Cardiff Capital Region

MARCH 2021

Investment Prospectus

Prosperity for our Place

Appendix 1: Passenger Rail Vision

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Executive Summary

The Cardiff Capital Region (CCR) is home to 1.5M people, covering a diverse and unique geography from coast to valley to mountain; a history that encompasses the crucible of the industrial revolution, an industry that fuelled the world in the 19th and early 20th Centuries and the foundation of the NHS. It now supports a modern diverse multicultural society drawn from all parts of the world as well as its own unique language and history.

In partnership with Welsh Government (WG) and Transport for Wales (TfW), the region is working to bring forward ambitious plans for the development and expansion of its public transport network at the heart of a sustainable and more equitable economy. This paper is focussed on strategic passenger rail priorities and sets out the primary schemes to be developed over the next 10-15 years. This will augment the £740M upgrade of the core valley lines[i] through faster, more frequent and electrified services *Figure 23* being delivered to 2023/4 by TfW.

Whilst clearly integrated bus services, fares policy and active travel are essential components of the overall Metro programme they are not considered in detail in this paper. Similarly, the anticipated Strategic Development Plan will provide the statutory basis for future land use policy and development that is integrated with the Metro.

The primary consideration in developing plans, is that pre-Covid, cars trips made up 80% of commuting mode share *Figure 1*, indicating that there is a large untapped market for public transport (PT). The region clearly needs a better public transport product able to attract the 80% still using their cars onto public transport.

Drawing from earlier work and analysis[ii], it has been calculated that benefits of over £4Bn could be secured for the region over 30 years by combining traditional transport user benefits and the potential wider economic benefits enabled by the Metro.

The Climate Emergency and a need to reduce our car dependency

In developing a coherent vision for rail and integrated public transport across the Cardiff Capital Region, the existential threat of the climate emergency demands that our priority is to bring forward proposals that radically change our mobility ecosystem. This is in line with our broader environmental and well-being obligations and goes beyond purely transport interventions.

Changes in Commuting Mode in Wales, 2003 - 2017

Mode	2017 Mode share	2003 - 2017 % change in use of each mode and change in ave. journey time
Car	81%	+9%, +4 mins
Walk	8%	-18%, +5 mins
Bus	4%	-7%, +7 mins
Train	4%	+212%, +7 mins
Cycle	2%	+46%, +4 mins
Car Share (% change in numbers of car drivers and car passengers 2003 - 2017)		+24% Driver; -51% Passenger; -21% Sometimes driver, sometimes passenger

Figure 1 Senedd Research, Commuting mode share in Wales 2017

The implicit need to decarbonise infers a need to significantly reduce our car dependency. This is important, as car use is responsible for over 60% of transport CO_2 emission; even a completely electrified car eco system with power generated entirely through renewables (which is not realistic in the short term), would only reduce the total car emissions by perhaps ~50%. Whilst this would be welcome, the wider societal costs of car use require us to go further.

Transport CO_2 Emissions in the EU

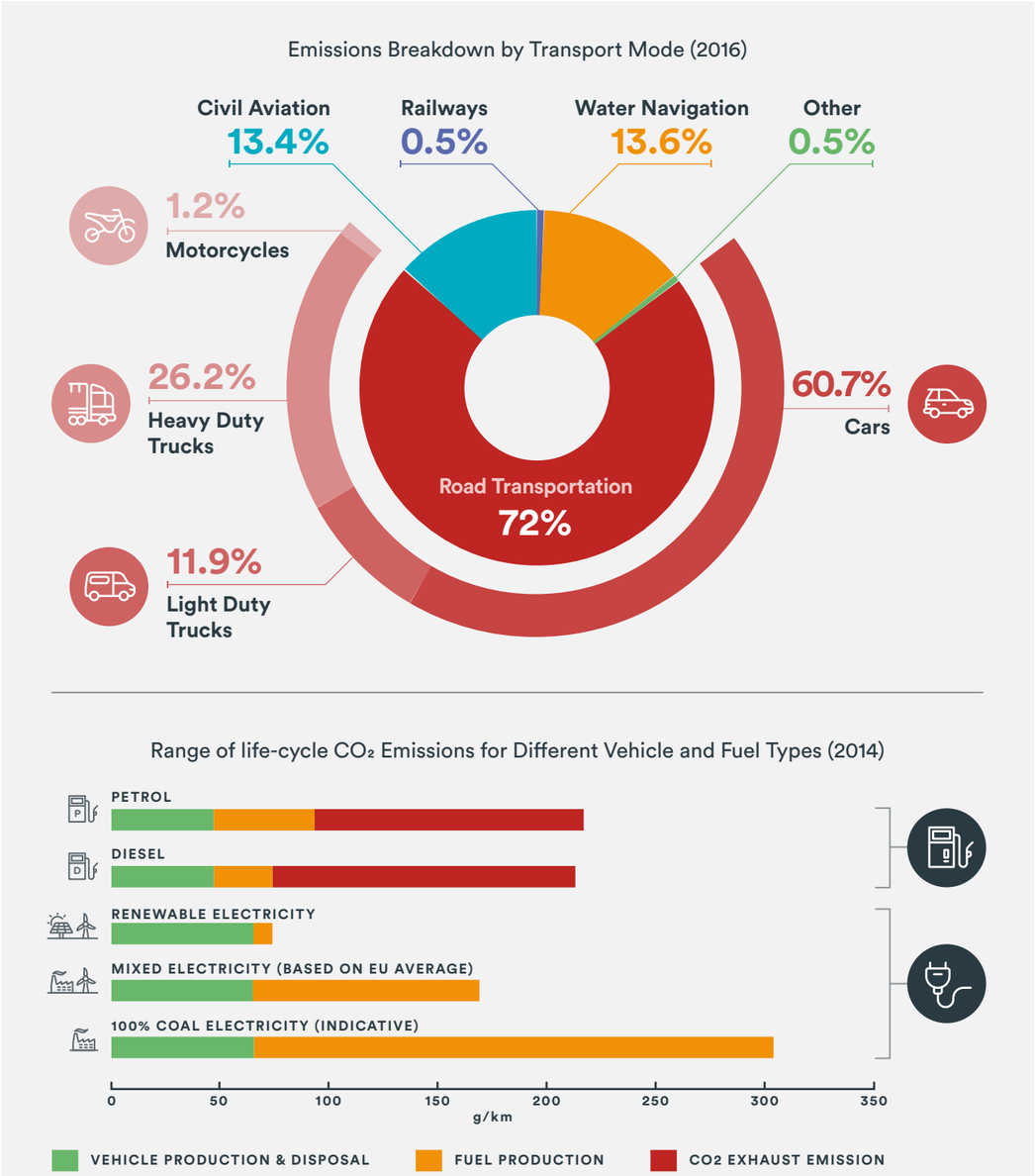


Figure 2 CO_2 emission by mode, EU Environment Agency 2016[iii]

Much of the growth in car use from the relatively low levels in the 1950s, has been enabled by the phenomenon of induced demand resulting from road building, enabling new car-based developments, that have generated a need for more car trips, requiring more road space to accommodate them. An unvirtuous cycle. It is also a stark reality, that the vast majority of the world's cars spend perhaps 95% of their time doing nothing[iv]. Aside from being a grossly inefficient use of scarce natural resources, having to design our cities around cars when they are not moving, is as bad as having to do so when they are.

As was the case across the UK during the 1950s-1970s, a lot of our rail infrastructure was pulled up and built over given the huge growth in car ownership and usage[v] *Figure 3*. The folly of those interventions is only now being recognised given the growth in rail usage over the last twenty years and now the urgent need to address the climate emergency. The work of experts like Martin Mogridge[vi] led the way in recognising the failure of large-scale road building.

UK Transport Modal Share (1952-2015)

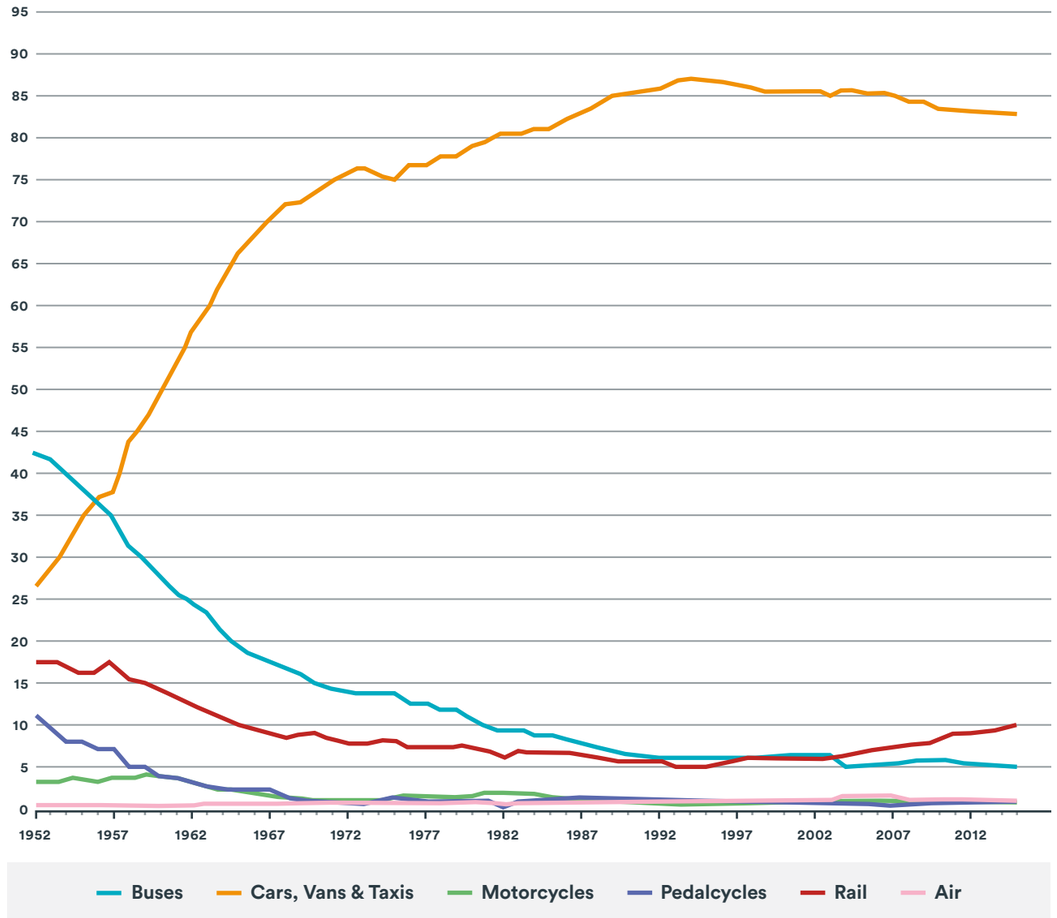


Figure 3 Passenger Transport % in UK 1952 – 2015

We have also become de-sensitised to the enormous societal costs borne by all of us resulting from car use; 150,000 road traffic casualties in the UK per year[vii], 28,000 serious injuries and 1,700 deaths as well as 20,000 to 30,000 premature deaths resulting from poor air quality[viii].

We need to seriously consider what sort of future we want *Figure 4*. If we can secure a significant shift to public transport and active travel, we will find that we have more than enough road space for those that still need or choose to use cars for particular journeys. After all, it is only 20~30% of traffic that causes 100% of congestion as was found by the South East Wales Transport Commission[ix].

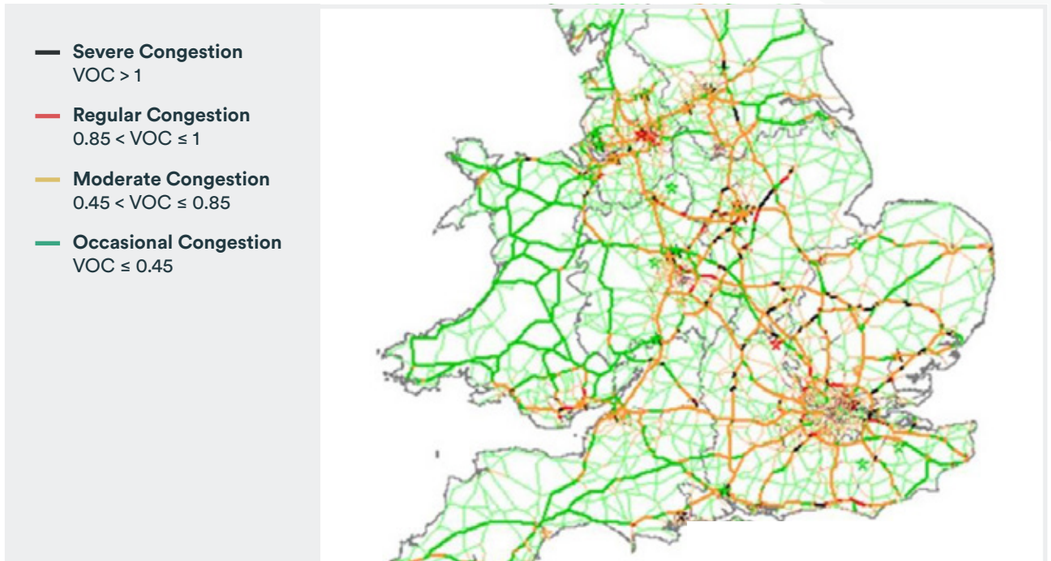
In this context, interventions, including fiscal, to discourage car use, need to be considered: to change behaviours; raise capital; and to fairly apportion more of the external societal costs of car use to car users. WGs recent Independent Review of Road User Charging[x] in Wales, found:

... 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."

Levelling Up and Sustainable Economic Development

As important, there is also a complementary need to develop a sustainable and more equitable economy and, as the UK Government has stated[xi], to, "level up". These are broad words which need real thought in scheme development and implementation and goes beyond transport. We can't continue to feed an economy that does not account properly for the irresponsible depletion of natural resources, our environment and the excessive production of CO_2. Similarly, the challenges of post-industrial decline impacting many other parts of the UK, as well as the CCR, requires more than rhetoric. Levelling up requires, as WG have stated, "positive discrimination in how funding and investment decisions are made". This is even more important given the scale and economic impact of rail schemes being developed elsewhere in the UK (especially HS2) which has the potential to negatively impact the Welsh economy without further transport interventions. WG and UK Government can and must work together with the CCR to address this challenge.

Figure 4 Data on road use over capacity



Vision

A strategic public transport network for the Cardiff Capital Region providing a high-quality, reliable, efficient and affordable transport services to support sustainable economic development and social regeneration.

The key feature of the CCR vision is a high quality, integrated grid of public transport services (rail and bus) that presents a single joined up network to the passenger. Given Welsh Government's decarbonisation targets[xii] we need a step change, with the ultimate aim, subject to further analysis, of reducing car mode share to perhaps 40% or less (which was common until the 1950s) from 80% today; this implies a significant increase in public transport and active travel – from a total mode share of 20% today, to closer to 60%. In parallel, the vision anticipates a range of transport related economic development and regeneration interventions right across the region.

In the short term, this will include: re-designed bus networks integrated with new metro rail services planned as part of the next phase of Metro by 2023/4; delivering integrated fares and ticketing; station and interchange enhancements; and the redevelopment of Cardiff Central. However, the vision goes beyond that and sets out an ambition for an expanded rail network as the backbone of an integrated public transport network, to be developed and delivered over the next 10-15 years.

Rail Network and Services

The delivery of the CCR Rail vision *Figure 5* will include:

- **A major upgrade of the South Wales Main Line (SWML) is an early priority, to form the backbone of the region's public transport network through new stations and a mix of intercity express and local commuter services; specifically, there is a need for more services from Bristol Temple Meads through Newport and Cardiff to Swansea and West Wales. This is consistent with the measures set out by the South East Wales Transport Commission**
- **Measures to address bottlenecks on the rail network to allow more services on the Ebbw Valley, Marches Line, Maesteg Branch, The Vale of Glamorgan (VoG) and City and Coryton Lines in Cardiff**
- **Re-use of freight lines where demand justifies (e.g. Aberdare - Hirwaun)**
- **Introduction of further new stations, in addition to those included in the core CVL transformation, to connect more people and places to the Metro network**

- **Re-use and connection of underutilised lines to create the Cardiff Crossrail & Circle, to deliver high quality & frequent public transport (PT) services across much of urban Cardiff, the Bay and extended through the NW Corridor into RCT to Talbot Green and Pontyclun**
- **Enhanced cross valley links, using both bus and tram-train, integrated through high quality interchanges with new north-south CVL rail service; this will deliver a grid that makes more journeys between the valleys viable and affordable using public transport**
- **Reconnection of Caerphilly with Newport using the Machen freight line and tram train services, the on-street tramway capability of which can be applied in Newport to avoid conflicts with the congested SWML and support regeneration in Newport.**

There are also schemes across Wales and the UK that could help the CCR economy *Figure 6* for example: Western Rail Access to /Heathrow; enhancement to HS2 Phase 2 and rail lines south west from Birmingham to allow more services between Cardiff (via HS2) and places like Manchester, Leeds, Sheffield, Newcastle and onto Edinburgh and Glasgow; integrated Metro development in Swansea Bay and Bristol; and improved N-S services in Wales.

Bus Services and Integration

Whilst not addressed here in detail, aligned to this rail programme is a need to redesign bus networks (including more rail/bus interchanges) and integrate fares and ticketing to provide the joined-up single network passengers expect. This is essential to attract some of the 80% of people who currently (pre-Covid) use cars for most of their journeys.

Wider Benefits, Regeneration, Flexible Working and Transit Oriented Development

Enhanced inter and intra-regional connectivity will enable more efficient labour markets and help develop the regional economy. For example, WG identified formal transport user benefits of up to £1Bn that could be realised through enhancement to the SWML in its 2018, "Case for Investment"[xiii]; and the high-level analysis as part of the 2013 Metro Impact Study[xiv], set out the potential to enhance the regional economy by £4Bn over 30 years from the full range of schemes set out at the time.

There are also wider environmental and wellbeing benefits that can be realised; reduced carbon emissions, improved air quality and reduced road traffic accidents are perhaps the most significant.

Some schemes, such as the Cardiff Crossrail/NW Corridor, can support more sustainable, connected and densified housing development along an entire corridor, so called Transit Oriented Development (TOD), as well as enabling development in Cardiff City Centre, Cardiff Bay and Talbot Green. Similarly, the cross mid valley proposals can help re-orient the region's economic geography from being more than just trips to/from Cardiff and so support development in places like Pontypridd.

This programme also presents an opportunity to augment those benefits through a range of station focused development and regeneration interventions to maximise the benefits of the investment in our public transport network. These include:

- **Cardiff City Centre and Bay**
- **Newport City Centre**
- **Nantgarw/Trefforest**
- **Pontypridd Town Centre**
- **Bridgend Town Centre and Ford Site**
- **Ebbw Vale Enterprise Zone**
- **Cardiff Airport and St Athan**
- **Merthyr Town Centre and the emerging plans for Cyfarthfa Castle**
- **Key Hubs such as Barry Town, Caerphilly, Pontypool, Aberdare, etc**

If we can embed TOD into our planning and development ecosystem, we can begin to encourage the relocation of more of our shops, offices, schools, hospitals, etc away from car based "out of town" locations, back to our town and city centres where good public transport is easier and less costly to deliver. There are also a range of more community focussed interventions that can be progressed at places like Porth, Maesteg and Butetown.

The impact of Covid and the phenomenon of more flexible working (through some home and local workplaces) will alter demand patterns. However, the real opportunity is to reduce the peakiness of movement so that less of us are having to travel at peak times in one direction twice a day. In that context, given the very high pre-Covid levels of car use, and the need for more TOD, we still need much more PT capacity.

The full range of schemes presented here, can significantly boost those benefits and when added to the transport user benefits calculated by WG in 2018, justify a major capital programme over the next 10~15 years of perhaps £2~3Bn.

Next Steps

The primary steps necessary to progress this vision are that the CCR work collaboratively with key partners (including local authorities, WG, TfW, DfT, UK Gov, NR) to:

- **Secure support from across the region**
- **Further develop and refine these schemes through TfW's Metro Scheme and Business Case Development programmes; this work will confirm scope, phasing, benefits and costs of these emerging proposals**
- **Secure commensurate long-term funding (capital and revenue); including consideration of demand management measures (e.g., workplace parking levy, road user charging)[xv], Community Infrastructure Levy, Tax increment financing, etc**
- **Bring forward public transport focussed economic development, TOD and regeneration interventions across the whole region aligned to Metro stations and public transport corridors.**

Professor Marquand from the School of Industrial Relations at Cardiff University, who first set out the metro concept in his book "South Wales Needs a Plan", published in 1936, would, I suspect, welcome these proposals.

Key Interventions Summary

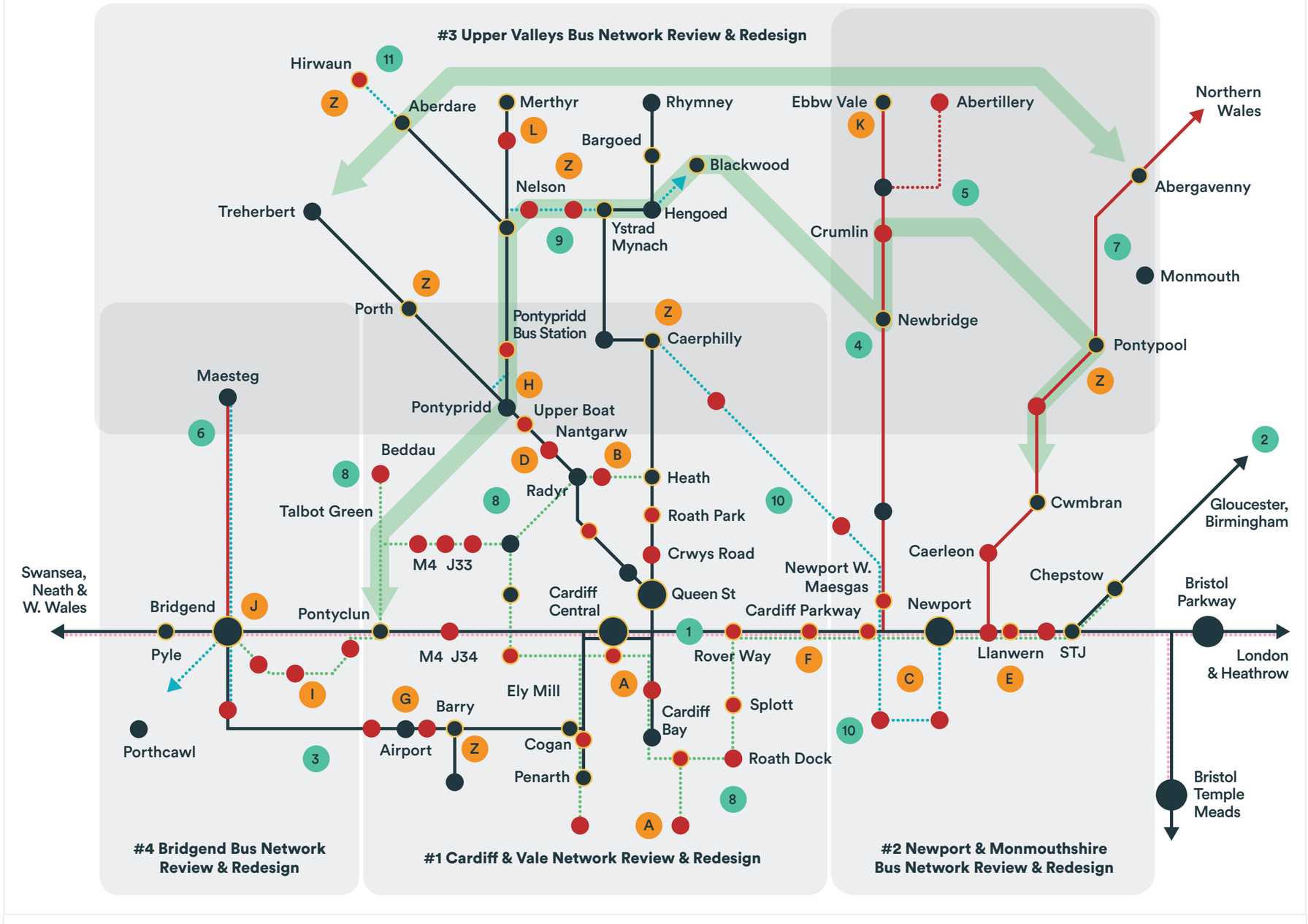


Figure 5 CCR Strategic Rail Priorities

Illustration only, not all stations, routes or services shown

Table 1: Priority Rail Schemes

1. **South Wales Main Line (SWML) Upgrade**
   - Mix of intercity express & local commuter services & new stations
   - Enhanced line speed and capacity
2. **Route and service upgrade to Birmingham**
3. **VoG service enhancements**
4. **Ebbw Valley service enhancements**
5. **Abertillery spur**
6. **Maesteg line service enhancements & potential tram train operation and local extendibility**
7. **Marches line service enhancements**
8. **Cardiff Crossrail & NW Corridor tram-train**
   - City and Coryton link and service upgrade
   - Bay line extension to Rover Way
   - Tram train on SWML to Newport/STJ
   - NW Corridor to Pontyclun
   - Extend tram train west from Pontyclun
   - Extend tram train to Penarth and lower Penarth
9. **Mid-valley tram train connection**
   - Tram train from Rhondda to Ystrad Mynach via Pontypridd, Abercynon and Nelson
   - New Stations at: Pontypridd bus station, Nelson, Tredomen Business Park
10. **Caerphilly-Newport tram train**
    - Re use and extend Machen freight branch to Caerphilly
    - On street "tramway section" over SWML and via Royal Gwent
11. **Aberdare-Hirwaun**

Table 2: Economic Development Sites & Regeneration Opportunities

- **A** Cardiff Central, Central Quay, Butetown Cardiff Bay
- **B** GE Life Science Innovation Park
- **C** Newport Knowledge Quarter
- **D** Nantgarw/Treforest Industrial Estate
- **E** Llanwern/Glan Llyn
- **F** Cardiff Parkway
- **G** Cardiff Airport/St Athan Business Park
- **H** Development and regeneration in Pontypridd
- **I** Llanilid
- **J** Bridgend City Centre and Ford Site
- **K** Ebbw Vale Enterprise Zone
- **L** Merthyr Town Centre and Cyfarthfa Castle
- **Z** Multiple Local Regeneration Opportunities

Bus Network Redesign	Suggested Key Bus Hubs/Interchanges
#1 Cardiff & the Vale of Glamorgan	Cardiff Central, Waungron Rd, Heath Hospital, Heath Halts, Bay/Arena, Queen St, Rover Way/Newport Rd Barry Town, Pontyclun, Barry Docks, Cogan, Cowbridge
#2 Newport, Monmouthshire & Ebbw Valley	Newport, Cwmbran, Pontypool, Abergavenny, Monmouth, Newbridge, Ebbw Vale, Chepstow, Llanwern, Severn Tunnel Junction
#3 Mid & Upper Valleys	Merthyr, Aberdare, Pontypridd, Bargoed, Newbridge, Blackwood, Porth, Ystrad Mynach, Ebbw Vale, Abercynon, Llanbradach
#4 Bridgend	Bridgend, Porthcawl, Pyle, Maesteg

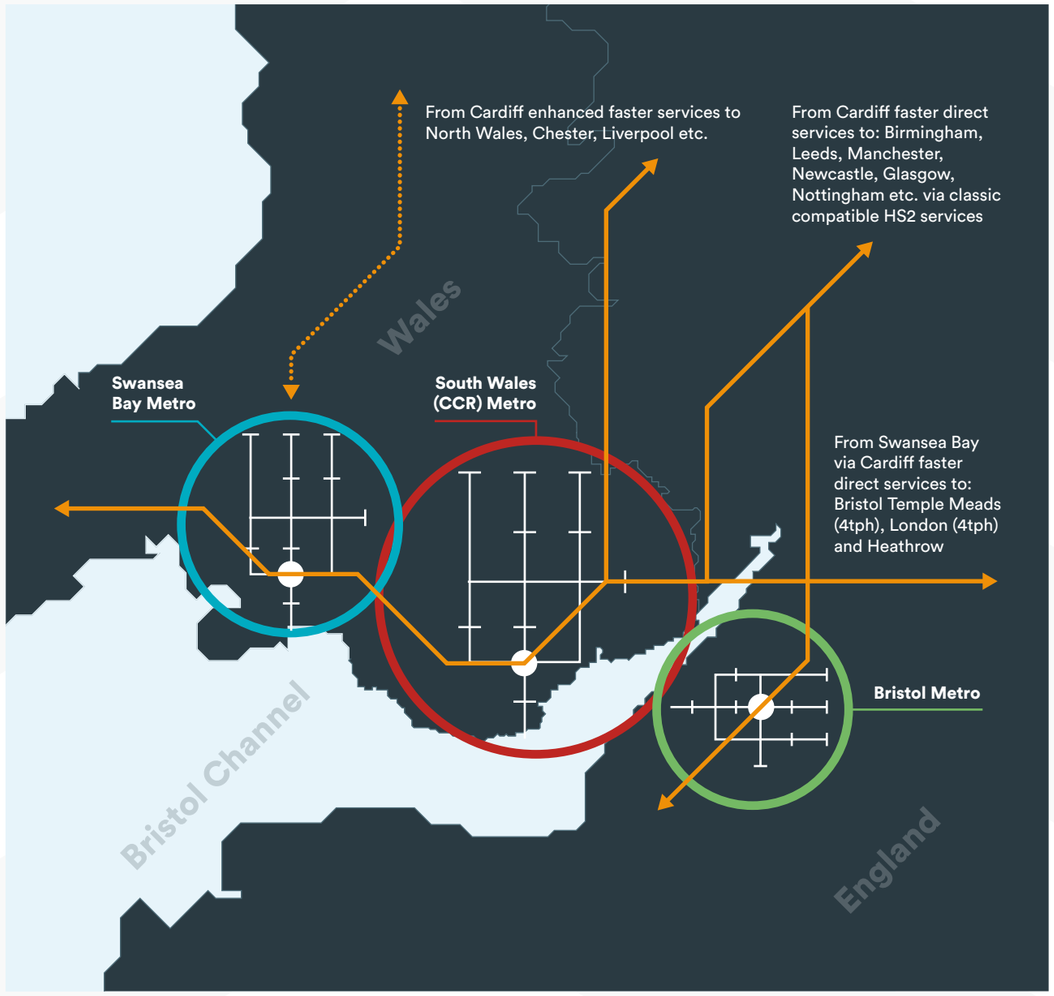


Figure 6 Integrated Metros in Bristol, Swansea Bay & CCR (South Wales Metro)

Policy Context

The ten local authorities in South East Wales have come to together to form the Cardiff Capital Region[xvi] with an intent to support sustainable economic development across the whole region. In doing so the need to develop skills, support innovation and implement improved physical and digital infrastructure is of paramount importance. In the face of a global pandemic and the climate emergency, now is the time to be clear on priorities across the region.

This paper sets out the priorities for investment in strategic passenger rail services and infrastructure over the next 10-15 years. This is important as rail services will provide the backbone of an integrated public transport network across the region and enable complementary measures in respect of integrated bus services, active travel and transit-oriented development (TOD).

These proposals augment those already in development via CCR, Welsh Government (WG) and Transport for Wales (TfW). These include the current WG work being delivered by TfW to implement the £740M transformation of the core valley lines with more and faster electrified services, which is due to be completed by 2023/4; as well as the CCRs Metro Plus Programme[xvii], Metro Central and the Metro Enhancement Framework, which is bringing forward a range of tactical measures across the region to improve accessibility of public transport.

Welsh Government Policy

In developing its position on strategic rail priorities, the CCR is also reflecting both broader WG policy and specific transport proposals as set out in WG policy documents and supporting statements. These include:

- **Prosperity for All: The National Strategy**[xviii]
- **Well-being of Future Generations (Wales) Act 2015**[xix]
- **National Development Framework**[xx]
- **Welsh Government Low Carbon Plan**[xxi] **& Air Quality Plan**[xxii]
- **Environment (Wales) Act 2016**[xxiii]
- **Policy Statement: Accessible and Inclusive Public Transport Objectives 2017**
- **Wales Transport Strategy**[xxiv] **(for consultation – see below)**
- **Welsh Government, Independent Review of Road User Charging**[xxv]

More specifically, Welsh Government has also been developing its vision and priorities for rail through a number of documents and statements; these complement similar statements from the South East Wales Transport Commission, the regions local authorities and the Cardiff Capital Region. Collectively, these include:

- **2018, The Case for Investment and supporting Programme Strategic Outline Cases (PSOCs)**[xxvi]

  This identified over **£2Bn transport user benefits** that could be realised across Wales with a commensurate capital investment programme; this figure would be higher if the full range of schemes Welsh Government has in development, and Wider Economic Benefits, are considered.

- **2019, A Railway for Wales**[xxvii] [xxviii]

  This sets out the case for devolution of rail powers, current plans, wider well-being considerations and ambitions for future rail development & innovation across Wales. This was supported by a statement setting out the Welsh Government's key service and journey time aspirations which included extensions of the south Wales Metro and the need to deliver at least 4tph for urban Metro services

- **The findings of the South East Wales Transport Commission (SEWTC)**[xxix]

  This works sets out the importance of significant further investment along the South Wales Main Line (SWML) corridor (via more capacity additional services and stations) to provide the backbone of an integrated public transport network across the whole of South Wales

- **Further formal scheme and busines case development work undertaken by TfW, WG, and/or local authorities related to projects like Ebbw Vale frequency enhancement, Maesteg frequency and Cardiff NW Corridor/Cardiff Crossrail**[xxx]

- **Network Rail has also been developing Strategic Outline Cases (SOCs) under guidance from the Department for Transport (DfT) for schemes including: Relief Line Upgrade and Swansea Cardiff journey times. Whilst welcome, these fall some way short of the Welsh Government's strategic ambition for the rail network in Wales.**

- **October 2020 Rail Enhancement Priorities**[xxxi]

  To succinctly bring together all the emerging strategic priorities for rail enhancements across Wales, WG produced its Rail Enhancement Priorities. In the CCR this re-stated the need for a major upgrade to the SWML, measures on the Ebbw Valley, Marches and Maesteg Lines and schemes like NW Corridor/ Cardiff Crossrail

Despite the limitations of the devolution settlement in respect of rail powers and funding, WG has nonetheless, via TfW, progressed the next substantive phase of the South Wales Metro. This will deliver significant benefits as a result of the current contracted £740M Core Valley Line (CVL) transformation[xxxii] and provides the foundation for the proposals set out here.

Wales Transport Strategy

The Wales Transport Strategy[xxxiii], whilst still in development, sets out a vision for transport which will be reflected in proposals for the CCR.

An effective, affordable and accessible transport system that is good for the economy, good for individuals and communities, good for the environment and good for Wales.

The Wales Transport Strategy also sets out a "transport planning hierarchy" which gives priority to meeting the demand for travel by walking, cycling and public transport ahead of private motor vehicles.

The WTS sets out the focus of the transport investment hierarchy *Figure 7* will be to:

- **Reduce the need to travel unsustainably (or at all), by adopting measures and policies that bring services closer to people**
- **Widen and promote more sustainable travel choices**
- **Make better use of the existing transport network, ensuring new transport infrastructure is planned alongside other infrastructure so that people and their communities are properly connected.**

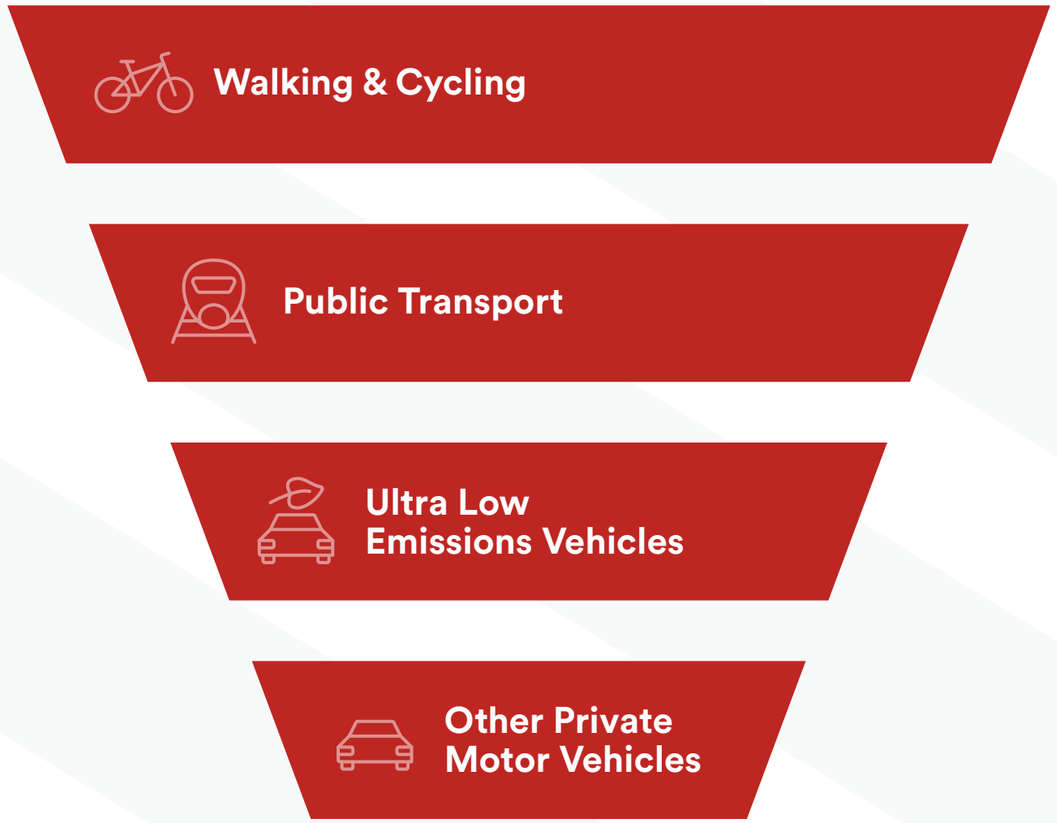


Figure 7 Wales Transport Strategy - Transport Hierarchy

Cardiff Capital Region

The importance of enhanced transport connectivity has been highlighted by the Cardiff Capital Region's Economic Growth Partnership in its "Industrial and Economic Growth Plan"[xxxiv] which emphasised that connectivity is critical – both digital and physical:

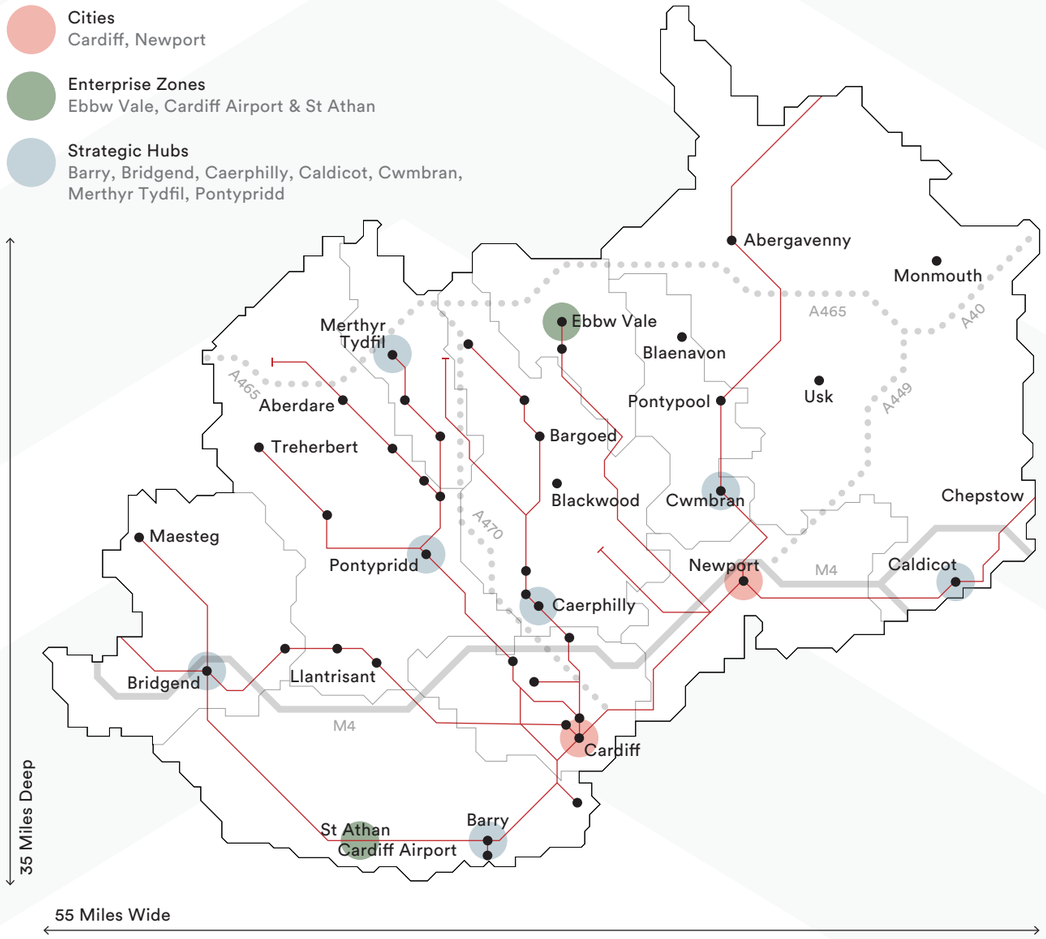


Figure 8 CCR Strategic Hubs & Opportunity Areas (CCR Industrial & Economic Growth Plan)

"The region needs a reliable infrastructure that connects the region, both within and wider afield, to boost productivity and prosperity. The current Metro plans are a significant step in this direction, and we will bring forward further proposals to maximise and unlock future potential offered by its development. We will ensure that we have a road, rail, air and digital infrastructure (fixed and mobile) to connect us to the world. Working with our partners we will (in respect of transport):

- ***Continue to work closely with the UK and Welsh Governments to further develop, enhance and implement the transport network to improve links within the region, reduce congestion and connect people***
- ***Embrace the Metro as a backbone to connecting CCR and shaping places on its networks***
- ***Develop a series of strategic employment spaces across the region to meet the needs of businesses***
- ***Develop proposals for energy efficient and accessible housing***
- ***Utilities networks – ensure, for example, we are ready for the future of electric and/or hydrogen vehicles.***

A region wide strategic focus Figure 8 will enable key towns across the region to be connected ensuring that the growth of the economy is balanced and inclusive."

UK Government "Levelling Up"

It is welcome that the UK Government is now exploring the opportunity to "level up" rail investment across the UK; it should also be recognised that the ultimate success of the Cardiff Capital Region City Deal and the key role of Metro within it, acknowledges the relationship between economic development and transport connectivity.

The recently announced UK Government, Union Connectivity Review[xxxv] also presents an opportunity to address some of the issues that still constrain rail services in the Cardiff Capital Region. The CCR would welcome an opportunity to contribute to the work of Sir Peter Hendy who is leading the review for the UK Government.

The CCR also supports Welsh Government's view that genuine 'Levelling up' cannot simply mean a sprinkling of new, ad hoc rail projects decided in Whitehall, it has to be part of a strategic approach to promoting growth in all parts of the UK. Neither can it just be about equality of access – merely the ability to 'bid in' to new funding sources - it must be about outcomes and a genuine attempt to narrow the real-world gap in terms of rail infrastructure investment between Wales and the rest of the UK. This requires a degree of positive discrimination to counter the inbuilt advantages of areas like the Southeast of England. 'Levelling up' has to be something which meaningfully involves devolved governments in the design and governance of its approach.

This is even more important given the scale and potential economic impact of rail schemes being developed elsewhere in the UK (especially HS2) which has the potential to negatively impact the Welsh economy without further transport interventions.

High Speed 2 and UK Government Rail Investment in Wales

A number of Welsh Government reports, papers and statements[xxxvi] have found that there are issues related to the devolution settlement as it impacts rail infrastructure investment in Wales. The data is clear, Wales' rail network has been significantly and systematically, underfunded in terms of enhancement vs the network elsewhere in the UK for decades. WG have estimated an underspend for the period 2001-2029 of the order of £3Bn.

This is important, as enhancements improve the capability, capacity, reliability of the rail network. So, the limited share of such investment in Wales, over a prolonged period, has led to relatively less attractive services, attracting fewer passengers leading to lower modal share and higher subsidies

vs the rest of the UK. *This is different from the Operations, Maintenance and Renewal Spend (OMR) which is about maintaining the network's current capability and reliability.*

One of the implications of the lopsided devolution settlement is that HS2 (which does deliver much needed rail capacity for England) is a project that in effect is partly "funded by Welsh taxpayers" but as set out in the DfT's own analysis has significant disbenefits[xxxvii] for South Wales. Whilst the UK economy is predicted to receive a £15Bn[xxxviii] benefit, South Wales' GDP will lose an estimated £200M a year; there are similar negative impacts for SW England with Bristol losing £100M pa, and Gloucester, Bath and NE Somerset another £100M.

The CCR will work constructively with UK Government, but is fully supportive of WG efforts to achieve a fully and fairly devolved settlement for the funding and discharge of powers over rail infrastructure and enhancements.

Economic Context

It is essential that the Region's connectivity is enhanced, both internally and externally to key UK and international centres. This will improve access to employment for all of the communities within south-east Wales, whilst allowing the seamless and efficient flow of people and goods.

These aspirations are reflected in the Cardiff Capital Region City Deal's objectives which are to create a local economy that is Connected, Competitive and Resilient. It published three reports setting out further details of these themes and which provide context for the emerging rail priorities:

- **State of the Region Part 1: Connected**[xxxix]
- **State of the Region Part 2: Competitive**[xl]
- **State of the Region Part 3: Resilient**[xli]

Some of the key economic and demographic data for the region have been published in complementary papers; a brief summary is set out below. It should be noted, that aside from presenting metrics at local authority level, it can also be helpful to use datasets based at a regional level, or at a more granular level using Lower or Middle, Super Output Area (LSOA, MSOA). The reality is that there are a range of different issues, challenges and opportunities across the Cardiff Capital Region as well as differences in some measures even within individual local authorities.

Population

In respect of population[xlii] the combined 2019 mid-year estimate for SE Wales was 1.54M, with Cardiff by far the largest at 364,000; RCT is the next largest on 241,000; Blaenau Gwent is the smallest at 70,000. The ONS also identified (based on 2011 census data) the population of the Cardiff Built Up Area (BUA includes parts of VoG, Caerphilly and RCT) at 447,000 with a density of 43 people per hectare[xliii] making it one of the most densely populated BUAs in the UK. The same is also true of large parts of urban south East Wales as shown in *Table 3*. Understanding the demographics and especially density and extent of built-up areas, is important as they can indicate which modes and services maybe most appropriate.

Table 3: **Selected ONS BUA population (2011 Census)**

Built Up Area (ONS 2011)	BUA Population *in thousands*	BUA Density *persons per hectare – pph*
Cardiff (inc urban Pontypridd, Caerphilly & Penarth)	**447**	**44**
Newport (inc urban Cwmbran & Pontypool)	**306**	**36**
Tonypandy	**62**	**49**
Bridgend	**58**	**30**
Barry	**54**	**38**
Merthyr	**44**	**38**
Aberdare	**31**	**39**
Swansea (inc Neath)	**300**	**34**
Greater Manchester	**2,500**	**41**
Liverpool	**864**	**43**
Tyneside	**774**	**43**
Nottingham	**729**	**42**
Bristol	**617**	**43**

2014 based unitary authority population projections (2019, 2029, 2039)

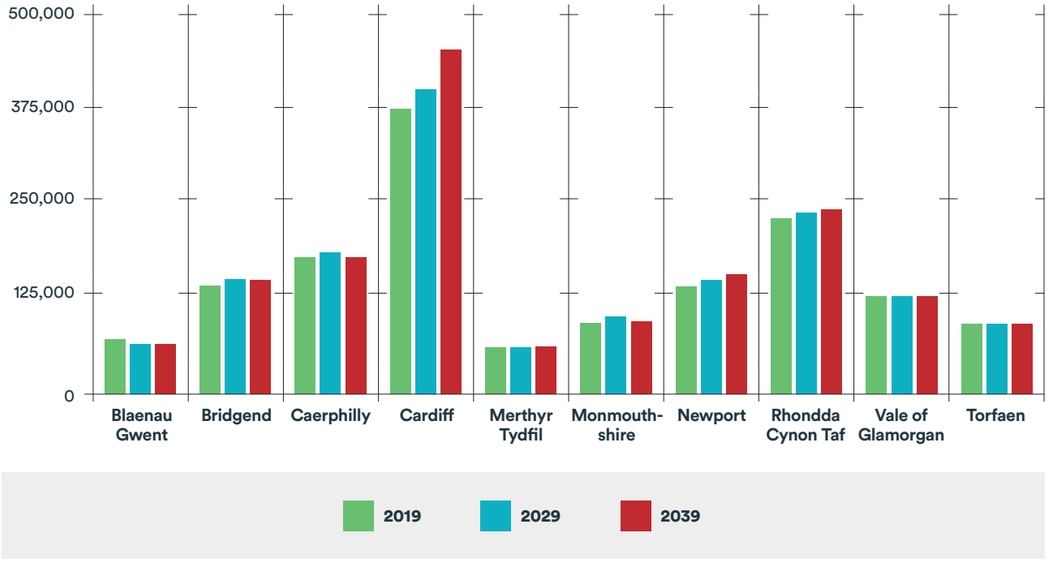
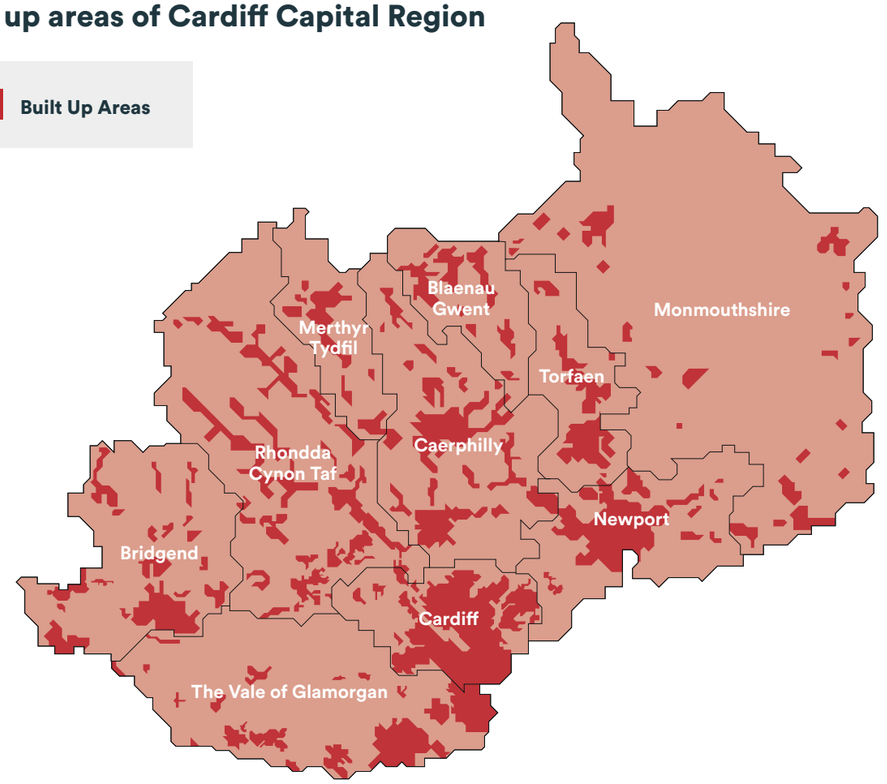


Figure 9 Estimated and projected populations for Local Authorities in CCR (2014 based)

Built up areas of Cardiff Capital Region



Population density (persons per square kilometre) (mid 2017)

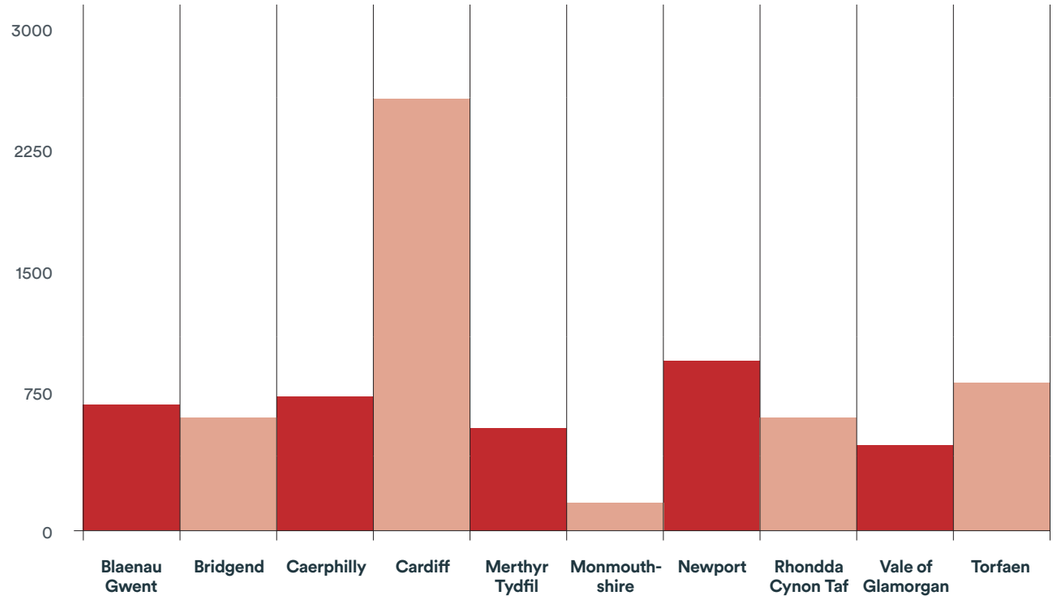


Figure 10 Urban areas and local authority population density (different from BUA to the left)

Image: **WilkinsonEyre**

Economic

The regional GVA[xliv] in 2018 of SE Wales was 77% of the UK average. Whilst commuting figures distort local authority GVA numbers, Cardiff was highest on 113% with Blaenau Gwent the lowest on 46%. It should be noted that, GVA & GDP tend to become less useful at scales smaller than functional economic areas.

Perhaps more useful, the figures for Gross Disposable Household income[xlv] shows that the wider region is 80% of the UK average; Monmouthshire being the highest at 102%, followed by the Vale of Glamorgan at 92%; Cardiff was about the same as Newport on 81% with Blaenau Gwent the lowest on 67%. Weekly wages are highest in the region[xlvi] in VoG, Monmouthshire and Torfaen.

Cardiff, with 39, has more Lower Super Output Areas (LSOA)[xlvii] in the top 10% of the Welsh Index of Multiple Deprivation (WIMD) than any other local authority in Wales[xlviii], the next nearest is RCT on 27, then Newport with 23; with Blaenau Gwent and Bridgend on 6.

Commuting & Mode Share

The scale of movement within the region is also complex, with by the far the most movements to/ from and within, Cardiff.

Table 4: **Stats Wales Local Authority Commuting Data 2018**

	Total number of working residents in the area	Total number of people working in the area	Number of people living and working within the same area	Number of people commuting out of the area	Number of people commuting into the area
Bridgend	**66,200**	**59,300**	**43,500**	**22,700**	**15,700**
Vale of Glamorgan	**61,600**	**40,700**	**30,000**	**31,600**	**10,700**
Cardiff	**193,400**	**260,200**	**161,700**	**31,700**	**98,600**
Rhondda Cynon Taf	**103,200**	**71,800**	**53,200**	**49,900**	**18,600**
Caerphilly	**80,700**	**58,400**	**40,200**	**40,600**	**18,200**
Blaenau Gwent	**30,000**	**18,200**	**13,300**	**16,700**	**4,900**
Torfaen	**40,800**	**35,400**	**21,300**	**19,500**	**14,100**
Monmouthshire	**44,300**	**45,600**	**26,700**	**17,700**	**18,900**
Newport	**70,700**	**78,100**	**42,800**	**27,900**	**35,300**
Merthyr Tydfil	**26,400**	**25,200**	**14,600**	**11,800**	**10,600**
Total	**717,300**	**693,100**	**660,300**	**57,000**	**32,700**

However, there is much cross-region movement. For example, as per Stats Wales data[xlix]: overall there are a total of 717,000 working residents in the CCR of which 660,000 live and work within the region with 57,000 commuting out (includes approximately 25,000 to Bristol and SW England and 12,000 to Swansea and West Wales) and 33,000 commuting in. This is a net out-commute of 24,000 leaving an overall working population in the region is 693,000; with 260,000 in Cardiff and 433,000 elsewhere in region.

The visualisation of ONS 2011 data *Figure 11* also illustrates the patterns which demonstrate the very different mobility challenges across the region.

In terms of mode share, the region is still over reliant on car use, which for commuting makes up over 80% of journeys.

Commuting flows (net origin-destination) (2011)

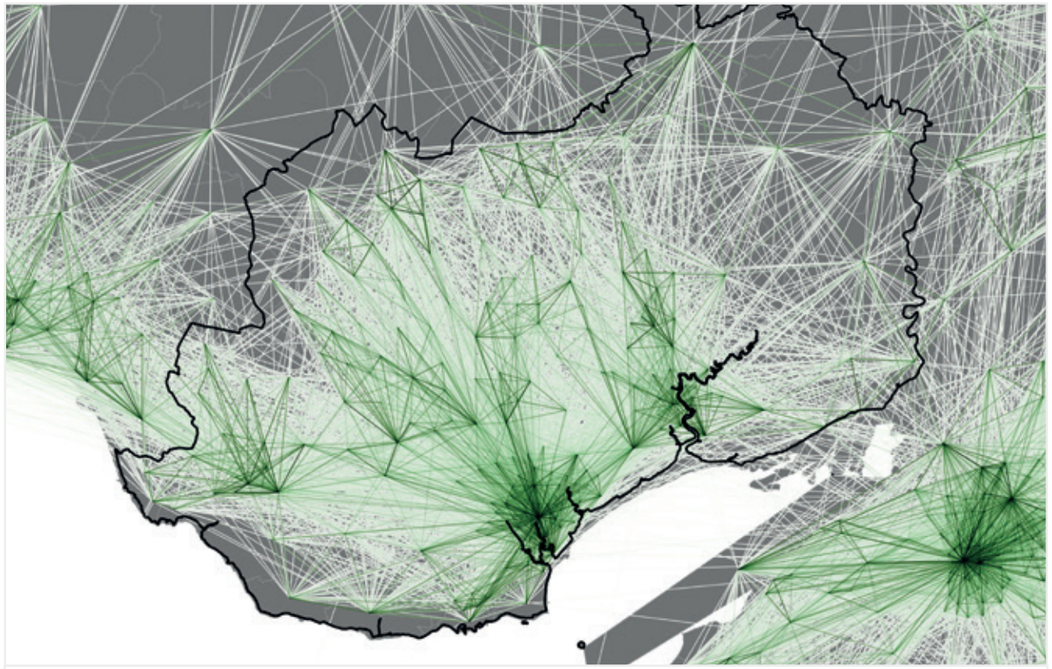


Figure 11 Commuting Patterns (Source: ONS: Census of population, 2011)

Method of travel to work, all usual residents aged 16 to 74 (2011)

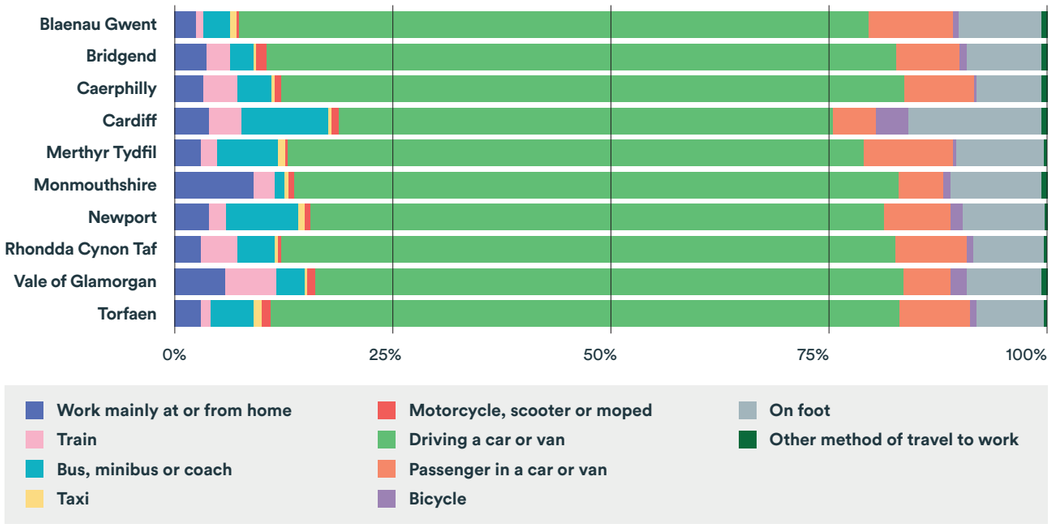
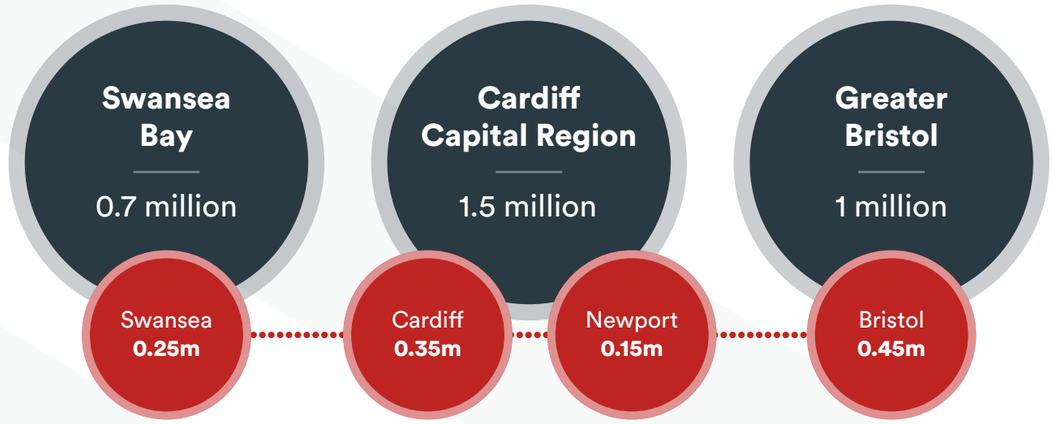


Figure 12 from CCR Report – Mode Share (2011)

Relationship with South West England and Swansea Bay

Over 3M people live between Swindon and Swansea *Figure 13* including the cities and city regions of Bristol, Cardiff and Newport; a combined urban area that has major agglomeration potential across multiple industries including financial & professional services, semiconductors, biotechnology, and TV/Film production.

Figure 13 GWML/SWML serves over 3M from Bristol to Swansea



This potential was set out in 2018 by the Office of the Secretary of State for Wales[l]. This ambition though is dependent on enhancing rail capacity and reducing journey times between the Swansea Bay City Region, the Cardiff Capital City Region, Bristol, London and Heathrow.

The South Wales and SW England regions have more than 10 universities, and a £107 billion economy consisting of 156,000 businesses, including growing financial and professional services, advanced engineering, creative and digital media sectors. The area also benefits from a unique and varied natural environment.

The role of Wales' leading higher education institutions and their impact on the national economy should also be noted; Cardiff University for example is one of the UK's leading research universities being ranked in the top five in the last formal research excellence assessment in 2014[li]. Its role was crucial in the recent Cardiff Capital Region[lii] City Deal agreement to develop a compound semiconductor cluster[liii] in the region.

A report, by Metro Dynamics[liv], set out a strong evidence base for a cross-border partnership, presenting recommendations that would drive improved infrastructure, investment, internationalisation and inclusive growth across the South West England and South Wales.

One of the priorities of that report was, integrating road and rail improvements to enhance connectivity. This priority has been refined into a set of connectivity objectives in the Spring 2020 Western Gateway Prospectus[lv]. In summer 2020 the Western Gateway Sub National Transport body published its draft strategic transport plan for SW England[lvi].

Transport Context

In developing a policy foundation for further rail scheme development there are a number of strategic issues that need to be considered, and which have been previously set out and/or documented in earlier studies and reports.

These include, but are not limited to:

- **Road congestion, especially on the A470, M4 and both urban Newport and Cardiff**
- **Poor east-west public transport connectivity, especially cross valley**
- **Many current journeys across the region are poorly served by public transport**
- **Limited bus/rail integration**
- **Population growth in Cardiff and Newport**
- **Car-based development across the region resulting from poor transport/ land use choices**
- **Air quality and health issues resulting from car/vehicle pollution and road traffic accidents**
- **Limited Active Travel infrastructure.**

Now, the "Climate Emergency" and the cancellation of the M4 Relief Road, infers a need to develop more public transport capacity in South East Wales. With Covid and a potential change to working patterns, a more holistic review of travel demand will also be required to inform this programme. TfW's Transport Modelling capability, the emerging Wales Transport Strategy and Welsh Government Transport Appraisal Guidelines (WelTAG) will provide the framework for all scheme and business case development. In doing so, we also have to develop the means to better identify and quantify the Wider Economic Benefits as part of the Strategic Case.

Key Rail Issues

As context for the choices, the following represents a summary of the key rail issues that have been identified through the body of work undertaken in South Wales in the last few years:

- **Rail journey times to/from Swansea/ west Wales to Cardiff and Bristol/ London are poor.**

  Much of the South Wales main line (SWML) is a 90-mph railway or less vs 125 mph east of Bristol Parkway *Figure 14*; this constrains demand & encourages more car usage on already congested roads, with consequential air quality impacts.

- **Low service frequency and overcrowding from Cardiff to Bristol Temple Meads – 2tph. This is major constraint on rail use and in stark contrast to the provision of 6tph between Leeds and Manchester, the demand for which NR estimated in their 2043 route studies is only marginally higher than the demand between Cardiff and Bristol**

- **Capacity constraints on the Ebbw Vale and Marches lines limits the operation of more local services in/around Newport; other key rail bottlenecks include Ebbw Junction, Cardiff West junction, the two-track main line between Cardiff and Bridgend and the Maesteg branch**

- **Much of east Cardiff and Newport, the areas around Blackwood/Pontllanfraith, west Cwmbran and Church Village are poorly served by rail and integrated regional public transport, contributing to more car use, congestion, and air quality issues.**

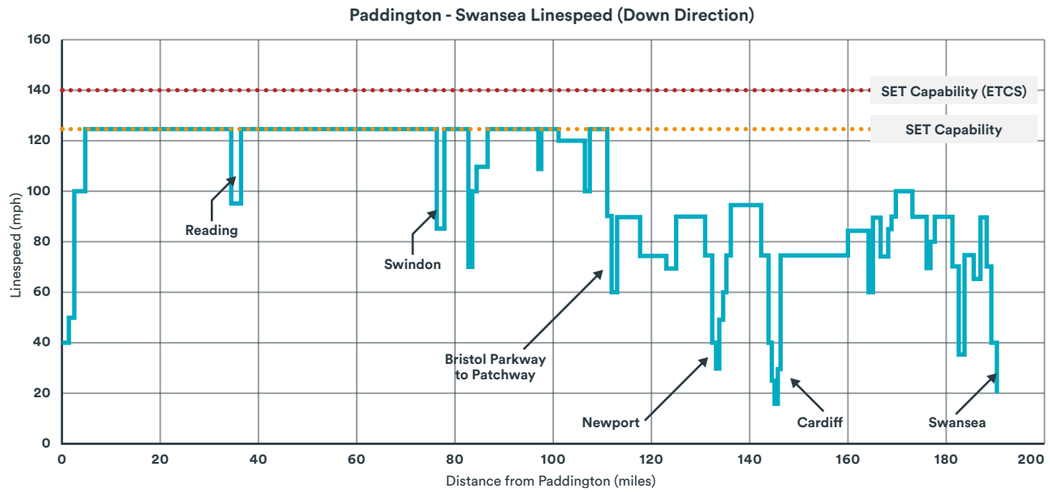


Figure 14 Line speeds on GWML between Paddington and Swansea (source ARUP)

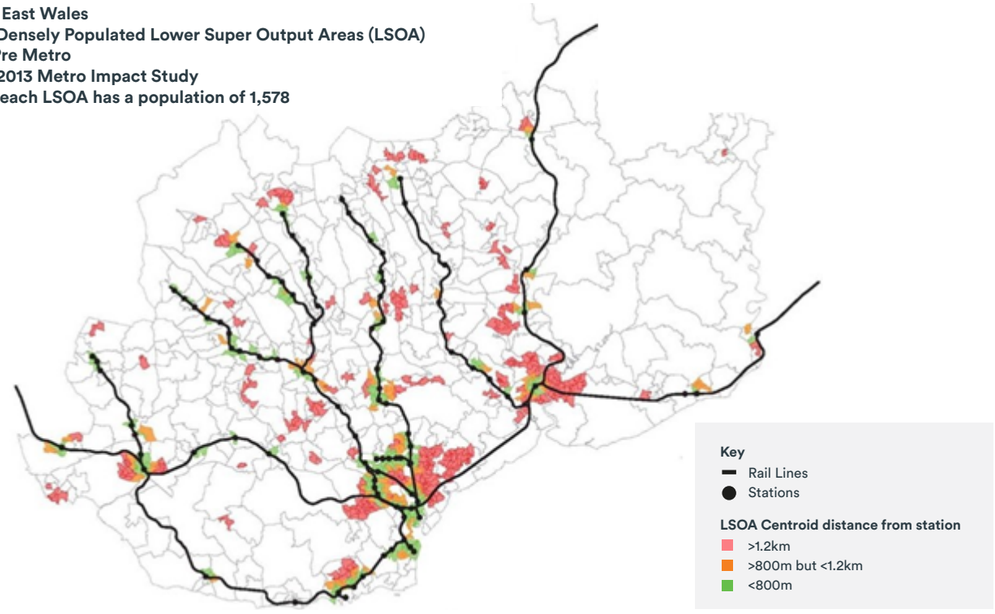


Figure 15 Population Density Vs Access to Rail Service from Metro Impact Study 2013[lvii]

Broader Inter Regional Requirements

Like Northern Powerhouse Rail, there is a need to deliver strategic enhancements to the rail network and services between the key centres of Swindon, Bath, Bristol, Gloucester, Cardiff, Newport and Swansea Bay as well as wider connectivity to/from South Wales, North Wales, South West England and the English Midlands.

However, current rail infrastructure and services are not commensurate with the emerging ambition for the region and are limited in respect of both capacity and speed.

For example, the 84-mile rail journey from Swansea to Bristol Temple Meads takes over two hours and requires interchange at Cardiff. In comparison the Northern Powerhouse is already delivering (via NR) the £3 billion Trans Pennine upgrade[lviii] between Leeds and Manchester with potentially the multi-billion Northern Powerhouse Rail[lix] [lx] to follow, as well as benefiting from improved connectivity as a result of HS2. Cardiff is also the worst rail connected major city *Figure 16* in the UK[lxi] in respect of direct services to other major UK cities.

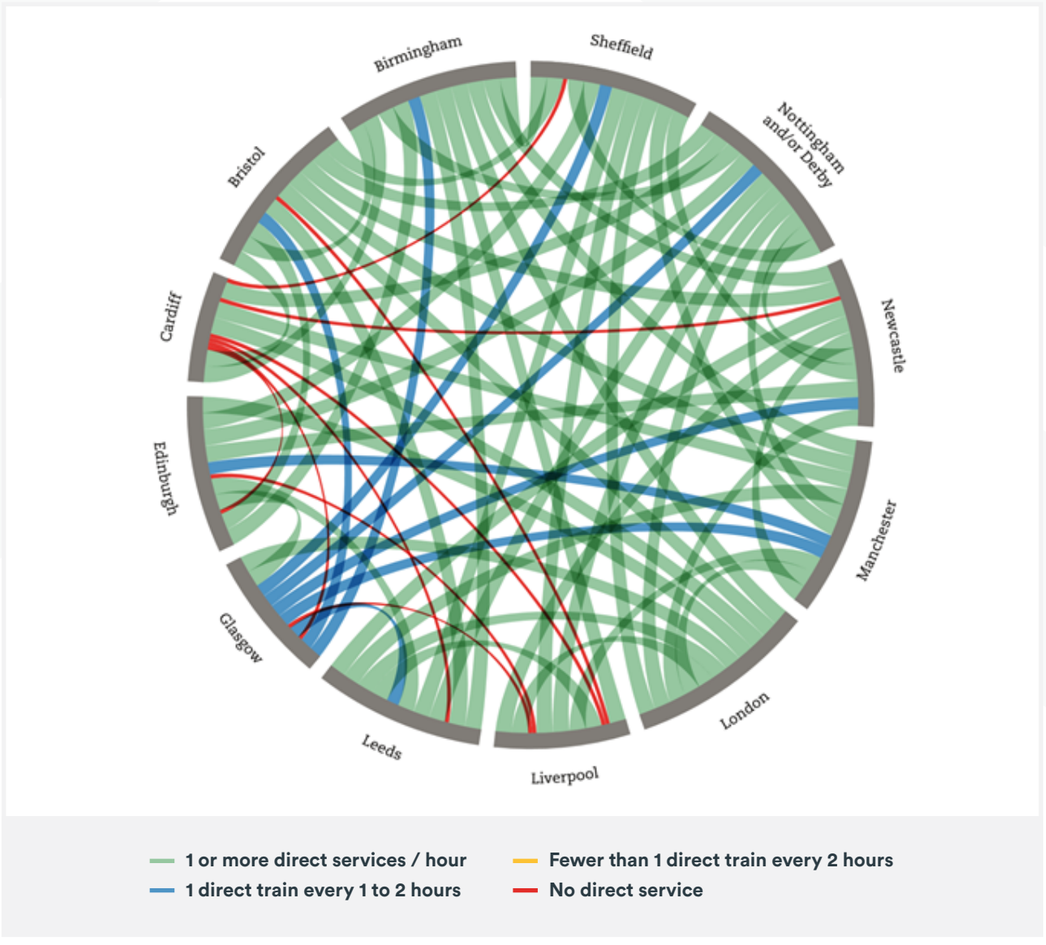


Figure 16 Cardiff rail connectivity vs major UK cities (Greengauge 21, Beyond HS2, May 2018)

South East Wales Transport Commission

Earlier in 2020 Lord Burns (who Chaired the South East Wales Transport Commission) published his emerging conclusions[lxii] and in November 2020 he published his final report[lxiii].

There is significant overlap between his findings and the proposals which both the Welsh Government and the Cardiff Capital Region wishes to pursue. It is worth restating some of the key finding from Lord Burns' work:

Congestion on the M4 is largely a peak-hours problem, predominantly associated with commuting.

The M4 is largely used for regional, medium-distance travel, with many trips starting or ending in the cities of Cardiff, Newport and Bristol.

Many people do not have good transport alternatives to the motorway.

All of the rail, bus and active travel networks offer insufficient services and are poorly integrated.

Technology is unlikely to ameliorate the congestion problem.

Land use decisions with respect to homes, offices and retail parks have contributed to congestion and, on the current trajectory, this looks set to continue.

If we are to alleviate congestion, we need to create attractive and viable alternatives for people. Until these exist, it is very difficult to solve the problem sustainably.

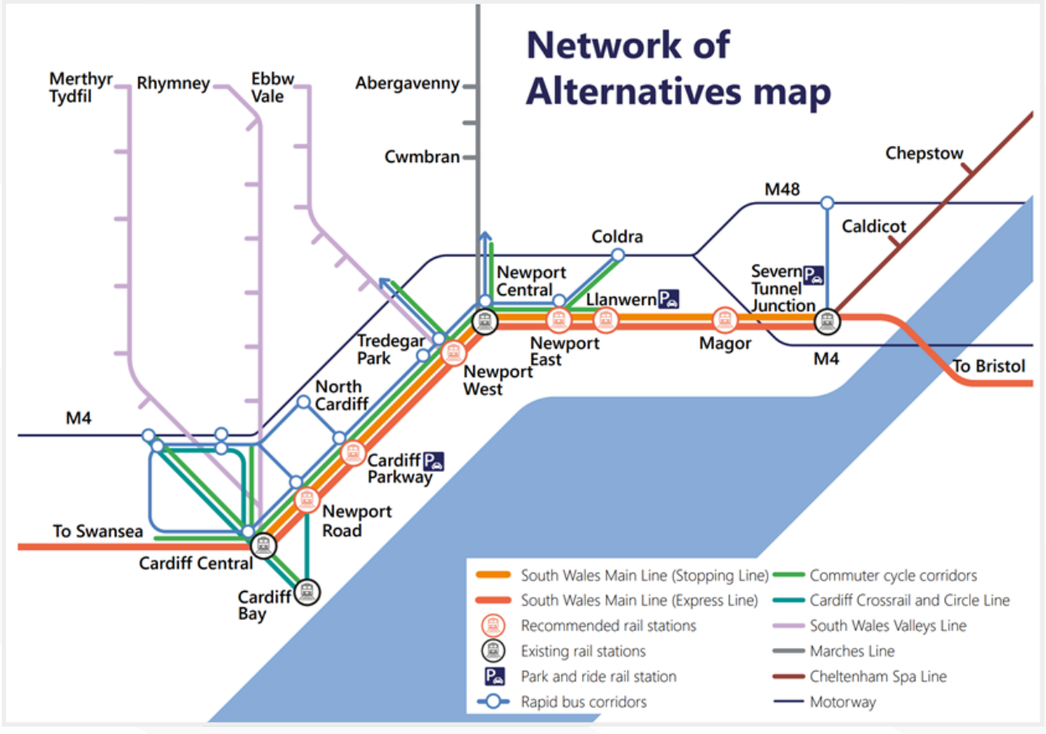


Figure 17 Network of Alternatives from SEWTC Final Report, November 2020

The COVID-19 epidemic has radically changed the situation – the question is for how long.

In the long term, a substantive and sustained increase in remote working could have a meaningful impact on reducing traffic. However, our view remains that in order to function efficiently, the region requires additional, non-car transport options

Key facets of a response set out by the commission that complement CCR's emerging proposals, include:

- **The development of a public transport grid across South East Wales with a mix of integrated express rail and frequent local rail and bus services, which is consistent with the commission's "network of alternatives"** *Figure 17* **The primary component is a major upgrade of the SWML to support a mix of intercity express and local commuter trains serving new stations between Cardiff and Severn Tunnel.**
  This is very welcome and re-states ambitions previously presented in part through SEWTA[lxiv], as comprehensively set out in the Metro Impact Study in 2013 and restated by WG in the "The Case for Investment" in 2018. Then as now, the primary challenge will be funding and delivery, especially given non-devolved status of the rail network in Wales (aside from the CVL)
- **Measures to fully integrate active travel, rail and bus services (including new WG legislation), fares, ticketing and customer information, so that the passenger sees a single network**
- **Demand management measures, including consideration of road and workplace parking charging (to more fairly apportion the significant external costs of car use: carbon emissions, road accidents, air quality and urban sprawl based induced demand)**
- **Planning policy and especially land use decisions to encourage and incentivise more transit-oriented development and to encourage more mixed-use development in our town and city centres and around our public transport network.**

Regional Transport Authority (RTA) and Metro Enhancement Framework

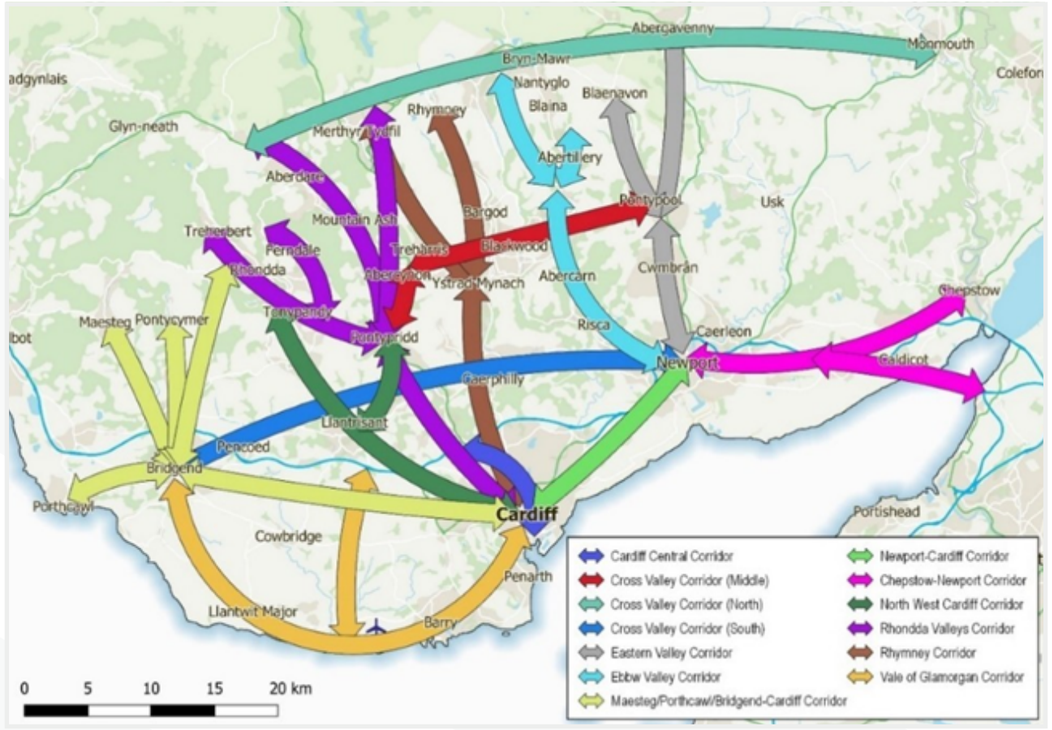
As part of the City Deal arrangements the region established a nascent Regional Transport Authority (RTA) which has overseen the development of the Metro Plus package of measures and schemes such as Metro Central[lxv].

In 2019, WG and the region via its nascent RTA, agreed a methodology, The Metro Enhancement Framework, to appraise potential locally focussed interventions from across the region. This is based on 13 transport corridors *Figure 18* across the region.

Whilst this work provides a comprehensive foundation for future local scheme development for much of the region, there are key areas that require additional analysis. These are:

- **Urban movement within Cardiff, noting that the requirements related to Cardiff have been captured and presented by the local authority in its Transport White Paper[lxvi]**
- **Urban Movement within Newport**
- **Cross valley movement**

Figure 18 MEF Corridors



- **The impact of the proposals set out by the SEWTC**
- **A high-level strategic assessment of the key issues and opportunities when looked at a regional level;** ***this paper provides that framework in respect of rail priorities***
- **An assessment of Wider Economic Benefits (WEB) and regeneration that could be enabled – with a focus on major developments and stations;** ***this requires further discussion with regional partners and Welsh Government.***

All of the aspirations set out in this paper and schemes developed through the MEF process, will be further developed via TfW's emerging Metro scheme and business case development programmes using WelTAG and informed by the South East Wales Transport Model (SEWTM). Overall Strategic Programme Case are being developed by TfW for both the CCR and the Cardiff Core Metro, to help position and prioritise all the emerging transport proposals (rail, bus and active travel). The RTA and key local authorities are fully engaged in their development.

Transport Planning and Choices

When developing schemes and busines cases, transport planners have to weigh up and assess a wide range of costs and benefits and reflect the needs of current and potential passengers, as well as the needs of operators and governments. Contributory factors include congestion, demand, capacity, Persons of Reduce Mobility (PRM) compliance, station design, integration, service frequency and costs – both capital and revenue.

There are few “right answers”, only choices with implications, based upon priorities.

For example:

- **Services that aim to maximise coverage, especially where demand is low, can add to opex per passenger**
- **Services that maximise ridership & demand typically result in lower cost per passenger & more efficient operations, but may not serve everyone at all times**
- **Service with “turn up and go” frequency, especially where local catchment is high can increase demand and reduce opex per passenger; however, in areas of lower total catchment or off peak, can add to opex and increase costs per passenger**
- **Services with low and subsided fares can attract more demand but make incremental service expansion (that may be needed to satisfy the increased demand) more costly**
- **Segregated operations (via rail, bus lanes etc) which may have high capex, enable faster more reliable and attractive services (so higher demand and fares) with lower opex.**

Choices always have to be made and transport planners do their best to develop schemes and business cases that deliver the most value to most people; they also have to assess a range of alternative measures to deliver the same outputs. This is what WelTAG tries to achieve.

Perhaps the primary consideration to acknowledge is that the region needs to develop a transport network and services that can attract some of the approximately 80% of people who chose to use their cars. There is clearly a large untapped market for public transport, so the region needs a better product designed more around what the 80% want and perhaps less so the 15% already using public transport.

Demographics and Impact on Transit Choices

It is generally acknowledged that any transit system works most efficiently and can offer more attractive services, when it is segregated from other modes, especially cars and to a lesser extent, pedestrians and cyclists. So dedicated rail, heavy rail (HR) or light rail (LR), and/or Bus Rapid Transit (BRT) on segregated alignments is most optimal. Operating in “mixed traffic” (esp. cars) impacts journey times and reliability. This adds costs through having to operate more vehicles (so more staff and opex) to maintain frequency of services, which are also less reliable and slower supressing demand and fare revenues. In short, the ability to operate faster on segregated alignments reduces opex and increases demand.

Academic data (examples[lxvii] [lxviii] [lxix]) also indicates that fixed segregated public transit, typically needs a minimum population of 200,000, a density 22 people per hectare (pph), and a planning system that encourages employment as well as residential development along transit corridors; especially within 800m of transit stops.

The combined Cardiff, Newport, Pontypridd, Merthyr, Urban area (using ONS BUA definitions) population is nearly 900,000; a total population comparable with Tyneside, Liverpool and with (certainly as regards Cardiff) a pph higher than many other places in the UK. This suggests that along any defined transit corridor, the built-up areas of Newport and Cardiff and the core valleys, can support fixed segregated systems. In fact, the physical geography of the South Wales valleys north of Cardiff and Newport and their dense population makes them perhaps one of the most suitable parts of the UK for fixed segregated public transport. In many cases the limiting factor is not the potential demand, but the capital costs required to deliver a “new system” or “segregation”. That is why relatively small investments that enable greater utilisation of existing infrastructure (see below) is so effective; this includes new links, new stations and measures to address bottlenecks.

In areas with sufficient density the choice of Bus, Bus Rapid Transit (BRT), Light Rail (LR), Heavy Rail (HR) is then in general terms,

determined by the local demand and long-term revenue and operating profile of the system, as well as the initial capital costs (which are often a barrier for fixed segregated systems – especially rail). The biggest component of operational costs relates to numbers of vehicles and staff required to move a fixed number of people. As an example, it is operationally more efficient to move 1000 people an hour between two points in 2 or 3 trains (of 300/400 people) or 4 Light Rail Vehicles (of 200~250 people) instead of 12 or 13 buses (of 70~80 people). At 100~200 an hour then perhaps 3 or 4 buses works better than one train, remembering that a frequency of 4 services an hour is generally regarded as the minimum required to deliver a "turn up and go" services able to attract most passengers.

So, broadly, the bigger the demand then fixed segregated rail (HR and LR) solutions are most efficient *Figure 19*, for lower demand then local bus services can be most efficient; segregated BRT sits in the middle. For much shorter journeys of up to 5km then Active Travel is best.

For example, the demographics and potential demand around the City and Coryton lines in Cardiff indicate that these could support rail services of at least 4tph (vs the 2tph now). There is also a role for segregated bus services and some comprehensive Bus Rapid Transit (BRT) across parts of urban Newport and Cardiff where rail capital costs for new build maybe prohibitive. Similarly, segregated bus can play a role across the urban valleys where redesigned bus networks can be developed to integrate with rail services. Outside the core urban areas, the opportunity is via development of and integration with local bus services. For areas of low density and more variable demand then Demand Responsive Transit (like Fflecsi[lxx]) may be most suitable.

In all cases quantitative demand analysis through WelTAG will be required to inform decisions.

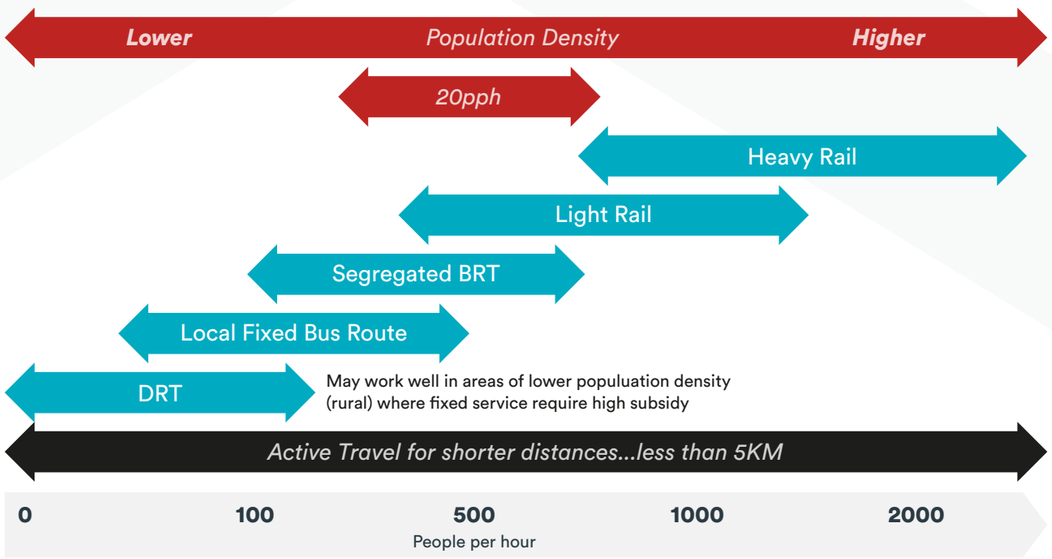
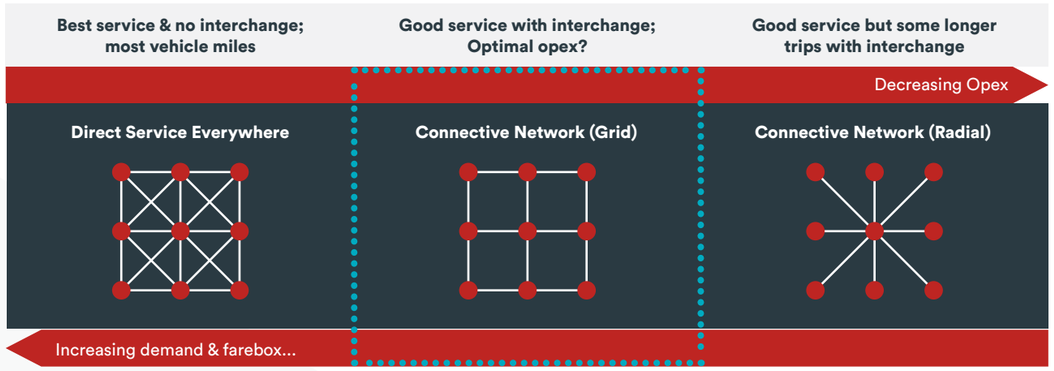


Figure 19 Illustration of most suitable of modes Vs demand and density

Figure 20 From Human Transit by Jarrett Walker, Grids vs Direct Services



Networks and Interchange

One of the legacies of the deregulation of the bus industry in the 1980s, is the fragmentation of public transport networks and operations. Outside London there is no sense of a single public transport system anywhere in the UK. This has implications, especially on operating costs, because each network operator is only concerned about the design, operation and costs of one network. There is often little or no regard for all the other operators – even when they share the same geography. This overall adds to opex whilst at the same time delivering a suboptimal service - esp. to the 80% who typically don't use public transport.

Evidence from other Regions show that there is an opportunity to develop a 'single integrated network'. This has implications for network design. Rather than each network trying to operate direct services to/from a single hub, we instead design an integrated "grid" of services. With higher quality interchanges and importantly faster services of sufficient frequency, it is possible to deliver more coverage and enhanced services levels at lower cost (from reduced vehicle miles) than a series of more fragmented, unconnected networks based around single hubs. This choice is constrained by needing to deliver the "best services" with the least opex. In the example in *Figure 20* it is the middle "network" grid (vs the direct services everywhere or the radial network) that is perhaps the optimal configuration. The EU "HiTrans" series of best practice guidelines, one of which focussed on networks[lxxi], is a good source of insight as well as practitioners like Jarrett Walker[lxxii].

In this context, the role of several proposed stations in the CCR is not to just provide local Origin/Destination demand, but also to provide an interchange between different rail and bus services to help deliver a much more efficient and attractive "grid" of services. The recent report from the South East Wales Transport Commission also emphasised the importance of integrated networks. The strategic function of the cross-valley link proposed should be viewed in this context and not just for supporting local trips. The challenges of designing and implementing integrated multi-modal networks is not to be underestimated. Careful consideration needs to be given to local conditions, market and passenger needs and done in a way that properly engages with passengers and transport operators. These are the kind of stark choices we are faced with if the objective to encourage 80% of current car users onto PT is to be achieved.

Making Better Use of Existing Rail Assets

There is a unique opportunity to make much better use of existing and underutilised rail infrastructure across the region. Even after the current contracted phase of Metro is delivered only 2tph are proposed for the Ebbw Valley line, City Line and Coryton Lines, 1tph for the Maesteg Lines and there are some freight only lines with no passenger services – most notably beyond Ystrad Mynach to Nelson/ Treharris, the Machen freight line, the Ford site access and across Cardiff docks. There are also some key rail bottlenecks which impact the desire for more services – most notable are the Ebbw Valley junction with the SWML, Cardiff West (which is a constraint on more service to the VoG from east of Cardiff) and the two-track section of the SWML between Cardiff and Bridgend.

By enhancing and better utilising the various under-used rail lines and addressing the known bottlenecks there is an opportunity to deliver a high quality, high-capacity urban transit network across much of the region – some of these using the tram-train capability being developed for the Taff Vale Lines.

The introduction of tram-train LRVs *Figure 21* and their ability to operate on tighter radii, steeper elevations and to tramway standards, presents a range of new and/or reopening schemes that just would not be possible using traditional Heavy Rail (HR). The capital costs of such are also likely to be significantly lower than an equivalent "new build".

This is the kind of approach adopted in developing most of the UK's modern Light Rail (LR) systems – they were all predominantly based on the use of existing and underutilised rail infrastructure.

Transit Oriented Development

One of the major contributory factors to more car use and the induced demand for more road space, has been the development of homes, offices, shops, hospitals, etc in locations across the region which can only be accessed by car. Newport has been particularly badly affected as have many local town and high streets across the wider CCR.

Metro presents an opportunity to encourage and enable more jobs, leisure, educational and public services to be re-located away from car based (and often out of town) locations, to places with good public transport accessibility; especially our town and city centres - so called "Transit-Oriented Development" (TOD). These are key considerations in the new Wales Transport Strategy, which is in development, and the National Development Framework.

Whilst there is no single agreed definition of "TOD", some key features include:

- **Mixed use and higher density development around transport corridors and stations**
- **Aligning new housing, public services and employment sites with public transport**
- **Improving safety and quality of urban realm, especially streets**
- **Integration with active travel**
- **Integration with open/green spaces**
- **Community engagement and involvement**

Figure 21 City Link Light Rail Tram-train "Metro Vehicles"

This delivers real benefits:

- **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 flow through into the regional Strategic Development Plans anticipated across Wales.

There are plenty of good international examples where holistic planning of transport and land use have been combined to reduce car dependency. Freiburg is one such European example[lxxiii]; in the US Denver *Figure 22* is also looking to exploit development opportunities around its growing Metro network[lxxiv]. In the UK, The Urban Transport Group has also published advice and guidelines related to TOD[lxxv]. This concept has also been explored through recent local events and publications; for example, "Metro and Me"[lxxvi] in 2018, and a TOD charrette organised by bodies including CCR, Design Commission for Wales (DCfW) and Cardiff University in 2019[lxxvii].

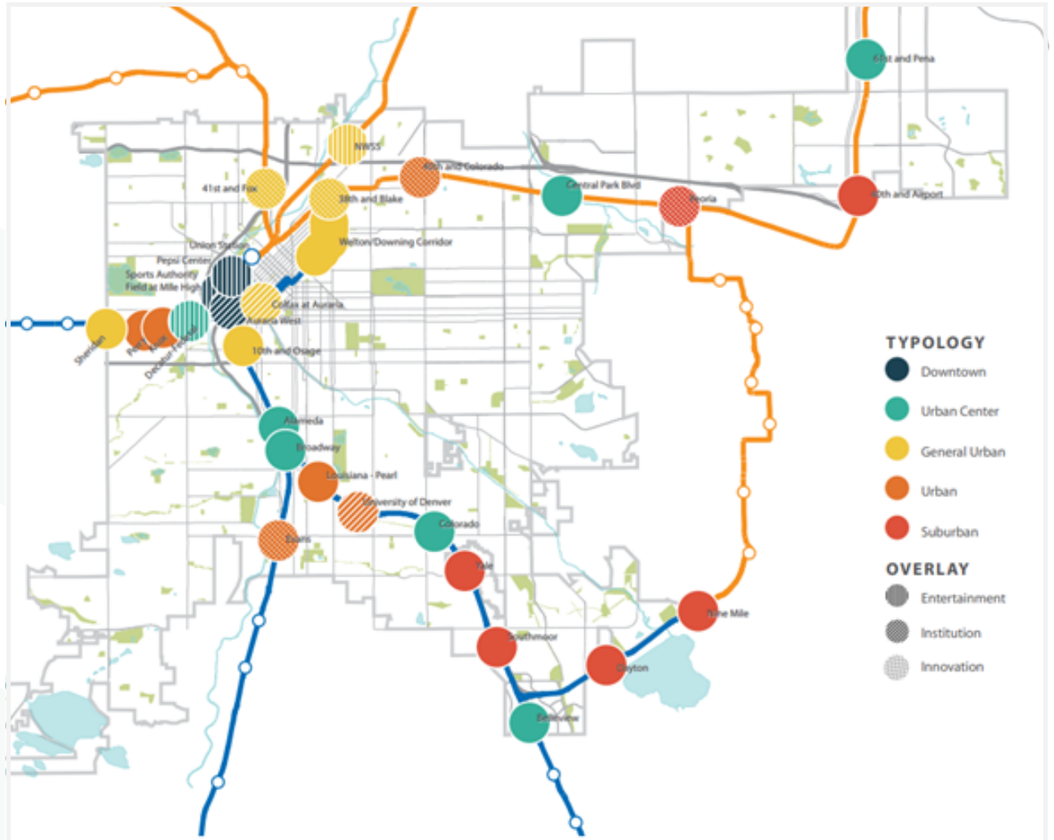
There are real opportunities in the region to apply TOD, for example, in Newport the UK Gov could work with WG to relocate the ONS and Patent Office to Newport City Centre (cf HMRC Hub and BBC in Cardiff). These facilities, even with a smaller footprint through more flexible working, would then be much easier to access using public transport from across the region, whilst at the same time helping to regenerate Newport City Centre.

There is also a need for a more coherent and strategic effort to develop and implement a wider range of station focussed economic development and regeneration initiatives right across the Cardiff Capital Region. These will complement the delivery and operation of the Metro by TfW and range from major property led schemes like Metro Central, Central Quay, Cardiff Parkway; city/town centre regeneration in Newport, Pontypridd, Bridgend and Merthyr to more locally focused and community-based interventions in places like Porth, Butetown and Maesteg. Post Covid there is also an opportunity to explore the development of more town/ community focussed shared workspaces right across the region – in a model originally championed by Indycube. The application of DCfW Placemaking principles[lxxviii] would be appropriate for such schemes.

Post Covid & Flexible Working

Covid will clearly impact future transport planning. However, even with more local and home working, it is expected that post Covid there will still be a need for more public transport given the very high levels of pre-Covid car use (~80% commuting mode share).

The adoption of more flexible working presents an opportunity to reduce the "peakiness" of public transport demand.



STATION TYPOLOGY

- **Downtown** – Mixed use, highest density, tallest buildings, high pedestrian activity, transit hub, and historic areas
- **Urban Center** – Mixed use, high density, grid and alley block pattern, high pedestrian activity, and multi-modal
- **General Urban** – Multi-family residential, grid and alley block pattern, main streets , corner stores, and multi-modal
- **Urban** – Grid and alley block pattern, predominantly single family residential, main streets, corner stores, and multi-modal
- **Suburban** – Town centers, community open spaces and residential neighborhoods

Functional Overlays:

- **Innovation** – Allowing a wide range and diversity of TOD land uses, activities and building forms to accommodate new types of development such as advanced manufacturing, research and development, creative design studios, and more.
- **Institutional** – Academic campuses, medical and government centers with a significant amount of jobs
- **Entertainment** – Major destinations – typically evenings and weekends

Figure 22 From Denver's TOD Plan 2014

Converting the better allocation of work across most employees into a more even demand profile on transport systems, can help address one of the biggest issues facing transport operators and governments in supporting and subsidising public transport. That is the stark reality that transport services and infrastructure are typically designed to support demand that is generally in one direction for 2-3 hours, twice a day; often much of the rest of the time trains and buses are moving around with low loadings. The same applies to the road network with most congestion occurring in the morning and evening peaks.

Induced Demand and External Costs of Car Use

There is clearly more discussion to be undertaken before any form of equitable road user charging and/or other demand management measures, can be implemented across the region. However, these discussions are necessary if we are going to develop and deliver the transport infrastructure required to support the mode shift required and to help deliver our collective climate emergency obligations. This needs to be an informed debate and one which acknowledges the real issues and data to help make informed choices.

For example, academic evidence indicates that building more road space typically generates more traffic and that many of the costs of car use are external and not adequately appraised. The work of people like Todd Litman[lxxix] and Jarrett Walker[lxxx] and even the DfT's own analysis of induced demand[lxxxi] demonstrate this phenomenon.

So, car users, have effectively been given a discount to drive as there are real external costs that have not been properly apportioned – maybe as much as 30%. This has resulted in sprawl with car-based housing and employment sites that generate an even greater demand for road space, damaging our urban realm and impacting air quality. The executive summary of Transport Costs and Benefits by the Victoria Transport Policy Institute is a good guide[lxxxii].

Another external cost, and something society has become desensitised to, is that in the UK, there are about 5 deaths on average each day (1700 per year) on the UK's roads[lxxxiii]; this is in addition to 24,000 serious injuries and 160,000 road traffic incidents. There are also significant air quality and health impacts that are only now being fully appreciated[lxxxiv] which leads to even more deaths – perhaps as many as 20,000 premature deaths each year. The phenomenon of volume car-based retail has also had a damaging impact of many town and community high streets across the region. This is on top of the carbon emissions resulting from car use[lxxxv].

A "charge" provides a means to more fairly apportion the long-term external costs of car use to the user instead of the taxpayer. Any revenues secured can also be used to contribute to a major capital programme such as proposed here.

Priority Rail Enhancements for CCR

The schemes set out focus on the need to deliver more rail capacity, shorter journeys, more services, more stations and integration with bus and active travel. The primary drivers are to enable more efficient labour markets, support sustainable economic development and our collective need to address the climate emergency through reduced car use. Post Covid the opportunity to support the economy through infrastructure development is also a key consideration.

Emerging Vision and Objectives for Rail Services in CCR

A strategic public transport network for the Cardiff Capital Region providing a high-quality, reliable, efficient and affordable transport services to support sustainable economic development and social regeneration.

Supporting this vision, a number of objectives have been drafted that will be refined through more formal Strategic Programme and Outline Business Case Development using WelTAG.

Economic & Transport

- **Improve connectivity by linking communities with all major commercial, social, health and leisure attractors across the region**
- **Act as a catalyst for sustainable economic growth and development by ensuring all major development sites are linked by metro services at the outset**
- **Provide comparable journey times across public and private transport modes, with at least 4 services per hour on all routes to offer a realistic travel choice**
- **Integrate with the national rail, local bus and active travel networks at key nodes.**

Social

- **Improve accessibility to public transport**
- **Encourage active travel and social inclusion initiatives.**
- **Ensure metro services are accessible by all**
- **Increase range of journeys that can be made by public transport**
- **Provide mobility options that improve people's health.**

Environment & Culture

- **Provide reliable public transport services, resilient to climate change**
- **Reduce the impact of transport on the environment by making better use of existing transport infrastructure**
- **Support Welsh language and culture**
- **Enhance the built environment through high quality placemaking and TOD**
- **Develop plans that support biodiversity and enablement of green infrastructure.**

Financial (Affordability) & Management (Delivery)

- **A financially sustainable metro system**
- **Flexibility to adapt, grow and deliver new services as capacity become available**
- **Maximise utilisation of existing infrastructure.**

Priority Schemes for CCR

TfW is working on the £740M upgrade of the Core Valley Lines to deliver faster, more frequent (4tph to/from Rhymney, Merthyr, Treherbert and Aberdare) and electrified services by December 2023 *Figure 23*. The CCR is setting out its vision for how this core network is further enhanced and expanded into the later 2020s and 2030s.

The emerging rail proposal *Figure 5* are in the main, focussed on enhancing and/or better utilising existing rail infrastructure. There is only one substantive new alignment, the NW corridor; most benefits can be achieved from incremental measures that deliver minor extensions, short new connections and by addressing network bottlenecks.

Given the work to date and the emerging vision and objectives, the primary proposals (some of which have been subject to initial development) that merit further scheme and option development through Programme Strategic and Outline Business Cases (PSOC & OBC), include:

Enhance South Wales Mainline and route to Birmingham

To bring the **South Wales Main Line (SWML) (#1)** up to the same standard as the other "main lines" across the UK, requires a major upgrade in terms of line speed, capacity, and electrification and importantly to allow a mix of express and local commuter services as recommended by the SEWTC and the 2013 Metro Impact Study. This is essential to enable delivery of the Welsh Government's journey time and economic ambitions and to integrate with the work of the sub-national transport body in south west England, and the wider work of the Western Gateway partnership.[lxxxvi]. It will also help maximise the benefits of the investment in the Core Valley Lines which is now the responsibly of the Welsh Government.

Key requirements include:

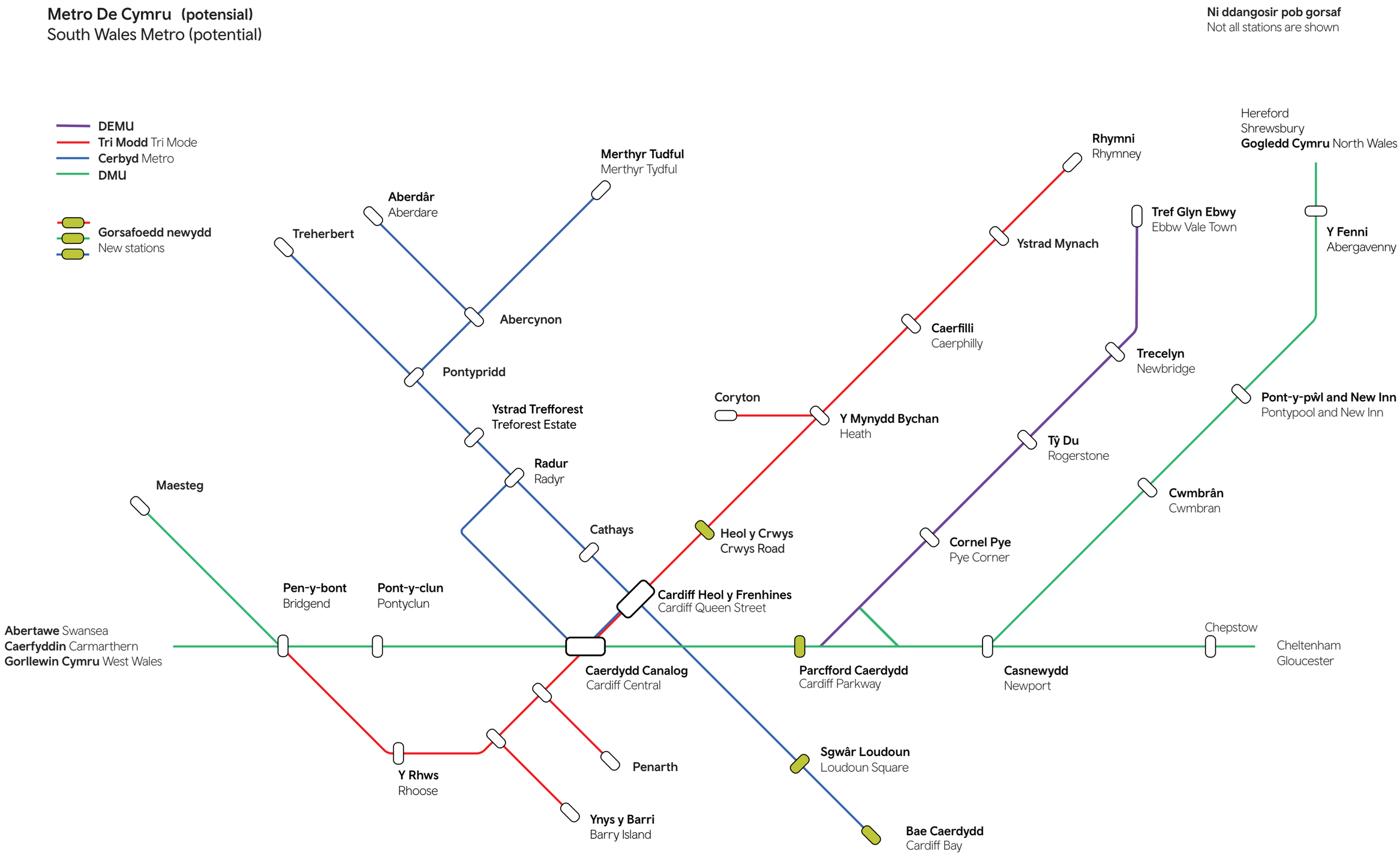
- **Additional London and Bristol Temple Meads services to Cardiff, Swansea & West Wales**
- **New SWML/Relief Line local services and stations/interchanges including: Magor, Llanwern, Cardiff Parkway, Rover Way/Newport Rd, M4 Junction 34**
- **CCR also endorse Welsh Government journey time ambitions:**
  - London-Cardiff 85 minutes
  - Cardiff - Swansea 30 minutes,
  - Cardiff - Bristol Temple Meads 30 minutes
  - Carmarthen-Cardiff 75 minutes
- **The region also wishes to emphasise the importance of connectivity to Birmingham (#2) via Gloucester and the north of Wales and England via Abergavenny. Both these lines require line speed and capacity upgrade and full electrification as acknowledged in NRs recent decarbonisation strategy[lxxxvii].**

Address frequency constraints and bottlenecks on existing network

Contributing to the limitations of services on the existing network are a number of "network bottlenecks" that need addressing:

- **Measures to address constraints at Cardiff West will, aside from being essential to the Cardiff Crossrail & NW Corridor proposals, also enable more services (inc. from east of Cardiff) to operate onto the Vale of Glamorgan (VoG) Line to Barry and the Airport (#3) and avoid the constraints of the 2 track SWML between Cardiff and Bridgend. This may bolster the case for further stations to better serve Cardiff airport and St Athan and to introduce direct services to the airport from places like Bristol Temple Meads and Gloucester/ Cheltenham or even Birmingham**
- **Informed by the development work undertaken, significant investment is required to deliver 4tph Metro frequencies on the Ebbw Valley (#4) corridor (as is the case with the CVL) with additional stations (e.g., Crumlin and Maesglas/Newport West) and services to both Newport and Cardiff, and a spur to Abertillery (#5). In doing so we also need to assess the potential application of tram-train on this line**
- **Network constraints impact the ability to increase services on the Maesteg branch (#6) to more than 1tph; addressing these and the application of tram-train could enable local network extensions, for example operating Maesteg tram-trains south onto the VoG Line enabling one or two more stations in Bridgend and perhaps a connection to the Ford site**
- **The City and Coryton Lines in Cardiff are currently constrained to 2tph, securing 4tph on these lines is likely to have the best affordability profile of all the schemes given the local catchment population Vs the limited number of additional vehicle miles required**
- **The region also needs the introduction of metro frequency services on the Marches line (#7) as far as Abergavenny, with further new stations at places like Caerleon where demand justifies.**

Figure 23 Illustration of potential next phase of the South Wales Metro (TfW to 2023/4)



Further CVL stations

Whilst the CVL transformation will deliver radically improved services to the Taff Vale and Rhymney Valley Lines, and additional stations (such as Crwys Rd and the new Bay Line stations) there are still opportunities for further enhancement via new/relocated stations and Park and Ride (P&R) sites. At this stage these include:

- **Confirmation that stations that were to be funded out of revenue on the CVL will progress (Nantgarw/Trefforest Ind Estate, Gabalfa)**
- **Llanbradach P&R**
- **Upper Boat P&R**
- **Pentrebach P&R and/or a new station at Abercanaid**
- **Ystrad Mynach P&R**
- **Pontypridd Bus Station**
- ***Cardiff CVL stations are included under #8 Crossrail (Roath Park, Ely Mill, Gabalfa, etc) and SWML stations under #1***

Strategic Schemes

Most of the proposals set out are focussed on making better use of, and enhancing, existing rail services. There are though, some significant proposal that both make better use of underutilised rail assets as well as requiring new infrastructure. These could form the substance of 10-15 year expansion plan for Metro tram-train services.

- **Cardiff Crossrail and NW Corridor (#8)**

  The **Cardiff Crossrail** programme will upgrade and connect existing underutilised rail assets to enable 4tph on all the rail lines in Cardiff and connect the largest and most densely populated parts of the region at a much lower cost than a new build system.

  This will include the **Coryton and City Lines** and a link between the Bay line and Tidal Sidings to Rover Way/Newport Rd. The full extent of Crossrail (likely to be phased) extends west via the **NW Corridor to Rhondda Cynon Taf** (RCT) and a potential interchange with the SWML at Pontyclun with stations serving new housing at Plas Dwr, a P&R at M4 J33, Creigiau and Talbot Green. It will also **connect the City Line to Radyr** to enable "circle" connectivity; with tram-trains likely operating west from Heath Halt Lower.

  The introduction of new stations at places like Rover Way/Newport Rd, Ely Mill, Roath Park, Gabalfa and Crwys Rd, Butetown and across the bay, will provide much of the city access to high quality and frequent public transport services that integrate with SWML.

  Subject to further analysis, Crossrail could also be extended east from Rover Way/ Newport Rd with **tram-trains operating on the relief lines to Cardiff Parkway, Newport or even Severn Tunnel Junction or Chepstow**. This presents an opportunity to deliver more rail capacity on the SWML Corridor by avoiding the network constraints through Cardiff Central and to the west.

  There is also a longer-term opportunity, linked to land use changes and which should be assessed via the regional SDP, to **extend NW Corridor tram-train operations from Pontyclun, west toward Bridgend** and potentially integrated with the Maesteg line. Some of this route could run adjacent to the current SWML and then divert via the potential major housing and mixed-use development at Llanilid. This may also allow some local stations to be relocated to the new "route" to free up capacity on the SWML.

  There is also potential to operate **tram-trains to Penarth** and **extend the network to Lower Penarth** and consider a station at Cogan on the Penarth branch, once the issues at Cardiff West are addressed.

- **Cross Mid Valley Connection (#9)**

  There is a long-standing need to better connect E-W across the valleys. The primary corridor extends from Cwmbran/Pontypool to Newbridge, Blackwood and Ystrad Mynach on to Nelson, Pontypridd and via Church Village to Talbot Green/Pontyclun. This route could connect over 200,000 people.

  At key points this cross-valley services will interchange with north-south metro rail services to deliver a grid of public transport services that makes many more journeys between the valleys viable and more efficient to deliver using public transport. For example: Caerphilly to/from Merthyr, Blackwood or Bargoed to/from Pontypridd.

  On that basis and enabled by the tram-train technology being developed on the CVL, is the opportunity to explore **a direct tram-train connection between The Rhondda and Ystrad Mynach or Hengoed via Pontypridd**. This may only require a short 2km section between the TVL near Quakers Yard to the Cwmbargoed freight line near Trelewis. This can include measures to re-open the Pontypridd north curve and introduce a metro rail station at Pontypridd bus station.

  Whilst there are more ambitious longer-term options to extend tram-train further east (to Blackwood for example), this key core component when combined with integrated bus measures to Blackwood, Newbridge and Pontypool/Cwmbran in the east, and via Church Village to Pontyclun and Talbot Green in the west

  can deliver an attractive and reliable cross valley public transport service.

- **Caerphilly to Newport (#10)**

  Proposals to **re-use and extend the Machen freight line** have been proposed in the past (inc. by SEWTA). But issues and constraints associated with Heavy Rail (HR), especially the route into Caerphilly and main line constraints on the SWML into Newport, make a traditional HR approach more difficult to deliver.

  Whilst likely a long-term project, the potential to use tram train to connect Caerphilly to Newport can be revisited; this time with a **short "on-street" tram-train section in Newport** via a flyover of the SWML near Cardiff road and a route via the Royal Gwent Hospital and the city centre to avoid compromising limited capacity on the SWML.

- **Aberdare – Hirwaun (#11)**

  This scheme is already in development. Aside from extending Metro tram-train services to Hirwaun it provides a P&R and Bus interchange on the A465 Heads of the Valleys Road. There is an opportunity in the longer term to consider similar expansion in Merthyr.

Key Schemes Outside the CCR

Whilst not the responsibility of the region, there are some emerging proposals across the UK that the region supports, for example:

- **Enhance HS2 connections in Birmingham to allow classic compatible services to operate form the northern branches of HS2 south west from Birmingham to Cardiff and Bristol as proposed by Greengauge 21**[lxxxviii]
- **The Western Rail Access to Heathrow**[lxxxix] **has already been highlighted by the region as a means to improve sustainable surface access to Heathrow airport and is already in development via Network Rail.**
- **Complementary Metro development in Bristol and Swansea Bay.**

To reduce overall need for car use within the CCR will also require as many origin and destination points in the adjacent regions of Bristol and Swansea to be accessible via attractive public transport services for trips to/from the CCR. CCR therefore supports the development of complementary Metros in Bristol and Swansea Bay *Figure 24*. This connected metro concept was presented by the Cardiff Business Partnership in its evidence to Westminster's Transport Committee review of HSR in 2011[xc].

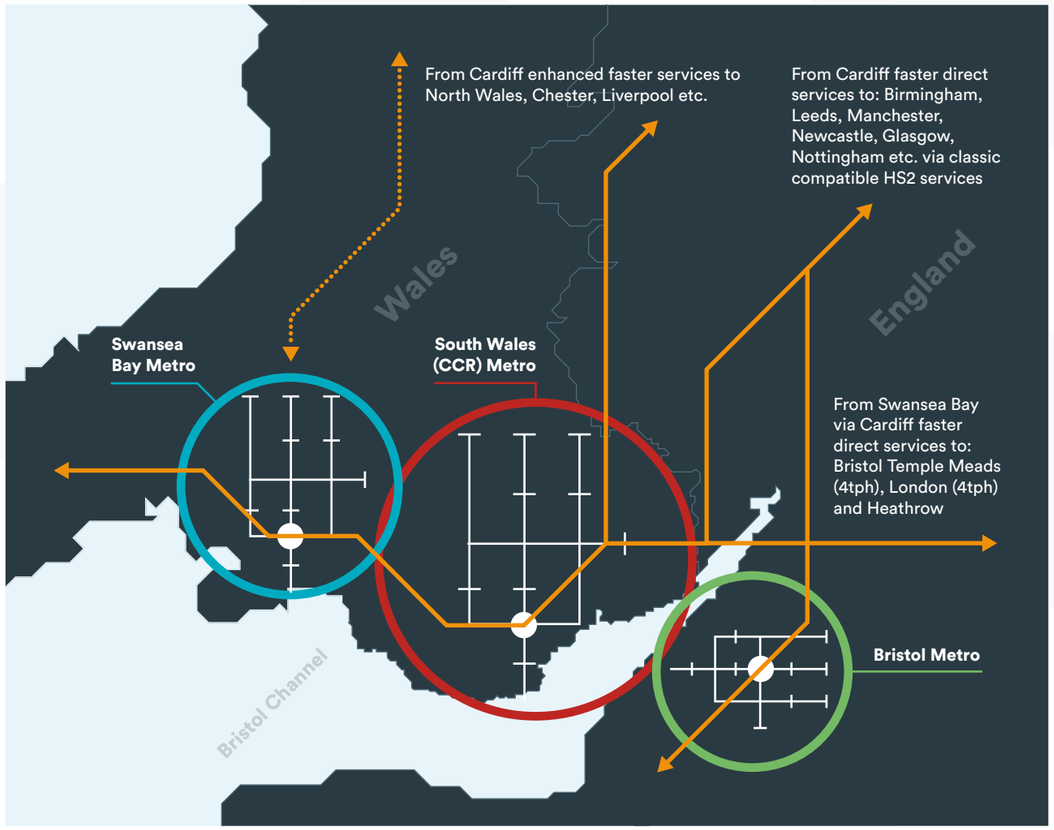


Figure 24 Integrated Metros in Bristol, Swansea Bay & CCR (South Wales Metro)

The Supporting Role of Integrated Bus Services

The ultimate ambition is to present the passenger one, joined up, multi-modal public transport network. So, whilst this paper is focusing on the priority strategic rail schemes, there is an equally important and parallel effort required to develop vastly improved and integrated bus services.

The focus will be local bus services and areas where strategic connections cannot be affordably delivered via rail. This will most likely include BRT in Cardiff and Newport, and some of the cross-valley connections required across the mid and upper valleys.

Working with TfW and WG, the CCR will:

- **Redesign bus networks (where appropriate) to fully integrate with rail services across the whole region, including development of segregated BRT routes.**
- **Deliver integrated fares, ticketing and information systems and common user platforms in terms of app and web systems**
- **Further test and apply innovative solution like Demand Responsive Transit (e.g., Fflecsi) as part of the overall public transport offer**
- **Accelerate the introduction of zero emission and accessible bus fleets**
- **Develop and implement common standards for local bus stops across the region**
- **Support TfW's Metro brand development work and its application across all modes of transport in the CCR.**

Whilst further analysis is required, there would appear to be four natural sub regional areas *Figure 5* (that do overlap in part), that could be the focus of bus network & service interventions. These are, with potential bus hubs and/or bus/rail interchanges identified:

- **Cardiff and the Vale of Glamorgan**

  Hubs: Cardiff Central, Waungron Rd, Heath Hospital, Bay/Arena, Queen St, Heath Halts, Rover Way/Newport Rd, Barry Town, Barry Docks, Cogan, Penarth, Pontyclun, Cardiff Airport, Cowbridge, Cardiff Parkway

- **Newport, Torfaen, Blaenau Gwent and Monmouthshire**

  Hubs: Newport, Cwmbran, Pontypool, Abergavenny, Monmouth, Newbridge, Ebbw Vale, Llanfrechfa Grange Hospital, ICC, Chepstow, Severn Tunnel Junction, Newport West/Maesglas, Llanwern

- **Bridgend**

  Hubs: Bridgend, Porthcawl, Pyle, Maesteg

- **Mid and Upper Valleys (parts of RCT, Merthyr, Caerphilly, Blaenau Gwent and Torfaen)**

  Hubs: Merthyr, Aberdare, Pontypridd, Bargoed, Blackwood, Newbridge, Porth, Ebbw Vale, Ystrad Mynach, Abercynon, Llanbradach

The delivery of integrated bus services is perhaps a more challenging problem than new rail services and infrastructure given the complexity of the bus industry and its legislative framework. However, this is where the most benefits can be delivered in the next 5 years.

Active Travel

The role and importance of Active Travel cannot be understated. In many of our urban areas across the region there is a major opportunity to deliver infrastructure that will encourage more and safer walking and cycling instead of car trips. For longer journeys, which many of us have to make, the contribution of Active travel for the first and last miles of journey has to be encouraged. To do so, we need to develop and introduce measures that make all our stations accessible from their local communities using Active Travel. This will include safer walkways, cycle routes, safe accessible stations and secure cycle storage at stations. In many cases and outside the station boundary, this work will fall to the CCR and the regions local authorities and not TfW to deliver – as is the case with the developing cycle network in Cardiff.

Overall Benefits

Strategic Benefits

Transport cannot exist in isolation of the wider economy, so the Welsh Government and TfW have identified a range of high-level benefits for the various Strategic Cases in development as they apply in the CCR they include:

Economic Benefits

- **Enhanced connectivity between key economic centres on the SWML like Swansea, Cardiff and Bristol will help create more efficient labour markets; similar benefits can accrue to places like Pontypridd, Merthyr and Caerphilly through enhanced Metro connectivity. This is very much in keeping with the Welsh Government's desire to encourage regeneration and transport-oriented development and especially mixed use and housing development at/near stations across the network**
- **The Welsh Government have previously estimated Transport User Benefits of £1Bn are likely from enhancements to the SWML; a figure that is likely to be higher when the full range of schemes set out, and agglomeration, network and Wider Economic Benefits are included**
- **A high-level strategic analysis as part of the 2013 Metro Impact Study set out the potential to enhance the regional economy by £4Bn over 30 years from the full range of scheme set out at the time. The current CVL phase of Metro is only one part of a larger long term programme.**

Environmental and Wellbeing Benefits

- **Given the urgency required to address the climate emergency, these measures provide the radical increase in public transport capacity required to reduce currently very high levels of car use. Across Europe cars are the biggest contributor (even if all electric) to transport carbon emissions (~60%), which is the only sector that has increased its carbon footprint since 1990[xci]**
- **Reduced car use can also improve health outcomes from fewer road accidents (150,000 each year in the UK, 28,000 serious injuries and 1,700 fatalities[xcii]) and improved air quality to reduce the current estimated 30,000 premature deaths per year[xciii] caused by air pollution.**

Transport System Benefits

The proposals set out will deliver a more flexible and efficient railway, able to operate a mix of express and integrated local commuter services on the SWML integrated with local metro services from and across the valleys

Offering more attractive rail services to more people will significantly improve efficiency of rail operations and reduce subsidy per passenger.

Examples of Specific Scheme Related Benefits

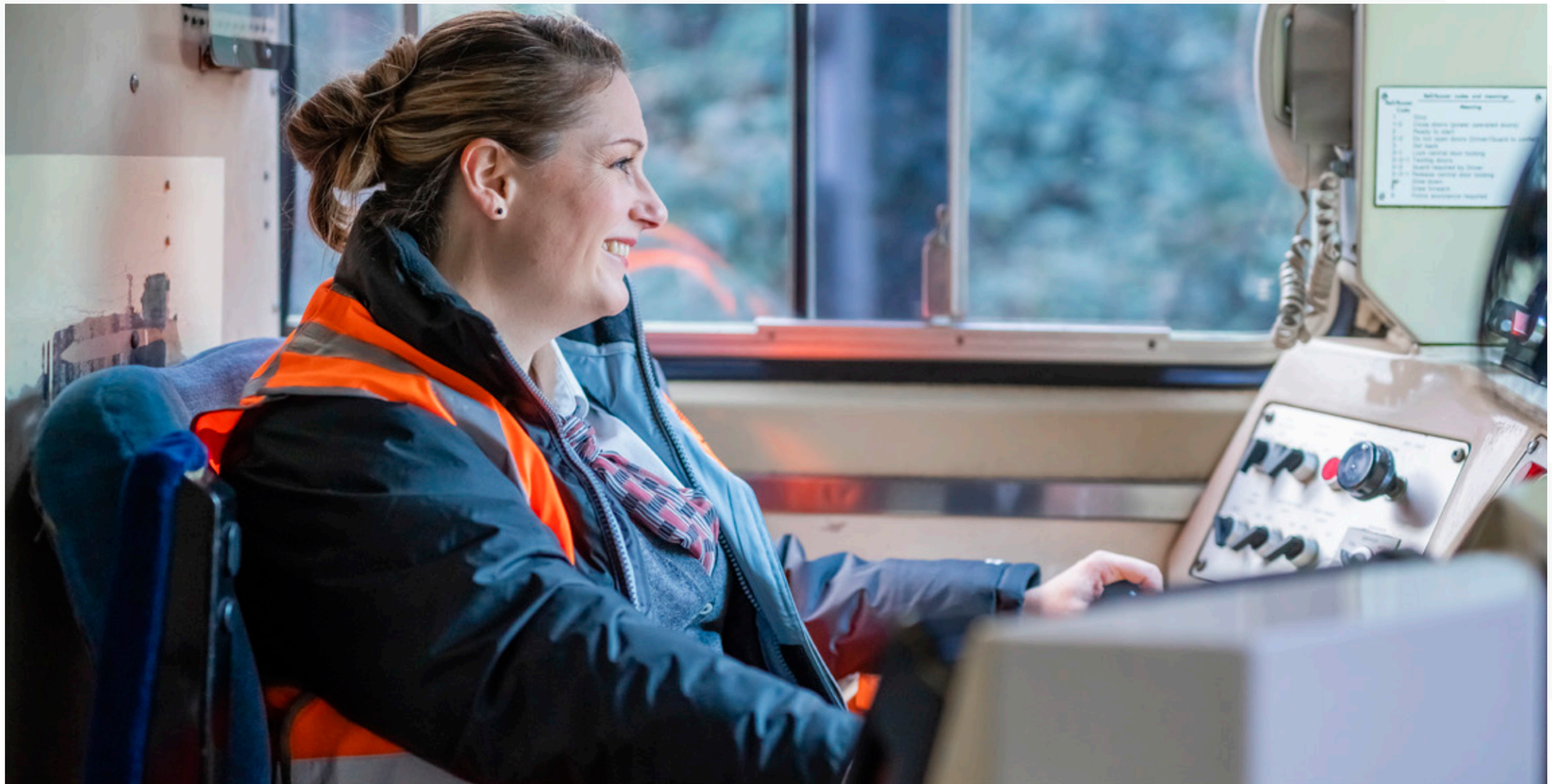
There are also a range of benefits that derive from the specific schemes set out, including:

- **Along the SWML corridor (#1) there are significant development opportunities that will be influenced by these proposals; for example: Cardiff Parkway, and Bridgend, Newport and Cardiff City Centres**
- **Delivering enhanced connectivity to/from the Ebbw Valley (#4 #5), which is facing significant economic challenges, to both Cardiff and especially Newport will help support further development and regeneration in and around Ebbw Vale itself and further support its Enterprise Zone**
- **More commuter services on the Marches Line (#7) to Pontypool and Abergavenny and new stations, will help provide sustainable travel options to new developments like Mamhilad urban village and Sebastopol as well as help Pontypool deal with some serious economic challenges**
- **The Crossrail proposals (#8) will connect a number of major mixed used and/or brown field developments (e.g., Cardiff Bay & Docks, Arena, Parkway, Plas Dwr, GE Life Science Hub) as well as connecting Splott and Tremorfa to the Metro, both areas within the top 10% of Welsh Index of Multiple Deprivations (WIMD)[xciv]**
- **Metro and specifically the mid cross-valley measures (#9) set out, presents a strategic opportunity for the region to begin to radically transform its economic geography. This means developing a transport network not overly focussed on journeys to/from Cardiff. Whilst that will always be important, there is an opportunity to better connect all parts of the region and especially key centres like Pontypridd, Newport and Merthyr**
- **The longer-term Caerphilly-Newport scheme (#10), as with Llanilid, will likely need to be developed alongside a review of land use and the potential for future housing along the corridor between Bassaleg and Caerphilly. This is something that should be explored in the upcoming Strategic Development Plan for the region**
- **The Aberdare-Hirwaun extension (#11) will enhance the impact of the proposed developments, new housing and the energy park in the area.**

Transport Led Economic Development & Regeneration Opportunities

Beyond these specific scheme-related and strategic benefits, there are a number of significant development opportunities and economic activities that are dependent on, or whose impact can be enhanced through improved rail services and connectivity. Some of these are part of the Cardiff Capital Region City Deal, they include:

- **As part of the Cardiff Crossrail there are several major contingent developments. For example, at Cardiff Central/Central Quay(A) and Cardiff Bay(A) including more residential, hotel, commercial and a potential Higher Education Institute. There is also an opportunity to enabled mixed use development on what is currently brown field land across Cardiff Docks. A community focussed regeneration programme aligned to the bay line and a new Butetown station. There is also the prospect at GE/Forest Farm for a Life Sciences Innovation Park(B) anchored by GE and the Wales Genomics Centre**
- **Delivering more commuter services into Newport City Centre from across the region will help support the development of the Newport Knowledge Quarter(C) with partners including Alacrity, Alacrity Cyber, USW Cyber school and Airbus. There is also an opportunity to consider the re-location of the UK Government's facilities (such as the Patent Office and ONS) to a location in Newport city centre**



- The schemes set out will enhance the accessibility of the Nantgarw/Treforest Industrial Estate(D) and help bring forward a major mixed use regeneration project including more residential; this augments the relocation of the Department of Work and Pensions (DWP) adjacent to the new Metro stations planned at Nantgarw
- New SWML commuter services and a new station at Llanwern will connect Llanwern/Glan Llyn(E) residential development to the rest of the region and help bring forward further development sites near the station
- The new station in development at Cardiff Parkway provides the opportunity for more "mixed use" development at Cardiff Parkway(F)[xcv]; this site is at the heart of the corridor between Newport and Cardiff which is already a regional centre for Compound Semiconductors (CS)[xcvi] (inc. SPTS, Newport Wafer fab, IQE, Cardiff University)
- Enhanced connectivity to Cardiff Airport/St Athan(G) will help support the development of the business parks in this location – the potential to operate direct rail services from places like Bristol Temple Meads and Gloucester can be explored in this context
- The Metro is already enabling development in Pontypridd (H) and it is expected further development and regeneration opportunities will come forward in and around the town centre and potentially linked to further Metro measures (like cross valley and a new station at the bus station) into the late 2020s
- (I) Llanilid. As part of the emerging SDP there is the potential to explore a more substantive TOD base development between Pontyclun and Pencoed at Llanilid that could be delivered into the 2030s if linked to further expansion of the Metro through the area
- There are significant town centre regeneration opportunities in Bridgend (J) as well the Ford site which could potentially be served by tram-train services if introduced on the Maesteg Line
- The local economic potential of an enterprise Zone at Ebbw Vale (K) will be enhanced by both access to Newport and Cardiff and the cross valley (rail and bus) schemes proposed
- There is a masterplan in development for Merthyr town centre (L) which will be augmented by plans for a major visitor attraction and community facility at Cyfarthfa Castle[xcvii]
- (Z) Aside from these more substantive and developed proposals, the Metro also presents opportunities for further "transport hub" focussed development and regeneration measures in places like Barry Town, Pontypool, Caerphilly, Maesteg and Hirwaun. In many cases this builds on work already in progress, such as in Caerphilly
- As has already been noted, many of the wider benefits that can be realised requires a more coherent and nuanced approach for smaller scale interventions and those which support local foundational economies; especially to enable more community focussed regeneration measures at many of the smaller stations across the region. CCR will work in partnership with WG, the region's local authorities and TfW to develop a portfolio of such interventions and in doing so align with WGs "Transforming Towns"[xcviii] initiative.

Next Steps

This paper provides the policy foundation to underpin further scheme and business case development of rail projects by WG, TfW, NR and the Region. Further progress requires a holistic approach across multiple organisations who will need to work together to:

- Integrate these policy-based proposals through TfW's formal Strategic Metro Development Programmes to create a 10-15 year implementation programme (the details, scope and phasing of which will be refined through the development of Programme Cases by TfW and in consultation with the CCR)
- Develop methods for securing long term funding (capital and revenue)); this to include consideration of demand management measure (such as workplace parking levy and road user charge), Community Infrastructure Levy, Tax increment Financing, etc
- Establish a more coordinated regional capability to develop and take forward complementary economic development & regeneration initiatives right across the Metro network.

  This will include substantive property development as well as more locally focussed community-based interventions
- Develop a comprehensive Metro focussed Transit Oriented Development Plan that covers major development led interventions through to small scale local placemaking measures. Working with key partners like Registered Social Landlords (RSLs), house builders, developers, regeneration practitioners and community groups, will be essential as will the support of bodies like Design Commission for Wales (DCFW)[xcix] and Community Housing Cymru (CHC)[c]
- Ensure that the regional Strategic Development Plan (SDP) proactively develops opportunities for more transit-oriented development. In the first instance the gradual relocation of public services and offices back to city and town centre locations right across the region. The role of placemaking[ci] to be embedded in this approach
- Complement the work of regional bodies in Swansea/West Wales and South West England to ensure these proposals complement those being developed in adjacent regions
- Support WG in making the case for devolution of rail with funding for enhancement. It is likely that without substantive changes, most of the proposal set out will not proceed
- Support further academic research to underpin these proposals – especially the wider benefits that may be realised.

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