (so not reflective of all trips) from Stats Wales for 2022⁶⁰, we can see the largest movements, and where more public transport can have most impact to help deliver our decarbonisation obligations are local and intra-regional trips. It is also clear that commuting numbers are perhaps (based on 2022 figures) 10~20% lower than pre-Covid.

- Cardiff & southeast Wales has ~708k working residents and a daily working population of ~678k; about 52k (7.5%) people commute out, mainly to Bristol/SW England, Swansea & London/SE England; and ~22k commute into the region. In SE Wales Cardiff supports by far the largest number of employed, 240k, out of the 670k across the region, with 70k inward commuters.
- North Wales has ~320k working residents and a daily working population of ~300k; about 35k (11%) people commute out mainly to Cheshire West/Chester, Wirral, Liverpool & Manchester and some to the West Midlands and London
- Swansea Bay & west Wales has ~318k working residents and a daily working population of ~320k; about 20k (6.5%) commute out and 22k commute in
- Mid Wales has ~96k working residents and daily working population of ~97k; about 12k (13%) commute mainly to the West Midlands)

The biggest and most important cross border movements (although smaller than intra-regional) are between Cardiff & southeast Wales and Bristol/southwest England (*and why this corridor was identified by Lord Peters Hendy's Union Connectivity Review⁶¹ for investment by UK Government and progressed via the recent CSR*) and northeast Wales and Chester/Cheshire West/Wirral.

Whilst economically important, trips further afield to places like Manchester, Liverpool, West Midlands and London/southeast England are only a small proportion of total trips. In fact, across Wales's working population of ~1,440k only ~79k (or ~5.5%) are commuting over the border.

So, a local and intra-regional focus is of primary importance when assessing Wales's transport investment priorities and is consistent with one of the findings of the 2006 Eddington Transport Study⁶², in that most of our mobility challenges and issues are intra-regional, and for this reason...

“... the strategic economic priorities for long-term transport policy should be growing and congested urban areas and their catchments....”

Station passenger numbers (PAX)

A commonly used rail metric is ORRs station passenger usage data (PAX)⁶³. These are published annually and whilst sometimes distorted by ticket destinations not always matching actual trip destination (especially for shorter urban trips) it is still helpful. For our purposes, it's not the absolute numbers here that are important but the comparison between different places in Wales.

To exemplify, in 2019 (pre-Covid and South Wales Metro construction) the annual passenger flows through the rail stations at Haverfordwest, Aberystwyth, Carmarthen and Bangor (the busiest in north Wales) were 124k, 310k, 385k and 670k per year. In comparison, Penarth, Pontypridd, Cathays and Cardiff Bay were 740k, 935k, 1,160k and 1,720k respectively. Places like Cardiff

⁶⁰ Stats Wales, Commuting Stats, [Commuting patterns by Welsh local authority and measure](#)
[Detailed commuting patterns in Wales by Welsh local authority](#)

⁶¹ UK Government 2021 [Union connectivity review: final report - GOV.UK \(www.gov.uk\)](#)

⁶² UK Government DfT, 2006 “Eddington Transport Study”, [UK Government Web Archive - The National Archives](#)

⁶³ ORR [Estimates of station usage | ORR Data Portal](#)

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Central, Queen St, Newport, Swansea had (pre-Covid) passenger numbers counted in the millions. Cardiff Central had over 12M in 2024 so nearly back to its 13M pre-Covid high.

As set out earlier, there are some stations with low frequency services resulting in lower PAX than would otherwise be possible given local catchment population. This particularly impacts many stations in Cardiff and places like Skewen and Llansamlet in Swansea as well as a number of stations on the Borderlands and NWML.

In terms of commuting, the scale of movement within the CCR is also complex, with by the most movements to/from and within, Cardiff. However, there is much cross-region movement as illustrated in the Stats Wales data. The visualisation of ONS 2011 data *Figure 3* also illustrates the patterns which demonstrate the different mobility challenges across the CCR. In terms of mode share, the region is still over reliant on car use, which for commuting makes up over 70% of trips.

Route catchment

Another useful metric is the actual catchment population around a station or a route section. This in many circumstances provides a proxy for actual demand for services. It is instructive to note the large variation in proposed service frequencies and route catchment for planned CVL Metro services *as illustrated in this graphic from How to build a Metro*.

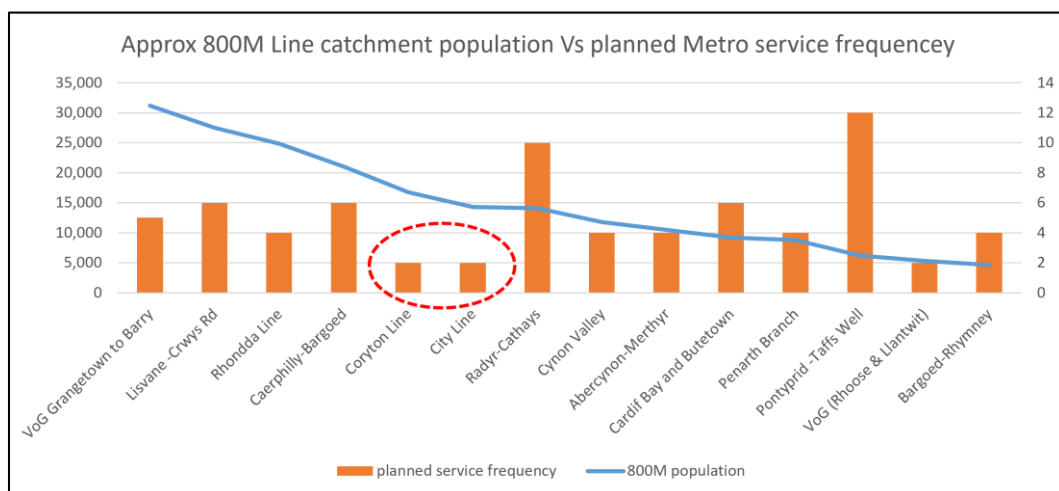


Figure 4 Planned service frequency Vs est. catchment population of CVL sections

Operating costs and government support for services

Recommend that WG Officials are asked to review, update and expand analysis below.

We can all be distracted by the capital costs of projects and so overlook the more important operational costs and the often more constrained government financial support for public transport service. Such analysis has been thrown somewhat by the impact of Covid and the resulting change in travel patterns (and impact on subsidy requirements), which appear to be moving back closer to pre-covid levels. In trying to get a complete picture one can draw data from a range of sources, including the WG⁶⁴, ORR⁶⁵, StatsWales⁶⁶, HMTs Country & Regional Analysis⁶⁷, TfW⁶⁸.

⁶⁴ Welsh Government, [Final Budget 2023 to 2024 | GOV.WALES](#)
[Public service vehicles \(buses and taxis\): April 2022 to March 2023 \[HTML\] | GOV.WALES](#)

⁶⁵ ORR, [Rail infrastructure and assets | ORR Data Portal](#)

⁶⁶ Stats Wales, Outturn, [Outturn \(gov.wales\)](#)

⁶⁷ HMT Country and Regional Analysis, [Country and regional analysis: 2022 - GOV.UK \(www.gov.uk\)](#)

⁶⁸ TfW KPI Data, [Performance | TfW](#)

TfW Annual Report 2024/25, [Annual report 2024/25 | Transport for Wales](#)

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The following is an analysis prepared using mainly data as at October 2023; the key headlines re Wales (and noting the that figures are still changing post Covid and that rail patronage is recovering), and presenting an order of magnitude picture rather than precise details, are:

- Total support for bus services in Wales was pre-Covid approximately £100M per year (Cf Covid emergency bus funding which was approx. £150M pa). This is split with approximately £30~40M allocated via Bus Service Support Grants (BSSG) support for bus services and approx. £60M for concessionary fares. *Note – WG officials and TfW will best placed to update this analysis based on current WIP re Bus Reform. This will likely need, given increase in services and capacity anticipated in NZW, an appropriate additional capital and revenue allocation. On revenue perhaps an additional £100M pa*
- A total of 61.0 million passenger journeys were undertaken on local buses in Wales (72% commercial services and 28% subsidised services) during 2022-23 (1 April 2022 to 31 March 2023) compared to 52.7 million passenger journeys in the previous year (with a approx. 50/50 split between concessionary and non-concessionary trips) and 91.7 million in 2019-20 (prior to the COVID-19 pandemic). The journeys in 2022-23 covered a total of 84.0 million vehicle kilometres
- From the latest TfW Annual report 2024/25⁶⁹. Rail fare revenue increased by nearly 18% to £175M with 32M on train journeys made - up a fifth from the previous year and nearly back to pre-covid levels of circa 33M. TfW required a revenue subsidy of just over £300m from WG to fund the total £500M of operating costs. The passenger numbers are just lower than pre-Covid – but latest figures show gap is closing and likely will likely exceed pre-covid numbers when CVL Metro works and new W&B fleet roll out are complete by the end of 2026/2027. The network and services vary from very high subsidy low demand rural routes like the HoW line and services in West Wales, vs higher demand routes like the CVL (which post CVL transformation are expected to become much more efficient).
- The gap between rail farebox and operational costs is expected to reduce once all the planned new rolling stock is operational and when the £1B+n transformation of the core Valley Lines is complete. The approximate two-year delay has had a temporary impact on Welsh Government with a higher subsidy requirement for perhaps 2~3 more years vs that anticipated pre-Covid in 2018
- WG Capital spending on roads in Wales in the next few years is still expected to be higher than for rail and bus, although the bulk of this is likely for road maintenance
- WG transport spending makes up on 3-4% of WG expenditure (and just over 20% of capital outlays) Vs Health and Education which are nearly 70%. In comparison, England and Scotland allocate over 5% to transport and 25% of capital outlays
- In the latest WG 2025/26 Budget⁷⁰ the Transport department revenue allocation was circa £660m (just 3%), whereas Health/Social Care, Housing/Local Government and Education totalled £19Bn! Capital funding is £530M Vs £2.2Bn. In that budget circa £140M is allocated to bus service support and £380M to rail service support

Once a fully operational Metro service is established in SE Wales, post Bus Reform network integration, etc, then these figures will look different again.

⁶⁹ TfW Annual Report 2024/25 [Annual report 2024/25 | Transport for Wales](#)

⁷⁰ WG 2024/25 Budget [WG51150 Welsh Government Budget Leaflet](#)

3. Choices and compromises

Below are examples (in no particular order) of some choices, trade-offs and noted issues that will need to be navigated in further developing Wales's transport ecosystem. This is by no means a comprehensive list, just a series of examples to help illustrate the challenges.

Further context, examples and broader transport planning principles can be found in:

- Mark Barry, "How to build a Metro": [Transport Planning basics, compromises and choices](#)
- Jarrett Walker, "Human Transit" [Human Transit: Preface and Contents of the New Edition — Human Transit](#)
- HiTrans European Commission, 2005, "Development of Principles and Strategies for Introducing High Quality Public Transport in Medium Size Cities and Urban Regions" | TRIMIS (europa.eu)
 - 1- Public transport & land use planning
 - 2- [Public transport – planning the networks](#)
 - 3- Public transport & urban design
 - 4- Public transport – mode options & technical solutions
 - 5- Public transport – citizens' requirements.

Ridership v coverage

This is perhaps the most challenging and most well-known trade off, coverage v ridership. With a fixed budget one has to decide whether your priority is ridership (and so farebox) or coverage (so equity). The former means you can reduce subsidy per passenger but serve fewer places, the latter means you may serve more places but with less frequent and attractive services, supressing demand that require more subsidy per passenger. This illustration *Figure 5* from Jarrett Walker's book *Human Transit*, is pretty clear. A political choice has to be made.

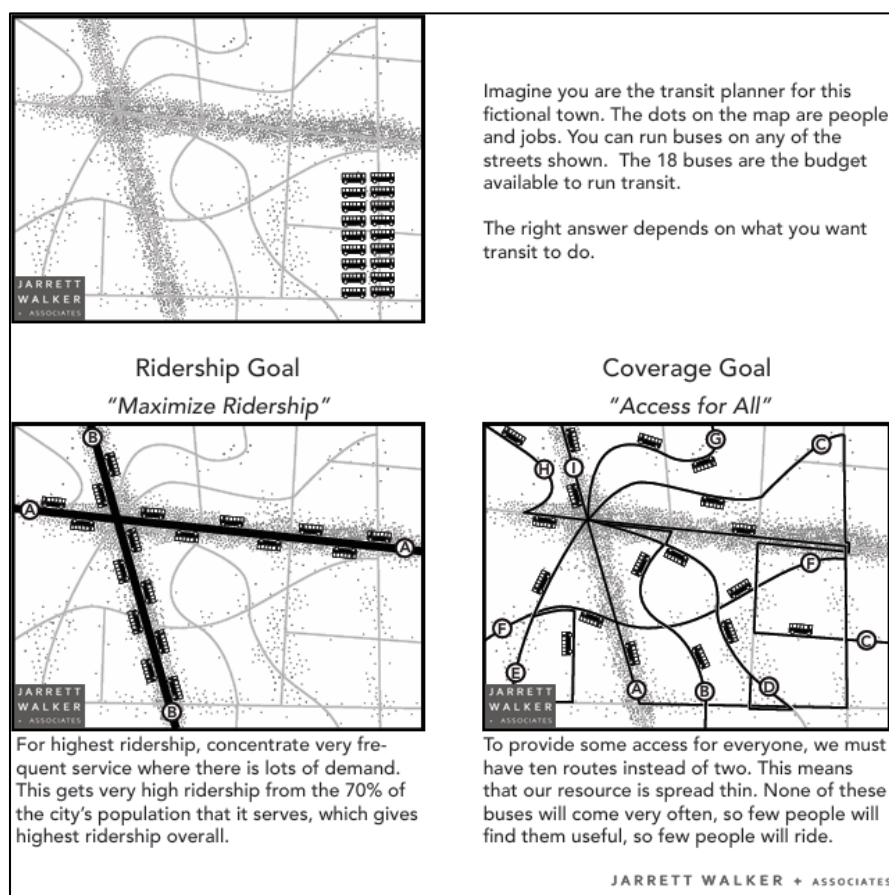


Figure 5 From Jarrett Walker's "Human Transit"

Multi modal transport grids

In urban areas, we are trying to develop multi-modal networks of rail, light rail, bus and active travel *Figure 6* . On high demand “Metro” corridors the rail services (which can carry the most people per vehicle) are the arteries and the local feeder bus services the capillaries.

The frequency of such services is also a major consideration to secure demand; typically recognised as being a minimum of 4 service an hour to deliver a “turn up and go service”. Particularly relevant in Cardiff, where the adage “no one waits 30 mins for a 15-minute trip” is true for the City and Coryton Lines on the Metro which are still planned to be a suboptimal 2tph *Figure 7* (Although the recent UK Government announcement re Cardiff West Junction presents an opportunity to revisit planned CVL Metro services patterns)

[Transport Planning basics, compromises and choices - Multimodal grids](#)

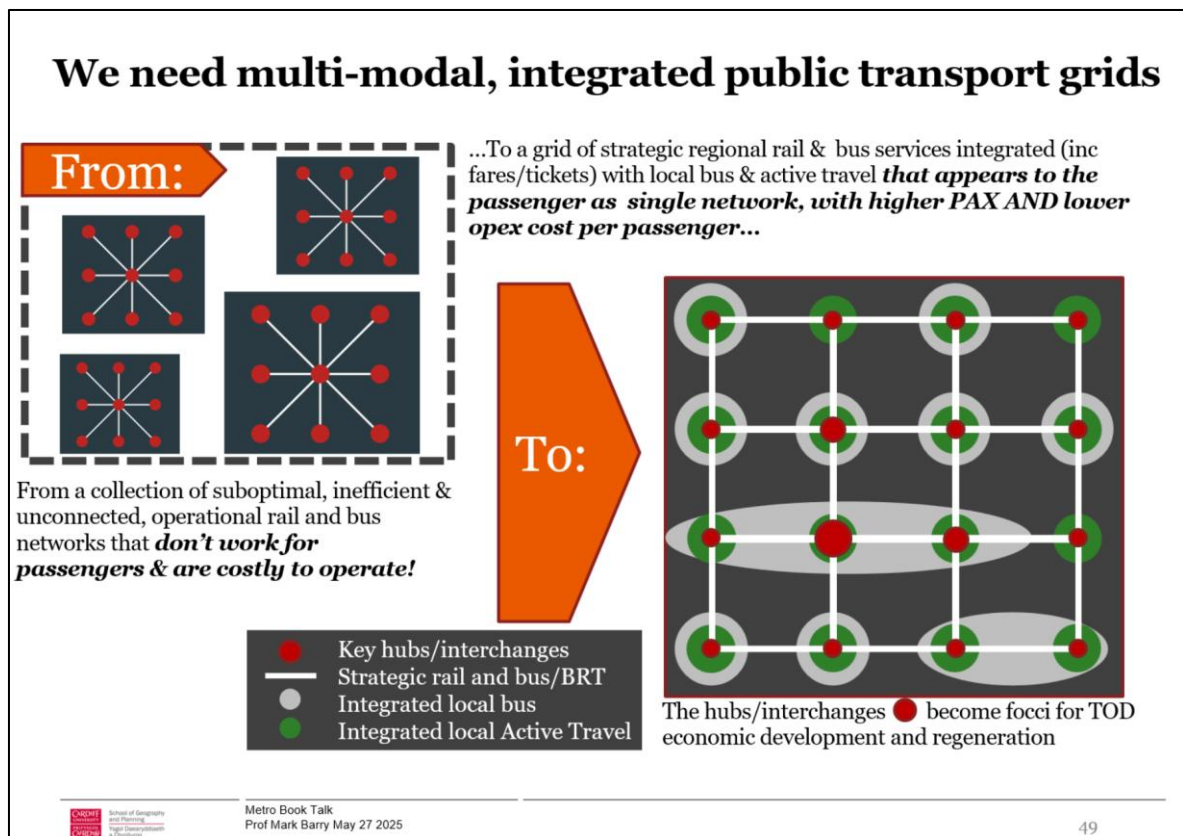


Figure 6 From How to build a Metro "Integrated multi-modal transport grids"

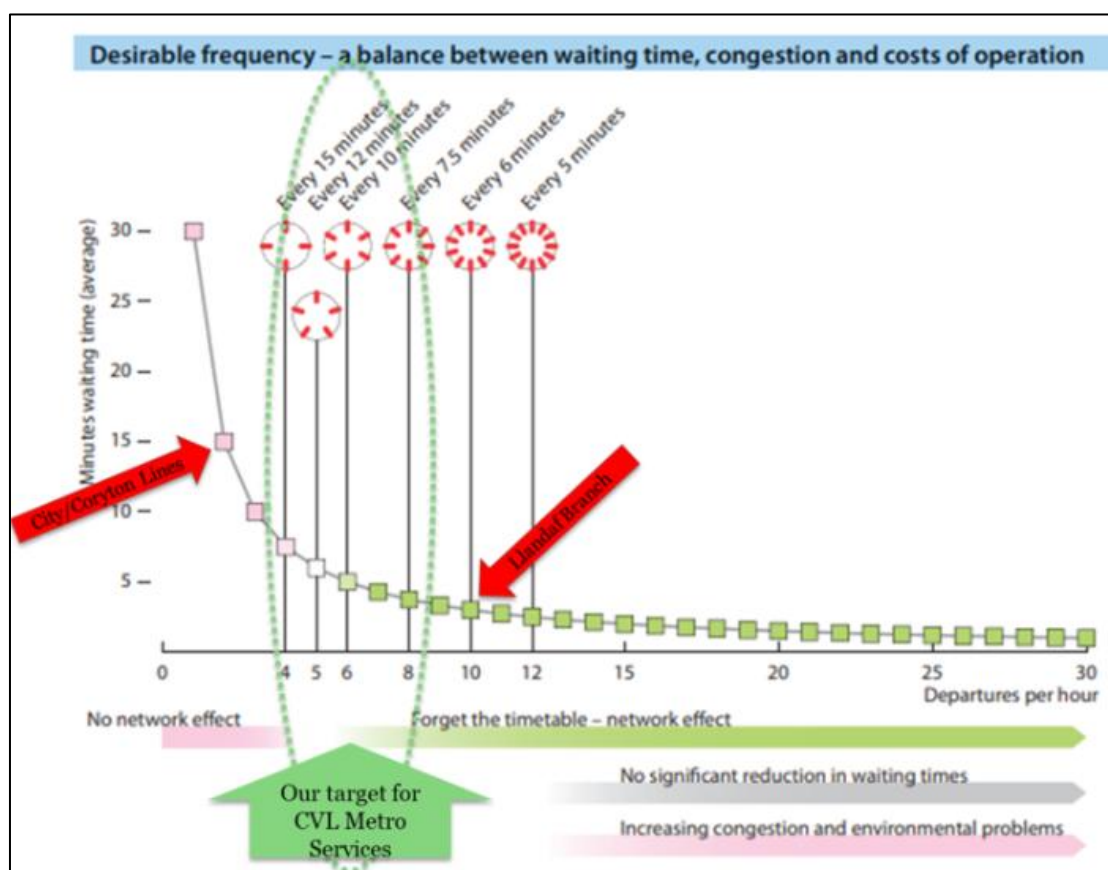


Figure 7 Services per hour V wait time

Bus lanes V car priority...and cycling & bike lanes

A little understood feature of bus operations is that by doubling the average speed of a bus service (*note: this does not mean the bus has to have a higher top speed – it means removing the obstacle which cause the bus to slow down and/or stop unnecessarily*) one can reduce the direct operational costs of the service by 50% as you need just half the number of buses (and so staff, maintenance, etc) to deliver the same service frequency.

In urban areas bus journey times are negatively impacted by lack of bus prioritisation and being caught in congestion. More bus lanes and prioritisation will improve the financial efficiency of bus operations and enable more reliable services able to attract more passengers.

The fact that we have relatively few bus lanes and prioritisation is that often political choices have been made to avoid and/or reduce a negative response from car users (*Reference Motonormativity mentioned earlier*). This choice is legitimate but as for others set out, this often results in less efficient and less attractive bus services. Such choices are often made without really considering the benefits of more efficient and attractive bus services; primarily the fact that more people using buses for at least some of their trips means fewer people in their cars, reducing congestion freeing up road space for those that need to drive.

The same principle applies to cycling and cycle lanes. Many drivers often fail to acknowledge that people switching from car use to Active Travel and/or PT means there is more road space/capacity available for those that need to drive for certain trips or have no choice for some/all of the trips that they make. This also reduces the wear and tear on our roads,

Simply put more people using PT and/or AT means fewer car trips and more road capacity for trips that can't be switched to AT/PT.

Rail V bus

Transport Planning basics, compromises and choices - Modes

It is important to stress that an effective public transport system (esp. in populated urban areas) needs both rail and bus, and for them to work together as part of an integrated system. There are some voices suggesting we should focus on bus and not rail, because bus is less costly; an argument flawed by looking at all Wales averages for the costs of each mode. This is clearly wrong, the outputs (esp. numbers of passengers carried per vehicle) and functions of rail and bus in an integrated system are very different.

In densely populated urban areas and on high demand corridors, rail (the arteries) is always the most efficient mode to carry most people *Figure 8*; with integrated feeder bus services (the capillaries) then public subsidy can be even more effectively deployed. The example of what was achieved via the Newcastle Metro⁷¹ in the early 1980s is a great example of the impact or effective bus/rail integration.

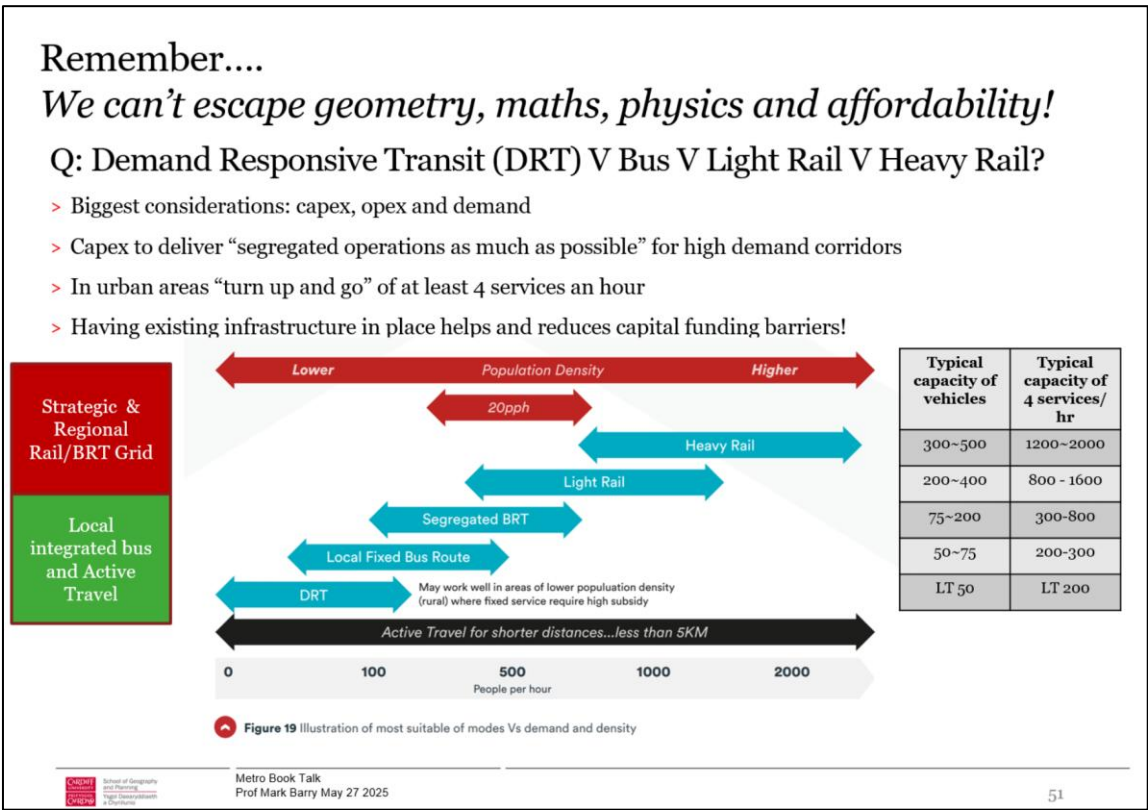


Figure 8 From "How to build a Metro" - Transport Modes

For example, to deliver the same capacity using buses as an additional 2tph (so about 1000 people an hour on 2 doubled up tram-trains) on the Coryton or City Lines in Cardiff, would need circa an additional 15 buses an hour (so more vehicles, staff, maintenance, depot space, etc – so more opex) to operate on already congested roads (so offering a less attractive service).

We need to move away from subsidised sub-optimal bus services competing with subsidised sub-optimal rail services. Where rail can do the heavy lifting, especially in densely populated urban areas (eg around the CVL network), it should; this will allow bus vehicle kilometres to be deployed more usefully to “feed it” or operate in places rail can’t easily or affordably be delivered and where demand is more appropriate to a bus service.

⁷¹ From “How to builds a Metro” [Is Newcastle the best example of a Metro?](#)

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The further challenge in Wales is that we have many rail operations serving areas of lower population and/or with much lower demand than the Core Valley Lines and SWML in southeast Wales. It is those less patronised rail services that attract the much higher opex per passenger. To exemplify, the population density of the Cardiff Built Up Area is over 40 pph and the Swansea BUA 30pph, whereas there are no major urban areas in Pembrokeshire or Carmarthen which have county population densities of just 0.76 pph and 0.70 pph respectively.

In many parts of rural Wales, especially where there is no rail option, there is an opportunity to deploy reduced stop express bus services, which are going to be better value for money than new rail. In those areas we may find that in some case a flexible "Demand Response Transit" option like TFW's Fflecsi is better value for money for local provision than fixed bus routes and services.

In making assessment of modes vs routes and services we need a more granular analysis of costs, farebox, demand, etc at the level of individual routes and services - both rail and bus. Using simple Wales level only figures to compare modes is not very useful in trying to ensure we allocate public money most effectively.

A stark choice we face is that reducing rail subsidy would mean targeting a reduction in the rail services that attract the most subsidy and carry the fewest people; this would mean rural services in west Wales, Heart of Wales Line, Conwy Valley etc in favour of the higher demand and lower cost per passenger operations in SE Wales, NE Wales & the CVL. In fact, the current subsidy to the HoW line could probably deliver more bus capacity & higher service frequency on that corridor.

Free or discounted bus fares?

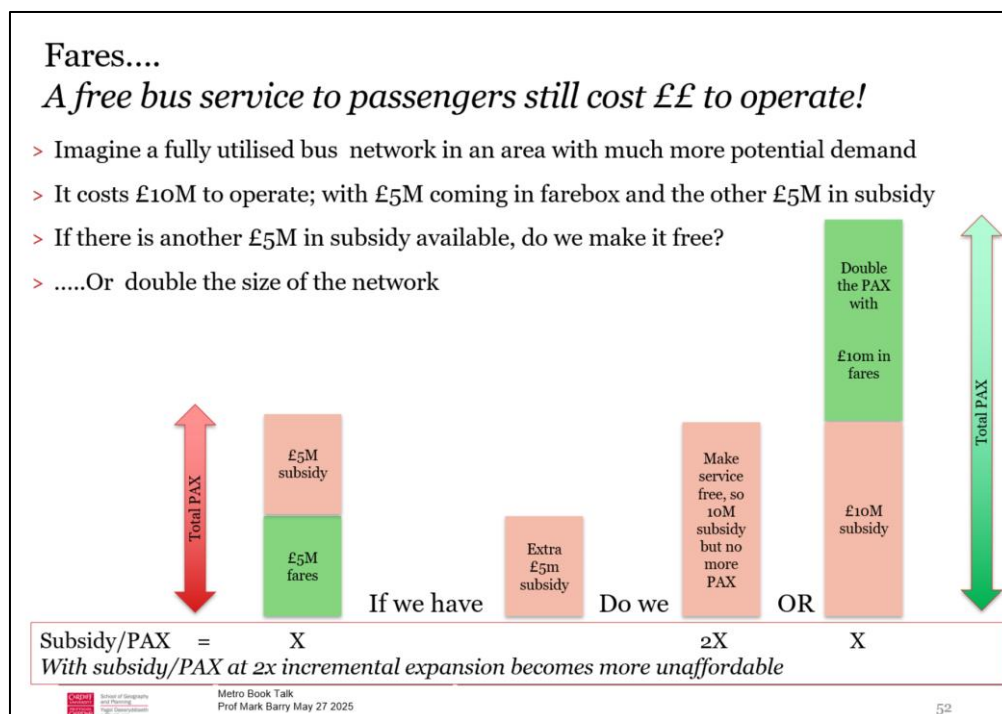


Figure 9 Impact of free bus fare on affordable capacity

It seems obvious that free bus fares are a good idea. But that is not necessarily true. Buses still cost to operate and there is not an unlimited pot of revenue to allocate to free services. In fact, making bus fares free will add to the subsidy (in total and per passenger), generate more demand which will be more costly to provide Figure 9 . It also makes the costs of incrementally increasing capacity more challenging. (See [Transport Planning basics, compromises and choices - Free bus fares?](#))

The same approach applies to discounted fares. Yes, that will likely drive more passenger demand. However, the lower fare per passenger needs to attract enough further passengers to

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deliver the same farebox for the current service level, else they will need more subsidy. The likelihood is though, that the extra demand stimulated by reducing the fares will need more opex to operate more bus services to carry them, this time with more subsidy per passenger, so will need even more revenue support. Is the priority being able to provide more bus services and capacity to secure major mode shift, or to make bus travel less costly for the current passenger base?

We also perhaps need to consider who we support. Today over 60s have free bus fares; the question that perhaps needs to be asked, is this the demographic that needs most support. Perhaps others, like under 25s (whose transport costs are often disproportionately high vs other groups) need support. Perhaps over 60s should pay a minimal amount or a flat annual fee for the privilege, maybe we should direct more resources at other groups?

Cross border V Wales interregional Vs Wales intraregional

There is a challenge in trying to develop the Welsh economy and Wales transport infrastructure and services with some suggestions that Welsh Government should focus its resources on movements solely within Wales. This has implications as there are significant movements of people and goods between Cardiff/SE Wales and Bristol/SW England and NE Wales and Cheshire/Wirral/Merseyside.

One can make the argument to be exclusively Wales focussed, but in the context of ignoring some of the most important movements in the country. Such cross-border movement is not unusual; especially across in Europe where there is much cross border movement and infrastructure. For example, Copenhagen-Malmö, Maastricht-Aachen-Liege; the Basel tram system operates across three countries (one of which is not even in the EU). Yes, intra national and intra-regional movements are vital; but for Wales so are a significant number of cross border movements.

One might also argue given the greater importance to Wales, that in a future devolved arrangement, the Marches line becomes a WG responsibility. People in Shrewsbury may favour this as it is far more likely that WG would invest in this line and its services than the DfT.

Rail infrastructure utilisation (more new rail is very costly)

We need to avoid spending scarce capital on new transport infrastructure, especially Heavy Rail (HR), if that results in adding poorly utilised rail infrastructure to an already financially strained system and in some cases underutilised asset base. In Wales for example, this includes the costly, extensive and relatively little utilised Heart of Wales Line.

The proposal to reopen Carmarthen-Aberystwyth Line (see below) would result in a lot of costly to operate and maintain infrastructure which risks being as poorly utilised. Where new rail infrastructure can add most value is where it can enable much greater utilisation of the existing network; so much better perhaps in the medium/longer term to focus on Bangor-Caernarfon-Porthmadog using a LR format, which could improve utilisation of the Cambrian and NWML, (See [15.9 Rail innovation in northwest Wales](#) and [15.10 South Wales to north Wales, etc](#)).

The same argument applies to the function of "Station Link" at Cardiff Central (to enhance the capacity and redundancy of the CVL) and a short connection between the Rhymney Line (at Nelson) and the Taff line at Quakers Yard on the CVL (to provide cross valley connectivity).

Reopen Carmarthen-Aberystwyth rail line...or not

Clearly such a scheme would have local benefits and strategically provide Wales greater N-S rail connectivity in the west. However, given the route, topology and alignment constraints it would not enable a service much different in journey time from an express bus service.

This would also be a very expensive project of at least £1Bn (even if adopting a Lighter Rail format) and likely far higher; it would also have a very onerous subsidy requirement given the low

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catchment population. In fact, the total demand profile on this corridor is significantly less than that associated with the first phases of a Swansea Metro. What is our priority?

Furthermore, progressing with this capital-intensive scheme would inevitably mean other rail enhancements could not progress and that funds to support operation of other PT services in Wales would be constrained.

So yes, there is strategic case that can be made for such a scheme, but it has an opportunity cost in impacting progress on many other “better value for money” schemes. In fact, an express bus service can be more affordably and quickly established in the west. The new electric T1 bus service between Carmarthen & Aberystwyth is already driving a significant increase in demand⁷².

De-designate Core Valley Lines (CVL).... or not

During the 2016-2018⁷³ procurement process for the Wales and Borders franchise and so the “South Wales Metro”, one option for its development was to fully de-designate and take the Core Valley Lines (CVL) out of the National Rail network. So more like the Light Rail (LR) systems of Manchester Metrolink, Newcastle Metro, Croydon Tram, etc. For several reasons this option was not taken and the CVL (apart for the bay line which will be designated as a tramway) is to remain part of the national rail network and look more like the Merseyrail system – apart from the fact it will be operating Light Rail Tram-train vehicles.

The CVL network will have to be maintained and operated in full compliance with national rail standards and procedures under the full oversight of the UK Government Office of Road and Rail (ORR). This also extends to the role and T&Cs and staff protocols, etc which are consequently going to much more Heavy Rail (HR) in arrangement than those on the “Lighter Rail” systems mentioned⁷⁴. That decision, whilst perfectly understandable, has resulted in a CVL network with higher unit costs and more operational constraints than would have otherwise been possible. There is no implicit reason why this could not be revisited in future -although it is likely (as is the case below) to generate some push back from the rail unions.

T&Cs and operating protocol on CVL

The CVL will be, in effect, the only UK “tram” system operating with guards involved in door and despatch operations. This follows from and partly a consequence of, the retention of a Heavy Rail (HR) designation for the CVL network and no doubt a degree of Trade Union pressure. However, this need not be the case as the new tram-trains can operate using Driver Only Operation (DOO). This is something the rail unions (especially RMT) fought against, as is there right. The more challenging question is do we want non driving rail staff performing tasks that impact performance or do we want to deploy staff more flexibility and efficiently (in groups and/or at stations) instead.

The case for the retention of an additional member of staff on each tram-train is well made and not without some justification; to address passenger queries, safety/security concerns and deal with Anti-social behaviours. However, this strict rule prevents the option of having “roving customer service staff” not fixed to each vehicle, who can be deployed across the network where most needed. For example, some of the shorter services (eg Penarth-Coryton, Bay, etc) could certainly operate with just a driver and DOO and no guard. Most other LR networks operate with DOO and roving customer service staff in a ratio of less than 1 per vehicle so helping reduce unit costs.

⁷² TfW, 2024, [65% passenger growth for new electric bus route](#)

⁷³ From “How to build a Metro” [Procuring & building the South Wales Metro 2016-24](#)

⁷⁴ From “How to build a Metro” [Differences between Light Rail and Heavy Rail](#)

CVL value engineering and network resilience/redundancy

It won't have caught the public eye but some value engineering decisions during infrastructure works on the South Wales Metro, whilst reducing capital outlay, have added some operational constraints and performance risks to the new Metro services. For example, reducing the scope of OLE, less double tracking than originally planned, etc will make operational perturbations more likely and difficult to recover from. It will also make new stations and different service patterns (which we need) more difficult to introduce. More stations on the existing network in particular are important given potential for additional demand/farebox with limited additional capital spend and minimal additional operational cost.

There is also strong case to be made for additional stations on the network (as was anticipated during the original procurement process and bidder requirements⁷⁵) to drive more demand and farebox (esp. in areas of Cardiff with high local catchment – Ely Mill, Roath Park and Gabalfa) and where major bus/rail integration opportunities exist (eg Pontypridd north next to the bus station).

There are also some serious operational resilience and redundancy risks associated with some parts of the network. In particular Intersection Bridge (which carries the CVL south of Queen St over the SWML to connect to the bay line and Cardiff Central) will need a major renewal (and possibly replacement) in the not-too-distant future (there was a major issue earlier this year which in effect closed CVL operations and cut off Queen St from Central and the bay).

To mitigate this risk (And WG are now aware) we need to improve access from the Treherbert, Aberdare & Merthyr (TAM) lines via the west of the city using the City line into Central and perhaps the Bay. Aside from the Cardiff West Junction enhancement (now agreed by UK Government), this needs a connection to Crossrail Phase 1a ("Station Link") with some further turn back capacity at Queen Street. It is inconceivable for any major works to progress at Intersection bridge before first delivering this additional infrastructure to improve network redundancy and reliability.

The Cardiff Crossrail Phase 2 proposal (Which includes limited new track sections) includes consideration of these measures, minimum 4tph services in Cardiff, new stations and the opportunity to operate further tram-trains on Penarth-Coryton services (subject to a little more OLE) which will allow the Trimodes now being rolled out to be switched from those services to the new BTM-Cardiff services. This is the most cost-effective RS option.

Externalities & Road User Charging (RUC)

See appendices for more references and Funding Options...

Whilst politically very sensitive, road use charging is the quickest and easiest means to reduce congestion. The data emerging from New York⁷⁶ is very illuminating, other data and papers going back decades have all reached the same conclusion⁷⁷.

From a fiscal perspective there are two major drivers for addressing this issue. First the fall off in fuel duty as more EVs take to the road. Second there is now an unarguable amount of data demonstrating the large unallocated external costs⁷⁸ of car dependency which drivers don't pay; but falls to society as a whole (RTAs, congestions, poor air quality, low density sprawl etc). Some form of charging does provide a more equitable baseline across all the modes.

⁷⁵ WG 2017, [welsh-government-policy-priorities-for-wales-and-borders-rail-services-and-metro-operator-and-development-partner-procurement.pdf](#)

⁷⁶ New York RUC:
[New York City's congestion pricing has cut pollution and traffic –The Guardian](#)
[Impact of New York City's Congestion Pricing Program | NBER](#)

⁷⁷ From "How to build a Metro" [Road User Charging](#)

⁷⁸ From "How to build a Metro" [External costs of car dependency](#)

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For road schemes we also need to be far more aware of the negative externalities, especially induced demand, which are not always comprehensively captured in business case development, as SACTRA concluded back in 1994⁷⁹.

None of this is new. In 1990 a paper⁸⁰ from Cambridge economist, David Newbery set out the rationale and principles in support of road pricing. In particular, he explored the four main costs on the rest of society associated with road vehicle – accident externalities, environmental pollution, road damage, and congestion. He concluded by saying,

“Road pricing is the best method of dealing with congestion, and would have far-reaching implications for the viability and quality of public transport, for the finance of urban infrastructure, and ultimately for the quality of life.

The full Cardiff Crossrail...

From figures not publicly available (based on work undertaken at TfW) it appears that the full implementation of the Cardiff Crossrail scheme (so NW Corridor, Radyr/Coryton, grade separated Cardiff West, extension east to Newport rd. via Splott/Roath dock, further stations, etc) would have the biggest impact on mode shift, decarbonisation and economic development, as well as serving some of the most disadvantaged communities, of any scheme in Wales. However, completing such a scheme would cost of the order of £1Bn, so would likely squeeze out many other schemes across Wales. This is a challenge, and choices will need to be made.

Nonetheless, the core enabling Crossrail Phase 2⁸¹ is an essential scheme with a relatively low capex and revex and needed to provide a “turn up and go” Metro in Cardiff (a major omission in the current programme⁸²) as will be the case for the valleys north of Cardiff, which will experience major benefits from the current contracted programme once it is complete, probably late 2026 or early 2027. Cardiff Crossrail Phase 2 is focussed on making better use of the existing rail assets in/around Cardiff through new connections/loops and capacity/stations on the existing network.

The allocation of a further £1Bn for the full Crossrail over say ten years whilst challenging, will deliver large and wider benefits (which can't be ignored). It may be prudent for TfW/CCC to properly explore phasing options which focus on achieving maximum value for the least capital and opex commitment. Furthermore, it is this kind of scheme that could be supported with new innovative local funding capacity (city and/or regional).

Abertillery spur vs Marches Line upgrade

This choice provides an example in CCR that will be influenced by limits on capital funding and an honest appraisal of where costs and benefits fall. There is a long-standing desire to reconnect Abertillery with a short ~4km reopening and connection from the existing Ebbw Valley line at Aberbeeg. This would be linked and part of a bigger scheme to secure 4tph on the Ebbw Valley line (with 2tph to Ebbw Vale and 2tph to Abertillery).

However, the stark reality is that most of the benefits of the schema are associated with securing 4tph on the existing line south of Llanhilleth, and most of the capital costs to extend the line to Abertillery. A 4tph provision on the existing line could be achieved at much lower cost with a turn

⁷⁹ Standing Advisory Committee on Trunk Road Appraisal, HMSO 1994, “Trunk Roads and the Generation of Traffic”, HMSO, London, and 1996 “[Transport and the Economy, Full Report](#)”

⁸⁰ David Newbery, Oxford Review of Economic Policy, 1990, “Pricing and Congestion: Economic Principles Relevant to Road Pricing” [PRICING AND CONGESTION: ECONOMIC PRINCIPLES RELEVANT TO PRICING ROADS | Oxford Review of Economic Policy | Oxford Academic](#)

⁸¹ M Barry, 2025, [Cardiff Crossrail Phase 2](#)

⁸² M Barry, 2025, [Some “Metro” suggestions for TfW’s Board & Welsh Government](#)

M Barry, 2024, [South Wales Metro, Cardiff, subsidies, tough choices and compromises](#)

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back at Llanhilleth (only a single track to Ebbw Vale and new road at Cwm has constrained a doubling) and instead serve Abertillery with a more cost effective regular frequent integrated bus service, probably operating from Brynmawr (as part of bus franchising). Instead, the capital funds could deliver more benefit by enhancing the Marches line to Abergavenny (including a turn back at Abergavenny) to enable local Metro services of at least 2tph (which it currently does not have) operating via Newport from the Ebbw Valley and perhaps one or two additional stations, including Caerleon. This would have the additional benefit of removing some of the local stops from the long-distance Manchester and North Wales services so reducing their journey times.

Felindre P&R v Carmarthen P&R

This is another scheme that persists in the media. More recently it has been positioned as a means to get faster trains to Carmarthen via the Swansea District Line (SDL). The conflation of a station stop in Swansea with faster journey times to/from Carmarthen (and points further west) to Cardiff or London is incongruous and illogical. If one wants to go fast to/from Carmarthen, then that can be achieved more easily by not stopping at Felindre⁸³.

This scheme is now very much tied up with TfW work re the South Wales Mainline (SWML) and local Metro. Key considerations include journey times, demand/revenue (and abstraction thereof), reducing excess car trips and rail heading. For example, currently many people from west of Swansea and esp. west of Carmarthen wishing to travel to Cardiff/London will either drive all the way or as far as the P&R at Port Talbot or Neath. Having a P&R at Felindre will not reduce the number of car trips from west of Carmarthen to Swansea. It also has to be noted that there are no long-distance rail services currently operating on the SDL and a new station able to accommodate a London IET type train at Felindre will likely cost in excess of £70M (if one looks at emerging estimates for the "Burns stations") and likely more given the challenging topology at this location.

If we want to reduce car trips from points west of Carmarthen to Neath/Port Talbot and points further east, then we need to offer at least some faster rail services to/from Carmarthen to/from Cardiff and London. This will enable Carmarthen to become the P&R for west Wales (not Felindre). This inevitably means skipping Swansea High Street (Swansea HS) and routing via the Landore curve (or both Neath and Swansea HS if routing via SDL).

The new Open Access (OA) Lumo operator approved by the ORR, is planning operating via the Landore curve on the current SWML and skip both Swansea HS and Neath. This is due to start in 2027 with a five times a day London Carmarthen service with local calls instead at Port Talbot Gowerton and Llanelli. This will offer the faster service Carmarthen needs to points east of Swansea. The quid pro quo for Swansea (and perhaps Neath) are the additional services resulting from the new Burns BTM services with one of these likely to operate to Swansea HS. In addition, the first phases of local Metro will mitigate the "issues" with additional local services connecting Neath, Swansea High Street, Llanelli and other existing and new local stations. In this context Felindre can be a local Metro station and with land use changes could support a significant residential development around it.

M4 Relief Road & new roads

Recent public discussions and sometimes deliberate misinformation have created a toxic car v everyone else public debate (Vs cyclist v PT user, etc) This is a false dichotomy as many PT/AT users are also car owners and/or drivers. Nor is there any ban on new roads. As stated, the WG have just completed the final section of the HoV road which at £1.8bn cost more than South Wales Metro; and WG still has a very significant roads budget.

⁸³ M Barry, 2019, [A Swansea Bay Parkway... but where and why?](#)

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We now also recognise the costs and very significant externalities of car use and especially excessive dependency (which is often as a result of poor land use planning resulting in 40 years of car based low density sprawl – esp. retail office and homes). With the reality of limits on capital then providing more alternatives to car use will actually free up road space for those that need to use them. As stated above this will need far more TOD and consideration of RUC (See below)

Nonetheless, there will still sometimes be a case for some new/expanded roads. This can include localised by-passes where excess traffic burdens a local community with risks and impacts associate with poor air quality, more RTAs, community segregation, etc. Such an approach is perhaps relevant in respect of Llandeilo and Llanbedr where different and more sustainable design principles may result in “better” schemes than earlier proposals.

We should also recognise that where road infrastructure is old and requires maintenance, then replacement is sometimes justified. This may influence future thinking re the Menai Crossing, although to replace with a new bridge will come with a very high capital cost.

However, the idea that more large new dual carriageway roads are needed is becoming more dated. More people now better understand the phenomenon of induced demand which means that for many new road schemes, the additional capacity will generate additional car trips that will eventually result in congestion. Such schemes (like a new M4 relief road) will also come with a very significant cost that would negate the opportunity to bring forward alternatives. In most cases it is only 20% of traffic that cause 100% of congestion, so developing alternatives and so more choices for people is a more efficient means of addressing congestion. As noted elsewhere, in many circumstance the most effective means of addressing congestion is to “toll” the road. The emerging evidence from New York is instructive⁸⁴; reducing congestion, faster bus services, less pollution, more revenue for more PT.

See section in Appendices for reference and links to studies and reports including the Roads Review and the WG response to it. These provide a firm evidence base to help inform discussion related to new/enhanced roads. One of the benefits of the review is that some previously over-engineered schemes have been revisited to design/deliver a more appropriate, less costly and perhaps a more “human” alternative; for example, the revised proposals for a Llanharan by-pass.⁸⁵

The only serious justification for a major new road like the M4 Relief Road is if the current M4 can no longer affordably be maintained to operate safely and reliably. The status of all such roads should be careful and diligently monitored.

Menai crossing and potential alternatives

There are concerns re: the resilience and capacity of the existing road crossing from the mainland to Yns Mon. Whilst the calls for a new crossing are merited, the North Wales Transport Commission⁸⁶ found that a range of alternatives would be better value for Money. However, there may also be further and better alternatives, albeit longer term, which could be considered. The rail capacity across the straights is underutilised with room for more services (subject to investigation/work re signalling, track capacity, doubling etc).

If we revisit the “LR” proposal⁸⁷ to connect Bangor-Caernarfon (and even down to Porthmadog) one could also consider an extension over to Yns Mon and a short spur to Llangefni. One could consider operating a regular high-quality tram-train service between Llangefni-Llanfair PG-Bangor-Parc Menai-Caernarfon (-Porthmadog tbc). Llangefni becomes a bus/rail interchange (as would

⁸⁴ New York [Impact of New York City's Congestion Pricing Program | NBER](#)

⁸⁵ RCT Council, [Llanharan Sustainable Transport Corridor to Progress](#)

⁸⁶ North Wales Transport Commission, 2024 [North Wales Transport Commission Improving the Resilience of Connections Across the Menai Strait](#)

⁸⁷ From “How to build a Metro”, [Rail innovation in northwest Wales](#)

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Bangor and Porthmadog)) with regular services (at least 2tph tram-trains per hour) services interwoven between the planned NWML services over the Estuary. Such services would be fully integrated with local bus services. This would take pressure off the road network (esp. if combined with road pricing) and would perform similar function as the Burns (*Metro Impact Study*) services and stations vis a vis the M4 in SE Wales. This proposal would likely mean double tracking the rail line over the bridge and so compromise the Commission's proposal for an active travel route.

Electric vehicles (EVs) – cars and buses

We are clearly in a transition to EVs which is positive. Battery technology is also moving quickly with ongoing improvements in energy density, power output, battery size and costs. However, today most EVs are currently getting larger and more expensive⁸⁸ exacerbating the problem as they need more energy and bigger batteries than smaller cars (and result in more RTAs)!

There is challenge for public bodies to assess where they focus resources. One might argue, that as the public sector don't fund petrol stations, then the energy and car industry should majority fund EVs and charging thereof. However, the market is new and immature with few low-cost options at present (the Citroen Ami is an example of a suitable urban EV which is an exemplar).

EVs are still cars and have all the externalities mentioned above (there are still air quality issues for tyres and brake pads) so it is still far more beneficial to support and direct public resources at PT and AT which can have most impact in urban areas. Perhaps the focus for EV public investment should be in lower population and rural areas, which are also unattractive to private operators, as car use/access will still be very important in such places aligned with more incentives for the private sector to deliver EV charging in urban areas. TfW is already leading on EV charging programme, perhaps this could be expanded/accelerated in rural Wales?

We face a similar challenge re EV buses. An EV bus can cost 2-3 times more than a diesel bus. So, if we look at the numbers of passenger one can move per pound, then clearly diesel will be better value for money re mode shift, despite the fact the bus itself produces emissions. Whilst clearly a very broad-brush assessment, it is something we need to consider; getting 100 more cars off the road, even at the cost of one more diesel bus, is likely to be better overall for carbon reduction and air quality improvement.

Transport spending V other devolved responsibilities

To begin to deliver the further public transport capacity implied by our NZW mode shift targets (which anticipates a trebling of PT by 2040), will require a commensurate increase in PT spending – both capital and revenue. This is an enormous challenge and will inevitably require a rebalancing of relative funding priorities between government departments – as well as further revenue generation measure. As noted earlier, current total transport department revenue funding in the Welsh Budget is just £660M, 3% of the total.

In the next few years, it is likely that rail operations will continue to deliver improved efficiencies as the current phase of the Metro is completed and the new W&B fleet is fully deployed. As stated above, whilst not without challenges, there are options to make further efficiency savings in operations and to drive further revenue with limited additional operational costs (eg new stations in Cardiff on existing rail lines/services).

Perhaps the biggest challenge is to fund bus services and the new franchised integrated network. Bus will need additional revenue support (noting that in urban areas much more bus prioritisation will deliver operational and financial efficiencies) – else the entire franchising process risks not delivering what is expected of it.

⁸⁸ From "How to build a Metro" [Technology, cars and EVs](#)

4. Transit Oriented Development (TOD) in the CCR

One cannot develop and implement an effective transport policy if one does not also develop an effective and complementary and synergistic land use plan!

This topic is given its own section and is from an article/blog published last year [Transit Oriented Development \(TOD\) in the Cardiff Capital Region \(CCR\) #3 – Mark Barry's blog site](#) which is a summary of a chapter in “How to build a Metro” [Why we need Transit Oriented Development](#).

The problem

Paraphrasing the late Eric Morecombe, our planning and development eco-system has resulted in us building “all the wrong stuff in all the wrong places” for over 50 years. Homes, hospitals, shops, offices, cinemas, leisure centres, etc all designed and located around car access.

This car based eco-system was in part enabled by the likes of such planning and transport giants as Corbusier, Moses, Buchanan and Beeching, and now means that many new houses are located in places that require you to get in your car every time you want to buy a pint of milk!

So, after the collapse of local and employment intensive heavy industry, the biggest negative influence on many of our city and town high streets, has been the huge relocation of office, retail, public services, etc to car based “out of town” locations in the last 50 years. Southeast Wales is covered in them; Cardiff Gate, Trago Mills, Imperial Park, Spyttly Park, Navigation Park, Royal Glamorgan Hospital, Celtic Springs, McArthur Glen, Culverhouse Cross, Llanfrechfa Grange, etc.

When you combine this reality with mass volume car-based “shed” corporate supermarket retail, the consequential demise of local independent shops and food retail, and now the perversity of drive through coffee shops, the primary cause of the sickness afflicting our high streets becomes clear – car based out of town development. We have a collective blind spot with cars and a failure to recognise the wider societal and economic costs of the apparent freedoms they provide.

The impact

The resulting damage and wider external costs have been recognised by The Welsh Government who commissioned a report by the Foundational Economy Research in 2021, “Small Towns Big Issues” which illuminates the negative impact of out-of-town car-based development – especially on existing town centres. A further report by Audit Wales came to broadly the same conclusions.

Across the UK over the last 50 years we have replaced millions of small high street based, independently owned retail businesses, who retained and recycled value locally and performed a vital social cohesion function, with a few thousand corporate car based, shed retail outlets, employing fewer people on lower wages, often part time, with the value of those retail transactions extracted from communities via profits to corporate balance sheets and shareholder dividends.

It is instructive to compare, even qualitatively, the vibrancy and status of Tonypany High Street (Dunraven St) in the mid Rhondda Valley with Treorci High Street at the top of the Rhondda. Tonypany high street has been plagued by problems, empty properties, low footfall and many failed initiatives over decades and is seen to be suboptimal. In stark contrast Treorci High St won “high street of the year” as recently as 2019. How can two places so close have high streets that perform so very differently.

Tonypany appears to have suffered far more from the growth of car based out of town shed retail. Less than a mile from Dunraven St is a very large Asda at Llwynypia); the bright lights of Talbot Green or Pontypridd with its Sainsbury on the A470 are not too far away either if one is so inclined. However, there is limited space or land availability in/around Treorci and/or probably insufficient commercial potential for there to be similar large car-based retail in Treorci (*albeit there is smaller*

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Coop with car parking). The impact is clear to see. Tonypany high street has been hollowed out through the abstraction of activity to places like Asda whereas in Treorci most activity has remained local, in locally owned shops, etc. The impact of edge of town development like Tesco in Aberdare, Asda in Blackwood and Morrisons in Bargoed have also impacted the viability of those town's high streets.

This is not (or should not be) “rocket science”, as stated in *Regenerating Town Centres in Wales...*

“The growth of car based, out-of-town retail has contributed greatly to the decline of town centres”.

So, building our lives around the car has left us an enormous problem. Yes, cars have provided millions of people enormous freedoms and convenience, but at what cost.

The solution – Transit Oriented Development (TOD)

The Climate Emergency and WG mode shift targets demand that we completely re-think our approach to land-use and in so doing embrace, so-called, “Transit Oriented Development” and Placemaking to augment the development and implementation of the South Wales Metro.

Whilst there are many definitions of TOD, many focus on the following key features, which I think we in Wales need to embrace:

- Mixed use and higher density development around transport corridors and stations
- Aligning new housing, public services and employment sites with public transport – *some real transport/land use planning*
- Improving safety and quality of urban realm – especially our urban streets
- Integration with Active Travel
- Inclusion of open/green spaces
- Community engagement and involvement in scheme development and implementation.

It's an approach to development focussed on people, public spaces and public transport, leading to reduced car dependency; and is an approach that delivers benefits, for example:

- With higher density it becomes easier and less costly to provide public services
- Local shops and retail have a higher local demand that can be accessed via active travel
- In many cases schemes for new housing can be linked to local and town centre regeneration projects and greening urban realm improvements
- TOD also means public transport investment becomes easier to justify because higher numbers of people can more easily access transit services (helping build the fare box and reduce the operational subsidies of new transit – bus or rail).

Collectively, and more importantly TOD reduces our need to use and own cars – given the present danger of climate change this perhaps is the primary reason for us in Wales to embrace TOD. This intent has also been set out in the National Development Framework and will hopefully, flow through into the regional Transport Plans and Strategic Development Plans across Wales.

How?

The big question is, does the Cardiff Capital Region have the capacity and capability to really take on this challenge? Does the region need a *Metro Development Corporation* to complement TfW? (*Or maybe the remit of TfW should be expanded? Or perhaps the CCR CJC should take on this responsibility?*)

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Looking back, perhaps we did throw out the baby out with the bathwater re the winding up of the Welsh Development Agency in 2004 (and included the Land Authority for Wales which was absorbed into the WDA in 1998). Whilst many remain critical of some of its activities toward the end of its life, the WDA did possess a very effective land use, regeneration, and development capacity that would be ideally placed to take up this Metro TOD challenge.

Perhaps we do need a new body with an operational and delivery focus to embrace the opportunity for the Cardiff Capital Region, especially with the development of the South Wales Metro, for Transit Oriented Development (TOD) and help build a more sustainable city region. ***With a focus on densified, transit connected, affordable (and likely public) housing should be at its core***⁸⁹. We need some bold targets and action in this space and clear political leadership.

The expectations of Wales's "Well Being of Future Generations" Act, Welsh Government's 2019 Review on Affordable Homes and various articles from industry experts, academics and observers provide further local context and support the need for a more strategic leadership and capacity in this space. More importantly the emphasis on placemaking within national planning policy demonstrates a pressing need for the exploration of how and where to promote sustainable homes, great placemaking and TOD in strategic locations.

In practical terms any new organisation will have to work with the private sector to help bring forward both i) a small number of larger brown field sites (for example Treforest Industrial estate or the reuse of some out-of-town office and retail for housing) and ii) the many more smaller in-fill developments Vs the fewer larger green field sites more often favoured by developers. This is challenge...

Despite the constraints and challenges of developing many smaller infill sites, there are still bigger TOD based urban opportunities. This is especially true in Cardiff where the Vastint proposal along the Embankment/Dumballs Rd offers the prospect of a more European style street layout and density, punctuated with public spaces.

A similar opportunity exists at the Treforest Industrial Estate which could be completely repurposed based on a densified mixed use and a new Metro station. The area on Newport Rd in Cardiff around the new Cardiff East station also presents a major TOD redevelopment opportunity.

Also worth noting one of the better recent examples of TOD in Wales. *The Mill* on the old papermill site in Cardiff. With a masterplan developed, curated and financed by Tirion Homes, it included density, streets, mixed use and mixed tenures and multiple development partners. The only thing lacking is the Metro station at Ely Mill/Victoria park that the development was predicated on!

Whilst TOD and PT can over the longer term reduce car dependency in urban areas (so that we provide more road space for those people that actually need to drive), it is more of challenge in rural areas and places with more limited and lower density population. This is where the car will still be vital, and for many remain the primary mode of transportation. This is where we should focus EV charging initiatives, etc.

To conclude....

The move toward more widespread TOD is a must and is perhaps as, if not more, important to deliver our decarbonisation obligations than the necessary investment in public transport infrastructure and services like the Cardiff Capital Region Metro.

Whilst this narrative focused on SE Wales, the same approach is equally applicable across all of Wales. So, places like Neath Station, Swansea HS, Wrexham Gateway, etc

⁸⁹ M Barry, 2025, [Pontypridd – the Heart of The Valleys – Mark Barry's blog site](#)

5. How should we determine priorities?

One of the challenges facing any Welsh Government in terms of transport investment priorities, is making tough choices and accepting compromises. There are some tools and methods already available. For example, we have an updated WeTAG process to help formally shape and differentiate business case development, and the current Wales Transport Strategy which reflects recent changes in relative priority between modes. The process also has to satisfy the intent of the Well Being of Future of Generations Act⁹⁰, and specifically its wellbeing goals:

- A prosperous Wales
- A resilient Wales
- A healthier Wales
- A more equal Wales
- A Wales of cohesive communities
- A Wales of vibrant culture and thriving Welsh language
- A globally responsible Wales

However, even with the WeTAG light, there still a tendency to create pages and pages of appraisal tables that most people probably won't read.

Such process can also be informed by sophisticated transport models (inc. at TfW) to help appraise project and support business case development. However, these can be complex, costly to configure and use, and still on occasion generate counter intuitive outputs. It is susceptible to a common feature of business case development which leans toward assessing those outputs that can be easily counted Vs those outputs that can't.

As set out in a "How to build a Metro", Paul Chase of TfW once said, *"I would treat the output of a transport model as I would a weather forecast, it may promise sun, but I'd pack a raincoat just in case!"*. A transport model should be one of a number of tools that should influence a decision – it should not be the final arbiter.

We also need to be cognisant that we are moving to a transport planning world of "Define and Provide" Vs the "Predict and Provide" that in part has led to the explosion of roads since the 1970s.

However, even after reflecting these considerations and the reality that there are always constraints on funding, one is still left with choices. In that vein it is worth reflecting on something the ex-mayor of Vancouver is reputed to have said; *"Focus on where you agree vs where you don't, as you will always run out of money before you run out of agreement"*.

In Wales this "advice" should impact how we appraise the larger strategic schemes that could never realistically all be funded. The focus for this process has to be on progressing a smaller number of larger strategic schemes. These are likely to be rail and major bus measures (esp. given major bus network redesign and franchising and an implicit need for more revenue funding), with perhaps some road schemes. This then means we leave the smaller and more "local" schemes to the work of the Corporate Joint Committees (CJC) and local authorities in Wales. These will more likely include more local bus measures, local road, Active Travel schemes, etc.

So, set out below is a suggested qualitative framework to help sift and differentiate the larger and more capital-intensive strategic schemes in Wales. One may view this as a kind of strategic triage to help us reduce the number of large candidate projects and allow us to focus resources and effort onto a more manageable phased portfolio. What is presented in this document is perhaps a preparatory draft that can be fleshed out and subject to a more rigorous interrogation in a structured workshop(s) run by Welsh Government.

⁹⁰ Welsh Government, [Well-being of Future Generations Act 2015 - Future Generations Wales](#)

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Such a triage could/should be undertaken relatively quickly in formal workshop(s) over a period of days/weeks with a small number of key and knowledgeable attendees. This perhaps could replace a costly 6–18-month document heavy process supported by a dry consultation. Using the 80/20 rule, one may find clarity on a range of large contentious projects could be derived quickly and cost effectively. This process could be repeated on an annual basis to maintain a “prioritised” strategic projects list?

Whilst we need perhaps less premature costly and time-consuming business case development, we still need sufficient technical scheme development and some modelling to help produce more accurate estimates of demand and costs – especially capital costs, operational costs and farebox.

So, below is a simplified six-point qualitative triage check list. These are to an extent interrelated but do provide perhaps a simpler but broadbrush means of appraisal. This should not replace formal WelTAG but should/could be a sense check and help triage major proposals before engaging in more substantive WelTAG business case and scheme development, especially where triage decisions are made based on key known data sets (esp. demographic) and established transport planning principles (eg the importance of “turn up and go” frequency for urban transit services to attract demand).

This simple qualitative appraisal is proposed based on six measures:

- Connectivity and economic benefits thereof
- Place based regeneration/development potential
- Equity
- Environmental/decarbonisation benefits
- Cost
- Operations/performance/reliability

In making that approach we need to be cognisant of a range of factors, and in so doing apply some insight knowledge from each. The process will also force us to select a preference from a range of schemes; or even put them in order. This is perhaps better than assessing schemes in isolation. This is not a quantitative approach and will best be executed via a structured dialogue within a group with some working experience and knowledge across each of the measures, as well as wider spatial, economic and strategic knowledge/insight.

Finally, to help shape an approach and especially in the context of UK Government funding, one needs to be aware of the upcoming 2026 update of the Treasury Green Book. Its guidance should flow through into how individual UK government departments like the DfT appraise schemes and business cases. Training work re: better business case development is being undertaken with Welsh Government so this work should also flow into WG appraisal of its own business cases.

On the surface the findings and actions from the review that will shape that update are positive⁹¹ and will also be relevant in Wales. For example: more focus on place-based business cases that bring together different projects (eg transport, property, housing, etc); less dependence on simple BCRs; and improvements in methods to appraise long term transformational change that result from projects.

Connectivity, related economic benefits & induced demand

This measure is about assessing the optimal means of connecting places and focussed on those interventions that move the most people, most efficiently and with the least environmental impact.

⁹¹ UK Gov, HMT, 2025 [Green Book Review 2025: Findings and actions - GOV.UK](https://www.gov.uk/government/publications/green-book-2025)

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So, between and within major towns & cities, to/from major trip generators (like large hospitals, employment sites, urban centres, development sites, leisure sites, etc) and in a way that can bolster sustainable connectivity and economic output.

In so doing we have to acknowledge that Wales is demographically asymmetric. Of its 3.1M people, over half, 1.6M, live in the Cardiff Capital Region; another 700k in West Wales, 700k in north Wales and just 200k in mid Wales. See *Figure 2* on *page 16*.

Density of population is also important, as it is often easier to justify major capital investment (especially rail) where the likely passenger numbers are higher and relatively less infrastructure and VKm of operation are required to serve it. In contrast, whilst capital programmes are more difficult to justify in less populated areas, these places require a greater “equity focus” and so relatively more revenue support to deliver sufficiently attractive public transport services. Broadly high-density populations can more easily justify higher capital investment/capita and low population density areas more revenue support/capita (subsidy)

In assessing strategic schemes, we do need to be looking at solutions that can move the most people most efficiently. So, we should consider the role of different modes – especially rail v bus (see *Rail V bus*) in achieving that outcome.

For high demand corridors then rail is often the most efficient means of moving a lot of people; whereas low demand corridors bus services are often better especially when one considers the need to offer affordable and attractive service frequencies (which in urban areas should be a minimum of 4 service per an hour). So, moving 1000~2000 people an hour is best served on ~4 trains or tram trains (a doubled up Stadler tram-train can hold ~500 people) Vs 15~30 buses, but moving 100 people an hour is best served by 3-4 buses Vs one underutilised train or tram-train.

We should also favour those interventions that contribute to better utilising existing infrastructure vs adding more under-utilised transport asset (especially rail). Across Wales whilst some relatively short new rail is possible (esp. where it helps increase utilisation of existing assets) as are new stations on existing lines, new large schemes seem less likely, at least in the short/medium term.

When considering new roads, we need to refer to the now large body of data setting out the reality of induced demand and how that impacts the economic benefits predicted. For example, the 1994 SACTRA report found that, in conditions of congestion, the consumer benefits of a scheme would be generally reduced by the effects of induced traffic, and, in some circumstances, this could then make the net present value of the scheme negative, though this would not necessarily be the case. The Committee's analysis suggested that the more typical case would probably be to make the net consumer benefits smaller, but still positive. The environmental effects of induced traffic would, however, generally be unambiguously negative. The much later 2021 paper by David Metz⁹² noted how the work to widen the M25 resulted in more induced traffic which negated the economic benefits anticipated.

The issues of connectivity between smaller communities are covered under “Equity”.

Place based economic development and regeneration potential

There is also a clear link between economic development and transport investment. On that basis alone there is a case to be made across much of Wales for more transport investment (as is true in many parts of the UK outside London⁹³). These core agglomeration benefits are reflected in

⁹² David Metz, Centre for Transport Studies, University College London, 2021, “Economic benefits of road widening: Discrepancy between outturn and forecast” [Economic benefits of road widening: Discrepancy between outturn and forecast – ScienceDirect](#)

⁹³ Mark Barry, 2024, [Why UK City Regions need Metros \(like the South Wales Metro\)](#)
Centre for Cities, 2021, [Measuring up: Comparing public transport in the UK and Europe's biggest cities](#)

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“Connectivity” (above) which impact urban areas and city regions where population and density thereof, is highest and more public transport can increase their net effective density. The potential for these benefits is greatest in CCR, the Swansea/Neath/Llanelli urban area and NE Wales.

However, we also need to be cognisant of the need for much more Transit Oriented Development⁹⁴ and how public transport investment can also stimulate more localised and place-based development/regeneration. See *Transit Oriented Development (TOD) in the CCR*

So, we need to consider the potential of a project to synergistically stimulate and/or provide a catalyst these wider benefits - especially more homes (inc. affordable) around our stations (esp. Metro stations), sustainable high street regeneration, etc. This will cover both large-scale impacts and many smaller scale interventions around new routes and services.

As suggested in the latest UK Treasury Green book review, we should therefore consider aggregating benefits across different projects with a place-based focus (esp. transport and housing led regeneration). As set out in *Transit Oriented Development (TOD) in the CCR* do we need to consider some form of “Metro Development Corporation(s)”⁹⁵ to lead on this initiative?

We also need to be cognisant that in many cases the focus must be on more public transport investment. Some recent evidence suggests that we have reached diminishing returns re expansion of road capacity (although this will not be true in all cases). This article suggests just that [The Mobility-Productivity Paradox | Planetizen Blogs](#); a more robust study by David Metz found the same re economic benefits of widening the M25⁹⁶.

Equity

In respect of some of the broader social and equity considerations, Todd Litman published two insightful papers in 2021 that, even with a north American focus, help provide a more systematic basis for addressing some of these questions. His September 2021 paper⁹⁷ explored the role for more equitable public transport in a post Covid world; his December 2021 paper⁹⁸ expanded his earlier work to provide a more robust basis to include distributional impacts in transport planning and makes the case for more effectively and fairly apportioning external costs (including measures like road pricing), and how we serve disadvantaged groups and address social injustice. In particular, he explores what “service” everyone should be able to access.

In Wales, especially given the asymmetric demographics and economic activity, we need to ensure a distribution of investment that is not constrained by these features. For example, we also need to find room for measures to enhance connectivity between some of our smaller and lightly populated communities. This will mean accepting higher subsidy per passenger for rural bus services than is achievable in populated urban areas (where many more services can operate without subsidy)

This also needs to cover accessibility questions like step free access, persons of reduced mobility access, affordable fares for certain groups, etc and in a way that helps ensure sustainable access from as many places and for as many people, to places of employment, education, healthcare etc.

A balance must be found, and choices will have to be made (and these will often be qualitative). Furthermore, in such locations we also need to recognise that the car will still be important for many trips and not be possible to convert to AT as easily as is the case in more densely populated urban areas.

⁹⁴ From “How to build a Metro” [Why we need Transit Oriented Development](#)

⁹⁵ From “How to build a Metro” [Do we need a Metro Development Corporation\(s\)](#)

⁹⁶ David Metz, UCL, 2021 [Opinion: road building won't cut congestion or boost the economy | UCL News](#)

⁹⁷ Todd Litman, VTPI 2021, “The Business Case for Post Covid Public Transport” [bcpct.pdf](#)

⁹⁸ Todd Litman, VTPI 2021, “Evaluating Transport Planning Equity” [Evaluating Transportation Equity \(vtpi.org\)](#)

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We can't ignore deprivation either and so need to look at the Welsh Index of Multiple Deprivation (WIMD). Again, this presents challenges as there are perhaps more issues in urban SE Wales, including Cardiff, to address if one looks at the number of LSOAs in the top 10% of WIMD in the city vs elsewhere (See *Economic metrics*).

Environmental benefits (esp. carbon emissions, improved road safety, etc)

The primary considerations will be reducing road traffic accidents, carbon emissions and improving air quality, both of which have legislative targets to satisfy. These make up the bulk of the negative externalities associated with excess car dependency (See *Externalities & Road User Charging*).

Clearly the schemes than can shift the largest number of people, and from the longest journeys, onto public transport and so maximise the reduction of car usage/miles will have the biggest impact. We should not shy away from this reality. It is also a reality that whilst total number of trips are lower in less populated urban areas V urban centres, actual trip lengths can be longer, which is also a material consideration re: environmental impacts. However, stop/start urban traffic and congestion produces more CO2 per VKm than more stable driving, air quality is similarly degraded by such driving conditions.

Costs: Capex & Revex

This is perhaps the more important and is a final filter test in our triage. No matter what the case, if the funds are not available the scheme will struggle to progress without major political and wider public support (eg the South Wales Metro). We need to be cognisant of the overall capital envelope, but probably more importantly the revenue and additional subsidy that may be required to operate. It is the latter over an extended period which can be the more intractable problem and force tough decision to be made and so challenge political expectations and promises. Committing to an expensive programme also has an opportunity cost in that it will squeeze out other schemes.

However, in that context it is worth reflecting on the cost of subsidising public transport services in Wales overall (rail, bus, etc) is of the order of £0.5Bn per year. The budget of the health service in Wales is circa £13Bn pa, and each Health Board often have "overruns" that compare with the total transport subsidy in Wales.

Operations, reliability, performance

We also need to assess where schemes support improvements in reliability and performance of our transport services or which deliver network operational benefits, which may not necessarily translate or be represented via some of the other benefits set out. Rail is facing some ongoing challenges in this regard. The OMR settlement for the NR Wales Route announced by the ORR in 2024 was accompanied by a NR press release stating it would make the railway less reliable⁹⁹

So, we need to be cognisant of OMR schemes as well as enhancements (which is the primary focus in this report) that enable more network operational flexibility, reliability and redundancy. This also applies to the value engineering of the infrastructure works to deliver the South Wales Metro; a reduction in capital cost is likely to have increased slightly the risk of reliability and other operational impacts.

⁹⁹ BBC News, 2023, [Network Rail says infrastructure will get less reliable - BBC News](#)

6. Proposed schemes and phasing thereof

What follows is a qualitative assessment of a range of major example schemes in Wales. The principles set out in *How should we determine priorities?* have been applied to try and differentiate these schemes. The reality is that despite a large body of data and evidence, a degree of political judgment will still be required to conclude this process.

The tables below represent the authors subjective view of several possible major projects in Wales and how they should be prioritised for investment in the short, medium and long term. In so doing the phasing includes some assessment of when it might be possible to deliver these schemes. This is influenced by dependencies between schemes and importantly current and future project commitments and how they impact supply chain capacity. This particularly impacts rail schemes with limited supply chain capacity available to 2029/30 beyond current commitments (see below). There is an opportunity to leverage the current TfW CVL supply chain which has become more efficient with much tacit knowledge, which will be lost if/when that capacity is reduced in scale.

These schemes have been set out illustratively in *Figure 10*

Quantitative scores have been avoided. A more qualitative H/M/L has been applied (with some guidelines on specific measures), to encourage discussion and comparison between schemes (vs absolute determination) as illustrated below. Note the “subsidy” measures is an attempt to reflect the additional opex vs additional PAX/farebox possible, but determination has again been purely qualitative (this process needs to be repeated with more accurate demand assessment & operational costings). It is also true that not every measure is relevant to every intervention.

The phases are again illustrative and described as: “S”hort (to 2030/31), “M”edium (to 2035/36), “L”ong (to 2040/41), or even later “B”eyond 2040 (or not at all?).

The qualitative determination of these measures is summarised below and expands on the text set out in the last section. .

	Low (Green)	Medium (Amber)	High (Red)	HHigh
Capex	LT £100M	£100~500M	£0.5-1Bn	GT £1Bn
Additional Subsidy	LT £10Mpa	Up to £50M pa	GT £50M pa	
Connect	Qualitative assessment (H/M/L) undertaken based on appreciation of actual numbers of people impacted so will be “H” in areas of higher population / larger potential demand (H=best)			
Dev/Regen	Qualitative assessment based on actual scale of impacts in terms of numbers of people benefitting and potential commercial scale of a transport related development (H=best)			
Environment	Qualitative assessment considering carbon reduction, RTAs, air quality, etc - in part relates to numbers of people benefitting (H=best)			
Equity	Adjustment for places that may otherwise not score highly on other measures given smaller more dispersed populations and/or where local economic conditions merit an adjusted assessment (H=best)			
Ops Benefits	Simple assessment Y/N of whether a measure improves network and operations thereof re: reliability, performance, redundancy, recoverability, etc			

Proposed triage process

It is recommended that once in Government, a new Minister and supporting team, flesh out this process and formally engage support to run it (esp. the triage/workshops). In so doing they should engage with a small group of suitably informed / qualified attendees/contributors, supported with some initial analysis across each of the measures. Aim to conclude the entire process in two calendar months at most.

1. Assemble “triage team” (procure 3rd party support if required) to run/curate the process and assemble the workshop attendees who will help shape and refine the outputs
2. Develop long list of strategic interventions (based on those drafted below)
3. Refine Triage process and assessment criteria
4. Prepare prioritised list & run initial workshop that forces discussion of each and comparison between schemes based on each of the measures set out
5. Share for feedback more broadly
6. Process feedback and repeat workshop
7. Prepare final list – and input/update the “Wales Rail Board” priorities
8. Repeat process every year.

Please note, as requested, list covers more granular items in South East Wales as specified.

Already committed TfW and CSR schemes

It is also assumed that recent CSR announcement for funding, as well as TfW committed additional rail services to 2029, will be delivered (so are not included in the table below). So, this includes:

- 2tph on Vale of Glamorgan (VoG) Line beyond Barry by TBC
- 4tph to Heads of the Valleys (HoV) via Pontypridd(12tph) & Caerphilly as part of South Wales Metro by late 2026 or into 2027
- Cardiff West Junction enhancement to enable 4tph on City Line, combined with the planned renewal works by late 2028
- Relief line upgrade and Burns (*Metro Impact Study*) Stations & Services (this could include new services to Cardiff and Swansea from BTM) by 2029/30
- Cardiff Crossrail Phase 1a by 2028
- New Lumo Open Access (OA) services from London to Carmarthen by 2027
- Metro Central by 2028
- Padeswood Sidings and 2tph Borderlands service by 2029
- NWML Level Crossings removal by 2028
- Increased service frequency on NWML and between Wrexham and Chester by 2026
- A direct Llandudno-Liverpool service by 2026
- Upgraded signals at Gobowen to increase Marches Line capacity by 2029.

Recommend above is reviewed/checked with TfW/DfT.

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Proposed schemes

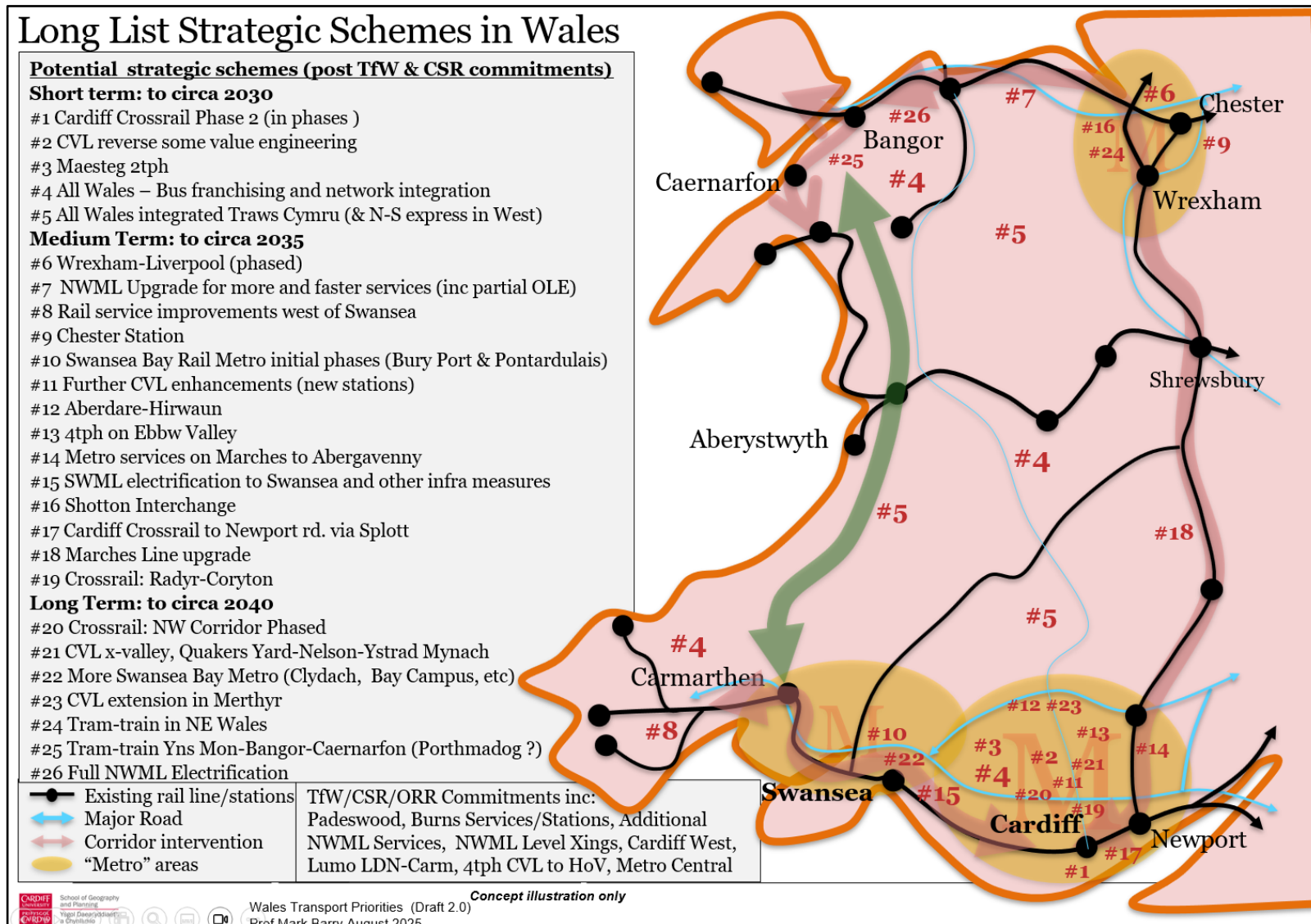


Figure 10 Illustration of potential strategic schemes in Wales to 2040

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No.	Scheme	Description	Phase	Connect	Dev/reg	Env	Equity	Subsidy	Capex	Ops Benefit
Short Term.... (from 2026 to 2030/31)										
1.1	Cardiff Crossrail Phase 2: 4tph across the city & new stations	Address gaps in Cardiff in current Metro programme to deliver: 4tph on City and Coryton Lines plus three more stations in Cardiff (Ely Mill, Roath Park, Gabalfa – all with v high local catchment populations) to drive revenue (noting Cardiff East is on SWML related to new Burns services and stations & Parkway privately funded (tbc))	S	H	H	H	M	L	L	
1.2	Cardiff Crossrail Phase 2: Station Link, OLE to Penarth & tram-trains for Penarth	Overhead Line Electrification(OLE) to Penarth, Tram-trains for Penarth/Coryton/Caerphilly, "Station link" to provide more network capacity and redundancy by linking Penarth (and City Line tbc) to Crossrail Phase 1a - also linked to Rolling Stock (RS) strategy for Burns services/stations (which can use Trimodes currently planned for Coryton/Caerphilly/Penarth subject to ordering more tram-trains)	S	H	M	M	M	L	L	Y
2	Reverse some CVL Value Engineering	Selected reversal of value engineering (so more double tracking and OLE) – this is a network and service operational intervention to enhance reliability and operational flexibility of Metro CVL services	S	L	L	M	L	L	L	Y
3	2tph on Maesteg branch	Measure to enable 2tph to operate to Maesteg (either direct service to Cardiff or shuttle from Bridgend)	S	M	L	M	H	M	L	
4	All Wales Bus Revenue Support, Franchising & network redesign	Full redesign and an integration of all bus networks in Wales – will require <u>additional revenue & capital support</u> to fund wider measures re: additional fleet, bus prioritisation/bus lanes, bus stops/interchanges, information, fares/ ticketing, etc. Currently being planned in 4 regional phases to 2029/30	S	H	M	H	H	H	M	

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No.	Scheme	Description	Phase	Connect	Dev/reg	Env	Equity	Subsidy	Capex	Ops Benefit
5.1	N-S Express bus service in the west ¹⁰⁰	An express bus service from Swansea/Carmarthen to Bangor via key settlements like Lampeter, Aberystwyth, Machynlleth, Porthmadog, Caernarfon, etc (part of a “national” TC express bus network) – will require revenue support and some capex to enhance interchanges and secure more fleet. Some work already completed by TfW	S	M	L	M	H	L	L	
5.2	Express bus network across Wales (Traws Cymru)	A national express bus network – Traws Cymru – with, where possible, separation from local services. It is believed to be part of franchised Traws Cymru plans via TfW; fully integrated with national rail network (inc. via ticketing). Will also mean new/improved rail/bus/coach interchanges at key locations (will include 5.1 N-S Express bus in the west)	S	M	L	M	H	M	L	
Medium Term.... (to 2035/36)										
6	Wrexham-Liverpool	Full upgrade of Borderlands to enable direct services from Wrexham via Shotton & Bidston to Liverpool. Phased programme with 2tph first, use of Merseyrail 777s, then 4tph. New station(s) eg at Deeside Ind Est. (Assume earlier completion of Padeswood siding and 2tph to Bidston)	M	H	H	H	M	L	M	
7	NWML Upgrade for more and faster services/more frequent and some new North Wales stations	Upgrade NWML for more and faster services with separation of all stoppers from express services; some new stations. Already been subject to extensive OBC and scheme development via TfW (also linked to work needed at Chester Stations). Some partial OLE linked to RS strategy	M	H	M	M	M	M	M	Y

¹⁰⁰ WG, 2025, [North to south Wales express coach service: feasibility study](#)

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No.	Scheme	Description	Phase	Connect	Dev/reg	Env	Equity	Subsidy	Capex	Ops Benefit
8	Infrastructure improvements & additional services to Swansea/West Wales	Measures to enhance capacity and reduce journey times on SWML west of Swansea	M	M	L	M	M	M	L	
9	Chester Station Capacity	Operational & track improvements to increase capacity & throughput of the station – some necessary to support NWML enhancements	M	M	M	M	M	L	M	Y
10	Swansea Metro Initial Phases ¹⁰¹	Core phase urban rail Metro: #1 Burry Port to Swansea HS and #2 Pontardulais (some Ammanford) to Swansea HS via SDL and Neath with new stations. 2tph initially with scope to increase to 4tph (Already been subject to OBC development and some feasibility via TfW)	M	H	H	H	H	M	M	
11	Other CVL Stations	More stations on CVL – inc. Pontypridd Bus Station, Nantgarw	M	H	H	M	M	L	L	
12	CVL Aberdare-Hirwaun	Upgrade old track to extend Metro from Aberdare to Hirwaun	M	L	M	L	M	L	L	
13	4tph on Ebbw Valley line (and links to Marches Line below) (<i>not Abertillery</i>)	Measure to enable 4tph to operate as far as Llanhilleth (2tph to Ebbw Vale) with some services operating to Abergavenny/Marches Line via Newport (instead of Cardiff on already congested SWML & Central)	M	M	L	M	H	M	L	Y
14	Marches Line Upgrade: south of Abergavenny	Turn back at Abergavenny, new stations at Caerleon and Sebastopol – and new Metro services at 2tph from Ebbw Valley, with interchange at Newport for other services	M	H	M	H	H	M	L	Y
15	SWML Electrification & other infrastructure west of Cardiff	Extend OLE west of Cardiff to Swansea/Carmarthen, if done early/ same time as Swansea rail Metro phase, 1 could reduce overall OLE costs for that scheme & improve RS flexibility and options for TfW	M	M	L	M	L	L	H	Y

¹⁰¹ WG, 2022, [Swansea Bay and West Wales Metro WeITAG stage 2: final report](#)

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No.	Scheme	Description	Phase	Connect	Dev/reg	Env	Equity	Subsidy	Capex	Ops Benefit
16	Shotton Interchange	Upgrade of Shotton station(s) as major interchange between Borderlands and NWML AND local bus	M	M	M	M	M	L	L	
17	Cardiff Crossrail: East to Newport Rd	Full Crossrail east from Bay via Docks/Splott to interchange with SWML at new "Burns" station at "Newport Rd"	M	H	H	H	H	L	M	
18	Marches Line upgrade: North of Abergavenny	A phased programme of line speed upgrade, passing loops, longer term electrification; to support new local services to enable long distance services to miss smaller stops and reduce Cardiff – Manchester/North Wales/Liverpool journey times	M	H	L	H	L	L	M	Y
19	Cardiff Crossrail: Radyr/Coryton link	Short connection (direct or indirect via new TAM station and river ped crossing) between Coryton station and Radyr/Morganstown – potential to deliver wider network benefits given range of O/D points connected	M	H	M	H	L	L	L/M	Y
20.1	Cardiff Crossrail: NW Corridor Phase A (Cardiff West grade separation and 6km section from City Line to M4 J33)	Already subject to OBC, the extension of Metro on the old alignment (in part) to Creigiau and Pontyclun. Will need major grade separation measures at Cardiff Central/Cardiff West to provide enough network capacity. Could also be phased allowing early start on some sections (eg City Line to M4 J33) as benefits & costs likely different along route	M/L	H	H	H	M	L	M	Y
Long Term.... (to 2040/41)										
20.2	Cardiff Crossrail: NW Corridor Phase B (15km M4 J33 to Pontyclun/Beddau)	Complete the scheme from Cardiff into RCT and Pontyclun/Beddau	L	H	M	H	M	M	M	

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No.	Scheme	Description	Phase	Connect	Dev/reg	Env	Equity	Subsidy	Capex	Ops Benefit
21	CVL Metro - Quakers Yard-Ystrad Mynach	A tram-train standard connection between Quakers Yard on TAM and Nelson (2~3Km) (in part using old alignment) and on freight line to enable tram-train services from Pontypridd to Ystrad Mynach (<i>with potential for further extension east toward Blackwood</i>)	L	M	H	M	H	L	M	Y
22	Swansea Metro: Jersey Marine/City Centre/Clydach, etc	Phased once core is delivered; extensive new lines from Clydach and via Jersey Marine along SA1 to City Centre and beyond (Already been subject to OBC development via Tfw)	L	H	H	H	H	M	H	Y
23	CVL Merthyr Extension	A diversion and extension of the CVL in Merthyr along the river corridor toward Cyfarthfa retail park and castle.	L	M	H	M	M	L	M	
24	Tram-train in NE Wales	Expand reach of rail/metro in NE Wales/Chester by using tram-train and some new short extensions/spurs (eg Mold)	L	M	H	M	M	M	M/H	
25	Yns Mon-Bangor-Caernarfon-Tram-train	New tram-train services, using old/existing (and some new) alignments from Llangefni (tbc) via Bangor to Caernarfon (perhaps to Porthmadog and some services to extend beyond to places like Machynlleth?). This could mitigate issues re Menai Crossings and provide a high-quality PT crossing integrated with local bus networks/services. All options worth a review and options to phase -esp. given capital costs.	L	L	H	M	H	M	M/H	
26	NWML Electrification	Full electrification of NWML from Crewe (likely to be phased and use innovation and new RS to reduce costs)	L	M	L	M	L	L	HH	
Very Long Term or not at all.... (beyond 2040/41)										
27	Abertillery Extension	4 Km spur from Ebbw Valley Line to Abertillery (<i>demand most easily/affordably served via integrated bus service</i>)	B	L	M	L	H	M	L/M	

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No.	Scheme	Description	Phase	Connect	Dev/reg	Env	Equity	Subsidy	Capex	Ops Benefit
28	Menai Bridge	New Menai crossing to take pressure of two existing structures (<i>See tram-train PT option to augment NWTC findings</i>)	B	M	L	L	M	M	H	Y
29	Felindre Mainline Parkway	New Intercity P&R at new Felindre station on the SDL (<i>Some of the other schemes above will negate the need for this scheme</i>)	B	L	M	L	L	M	L/M	
30	Builth - Moat Road Tram-train to create new N-S Route ¹⁰²	If we can successfully deliver tram-train expansion in NW Wales, then explore N-S rail link using “LR capability” and making as much use of existing infrastructure and limiting the amount of new track (instead of Carm-Aber), is to connect the Cambrian line and HoW line through mid-Wales. This offers the potential of a direct Swansea -Bangor service in the west <i>Still very costly and if at all much longer term.</i>	B	M	M	M	H	H	H	
31	Carmarthen-Aberystwyth reopening	New rail services based on new line (mainly on old alignment) between Carmarthen and Aberystwyth. Development to “LR” standard to reduce capital costs. <i>There are better value for money alternatives.</i>	B	L	L	M	H	H	HH	
32	M4 Relief Road	New 6 lane motorway to replace existing M4 as planned in 2019 – The current road will need careful management re: resilience and performance. Whilst politically challenging, congestion can be most easily addressed via selective road pricing AND provision of more PT alternatives especially for local trips (ref Burns stations/ services).	B	H	M	L	L	M	HH	Y
33	Caerphilly-Newport CVL expansion	Connect Newport-Caerphilly via tram-train. Requires new connection from existing freight line at Machen to Caerphilly and an “on-street” section in Newport from Cardiff Rd, to avoid the congested SWML	B	H	M	H	M	M	H	Y

¹⁰² From “How to build a Metro” [North South Connectivity in Wales](#)

7. Funding Options

Capital and revenue funding will continue to be a challenge and again require tough choices to be made. Whilst not quantitatively assessed in this report an expectation can be set in respect of the level of funding that will be required to build and operate the transport services proposed.

It is also clear that ultimately, the capacity of Welsh Government capital funding would be enhanced by securing a fully devolved settlement for rail and an appropriate adjustment to the block grant to accommodate.

Overall, the programme set out will need of the order of at least £3Bn over 15 years, so a minimum of £200m pa per year. Perhaps more of a challenge will be the need to secure possibly an additional £100~150M pa in revenue support to operate the additional services (esp. expanded bus services) implied.

Some summary suggestions/considerations for funding streams are set out below. However, a more thorough analysis and investigation than is possible in this report is recommended.

There are also too many easy answers offered in this space. For example, suggestions of using land value capture or private money, are often proposed, but neither are easy. Private sector funding in particular, will require a commensurate revenue stream to be identified to service any funding, even over the longer term which may reduce the annual outlay. The same would apply to the use of public sector pension funds. Capital is not “free” and needs to be paid for.

The following sections summarise some funding options.

UK Government funding

Until such time rail is fully devolved and the block grant WG receives from HMT is appropriately adjusted, then WG will have to try and secure rail funds from the DfT/Treasury. Given that annual DfT spend on HS2 and Network Rail (Enhancement and OMR) is of the order of £23Bn then a block grant adjustment for Welsh Government would need to circa £1.1Bn pa. Whilst this would cover further enhancements in Wales it would also need to cover the circa £400m pa settlement NR receives for OMR of the Wales Route, as well as the CVL.

There is a need to introduce a more appropriate settlement for the Core Valley Lines in any case as that is “devolved”. The CSR announcement of £12M pa for enhancements and circa £40M pa for OMR on the CVL, is completely inappropriate, especially when compared to the NR Wales Route annual OMR spend of circa £400m pa.

For the current situation and the “England and Wales” context then making the case for 5% of the total enhancement fund seems appropriate – especially given there are Ilkley £80Bn of enhancements in play in England to 2040 (Finishing HS2, TransPennine Route Upgrade, East-West Rail, etc plus other more localised interventions like Leeds station upgrade, etc)

There is also case to review and mitigate the historic underspend. However, this will likely prove challenging and so probably better to devote political capital to fix the system for the years ahead.

Welsh Government funding

As pointed out WG can/should still choose to invest in rail capital projects as well as other transport matters which are devolved. There was some suggestion that WG could match fund any UK Government CSR contribution to enhancements in Wales.

It is also worth restating the investment in transport reduces the cost burden on other depts like Health (and it is often Health Boards who add to the transport problems and costs thereof by choosing poor locations for new hospital, etc).

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Some rebalance of revenue funding between WG departments is also justified on several measures. As stated earlier, WG transport revenue spending is circa 3% of WG total budget - Health is over 50%.

Road Pricing

This clearly has political implications; but seems inevitable and something UK Government will almost certainly deliver as fuel duty revenues begin to fall away. Wales needs to be at the table to secure control over this tax and associates receipts.

Instead, or as well as a HMT scheme, more localised road user charging (better described as decongestion charging or a reduction in the "road use subsidy" as set out earlier) also merit exploration. Other proxies include workplace car space charging, etc.

To address the likely politicisation of any RUC, then perhaps a complementary reduction of other taxes could be considered. For example, just to illustrate, a reduction of 1p in Welsh income tax and a targeted RUC (which would need to bring in more revenue than lost in tax receipts) which is differentiated as suggested in *Figure 11*

Despite the personal freedoms and benefits, given the very large negative externalities of excessive car use, we need to introduce a fiscal disincentive. It is also clear from most of the transport modelling I have seen that it's no good just adding more public transport capacity and/or reducing fares, you also have to actively disincentivise car use. I favour the term "reduction in the car use discount".

Many others have drawn the same conclusion. Pelayo Martínez Bauluz, Manager, Barcelona Metropolitan Entity of Transport (EMT), is purported to have said,

"A vision of public transport is a necessary, but not a sufficient condition for achieving sustainable mobility. Measures must be implemented to dissuade car use."

What form this measure takes is open for debate. Options include higher local parking levies, workplace parking levies, a flat road use price or something more granular. I favour all and a specific use charge that is proportional to one or all of:

- i) traction power
- ii) size and weight of a vehicle
- iii) emissions
- iv) distance travelled
- v) occupancy and
- vi) availability of PT alternatives.

So, a big petrol SUV with one person, covering many miles in an urban area pays most and a small EV covering only a few miles in a rural area the least, and perhaps nothing. This approach will provide an incentive for smaller, lighter EVs with multiple passengers and shorter trips. I am also acutely aware than in rural areas, PT is difficult and costly to provide, and so car use will likely remain much more important than in urban areas. On that basis we ought to charge a lot less in such places.

Figure 11 From "How to build a Metro" – Suggested Road Pricing principles

New local/regional fundraising

Perhaps along the lines of the Versement¹⁰³ in France, Local Authorities and/or regions are empowered to levy a local tax of businesses (the type needs to be carefully considered) that must be directed at transport schemes in the region.

¹⁰³ Jon Stone, Guardian, 2022 [To fix public transport in Britain, we should copy France | The Independent](#)

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More traditionally perhaps, a domestic and/or business rate levy could be considered as well as a Community Infrastructure Levy again directed at transport.

We could also consider shifting the local and business tax burden to those business premises than contribute to the “transport problem” and generate large negative externalities. So large car-based retail parks, office parks, hospitals (!), etc on the edge, or out of town. So, by implication this presents the opportunity to reduce business rates (or the multiplier) for smaller independent businesses on high streets and/or PT connected places. The current WG Business Rates review ought to consider such.

Public Loan Work Board borrowing

The lowest cost capital is still often government money and/or via Public Loan Work Board¹⁰⁴ (which local authorities can access) albeit costs have risen in the last few years with rates now over 4%. There is also a challenge in that many local authorities are carrying more debt than was the case in the past. They do though collectively have more capacity to carry debt than Welsh Government.

Land value capture (including Tax increment Financing TIF).

This may not be the panacea people claim re raising additional funds, but where it can be exploited then it should. Realistically this will be in places is where development gains from transport investment are likely to be the highest. Given limits on new lines, then the scope to capture value is quite limited. The role of a “Metro Development Corporation” or proxy thereof might be fundamental in this regard to lead not just a major TOD programme but one that also exploits “land value uplift” opportunities.

Aligned to greater local fiscal capacity as suggested above, and as an example of “land value capture” one can consider Tax Increment Financing (TIF) which targets an increase in “property” taxes or business rates in a specified area that are enabled directly through an investment in transport infrastructure

A recent WSP report for Business London¹⁰⁵ described it as:

TIF is a value capture tool that uses taxes on future gains in real estate values to pay for new infrastructure improvements¹. TIFs allow for infrastructure projects to be financed upfront by borrowing with repayments coming from the hypothecation of future tax receipts for a fixed period within a defined area or ‘Enterprise Zone’.

Whilst that report is “London focussed” the principle are sound. In a Welsh context the reality is that TIF has applicability only in places where a significant transport infrastructure investment could result in an increase in such tax take. It is how the Northern Line Extension was funded. In that regard it is more likely to be areas of high population density, with strong developer interest so in and around places like Cardiff. For example, part of Crossrail perhaps linked to a TOD based redevelopment of Newport Rd adjacent to the new station on the SWML and on Crossrail at Roath Dock? There are risks though and complexities given constraints of current land/property ownership and the function of, and interdependence with, the business rates system.

The nascent UK Gov Investment Zone¹⁰⁶ proposals could also have a role in this regard.

¹⁰⁴ [About PWLB lending](#)

¹⁰⁵ WSP, Business London, 2025, GENERATING LAND VALUE January 2025 TO GROW LONDON A new residential funding approach, [BLDN Report Generating Land Value 0.pdf](#)

¹⁰⁶ [UK Investment Zones article great.gov.uk international](#)

8. Bibliography and Useful References...

Below are some examples of articles and research papers, sorted by subject, that support some of the statements in this report.

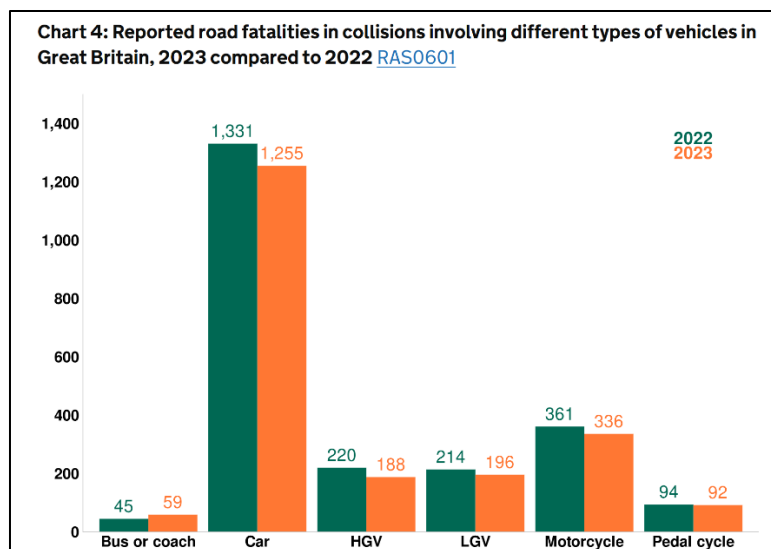
Road traffic accidents (RTAs), etc

The UK Government's Department of Transport maintains Great Britain level data for RTAs, by mode, impact, costs etc. Whilst this data is not easily available at a Wales level, the inference re numbers, impact and costs, which are the insights are relevant.

The summary of data for 2023 in "[Reported road casualties Great Britain, annual report: 2023 - GOV.UK](#)" set out that for reporter road collisions, the final estimates are:

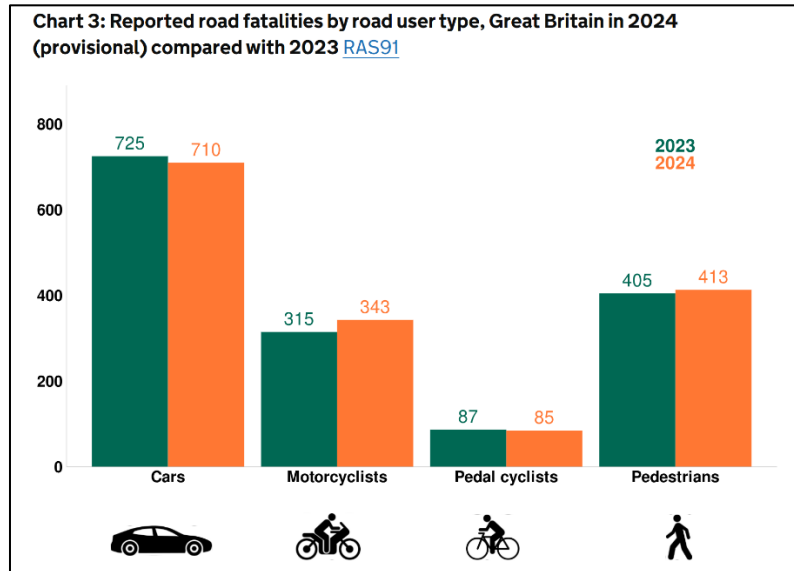
- 1,624 fatalities, a decline of 5% compared to 2022
- 29,711 killed or seriously injured (KSI) casualties, little change compared to 2022
- 132,977 casualties of all severities, a decline of 2% compared to 2022.

One can also see that cars are involved in most collisions, and that this disproportionately impacts other modes - especially pedestrians and cyclists. This further analysis quantifies the "vulnerability" [Road safety statistics: topic summaries and ad-hoc reports - GOV.UK](#) This for pedestrians [Reported road in Great Britain: pedestrian factsheet, 2023 - GOV.UK](#) and this for cyclists [Reported road casualties in Great Britain: pedal cycle factsheet, 2023 - GOV.UK](#) who are the most vulnerable. Nearly 50% of cyclist fatalities (avg 2 per week in UK) were as a result of a collision with a car.



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The DfT also produce a speed factsheet [Reported road casualties Great Britain: fatal 4 - speed factsheet, 2023 - GOV.UK](#) and that driver speed was a factor in over 50% of fatal collisions.

Table 1: Number and percent of reported fatal collisions involving speed related factors, Great Britain: 2023

Factor	Number of collisions	Percent of collisions (%)
Driver or rider exceeding speed limit	304	21.1
Driver or rider travelling too fast for conditions (including loss of control or swerving)	424	29.4
Driver or rider being aggressive, dangerous or reckless	401	27.8
At least one speed related factor	809	56.1

The DfT's 2012 paper re the costs of RTAs is also relevant [A valuation of road accidents and casualties in Great Britain: Methodology note](#) . The updated figures for 2023 set out that a fatality cost circa £2.7M, serious injury circa £310k and a minor accident circa £30k.

Collision data year	Price year	Severity	Cost per casualty (£)	Cost per collision (£)
2023	2023	Fatal	2,411,659	2,718,861
2023	2023	Serious	271,003	311,098
2023	2023	Slight	20,892	31,132
2023	2023	Average for all severities	99,048	133,307
2023	2023	Damage only		2,880

This further DfT analysis ([ras4001.ods](#)) sets out the total costs associated with RTAs in Britain annually up to 2023 and show the total costs of RTAs was over £42Bn.

Collision data year	Price year	Severity [note 4]	Casualty related: Lost output (£ million)	Casualty related: Medical and ambulance (£ million)	Casualty related: Human costs (£ million)	Accident related: Police costs (£ million)	Accident related: Insurance and admin (£ million)	Accident related: Damage to property (£ million)	Total (£ million)
2023	2023	Fatal	1,365	13	2,694	40	1	24	4,138
2023	2023	Serious	836	503	5,705	72	6	170	7,292
2023	2023	Slight	332	141	1,582	63	13	338	2,469
2023	2023	All reported injury collisions	2,533	657	9,981	174	20	533	13,898
2023	2023	Damage only collisions	0	0	0	83	128	4,439	4,651
2023	2023	Non-fatal injury collisions not reported to the police	2,869	1,588	17,990	0	47	1,204	23,698
2023	2023	All collisions	5,402	2,245	27,971	257	195	6,176	42,247

Air quality

Air quality is a serious health issue, in cities caused in the main by cars. Yes, tail pipe emissions are a problem that will be mitigated by the switch to more EVs. However particulate emissions from tyres and brake pads, etc are also a serious challenge.

In April 2023, Imperial College's Environmental Research Group published an evidence review of over 35,000 studies over ten years and found air pollution causes harm at all stages of life. The review found air pollution harmed foetal development during pregnancy and could cause low birth weight and miscarriages, as well as a low sperm count in men. It also found air pollution could stunt lung growth in children, cause asthma, and affect blood pressure, cognitive abilities and mental health. Another study in 2023, based on a cohort in Rome, also found a link between exposure to air pollution and mental health issues, especially depression. This is not a new insight – it is now 30 years since the publication of the Six Cities study, which suggested that fine-particulate air pollution, or a more complex pollution mixture associated with fine particulate matter, contributes to excess mortality in certain U.S. cities.

G Fuller, S Friedman and I Mudway, Imperial College, Environmental Research Group, 2023
["Impacts of air pollution across the life course – evidence highlight note \(london.gov.uk\)"](#)

Federica Nobile, Anna Forastiere, Paola Michelozzi, Francesco Forastiere, Massimo Stafoggia; Department of Epidemiology, Lazio Region Health Service/ASL Rome & others; [Environment International, Volume 181, November 2023, 108302, "Long-term exposure to air pollution and incidence of mental disorders. A large longitudinal cohort study of adults within an urban area – ScienceDirect"](#)

Douglas W. Dockery, C. Arden Pope, Xiping Xu, John D. Spengler, James H. Ware, Martha E. Fay, Benjamin G. Ferris, Jr., and Frank E. Speizer; New England Journal of Medicine, December 1993 ["An Association between Air Pollution and Mortality in Six U.S. Cities | NEJM"](#)

Emission Analytics, 2020, [Press Release: Pollution From Tyre Wear 1,000 Times Worse Than Exhaust Emissions](#)

Brand, Hunt; University of Oxford, 2018 "The health costs of air pollution from cars and vans" [Pollution from cars and vans costs £6billion per year in health damages | University of Oxford](#)

20MPH, LTNs, etc

The introduction of 20mph (30kph) zones and Low Traffic Neighbourhoods to improve road safety has also led to a misinformed political backlash. Despite the "controversy" the international evidence of the benefits of 20mph zones and Low Traffic Neighbourhoods (LTN) - *the first were introduced in Cardiff back in the 1970s but called "blocking off streets to prevent through traffic"* - is overwhelming.

Jamie Furlong, David Fevyer, Ben Armstrong, Phil Edwards, Rachel Aldred, Anna Goodman, British Medical Journal 2025, ["Low Traffic Neighbourhoods in London reduce road traffic injuries: a controlled before-and-after analysis \(2012-2024\)"](#)

Abstract Summary: LTN implementation was associated with a 35% decrease in all injuries and a 37% decrease in people Killed or Seriously Injured (KSI). Injuries decreased across a range of casualty and LTN characteristics. However, there was evidence of a smaller benefit in LTNs implemented in Outer London since 2020. Following the removal of an LTN, injury numbers increased back to pre-intervention levels. On boundary roads, there was no evidence of a change in total injury numbers or KSI injury numbers. This reflected decreased numbers of injuries on boundary roads for cyclists and motorcyclists, and no change for pedestrians and other motor

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vehicle users. **Conclusion:** LTNs in London reduced road traffic injuries among all road users inside the LTN areas, with no evidence of overall impact (and for cyclists and motorcyclists a benefit) on boundary roads.

George Yannis and Eva Michelaraki, National Technical University of Athens, Department of Transportation Planning and Engineering, 2024, [Effectiveness of 30 km/h speed limit – A literature review](#)

Results: Current scientific evidence indicated that the introduction of 30 km/h speed limits in cities can save over 40% of lives, alongside significant positive effects on the environment, energy consumption and public health, including reduced fuel consumption and increased walking and cycling.

Even the more circumspect TfW analysis of the recent introduction of 20mph limits in Wales (which is guarded given its still less than 2 years) shows clear road safety benefits and minor and in reality, inconsequential impact on journey times (less than two minutes in most cases – as an all-Wales average will be lower in urban areas).

[Default 20mph speed limit on restricted roads | National monitoring report \(July 2025\) | Transport for Wales](#)

- Vehicle speeds on 20mph main through roads have fallen by an average of 3.8mph.
- 54.0% of vehicles are now being driven at or below 24mph, compared to 20.8% before implementation. These reductions are expected to lower risk of collisions and the severity of resulting injuries.
- Within the context of a marked overall reduction, average speeds increased marginally from winter 2023/24 (the period immediately after implementation) to winter 2024/25 (the most recent period for which speed data is available).
- Average journey times have been assessed for 15 routes, in the morning and evening and in each direction (60 journey times in total). Average journey time increased in 57 out of 60 cases, but in majority of cases (44 out of 57) by no more than two minutes. Journey time variability has reduced in 45 out of 60 cases, providing greater certainty on how long a particular journey will take.
- Monitoring of vehicle and pedestrian interactions at pedestrian crossings so far is inconclusive in demonstrating an effect from the new speed limit.
- Air quality monitoring data is only currently available for the phase 1 areas where the 20mph was initially piloted, with data up to April 2024. This did not reveal any material difference in nitrogen dioxide concentrations between areas inside and outside the 20mph limit.
- Although it is considered too early to meaningfully assess trends in pedestrian and cyclist casualties, there has been a decrease in overall road casualties, which fell by 11.8% in the four quarters after implementation of the policy.

Cars, induced demand & productivity

There is now a wide body of evidence exemplifying the reality of induced demand. Put simply, in most circumstances, providing more road space and or reducing the “cost of car use” (so new roads, road widening, reducing tolls, etc) generates more demand and so traffic, congestion, etc with all the consequential negative externalities (see below)

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In this context Long Run (LR) demand impacts of new road building are typically measured in years and result from development (eg house, offices, retail) around new highways that stimulate the need for more car trips. Short run (SR) demand changes are typically measured in days, weeks, months and relate to the additional trips that are diverted to a new road from other routes/modes or by those drivers who decide to make a trip vs not.

Some examples are set out below.

WSP & RAND, DfT, 2018 [Latest evidence on induced travel demand: an evidence review](#)

WSP, RAND; DfT, 2020, "Deepening The Understanding of How to Address Induced Travel on The Strategic Road Network: Options for Improving the Measurement of Induced Travel" [Deepening the understanding of how to address induced travel on the strategic road network](#)

Standing Advisory Committee on Trunk Road Appraisal, HMSO 1994, "Trunk Roads and the Generation of Traffic", HMSO, London, and 1996 ["Transport and the Economy, Full Report"](#)

Planetizen [What Is Induced Demand? | Planetizen Planopedia](#)

Adam Mann, Wired, 2107, [What's Up With That: Building Bigger Roads Actually Makes Traffic Worse | WIRED](#)

Jake Blumgart, Governing, 2022, [Why the Concept of Induced Demand Is a Hard Sell \(governing.com\)](#)

Benjamin Schneider, Bloomberg, 2018, [Traffic Jam? Blame 'Induced Demand.' – Bloomberg](#)

Todd Litman, Victoria Transport Planning Institute, 2023, "Generated Traffic and Induced Travel", [Generated Traffic and Induced Travel \(vtpi.org\)](#)

That induced demand in many cases negates the economic benefit anticipated for a new road scheme. As set out earlier, SACTRA reached that conclusion in 1994, more recently David Metz ex Chief Scientist of the DfT found the same with respect to a major M25 widening scheme.

David Metz, Centre for Transport Studies, University College London, 2021, "Economic benefits of road widening: Discrepancy between outturn and forecast" [Economic benefits of road widening: Discrepancy between outturn and forecast – ScienceDirect](#)

Cost-benefit analysis of road investments involves models that generate travel time savings as the main economic benefit. Monitoring of traffic flows after the widening of the section of the M25 London orbital motorway between Junctions 23 and 27 found substantial increases in traffic volumes, of up to 23% two to three years after opening, but no increase in speed of travel beyond the first year. Comparison was made with the forecast traffic flows, made using a variable demand model based on SATURN software. The model projected increased traffic volumes and speeds as a consequence of road widening, but underestimated traffic volumes and overestimated traffic speeds compared to outturn. The forecast of faster traffic speeds was the input to the economic model used to compare investment benefits with costs, yielding a benefit-cost ratio of 2.9, which justified the investment. However, the absence of observed increase in traffic speed raises questions about the applicability of a long-established transport model and of travel time savings as the main economic benefit of road investment, as well as about the value of investment to increase the capacity of strategic roads where these are used extensively for local trips.

David Metz, The Conversation, 2021 [Road building is supposed to cut congestion and boost the economy – my research suggests otherwise \(theconversation.com\)](#)

David Metz, UCL, 2021 [Opinion: road building won't cut congestion or boost the economy | UCL News – UCL – University College London](#)

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Todd Litman, Victoria Transport Policy Institute, 2025, "[The Mobility-Productivity Paradox Understanding the Negative Relationship Between Mobility and Economic Productivity](#)"

This study explores a paradox: the negative relationship between mobility (motor vehicle travel) and economic productivity. Contrary to popular perceptions, more driving tends to make communities less prosperous. Conventional planning often assumes that faster, cheaper and more vehicle travel supports economic development, but evidence described in this study indicates that, on the contrary, in mature economies productivity tends to decline with more driving and increases with non-auto travel. This study investigates why this occurs. It identifies six specific ways that automobile-oriented planning reduces productivity including higher user costs, increased public infrastructure and external costs, reduced non-auto mobility options, higher sprawl-related costs, reduced spending on local goods and services, and less attractive urban environments. These impacts filter through the economy, reducing overall productivity, employment, incomes, economic opportunity, property values and tax revenues. This study indicates that productivity increases with more efficient transportation, so economic activities require less driving. It identifies ways that transportation agencies, business and individuals can better achieve economic goals.

[The Mobility-Productivity Paradox | Planetizen Blogs](#)

My interpretation of the findings of this work and relevant to us in Wales are:

- Induced demand is a real phenomenon that particularly impacts increases in road capacity in urban areas
- More induced traffic is associated with road capacity increases where there is a high level of congestion and suppressed demand
- Traffic level increases on new routes are not offset by corresponding reductions in traffic on equivalent unimproved routes (as DfT found this is consistent with the findings of the SACTRA reports)
- The size of the induced demand relative to background traffic growth in the long run is not clear but note some of the studies found elasticities of over 1.0 in some circumstances, and typically higher for Long Run induced demand
- In many cases the economic benefits of additional road capacity (often set out in the original business cases) are diminished, if not completely negated, through the impact of induced demand-based congestion.

Whilst there is clearly more research required to better quantify and predict induced, especially "Long Run" impacts, it is clear induced demand is a phenomenon we need to take seriously.

Car use externalities and esp. impact on retail/high streets

Asier from the more obvious road traffic accidents and air quality impacts, perhaps the most damaging impact of car dependency has been the replacement of 000s of independently owned local high street retailers, that retained value locally, with far fewer corporate shed, car dependant retailers that employ local people on lower wages and extract value to distant balance sheets.

See: [The developmental impact of car dependency](#)

Welsh Government 2021, Foundational Economy Research Unit, [Small Towns, Big Issues: independent research report \(gov.wales\)](#)

Audit Wales, 2021, [Regenerating Town Centres in Wales \(audit.wales\)](#)

BBC News, 2020, [UK's best High Street is Welsh valleys town Treorchy – BBC News](#)

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von Schneidemesser, D. et al, Local Business Perception vs. Mobility Behaviour of Shoppers: A Survey from Berlin, Transport Findings (2021) [Local Business Perception vs. Mobility Behaviour of Shoppers: A Survey from Berlin | Published in Findings \(findingspress.org\)](#)

Ellen Macarthur Foundation, 2015, "[Benefits of adopting a circular economy for Europe](#)"

Todd Litman, Planet Citizen, 2019 "[Better Planning with More Comprehensive Transportation Cost Analysis](#)"

Todd Litman, Victoria Transport Planning Institute: - 2016(update), "Transportation Cost and Benefit Analysis", [Transportation Cost and Benefit Analysis](#)

Todd Litman, Victoria Transport Planning Institute, 2023, "[Transportation Market Distortions](#)"

Ian Walker, Alan Tapp, Adrian Davis, 2023, *International Journal of Environment and Health*, Volume: 11, Issue: 1, Pages: 21 – 33 [Motonormativity: how social norms hide a major public health hazard \(swan.ac.uk\)](#)

Road pricing

Despite the controversy and political sensitivity, the evidence suggests the quickest, most affordable means of addressing road congestion is to price or toll the road.

In this context, interventions, including fiscal, to discourage car use, need to be considered: to change behaviours; raise capital; and to fairly apportion more of the external societal costs of car use to car users.

A robust and historical source of insight is the oft cited paper prepared in 1990 by Cambridge economist, David Newbery. His paper set out the rationale and principles in support of road pricing. In particular, he explored the four main costs on the rest of society associated with road vehicle – accident externalities, environmental pollution, road damage, and congestion. He concluded by saying,

"Road pricing is the best method of dealing with congestion, and would have far-reaching implications for the viability and quality of public transport, for the finance of urban infrastructure, and ultimately for the quality of life."

David Newbery, Oxford Review of Economic Policy, 1990, "Pricing and Congestion: Economic Principles Relevant to Road Pricing" [PRICING AND CONGESTION: ECONOMIC PRINCIPLES RELEVANT TO PRICING ROADS | Oxford Review of Economic Policy | Oxford Academic](#)

Much credit must also go to the likes of experts like Martin Mogridge who led the way in the 1970s and 1980s whilst at TfL and UCL, in recognising the impacts of large-scale road building and the need for pricing measures for road use that reflected all the costs of car use, especially the externalities. [Martin Mogridge | | The Guardian](#)

Welsh Government's Independent Review of Road User Charging and more relevant from a UK perspective, the Westminster Transport Committee review of Road Pricing both made a compelling case for Road Pricing

- ... there is a pressing need for a "National Policy Framework for Road User Charging in Wales" to be developed and introduced as soon as possible."
- ...The Government must start an honest conversation with the public on the funding implications for road development and maintenance and for other essential public services of decreased revenue from vehicle excise duty and fuel duty.
- ...In signalling a shift to any alternative road charging mechanism, the Government must make it clear to motorists who purchase electric vehicles that they will be

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required to pay for road usage, as is currently the case for petrol and diesel vehicles. It must ensure that any alternative road charging mechanism incentivises motorists to purchase vehicles with cleaner emissions while contributing tax revenues to support the maintenance of the road network,

- *...In designing an alternative road pricing mechanism to vehicle excise duty and fuel duty, the Government must ensure that any road pricing scheme does not undermine progress towards its targets on active travel and public transport modal shift.*

Welsh Government Written Statement, 2020, [Written Statement: An independent review of road user charging in Wales \(9 March 2020\) | GOV.WALES](#)
[Independent review of road user charging in Wales | GOV.WALES](#)

House of Commons, Transport Committee, 2022 [Road pricing \(parliament.uk\)](#)

[More cars off road under congestion pricing, data shows](#)

[Smart Congestion Relief](#)

General policy & background reports

Welsh Government, Well-being of Future Generations (Wales) Act 2015, "[Well-being of Future Generations \(Wales\) Act 2015 – The Future Generations Commissioner for Wales](#)"

Welsh Government, 2022, Wales Transport Strategy, "Llwybr Newydd" [Llwybr Newydd: the Wales transport strategy 2021 | GOV.WALES](#)

Welsh Government, 2015, Well Being of Future Generations Act, [The Well-being of Future Generations | GOV.WALES](#)

Welsh Government, 2023, Response to the Roads Review "[Roads Review: Welsh Government response](#)"

Welsh Government, 2021, "Net Zero Wales" [Net Zero Wales | GOV.WALES](#);

Welsh Government, 2023, Response to the Roads Review [Welsh Government response to the Roads Review](#)

UK Government, Comprehensive Spending Review(CSR) 2025, HMT June 2025, [Spending Review 2025 - GOV.UK](#)

Welsh Government, 2024 [Bus reform for Wales: our roadmap to franchising | GOV.WALES](#)

UK Government 2025, Statement of Funding Policy Funding the Scottish Government, Welsh Government and Northern Ireland Executive, HMT, June 2025, [Statement of Funding Policy.pdf](#)

National Assembly for Wales, Enterprise and Learning Committee, 2010, "[Future Rail Infrastructure in Wales](#)"

Western Gateway, 2023, "2050 Rail Vision" [Western Gateway 2050 Rail Vision](#)

Mark Barry, Cardiff Capital Region, 2020, "Passenger Transport Rail Vision" [passenger-rail-vision-final.pdf \(cardiffcapitalregion.wales\)](#)

Mark Barry, Mark Barry (Cardiff) Publishing, 2024, "How to build a Metro"; [How to build a Metro... – One view of the collective effort behind the advocacy and development of the Cardiff Capital Region Metro \(or South Wales Metro\)](#)

9. Glossary

Abbreviation	Meaning
AC	Alternating Current
AT	Active Travel
AV	Autonomous Vehicle
BCR	Benefits Costs Ratio
BR	British Rail
BRT	Bus Rapid Transit
BSSG	Bus Service Support Grant
BTM	Bristol Temple Meads
BUA	Built Up Area (ONS)
CAPEX	Capital Expenditure
CASR	Cardiff Area Signalling and Renewals
CCC	Cardiff County Council
CCCm	Climate Change Committee
CCR	Cardiff Capital Region
CJC	Corporate Joint Committee
CP	Control Period (Network Rail 5-year funding period)
CRA	Country and Regional Analysis (HMT)
CSR	Comprehensive Spending Review
CU	Cardiff University
CVL	Core Valley Lines
DCFW	Design Commission for Wales
DfT	Department for Transport
DM	Deputy Minister
DMU	Diesel Multiple Unit
DOO	Driver Only Operation
DRT	Demand Responsive Transit
EMU	Electric Multiple Unit
ERDF	European Regional Development Fund
EV	Electric Vehicle
FBC	Full Business Case
FM	First Minister
GDHI	Gross Domestic Household Income
GDP	Gross Domestic Product
GVA	Gross Value Add

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Abbreviation	Meaning
GWEP	Great Western Electrification Programme
GWML	Great Western Mainline
HMT	Her Majesty's Treasury
HoW	Heart of Wales Line
HR	Heavy Rail
HS2	High Speed 2
HSR	High Speed Rail
IRP	Integrated Rail Plan
KA	Keolis Amey
KPI	Key Performance Indicator
LA	Local Authority
LGA	Lloyd George Avenue
LoS	Line of Sight (often used for LR or Tram systems)
LR	Light Rail
LR	Long Run (Induced Demand)
LRT	Light Rail Transit
LRV	Light Rail Vehicle
LSOA	Lower Super Output Area
LUF	Levelling Up Funding
MP	Member of Parliament
MS	Member of The Senedd
MV	Metro Vehicle (another name for the new TfW Stadler tram-trains)
NPR	Northern Powerhouse Rail
NR	Network Rail
NWML	North Wales Mainline
NWTC	North Wales Transport Commission
NZW	Net Zero Wales
OBC	Outline Business Case
OLE	Overhead Line Electrification
OMR	Operations Maintenance and Renewals
ONS	Office for National Statistics
ORR	Office for Road and Rail
OPEX	Operating expenditure
P&R	Park and Ride
PAX	Passenger Numbers

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Abbreviation	Meaning
PAYG	Pay as You Go
PPH	People per Hectare
PRM	Persons of Reduced Mobility
PSOC	Programme Strategic Outline Case
PT	Public Transport
RCT	Rhondda Cynon Taf
RL	Rhymney Line
RNEP	Rail Network Enhancement Pipeline (Network Rail)
ROGs	Railways & Other Guided Transport Systems (Safety) Regulations
RTA	Road Traffic Accident
RTP	Regional Transport Plan
RUC	Road User Charge
RYR	Restoring Your Railway
SACTRA	Standing Advisory Committee on Trunk Road Appraisal
SCCEI	Senedd Climate Change, Environment & Infrastructure Committee
SDL	Swansea District Line
SDP	Strategic Development Plan
SEWTC	Southeast Wales Transport Commission
SNTB	Sub National Transport Body
SOC	Strategic Outline Case
SR	Short Run (Induced Demand)
SWML	South Wales Mainline
SWW	South West Wales
T&Cs	Terms and Conditions
TAG	Transport Appraisal Guidelines
TAM	Treherbert, Aberdare, Merthyr Lines
TCS	Tram Control System
TfW	Transport for Wales
ToC	Train Operating Company
TOD	Transit Oriented Development
TRU	Trans Pennine Route Upgrade
TTWA	Travel to Work Area
TWAO	Transport Work Act Order
UCR	Union Connectivity Review
VfM	Value for Money

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Abbreviation	Meaning
VLE	Valley Line Electrification
VoG	Vale of Glamorgan
W&B	Wales and Borders
WASC	Welsh Affairs Select Committee
WCML	West Coast Mainline
WDA	Welsh Development Agency
WebTAG	Web based Transport Analysis Guidance (DfT)
WEFO	Welsh European Funding Office
WEB	Wider Economic Benefits
WEI	Wider Economic Impacts
WelTAG	Welsh Transport Appraisal Guidelines
WG	Welsh Government
WIMD	Welsh Index of Multiple Deprivation
WLGA	Welsh Local Government Association
WTS	Wales Transport Strategy (Llwybr Newydd)

10. Appendices

Scope of Work

Proposed Activities

- Review of latest relevant transport policy and guidance
- Review of key data sets (population, WIMD, etc)
- Summary of the current landscape for transport funding in Wales
- Review of relevant transport plans and proposals in the public domain and those which Mark has knowledge of and/or access to not yet in the public domain and which he is able to share (including those set out in his 2024 book, "How to build a Metro")
- The analysis and recommendations will cover all Wales but focus on SE Wales
- Specifically set out in the brief, this work will also include:
 - Development of a high-level framework for decision-making on strategic investment priorities for transport infrastructure (roads, buses, rail and sustainable travel), that centres on connecting people, communities and businesses in Wales
 - An assessment of what projects should be prioritised for investment in the short, medium and long term
 - Examine where and how alternative investment models could be used or leveraged to support the development of transport infrastructure
 - Outline any further relevant considerations, including the costs and trade-offs associated with developing a strategic pipeline of transport infrastructure projects.

Constraints/Assumptions/Questions

- Mark will focus primarily on ground based public transport (so will focus less on car transport, taxi, new roads, freight, aviation, shipping, ports, Active Travel, etc – although he will provide some relevant commentary); Mark will also focus on covering the key questions in summary form rather than present too much detail.

Deliverables

- A draft report will be prepared by mid-August and subject to comments a final form by early September
- This report will be focussed, and the main contents will be max 15-20 pages long.

Original Brief

Public transport in Wales: Priorities, future projects and a framework for decision-making

As part of the recent Spending Review, railways in Wales will receive an extra £445m over the next decade – including new funding for five new stations in South East Wales, the Padeswood sidings and Cardiff West junction.

Relevant experts agree that this does not compensate for the ongoing squeeze on rail funding in Wales, and the loss in consequential from HS2 being classified as an England and Wales project, in particular.

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Professor Mark Barry, for instance, has noted that, “to be comparable with England, Wales needs ... circa £250 million per annum for enhancements on both the CVL and the NR network in Wales for 15 years”.

The issue of the *quantum* of funding for transport infrastructure in Wales thus remains a key concern. Peredur Owen Griffiths MS is seeking to commission an independent piece of research on related questions about the **strategic priorities for transport infrastructure in Wales** – that is, where and what projects should be prioritised, and on what basis.

Specifically, this research should:

- Develop a framework for decision-making on strategic investment priorities for transport infrastructure (roads, buses, rail and sustainable travel), that centres on connecting people, communities and businesses in Wales.
- On the basis of the above, provide an assessment of what projects should be prioritised for investment in the short, medium and long term.
- Examine where and how alternative investment models could be used or leveraged to support the development of transport infrastructure.
- Outline any further relevant considerations, including the costs and trade-offs associated with determining a strategic pipeline for transport infrastructure projects.

We would ask that the research highlight particular implications of the above for the Member's region of South Wales East.

It is anticipated that the research will be presented in the form of a written report, to be delivered by no later than 15 September 2025, with a precise timeline for delivery agreed on receipt of the commission.

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