

# South Wales Metro, Cardiff & Transit Oriented Development

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## October 2024

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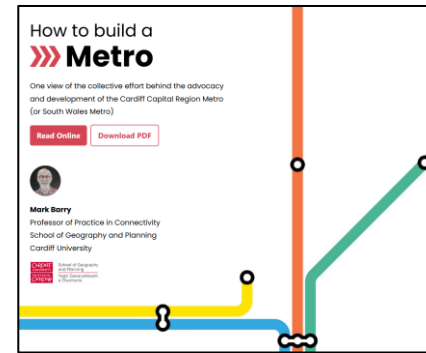
M&G Barry Consulting

8 October 2024



School of Geography  
and Planning

Ysgol Daearyddiaeth  
a Chynllunio



For more details of this Welsh Government Project see

**[South Wales Metro | TfW](#)**

Earlier/Other Refs:

**[south-wales-metro-impact-study.pdf \(gov.wales\)](#)**

**[iwa-metroreport.pdf](#)**

**[Mark Barry – @SWalesMetroProf](#)**

**[About Mark Barry – Mark Barry](#)**

**[Mark Barry | LinkedIn](#)**

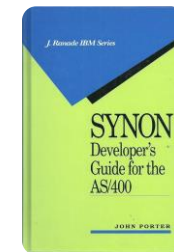
Please note: This presentation is based entirely on the views of Prof Mark Barry based on his knowledge and material already in the public domain and does not represent in any way the views, thoughts, intentions, plans, policies or strategies of Welsh Government, Transport for Wales, Cardiff University or any other organisation.

# To cover...*in no particular order*

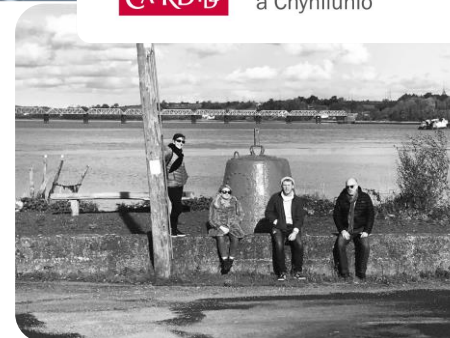
- > A bit about me
- > The existential climate challenge
- > Cars and externalities
- > Why Metro
- > Spatial features of the Cardiff Capital Region
- > Issues and opportunities for Cardiff
- > How Metro
- > What are we getting
- > ....and what aren't we getting!
- > Buses, tickets and integration
- > Transit Oriented Development
- > Crossrail Phase 1a, 1b and Phase 2
- > A Metro Development Corporation?
- > What else?



# Mark Barry - *In summary...*



INNOVATION IN BIOPHARMACEUTICALS  
EXCELLENCE IN DRUG DELIVERY



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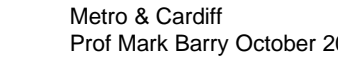
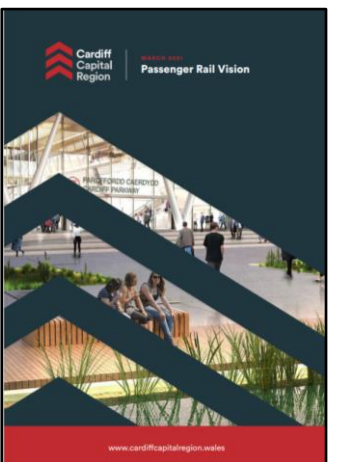
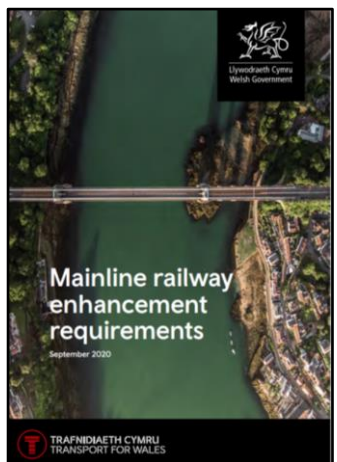
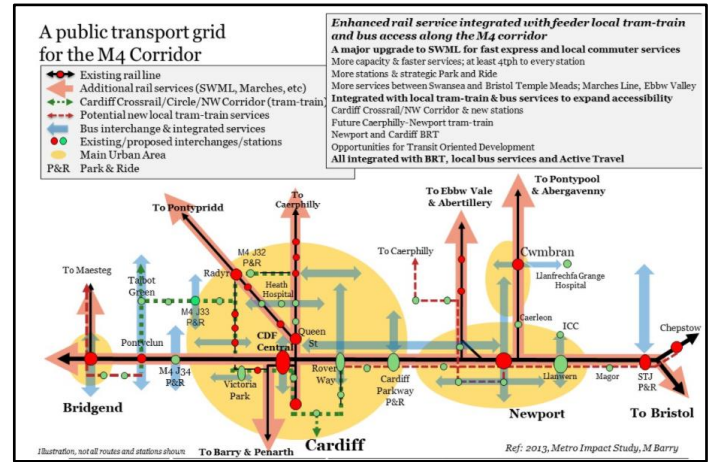
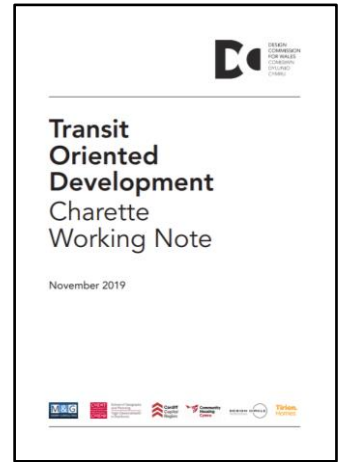
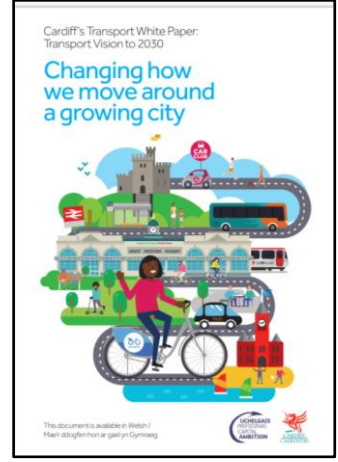
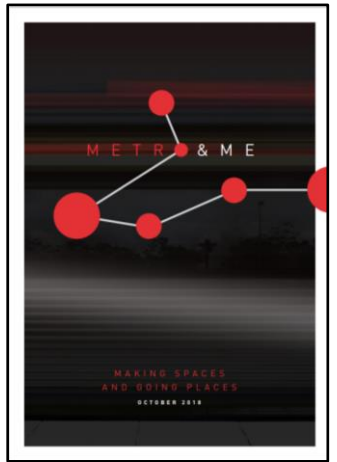
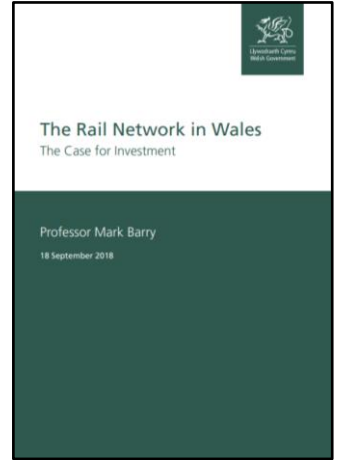
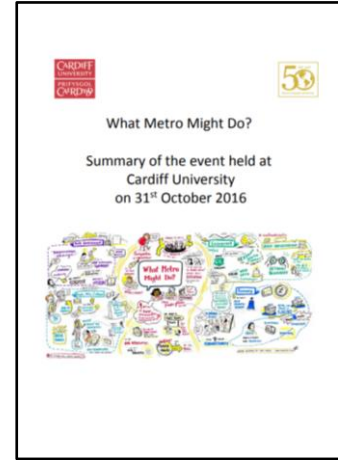
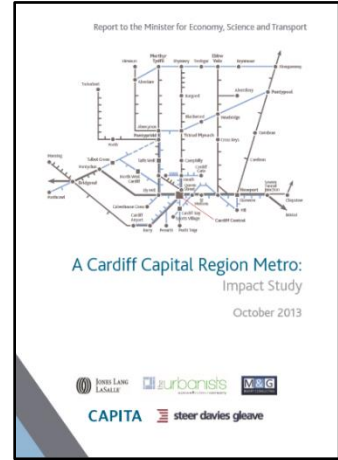
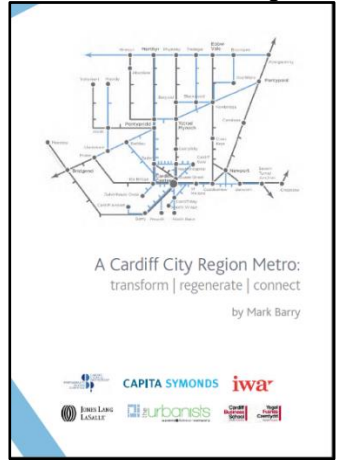
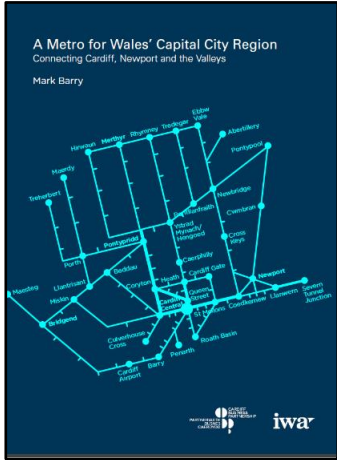


TRAFNIDIAETH CYMRU  
TRANSPORT FOR WALES





# Over the last fifteen years I have been involved in...



....and more to follow ??



# Why Metro...

*Used on all my Metro slides since 2011!*

- > Connecting more people, to more places
- > Enabling development & regeneration.
- > Modal shift & lower CO<sub>2</sub>.

*To address issues of economic inactivity,  
deprivation and poverty*

*And deliver a sustainable, economically  
dynamic city region of 1.6 M people.*

# Why Metro...?

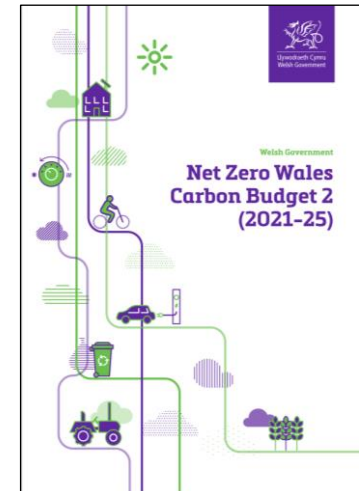
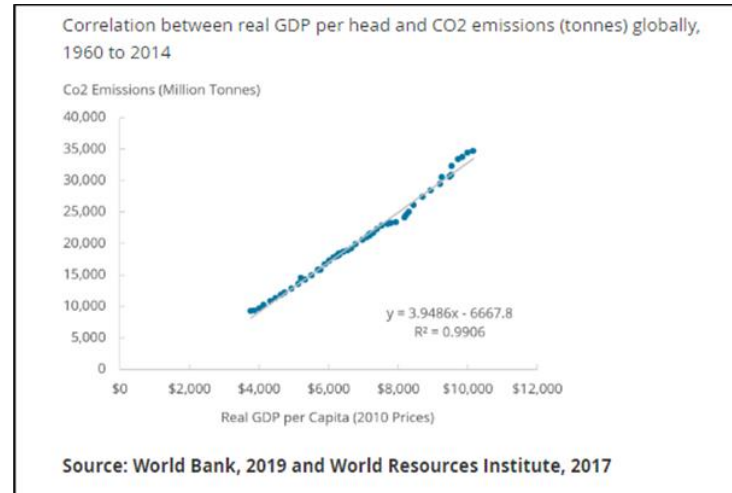
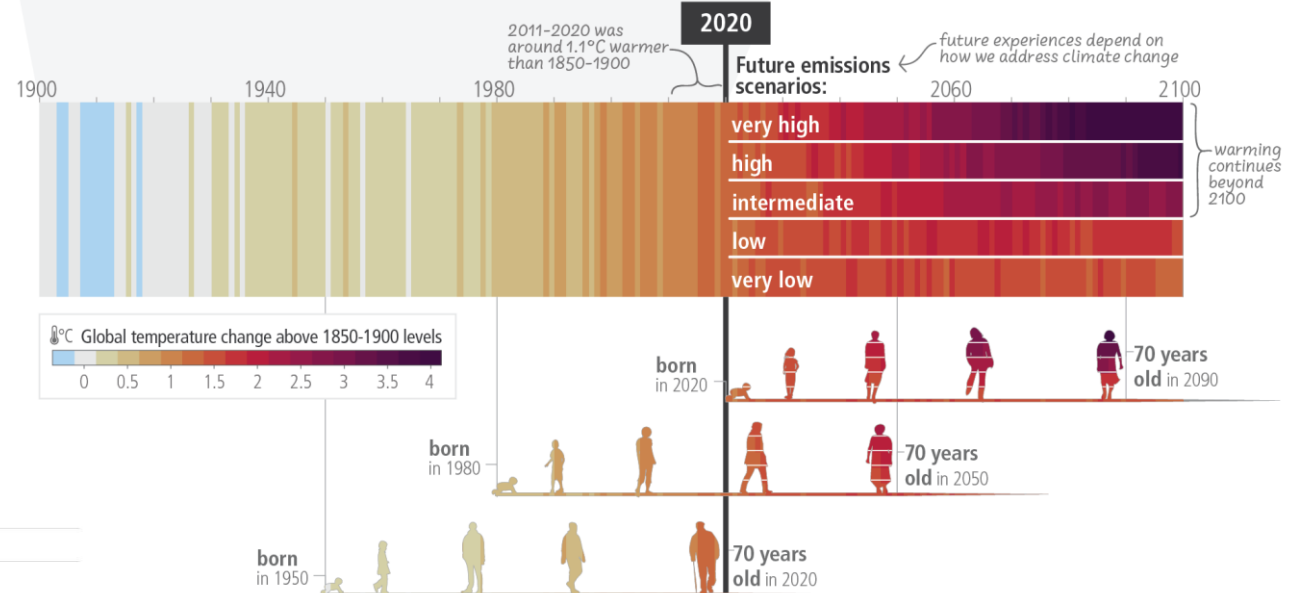
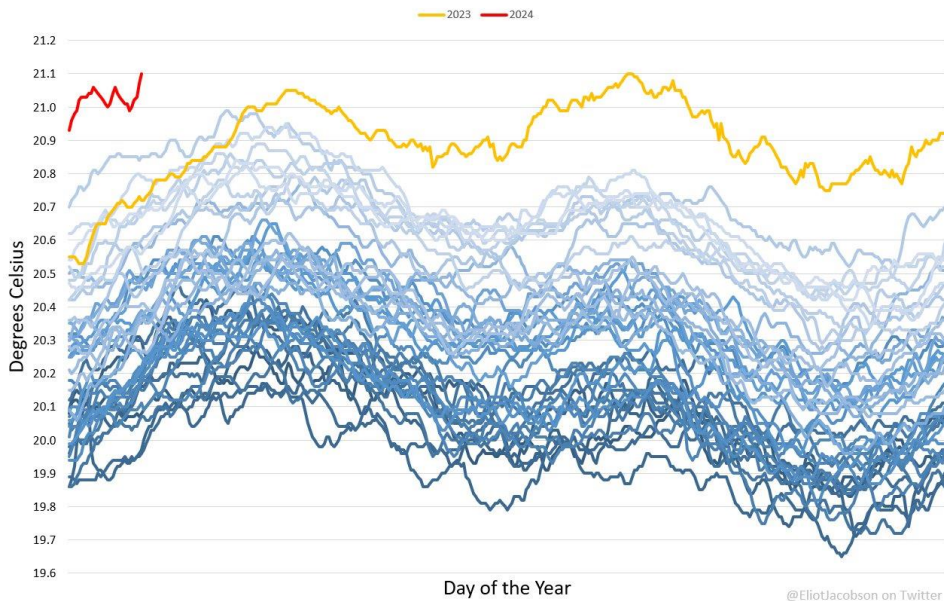
## We are not living in balance with nature.....

[Advice-Report-The-path-to-a-Net-Zero-Wales.pdf \(theccc.org.uk\)](#)  
[Wales - Climate Change Committee \(theccc.org.uk\)](#)  
[Llwybr Newydd A New Wales Transport Strategy 2021: full strategy \(gov.wales\)](#)  
[Net Zero Wales | GOV.WALES](#)  
[Executive-Summary-The-path-to-Net-Zero-and-reducing-emissions-in-Wales.pdf \(theccc.org.uk\)](#)  
[What use is GDP on a planet with no trees or bees? – Mark Barry \(swalesmetroprof.blog\)](#)  
[The decoupling of economic growth from carbon emissions: UK evidence - Office for National Statistics](#)



Global Sea-Surface Temperatures (60°S-60°N): 1982-2024

Data: [https://climatareanalyzer.org/clim/sst\\_daily/json/oisst2.1\\_natlan1\\_sst\\_day.json](https://climatareanalyzer.org/clim/sst_daily/json/oisst2.1_natlan1_sst_day.json)



*Climate Change 2022: Impacts, Adaptation and Vulnerability | Climate Change 2022: Impacts, Adaptation and Vulnerability (ipcc.ch)*

## Net Zero Wales sets out a target to treble Public Transport by 2040



# Why Metro...?

*Our rail services & network have been starved of investment.....*



The UK rail industry, Wales, HS2, Trans Pennine Upgrade, Network Rail spend, etc... – Mark Barry ([swalesmetroprof.blog](http://swalesmetroprof.blog))



# Why Metro...?

## Too many Cars with huge ££ externalities

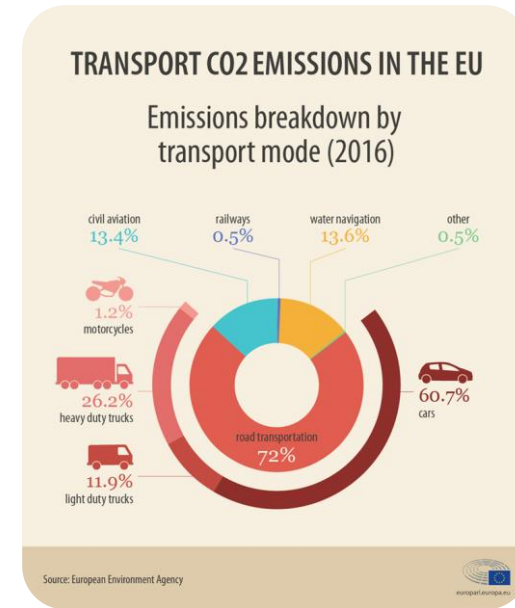
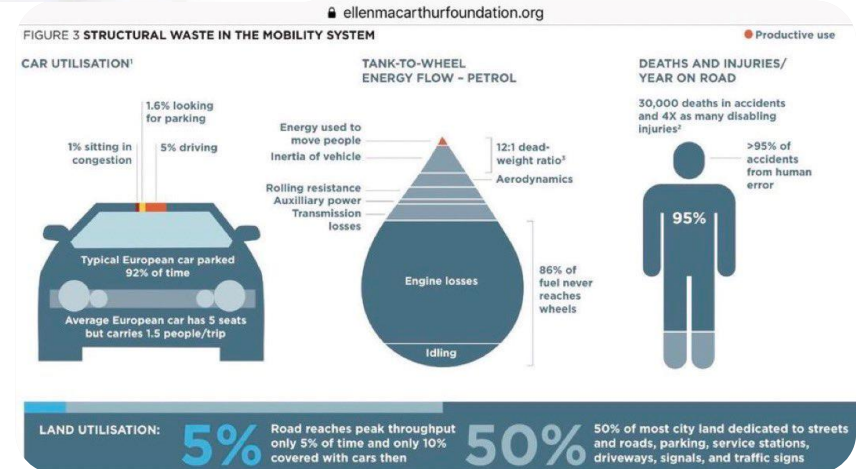
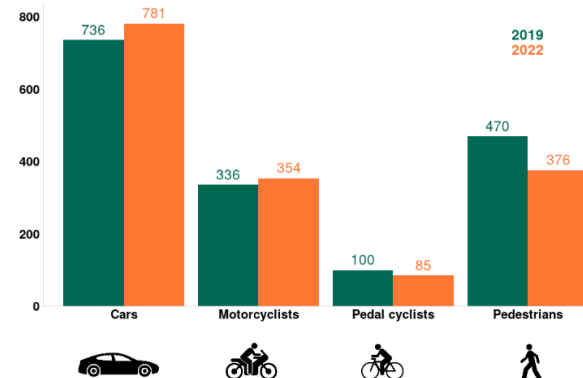


Chart 3: Reported road fatalities by road user type, Great Britain in 2022 (provisional) compared with 2019 RAS9101



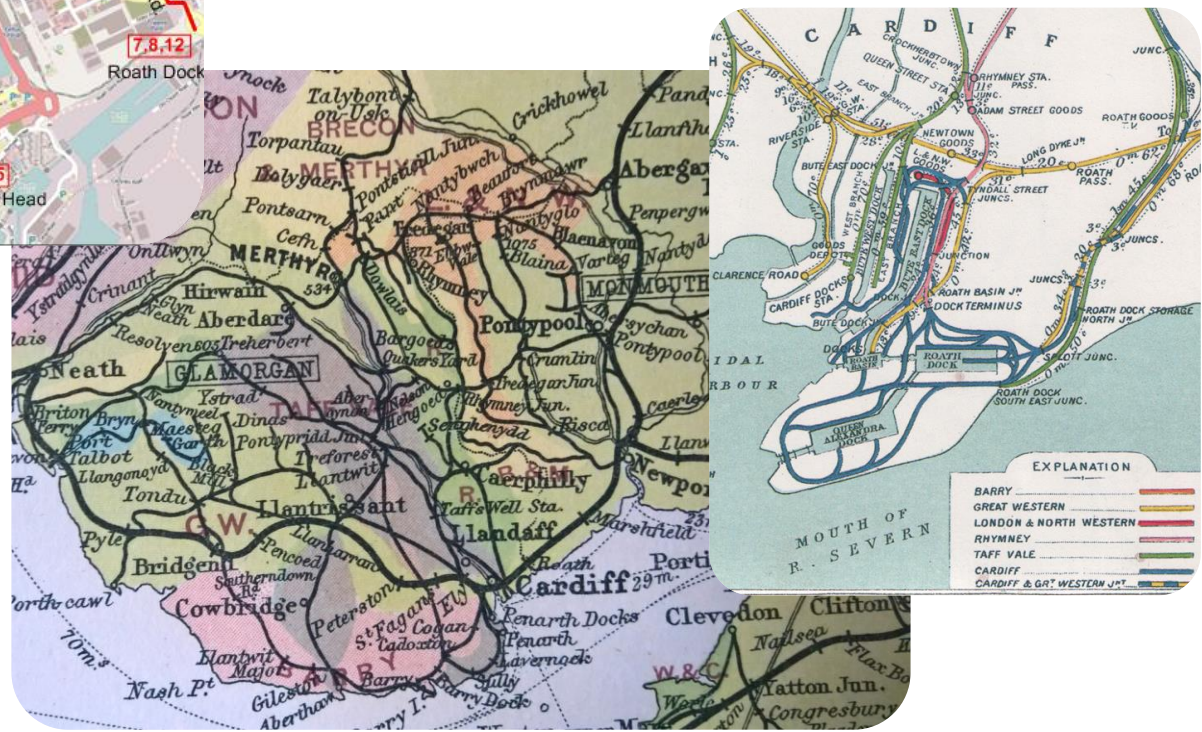
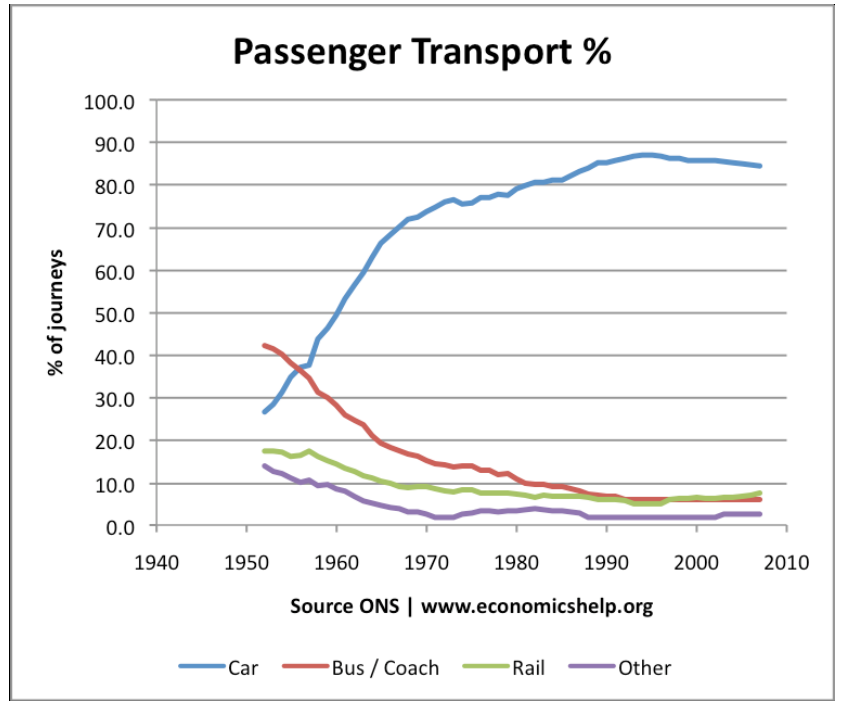
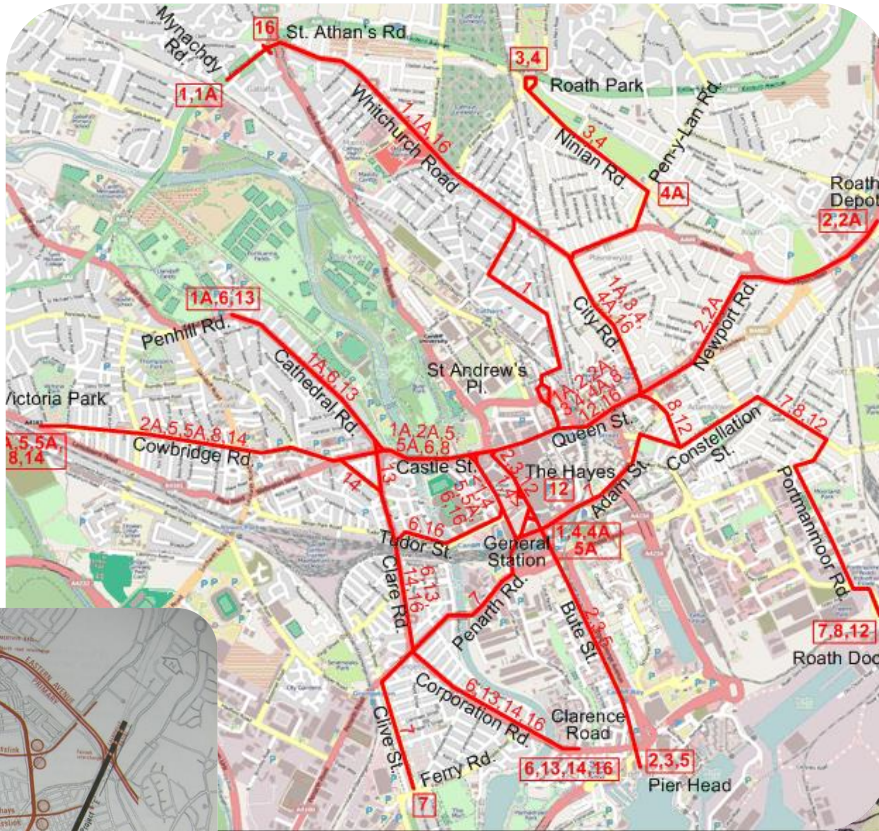
**We need to reduce “the road use discount”**

Cars, Congestion, Health and Road Pricing... – Mark Barry (swalesmetroprof.blog)  
 Transit Oriented Development (TOD) in the Cardiff Capital Region (CCR) #3 – Mark Barry (swalesmetroprof.blog)  
 Reported road casualties in Great Britain: main results 2015 (publishing.service.gov.uk); ras4001.ods (live.com)  
 Reported road collisions, vehicles and casualties tables for Great Britain. – GOV.UK (www.gov.uk)  
 A Public Transport Grid for the M4 Corridor... – Mark Barry (swalesmetroprof.blog)  
 (UK air pollution could cause 36,000 deaths a year (kcl.ac.uk))

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/762976/latest-evidence-on-induced-travel-demand-an-evidence-review.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762976/latest-evidence-on-induced-travel-demand-an-evidence-review.pdf)  
[https://webarchive.nationalarchives.gov.uk/20050304041634/http://www.dft.gov.uk/stellent/groups/dft\\_ec\\_onappr/documents/pdf/dft\\_econappr\\_pdf\\_022512.pdf](https://webarchive.nationalarchives.gov.uk/20050304041634/http://www.dft.gov.uk/stellent/groups/dft_ec_onappr/documents/pdf/dft_econappr_pdf_022512.pdf)  
 How highways make traffic worse – YouTube  
 Roads cars induced demand and costs DRAFT Nov 2022 - YouTube



# Doh...





# Why Metro?

## ...Urban population/density

CCR Total population ~1.6M, Cardiff biggest of local authority at over 380k (ONS July 2024 update). Using ONS “Built Up Area” stats from 2021 Census

- > Cardiff BUA ~465k & density ~43 pph
- > Newport BUA ~320k, 36 pph
- > CCR 2,800 Km<sup>2</sup>

Complex trip patterns, to/from/within Cardiff biggest, >75% in cars

- > ~710k working residents
- > Daily working population ~680k
- > 230k in Cardiff...450k elsewhere in the region
- > 50k out of region, 20k inward

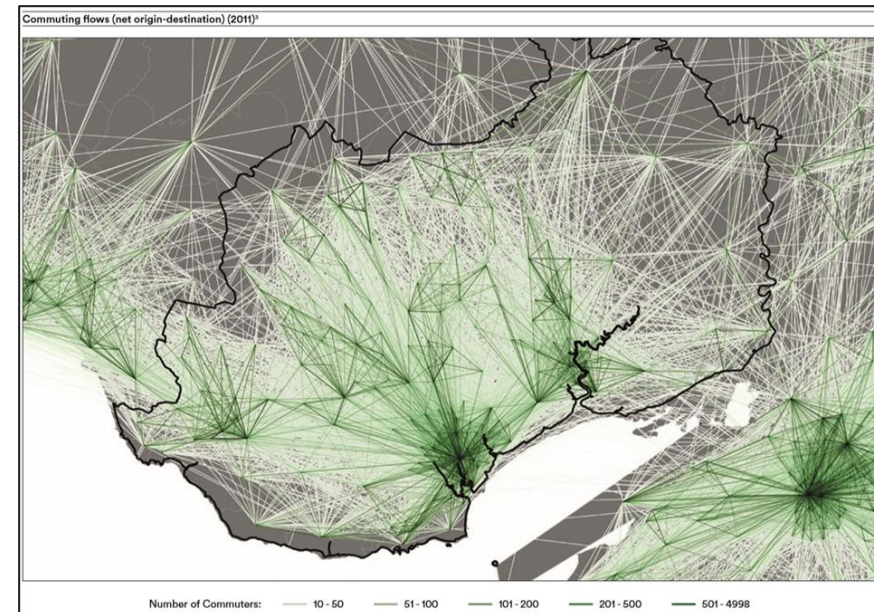
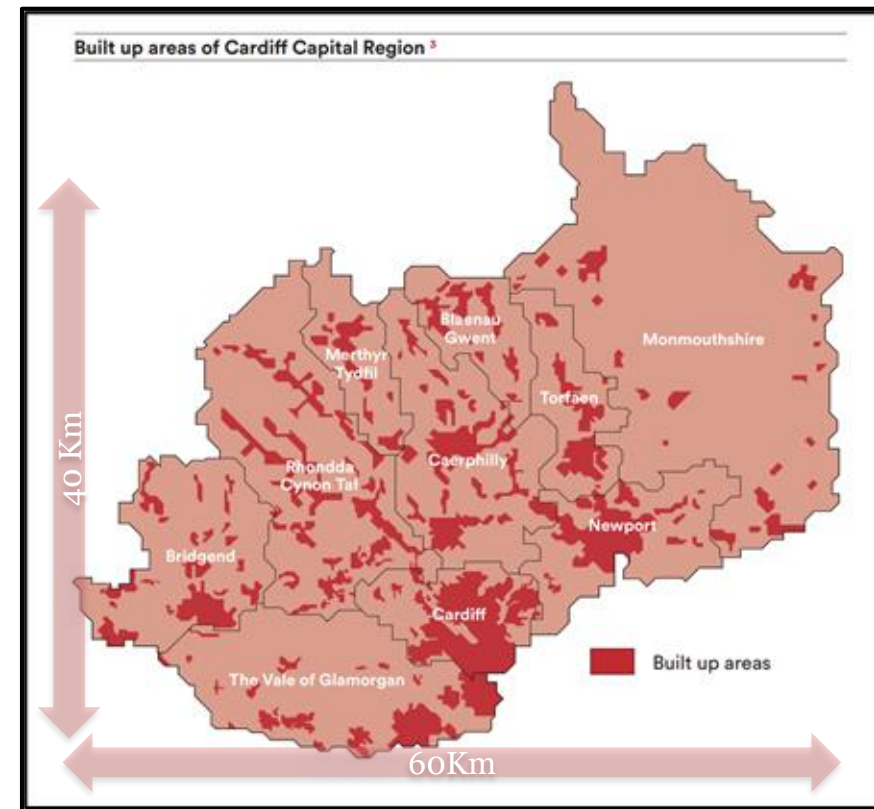
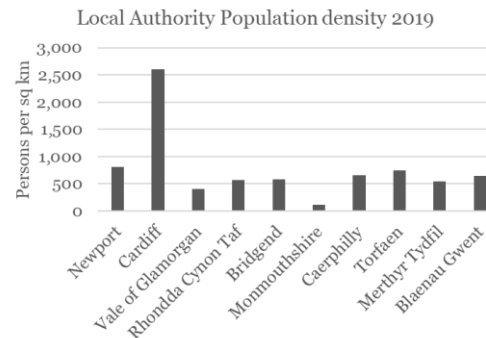
### Governance

- > 10 Local authorities
- > No regional mayor
- > Regional Corporate Joint Committees (CJS)
- > Transport for Wales

## Cardiff & SE Wales – Urban/Green; polycentric, high urban density

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

[Commuting patterns by Welsh local authority and measure \(gov.wales\)](https://gov.wales)





# What does Cardiff and Cardiff City Centre need?

## ...Demographics




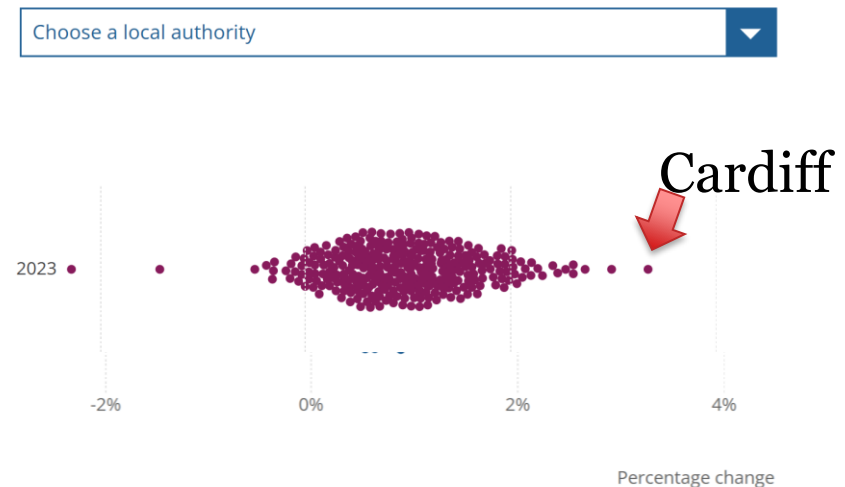


- > Cardiff Local Authority in 2023 (ONS)  had a population of 382k - up from 359k in 2021 – the biggest % rise of any UK city – over 6% in two years!

Figure 8: Population change in local authorities of England and Wales, mid-2021 to mid-2022 and mid-2022 to mid-2023



- > Cardiff “Built Up area” – approx. 490k
- > Core population around  Core Valley Line (CVL)  network of over 800k people (Cf Newcastle with similar population and a Metro with 30M PAX)
- > Total for entire CCR (so Newport, Ebbw Valley, Bridgend, etc) is 1.6M

Population estimates for England and Wales - Office for National Statistics ([ons.gov.uk](https://ons.gov.uk))

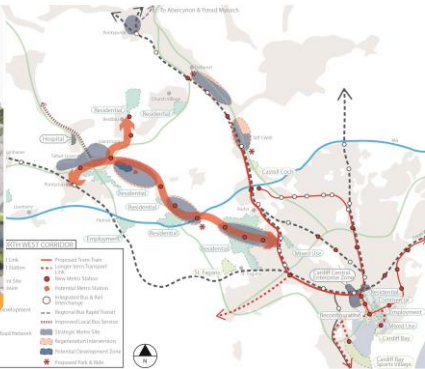
Population estimates by local authority and year ([gov.wales](https://gov.wales))

From: Agglomerations (United Kingdom): Agglomerations - Population Statistics, Charts and Map ([citypopulation.de](https://citypopulation.de)) using 2021 ONS data

# What does Cardiff need?

## ...Focus on

- > Easier access to employment and public services for more people across the city/region
- > Making it easier for people from across the region AND city to be able to access the city centre/bay/major destinations using Public Transport
- > Reducing transport-based carbon emissions
- > Reduced Road Traffic Accidents (RTAs)
- > More transport led development and regeneration (TOD) – esp housing
- > Much of this set out in policy terms in CCC Transport White Paper
- > Less “zoned” city centre
- > Needs more Bus AND rail – and some innovation and tough choices re-funding!



<https://beta.gov.wales/south-wales-metro-impact-study>  
Metro Impact Study

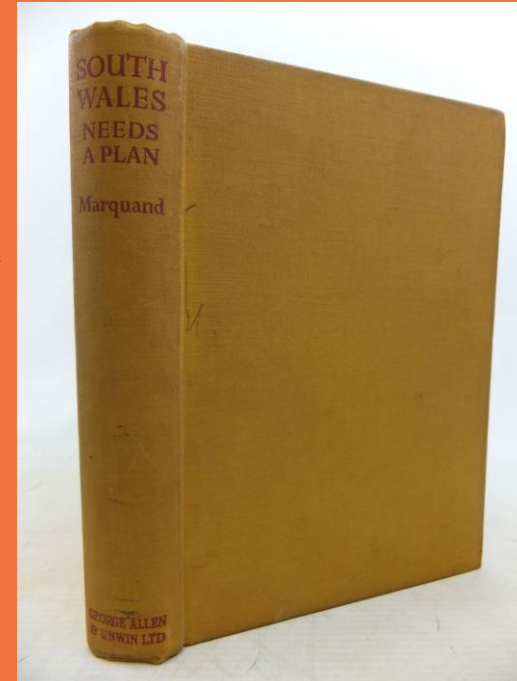


## ...not a new idea, from, “South Wales Needs a Plan”, by H A Marquand published by George Allen & Unwin Ltd in 1936!

“ ... a more rapid movement of population up and down the valleys must be encouraged, so as to save the inhabitants of the northern towns from economic isolation. How that rapidity of movement can best be secured should be decided by an authority responsible for a co-ordinated transport service throughout the Region. No such authority exists. (p48)

“... perhaps the Ministry of Transport could be asked to report whether it would be best to electrify the railways.”

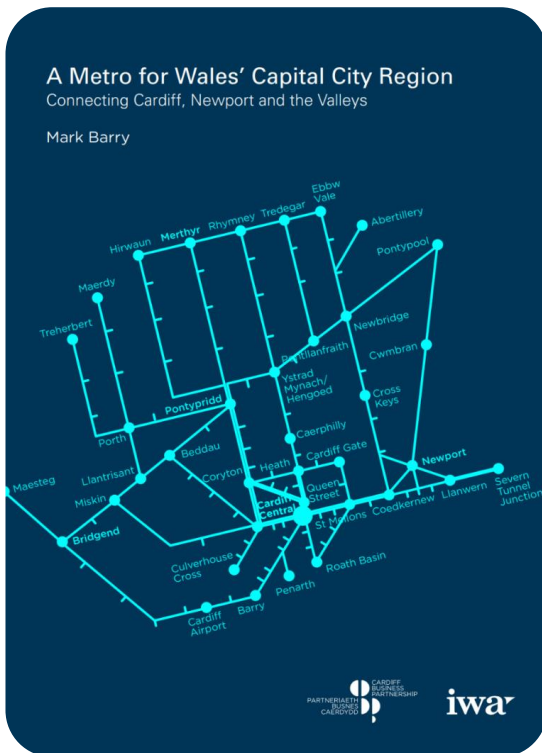
“With rapid transport, it should be no more difficult for workers from Aberdare or Ebbw Vale to reach Cardiff or Newport than it is for clerks to travel to their daily work in the City of London from Wimbledon or Ealing”  
...” political and social institutions have failed to adopt themselves with sufficient rapidity to the economic changes that have taken place. One small symptom of this is the maintenance of local government boundaries which have long lost their significance and of authorities which are inadequate to the larger tasks which need to be undertaken.”(p209)



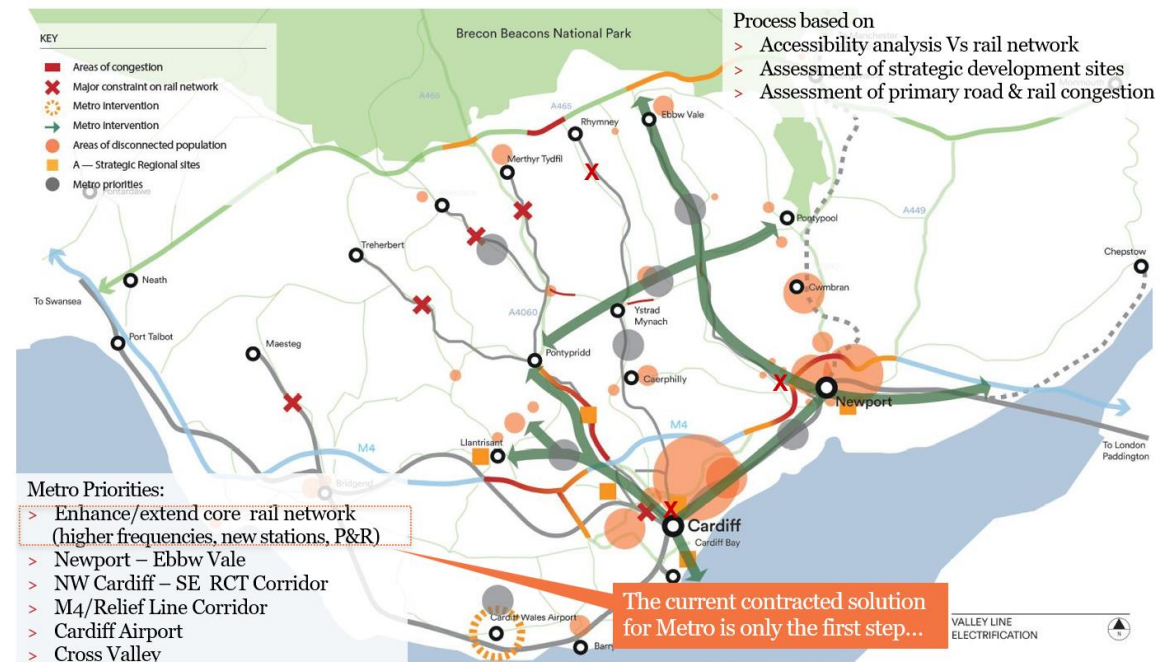
# How Metro...? Have a Vision...

Quote - Daniel Burnham 19<sup>th</sup> C...

*“Make no little plans. They have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency.”*



## Foundation: 2013 Metro Impact Study Priorities

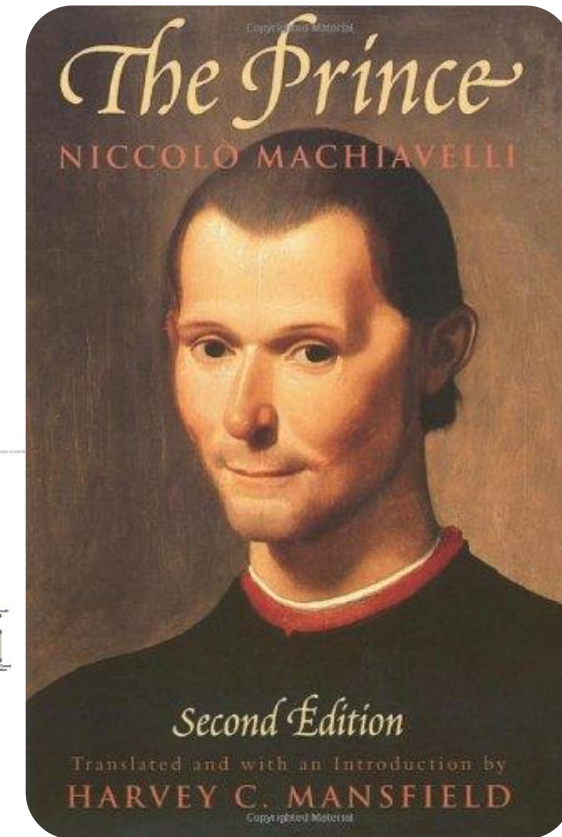
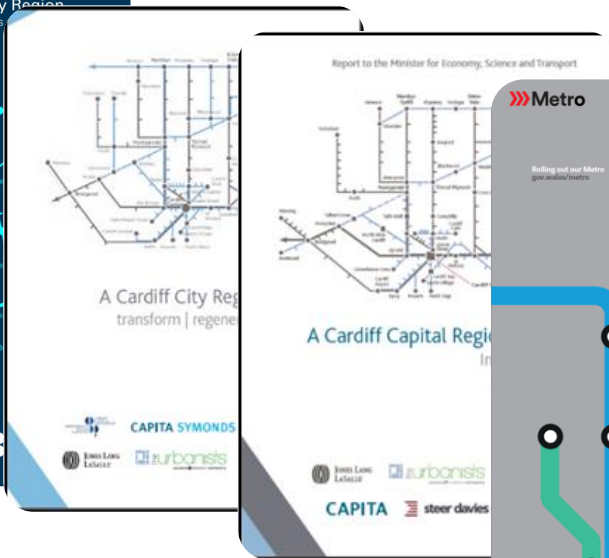
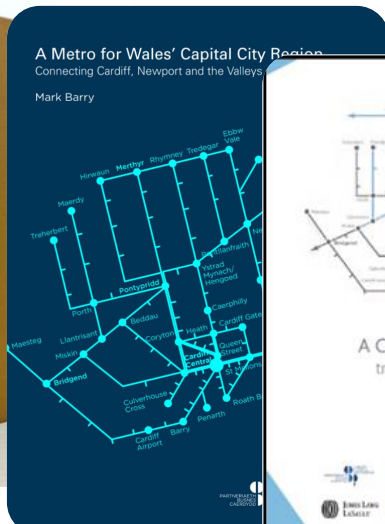
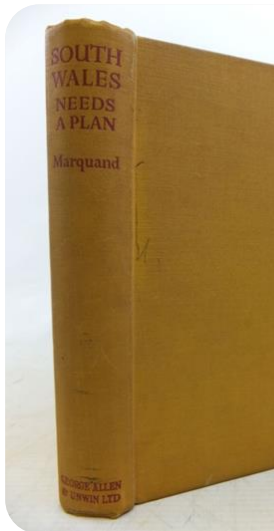




# How Metro...?

## *Advocacy and Development...*

- > Takes time and persistence
- > “Make no little plans...”



1936

2011

2013

2015





# How Metro...?

*It's been a collective effort...*

Adam Palmer¶  
Adrian Clark¶  
Alan Wilkins¶  
Alex Frew¶  
Alex Smart¶  
Alexia Course¶  
Alice Bulpin¶  
Alison Thomas¶  
Alison Walker¶  
Alistair Gordon¶  
Alun Cairns¶  
Alun Davies¶  
Alun Evans¶  
Amy Nichols¶  
Andrew Davies¶  
Andrew Gainsbury¶  
Andrew Gregory¶  
Andrew Jeffreys¶  
Andrew Jenkins ¶  
Andrew Jones¶  
Andrew Minnis¶  
Andrew Morgan ¶  
Andrew Potter ¶  
Andrew Roberts¶  
Andrew Sherrington ¶  
Andrew Sutton¶  
Andy Falley¶  
Andy Holder¶  
Andy Scoggins¶  
Anthony McKenna¶  
Arron Silva¶  
Auriol Miller¶  
Bayo Dosunmu¶  
Ben Freeman¶  
Ben George¶  
Ben Hutchinson¶  
Ben Pritchard¶  
Bob Bright¶  
Bob Wellington¶  
Brendon Toomey¶  
Brett Chatwin¶  
Brian Meechan¶  
Brian Morgan ¶  
Brian Webb ¶  
Bruce Morris¶  
Byron Davies(Ex CEO)¶  
Byron Davies(Ex MP)¶  
Callum Gibson¶  
Calvin Jones¶  
Carl Jones¶  
Carl Sargeant¶  
Carl Waring¶  
Caro Wild¶  
Carol-Anne Davies¶  
Carole Green¶  
Carolyn Pugsley¶  
Carwyn Jones¶  
Catriona Lloyd ¶  
Ceri Davies¶  
Charles Vary¶  
Chris Busch¶  
Chris Clark¶  
Chris Gibb¶  
Chris Nott¶  
Chris Potts¶  
Chris Roberts¶  
Chris Sutton¶  
Chris Whitehouse¶  
Chris Wood¶  
Christian Schmidt¶  
Christina Harry¶  
Christina Rees¶  
Christoph Warner¶  
Claire Chappel¶  
Claire Falkiner¶  
Claire Moggridge¶  
Clare Bennet ¶  
Clare Cameron¶  
Clive Campbell¶  
Colin Lea¶  
Colin Riordan¶  
Colin Wood¶  
Corrina James¶  
Craig Williams¶  
Cynthia Ogbonna¶  
Dafydd Munro¶  
Dan De'ath¶  
Dan Jones¶  
Dan Langford¶  
Dan Saville¶  
Dan Tipper ¶  
Daniel McCool¶  
Darren Mepham¶  
Darryn Lewis¶  
Dave Hewings¶  
Dave Thomas¶  
David & Jeanne-  
Helene Eggleton¶  
David Alston¶  
David Conway¶  
David Crocket¶  
David Flint¶  
David Hand¶  
David Jones ¶  
David Llewellyn¶  
David McCallum¶  
David Melding ¶  
David Northey¶  
David Sexton¶  
David Stevens¶  
David Swallow¶  
David Waite¶  
David Ward¶  
David Watkins¶  
Dermot Carroll¶  
Des Clifford¶  
Dewi Rowlands¶  
Dimitris Potoglou ¶  
Dylan Bowen¶  
Dylan Griffiths¶  
Ed Green¶  
Edwina Hart¶  
Elizabeth Haywood¶  
Elizabeth Yeung¶  
Eluned Morgan¶  
Emlyn Davies¶  
Emma Price¶  
Emma Reed¶  
Emma Roche¶  
Frances Barry¶  
Frances Taylor¶  
Francesca Sartorio¶  
Gareth Chapman¶  
Gareth Evans¶  
Gareth Jones¶  
Gareth Morgan¶  
Gareth Newall¶  
Gareth Pagett¶  
Gareth Potter¶  
Gareth Stevens¶  
Gary Davies¶  
Gary Draisey¶  
Gavin Davies¶  
Gavin James¶  
Gavin Lewis¶  
Geoff Inskip¶  
Geoff Ogden¶  
Geraint Davies¶  
Geraint Talfan Davies¶  
Geraldine Barry¶  
Gerallt Dafydd¶  
Gerry Holtham¶  
Gethin George¶  
Gethin Shields¶  
Gill Bristow¶  
Gillian Otlet¶  
Graham Morgan¶  
Gunther Kostyra¶  
Gwyn Ephraim¶  
Gwyn Roberts¶  
Heather Clash¶  
Helen Bowkett¶  
Helen Davies¶  
Henk Broekema¶  
Henry Small¶  
Huw David¶  
Huw Jones¶  
Huw Llewellyn¶  
Huw Morgan¶  
Huw Thomas¶  
Ian Ambrose¶  
Ian Bullock¶  
Ian Cater¶  
Ian Courtney¶  
Ian Edwards¶  
Ian Morris¶  
Ian Price¶  
Ian Taylor¶  
Ian Walmsley¶  
James Ardem¶  
James Brown¶  
James Clemence¶  
James Harkins¶  
James Hooker¶  
James Price¶  
James Williams¶  
Jamie Adams¶  
Jamie Tucker¶  
Jan Chaudhry van der  
Velde¶  
Jane Cook¶  
Janice Morphet¶  
Jarrett Walker¶  
Jason Dixon¶  
Jason Thomas¶  
Jayne Brencher¶  
Jayne Coleman¶  
Jeff Collins¶  
Jen Heal¶  
Jenny Rathbone¶  
Jeremy Long¶  
Jeremy Whitaker¶  
Jessica Morden¶  
Jim Steer¶  
Jo Kiernan¶  
Jo Salway¶  
Jo Scott¶  
Joanne Lamer¶  
Jodye Kershaw¶  
John Armit¶  
John Baggs¶  
John Duddridge¶  
John Fagan¶  
John Gould¶  
John Osmond¶  
John Pockett¶  
Jon Fox¶  
Jon House¶  
Jonathan Adams¶  
Jonathan Day¶  
Jonathan Turton¶  
Judith Evans¶  
Julie Lydon¶  
Justin Davies¶  
Justin Spinney ¶  
Karl Gilmore¶  
Kate Clark¶  
Katie Allister¶  
Katie Williams¶  
Kellie Beirne¶  
Kelsey Barcellina¶  
Ken Poole¶  
Ken Skates¶  
Kevin Morgan¶  
Kirsten Durie¶  
Laura Sorvala¶  
Lee Robinson¶  
Lee Waters¶  
Leighton Jenkins¶  
Lewis Brencher¶  
Liam Hopkins¶  
Liane Hartley¶  
Liz Chandley¶  
Liz Mills¶  
Lois Park¶  
Lorena Azinte¶  
Lucy Forrester¶  
Luke Albanese¶  
Lynda Campbell¶  
Mal Drury Rose¶  
Marc Jennings¶  
Marcella Maxwell¶  
Mari Stevens¶  
Marianne Barry¶  
Marie Daly¶  
Mark Beckett¶  
Mark Casey¶  
Mark Drakeford¶  
Mark Hallet¶  
Mark Hooper¶  
Mark Hopwood¶  
Mark Lang¶  
Mark Langman¶  
Mark Youngman¶  
Martin Buckle¶  
Martin Lamb¶  
Martin Sullivan¶  
Matt Gilbert¶  
Matt Hammond¶  
Matt Jones¶  
Matt Phillips¶  
Matt Price¶  
Matthew Lodge¶  
Matthew Nobbs¶  
Matthew Perryman¶  
Megan Dobbs¶  
Mick Antoniw¶  
Mike Bagshaw¶  
Mike Castellini¶  
Mike Gallop¶  
Mike Gillard¶  
Mike James¶  
Mike Katz¶  
Mike Tapscott¶  
Nathan Barnhouse¶  
Nathan Sealy¶  
Neil Anderson¶  
Neil Hanratty¶  
Neil Harris¶  
Neil Hemmington¶  
Neil James¶  
Neil Walker¶  
Nick Bennett¶  
Nick Evans¶  
Nick Griffith¶  
Nick Millington¶  
Nick Speed¶  
Nick Thompson¶  
Nicola Sommerville¶  
Nigel Roberts¶  
Noel Dolphin¶  
Oleg Golubchikov¶  
Oliver Bratton¶  
Owen Smith¶  
Patricia Freeth¶  
Paul Carter¶  
Paul Chase¶  
Paul Fishwick¶  
Paul Griffiths¶  
Paul Maliphant¶  
Paul Matthews¶  
Paul McCarthy¶  
Paul Orders¶  
Peter Cushing¶  
Peter Fox¶  
Peter Heath¶  
Peter McDonald¶  
Phil Rawlings¶  
Philip Barry¶  
Philip Jardine¶  
Rhea Stevens¶  
Rhian Prosser¶  
Rhian Sheedy¶  
Rhian Watts¶  
Rhodri Griffiths¶  
Rhodri Morgan¶  
Richard Briggs¶  
Richard Clinnick¶  
Richard Crook¶  
Richard Sanderson¶  
Richard Thomas¶  
Rob Hunter¶  
Rob Jones (Knight  
Frank)¶  
Rob Needham¶  
Robert Chapman¶  
Robert Cleaver¶  
Robert Holmes¶  
Robert Huggins¶  
Robert John¶  
Robert Lloyd Griffiths¶  
Robin Beckman¶  
Roddy Beynon¶  
Roger Carter ¶  
Roger Lewis¶  
Roger Tanner¶  
Roger Waters¶  
Roy De Souza¶  
Roy Thomas¶  
Rupert Dyer¶  
Russell Cohen¶  
Russell Goodway¶  
Ruth Thomas¶  
Ruth Wojtan¶  
Sam Hadley¶  
Sara Pepper¶  
Sarah Jones¶  
Sarah Reardon¶  
Scott Pearson¶  
Sheila Davies¶  
Simon Coulthard¶  
Simon Gale¶  
Simon Gibson¶  
Simon Jones¶  
Simon Lander¶  
Simon Nichols¶  
Simon Piroette¶  
Simon Power¶  
Simon Rocks¶  
Simon Tew¶  
Sion Barry¶  
Stefan Sanders¶  
Stephanie Ferry¶  
Stephen Lawrence ¶  
Stephen Layne¶  
Steve Bussell¶  
Steve Davies¶  
Steve Howell¶  
Steve Thomas¶  
Steve Ward¶  
Steve Whitely¶  
Stuart Cole¶  
Stuart Watkins¶  
Richard Thomas¶  
Terry Burns¶  
Terry Morgan¶  
Tim James¶  
Tim Peppin¶  
Tim Williams¶  
Toby Mason¶  
Tom Alcock¶  
Tom Beamont¶  
Tomas Kwiatt¶  
Tomos Barry¶  
Tony Meacham¶  
Tracey Burke¶  
Tracey Kearns¶  
Tristan Guyard¶  
Vaughan Gething¶  
Vicky Beech¶  
Victoria Winkler¶  
Wayne Forster¶  
Wendy Maden¶  
Will Godfrey¶  
Will Scott¶  
Will Wootton¶  
Yvette Vaughan Jones¶

...some of those I worked with directly on Metro or who influenced my thinking/approach over the last 15 years

There are many more people closer to the “spade in ground” details and activities, and others I have erroneously omitted!

# Metro in 2024/2025...

## Yes, it's occurring

> New interim timetable from June 2024; *in advance of full services 2025/2026*



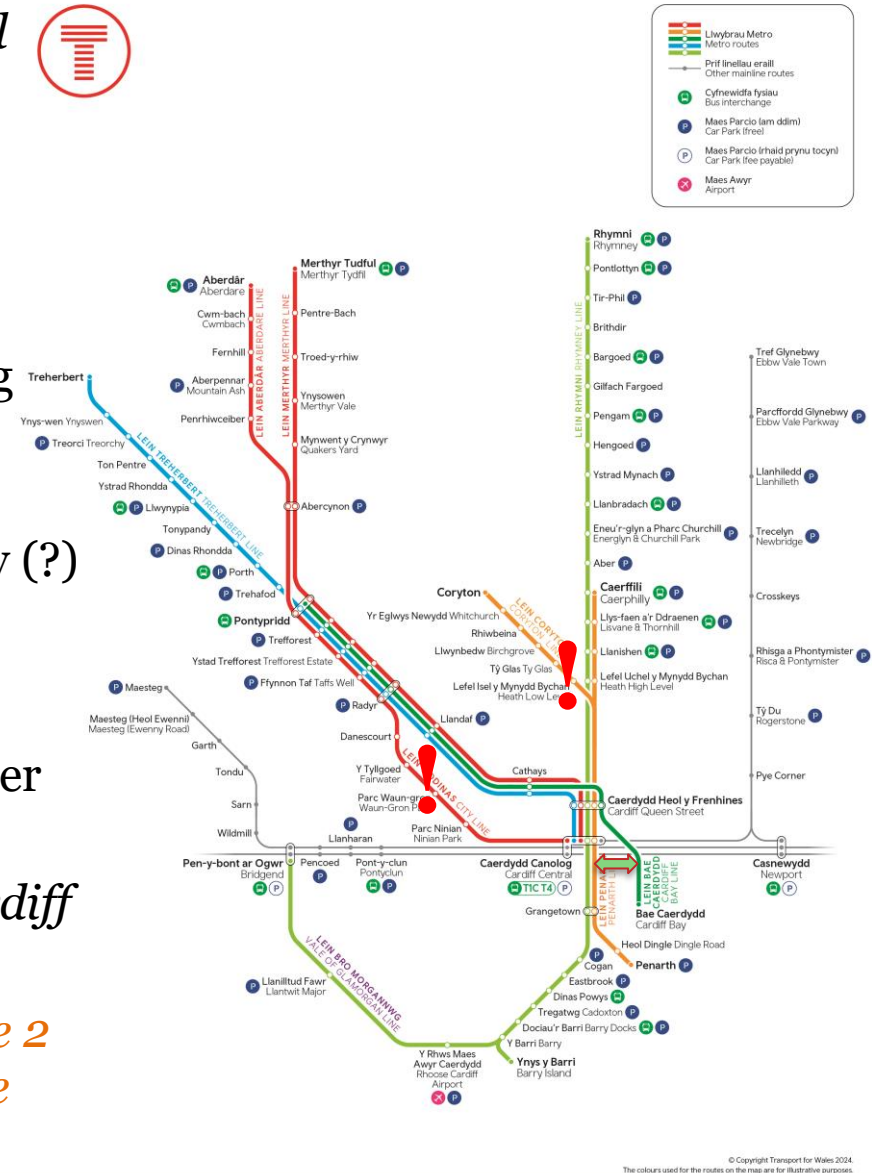
> Beginning to look like a Metro network

> Delineated service patterns

> Info re integration at key stations

> From 2025/6 all new Stadler tram-train and “Flirt” rolling stock will be in operation delivering more capacity and reduced journey times

- 4tph from Treherbert, Merthyr, Aberdare, Rhymney (?)
- 12tph through Pontypridd
- Tramway 6tph to the bay
- New stations at Butetown and Crwys Rd will be under construction
- *Crossrail Phase 1a to connect the bay line directly to Cardiff Central will be under construction* ↔
- *Plans and business case development for Crossrail Phase 2 (to deliver 4tph every where and connect Crossrail to the west at Central will be in progress) !*





# Cardiff Crossrail...Core Phase 1a and related developments

Contracted Bay Line Upgrade; tram-trains operating on “tramway”

New Butetown north station

Crossrail Phase 1a “tramway”

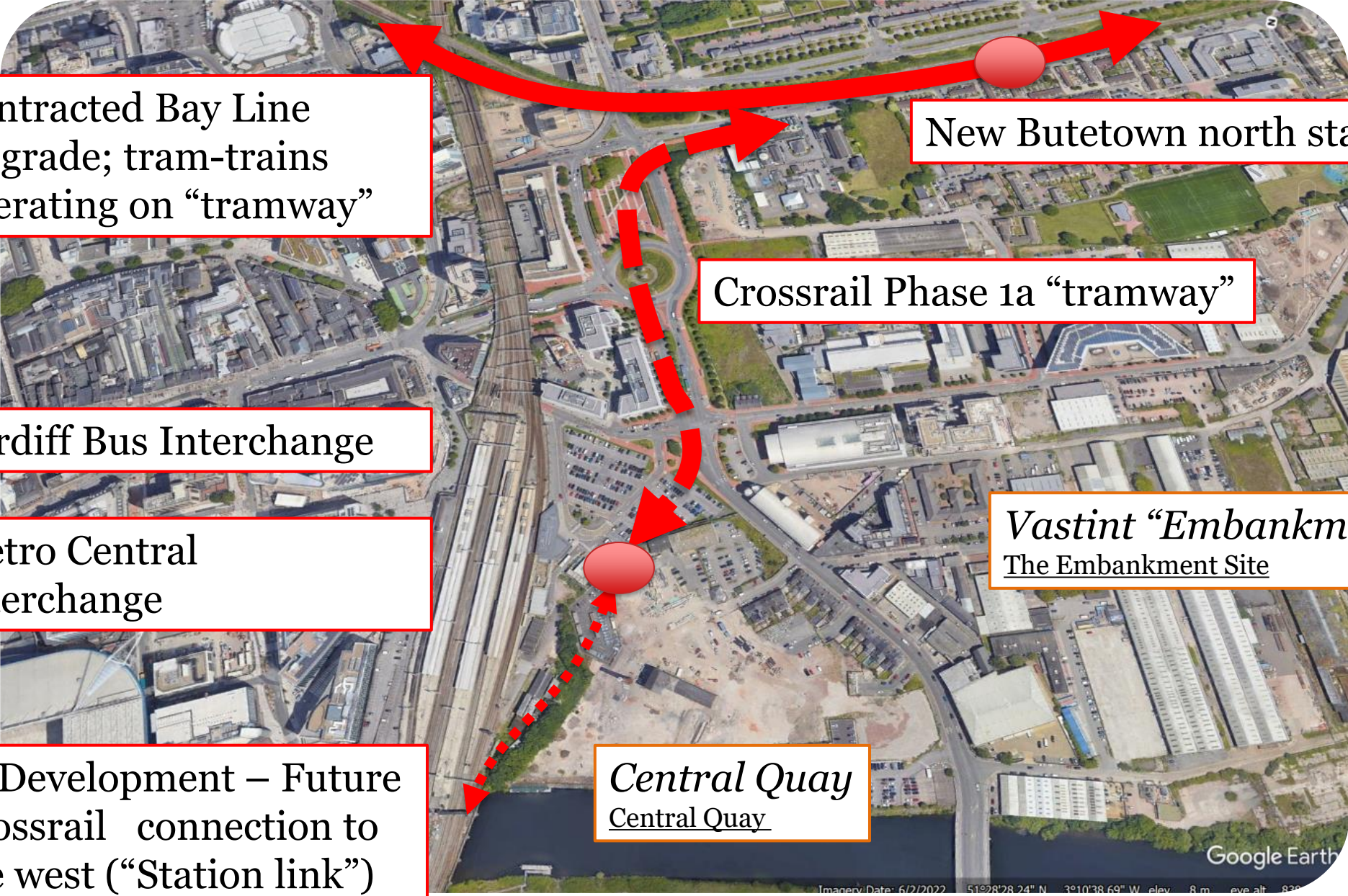
Cardiff Bus Interchange

Metro Central Interchange

*Vastint “Embankment”*  
The Embankment Site

In Development – Future Crossrail connection to the west (“Station link”)

*Central Quay*  
Central Quay









# Metro Future....

*This is the start of journey to 3 times more PT by 2040*

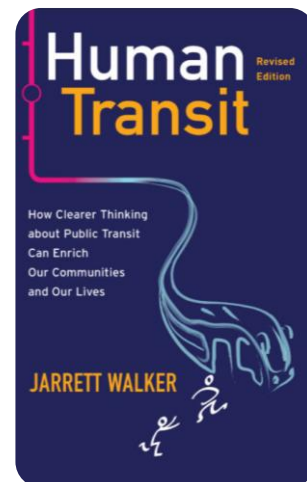
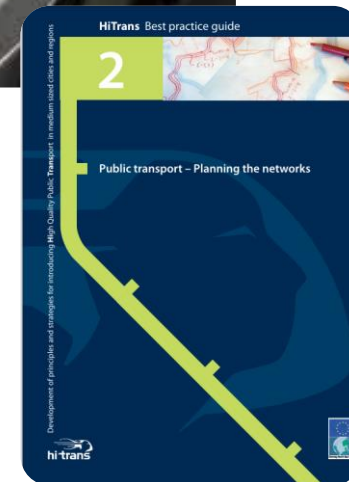
- > Bus Reform & network integration/redesign
- > TfW's Multi-modal capped PAYG - trial now i/p



**Low frequency network**  
A collection of lines that function separately if you are willing to plan your journey in detail. The area you can reach by a simple journey is restricted to those places that are within walking distance from the line that passes the place where you are. Change of lines where they cross each other is not very attractive. Waiting times will often be long, and you will need detailed information about more than one line. Transferring is perceived as a large barrier, and these crossing points are seen as being of little value. In reality, it is misleading to call this collection of lines a network.

**Network with some high frequency lines or sections**  
The service is good along the lines or sections with high frequency. Transfer is more attractive at places with such a service, but only in one direction, towards the high frequency section. The total number of origin-destination combinations that are given a better service is limited. Even very high frequencies on the best sections will not change this general picture.

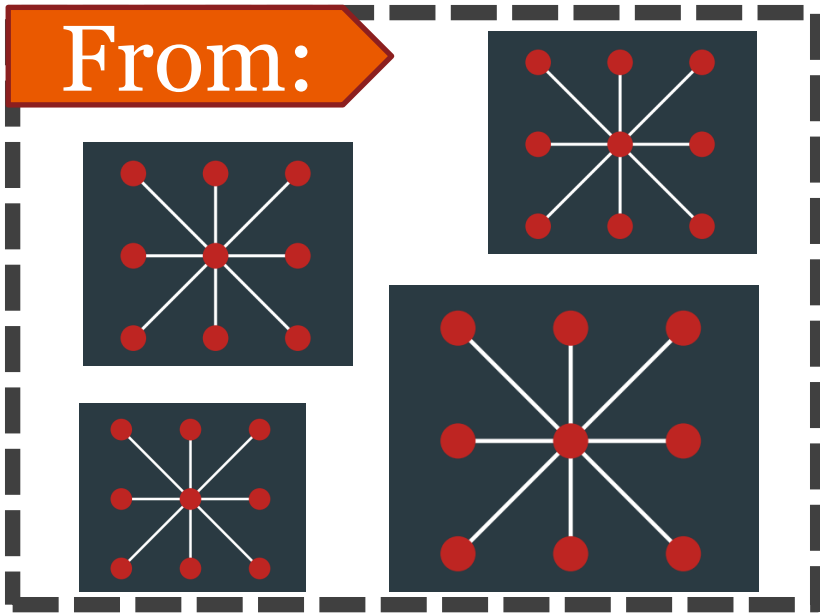
**High frequency network: Network effect**  
When all or many of the lines or sections have high frequency, the network effect is created. The network can be used by the public transport passengers in a similar manner to motorists' use of the road network. You may travel everywhere in the network, almost at the time of your own choice. Instead of being barriers to travel, transfers open up a large number of new travel opportunities. All lines and all modes of transport "feed" each other with traffic and increase each other's market share.



One network, one timetable, one ticket, Welsh Government sets out plans to change the way we travel | GOV.WALES  
[HI-Trans-vol2-planning-the-networks.pdf](#)  
 Human Transit — The professional blog of public transit consultant Jarrett Walker.

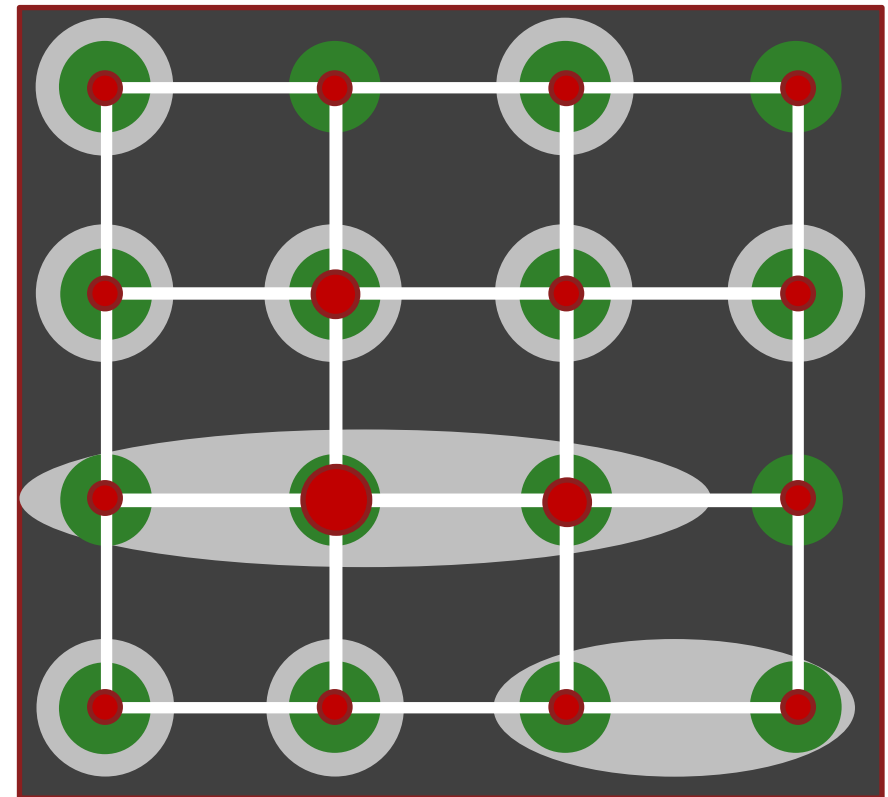
# We need multi-modal, integrated public transport grids

From:



...To a grid of strategic regional rail & bus services integrated (inc fares/tickets) with local bus & active travel *that appears to the passenger as single network, with higher PAX AND lower opex cost per passenger...*

To:



The hubs/interchanges ● become focci for TOD economic development and regeneration

From a collection of suboptimal, inefficient & unconnected, operational rail and bus networks that *don't work for passengers & are costly to operate!*





Remember....

*We can't escape geometry, maths, physics and affordability!*

Q: Demand Responsive Transit (DRT) V Bus V Light Rail V Heavy Rail?

- > Biggest considerations: capex, opex and demand
- > Capex to deliver “segregated operations as much as possible” for high demand corridors
- > In urban areas “turn up and go” of at least 4 services an hour
- > Having existing infrastructure in place helps and reduces capital funding barriers!

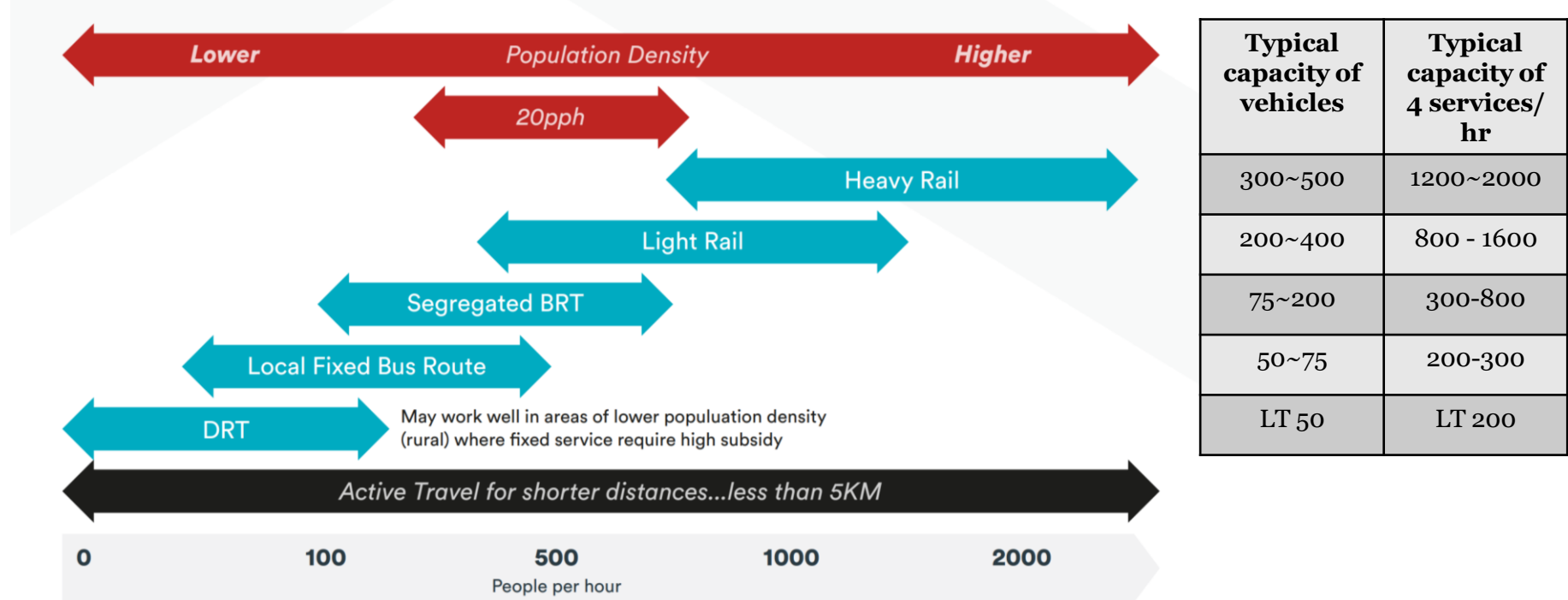
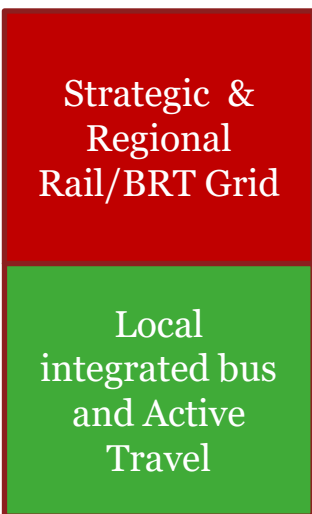


Figure 19 Illustration of most suitable of modes Vs demand and density

# Metro

## *So where is it...?*

### **South Wales Metro hampered by public disbelief as expert claims 'even my mother doesn't believe it'**

The metro project will see huge upgrades to public transport across south-east Wales

SHARE     10 COMMENTS

By [Alex Seabrook](#) Local democracy reporter  
16:12, 8 JAN 2021

**NEWS**



# Stuff is really happening... (2022/23/24!!)



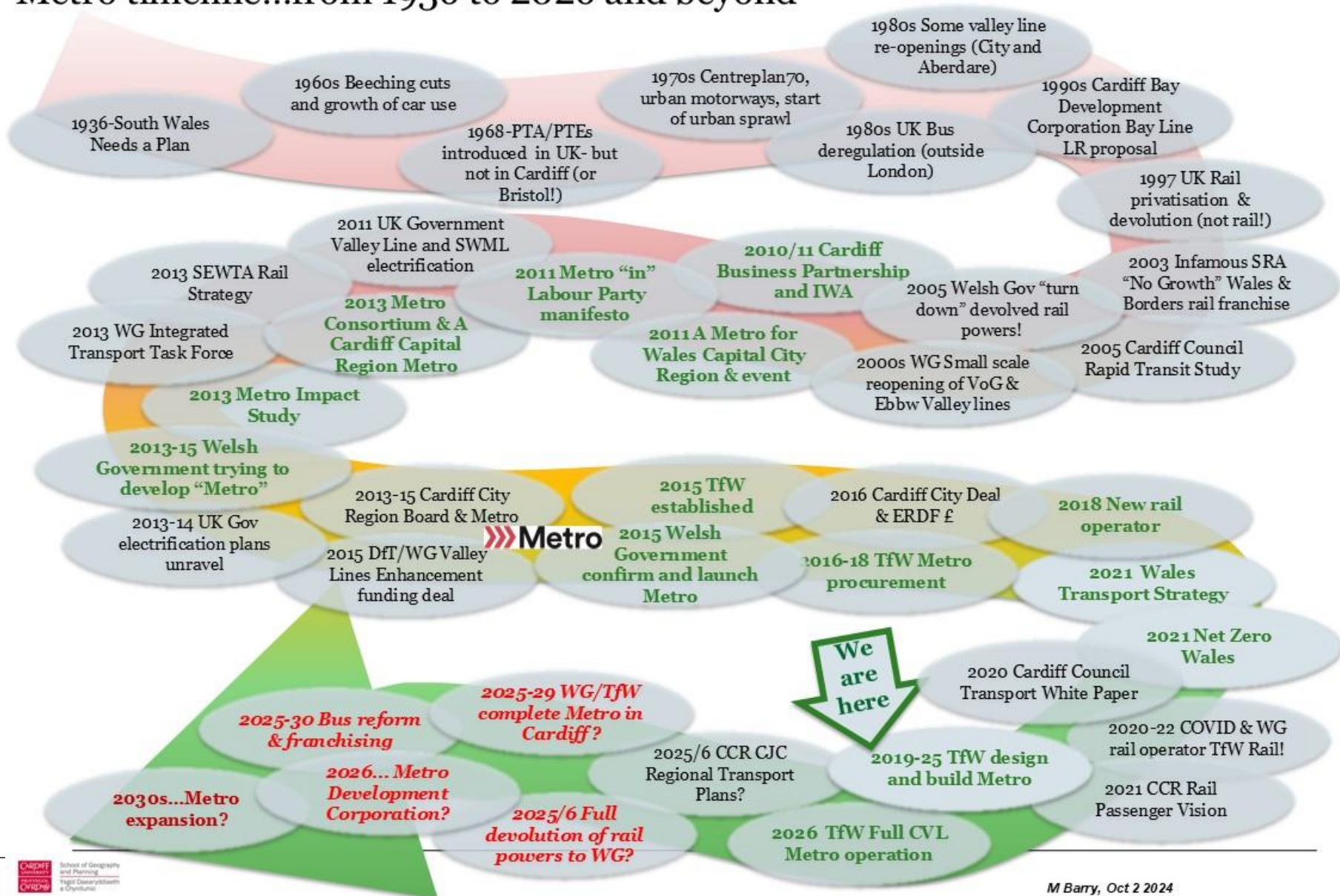
Do you believe in Metro? – Mark Barry (swalesmetroprof.blog)



# How Metro...?

*It's been a collective effort...*

Metro timeline...from 1936 to 2026 and beyond

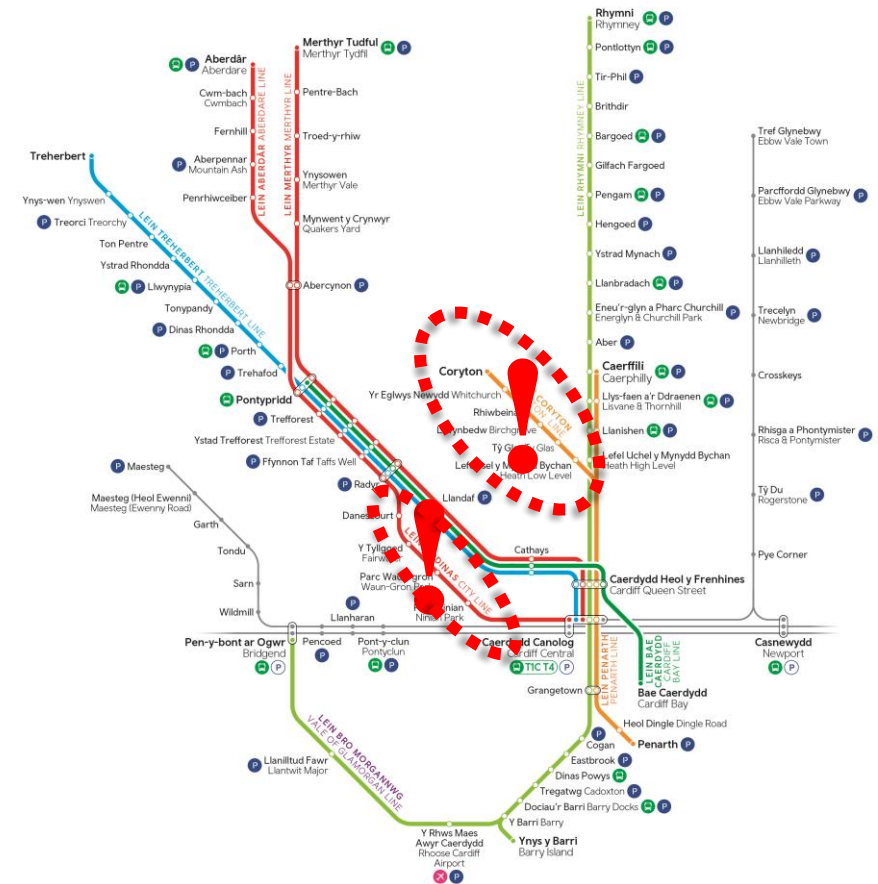
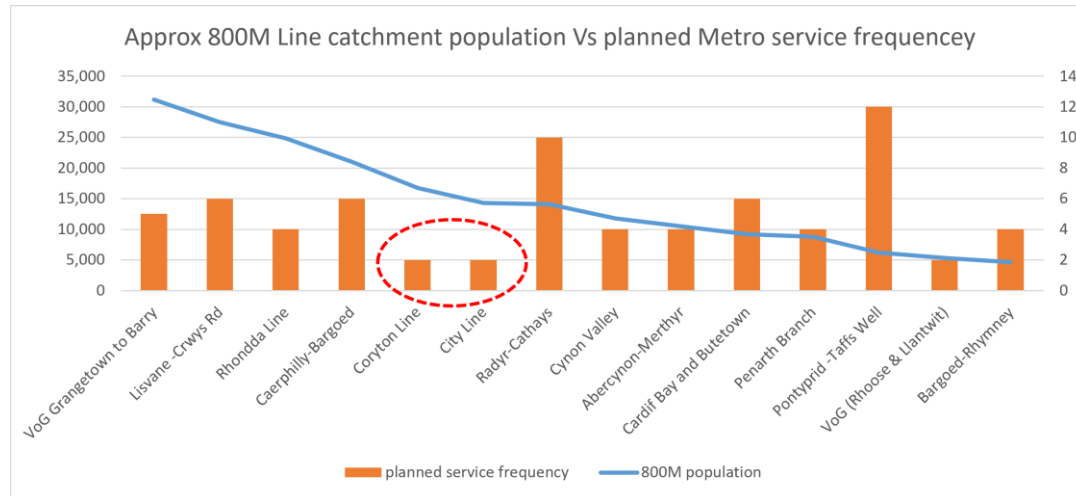




# Major Metro Omission in Cardiff !

## *These need fixing ASAP*

- > Only 3 non city centre stations in Cardiff will see a major uplift in service frequency and capacity
- > The 10 ten stations on the City and Coryton lines will still be only 2tph
- > *“No one waits 30 mins for a 15 min trip”*
- > This is big issue if we want to support more sustainable access to Cardiff City Centre from across the city



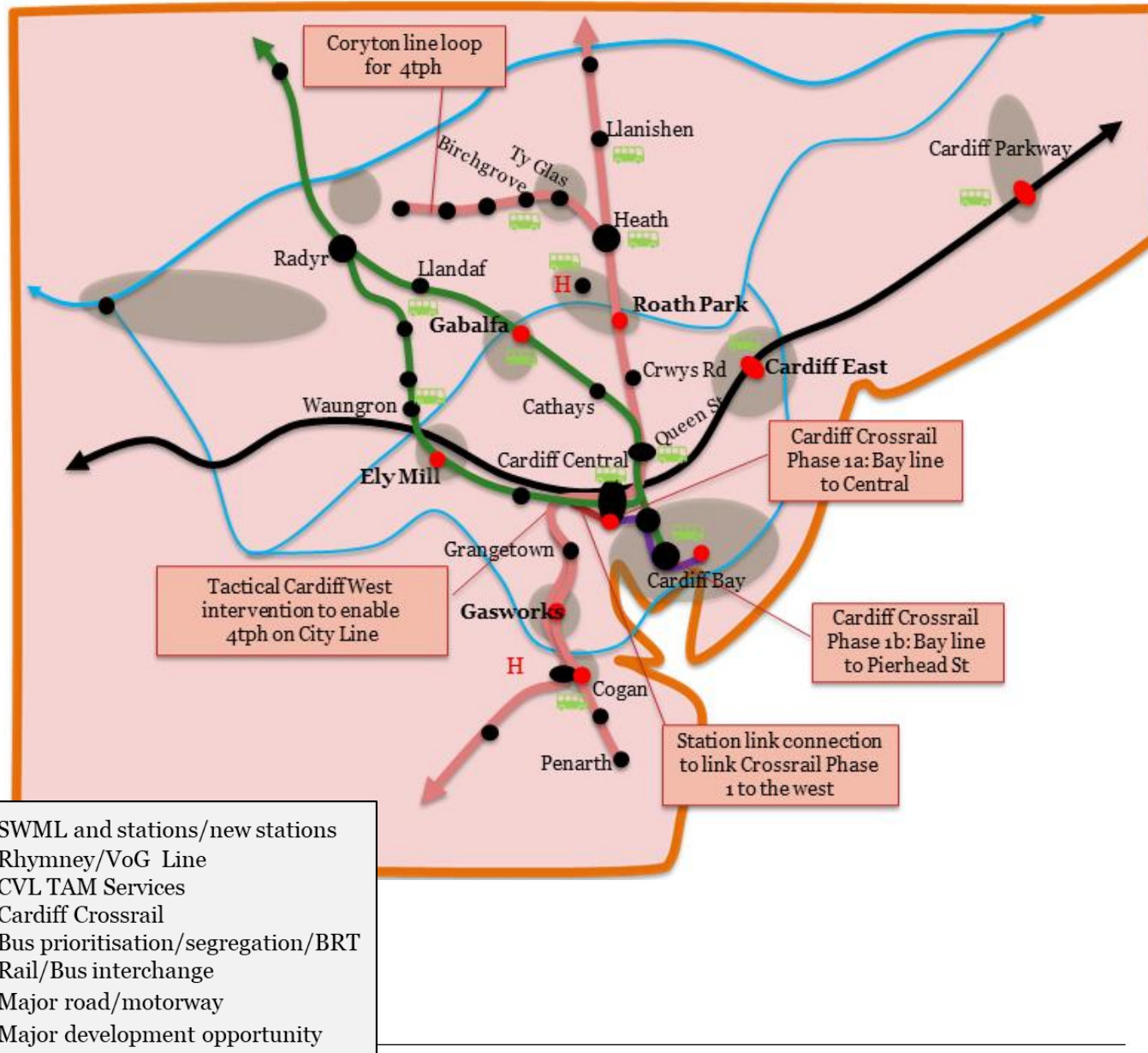
- Lwybrau Metro Metro routes
- Prif freiau eraill Other mainline routes
- Cynewidfa fysiau Bus interchange
- Maes Parcio (am ddim) Car Park (free)
- Maes Parcio (rhaid prynu tocyll) Car Park (fee payable)
- Maes Awyr Airport

***In urban areas, transit systems need to offer “turn up and go” services of at least 4 trams/trains/buses an hour! Metro, subsidies & Cardiff... Some tough choices and compromises? Metro Moans for 2023...***

# Major Metro Omission in Cardiff !

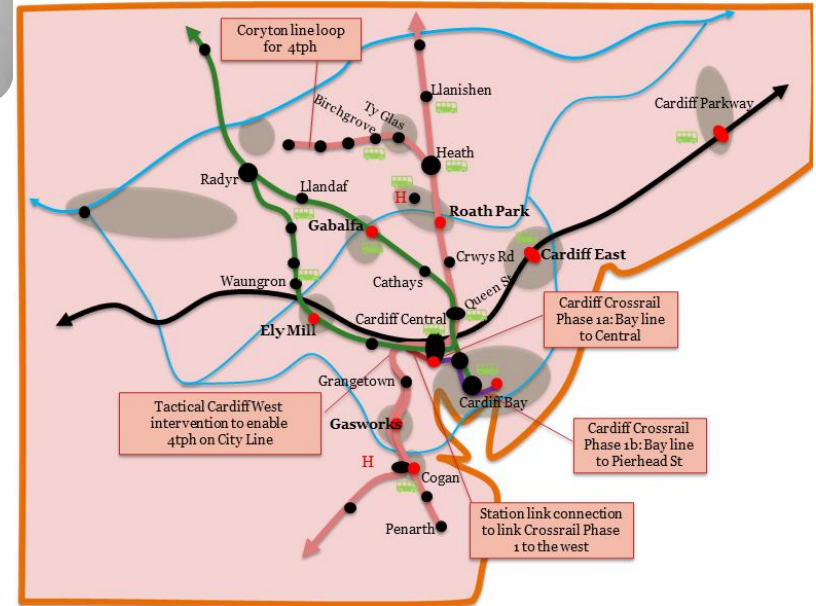
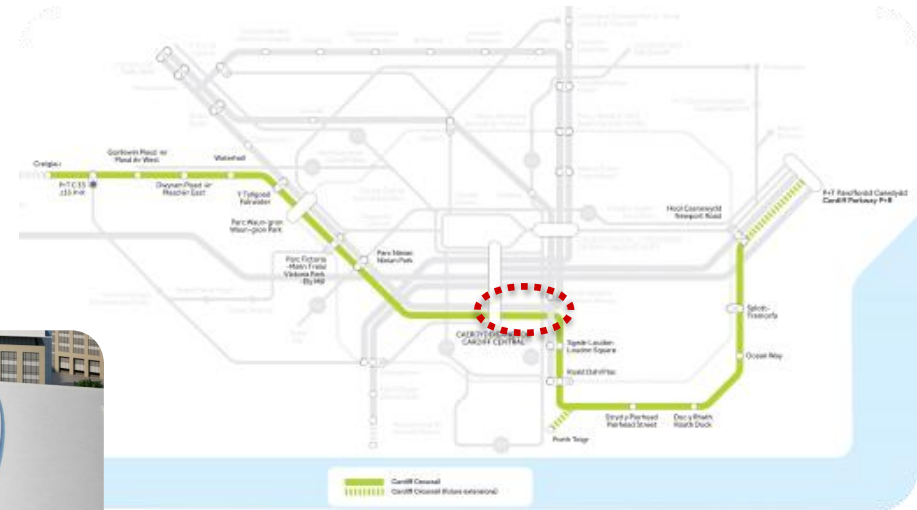
## *We need ASAP – Cardiff Crossrail Phase 1 and 2*

- > Simplified CVL network
- > More PAX, mode shift & carbon reduction
- > More network capacity, resilience and redundancy
- > Reduction in the subsidy
- > Much better utilisation of rail infrastructure in Cardiff
- > Enable bus/rail integration
- > More platform capacity for SWML at Cardiff Central
- > Enhance development & regeneration around the network
- > foundation for further expansion





# Cardiff Crossrail: Core Phase 1a



- > More than just 800m of new tramway between Central & Bay Line
- > Core and essential component of larger full Crossrail scheme....

## Crossrail Phase 2 will

- > Deliver minimum 4tph across all of Cardiff
- > Connect major residential areas with the bay and city centre, via new stations link, major trip attractors like Roath Park and Heath Hospital & open up new development opportunities around existing and new stations (Ely Mill, Gabalfa, Roath Park, Cogan, etc)
- > Provide more overall CVL network capacity, reliability and redundancy
- > Enable future NW corridor extension to RCT...Radyr/Coryton linke and and to Splott/Tremorfa and SWML interchange with SWML at Cardiff East

- In this context Crossrail Phase 2 includes:
- Cardiff West junction enhancement (for 4tph on City Line)
  - Coryton Loop for 4tph
  - CVL service optimisation/simplification
  - New stations (Roath Park, Ely Mill, Gabalfa, Cogan, Gasworks)
  - Station link to connect City line to Crossrail Phase 1

Credit CCC/TfW/The Urbanists: [Cardiff Crossrail | Have your say by Transport for Wales \(tfw.wales\)](#)  
 A Cardiff Crossrail... – Mark Barry (swalesmetroprof.blog)



# Cardiff Core Crossrail – part of city wide scheme

Cardiff Central-Bay-Roath Dock-Rover Way/Newport Rd  
 Provides additional “platforms” at Cardiff Central  
 Another major interchanges with SWML at Rover Way/Newport Rd  
 Multi mixed use development opportunities along entire route  
 Landscaping/community regen along LGA & Tidal Sidings rail corridor  
 Butetown, Splott and Tremorfa Regen opportunities  
 Connects Splott/Tremorfa to Metro network

Future “tram-train” dive under” at Cardiff West to enable GT 4tph on City Line and more services from East of Cardiff to Barry and Airport

Additional capacity on City Line to support more valley line services and extension to Coryton, NW Cardiff and RCT

New dedicated tram-train station for Central as part of Central Quay development

Major urban realm and social regen/development opp at Butetown and along LGA/Bute St

New Pierhead St

Arena development

Major accessibility improvements to Splott and Tremorfa

Major TOD mixed use development in/around new station at Rover Way/Newport Rd

Major mixed use densified development at Ocean Way & Portmanmoor Rd Ind Est

Major mixed use development at Roath Dock/ABP & Porth Teigr

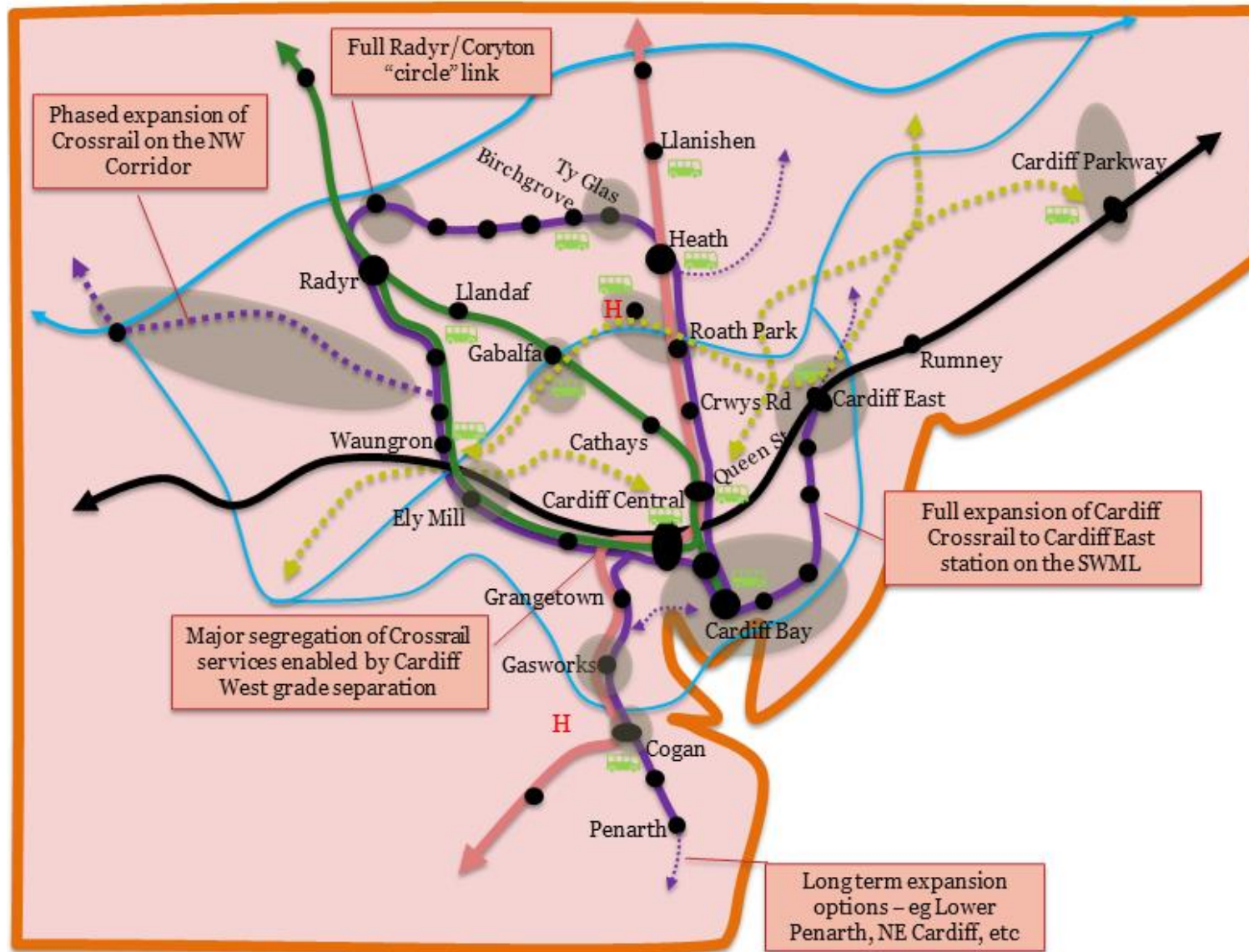
- Existing/committed line/stations
- Potential new lines/stations
- - - Alternate alignments & future options
- Re-use & upgrade of freight lines
- Existing, planned or potential developments
- Greenway/Urban Realm/Community regen

Suggest



# Metro Future - full Crossrail (inc Circle) out to 2040...

## *Can't lose sight of long-term ambition*



## *Full Cardiff Crossrail to 2040...*





# Transit Oriented Development...

## *What is it?*



*Illustration of "TOD" from Institute of Transportation and Development Policy*

[What is TOD? - Institute for Transportation and Development Policy \(itdp.org\)](http://itdp.org)



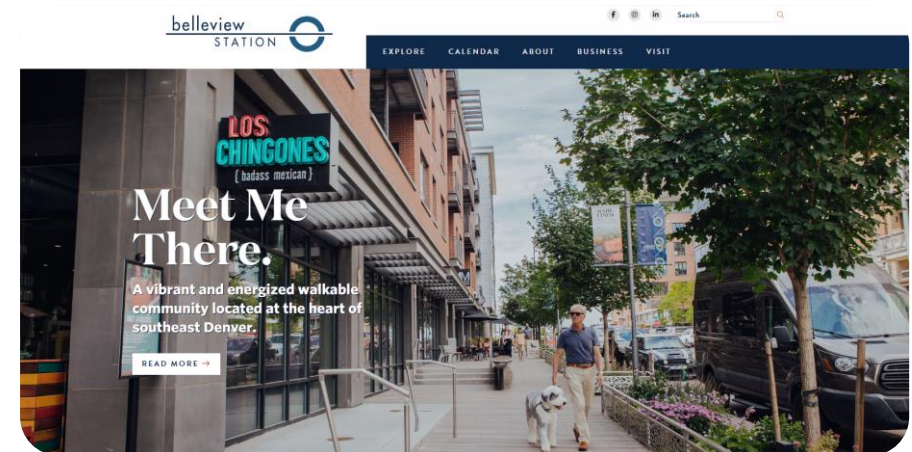
# Lessons for Metro in South Wales... *Transit Oriented Development*

Plenty of examples worldwide...

- > Barcelona
- > Freiburg
- > Denver... beginning to happen  
(eg Belleview in S Denver)



Transit Oriented Development -  
Welcome Message (denvergov.org)  
Belleview Station | Denver, CO



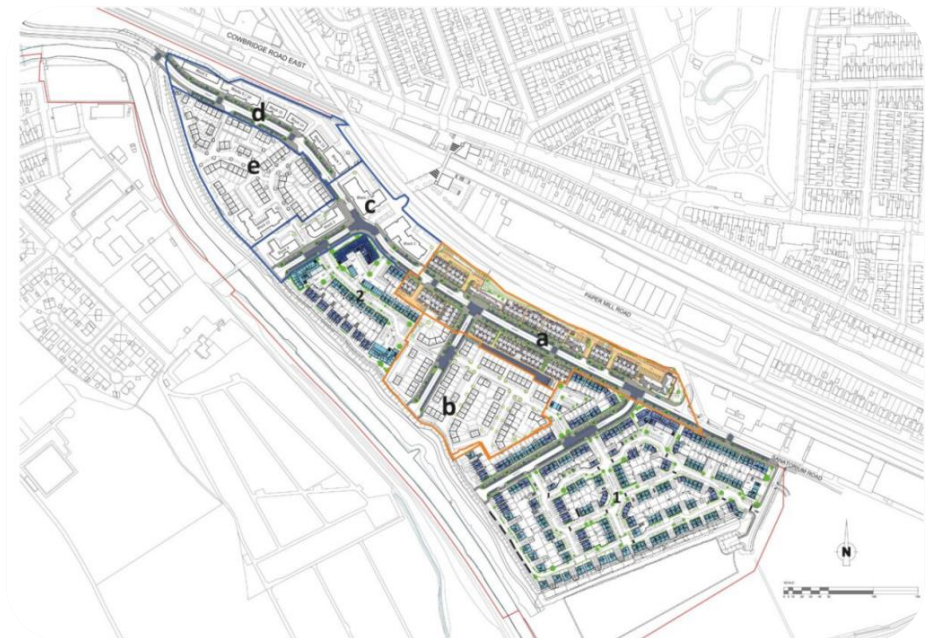
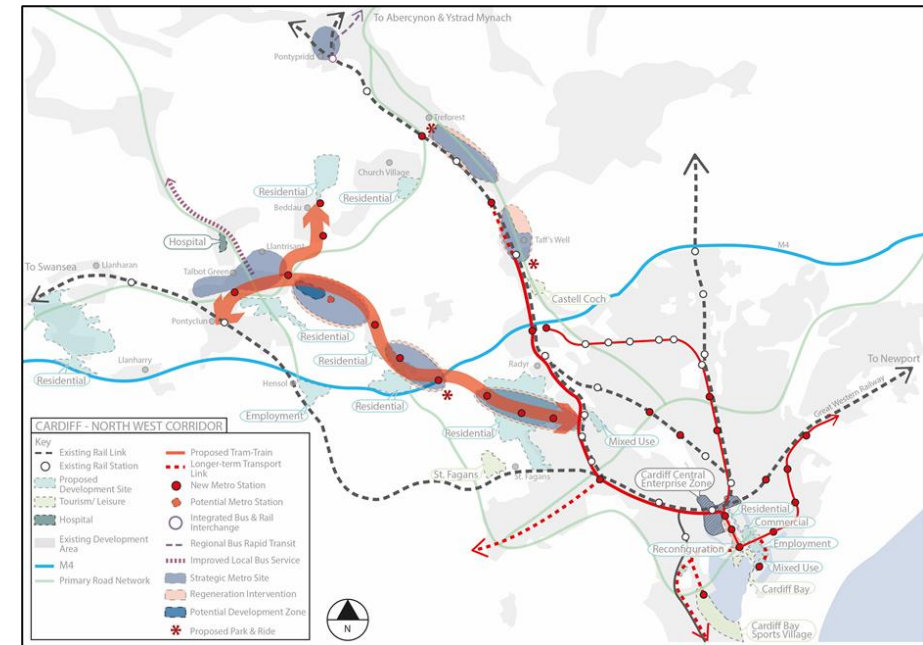


# Lessons for Metro in South Wales...

## *Transit Oriented Development*

We have had some good idea and built some TOD!

- > Ely Mill
- > Vastint – Embankment in Cardiff
- > In future the NW Corridor perhaps?



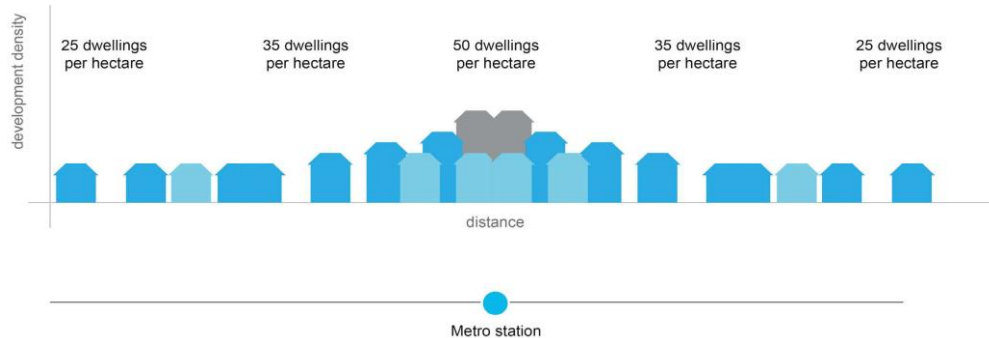
# Metro Transit Oriented Development (TOD)– different scales:

*#1 Station, #2 Local/Around Station, #3 Sub-regional and #4 WEB*



*#1 High quality simple design for Metro stations*

*#2 Placemaking/ masterplanning to ensure stations integrate with their communities; Exploit footfall and commercial opportunities, mixed uses, AT, etc*



*#3 Increase development density around Metro stations/corridors – Transit Oriented Development (TOD)*

Placemaking Charter - Design Commission for Wales (dcfw.org)

*#4 Wider Economic Benefits....*



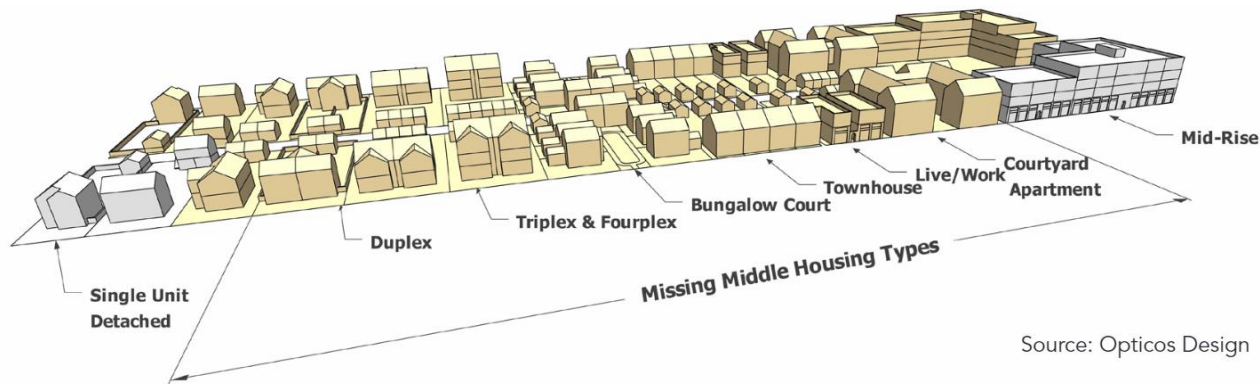


# Metro

## *Transit Oriented Development*

### **Do we need a “Metro Development Corporation?”**

- > To curate transit focussed development & regeneration – esp. around key network hubs in Cardiff as well as across the wider CVL network - Pontypridd, Caerphilly, etc
- > To lead on high street regeneration
- > To work with private sector
- > To provide vision, leadership and delivery capacity



Transit Oriented Development

04

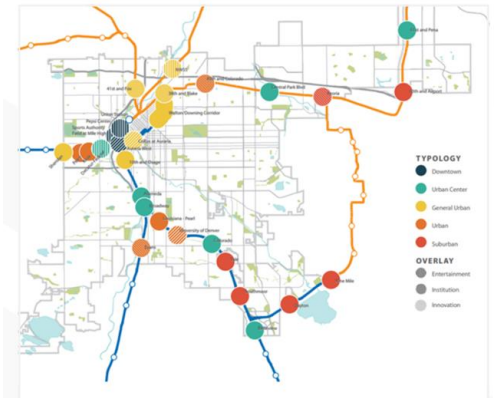




# We need to decide how and where we live and work

## Transit Oriented Development - Tough Choices *esp re decarbonisation!*

### *A good transport plan is a good land use plan!*



OR



> Car based and environmentally damaging sprawl, more CO2, etc

> Higher density living with more PT and AT - focus on town/city centres and repurpose car based edge of/out of town development

*Recent report for WG by Foundational Economy Research re impact of out of town development on town centres viability (inc analysis of Bridgend) adds to growing evidence base as does this Audit Wales report Regenerating Town Centres in Wales (audit.wales)*

Transit Oriented Development in the Cardiff Capital Region #2 – Mark Barry  
 Transit Oriented Development (TOD) in the Cardiff Capital Region (CCR) #3 – Mark Barry  
 Mark Barry, May 2022: Submission to Senedd Climate Change Committee – Mark Barry

Why bother...?

*Climate Change is too big a problem for Wales*

When people say to me...

*“What's the point in doing anything in Wales,  
...just look at China!”*

I reply...

*“Our job is not to change the world...  
...but to show the world how to change”*

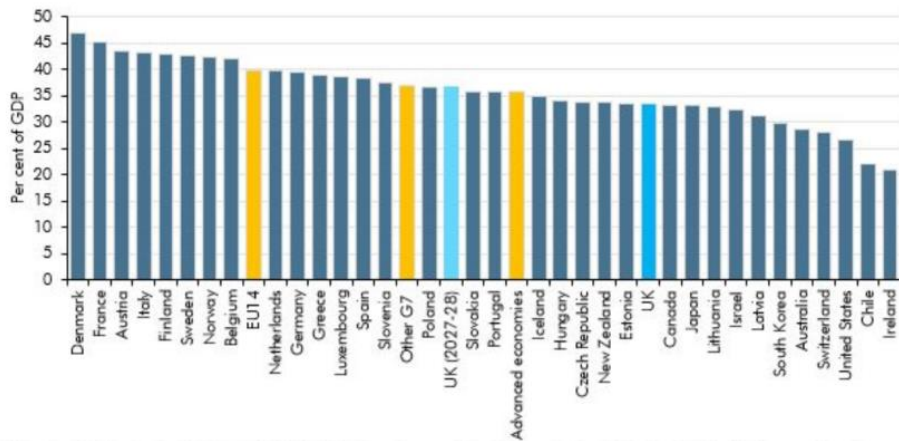


# The UK is in a mess!

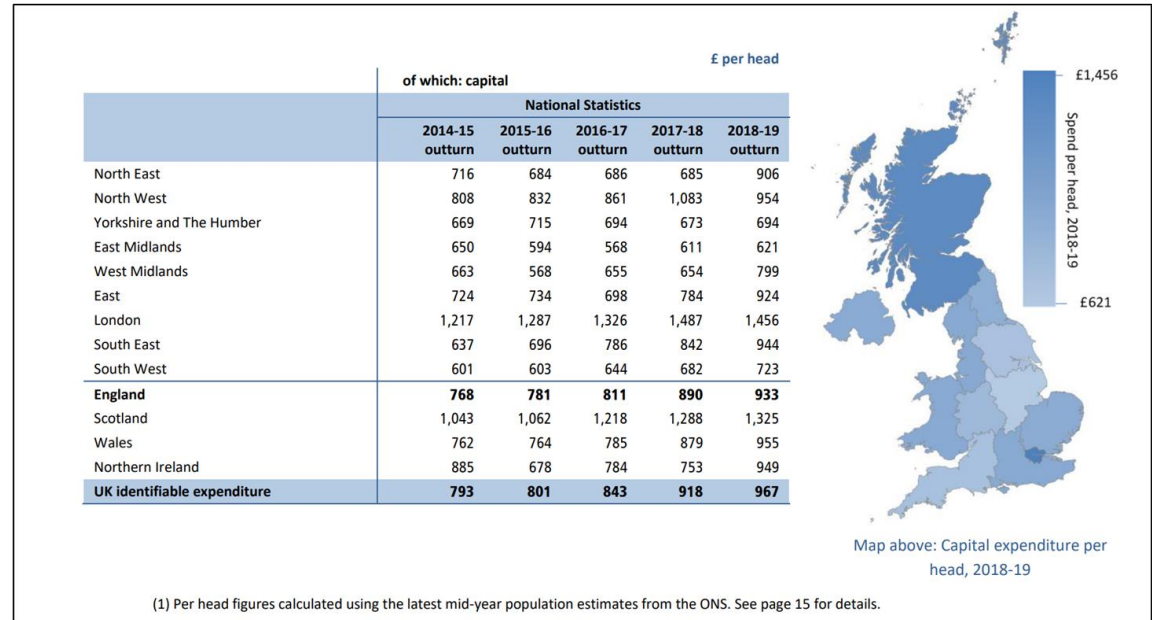
*Levelling up, tax & capital investment*

*& Rail is STILL not devolved!*

Chart A: Tax burdens in the advanced economies in 2021



Note: Implied tax burden for the UK in 2027-28 is based on our latest forecast adjusted for the historical difference in outturn between the ONS and OECD since 2010. 2020 data are used for Japan and Australia.  
Source: OECD, OBR



- > The UK needs to equitably invest in economic infrastructure across the whole UK
- > This has constitutional implications that cannot be ignored – in Leeds, Bristol and Manchester as well as Cardiff and Edinburgh

# The Future...



***Move power, ££ and accountability out of Westminster***



# Bristol

## *My advice....*

- > Develop a “Metro Vision” and don’t get bogged down in detail
- > Focus on the Wider Benefits (inc. WEI), local regeneration, TOD, etc – the transport details will sort themselves out!
- > Find a champion/champions
- > Engage with key stakeholder groups – esp. business community
- > Given constitutional failings and over centralised nature of UK governance, will need “regional” leadership & curation
- > Take a long-term view.....and be prepared to adjust in flight
- > Look at my 2013 Metro Impact Study for Welsh Government

My book

How to build a  **Metro** will be online soon!

# Thank You...



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Ysgol Daearyddiaeth a Chynllunio

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CF10 3WA

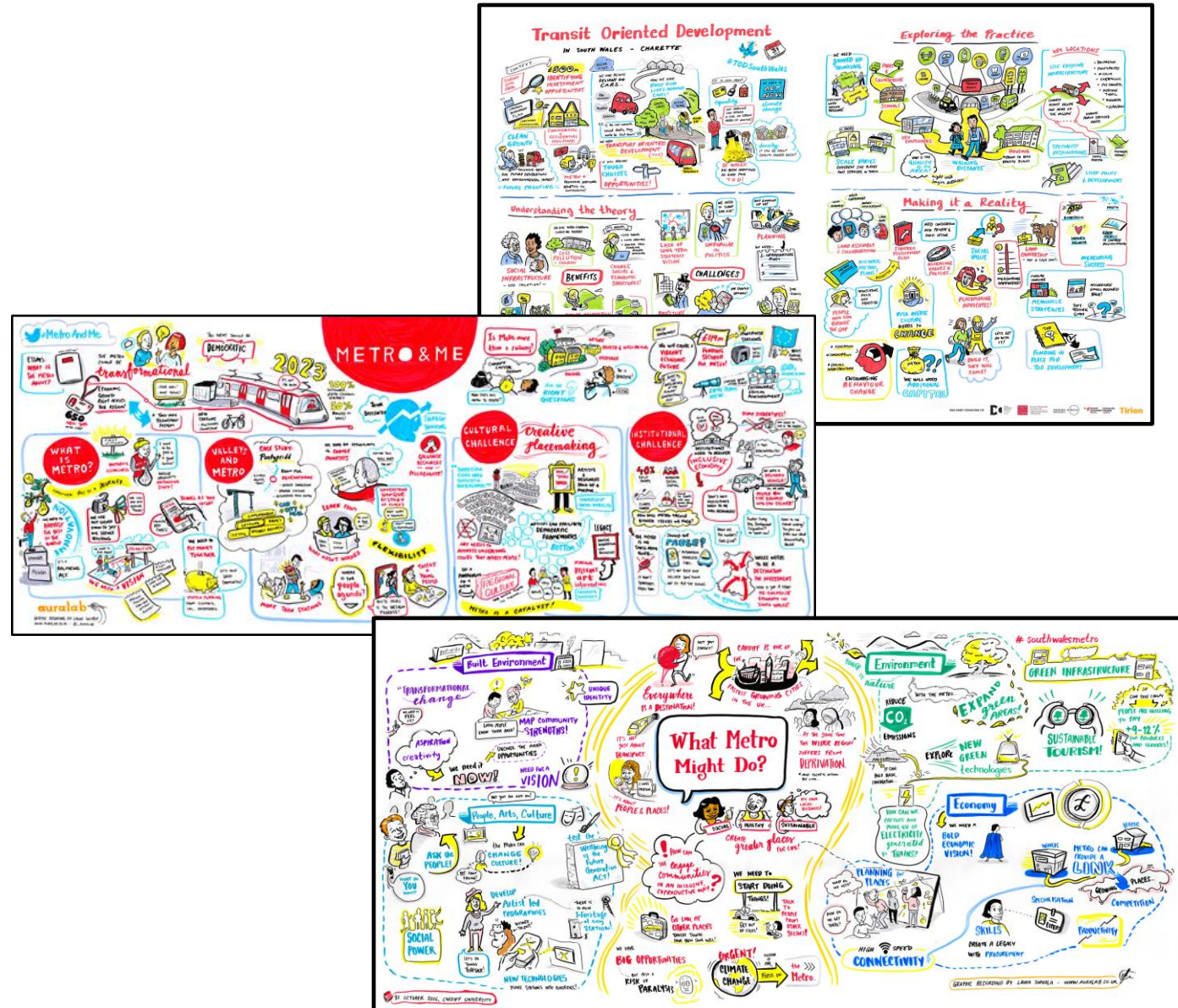
Mob: 07771 893292

Email: [barrym9@cardiff.ac.uk](mailto:barrym9@cardiff.ac.uk)  
[mark@mgbarryconsulting.com](mailto:mark@mgbarryconsulting.com)

<https://swalesmetroprof.blog>  
<https://www.linkedin.com/in/mark-d-barry/>

New “book” available soon...

# How to build a Metro



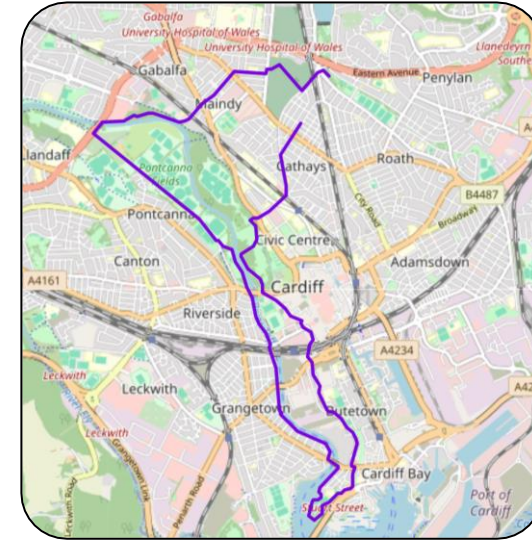


# Thank You...

# JustGiving™



# Lobular breast cancer *uk*



School of Geography  
and Planning

Ysgol Daearyddiaeth  
a Chynllunio

Mark Barry is fundraising for Lobular Breast Cancer UK ([justgiving.com](https://www.justgiving.com))

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