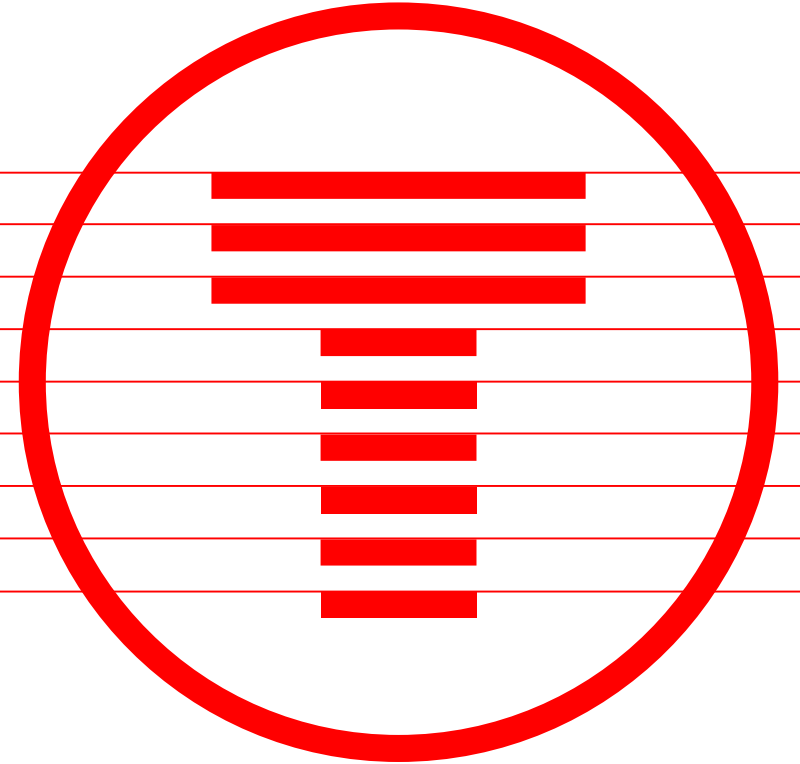
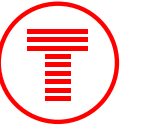


Wales & Borders
Overview of W&B and the South Wales Metro



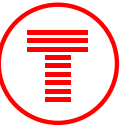
Overview



- Transport for Wales (TfW)
- Wales and Borders Rail Service and South Wales Metro

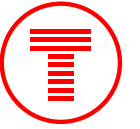
All images shown are for illustrative purposes only

Our Purpose



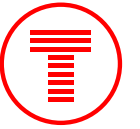
To keep Wales moving by delivering customer-focused services, expert advice and infrastructure investment.

What is Transport for Wales?



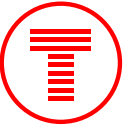
- A not-for-profit, customer-focused company, wholly owned by the Welsh Government
- Helping to drive a step change in how we understand, plan, use and invest in transport in Wales
- A pan-Wales organisation applying local understanding for the benefit of customers
- An expert adviser to the Welsh Government and an advocate for transport-related matters

Our Relationship with the Welsh Government



- The Welsh Government develops policies for transport in Wales
- Transport for Wales provides technical advice and expertise to help the Welsh Government to develop policy
- Transport for Wales is an expert delivery organisation for the Welsh Government
- Everything Transport for Wales does supports Welsh Government policies

Our Strategic Goals

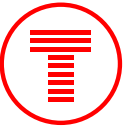


- Improved customer service across transport services in Wales
- Fully integrated/joined-up transport with integrated ticketing – quite difficult with the current deregulated bus market
- Reinvesting operational surpluses in transport
- Serving the whole of Wales
- Developing sustainable skills for service and infrastructure delivery
- Ensuring that communities are properly connected
- Transport modelling and land-use planning
- Improving air quality and decarbonising our transport networks
- Working with the Welsh Government to achieve the objectives of the economic action plan, Prosperity for All

Dialogue Process



OJEU with Pre-Qualification Questionnaire	July 2016
Long-list of qualified bidders	September 2016
Invitation to Participate in Dialogue	October 2016
Bidders submit outline solutions	November 2016
Shortlist of bidders for dialogue	December 2016
Dialogue about requirements and solutions	Jan-Nov 2017
Draft 'Invitation to Submit Final Tenders' (ITSFT)	July 2017
ITSFT	September 2017
Submission of Final Tenders	December 2017
Evaluation and Clarification	Jan-Mar 2018
Contractualisation and Award	Mar-May 2018



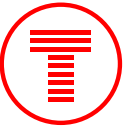
Operator and Development Partner (KeolisAmey)

- **Operator:** Taking over from Arriva Trains Wales as the Train Operating Company (TOC) for all rail services across the whole of Wales and Borders
- **Development Partner:** Developing, managing the implementation, operating and maintaining a 'Central Metro'

Infrastructure Delivery Partners

- **Construction and Civil Engineering** in Core Valley Lines
- STrIDE Framework
- SME contracts via Sell2Wales

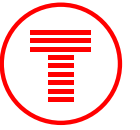




KeolisAmey

- Two successful Joint Ventures:
 - Greater Manchester Metrolink – largest tram system in the UK
 - Docklands Light Railway – 99% reliability record
- Keolis - extensive transport networks in 16 countries:
 - Rail in the UK, US, Netherlands and Germany
 - World's leading light rail operator**
 - World's largest tram network in Melbourne**
- Amey – extensive UK infrastructure management experience:
 - Railways, roads, utilities, airports and transport hubs
 - Already employ 500 people in Wales
 - Contracts with Welsh Government, **Dŵr** Cymru, Isle of Anglesey, Wrexham and Network Rail



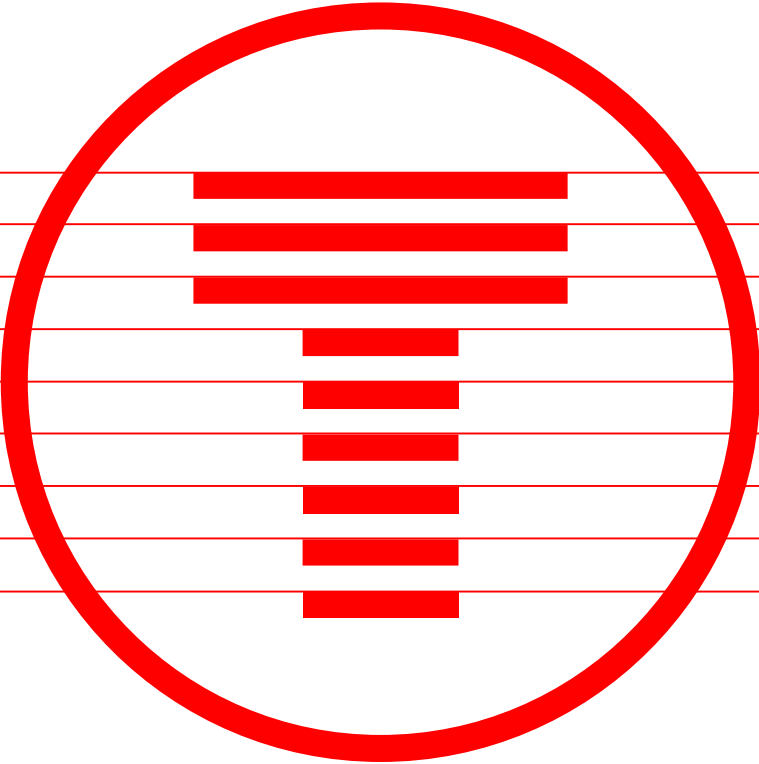


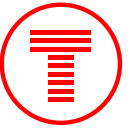
What are the timescales?

- Public announcement of selected bidder – 23rd May 2018
- Contract signature – 4th June 2018
- “Preliminary Design & Discovery” phase commencement – June 2018
- TOC handover from ATW – 14th October 2018
- Asset transfer from NR – September 2019



Wales and Cross Borders
Rolling stock and timetables

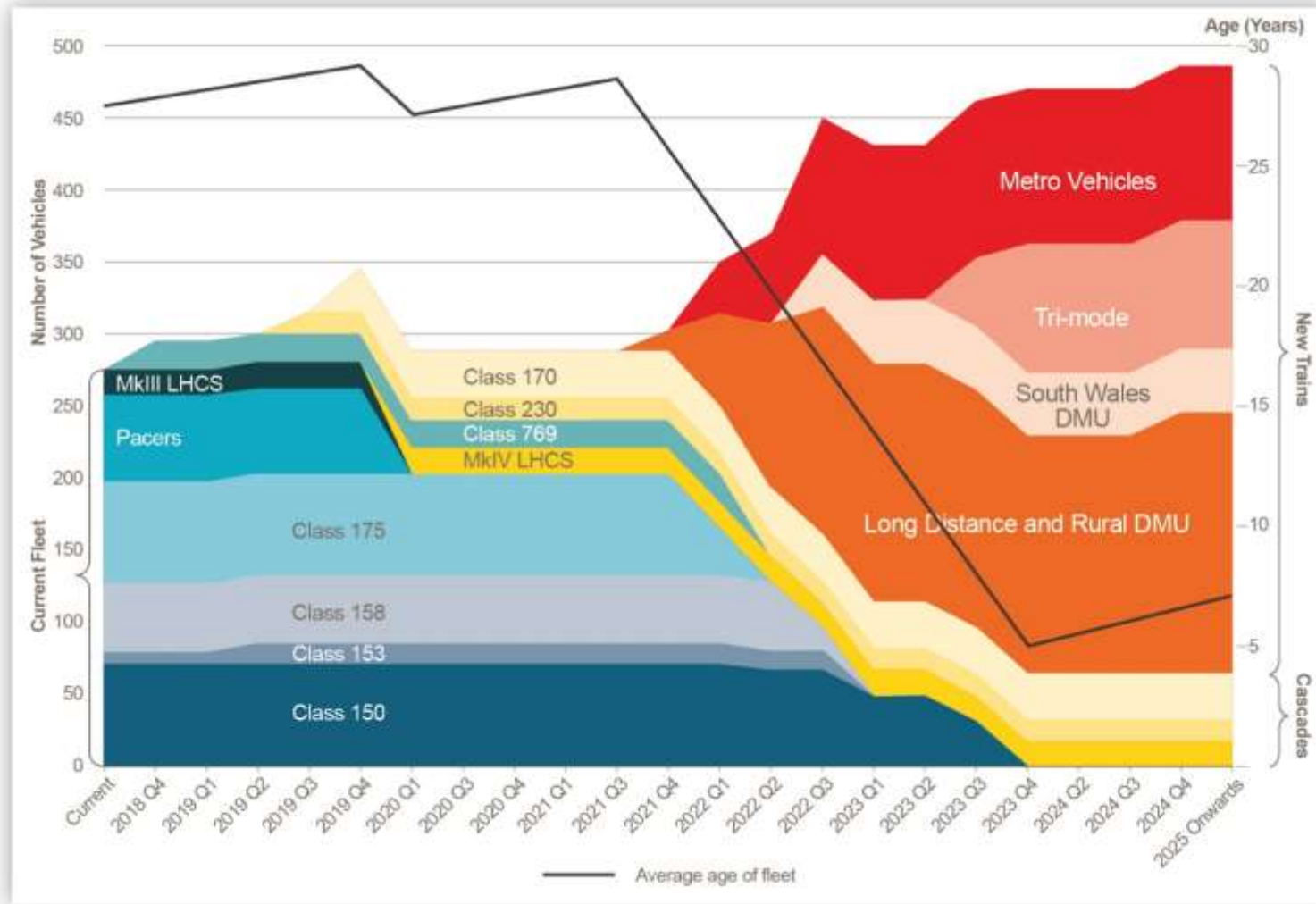
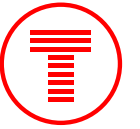




- Transformation across Wales, not just the Metro area
- Every train in Wales will be replaced, through an £800m investment
- **95% of journeys will be made on brand new trains**
- More than 50% of those to be **assembled in Wales**



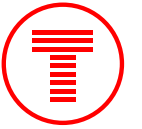
Rolling Stock Strategy and Average Age



The fleet average age will drop from 25 years today, to 7 by 2023



New trains summary - over 50% will be assembled in Wales



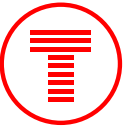
Requirement	Fleet Solution	Units	Depot
W&B	Rural and Suburban	CAF Civity DMU 51 x 2car 26 x 3car	Chester and Machynlleth
	South Wales Metro	Stadler Flirt DEMU 11 x 4car	Cardiff Canton
Central Metro	Rhymney Valley	Stadler Flirt Tri-mode MU 7 x 3car 17 x 4car	Cardiff Canton
	Treherbert, Aberdare and Merthyr Tydfil	Stadler Citylink Metro Vehicles 36 x 3car	MV depot



Significant cascades - summary



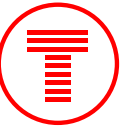
Area	Solution	Units	Depot
Extra capacity valley lines	Introduce Class 769s, converted from class 319s ex Thameslink	5 x 4 car (option for 4 more units)	Cardiff Canton
Rural routes in West Wales	Cascade Class 153s from GWR from May 2019	5 x 1 car	Cardiff Canton
South Wales metro lines e.g. Ebbw Vale/Maesteg	Cascade Class 170s from Greater Anglia – entering service from late 2019	8 x 3 car, 4 x 2 car	Cardiff Canton
North Wales Metro	Completely rebuild and refurbish Vivarail Class 230s. Battery assistance (hybrid)	5 x 3 car	Wrexham/Chester
North - South Wales Express services	Mark IV carriages ex LNER replace Mark IIIs Dec 19	3 x 4 coach sets + DVT	Cardiff Canton



- We will increase capacity by 65%
- We will establish the railway as a true 7-day service. New Sunday services will begin in 2019 with an immediate a 22% increase in Sunday mileage



Wales & Cross Borders Service Changes



Wrexham – Bidston (Dec 2021): Increase from 1tph to 2tph, 1tph of which will be a limited stop

Chester – Liverpool Lime St. (Dec 2018): New route. 1tph calling at Liverpool South Parkway, Runcorn then all stations

General changes:

- Dec 2019: Earlier trains and more frequent services on Sundays
- May 2023: Further increase in Sunday journeys on WCB routes
- December 2024: 2tph on all CVL routes on Sundays

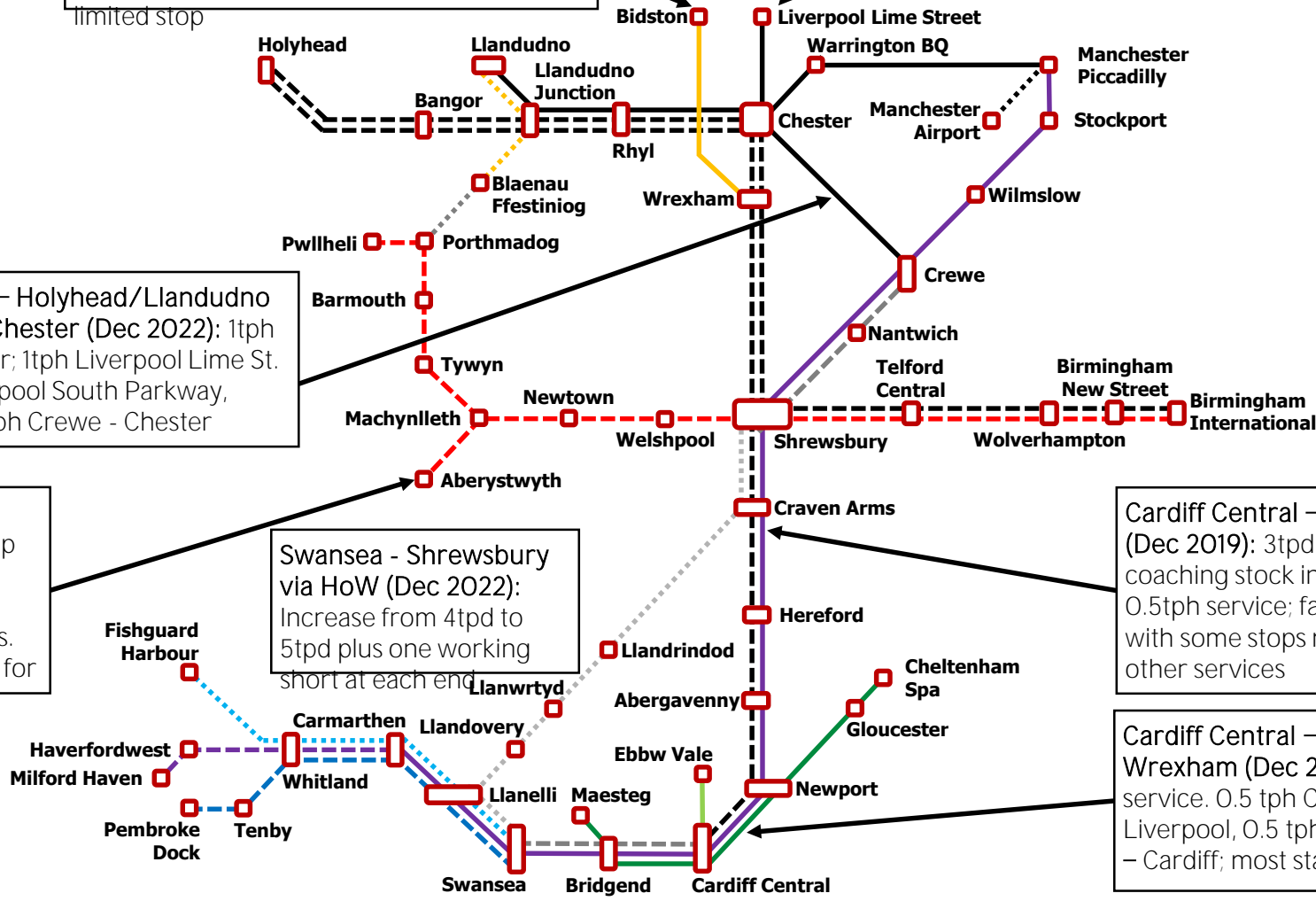
Crewe/Liverpool Lime St. – Holyhead/Llandudno and Manchester Airport - Chester (Dec 2022): 1tph Manchester Airport – Bangor; 1tph Liverpool Lime St. – Llandudno (calling at Liverpool South Parkway, Runcorn then all stations); 1tph Crewe - Chester

Aberystwyth - Shrewsbury (Dec 2022): All trains will stop at Bow Street from 2020. Sstrengthening of service to 1tph in all hours, at all stations. This is something long called for by stakeholders

Swansea - Shrewsbury via HoW (Dec 2022): Increase from 4tpd to 5tpd plus one working short at each end

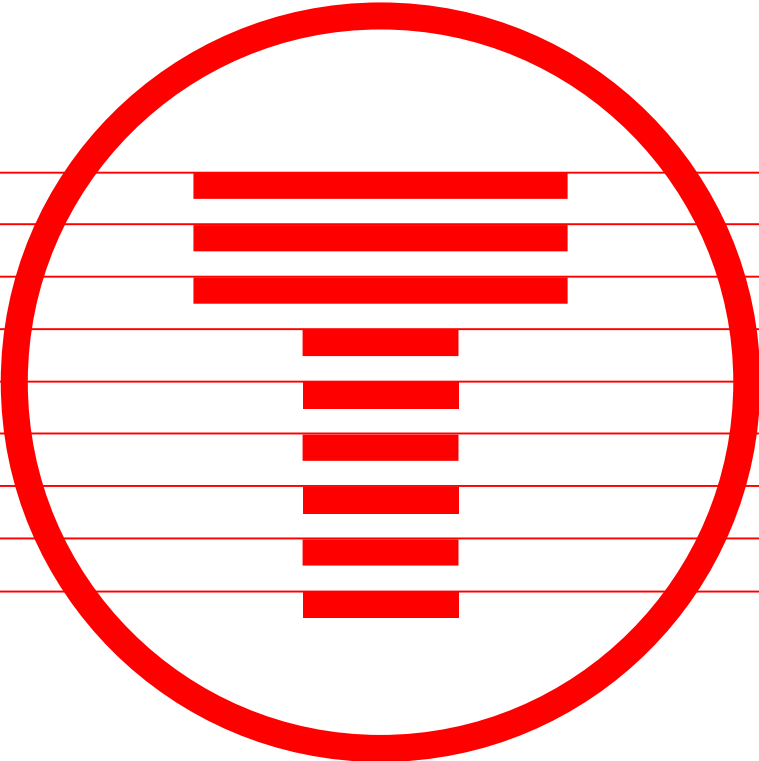
Cardiff Central – Holyhead (Dec 2019): 3tpd Loco-hauled coaching stock included in 0.5tph service; faster journeys with some stops moved into other services

Cardiff Central – Liverpool via Wrexham (Dec 2022): New service. 0.5 tph Cardiff – Liverpool, 0.5 tph Shrewsbury – Cardiff; most stations



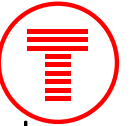
Note - due to scale this is a simplified map and some stations are therefore not shown.

And we're not finished there!





Rolling out Digital Rail - Traffic Management for the Central Metro and more of Wales (Newport to Shrewsbury)



We will invest nearly £200m in improvement works across all rail services stations, in addition to the CVL transformation programme, including:

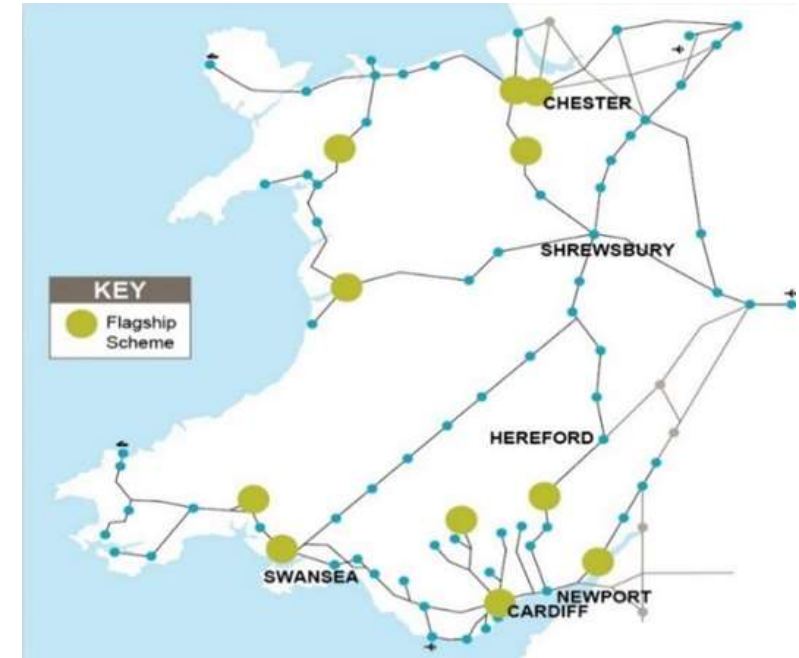
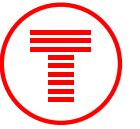
- £40m to upgrade and enhance station facilities including; waiting rooms, shelters, toilets, customer information screens, digital information screens and monitored CCTV to all stations
- £20m to improve the station catering and retail offer
- £15m to improve accessibility and provide step free access
- £15m to provide 1,500 new parking spaces
- £10m fund to provide community space at stations
- £15m for new ticket machines, Smart Ticketing equipment and new gatelines
- £10m to provide free wi-fi at all stations
- Covered cycle storage at all stations
- A dedicated Art and Green fund
- Plus flagship schemes (see over)



Flagship station investments

Flagship schemes at:

- Chester: Concourse / interchange, car park, masterplan
- Shotton: Integrate high and low-level stations, interchange
- Llanelli: Improve environment / placemaking
- Wrexham General: Multi-modal interchange
- Abergavenny: Key Disability Wales pilot station for accessibility and inclusive design
- Blaenau Ffestiniog: Co-funding of new station building, as part of local partnership and economic masterplan to support the Conwy Valley Line and the Ffestiniog Railway
- Carmarthen: Pedestrian routes, cycle zone and tourism
- Chepstow: Facilities for tourists and coach/bus interchange
- Machynlleth: Pilot station to trial dementia friendly design features
- Merthyr Tydfil: Hub facilities for Active Travel



Note - due to scale this is a simplified map and some stations are therefore not shown.

Masterplan for Cardiff Central with £15m contribution from ODP

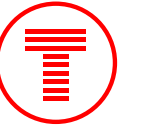




On-board infotainment
across the network
from 2022

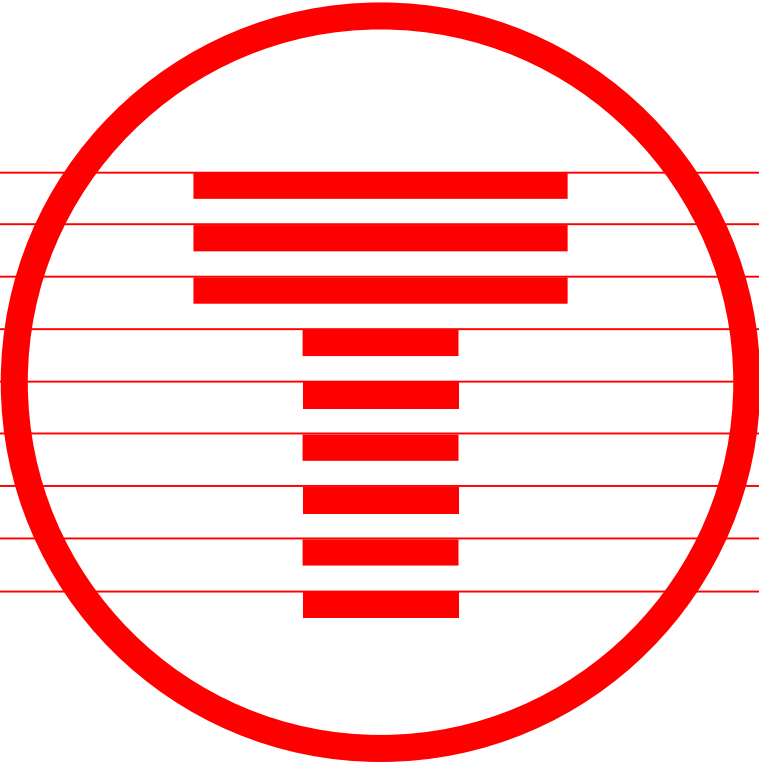
A North Wales metro with fully refurbished metro trains for Wrexham-Bidston



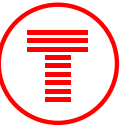


Over 600 new jobs
directly created
plus 450 apprenticeships

South Wales Metro



What is Metro?



Heavy Rail



Bus



Interchanges



Bus Rapid Transit

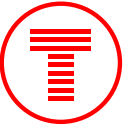


Light Rail



Active Travel

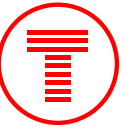




What is the South Wales Metro and what is Central Metro?

- **South Wales Metro** includes the full set of local services around South East Wales:
 - This includes what is currently known as the ‘Valley Lines’, plus services between Cardiff and Ebbw Vale, Maesteg and extending to Severn Tunnel Junction and beyond.
- **Central Metro** refers to the sub-set of the South Wales Metro train services which run from Treherbert, Aberdare, Merthyr Tydfil, Radyr, Rhymney and Coryton, through Queen Street to Cardiff Bay, Cardiff Central, Penarth, Barry Island and Bridgend.
- The **Central Metro** solution avoids the need to change trains to cross Cardiff and integrates the City Line, Penarth, Barry Island and Bridgend with the portions of the Valley Lines which transfer from NR.

Current ATW Service Pattern (Valley Lines)
Weekday peak and off-peak service pattern

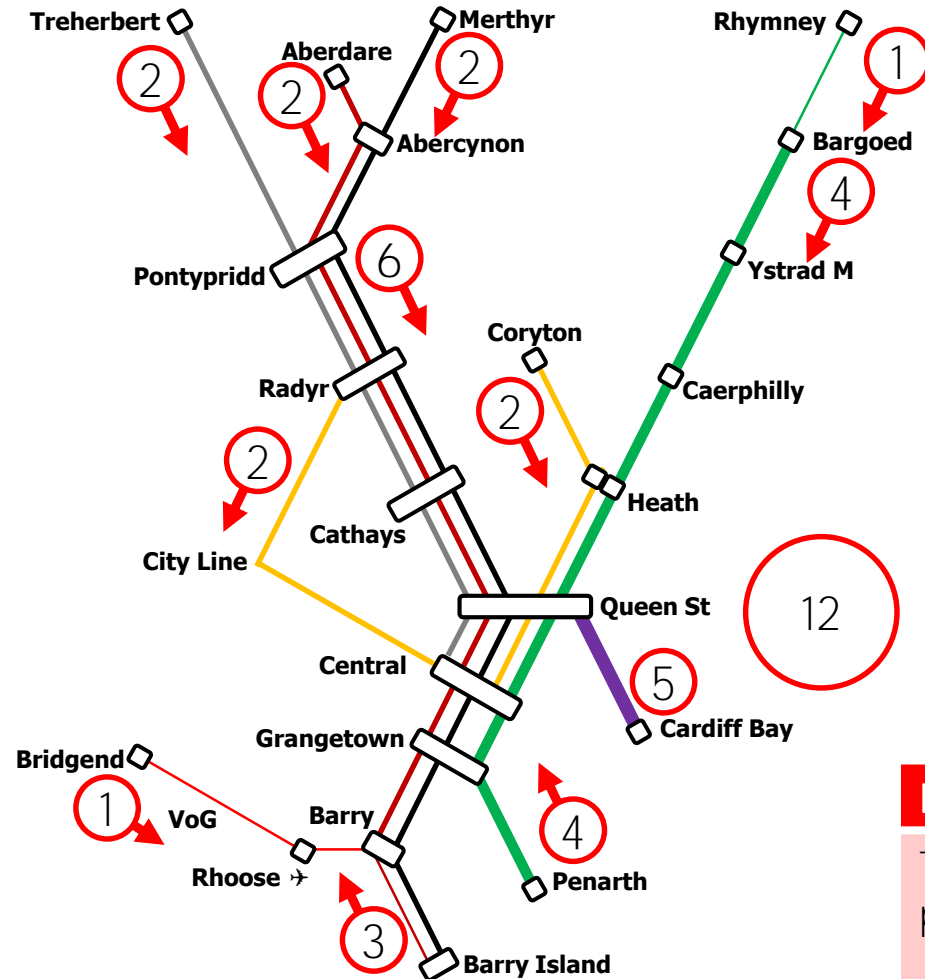


Key features

Trains to Bridgend originate at Merthyr but trains from Bridgend run to Aberdare

Some exceptions to the pattern to facilitate freight and peak strengthening of services

Services are linked across Cardiff – to minimise reversing moves at Central and Queen Street



Key

Trains per hour 

Note - due to scale this is a simplified map and some stations are therefore not shown.

December 2023 solution for Central Metro

Monday to Saturday all-day service pattern



Customer Impacts

Maintains all existing connections to Queen Street and Central

Service pattern easy to understand

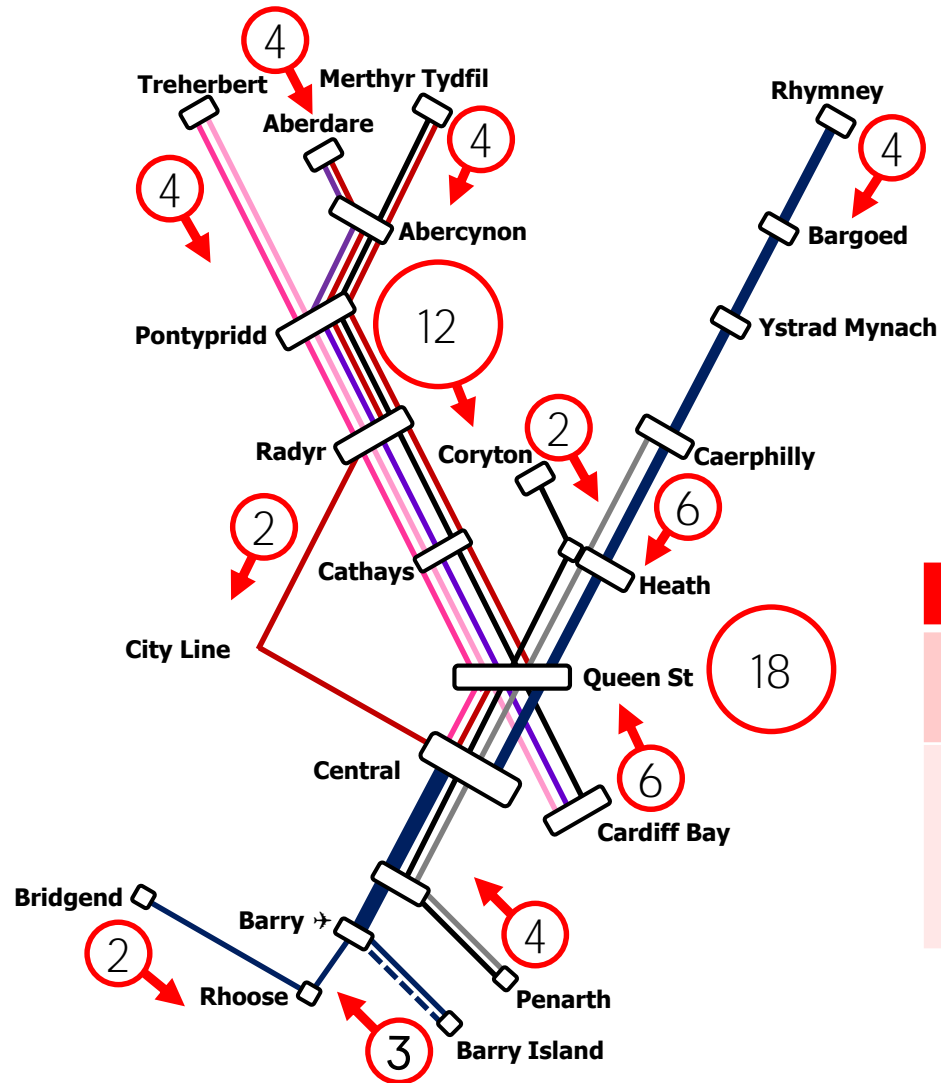
Most frequencies even in the hour 'clockface' (e.g. 00-15-30-45 past)

Key

- = 2tph (MV)
- = 2tph (Tri)
- = 3tph (Tri)
- = 4tph (Tri)
- = 5tph (Tri)

Key

trains per hour



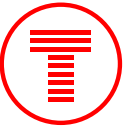
Notes

VoG, Barry, Penarth and City Line integrated into Central Metro solution

2tph from Pontypridd 'divert' via City Line but don't terminate at Central i.e. Aberdare – City Line – Central – Merthyr

Note - due to scale this is a simplified map and some stations are therefore not shown.

December 2023 improvement on current timetable
Monday to Saturday all-day service pattern

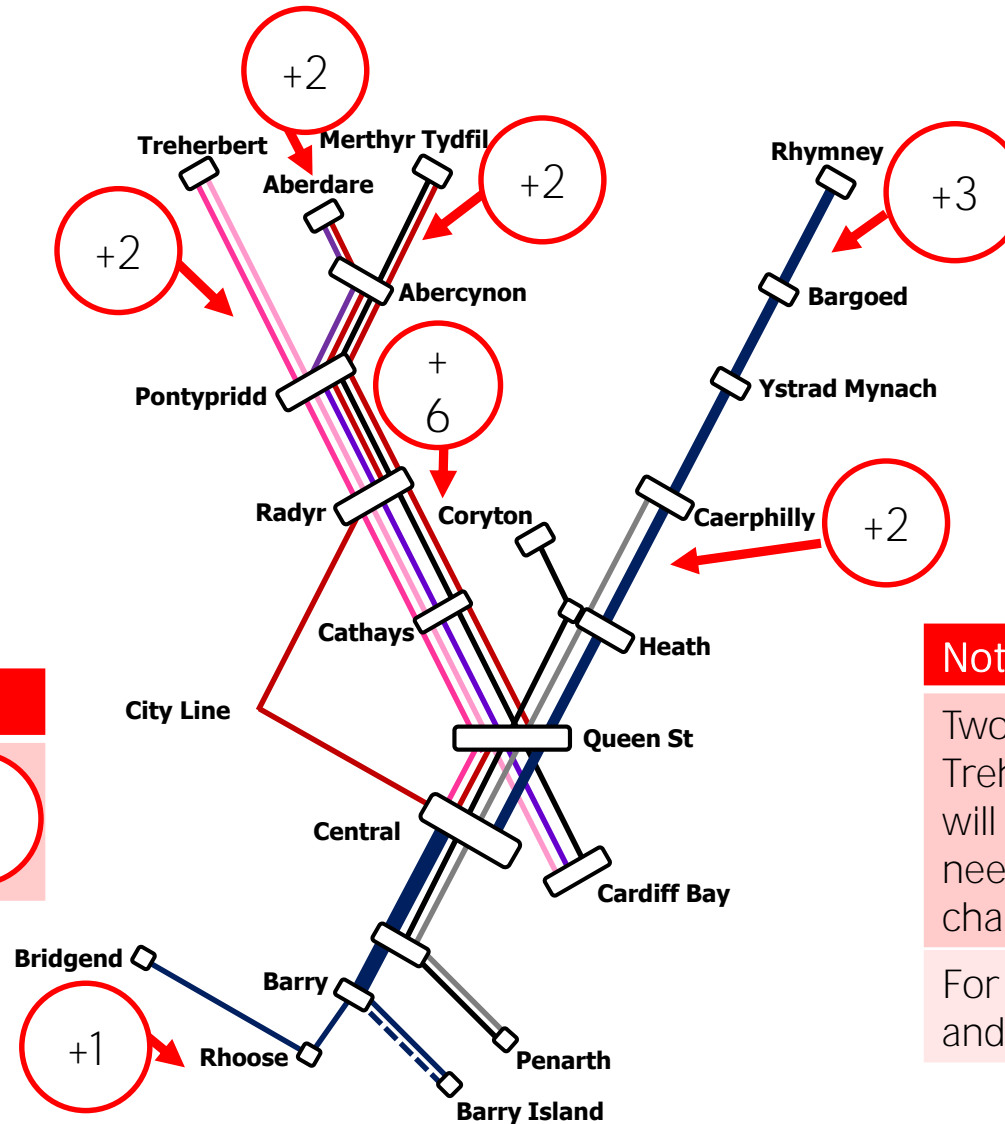


Customer Impacts

Doubling of frequency for Treherbert, Aberdare and Merthyr Tydfil

An additional 3tph running to and from Rhymney

An additional service every hour on the Vale of Glamorgan



Key

- = 2tph (MV)
- = 2tph (Tri)
- = 3tph (Tri)
- = 4tph (Tri)
- = 5tph (Tri)

Key

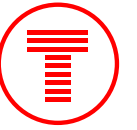
Increase in trains per hour

Notes

Two of four services per hour from Treherbert, Aberdare and Merthyr Tydfil will run directly to Cardiff Bay, removing the need for passengers on these lines to change trains

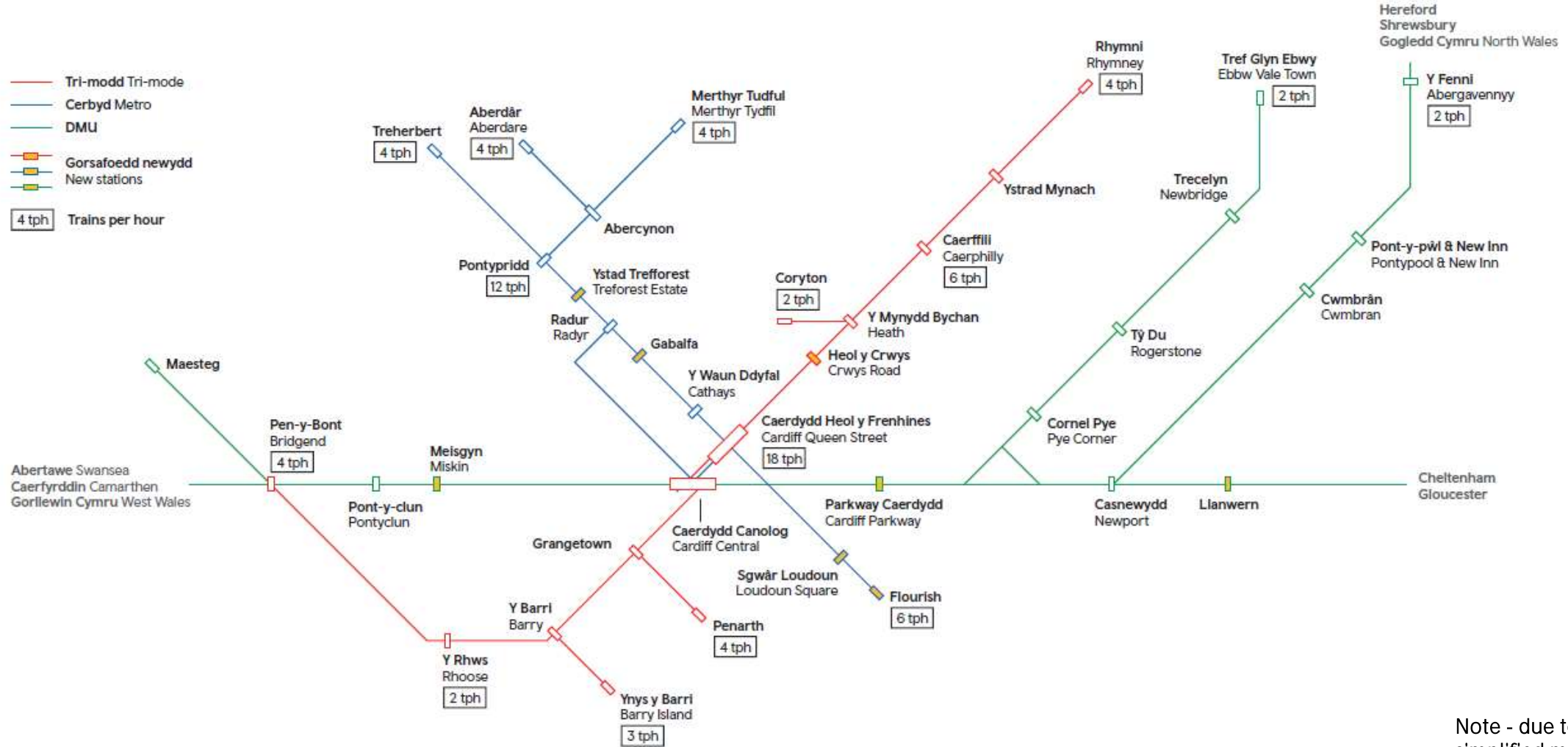
For Dec 2024, Bay line extended to Flourish and new station opened at Loudoun Square

Note - due to scale this is a simplified map and some stations are therefore not shown.



Metro De Cymru (rheilffordd) erbyn 2023

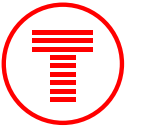
South Wales Metro (rail) by 2023



Note - due to scale this is a simplified map and some stations are therefore not shown.

What this means for passengers

A really big change in frequency, journey time and capacity

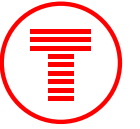


Journey	Trains per hour now	2023 Trains per hour	Journey time now (mins)	2023 Journey time (mins)	2019 AM peak capacity	2023 AM peak capacity	% change
Treherbert > Queen St	2	4	57	46	1206	2570	+113%
Aberdare > Queen St	2	4	57	43	1516	2056	+36%
Merthyr Tydfil > Queen St	2	4	56	44	1326	2313	+74%
Treherbert > Bay	-	2	72 inc. change	50 (direct)	-	-	-
Aberdare > Bay	-	2	72 inc. change	47 (direct)	-	-	-
Merthyr Tydfil > Bay	-	2	71 inc. change	48 (direct)	-	-	-
Pontypridd > Queen St	6	12	26	22	4048	6939	+71%
Rhymney > Central	1	4	61	48	2542	3495	+37%
Caerphilly > Central	4	6	19	16	2542	4452	+75%
Coryton > Central	2	2	18	20 (extra stop)	603	957	+59%
Penarth > Central	4	4	12	11	1856	1914	+3%
Barry > Central	4	5	24	23	2094	2857	+36%

TRAINS PER HOUR IS THE STANDARD WEEKDAY DAYTIME PATTERN. AM PEAK MEASURED 07:30 – 08:59. EXTRA STOP IS AT CRWYS ROAD.

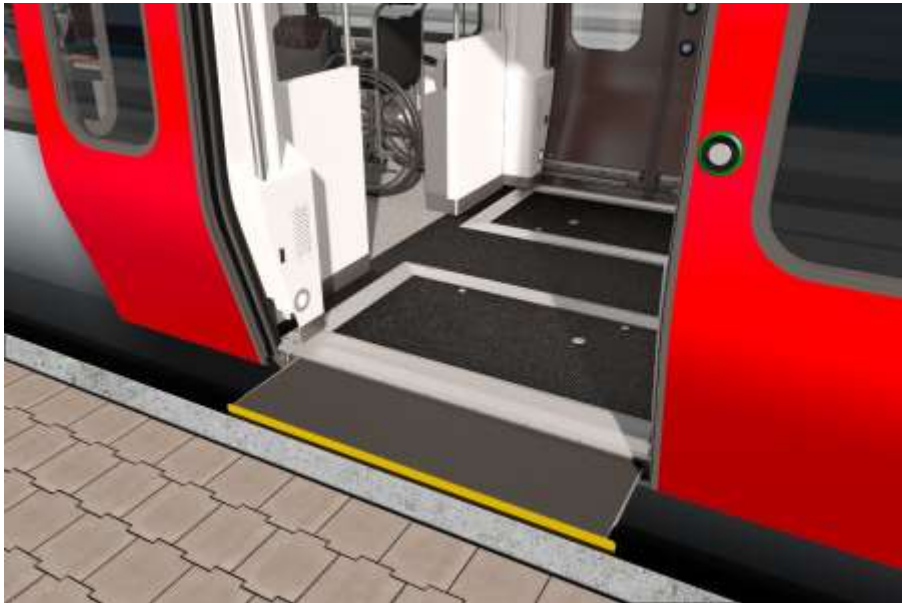
Metro Vehicles terminating at the new Flourish station

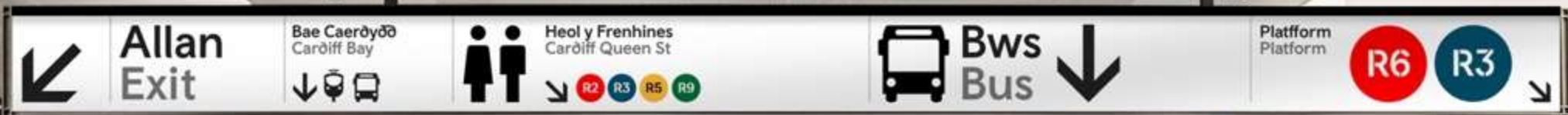




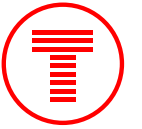
Stations

- Delivery of new stations at Crwys Road, Gabalfa, and Cardiff Bay will provide rail access for currently disconnected communities
- Relocation of Treforest Estate station much closer to Nantgarw, with a new bridge over the River Taff
- Level boarding – no step from platform to train throughout the South Wales metro area





Easy to understand, integrated transport signage rolled out

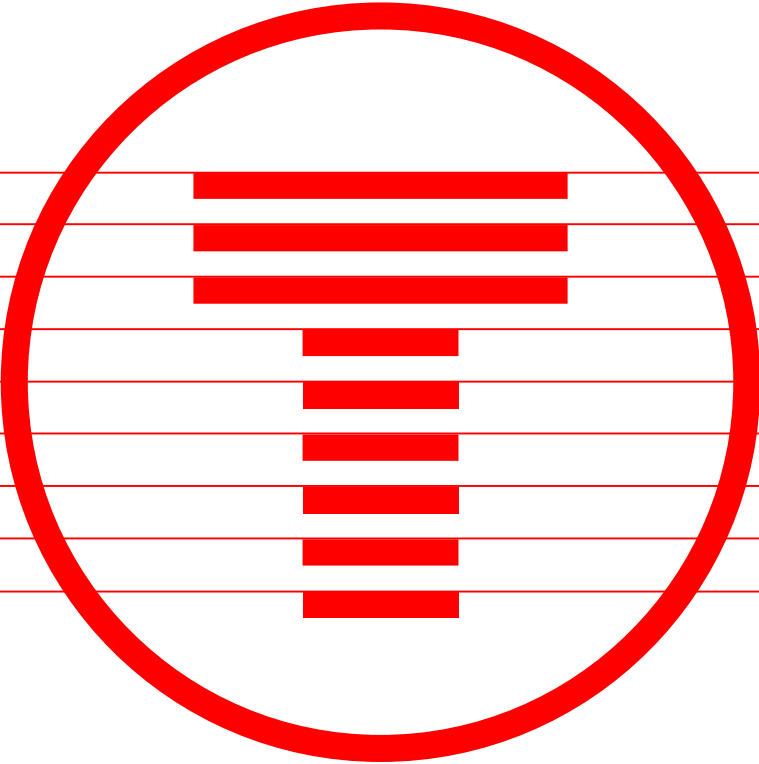


Overview of the Concept Design

- **Track** – 15 sites where track is re-doubled, 1 major junction remodelled, numerous line speed improvements, new on-street (tramway) section of line at Cardiff Bay to Flourish.
- **Maintenance and Control** – new rolling stock maintenance depot and control centre. Upgrades for “tram-train” mixed-mode operation.
- **Electrification** – ‘smart’ electrification to 25kV AC with permanently earthed sections around restricted structures, saving 55 interventions e.g. rebuilding bridges/no need for wire in Caerphilly tunnel
- **Civils** – 5 new + 1 relocated stations, 13 new platforms, 10 new station footbridges, 3 new road over rail bridges, 6 station accessibility schemes and work at all stations to improve facilities.

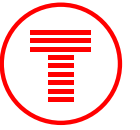


The Rolling Stock
Facilitating the CVL Transformation



Metro-Vehicles

Electric LRVs for Treherbert/Aberdare/Merthyr Tydfil <> Cardiff Central/Bay



- 36x40m articulated Metro Vehicles that can be coupled to form 80m trains
- Main power source 25kV overhead line but also operates from battery
- Capacity of 257 with seats for 129
- Capable of on-street line-of-sight 'tramway' operation

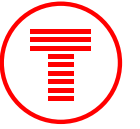


The Flourish
TRAFFICIAETH CYMRU
TRANSPORT FOR WALES



Tri-Modes

Diesel/Electric/Battery Tri-mode trains for Rhymney/Coryton <> Penarth/Barry Island/Bridgend via VoG

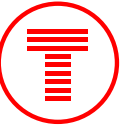


- 24x65/80metre trains
- Main power source 25kV overhead line with battery and diesel engine
- Capacity of up to 425 with up to 191 seats
- Maintained at Cardiff Canton
- 100% electric operation on transferred metro network



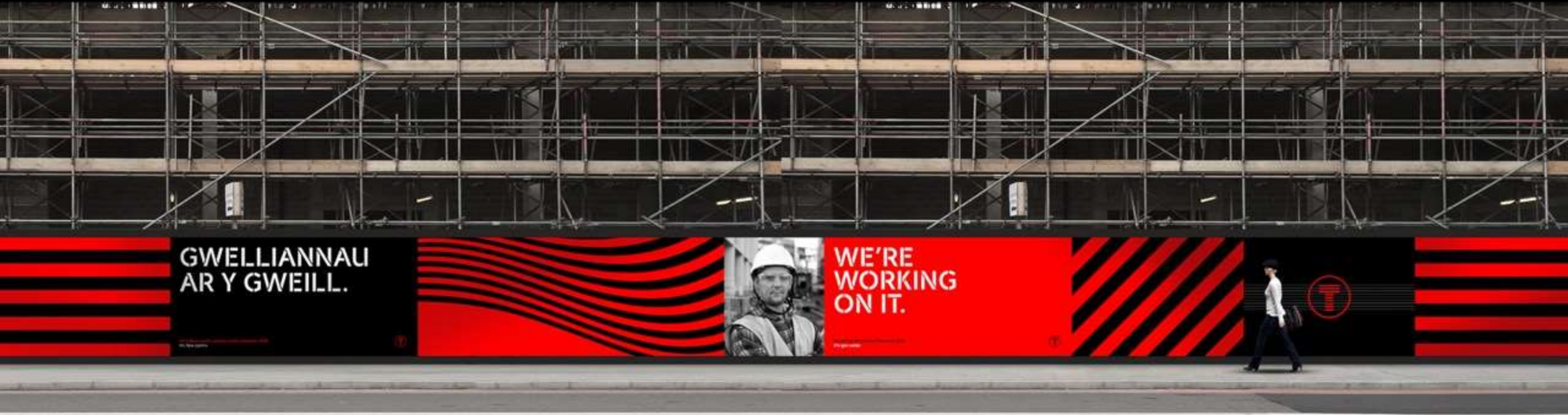
Stabling

More frequent trains means more units which means more stabling



- New Depot and maintenance facility
 - Capacity for over 30 Metro Vehicles, allowing space for future fleet expansion
- Increased stabling capacity and improved facility at Treherbert
 - We plan to stable 13 Metro Vehicles here but there is space for future expansion
- Cardiff Canton
 - Capacity for 18 Tri-mode trains + other SW Metro and WCB fleets
- Increased stabling capacity at Rhymney
 - We plan to stable 6 Tri-mode trains here, but there is space for future expansion





GWELLIANNAU
AR Y GWEILL.



WE'RE
WORKING
ON IT.



Mae Trafnidiaeth Cymru yn eiddo i
Lywodraeth Cymru
Transport for Wales is owned by the
Welsh Government