

# A Cardiff City Region Metro: transform, regenerate, connect

by Mark Barry



**CAPITA SYMONDS**

**iwa**





## Metro Consortium

The Metro Consortium is a group of stakeholders who have come together with the common aim of promoting the Metro concept as a regional regeneration project and to actively lobby for a step change in the approach to and investment in, transport across the Cardiff City Region. Membership of the consortium represents a diverse range of interests from the business community, developers, major employers, planning and transport experts who proactively liaise with Welsh Government, Regional Transport Consortia, Local Government and service providers.

The core membership of the Consortium includes Capita Symonds, Cardiff Business Partnership, M&G Barry Consulting, Powell Dobson Urbanists, Institute of Welsh Affairs, Jones Lang LaSalle, British Gas, Admiral, Cardiff Business School, Capita Architects, Curzon Real Estates, Paramount Office Interiors, Wardell Armstrong and J.R. Smart.

[www.metroconsortium.co.uk](http://www.metroconsortium.co.uk)

The Cardiff Business Partnership consists of leading employers in the Capital. Its mission is to represent leading businesses in the Capital of Wales, ensuring that the views of enterprise are at the heart of the development of Cardiff as a competitive business location. The Partnership aims to identify key issues facing the capital's economy. Through its members who represent the city's biggest employers, the Partnership has the unique ability to go beyond advocacy to action.



The Partnership also serves as a resource of expertise and creative thinking for policy makers, media and others concerned with taking forward the Cardiff and Wales economy. The Partnership seeks to influence policy by presenting the views of leading businesses, sponsoring research, and bringing together experts and leaders in city development issues.

[www.cardiffbusinesspartnership.com](http://www.cardiffbusinesspartnership.com)

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Capita Symonds is probably Wales' largest multi-disciplinary consultancy and part of the Capita group, a FTSE 100 Company. Capita Symonds has played a lead in the design, engineering and management of some of the country's largest and most iconic infrastructure, regeneration and building projects.

## CAPITA SYMONDS

The company's work includes the Wales Millennium Centre and the recently refurbished Sherman Theatre in Cardiff; major transport and infrastructure schemes such as the Ebbw Valley Railway, Church Village, Llandysul Bypass, the Milford haven Gas Pipeline; and major regeneration schemes in Bargoed, Aberdare and Pontypridd.

The services we provide are vital in assisting the recovery and growth of the construction sector which is a priority for the Welsh economy in creating wealth and jobs for the Principality. As one of the major partners in the Metro Consortium, Capita Symonds aims to assist all stakeholders in the promotion and delivery of a step change in the way that we address Transportation and Regeneration within the Principality.

### About the author, Mark Barry:

Mark Barry was born and grew up in Cardiff. He left in 1981 to study at Manchester University where he graduated in Physics and The Analysis of Science and Technology in 1985 before working in London and overseas in the IT/ Software industry. From 1997, Mark spent five years in Management Consultancy working for the PA Consulting Group leading projects for blue chip and government clients in both Europe and North America. In 2003 he founded and was until 2009, Chief Executive of Cardiff Biotech Company Q Chip Ltd.

Mark now has his own consultancy business offering services including strategic economic and transport policy development, programme management, business strategy, and fund raising, especially for new technology companies.

Mark is the author of "A Metro for Wales' Capital City Region – Connecting Cardiff, Newport and The Valleys", published by the Cardiff Business Partnership and the Institute of Welsh Affairs in February 2011. He later contributed to the development of the strategic case for the electrification of the Valley Lines and Great Western Main Line to Swansea. He also presented evidence to the Transport Committee at Westminster as part of its review of High Speed Rail. At the end of 2012 Mark formed the Metro Consortium.

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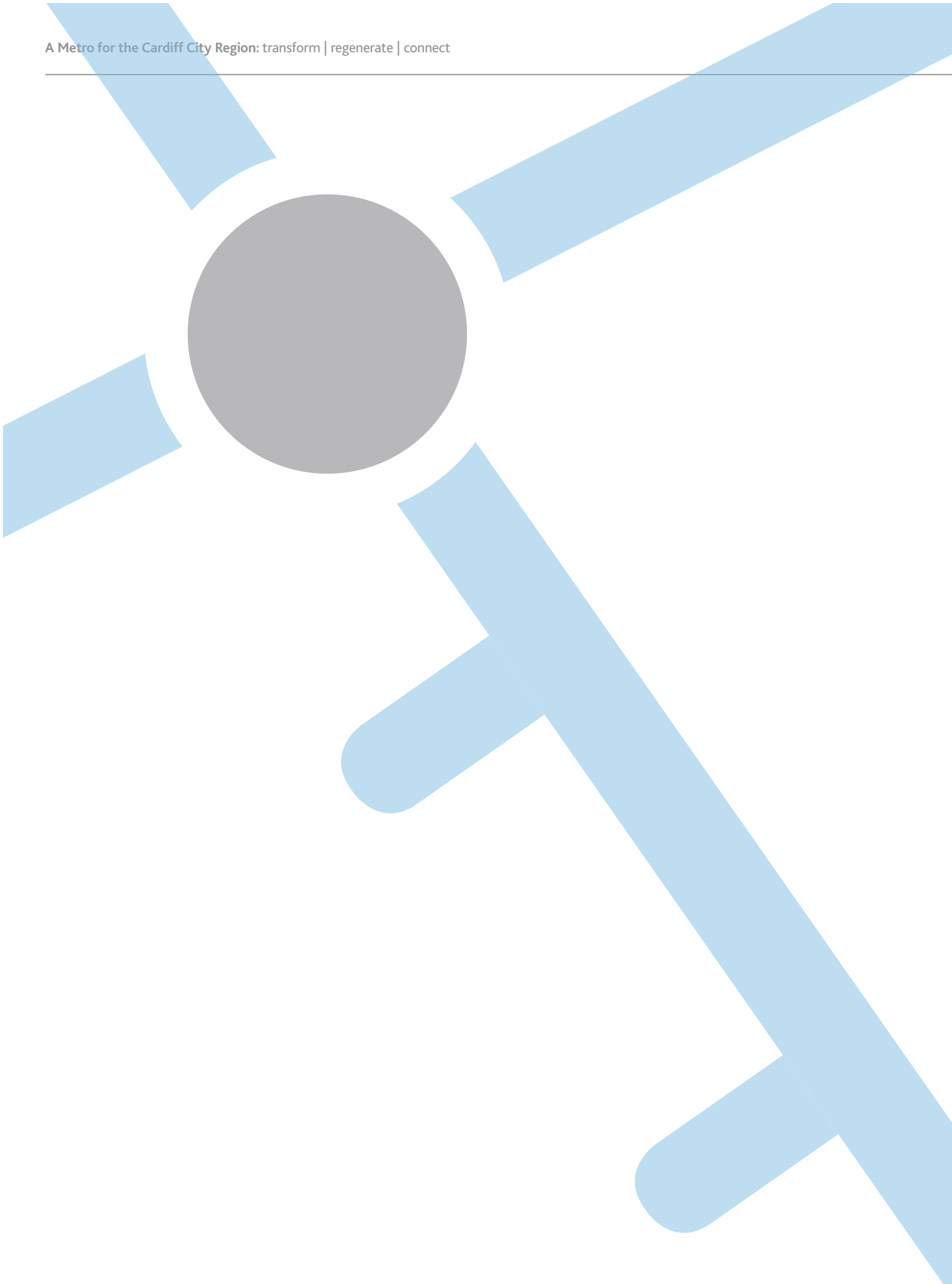
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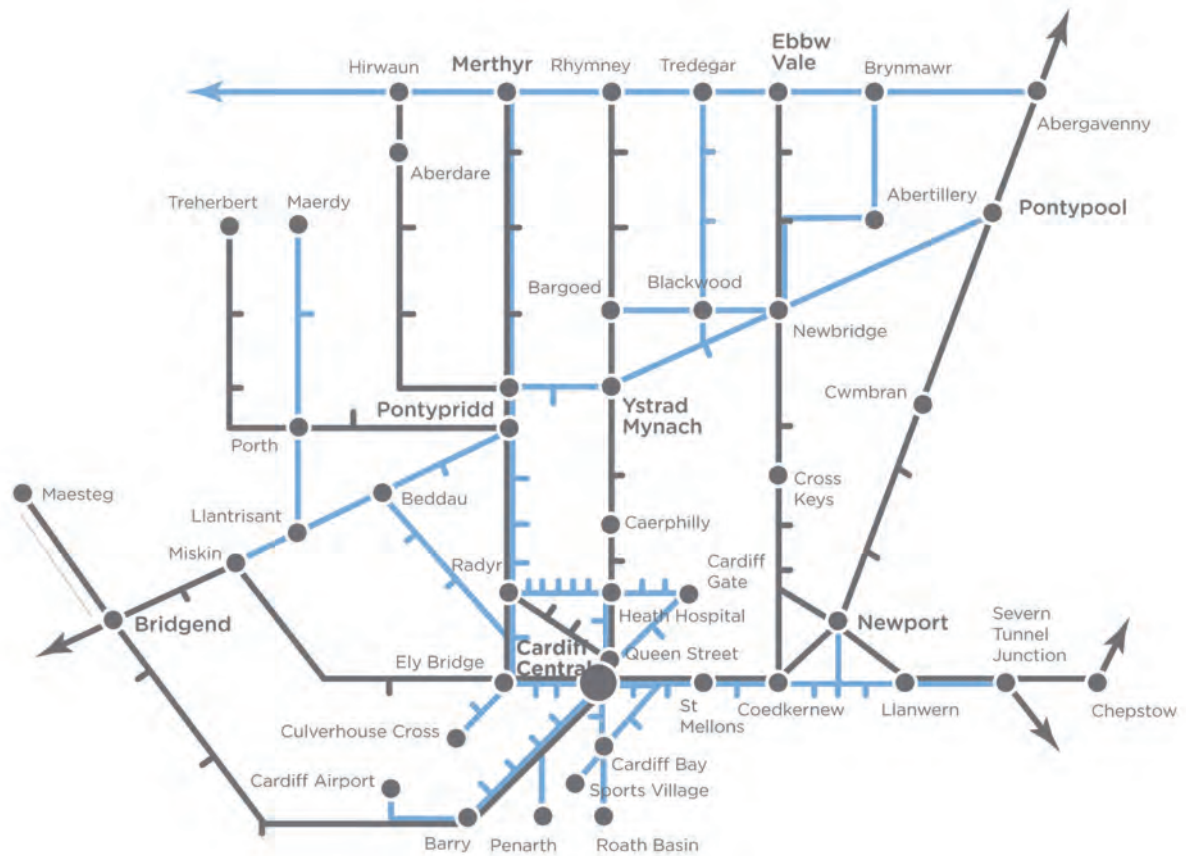
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## PART I: A Metro for the Cardiff City Region





## Executive summary

This report updates A Metro for Wales' Capital City Region – Connecting Cardiff, Newport and The Valleys, commissioned by the Cardiff Business Partnership and published by IWA in February 2011.

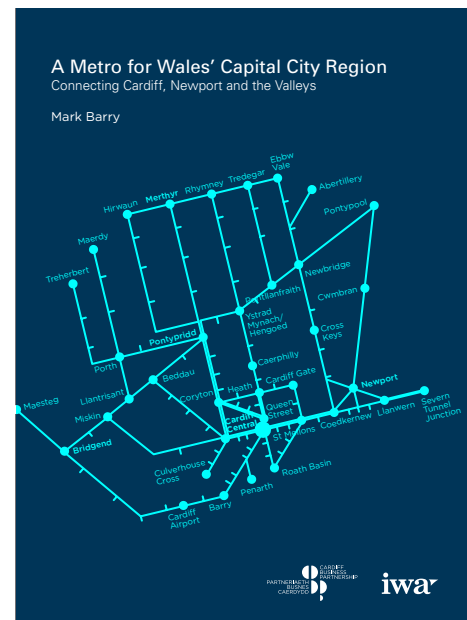
- It restates the economic challenge facing south-east Wales as well as the regeneration opportunities that a Metro presents.
- Builds on the positive decision to electrify the Great Western Main Line to Swansea and the Valley lines by the early 2020s.
- Sets out a number of requirements the Metro should satisfy.
- Presents a number of new capital projects needed to make a Metro a reality.
- Suggests how the Metro might be funded and delivered.

A lot has happened in the two years since A Metro for Wales' Capital City Region was published. The Department for Transport in Whitehall, supported by a strong business case from the Welsh Government and a strong lobby from the business community, were persuaded to support the electrification of the Great Western Mainline to Swansea and the entire Valley line network. The concept of a Metro is now a mainstream topic of discussion in transport and regeneration circles in Wales.

At last, 15 years into devolution, there is an appetite to consider taking on some ambitious infrastructure projects. The one thing that has not changed in this time is the economic challenge and the need to stimulate the economy. This is not just a matter of addressing the poor GVA per capita and economic inactivity in some Valley communities. There is also a need to help Cardiff compete more effectively with cities across Europe. Meanwhile, the city region debate has progressed sufficiently to enable some radical policy decisions to be made. Today there is widespread recognition that a modern public transport system - a Metro - is an essential component of, and often the catalyst for, a modern city region economy.

This updated Metro report, is intended to contribute to the debate, influence policy and help inform political decision makers. Whilst the document restates the by now well-known economic challenge, it also presents some ideas for consideration in terms of Metro requirements and components. In particular, it addresses in practical terms how a Metro might be developed and delivered. It also includes contributions from a range of individuals and organisations (from the academic, business and public sectors) across the city region. Together they provide a strong case for action. The common theme from all the contributions is that the Metro must be used to stimulate economic regeneration as well as improving connectivity. Potential schemes include:

- A Valleys Circle Line to transform the Cardiff city region's transport geography. This will be achieved by linking the Rhymney and Merthyr lines to allow Pontypridd to play a more pivotal role in the region's economy.
- A Cardiff Crossrail, using tram-train technology, to fully connect the city to the region and unlock a range of development opportunities.
- A Bus Rapid Transit system to address poor connectivity between places like Merthyr and Ebbw Vale.
- A major upgrade of connectivity between Newport and Ebbw Vale to help the regeneration of both.



More generally, the Metro provides an opportunity to rethink the role of some of our towns and communities across the Valleys. By providing the connectivity, Metro stations can themselves become catalysts for regeneration and development. It is also vital that the unique role contributed by Cardiff and its city centre is incorporated into Metro thinking. This is the part of the region that must attract and nurture the high value knowledge businesses that are common in successful city regions across the world, but are under-represented in Cardiff.

Delivery of these ambitious proposals over perhaps 10 to 15 years will require an investment of around £1.5 billion. Such an investment programme, aligned with other measures, will have a major impact on the economic fortunes and capacity of the region.

Aside from the Metro, better links to Heathrow and London are also required, not least to counter the potential impact of HS2 which will bring places like Manchester, Leeds and Liverpool within 80 minutes of London. Electrification must be the first step of a programme that turns the Great Western Main Line into a quasi-high speed track so that journey times of less than 80 minutes are also possible from Cardiff to London and Heathrow. We also need a coherent regional development plan to underpin these investments and help drive the GVA per capita of the Cardiff city region on an upward trajectory.

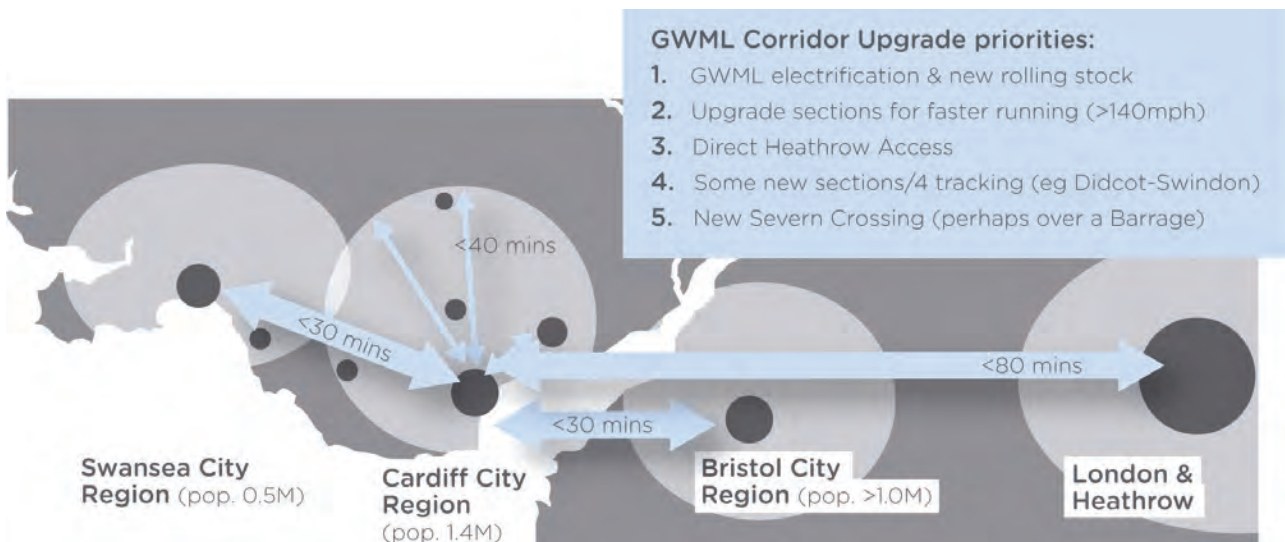


Figure 2 – Great Western Main Line upgrade priorities as set out in 2011 Metro report

Visions are important, but they are the easy part. The biggest challenge remains mobilising the political will to drive this programme forward. Specifically, our elected representatives need to take on board the absolute requirement to establish an arms-length executive body with the remit and powers able to convert an ambitious Metro policy into a tangible project that will benefit the entire region.

To achieve this we need a Metro delivery authority, with sufficient funding from multiple sources, including government and local authorities. Its remit should combine traditional passenger transport executive responsibilities with a land and property development capability. It would be accountable to elected representatives from the National Assembly and local authorities. Its task will be to develop and deliver the Metro. It will need to engage the private sector to facilitate development and regeneration at locations across the network. Establishment of such an organisation will require a good deal of work and consideration. Getting it right will be critical to the success of the Metro project.

This report does not offer a quantitative analysis of the benefits a Metro will bring. Instead it sets out how we will benefit qualitatively to inform more detailed analysis. We are talking about an investment of around £1.5 billion over perhaps 10 to 15 years that will bring a range of benefits. These will include economic benefits through increasing travel to work areas of place like Cardiff, Newport and Pontypridd, regeneration at key sites like Ebbw Vale, commercial development at St Mellons, community regeneration from better connected Metro stations across the region and environmental benefits through modal shift and reduced CO<sup>2</sup> emissions.

As a comparator, Transport for Greater Manchester identified the benefits of its £1.5Bn transport investment programme will include more than 21,000 jobs and an extra £1.3 billion a year for the region's economy. The Cardiff City region can and should develop the Metro to deliver comparable benefits.

The Metro Consortium hopes that this report and the expertise and experience its members possess, can be utilised to assist the Welsh Government, Local Authorities, Regional Transport Consortia and relevant task forces as they develop and progress the Metro concept.

# Metro Background

## Overall Concept

The concept of a south Wales Metro was originally set out in the 2011 Cardiff Business Partnership and Institute of Welsh Affairs publication *A Metro for Wales' Capital City Region*<sup>1</sup>. The concept focussed on the role of transport in supporting economic development and regeneration and was presented as a catalyst for the implementation of a strategic regional plan (see Figure 3). It recommended that plans for major locations should be complementary and contribute to the overall economic performance of the region.

The report was also clear that, whilst transport investment was essential, it could only have an impact alongside a range of complementary interventions including improving education, supporting access to capital and developing a high quality urban environment. The approach acknowledged the increasing importance of cities and city regions in driving economic growth, as set out by the likes of Richard Florida<sup>2</sup>, The Work Foundation<sup>3</sup> and the European Commission<sup>4</sup>.

### Key features:

- Mix of electrified heavy rail, light rail and bus rapid transit
- Max 40 minute travel from periphery to Cardiff or Newport
- At least 4 trains/buses/trams per hour
- Widespread park & ride
- Other transport modes fully integrated with regard to timetables and ticketing
- Economic "regeneration" focussed on Cardiff Central & key interchanges



### Metro will help stimulate a region wide economic regeneration

- A connected, polycentric city region of 1.4M people
- A coherent & sustainable city region plan for housing, transport and the economy
- A major modal shift in commuting delivering reduced CO2 emissions

Figure 3 - South Wales Metro concept map.

1 Mark Barry, Cardiff Business Partnership, IWA, A Metro for Wales' Capital City Region – Connecting Cardiff, Newport and the Valleys, February 2011.  
 2 Richard Florida, *The rise of the Creative Class*, Basic Books, 2002.  
 3 The Work Foundation, *Ideopolis – Knowledge City Regions*, 2006.  
 4 European Commission, *The State of European Cities Report*, May 2007.

For the Cardiff City Region, the report presented the primary objectives of future transport investment and how that should be integrated with economic development:

1. Connecting all the major settlements of the Cardiff City Region with a high quality, high capacity 'turn up and go' Metro network with journey times of less than 45 minutes between the Heads of the Valleys and Cardiff and Newport.  
*- Valleys electrification will be the core of the Metro.*
2. Delivering faster rail services between Cardiff, London and Heathrow.  
*- Some Inter-city services run to Cardiff Airport.*
3. Facilitating commercial development at locations on the Metro network most likely to attract private sector support and investment.  
*- Complementary location, economic and community regeneration plans for the region.*

Essentially, the report argued that the Metro project should be the foundation of a coherent city region plan for housing, transport and the economy that will benefit 1.4 million people simultaneously, it would help reverse a long term decline in the economic fortunes of the Valleys and help Cardiff and the wider city region make a more significant contribution to the economy of the UK.

## History

In the two years since the report was published, the concept of a south Wales Metro has secured widespread political and governmental support. A cross party motion secured unanimous support for the Metro concept in the National Assembly in December 2011 and led to the establishment of the cross party rail Working Group in February 2012. The Metro concept was also included in the Ministerial statement accompanying the revised National Transport Plan published in December 2011. In March 2012 the South East Wales Transport Alliance (SEWTA) formally adopted the Metro concept.

## Recent Welsh Government initiatives

### Task forces

At the end of 2012, the Welsh Government established a Task Force to explore integrated transport and the potential of a Metro in south east Wales. Earlier, in July 2012 Welsh Government Task Force on the economic potential of city regions, chaired by Dr Elizabeth Haywood, also highlighted regional transport – and the Metro concept – as being fundamental to the development of a Cardiff City Region. The new City Region task force will also need to acknowledge the potential of a Metro to help the regional economy.

### Bus regulation and subsidy

A key component of any Metro will be the integration of local bus services in what is currently a deregulated market. In January 2013, the Welsh Government announced a new mechanism to provide subsidies to bus operators - the Regional Transport Support Grant <sup>5</sup>. This has the potential to deliver a more joined up public transport network with integrated services, timetables and ticketing across transport modes.

## Rail commitments and work in progress

There are already a number of welcome rail investments either underway or planned. These all provide a foundation and essentially a phase one of a South Wales Metro.

### Capacity enhancements at Cardiff Central and Queen Street

The Cardiff Area Signalling Renewal and Enhancement Project (CASR) is a £200 million investment to 2016 that will deliver a major upgrade in capacity and reliability for the south Wales rail network by 2016. It also provides an essential foundation for the electrification project. Once complete, it will enable 16 trains per hour to travel between Cardiff Central and Queen Street.

### Valley lines electrification

In July 2012 the Department of Transport announced, in its High Level Output specification for England and Wales, its intention to proceed with the electrification of the entire Valley Lines network<sup>6</sup>. This decision represents the most significant rail investment in Wales since the Severn Tunnel opened. More importantly it delivers the first phase of the south Wales Metro. According to Network Rail's Strategic plan electrification of the Valley lines should be substantially completed by 2020<sup>7</sup>.

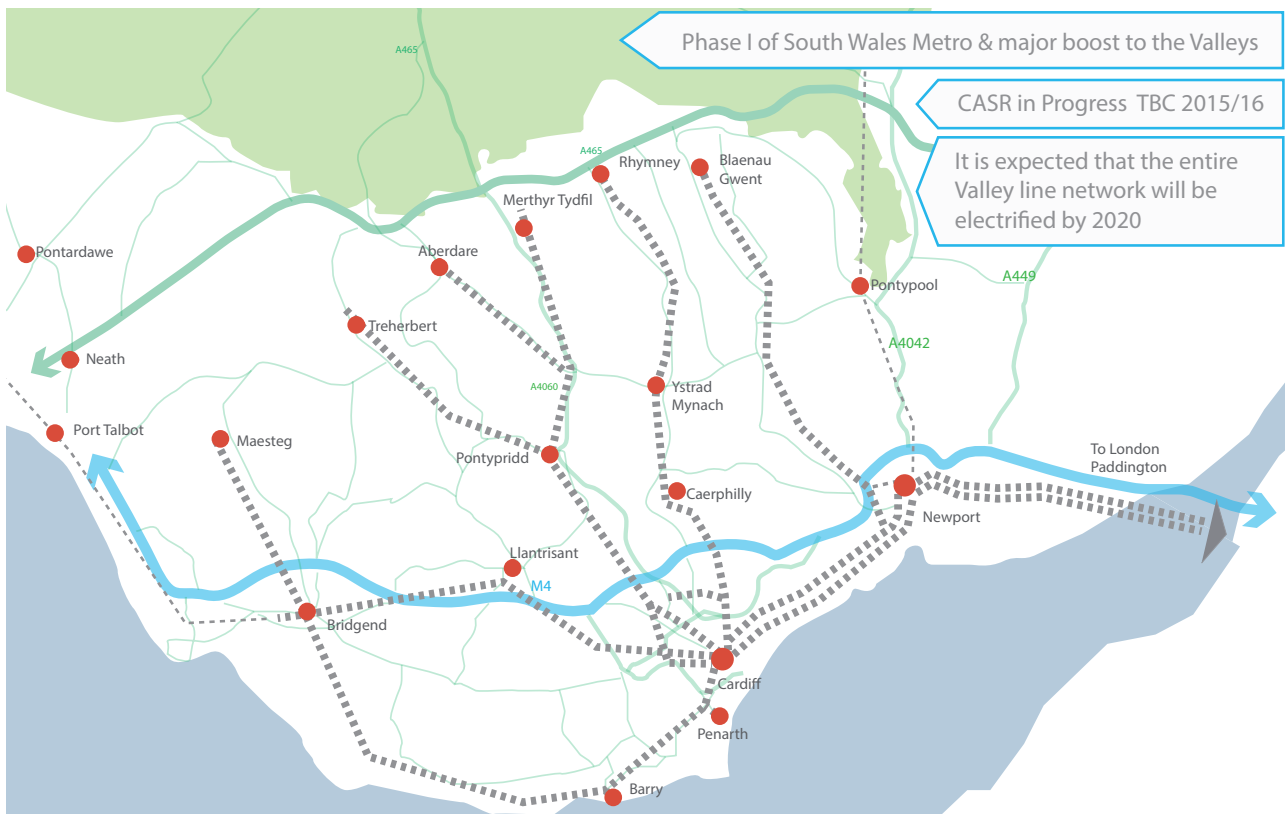


Figure 4 - Scope of Valley Lines Electrification

6 Department for Transport, HLOS for England Wales CP5 (2014-2019), July 2012.

7 National Rail, Strategic Plan 2014-2019, January 2013.

Electrification will deliver clear operational benefits for the rail network and these formed the key component of the positive business case. In addition the investment will enable faster journey times from the network periphery to Cardiff. Figure 5 illustrates potential timetable enhancements.

| ORIGIN STATION | DIESEL TIMETABLE JOURNEY TIME | ELECTRIFICATION TIMETABLE JOURNEY TIME | JOURNEY TIME SAVING DUE TO ELECTRIFICATION | % DIFFERENCE |
|----------------|-------------------------------|--|--|--------------|
| Bridgend       | 00:57:00                      | 00:55:00                               | 00:02:00                                   | 4%           |
| Barry Island   | 00:30:00                      | 00:30:00                               | 00:00:00                                   | %            |
| Penarth        | 00:11:00                      | 00:11:00                               | 00:00:00                                   | %            |
| Aberdare       | 01:05:30                      | 00:52:30                               | 00:13:00                                   | 20%          |
| Merthyr Tydfil | 01:04:30                      | 00:53:30                               | 00:11:00                                   | 17%          |
| Treherbert     | 01:03:30                      | 00:58:30                               | 00:05:00                                   | 8%           |
| Pontypridd     | 00:28:30                      | 00:26:30                               | 00:02:00                                   | 7%           |
| Rhymney        | 01:00:30                      | 00:55:30                               | 00:05:00                                   | 8%           |
| Bargoed        | 00:41:00                      | 00:37:30                               | 00:03:30                                   | 9%           |
| Caerphilly     | 00:18:00                      | 00:17:00                               | 00:01:00                                   | 6%           |
| Radyr          | 00:16:30                      | 00:16:30                               | 00:00:00                                   | 0%           |
| Coryton        | 00:18:30                      | 00:18:30                               | 00:00:00                                   | 0%           |
| Maesteg        | 00:53:00                      | 00:47:00                               | 00:06:00                                   | 11%          |
| Ebbw Vale      | 00:57:00                      | 00:54:00                               | 00:03:00                                   | 5%           |

Figure 5 - VLE Potential journey time improvements <sup>8</sup>

### Great Western Main Line Electrification

Alongside the investment in the Valley lines, it was also confirmed in July 2012, that the electrification of the Great Western Mail Line will extend to Swansea. This should be seen as a first step in a long-term incremental upgrade to create a quasi-high speed line able to counter the impact of HS2 from London to the north of England. Unless it is upgraded beyond the current electrification plans HS2 will make it quicker to get to London from Leeds, Manchester, Liverpool and Sheffield than it will be from Cardiff.

Details of this approach were set out in the Cardiff Business Partnership submission to the Westminster Transport Committee’s review of High Speed Rail in 2011 <sup>9</sup>, and by the Great Western Partnership in its Conditional Output Statement <sup>10</sup>. The aim must be to transform the Great Western Main Line into a quasi-high speed line (HS3) that enables journey times of less than 80 minutes between Cardiff and London/Heathrow - see Figure 6.

<sup>8</sup> Welsh Government, Valleys Electrification, Outline Business Case, 2012

<sup>9</sup> [www.publications.parliament.uk/pa/cm201012/cmselect/cmtran/1185/1185we44.htm](http://www.publications.parliament.uk/pa/cm201012/cmselect/cmtran/1185/1185we44.htm)

[www.publications.parliament.uk/pa/cm201012/cmselect/cmtran/1185/1185we45.htm](http://www.publications.parliament.uk/pa/cm201012/cmselect/cmtran/1185/1185we45.htm)

[www.publications.parliament.uk/pa/cm201213/cmselect/cmwelaf/writev/crossborder/m26.pdf](http://www.publications.parliament.uk/pa/cm201213/cmselect/cmwelaf/writev/crossborder/m26.pdf)

<sup>10</sup> [www.greengauge21.net/publications/great-western-conditional-output-statement](http://www.greengauge21.net/publications/great-western-conditional-output-statement)

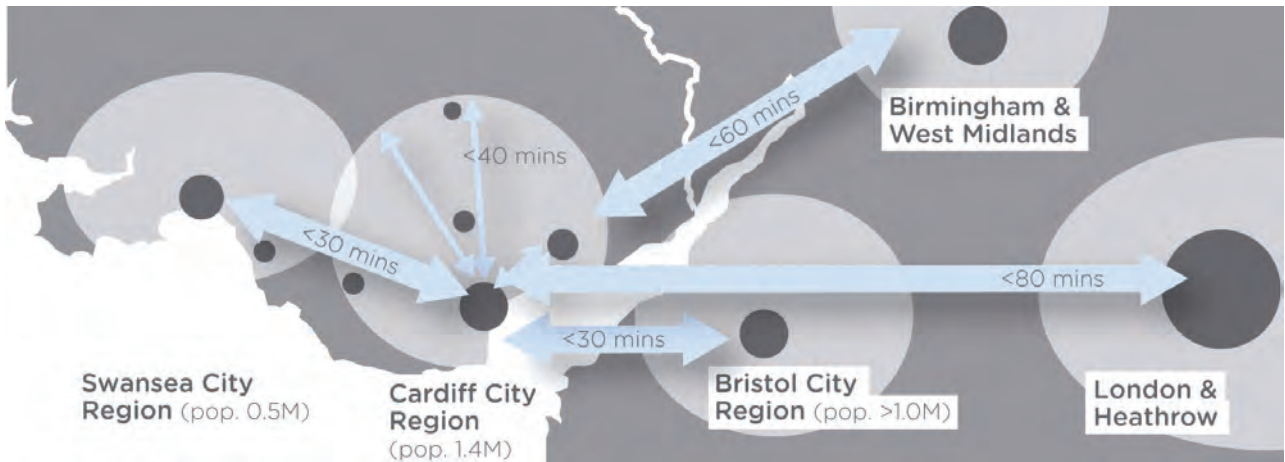


Figure 6 - Enhanced rail connectivity to London, Heathrow and the Midlands.

In parallel, faster links to the Midlands will also be needed, as will a link between the traditional rail network and HS2 near Birmingham, so that services from south Wales to places like Leeds, Newcastle and Scotland can make use of the HS2 network north of Birmingham. Similarly, a direct link between the Great Western Main Line and HS1 for onward connections to Europe (as will be possible from HS2) are also required. These themes were also explored in the 2011 Metro report.



## Profile of the Cardiff City Region

Much of the economic context relevant to the Cardiff and Valleys Metro was set out in the 2011 report. Whilst data sets have been updated since then, nothing has really changed. The economic challenge is as great today as it ever was. So, rather than present more detailed GVA, commuting data and tables (this is all available from ONS, Stats Wales, NOMIS) it would be better to present some graphs and headlines to restate the message.

### An underperforming economy

- The GVA per capita for Wales is about 75 per cent of UK average <sup>11</sup>. So, Wales with about 5 per cent of the population produces about four per cent of the wealth. Wales GVA per capita is the lowest of all regions and nations of the UK – see Figure 7 and Figure 8.

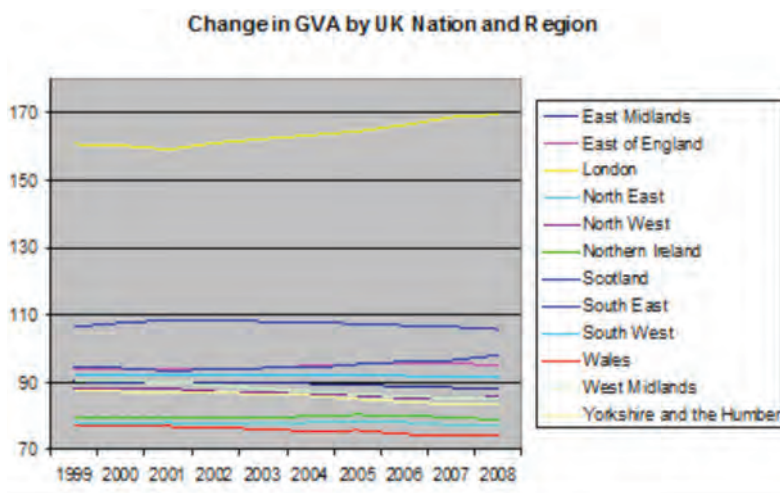


Figure 7:  
GVA per capita for the regions and nations of the UK 2001-2008

- GVA per capita in the Cardiff City Region is about 80 per cent of the UK average.
- Economic inactivity rates in some of the upper Valleys are more than 25 per cent - in Blaenau Gwent, Caerphilly, Merthyr, Torfaen, and Rhondda Cynon Taf - and around 20 per cent in Cardiff, Newport and The Vale of Glamorgan.

### Wales Accounts for 4% of UK Economy

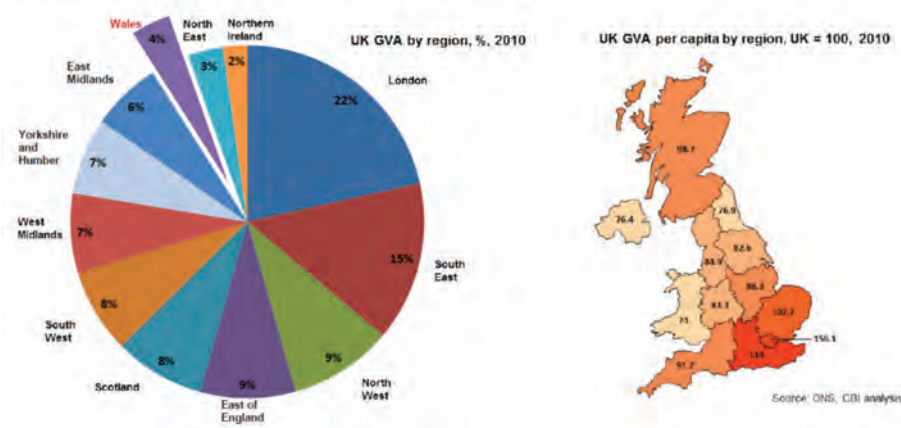
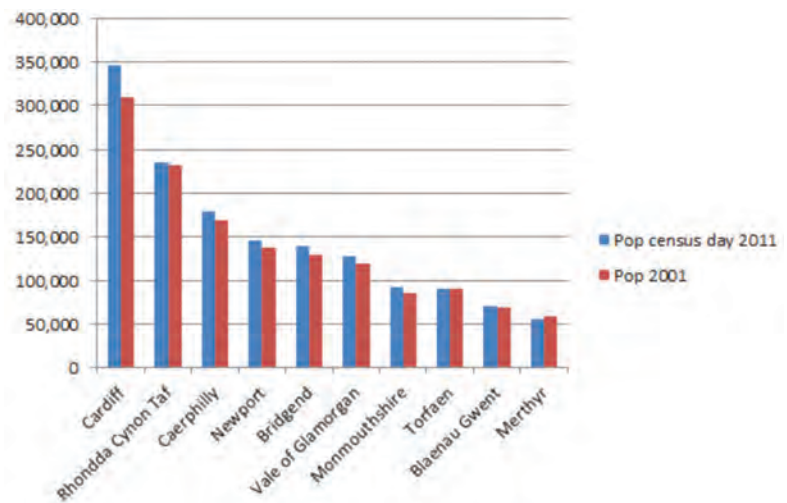


Figure 8:  
GVA per capita in the UK nations and regions

## Cardiff's growing population

- The Cardiff City Region includes ten local authorities: Cardiff, Newport, Vale of Glamorgan, Rhondda Cynon Taf, Caerphilly Bridgend, Merthyr, Blaenau Gwent, Torfaen and Monmouth. Together they have a population of over 1.4 million, all within 20 miles of Cardiff - that's half the population of Wales.
- Based on the 2011 Census, Cardiff has a population of 346,000, which is about 11 per cent higher than the 310,000 recorded in 2001<sup>12</sup>.
- The City Region's population is expected to grow significantly over the next 25 years, especially in Cardiff, which the Welsh Government projects will reach about 460,000 by 2033<sup>13</sup>. These figures have been disputed. However, even using the actual 11 per cent growth trend from 2001-2011, Cardiff's population would still be greater than 400,000 by 2026. This is anticipated in the draft strategy for Cardiff's Local Development Plan.
- There has been more modest population growth of three to seven per cent (that is, between 5-10,000) in Newport, Bridgend, Merthyr, Vale of Glamorgan, Caerphilly and Monmouthshire. On the other hand Blaenau Gwent, Rhondda Cynon Taf and Torfaen have seen virtually no change, as shown in Figure 9.

Figure 9:  
Change in population by local authority  
2001-2011



## Cardiff's employment growth

- According to Stats Wales, there was a 17 per cent increase of over 30,000 people employed in Cardiff from about 180,000 to 210,000 between 2001 and 2011 (Figure 10)<sup>14</sup>. This is over 80 per cent of the net total increase for all of south east Wales. It is reflected in the GVA per capita of Cardiff and the Vale. At 104 per cent of the UK average, this is some way ahead of many Valley communities where a GVA per head of around 60 per cent of the UK average is more typical.
- The only other local authorities that experienced growth in employment were the Vale of Glamorgan (5,000, or 13 per cent), with small rises of about 5 per cent (1,000) in both Merthyr and Torfaen. Some local authorities actually experienced a fall in employment, for example Blaenau Gwent and Newport.

<sup>12</sup> ONS/Welsh Government, Census Data, 2011.

<sup>13</sup> ONS/Welsh Government, 2008 based Local Authority Population Projections to 2033 (ISBN 978 0 7504 5794 1), 2008.

<sup>14</sup> Stats Wales - Workplace Employment by Local Authority 2001 – 2011.

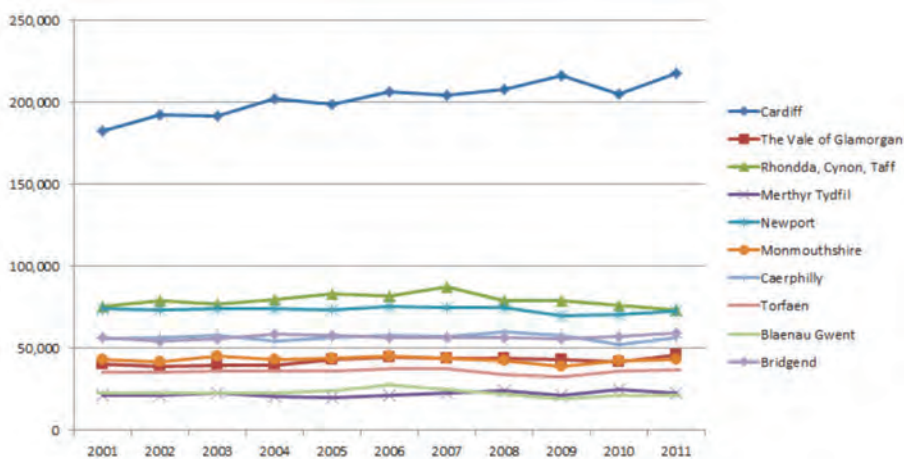


Figure 10: Change in workplace employment by local authority 2001-2011 (Stats Wales)

### Increased regional commuting

- Nearly 80,000 people commute into Cardiff every day, up by about 10,000 (or 14 per cent) since 2001. A further 30,000 travel out of the city and 120,000 commute within the city, as shown in Figure 12<sup>15</sup>.

### In-commuting to Cardiff: 2007

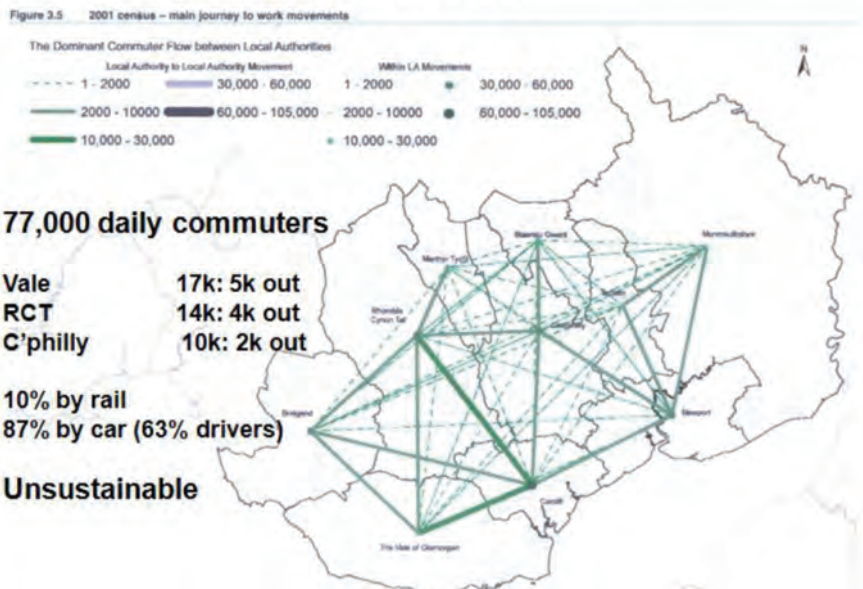
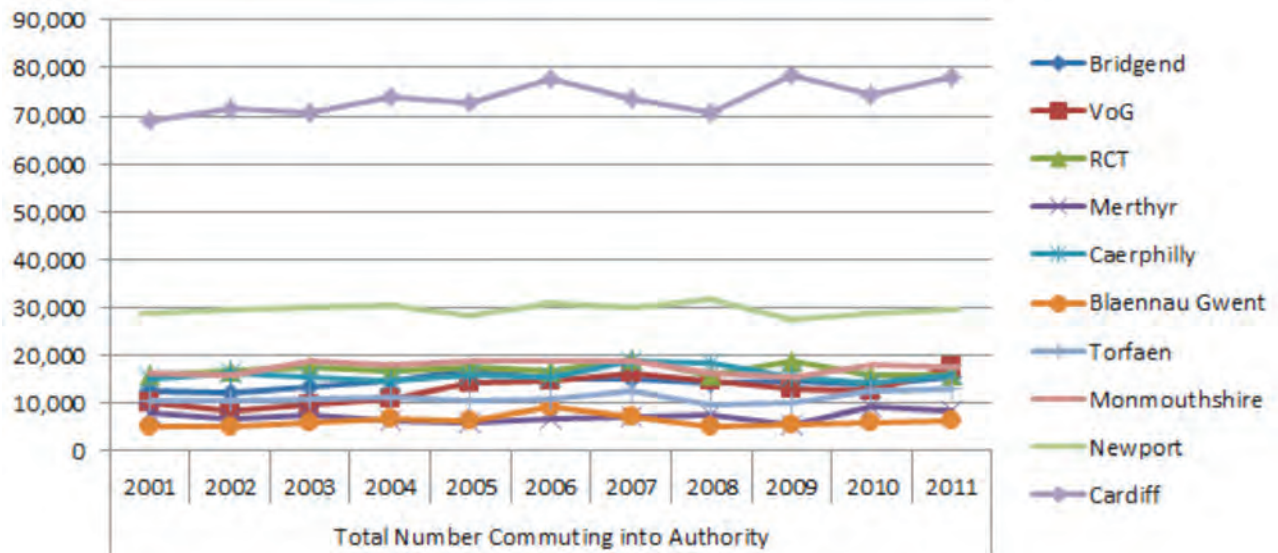


Figure 11: Commuting flows across the region (2007)

- Whilst 210,000 work in Cardiff a further 400,000 work across the rest of region as demonstrated by the regional commuting patterns. These show movement between all local authorities, although the largest (and growing) movements are between Cardiff and its adjacent local authorities.

Figure 12 - Numbers commuting into each local authority 2001-2011



- According to a Cardiff Council study, travel on services to the city centre's Queen Street, Cardiff Central, Cathays and Cardiff Bay stations increased by 73 per cent between 1996 and 2010<sup>16</sup>. The report also predicts a further 29,000 commuters will be coming into the city by 2026. This gives giving a total of some 110,000 inward commuters compared with about 80,000 today.
- Network Rail has stated that 26 million people used the railways in Wales in 2010 – up 65 per cent since 2000. A further 31 per cent growth is expected by 2019. In 2011 there were more than 11 million entries and exits at Cardiff Central.
- By the end of the decade with Valley line electrification and faster services to London on the electrified Great Western Main Line, on top of a predicted 31 per cent growth, it is likely that Cardiff Central will be handling between 15-20 million entries and exits per year. As a comparison that is same level of passengers currently handled by stations like Edinburgh Waverly, Liverpool Central and Manchester Piccadilly.

## Challenges and Opportunities for the Cardiff City Region

Looking at trends and major variations in the statistics is perhaps more important than focusing on a specific piece of data from a particular year or small changes that could be due to measurement errors. If one reviews the figures on that basis the most significant regional changes relate to the much higher resident and workplace population in Cardiff in 2011 compared with 2001. Cardiff also has higher levels of GVA per capita and in-commuting than its surrounding local authorities.

Commensurate with its growing size and potential, Cardiff contains one of the UK's leading research universities and member of the Russell Group, Cardiff University. For example, the Neuroscience and Mental Health Research Institute ranks alongside Cambridge as one of world's leading academic centres in this field of study. There have also been initiatives and some early success, in exploiting this intellectual base in terms of commercialisation with a number of biotech companies established based in part on IP from the university.

<sup>16</sup> Cardiff CC Executive Report on the Local Development Plan, October 2011 (Cardiff Council Annual Patronage Surveys).

<sup>17</sup> <http://www.cardiff.ac.uk/research/neuroscience>

The city also boasts a FTSE100 company from the financial service sector, which the Welsh Government has targeted for support by creating an Enterprise Zone in Cardiff. The creative and media industries are also well represented in Cardiff with the BBC recently establishing a major production facility in Cardiff Bay. All these developments demonstrate the potential of the city to support and grow the high value jobs the region needs.

The potential of Cardiff to help drive the wider city region economy was explored more fully in the 2011 Metro report.

Whilst Cardiff may have done reasonably well when compared with the region as a whole (which would be a very narrow perspective), we must also be aware of the fact that in UK terms, Cardiff's GVA per capita at 102.4 per cent of the UK average in 2011 still fell some way behind places like Nottingham (125.8 per cent), Bristol (126.1 per cent), Belfast (149.1 per cent), and Edinburgh (174.8 per cent)<sup>18</sup>. Cardiff's gross disposable household income is also low, at only 91 per cent of the UK average<sup>19</sup>.

In fact, the economic challenge facing the wider city region is as much to do with Cardiff's underperformance, compared with leading towns and cities of the other regions of the UK, as it is to do with economic inactivity in some Valley communities - see Figure 13.

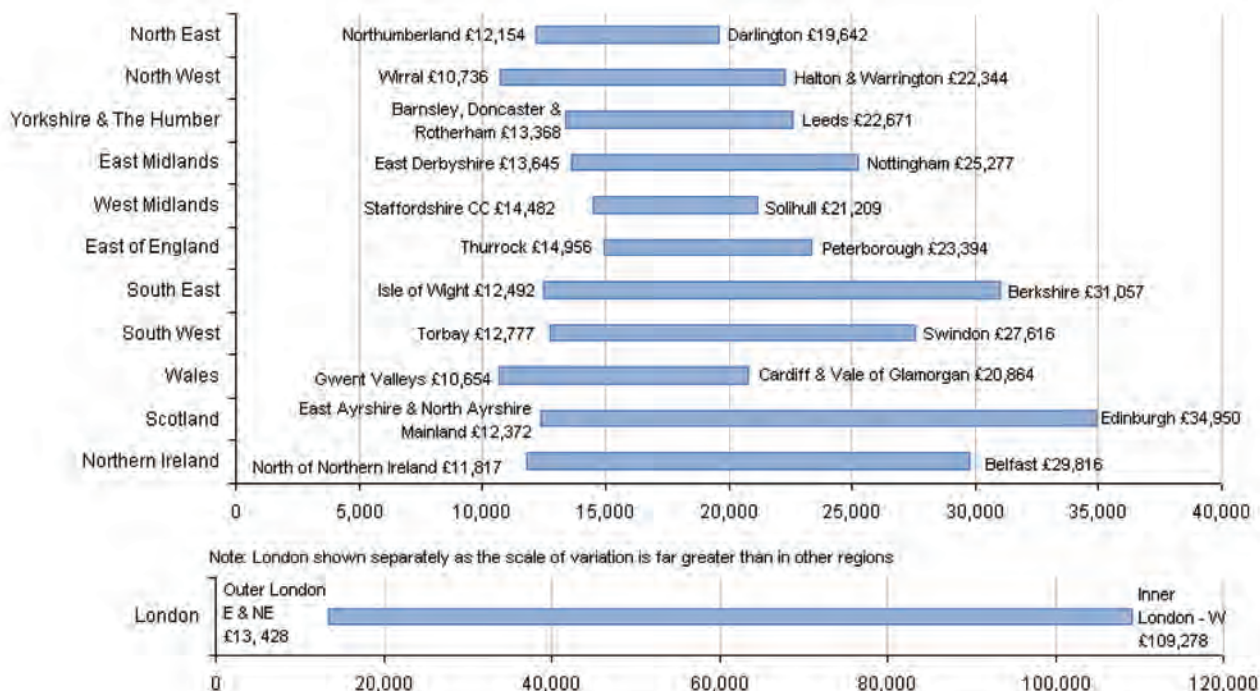


Figure 13 - Regional variation in GVA 2011: highs and lows.

Transport can play a role in addressing these challenges but only if economic development and regeneration are put at the heart of Metro planning and delivery.

18 Regional, sub-regional and local Gross Value Added 2010, December 2011.

19 Regional Economic and Labour Market Profile – South East Wales – November 2012.

## Transport Problems and Planning Policy

One aspect of the Metro will be to address typical transport problems such as connectivity, capacity, and resilience problems as set out below. Certainly, the Metro can help to address all of these in south-east Wales. However, as set out in the next chapter the Metro must also be developed to encourage development and regeneration.

### Problems facing public transport in south-east Wales

Transport problems the Metro will address include the need to:

- Improve connectivity to those towns and communities not on the Valleys rail network and so will not benefit from Valley Lines electrification. These include Ebbw Vale Town, Pontllanfraith, Maesycwmmwr, Blackwood, Nelson, Treharris, and Hirwaun.
- Increase both the capacity and connectivity between Ebbw Vale, Newport and Cardiff.
- Provide east-west cross-Valley connectivity.
- Connect lower Rhondda Cynon Taf with Cardiff, in particular Llantrisant, Church Village, and Beddau.
- Address the poor connectivity in many parts of both Cardiff and Newport. It is noteworthy that the average number of people per rail station in Rhondda Cynon Taf, Caerphilly and the Vale is between 11,000 and 12,000. These authorities will have the larger part of their population served by the newly electrified Valley rail network. The equivalent figure in Cardiff is over 17,000, and in Newport over 70,000. To achieve the 11,000 to 12,000 level Cardiff would need a further ten rail stations. With electrification many communities in the Valleys will have good access to the centre of Cardiff: the main issues for them will be frequency of service and capacity rather than connectivity. On the other hand, in many parts of Cardiff and Newport the primary issue is lack of regional connectivity.
- Tackle the problems many people in the region encounter in accessing work, education and healthcare because of lack of available, affordable transport. A recent report by Sustrans states, "Transport is key to enabling people to find and sustain employment; two out of five jobseekers say lack of affordable transport is a barrier to getting a job"<sup>20</sup>.
- Improve access to hospitals, schools, and other public services. For example, the Heath Hospital is the largest hospital in Wales and draws patients and employees from a wide area beyond Cardiff. However, it is only accessible from Cardiff city centre by bus and is not easily accessible from outside Cardiff by public transport.

## Planning policy

A primary impediment to regional growth and development is the lack of a plan that effectively integrates regional transport planning with land use and development. This has led to a range of problems, for example:

- Many new housing developments in places only accessible by car.
- New schools, hospitals and offices have been developed (sometimes by government) away from public transport interchanges and stops.
- In some parts of the region there is an oversupply of employment land in locations the market will not support. The result is that land in areas the market may be willing to support is devalued.
- There has been an over-supply of low-grade sites and property which further devalues the overall offer across the region.
- Bus stations in some cases have been developed away from the rail network making integration of public transport difficult.

Some of these issues will be addressed by the Welsh Governments' recently published, Planning Policy Wales <sup>21</sup>. For instance, it contains the following recommendations:

- "... near major public transport interchanges in city, town and district centres, planning authorities should allocate available sites for uses that maximise the accessibility potential of the site, including high density residential development, employment, shopping and leisure uses. Local authorities should identify in development plans and Regional Transport Plans <sup>22</sup> the need for additional interchange sites and improvements to existing interchanges..."
- "... development plans should also encourage higher density and mixed-use development near public transport nodes, or near corridors well served by public transport.
- "... local authorities should identify in development plans and Regional Transport Plans the need for additional interchange sites and improvement to existing interchanges."

The Metro provides an opportunity to satisfy some of these transport planning policy objectives by enabling a range of strategic developments projects across the region.

<sup>21</sup> Welsh Government, Planning Policy Wales, Chapter 8, November 2012

<sup>22</sup> Produced by the four regional transport consortia in Wales.

## Metro regeneration opportunities

More important than addressing transport problems, the Metro must also exploit opportunities to stimulate development and regeneration across the region in a way that maximises private sector engagement against the backdrop of a coherent regional plan. Whilst these wider economic and regeneration benefits are tangible, they are difficult to quantify using traditional transport appraisal techniques. As a result they are often overlooked or understated. A way must be found, therefore, to ensure that these wider benefits are given pre-eminence in developing the Metro. Schemes that would be enhanced by the Metro initiative include:

### Links to Cardiff Bay and the Sports Village

Over the last twenty years there has been considerable development in Cardiff Bay, with further projects in progress or planned in Roath Basin and the Sport Village across the Bay. These locations are on a par with the city centre itself. The location of the National Assembly, Wales Millennium Centre, BBC Studios and a wide range of residential, commercial, retail and leisure developments reinforce their importance.

However, public transport connections between the city centre and the Bay has long been a challenge, let alone connecting the Bay to the wider region. Today, there is no rail access to the Sports Village and only a shuttle rail service between Queen Street and Butetown Station. If these sites were connected to a regional public transport network their regeneration would be considerably enhanced.

### New housing developments in Cardiff

Over more than a decade Cardiff planning policy has restricted developments of family houses in the city. Instead it has encouraged the development of one and two bedroom flats, mainly around the Bay. The resultant shortfall in family homes has distorted the market and increased the price of such houses, putting them out of reach of young families. The objective was to persuade developers to build family homes outside the city boundaries. However, Cardiff's relatively high house prices have resulted in developers being more interested in building within the city boundaries.

Cardiff's preferred Local Development Plan has identified new areas for housing development in the north and north-east of the City, between Lisvane and Pontprennau, and along the north-west corridor beyond Fairwater and Radyr towards Creigiau. The plan proposes some 45,000 new homes of which around 18,250 homes would be built on vacant greenfield sites, located mainly north of the city. However, this presents a stark public transport challenge. The new housing can only happen once the public transport is in place.

It is imperative, therefore, that transport plans are fully integrated with these and other potential housing developments. With the Metro in place by the 2020s, it would be possible to encourage a greater dispersal of housing development across the region. It will be important early in the planning of the Metro to identify on a regional basis where new housing should be located.

### Cardiff Central Station

To become a 'gateway' to the city region and Wales, Cardiff Central station needs a major upgrade. By the early 2020s rail developments already in hand – electrification of the Great Western Main Line and the Valley lines can be expected to increase the footfall through the station substantially. It will need to be upgraded to handle more than 20 million entries and exits per year, compared with about 11.5 million in 2011. We need a 21st Century, multi modal interchange that integrates intercity services, Valley lines, tram-train, bus and coach services, river bus, taxis, cyclists and pedestrians.



This work must also be integrated with developments within the Cardiff Enterprise Zone, a large area of the city centre that includes Central Square, Callaghan Square, Dumballs Road and Capital Quarter. It will include retail and residential developments, several hundred thousand square feet of new offices and, potentially, an international conference and convention centre.

### Other potential regeneration sites in Cardiff

A commercial development is proposed at Junction 33 to the north west of Cardiff on the M4. Previous plans for a business park at Junction 33 failed because of the poor public transport access to the location. In St Mellons to the east of Cardiff there is a proposal for a major development incorporating office, housing and a park and ride facility. Both proposals would be enhanced by connection with the Metro. Similar economic activity and regeneration would be stimulated by the Metro in many other sites across Cardiff. They include Crwys Rd, the M4's Junction 32 at Coryton, Rover Way, and the new development planned at Ely Mill.

### Regeneration of Newport, Pontypridd and Ebbw Vale

As well as bringing increased connectivity to Cardiff, a Metro would provide an opportunity for other towns and cities across the region to become a focus for regeneration. For example, it would increase the travel to work area for Pontypridd, enabling it to develop into a strong commercial, retail and cultural destination in its own right. Similarly, Ebbw Vale would experience a revival in its fortunes if both the Metro and the proposed Motorsports facility are progressed. Similarly Newport would benefit greatly from improved connections to its natural Ebbw Valley hinterland. A key part of Metro planning must be to identify a small number of locations across the region that, with improved public transport connections to the wider region, can become of focus for development and regeneration in their own right.

### Potential for Valley Metro stations

Once significant numbers of people starting using the Metro, it will stimulate commercial, residential and retail development at more stations on the wider network. As is the case in many European cities, new developments are concentrated around Metro stations. There is no reason why in future, more residential development cannot take place around key stations on the Metro network. Again as part of Metro development these location should be identified on a strategic regional basis. In some circumstances it may be appropriate to relocate and/or develop new stations on the metro network to enhance development opportunities.

### Rail link to Cardiff Airport

Similarly a new rail station at Cardiff airport, linked into the Metro system would widen its catchment area. This could take the form of a spur into the airport or a new station on the existing line, perhaps integrated with a new terminal. The airport would then have direct rail access to places like Bristol, Bath, Swindon and Gloucester.

### Park and ride

Across the region there are numerous opportunities to provide park and ride facilities, including at Llanwern, Taffs Well, Newbridge, Ebbw Vale Parkway, and Cardiff Airport. The increased footfall would encourage commercial and retail development in and around these stations.

### Increased Valley Tourism

With a Metro in place it becomes easier to envisage commuting from Cardiff and Newport into the Valleys, with greater access also offered for leisure and recreation. The Valleys have a unique outdoor environment with green spaces peppered by remnants of Wales' industrial heritage. There are ample opportunities for walking, trekking and cycling. Currently these are not readily accessible by people from large parts of the region - especially parts of Cardiff, Newport and the Vale. Better connectivity would open up the Valleys for a wide range recreational activities as well as assisting in economic regeneration.

## What the Metro must deliver

The Metro provides an opportunity to develop and deliver a once-in-a-generation project that can only be realised if we are unconstrained in our ambition for what it will be and the impact it can have. In short, we must use the Metro project as a means of creating a more economically effective and cohesive region.

The vision proposed by the Metro Consortium is that...

*"The Metro will be a turn up and go integrated transport network that connects the primary settlements of the Cardiff City Region, developed in a way that informs strategic regional land use planning, maximises economic benefits, facilitates regeneration, and secures support from the private sector"*

In delivering this vision the Metro must be developed to satisfy a range of economic, regeneration, transport, environmental, social and investment requirements as set out below:

### Enhance the image of Cardiff and the wider city region

Major transport and engineering projects can help project a positive and dynamic image for a region. Schemes like Crossrail and Thameslink in London, the Metrolink in Manchester, and the upgrade of Birmingham New Street station have projected an energy and dynamism for those cities that has made them more attractive to investors and developers. An ambitious Metro scheme for south-east Wales would send out a similar message that we mean business and are able to compete with other leading city regions across Europe. An important dimension will be upgrading the function and appearance of Cardiff Central Station as the 'gateway' to the region and to Wales as a whole.

### Improve regional connectivity

The Metro will provide a 'cloud' transport network. Once on board you can connect with any of the stations on the network on a single ticket. The essential characteristics of frequency, dependability and integration reduce the importance of absolute journey times. This means:

- All settlements with a population of 10,000 or more will be on the Metro network. South-east Wales has a population of 1.4 million population which suggests there should be about 140 Metro stations. At present the Valley lines network have 90 stations.
- This 'settlement criteria' will include the many parts of Cardiff and Newport that are not currently connected to the regional transport network. In turn this will enable commuting from Cardiff and Newport to places like Caerphilly, Newport and Pontypridd, increasing their travel-to-work catchment areas and their regional role.
- Improvement in the connectivity of the mid Valleys, from Pontypridd, Nelson and Treharris to Pontllanfraith, Blackwood, Newbridge and Pontypool, as well as the upper Valleys from Merthyr and Aberdare to Ebbw Vale.
- Locations such as Maerdy, Ogmere Vale and Tonyrefail will also be connected. The same will be true for communities such as Brynmawr, Blaina and Abertillery in the eastern Valleys.
- Locations employing more than 2,000 people will also have a close connection with the network. This will be of particular benefit to Newport where in the past decade many new employment locations have developed along the M4, away from the city centre and easy access to public transport as well as Cardiff Gate at J30 of the M4.
- Every major education and healthcare facility should be no more than 800 metres from a Metro station.
- Rail access to Cardiff Airport will be improved.

## Enable economic regeneration

As well as providing an efficient public transport network the Metro is about economic regeneration, job creation and strategic regional land use planning. Consequently it will:

- Facilitate greater economic activity and output.
- Reflect the importance of labour markets and commuting across the region.
- Inform land use planning and augment regeneration initiatives such as Enterprise Zones.
- Result in Metro stations becoming a focus for development and regeneration.
- Ensure that development is informed by commercial as well as social and economic considerations.
- Increase the travel to work area of major settlements across the region.

## Exploit Metro stations as a focus for development

Metro stations can become focal points for their communities as well as places to catch a train or bus:

- Increased footfall will encourage the development of shops and kiosks around stations.
- Where flows are higher services such as doctors, dentists, and crèche provision should co-locate.
- Major stations will have park and ride, and cycle parking.
- Where possible stations should be staffed.

## Secure private sector funding

The Metro will encourage private sector engagement:

- A range of development opportunities will emerge, especially close to Metro stations, that will leverage private sector funds to help contribute to the Metro's overall implementation.
- Commercial gains at key locations should be identified and captured early in the planning of the Metro to help fund the development of the network.

## Deliver a fully integrated transport system

The Metro will deliver a seamless and fully integrated 'turn up and go' system in which:

- Metro and local bus services provide a seamless interface, with integrated timetables and ticketing.
- Bus stations are developed and, if necessary relocated, adjacent to rail stations.
- Planning accommodates door-to-door journeys, with provision of safe pedestrian routes, cycle paths and secure cycle parking at stations - an objective of the Active Travel Bill <sup>23</sup>.

## Utilise high quality ticketing and customer information

The Metro will provide timely and accurate travel/journey information via a range of devices and easy to understand, flexible ticketing which together will help support customer choices and modal shift through:

- Single ticket travel between any two Metro Stations.
- Smart card and contactless ticket technology. The technology is often the easy part to deliver: working with various operators and service providers to agree back office and pricing mechanisms will be the most challenging aspect.
- Customer information systems that include web based and mobile applications as well as traditional printed forms.

## Reduce journey times

Whilst journey times are important they become less of an issue once a trip falls below 45 minutes. Nonetheless, the Metro can deliver improvements:

- The greatest challenge is to deliver reduced times from the network periphery to Cardiff and Newport. For much of the region significant benefits will derive from Phase 1 of The Metro – electrification of the Valley lines.
- Even so, once electrification is in place, there will be scope for making faster journeys by adopting different stopping patterns for some services. The aim will be to ensure that journey times from all settlements to the centre of Cardiff or Newport are less than 45 minutes.

## Offer flexible operations and service patterns

A key concern for some of the larger employers in the centres of Cardiff and Newport are operation hours. Some of these organisations are looking to increase their hours so that staff will be required to work at any time during a 24 hour, seven-day week. To meet this requirement the Metro should provide:

- At least four services per hour on every part of the network.
- A seven-day service, 6am to 12pm, with some night services to serve businesses working 24-hour shifts.

## Adopt a strong brand image for Metro

It will be essential to project a dynamic and positive image for the Metro:

- There will need to be a strong, clear Metro name and brand. Already the terms 'Metro', 'Valleys Metro', 'Cardiff Metro', 'South Wales Metro', 'Cardiff City Region Metro' and 'Valley lines' are in circulation. It is vital that an agreed, well-supported brand, one that serves to unite the city region and recognisable outside the region, is developed at an early stage.
- The aim should be to project an image of a connected, dynamic business environment.

## Deliver social and environmental benefits

The Metro must also be used to:

- Tackle social exclusion and transport poverty.
- Provide affordable access to public transport.
- Deliver a modal shift from the car to public transport, walking, and cycling.
- Contribute to reducing CO2 emissions.

The Metro Consortium believes the Metro Vision and these requirements can begin to be delivered through the following schemes.

## New infrastructure needed to create the Metro

In setting out how the Metro might develop, it is important to recognise that the first phase - electrification of the Valley lines - is already committed and will be completed by 2020. Thereafter the Metro could combine heavy rail, light rail, tram-train, trams, and buses. The integrating dimensions will be a single ticket system for a turn up and go network. Precisely how the system evolves, whether for example the main emphasis is on heavy, light rail or bus based systems, is not as important as ensuring from the start the Metro embodies a single ticket turn up and go philosophy.

To augment the valleys line electrification project, major new investment will be required to create the Metro into the 2020s, illustrated in Figure 14 below, and could include:

- Valleys Circle Line
- Cardiff Crossrail
- Upper Valleys Bus Rapid Transit
- Newport to Ebbw Vale Link

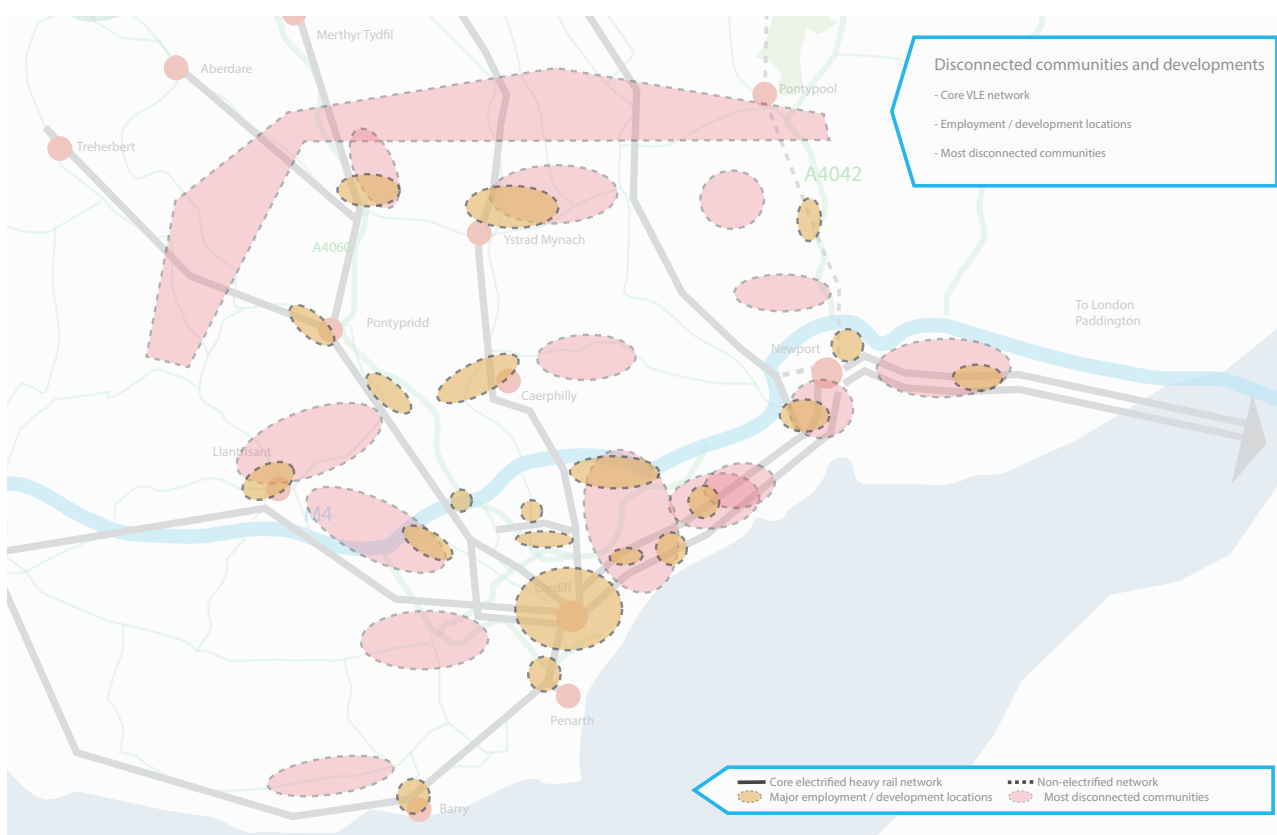


Figure 14a: Development locations and most disconnected communities

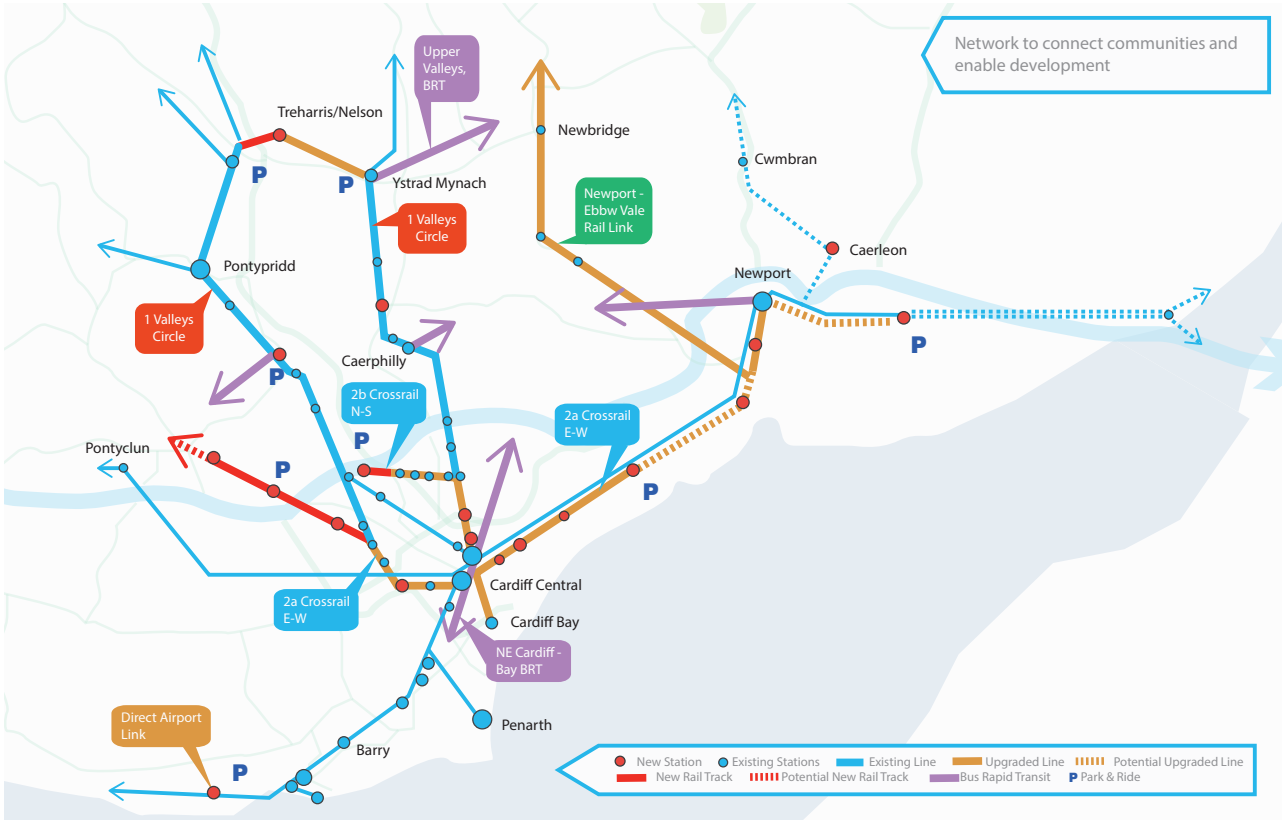


Figure 14b: Illustrative network to connect communities and enable development

These schemes are not presented with detailed engineering assessments or costs. Rather they are discussed in strategic terms with an outline assessment of their potential impact. They are judged capable of:

- Addressing those parts of the region most disconnected in terms of public transport.
- Delivering optimum regeneration opportunities and economic impact.
- Securing private sector involvement.

Ultimately they will require a more rigorous assessment. Equally, there are other schemes that deserve investigation. These include a Bus Rapid Transit system to address poor connectivity in parts of Cardiff, a rail link to Cardiff airport and a Bus Rapid Transit system in Newport to link its business parks with the rail network.

## The Valleys Circle Line

This is perhaps the most challenging proposal as the costs are likely to be significant and transport benefits limited, given the relatively low travel demand between Quakers Yard and Ystrad Mynach. On a short-term cost/benefit analysis this might suggest that a bus-based solution would be more appropriate. However, that would be too narrow an assessment. We have to plan on a 10 to 20 year timeframe in which strategic ambition and wider economic benefits should outweigh a more narrow transport assessment.

The psychological impact of linking the Taff and Rhymney valleys with a rail link as shown in Figure 15, is hard to quantify but there is no doubt it would be transformational. Having a 'circle rail service' means that Metro journeys will not be confined to getting in and out of Cardiff. It is about connecting all the major towns on the route, including Treforest, Pontypridd, Abercynon, Nelson, Treharris, Ystrad Mynach, Caerphilly and many parts of Cardiff as well as Cardiff Central and Queen Street stations.



Figure 15 - Illustration of a Valleys Circle Metro Service

This will increase the travel-to-work area of Pontypridd and Caerphilly; Pontypridd in particular could at last begin to play a more important role in the region as a whole and attract cultural, residential and commercial development. For example, a New National Galley for Wales could be located in Pontypridd near the station, which is, after all, only about 20 minutes from Cardiff Central. And, if a Valleys Circle line was completed, it would also be ideally located for the upper Valleys and the Rhymney Valley.

The wider strategic impact could also enable a major housing development in and around Nelson and Treharris since a station there would bring them within 40 minutes from Cardiff, Caerphilly, Merthyr and Pontypridd. More than any other, the proposal for a Valleys Circle line will test our level of ambition and determination to transform the prospects for south-east Wales.

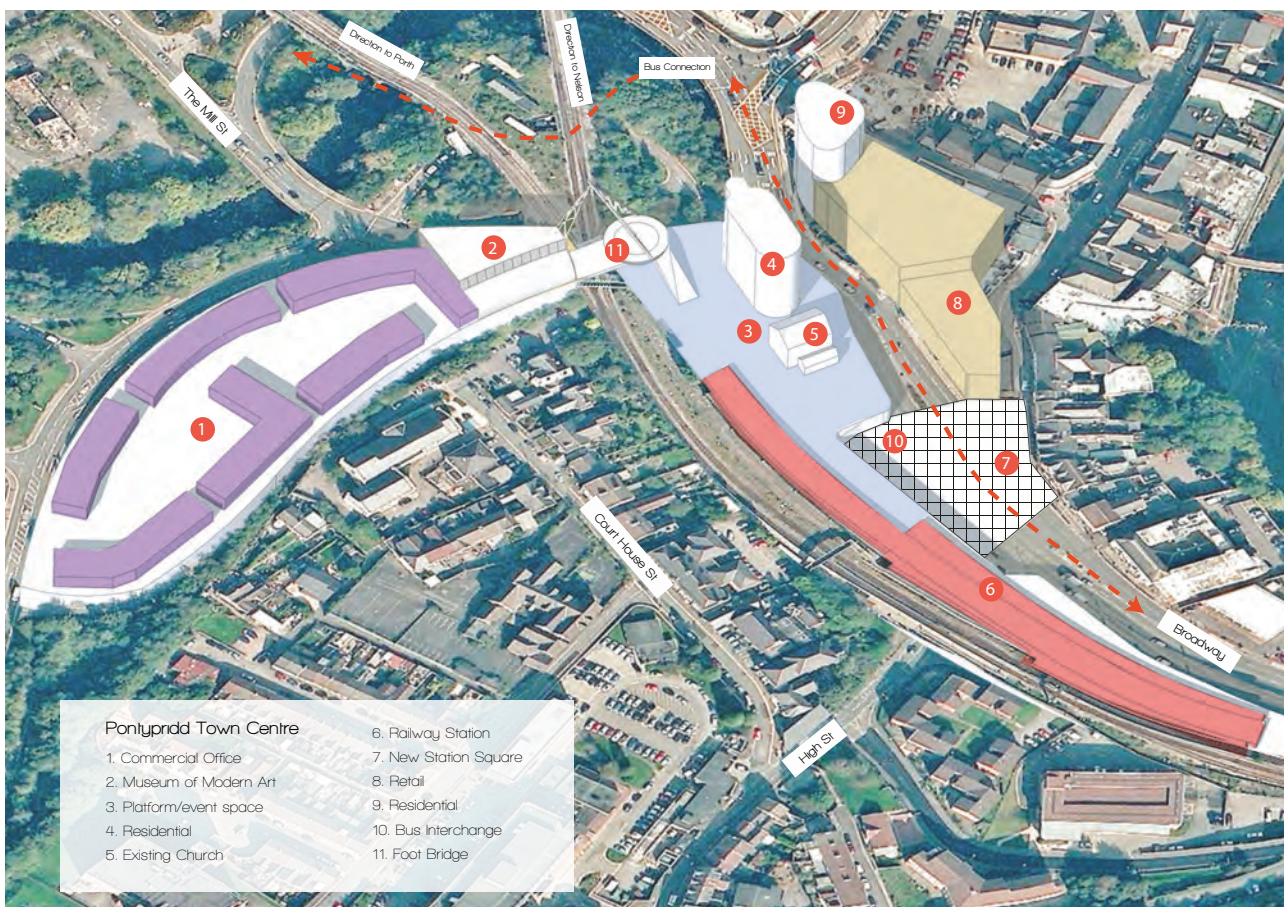


Figure 16 - Illustration of Pontypridd as a focus for development and regeneration



## Cardiff Crossrail

Cardiff has serious public transport challenges which are acting as a constraint on development in many parts of the city. As many as 150,000 people, nearly half its population, have no close access to the rail network. When one factors in the forecast of an extra 40,000 new homes and over 60,000 more people in the city by 2026, the challenge of delivering an effective public transport in the Welsh capital is even greater. Cardiff needs to develop a transport network for a city with a population destined to grow beyond 400,000 in the next decade that by then will be at the hub of a city region of nearly 1.5 million people.

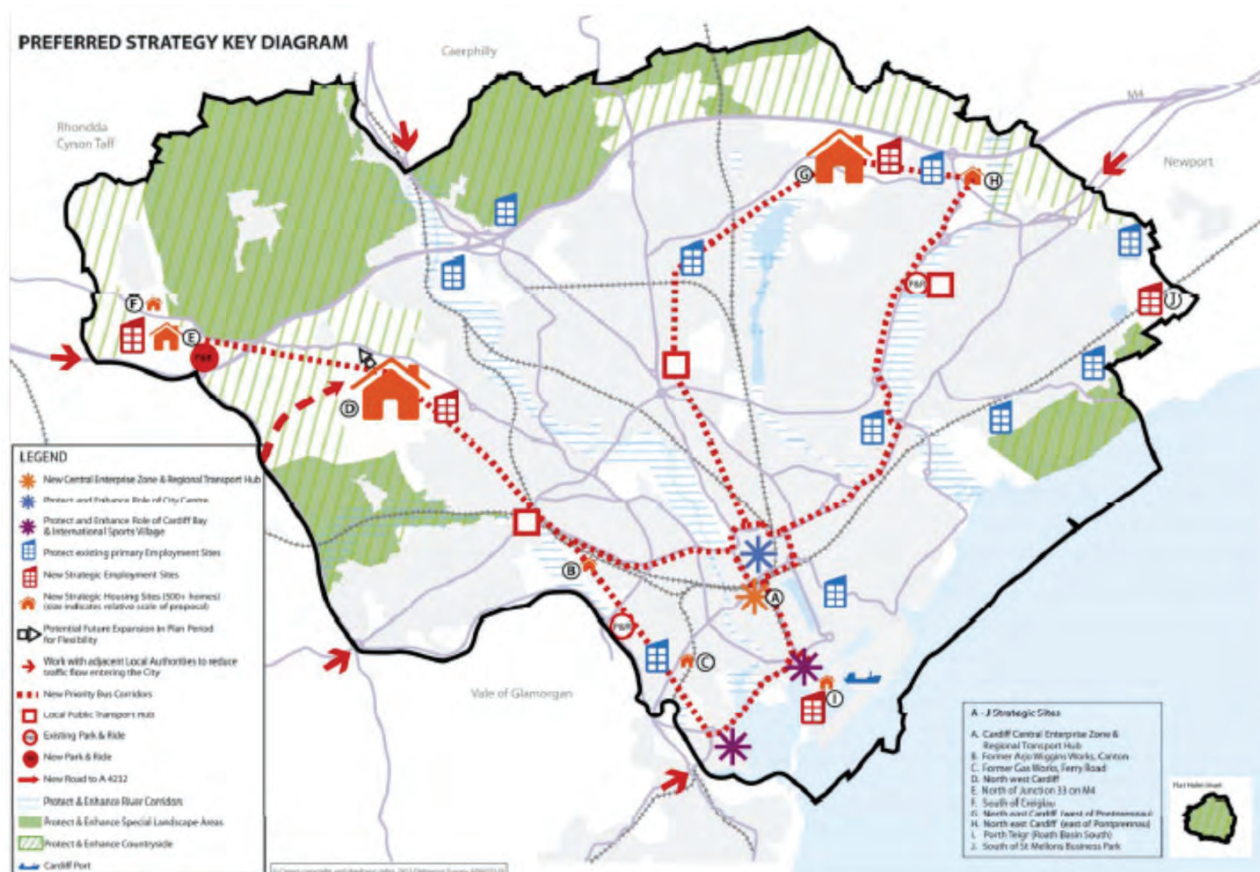


Figure 17 - Cardiff Local Development Plan - Preferred Strategy, November 2012

One project that could begin to deliver a solution is 'Cardiff Crossrail' which would provide a metro service along the missing east-west link across the city. As shown in Figure 18, this would extend from St Mellons in the east, to J33 of the M4 at Creigiau in the west. It would use the electrified relief lines east of Cardiff Central, the city line and a reinstatement of the old track from Fairwater to Creigiau. A complementary north-south Crossrail service would operate from Junction 32 on the Coryton line to the Bay, interchanging at Callaghan Square with the east-west line – as shown in Figure 21.

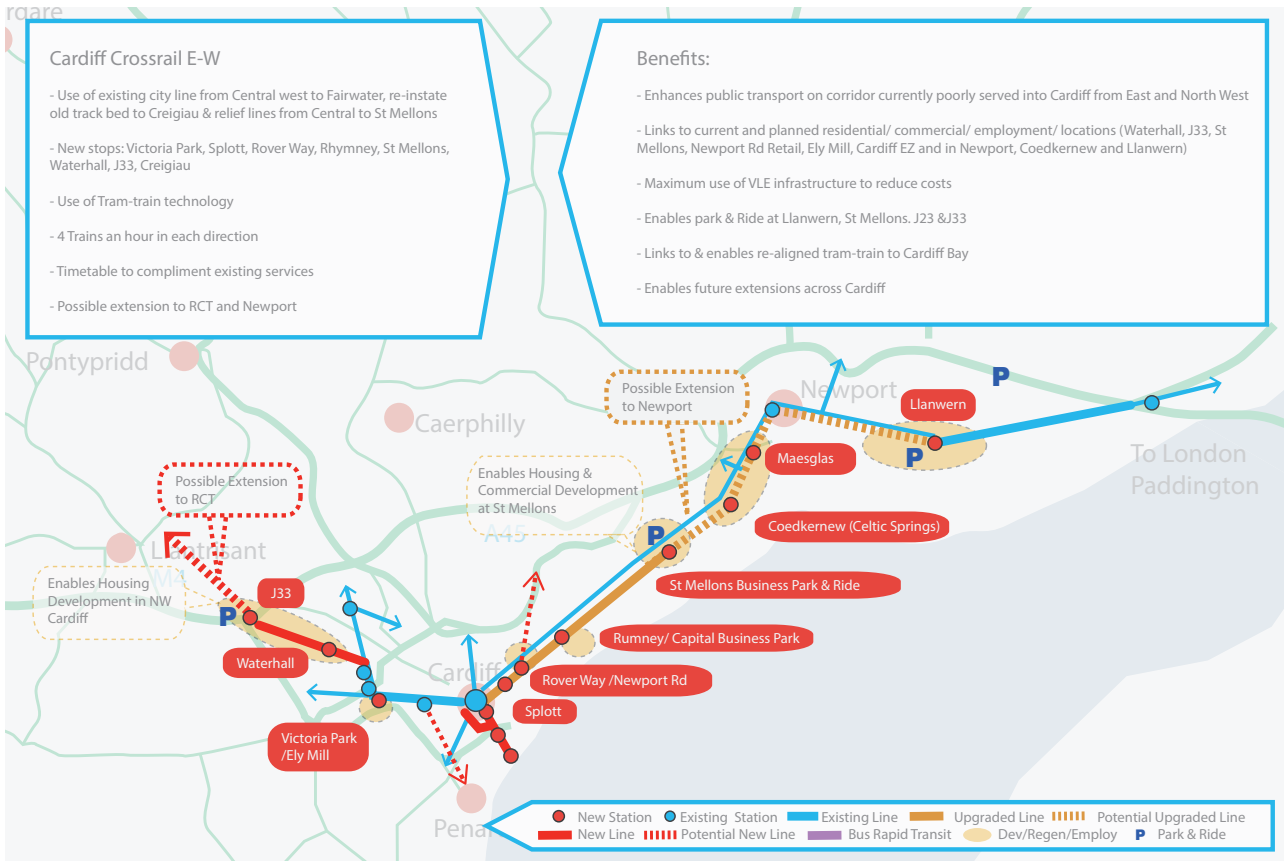


Figure 18 - Illustration of an east-west Cardiff Crossrail Metro Service

As part of this development new or enhanced stations at places like Ely Mill, St Mellons, Crwys Rd, Wedal Rd (for Heath Hospital), Rover Way, Splott, and Waterhall, would address the relatively poor rail connectivity in many parts of the city. They would encourage regeneration and facilitate denser mixed-use development.

By adopting European style tram-train technology (rail vehicles that can run on normal electrified heavy rail and on street rails in “tram mode”), the Crossrail project will also enable the long discussed light rail link between the city centre and the bay. “On street” running south of Central between Tyndal Street and the Taff rail bridge will also free up capacity at Cardiff Central and link directly with a realigned tram-train route to the Cardiff Bay. The routing of the line could also connect Dumballs Rd, the Butetown estate, a possible Conference/Convention centre and provide the backbone of the Central Cardiff Enterprise Zone.

Increased regional connectivity would also enhance the travel-to-work-area of key towns in the Valleys by giving a large number of people in Cardiff the option of accessing employment in places like Caerphilly and Pontypridd, using connections between Crossrail and Valley line services at Cardiff Central, Queen Street, Ely Bridge, and Crwys Road.

The Crossrail project would also allow a wide range of property development across the city. These would include housing to the north-west of the city at Waterhall, Junction 33 and Creigiau; a Business park and residential development at St Mellons (See Figure 20) and regeneration development around Ely Mill (See Figure 19), Crwys Rd (See Figure 22) and Rover Way.

Combined with a turn up and go service frequency of 4 trains per hour and park & rides on the M4 at J32, J33 and St Mellons, a “Cardiff Crossrail” will attract many new passengers to the rail network. Furthermore, by integrating bus services across the city (especially Fairwater, St Mellons & Rumney) on a single ticket, then a truly integrated transport system begins to emerge.



Figure 19 - Illustrative further development at Ely Mill



Figure 20 - Illustrative residential and commercial development at St Mellons

Given the scale of development it will be possible to secure a significant private sector contribution to re-instate the old rail line from Fairwater out to Creigiau. To give an example of the scale of the potential private contribution: 45,400 new homes in Cardiff could secure a sales value of over £8 billion (Land Registry average house price for Cardiff was £183,600 at December 2012); it would not be unrealistic to secure a proportion of this value to contribute to the overall costs of the Cardiff Crossrail project. In fact the Cardiff Crossrail scheme could do for the region what the Metropolitan line did for Greater London in the 1920s and 1930s.

The east-west route could also be easily extended beyond Creigiau to lower Rhondda Cynon Taf in the west where there has been significant housing development in the last 10–15 years, but without a corresponding investment in public transport. It could also extend to the east, beyond St Mellons to Newport and Llanwern. Further extensions within Cardiff would also be possible, to the Sports Village in the Bay, and to Ely and north-east Cardiff.



Figure 21 - Illustration of north-south Cardiff Crossrail Metro serve



Figure 22 - Illustrative development at Crwys Road Metro Station



### Upper Valleys Bus Rapid Transit

It is clear that the Metro also needs some quick wins. In the short term to address the need for east-west cross-Valley routes the quickest and most cost effective means of providing Metro connectivity is by using Bus Rapid Transit.

Bus Rapid Transit systems use dedicated bus lanes to allow buses to travel without interference from other traffic. A Welsh example is the ftrMetro in Swansea where bus lanes link Morriston, the City Centre, and the Swansea University and Singleton Hospital campuses. Bus Rapid Transit systems of varying specifications also exist in Birmingham, Newcastle, Portsmouth, Manchester and Leeds, with the most ambitious scheme being the Cambridge Guided Busway.

Bus Rapid Transit routes, as shown in Figure 23 , will be needed from Brynmawr to Hirwaun and Aberdare via Ebbw Vale, Tredegar, Rhymney and Merthyr; and from Pontypool to Pontypridd. They will provide the essential cross-Valley connections to integrate with north-south rail services to form a Metro mesh across the region. Further extensions will also need to be considered to connect places like Abertillery, Maerdy, Blackwood, Tonyrefail and Ogmore Vale.

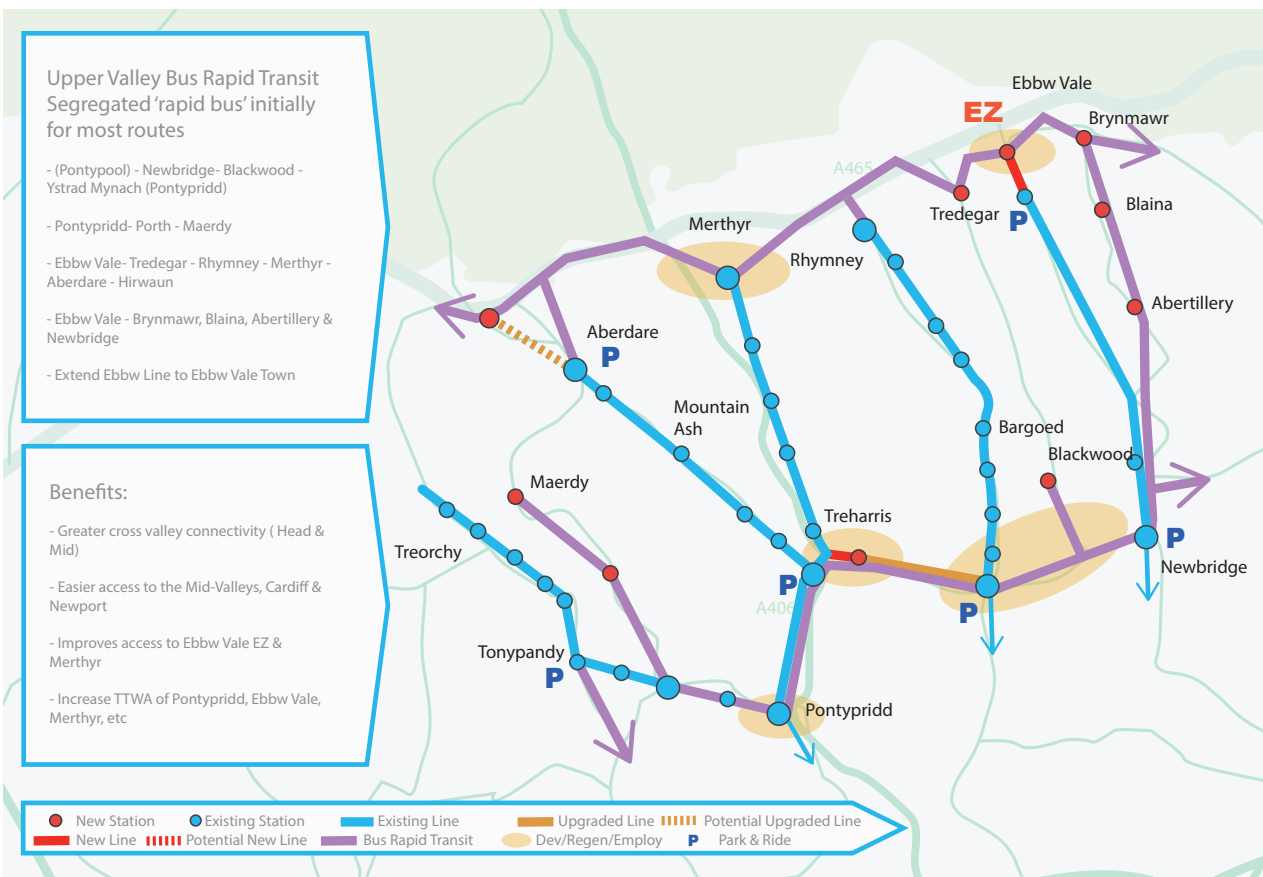


Figure 23 - Illustration of Upper Valleys Bus Rapid Transit Metro Services

## Connecting Newport and Ebbw Vale

A direct rail link between Newport and its natural Gwent Valleys hinterland would significantly enhance the city's travel to work area. It is a glaring failing of the current public transport network that Newport is not connected by rail to its natural hinterland and that the current line fails to effectively penetrate Ebbw Vale. Furthermore, the present capacity of only one train per hour prevents the four per hour frequency that characterises a Metro operation.

A key project for the Metro therefore, is to address connections between Newport and Ebbw Vale, linking with the business parks on the M4, and with Cwmbran and Pontypool as shown in Figure 24. This will require,

- Upgrading of the Ebbw Valley rail corridor to enable four trains per hour and a direct service between Newport and a new station in Ebbw Vale town.
- Some Bus Rapid Transit solutions – especially around Newport.
- Some new stations, for example at Caerleon.

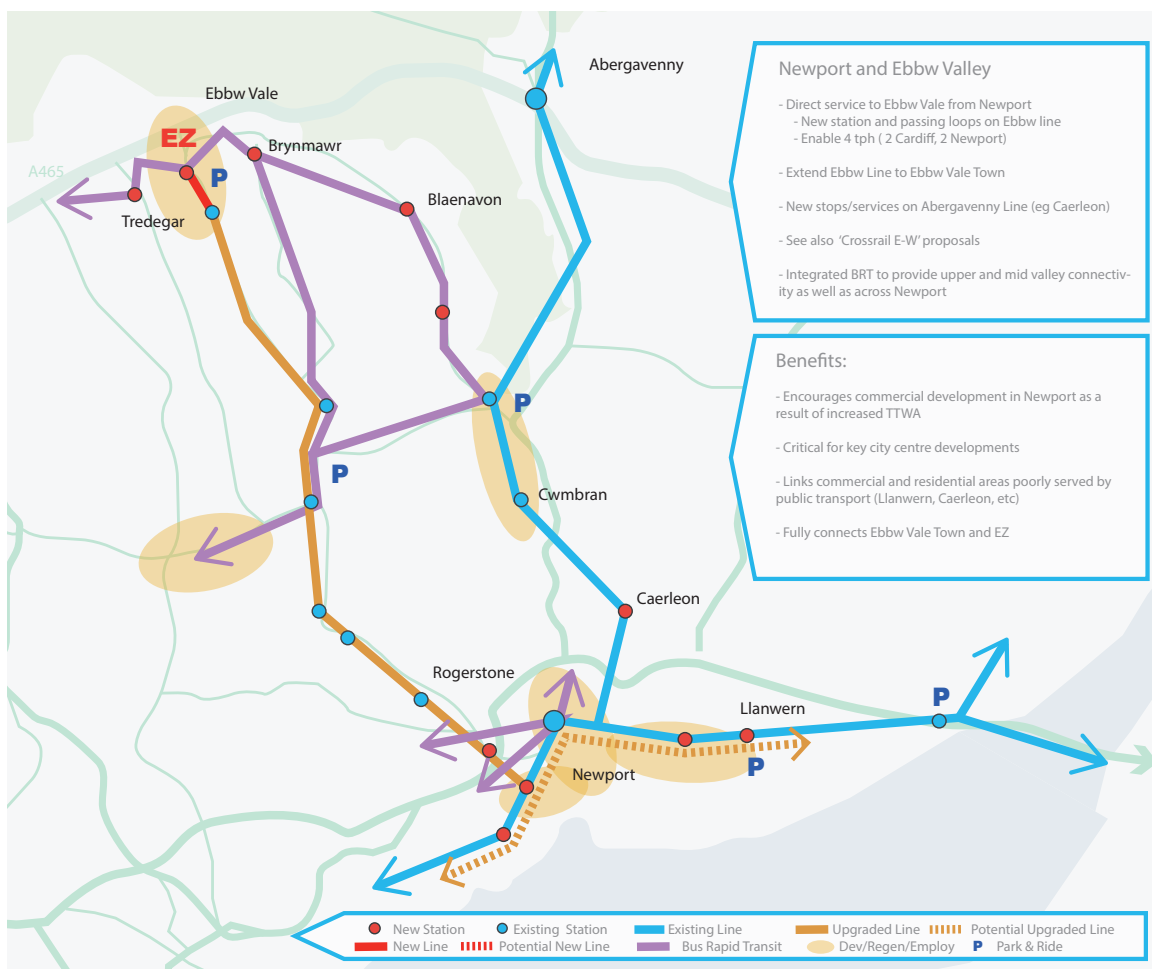


Figure 24 - illustration of Newport-Ebbw Vale/Pontypool Metro Services

These investments would deliver a range of strategic regional benefits. In particular, they will help stimulate the regeneration of the centre of Newport by complementing Admiral’s decision to re-locate its Newport operation to a new office adjacent to Newport Station, and Newport Council’s approval of a £100 million John Frost Square retail and leisure development in the centre of Newport.

The Metro will allow major employers in and around the centre of Newport to access a larger pool of labour and so reduce their operational costs. It will also provide increased access to employment, education, and leisure facilities for the entire Ebbw Valley corridor. Improved connectivity from Blaenau Gwent and the Ebbw Valley to Newport will bring places like Bristol and Filton Abbey Wood as well as Newport and Cardiff, within commuting distance. It may also help the Ebbw Valley become more attractive to house builders because of the easy commute into both Cardiff and Newport. The success of the Enterprise Zone and proposed Motorsports complex in Ebbw Vale will also be made more likely through enhanced connectivity to the town from the wider region.

In fact, with a Metro in place, might we support the development of an international convention and conference centre in Newport City centre on the site adjacent to and north of the station? This is only ten minutes from the centre of Cardiff, could be less than 30 minutes from Pontypridd and is 10 minutes closer to London, Bristol and Heathrow.



Figure 25 - Illustrative development at the Works a new Ebbw Vale Station



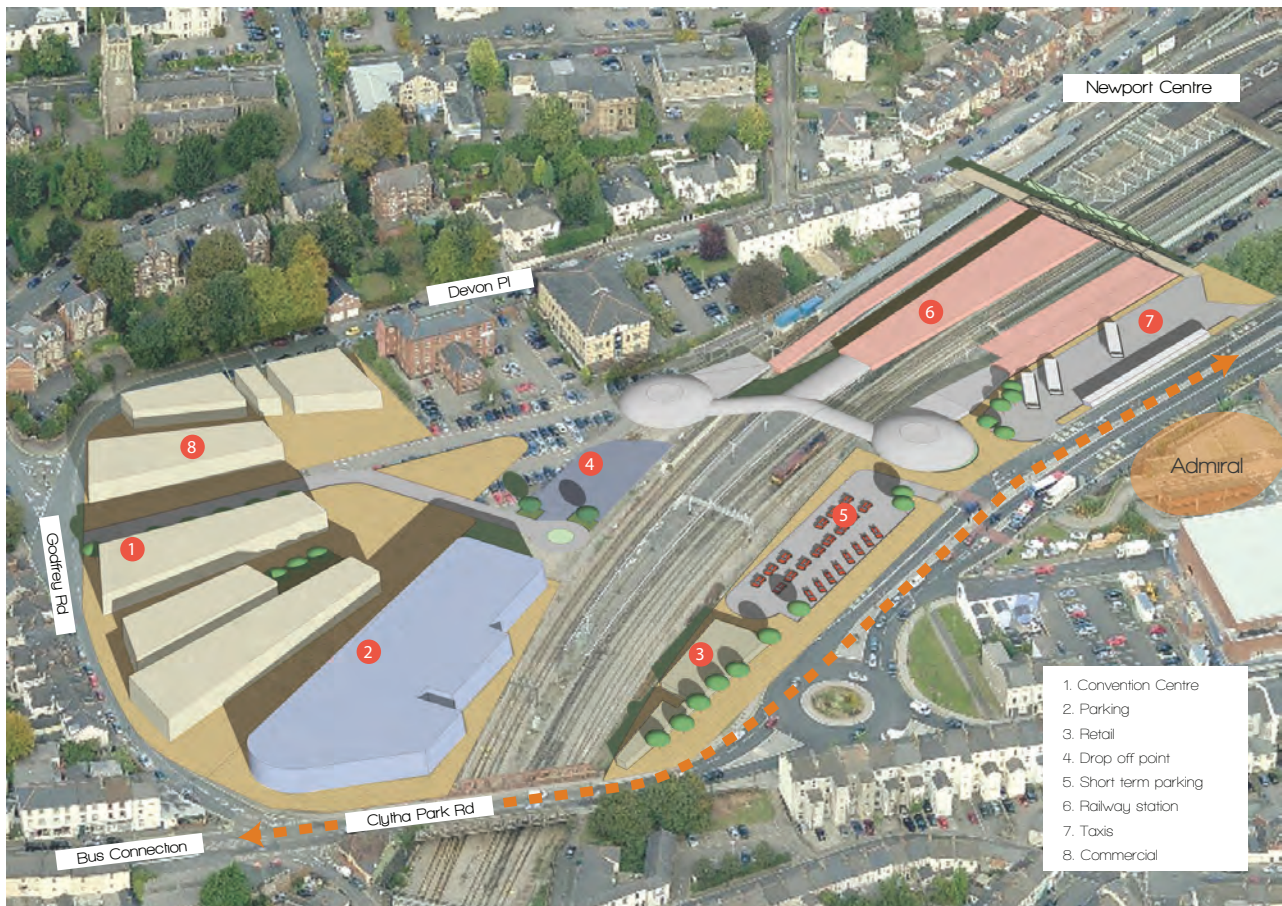


Figure 26 - Illustrative development at Newport Station

The Metro can also help address congestion on the M4. Caerphilly, the local authority which generates the highest level of commuters to Newport, has no direct rail link to the city. The result is that most of 7,000 daily commuters have no option but to use their cars. This is undoubtedly a contributory factor to the congestion on and around the M4 at Junctions 27 and 28. Direct rail links would convert a significant proportion of this latent demand to rail usage as well as attracting more inward commuters to the city from Caerphilly.

## Delivery

To be successful the Metro will require a new kind of organisation to lead on its development and delivery. A body able coordinate delivery arrangements with the many other organisations that will be involved, including the Welsh Government, Network Rail, the Department for Transport, Train Operating Companies, developers, landowners, investors, local authorities and regional transport consortia. It will also need to call upon a wide range of skills and expertise, including:

- Strategic regional planning
- Transport economics and appraisal
- Business case development
- Land and property acquisition
- Planning/regulatory/CPO
- Masterplanning and urban design
- Station design and development
- Corporate finance and investment
- European Funding
- Procurement and contract management
- Franchise specification
- Rail and Rapid Transit engineering assessments and modelling
- Customer information and ticketing systems
- Marketing, branding and communications
- Stakeholder engagement

The Metro will therefore need a variant of a Passenger Transport Executive or a special purpose organisation like Crossrail, the Olympic delivery Authority or HS2. Does south-east Wales have an organisation capable of delivering such a project?

The answer has to be no. We need a new organisation created specifically to develop and deliver a Metro for the Cardiff City Region - perhaps a Metro Delivery Authority. This would be overseen and funded jointly by Welsh Government and the ten local authorities in South East Wales pro rata. It could be established as a public private partnership and would be able to exploit a range of other funding mechanisms, suggested in the section below.

Aside from its development and transport responsibilities, it would need to have planning and compulsory purchase powers. It should also be able to raise money and work with the private sector and developers to fund development and regeneration projects across the entire Cardiff City Region.

## Funding

Governance, funding and delivery are the biggest challenges to overcome to successfully develop and deliver the Metro. But if we get it right the rewards will be great. Transport for Greater Manchester, which serves 2.6 million people across the 10 local authorities, is an example of what can be achieved. It is currently undertaking a ten-year £1.5 billion transport investment programme, including extensions to its Metro. It has a budget of £280 million a year, with £180M funded to a large extent by a pro rata levy on each of its ten local authorities equivalent to £79 per person. £50M of its annual budget is used to finance the investment programme. Because of this scale it has also been able to secure further funding from the Department of Transport together with a loan from the European Investment Bank. Together this has taken its investment programme over the decade to more than £2.5 billion.

The Metro in South East Wales can be as ambitious with potential costs as set out below:

| METRO COMPONENT   | COST ESTIMATES GUIDELINE    |
|---|-----------------------------|
| <b>Already Committed</b>                                |                             |
| Metro Phase 1 – Valley Line electrification by 2020     | £300m                       |
| Metro Phase 1 – GWML electrification to Swansea by 2018 | £200m (for S Wales section) |
| <b>Later Phases:</b>                                    |                             |
| Valleys Circle Line                                     | £75m - 150m                 |
| Cardiff Crossrail                                       | £200m - 250m                |
| Cross-Valleys Bus Rapid Transit                         | £100m - 150m                |
| Newport to Ebbw Valley Enhancements                     | £100m - 150m                |
| Rolling stock   | £100m - 150m                |
| Station development and regeneration,                   | £200m - 300m                |
| Ticketing and Customer Information Systems              | £25m - 50m                  |
| Other network components (rail, tram-train and BRT)     | £150m - 300m                |
| <b>TOTAL</b>  | <b>£1b - 1.5b</b>           |

So, a south Wales Metro can be as ambitious as the plans in Manchester and require, as set above, £1b - 1.5 billion over 10 - 15 years to deliver. This will require a step change in funding and an organisation established specifically to develop and deliver it.

Clearly £1 - 1.5 billion is a large figure. However, perhaps not so great when compared with other infrastructure projects. For example, £1 billion is a little more than the total cost of £800M to complete the Heads of the Valleys Road by 2020, about the same as a new M4 relief road, about 7 per cent of the £16 billion London Crossrail, and about 3 per cent of the £32 billion for HS2. Scotland has over £5 billion of transport projects planned, underway or recently completed. These include the Borders Railway (£120 million), Edinburgh-Glasgow Rail improvements (£1 billion), the New Forth Road Bridge (£800 million), the Edinburgh Tram network (£800 million), Airdrie-Bathgate reopening (£300 million), and the M74 extension in Glasgow (£700 million). In Newcastle, the Metro is undergoing a £400 million upgrade alongside plans for a new £300 million Tyne Crossing.

So, £1~1.5 billion is costly but affordable, and it can be spread over 10~15 years by exploiting a range of funding sources, for example:

### Business rate levy

Would businesses be prepared to pay a business rate levy if it was used to fund a south Wales Metro? This may prove problematic. However, we need to ask the question and test the appetite and commitment of the business community. On the basis that government is seen to be making a proportionate contribution then it is likely the business community will be prepared to play its part. Certainly, a precedent was set in April 2010, when the Mayor of London introduced a levy of 2p in the £1 on non-domestic properties with a rateable value of over £55,000 to help fund Crossrail – which will receive a contribution of £4 billion from the Greater London Authority.

### Council tax levy

This may also prove challenging. However, if businesses across the region accept the principle of a business rate levy then perhaps the wider community will need to accommodate a small levy to support the Metro project.

### Local Authority Funding

If the ten local authorities in South East Wales could cooperate and pool resources in the same way as has happened in Greater Manchester, then significant resources could be deployed. Taking the £180m annual levy to Transport for Greater Manchester and applying pro rata to the Cardiff City Region, we should be able to mobilise an annual budget of around £100 million, with perhaps £30 million over twenty years used to finance borrowing of perhaps £400 - 500m, some of this could fund Metro. A fund of this size should be able to attract additional funds from Department for Transport, the Welsh Government and the EU.

This will be challenging as reorganisation and reallocation of resources will be required across the region and it may take until the end of this decade to establish. However, the Metro is a project the will see most investment after 2020 - so now is the time to propose such changes. More importantly, this kind of commitment would also send a signal to the business community that the region takes the Metro seriously and so make it easier to secure support for a potential business rate levy.

### Community Infrastructure Levy

Could a Community Infrastructure Levy and/or Section 106 contributions be used to fund the Metro? It is probable that housing and commercial developments that require enhanced public transport to gain approval could be utilised to secure contributions. For example 40,000 new homes in Cardiff over the next 15 years will have a re-sale value of around £1.5 billion. It does not seem unreasonable to target a proportion of the uplift in value to contribute to the Metro costs. However, we also have to recognise that even when the economy improves, not every location will be able to support significant contributions; there will also be competing demands for such resources for projects such as schools and community facilities.

## Land and property development

There will be many opportunities to develop land and property at key Metro locations in the Metro, especially near stations. In the process there are likely to be some gains in land values at some locations. These should be exploited by a Metro delivery organisation, given powers to acquire and develop land and property, to utilise uplift in values to contribute to the overall scheme. By way of comparison, London Crossrail expects to generate more than £500 million from land development acquisition uplift around its stations. Closer to home in Wales, the Welsh Government has purchased Callaghan Square to help underpin development in the Central Cardiff Enterprise Zone.

## City deals

Could the English City Deals arrangement agreed between the Deputy Prime Minister and some English cities be used in Wales to fund the Metro? <sup>24</sup> This arrangement allows the local authorities to keep the increase in value of their business rate as a result of development over a 25-year period to fund capital projects. For instance, the deal will provide Bristol with £1 billion over 25 years. There seems no reason why the scheme could not be applied in Wales and also used to match EU funding in Wales.

## Road charging

Could we consider road charging or a parking levy to help generate funds? Whilst it has been successful in London it has proved controversial elsewhere and was rejected in a referendum in Manchester. Public acceptance will depend on timing. The Metro should be already operational before the road charging and/or a parking tax is activated.

## European Funding

Whilst Convergence funds may help, Wales also needs to explore new EU schemes designed to assist economic growth in cities and city regions. Significant mobility, territorial cohesion and connectivity funds are available to EU state governments but only where they are 'devolved' to city regions. This is an area in which the EU is taking a great interest. Wales may well miss out if we do not establish city region to which such funds can be devolved. Related EU initiatives, such as the Trans European Network may also provide sources of funding.

## Government funding

What role should Welsh Government, UK Government, and local authorities play in funding a south Wales Metro? This is a complex area as the Department for Transport in London has responsibility for funding rail infrastructure in Wales - although the Welsh Government can choose to fund projects itself, such as Ebbw Vale line upgrade. The powers and funding over rail infrastructure currently held by the DfT for England and Wales as a whole should be devolved to the Welsh Government by the end of the next rail planning Control period in 2018.

There are also no transport executives in Wales. The four regional transport consortia co-ordinated by the local authorities do not have the funding capacity to take on major capital projects nor the capacity and expertise to develop and deliver it. If the Metro is to get off the ground, government will have to make a major contribution in partnership with the local authorities. This could be direct revenue support or a guaranteed revenue stream to support borrowing or a bond issue that could bring forward some of the capital necessary to develop the Metro.

## Use of government assets

Should other public sector assets be used to help generate funds – for example, pension funds, land, and buildings? Another suggestion is that funds from road tolls, for example on the M4, if this capacity was devolved to Wales, could be used to fund public transport initiatives.

All these potential funding sources need to be explored, qualified and quantified in any early Metro studies.

## Benefits

In its 2011/2012 annual report <sup>25</sup>, Transport for Greater Manchester identified that additional benefits of its £1.5bn transport investment programme will be more than 21,000 jobs and an extra £1.3 billion a year for the region's economy. On a pro rata basis, could a 10-15 year Metro project deliver over 10,000 jobs and perhaps £750M pa to the economy of the Cardiff City Region? Perhaps, however, a more detailed analysis will need to be undertaken to better assess and quantify the wider impact on south east Wales and must form the core of a strategic £1-1.5bn Metro plan; this analysis will explore the following benefits:

- **Economic**

The Metro will reduce travel times for commuters, especially in the Heads of the Valleys. It will give employers a larger pool of labour, reduce churn in recruitment and improve staff retention. The agglomeration of increased regional connectivity will also help increased economic activity (A similar exercise was undertaken to assess the impact of Crossrail in London which identified additional benefits of 25% on top of those calculated through traditional transport appraisals) <sup>26</sup>

- **Regeneration**

The Metro will stimulate regeneration through increased footfall at stations across the network. Early identification of this impact will alert prospective developers and landowners to the opportunities and drive private sector investment. In particular, places like Pontypridd and Newport can be developed so they can contribute more equitably alongside Cardiff to the economy of the wider city region.

- **Transport**

The Metro will result in much greater use of public transport in the region, reducing the number of car journeys and pressure on the roads. If it is accompanied by road congestion charges in the longer term it has the potential of significantly reducing the number of car journeys.

- **Strategic Regional Impact**

The Metro can shake off the legacy of a century of industrial decline and create a more cohesive city region that can compete more effectively on the international stage.

- **Community Regeneration**

The Metro will give many communities across the Valleys a new lease of life with stronger commuter settlements able to support a wider range of secondary services.

- **Environmental**

By substantially reducing the number of car journeys the Metro will result in the reduction of carbon emissions, less congestion, and an improved quality of life.

<sup>25</sup> Transport for Greater Manchester, 2011/2012 Annual Report

<sup>26</sup> TfL & MIT, 2010, Jenkins, Salvucci & Colella, "Agglomeration benefits and transportation projects: a review of theory, measurement, and application "

## Recommendations

The Metro Consortium anticipate that this report, the IWA Conference on 25th March 2012, a BBC Wales programme on the subject and the discussions they stimulate will provide a valuable source of insight and knowledge to assist the Welsh Government and its Integrated Transport Task Force. To explore the concept in more detail. The Metro Consortium recommends:

- That further studies are undertaken, initially these will include:
- **Strategic Site Review**  
A review and identification of a long list of strategic development sites across the region. This will set out the potential scope, timing and quanta of a range of developments and how the Metro development can influence them and vice versa. This will require discussions with land owners, developers and investors to explore how a Metro Delivery authority can enable development and capture the value uplift at key locations. This process should also assess the risk profile of each location so that the role of the public sector in enabling development can be quantified. Sites/locations could include: St Mellons, Pontypridd, Waterhall/J33, Ebbw Vale, Newport, Nelson/Treharris, Barry, Caerphilly, Rover Way, Cryws Road, Caerleon, Llanwern, etc.
- **A wider economic benefits study**  
As has been undertaken in places like Greater Manchester, a review of the potential wider economic benefits of a Metro should be undertaken (as set out on Page 33 ). This will include the direct economic impact as well as the agglomerative effects of creating greater connectivity across the region. This should also be used to inform any new region wide economic plan and FDI initiative.
- **A community regeneration study**  
To help shape a region wide Metro based community regeneration strategy, we need to understand the potential benefits and community developments that can be enabled. This will also include an assessment of other agencies that can be included in execution. This will include existing regeneration initiatives, potential housing association development and alignment with work in the WG economic and regeneration departments.
- **A full assessment of EU funding**  
A more detailed analysis of all the various EU funds available from 2014 and initial engagement with appropriate parties to ensure that Metro is positioned to secure maximum support in both its development and delivery into the 2020's.
- **A governance and organisation review**  
To establish the remit, scope and funding of any new "organisation(s)" tasked with development and delivery of the Metro (in whole or in parts).
- **A comprehensive funding strategy**  
To explore in more detail, through discussions with a range of funding partners the quanta, timing and dynamics of range of funding sources.



- **Other areas that require investigation include:**

Station design & development standards, marketing and branding, ticketing and customer information, review of transit technologies and their applicability to Metro, more detailed engineering assessments of route/corridor options, an assessment of operational models for different parts of the Metro (rail franchise Vs open access agreement, concessions for operations, management/integration of bus subsidies, etc), traditional transport/corridor modelling to assess current network gaps (much of this data is already available through the work of local authorities and SEWTA).

- **Define Metro Network**

All these studies and data can help inform the shape of the Metro network and influence its phasing and funding strategy.

- **Prepare a Metro Investment Prospectus**

These studies will also inform and make up a key part of a Metro investment prospectus. This will set out the vision, scope and impact and enable the Metro Authority to effectively engage with potential co-investors, developers, operators and PPP partners. It is likely that a period of discussion and iteration will be required before a proposition is defined that can secure investment partners. This will evolve as the Metro project develops in response to policy and market changes.

## PART II: What the Metro means to me

In preparing this report, the Metro Consortium was keen to secure a wide range of views from the business community, academia and the public and voluntary sectors from across the region. These contributions below do not agree with each other on every detail nor do they suggest the same priorities. However, they do agree that improving public transport across south-east Wales should be a government priority.



David Llewellyn, Valleys Regional Park Coordinator

*The views given here should not be considered as those of individual VRP partners*

## Making the Valleys a magnet for tourism

Tuesday 17 June 2025:

A warm sunny day, and the Bergmann family from Stuttgart, have spent three very agreeable days taking in the cultural and retail delights of Cardiff, although a little to others' chagrin, Herr Bergman had also taken the opportunity for breakfast with a business contact who had made the rapid Metro journey down from the Automotive Enterprise Zone at Ebbw Vale. Now they are about to explore and enjoy the city's hinterland of the world-famous Valleys. They have planned a few more days to indulge one of their passions with high-quality downhill mountain biking at Cwmcarn, before some walking along the Ebbw Fach Trail to take in the iconic Guardian memorial, and finally a visit to the World Heritage Site at Blaenafon. Departing from Cardiff's impressive Central Station hub, the Valleys Metro train whisks them on their way through the eastern Cardiff suburbs and then northwards up the wonderfully verdant Ebbw valley. The train is every bit as quick, reliable, attractive, and affordable as the VVS (Verkehrs und Tarifverbund Stuttgart) in their home region...

The aim of the Valleys Regional Park programme is to maximise the environmental, social and economic potential of the Valleys' outstanding natural and cultural heritage assets. The Metro proposal is a natural complement to that. Both aim to deliver sustainable economic, social and environmental benefits and change perceptions to create a positive image of the Valleys.

Development of the Metro will deliver interlinked economic, social and environmental objectives:

### Economic growth

The Valleys have many cultural and natural assets that complement the increasing attractiveness of Cardiff as a tourism destination. In recent years, there has been significant investment in developing the Valleys' tourism infrastructure, through the Regional Park programme and the Welsh Government's Regeneration Areas in the Heads of the Valleys and the Western Valleys. In addition, the Cognition project is developing world-class mountain biking in the area

A highly efficient, integrated, attractive transport system that provides rapid connectivity between the Valleys, Cardiff and the airport would provide a great boost for tourism visits to the Valleys and add to the offer of the region as a whole. Improved connectivity would also encourage inward investment and migration into the Valleys. Good quality access to the coastal belt would substantially add to the attraction of the Valleys with their high-quality landscapes as a place to live. The largely 'north-south' geographical nature of the Valleys can make travel between them difficult and therefore the proposals for greater connectivity along Heads of the Valleys and Mid-valleys corridors are very welcome.

### Social Inclusion and regeneration

Affordable, accessible and regular dependable public transport is vital to the availability of employment for people living in deprived areas. In 2004 a Welsh Consumer Council survey showed that local bus services did not meet the need for weekday travel for over 80 per cent of people in the Valleys.

Connections to the upper Valleys areas are vital. They contain some of the most deprived of our communities with the most intractable economic problems. Yet, at the same time they offer some of the best opportunities for tourism and outdoor activities. Examples include the World Heritage Site at Blaenafon and the newly developed Ebbw Fach Trail.

The current Metro proposal suggests that Bus Rapid Transit might serve the upper Valley areas in the Ebbw Fach, Sirhowy, Rhondda Fach, and upper Afon Lwyd (Eastern) valley, at least initially, rather than the immediate development of additional 'light-rail'. The Bus Rapid Transit concept has been around since the late 1930s when it was first proposed in Chicago. Truly efficient schemes often require properly segregated and dedicated lanes.

However, it is unlikely that the main roads in the upper Valleys will be suitable for this option. Consequently, other possibilities should be explored to ensure their provision is not substandard, but fully in keeping with the aspirations and standards of the Metro concept. For instance, an integrated Metro station at Aberbeeg might serve Abertillery and the Ebbw Fach Valley better than a Bus Rapid Transit scheme running from Newbridge through Llanhilleth.

A key objective of the Metro has to be to enhance social inclusion and regeneration in deprived areas. Car transport is the lowest in Wales in these areas. The benefits of the Metro will only be delivered if it is fully integrated with other sustainable forms of transport such as the Valleys Cycle Network, and improved local bus services.

## Environmental Sustainability

Our competitors in city regions in England such as Leeds, Manchester, and Sheffield are already developing visionary, transformational green infrastructure strategies. Coupled with integrated transport plans, these are vital to their sustainable economic and social growth and development, whilst protecting the ecosystems that underpin them.

The Metro can support the development of a sustainable, low-carbon economy in south-east Wales. It can provide impetus for it to be a leader in 'Green Growth' whilst delivering a reduction in transport-related greenhouse gas emissions.

The Metro provides an opportunity to forge an enhanced sense of identity within the city region and transform its economic and social fortunes. It must be fully integrated, inclusive and affordable, and be developed in keeping with the goal of a high-tech, low-carbon economy that helps position the city region as a leader in sustainable economic growth.



Lynda Campbell, Regional Director, British Gas in Wales

## Tackling travel times, delays and overcrowding

Located next to Cardiff railway station and just a couple of minutes' walk from the bus terminus, British Gas is in a position that many a business in many a city would envy. Employing close to 1,300 people from across south Wales at our contact centre where we receive around 70,000 calls from customers across the UK, good public transport for our people is essential. It makes sense for our business to have a central location. But, this only tells part of the story.

As winner of European Call Centre of the Year in 2009 and 2010, we looked at every aspect of our performance and the experience of our staff, seeking the best possible environment for them to want to stay working for us. It's an approach that has worked for us, reducing the churn in our staff from over 50 per cent a year, four years ago to just seven per cent today.

Unfortunately, however, when it comes to the daily commute, stories we hear day in day out from our colleagues suggest there's some way to go to achieve the step change in service level that we want to see. When we asked our staff to tell us about their experiences of getting to and from work, though, the findings were striking:

- For one in five of those surveyed, the key complaint was cost - be that car park charges, bus or train fares or the price of petrol.
- Smaller numbers felt the safety of their journey was a cause for concern – mentioning having to park in a remote location or walking home after dark.
- Among those who use our secure cycle racks on site, there were calls for the establishment of better routes around the city.
- But by far the largest set of complaints relate to the condition and availability of public transport – the delays and overcrowding experienced on both bus and rail services, plus journey times many feel are unacceptable for the distance travelled.

Take Alex who's been using the bus to travel in from St Mellons since moving there from Newport a year ago. His door-to-door journey using the train from Newport used to be half an hour. Now it's double that just to travel half the distance, simply because of the number of stops on his bus route. Not surprisingly, he looks at the railway line just a few hundred metres from his house and hopes that one day there will be a stop at St Mellons.

Further afield, Emma in Senghenydd wishes the trains still ran up her Valley, so she didn't have to switch from bus to train in Caerphilly. And then there's Estel for whom the disparity between her shift patterns and the train times from Aberdare mean she chooses to come in the car.

We want to make it as easy as we can for our staff to do their work and live their lives. This is why we want to see a modern transport network for the whole region that provides the connections they need. That's why we support the Cardiff Metro.

## A catalyst for reshaping the Valley towns

The Valleys Metro is concerned with one objective above all else: the future prosperity of communities living in the south Wales coalfield region. Our 15 post-devolution years have seen a steady divergence of GVA per head between Wales and the rest of the UK. The continuing decline of the economy and of average living standards in the coalfield region vastly occludes any growth south of the motorway. Every conceivable quick fix has been attempted, and none has changed the trajectory of unmanaged change.

Ex-colliery communities have declined across Britain, but the predicament of the south Wales coalfield is not replicated elsewhere. In the English Midlands, south Yorkshire, Northumberland, Cumbria, Ayrshire or Fife the disappearance of the industry has left small voids. Only in south Wales has it left a social and economic chasm. What makes us different is the fact that none of the other major coal areas were ever as dependent as south Wales on just one industry.

In England, the coalfields generally spread across densely populated and prosperous regions which had a multitude of economic drivers. The contrast with Wales was stark. If there had been no coal, today the Valleys would without question be a National Park. In simple terms, the region is poorly suited to human settlement. Until the 18th Century the coalfield region was as wild and as sparsely populated as any other part of upland Wales. Taking contemporary Powys as a benchmark, without industrialisation the population of the coalfield region would be no more than a tenth of what it is now. It is impossible for the region to achieve social or economic viability in its current form, when the one and only reason for people living there in large numbers has entirely disappeared.

Inevitably, and despite a huge political effort to maintain opportunities, the coalfield, is depopulating. In all of Wales it is only the populations of Rhondda Cynon Taf, Merthyr Tydfil, Blaenau Gwent and Neath Port Talbot that have reduced in density in the last 30 years. Where similar conditions prevail elsewhere in the world only ghost towns remain. Consider the coal town of Lynch in the Appalachian mountains, where a post-war population of 10,000 has fallen to fewer than 900, or Vindex in Maryland, one of many Potomac Valley coal towns which have vanished completely. It is too easy to see the wider economy as the cause of change in the south Wales valleys. It was capital that created their predicament. But it is the character of the landscape that now governs what is possible. Where the Valleys are concerned, "It's the topography, stupid."

The reshaping of coalfield settlements requires a planned reversal of the original process of industrialisation. Industrial development preceded population growth, and occupied the more usable ground on the Valley floors. The collieries were the centres of gravity of the communities, and they occupied the central spaces. At the height of the coal industry civic and social amenities were plentiful but they punctuated closely packed terraced streets at irregular intervals. It was unavoidable that the majority of the settlements would take the form of strands of housing along steep valley sides, and that few conventionally defined towns could take shape.

So how could the form of valleys settlements change, to become more viable? And what part could a greatly improved public transport network play in the transformation?

Part of the answer can be found close to hand. Rural settlements of the kind that typify agricultural Wales take a simple characteristic shape, just as they do the world over. Buildings and homes aggregate around a few small, tightly defined common spaces, in a 'bulls-eye' pattern. The density of building is greatest near to the centre, and gradually decreases towards the edges. Shops, social facilities, welfare and civic buildings occupy key locations close to the heart of the settlement. Life flourishes in the places and spaces between the core buildings.

Even in economically strained rural areas settlements of this type continue to be viable, because each settlement provides a focus not just for the immediate inhabitants, but also for a large area of rural hinterland. Density of habitation will typically be relatively high at the centre of a rural town - with terraced houses the norm – but measured together with the hinterland overall population density will be low.

If current trends continue, it is inevitable that the population as a whole, and of the upper and mid-Valleys in particular, will further reduce. Without constructive intervention settlements in the Valleys will gradually evolve into unfocused clusters, coalescing from the contiguous strands of contemporary Valley settlement. These changes will not need to be planned or managed, they will happen regardless over the course of the next few generations. But with intelligent planning and management the changes can be made to happen more quickly. There can be greater active community participation with a good chance of a positive outcome, and with far less collateral social damage than will otherwise result. However it happens, it is essential for the overall population of the coalfield region, and also for the area of built development, to be greatly reduced.

At the moment there are 12 miles of unbroken development along the Rhondda Fawr between Pontypridd and Blaenrhondda. This could be thought of as one town, but it contains around a dozen settlements the separate identities of which are still linked to the industrial centres they once served. However, the dozen-or-so settlements are distinct in name only. In their place it is possible to envisage perhaps half that number of small, well-defined, healthy towns, each surrounded by fields and forests.

The existing railway tracks were built to handle coal. They can only be at the base of the Valleys, and it is along those lines, where the industrial structures have been removed, that an abundance of useful development space is to be found.

With carefully judged planning, the Valley towns of the future can be re-shaped around cores of civic and social amenities and well defined public spaces, following the pattern of rural towns, and the new rail stations can be the catalyst that enables the redefinition to begin. New stations might be built in existing station locations, but the priority must be the availability of space around them for the development of new workplaces, shops, public amenities and even new urban housing, rather than the sub-urban forms favoured until now by the volume house-builders. As important as any of these will be the tightly defined, attractive civic spaces, around which the new developments will be concentrated, and which will become the centres of gravity of the future Valley towns.

The counterpoint to the creation of these new, close-grained urban centres will be the separation of the settlement edges from each other by the removal of under-utilised housing and the restoration of 'natural' landscape in place of existing terraced streets. This will be a process of selective demolition and clearance, and it can only happen with the committed participation of local communities, every affected household of which must demonstrably benefit as a result.

There are of course a few coherent, well-defined valleys towns that already exist, such as Pontypridd, Merthyr Tydfil, Llantrisant, and Aberdare. These should continue to grow as they are at present, largely by drawing in new residents from the fringes.

The planned expansion of Cardiff will provide a further essential counterpoint to the restoration of social and economic balance in the Valleys. For the children and grandchildren of current Valleys residents, the option of migrating to the southern cities must be made an attractive one.

For many future residents of viable Valley communities it will be normal to travel to work outside the Valleys, and to the cities in particular. The Valleys Metro will provide the means of commuting quickly and regularly throughout the Valleys and down to the south. It will be equally effective in making the re-shaped Valley towns attractive for investment in new workplaces. This means that, for non-commuting residents, there will be sufficient local work to ensure an average level of employment can be sustained. In this way the viability and health of the community as a whole can be established and protected for generations to come.





Chris Sutton, Lead Director Cardiff, Jones Lang LaSalle

## Metro - delivering economic development

Urban guru Richard Florida, who leads the Future Cities movement, points out that a milestone has been reached. Fifty per cent of the entire global population now lives in urban areas. By 2050, the UN thinks it could be 75 per cent. In the UK, almost 80 per cent of the population lives in urban areas and, overall, there has been a shift in power to our city regions.

Whilst the focus of researchers may be on the mega cities of the world, in Wales we have also seen the recognition of the city region concept as a driver of economic activity. The defining characteristics of our winning cities are based on size and scale, complimented by attributes of physical and virtual connectivity, quality of life and governance.

Cardiff is the commercial, cultural and political hub for the whole of south Wales. However, in terms of physical connectivity, it suffers from an incomplete and dated transport infrastructure. In order to compete at the highest level, Cardiff requires much improved external links and a fit for purpose 'premier league' internal transport system.

For in no small part the city's success is down to the economic strength of the region as a whole. For example, the thriving retail offer in Cardiff city centre requires the catchment of the entire city region at a population close to 1.5 million. Some major occupiers will only be attracted to the larger centres however well connected they are to their hinterlands. The reality is that our cities are our only opportunity to attract new investment from certain sectors of the economy such as financial and professional services. Policy initiatives such as Enterprise Zones and planning reform should complement infrastructure improvements to create a pro-growth economy.

We need a focussed approach to a property strategy for economic development in Wales. This would direct limited public sector resources towards the provision of those sites and properties most in demand by key sectors and industries. A demand-led approach could create a necklace of sites and new buildings across south-east Wales, planned around improved infrastructure, with different places having potential for different types of economic activity. The role of the public sector would be more in partnering and facilitating development than direct, exclusive development in its own right. However innovative funding mechanisms and delivery structures should seek to maximise the leveraging of private sector investment.

Inward investment and infrastructure will be key for driving activity in a flat economy. London and Manchester are leading but Bristol is not far behind with a significant growth in catchment predicted by 2020. Our research suggests however that, after West London and Bristol, Cardiff will benefit most from a significant growth in working age population. Therefore, we need to innovate and invest simply to keep pace with our competitors.



Professor Calvin Jones,  
Professor of Economics, Cardiff Business School

## It will tell us all we need to know about ourselves

Before we start, let's get one thing straight. A Metro for south-east Wales is no economic panacea. It will not result in a rapid revitalisation of regional industry, in an influx of high paid or high value adding jobs and dozens of company headquarters, or of tens of thousands more tourists. In fact, the debate around a Metro for south Wales should be contextualised within the understanding that it is likely no policy intervention can make any of the above happen, at least not within anything other than a generational timescale. Any debate about appropriate investment in transport (and indeed wider social) infrastructure must recognise that we are a place at the wrong end of history. Wales' last really significant economic contribution occurred over a century ago, and our greatest innovations over a hundred years before that. It is important to realise this need not be a bad thing and it is not our fault.

We are part of a country (and of a continent) which has had and lost the global economic focus. The geographic shifting of this focus is discernable over thousands of years: from the fertile valley of the near east through the Mediterranean and then Northern European empires, and on to the New Worlds, driven by climate and the changing importance of land, mineral and human resources. It is irreversible. Wales is a small, peripheral country, and small, peripheral countries cannot compete in innovative (or increasingly productive) terms with larger, better-connected places. This is especially the case when corporate control of global capital depreciates the effectiveness of policy interventions and the geographic 'embeddedness' of economic activity.

And if we aim to compete our way back to the top, we should remember our demographic future: By 2050 the UK will have only two workers for each dependent economically inactive person (mostly aged), which will be down from the current four to one ratio. This fact alone will massively change the fundamentals of our economy away from activities that are 'internationally competitive'.

In July 2009 Robert Reich, US Secretary of Labour suggested the Great Recession was not V or even U shaped, but X shaped – with X marking the spot where a new economy was (painfully) born. This new economy is still of unknown shape, but we know what it will not be. It will not be Euro-centric, debt and consumption fuelled, easy-oil reliant, globally devouring and climate ignoring. Ecological and energy limits don't care whether we economists believe in them or not. The existence of these limits is obvious, especially here in the most energy dependent (yet poorest) of Britain's economic regions. And these limits give us some pointers as to what is and will become more important in how we conceptualise and then enable economic prosperity.

The first pointer is: **Resilience**. We live in an age characterised by economic, meteorological and social shocks that are increasing in frequency and severity. As a first principle, investment in infrastructure should prioritise the protection of our basic welfare. As private car ownership becomes simply unaffordable for an ever-greater share of the population, access to key services (not just employment centres) is far from given. Multiplicity and redundancy in transport (and indeed energy) can only help soften future shocks.

The second pointer is: **Decentralise**. It is clear that as transport costs increase, there is a huge opportunity to re-launch properly local and community businesses, in sectors as diverse as food, professional services and entertainment. Revitalising the economic behaviours of only forty years ago would capture a far higher proportion of wealth in our poorer communities; at the same time it would reduce our reliance on globally spread, increasingly vulnerable supply chains for what have become basic necessities. A properly multi-nodal (not hub-and-radius) metro system could enable a far higher level of intra-south Wales economic and social interaction.

A third pointer is: **Dissensus**. Doing things differently across the region, with different places developing different competencies in entertainment say, or in social care, or in (let's dream) micro-factory manufacturing.

We would then have the potential for a spread of prosperity amongst a large number of economically distinct and complementary towns across the Valleys, rural uplands and the coastal plain. And all of this would be enabled by a publically owned, low cost, diffused and efficient integrated transport system.

How to pay for this vision? The obvious answer is to toll the roads, to accept the potential for short-term competitive disadvantage in pursuit of a long-term goal. There are other ways. For example, there is roughly £8 billion of Welsh public sector pension fund money doing not-brilliantly in Tesco, BP and other corporate investments. That sum could pay for the metro twice over – and, with long-term, guaranteed income stream from fares, for decades ahead. Additionally, the Welsh Government's first forays in borrowing are likely to come soon. Pump priming the next century's transport infrastructure would be a better first use than priming the detonators on a half-billion pound populist shoring up of the last century at Brynglas Tunnels.

I implied at the start that a Metro for south Wales wasn't centrally important, in the sense of not 'guaranteeing' success (whatever that means) for the region. But the Metro project is centrally important as emblematic of what we think about our region, and our future. If we build it, and build it well, we tell the world we care about things. About the climate, yes, but also about the importance of distinctive place, about our less advantaged residents and about actively planning for a positive future.

If we don't build it – if its too difficult or expensive, will take too long, or because we just simply like our cars too much – that will tell us all we need to know about ourselves. That we're content to throw public money at the same old failing elephants; that we are content to live with managing decline; and to cross our fingers and hope something or someone comes along to sort us out. I hope and believe that's not us.

## Survival in an age dominated by cities

Within 20 miles of the centre of Cardiff live 1.48 million people. Although the idea of a *Cardiff City Region* or even *Greater Cardiff* does not yet sit comfortably with everyone, it is an undeniable fact that this scale and density of habitation represents, in numbers alone, a City.

We may not live in a singular and identifiable city with a single governance structure like Glasgow or Bristol yet the scale at which we operate means that south-east Wales *should* operate more like a city region to secure the benefits of our size. Cardiff, and the 1.48 million people that live within its gravitational pull, need to be capable of functioning as a cohesive city because the economies and societies of the 21st Century will be dominated by cities. For the first time in human history, more than half of the global population live in cities<sup>27</sup> and by 2030 this figure is predicted to be nearly 60 per cent of the world's eight billion inhabitants. By 2050, it'll be nearer 70 per cent of over nine billion people.

Moreover, 600 urban centres currently account for 60 per cent of global GDP<sup>28</sup> and this proportion is predicted to be largely the same by 2025. However, by then the membership of this group will be very different. This is because by 2025 one third of these will be from the southern and eastern hemispheres - China in particular. What this tells us is that those cities that are able to project themselves positively in national, continental and global terms will give themselves a better chance of capturing economic opportunities.

The Metro is important to Cardiff and south-east Wales because it is an opportunity for our region to cultivate an image of itself to present to the rest of the world that is positive and forward thinking. It is essential that we embark upon a process of simultaneous and assertive regeneration, development and environmental conservation that will result in Cardiff and its catchment becoming one of the most livable cities in the world.

There are three main indices which chart the living conditions of urban areas and it isn't surprising that public transportation is measured by two of these indexes. Irrespective of how livability is measured, cities like Zurich, Melbourne, Copenhagen, Auckland and Vancouver are continually represented in this group. Why shouldn't south-east Wales aspire to join their ranks?

If we choose to invest in projects like major road building programmes, which don't establish Cardiff as one of the Europe's most livable cities then we are wasting time, energy, money and opportunities. Our inaction, or inability, to grasp the opportunities available to us now will, quite rightly, be judged harshly by the future generations who will inherit a much more diminished city from us.

So what will this livable city of south-east Wales look like? At the local level there is real potential for the hubs on the Metro network to become dynamic places around stations. A key determinant of success will not just be about developing utilitarian and functional connections, but making them humane, vibrant and interesting through sensitive place making as well as good architecture. It is important that the moment you step off the Metro you are presented with the culture, heritage, character and distinctiveness of the place rather than an excessively engineered clone town. The Metro then is much more than a functional network of getting from Albany Road to Blaenau Gwent, but a reason to remake new places throughout the network.

The Cardiff Metro proposition makes us confront some of the most important questions about the City Region. It forces us to consider the future of the Welsh capital itself, the role and identity of other towns in the region and

27 World Urbanization Prospects: The 2011 Revision (United Nations Department of Economic and Social Affairs/Population Division) 2011  
[http://esa.un.org/unup/pdf/WUP2011\\_Highlights.pdf](http://esa.un.org/unup/pdf/WUP2011_Highlights.pdf)

28 Urban world: Mapping the economic power of cities (McKinsey Global Institute) March 2011  
[www.mckinsey.com/insights/mgi/research/urbanization/urban\\_world](http://www.mckinsey.com/insights/mgi/research/urbanization/urban_world)

the complex relationships between them all. It is important that we don't get distracted with what we might lose, but think about the Metro concept from a global perspective of competitiveness and livability as well as from an extremely local perspective of humane place making.

We also need to consider the alternatives to the Metro? What image would we project to the rest of the World (assuming they cared) if we stumble into the future with a series of corporate drive-through restaurants alongside choked dual carriageways? It would be much easier to deliver, but how much of our identity will we be able to project to the rest of the world if we were to end up with such an outcome? Such a scenario must be avoided at all costs.

If we don't confront these questions and are reluctant to countenance the redefining of the relationships between the Valleys and the coastal urban settlements then we are going to find ourselves even further behind competing cities. While we wrestle with questions such as *'Should Cardiff and south-east Wales be treated as a city?'* or *'Is a Metro is appropriate?'* other cities in the UK like Leeds, Bristol and Glasgow are confidently renegotiating their position in the new global economic hierarchy and making their cities more livable for their residents. It is important that we implement the Metro so that it can become the connective tissue of a more prosperous, equitable and competitive City Region.

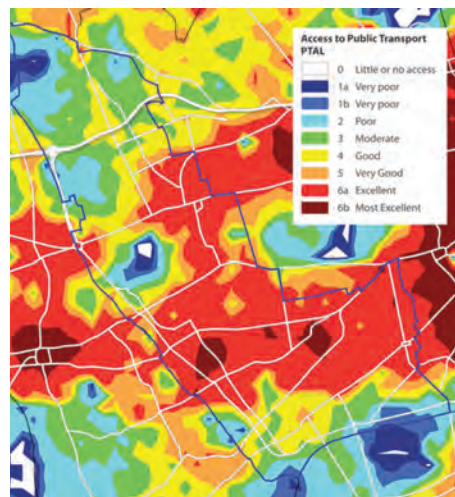


Jon Fox, Technical Director - Environmental Planning,  
Wardell Armstrong

## Smart growth

There are many arguments in favour of a Metro for south-east Wales, and surprisingly few against. For me, however, the most compelling reason is Smart Growth.<sup>29</sup>

Recent land use policies to accommodate our growing communities have been anything but smart. We have created 'zombie communities' that rely on the private car, where the houses and streets are designed around the car, and where those same streets are empty during the day when commuters are at work. At best, we have paid lip service to notions of building new homes and development in accessible places. We have created few sustainable locations with capacity to absorb growth.



Outside Cardiff and our larger towns, people put up with really poor access to public transport and more and more suffer from transport poverty<sup>30</sup>. Town centres that were once easily accessible on foot, bike and bus are now deemed outmoded due to insufficient capacity for all our individual cars. In a world facing climate change and economic uncertainty these patterns are the very definition of unsustainable.

A properly planned Metro with integrated land use planning unlocks a Smart Growth alternative to deliver lasting regeneration. Essentially, this means that we can not only be less land hungry for new development, but also create more interesting, vibrant and compact places.

Contemporary successful examples of this smarter transport orientated approach exist from Freiburg in Germany to Atlanta and Hawaii<sup>31</sup> in the USA. This list of successful places could also include south-east Wales if we adopt a smart approach to transport planning. Hitherto, we have never fully embraced the concept of integrating land use with public transport planning. However, there are tools readily available to help planners achieve this, such as Accession Modelling to calculate journey times, and other techniques to assess accessibility to public transport and correlate that with the optimum nature, type and scale of development<sup>32</sup>. An example of an accessibility map for Kensington and Chelsea is provided in Figure 29.<sup>33</sup>

<sup>29</sup> [www.smartgrowth.org/](http://www.smartgrowth.org/)

<sup>30</sup> [www.sustrans.org.uk/resources/in-the-news/access-denied-transport-poverty-in-wales](http://www.sustrans.org.uk/resources/in-the-news/access-denied-transport-poverty-in-wales)

<sup>31</sup> [www.smartgrowthamerica.org/2012/12/28/leveraging-transit-oriented-development-for-economic-growth-better-living-in-hawaii/](http://www.smartgrowthamerica.org/2012/12/28/leveraging-transit-oriented-development-for-economic-growth-better-living-in-hawaii/)

<sup>32</sup> <http://data.london.gov.uk/datastore/package/public-transport-accessibility-levels-2008>

<sup>33</sup> <https://planningconsult.rbkc.gov.uk>

Imagine how large parts of Wales would score at present for public transport accessibility, how different those scores would be with a properly planned and funded transport network, and therefore how much more accessible and connected our communities could become.

Areas with low scores that are currently undesirable locations for development could be transformed into desirable locations with the addition of better public transport. Public transport can deliver a scale of development for housing, employment leisure mixed uses that car orientated developments could not due to parking requirements.

Co-ordinating land use and transport provision seems such a sensible thing to do. Planning for the Metro systems in and around suburban Dublin, led to the development of a series of co-ordinated Integrated Framework Plans for Land Use and Transport<sup>34</sup>. These ensured that development was appropriately located where accessibility to public transport would be highest. Places in real need of regeneration such as Tallaght in south-west Dublin benefitted from the delivery of improved public transport which in turn facilitated greater development and regeneration opportunity.

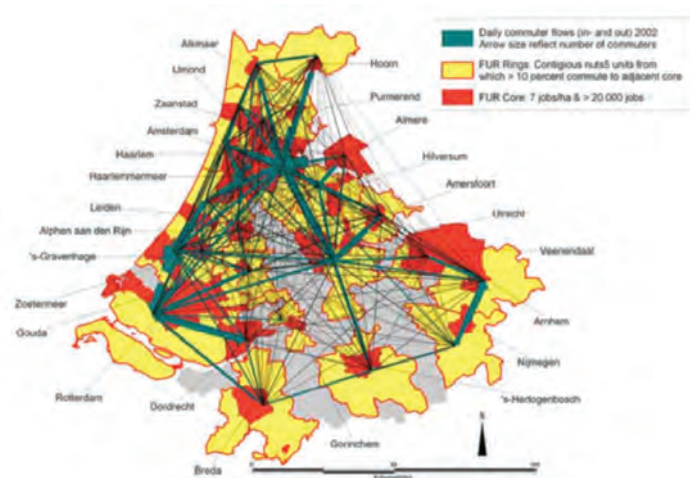


Figure 27 - Polycentric planning in the Netherlands

An Integrated Framework Plans for Land Use and Transport for south-east Wales makes sense to me. Similar concepts, such as the Transit Orientated Development (USA), and Transport Development Areas (UK)<sup>35</sup>, have long been mooted by town and transport planners. The essential ingredient is improved public transport to enable development in places where development may not have occurred, which through the addition of public transport, become ideal locations for a more sustainable form of development. A Transport Development Areas approach to planning policy for south-east Wales, combined with the delivery of a new Metro system, would create a strongly knit and identifiable region with connected vibrant places.

Connecting smaller places across a region is a recognised economic development tool. This 'polycentric' approach<sup>36</sup>, such as in the Netherlands (Figure 27)<sup>37</sup> results in greater communication, interaction, and economic activity, and a more resilient model than a mono-centric region dominated by one large settlement.

34 [www.transportresearch.info/web/projects/project\\_details.cfm?ID=7093](http://www.transportresearch.info/web/projects/project_details.cfm?ID=7093)

35 [www.rudi.net/books/10314](http://www.rudi.net/books/10314)

36 [www.central2013.eu/about-central/priorities/competitiveness/polycentric-development/](http://www.central2013.eu/about-central/priorities/competitiveness/polycentric-development/)

37 [www.central2013.eu/about-central/priorities/competitiveness/polycentric-development/](http://www.central2013.eu/about-central/priorities/competitiveness/polycentric-development/)

The trick in creating this activity and resilience is delivery of reliable, quick and interchangeable public transport – in short, a Metro. South-east Wales could benefit substantially through reducing journey times and creation of new links between smaller settlements.

To deliver integrated transport requires a new approach to governance and development. A Metro cannot be delivered by a collection of local authorities with other priorities. Instead, it must be taken forward by a dedicated body, a Passenger Transport Executive<sup>38</sup>, as with other successful UK and international examples. To combine the successful delivery of the Metro with regeneration, will also require a model that incorporates best practice from Crossrail in London<sup>39</sup> and from other English cities, to take forward a Passenger Transport Executive with powers to acquire and develop land. A south-east Wales Passenger Transport Executive could raise significant revenue by capturing the increased value created by the Metro and ploughing this back into the system.



Figure 28 - The Value Curve In Theory

In summary, by a Metro I don't just mean a new system for getting more people in and out of Cardiff, although that would be a useful function. We need to see it as a way of binding together diverse communities to strengthen local economies, increase accessibility to local services, and promote truly sustainable locations for development. A Metro would be one of the few obvious and tangible demonstrations of the existence of a Cardiff City Region.

A Metro Passenger Transport Authority would show we are serious about public transport and all the benefits it could bring. Wales should use its devolved law making powers to opt out of the 1985 Act. This prevents co-operation between public transport operators and which therefore prevents the introduction of integrated ticketing. A Metro ticket covering all public transport in south-east Wales would be a sensible step. Another would be to remove the regressive Valleys Lines brand and replace these services with a new Metro brand and livery in advance of electrification.

Don't get me wrong, a Metro won't be the miracle cure, but it will put out a fresh and bold message about the future for this part of the world. It would show how we can pull together to deliver greater resilience and a low carbon future for our communities.

However, if you are still not convinced by my smart growth argument then consider the following: if you travel 100 miles per month, this means 20.6kgs of CO<sup>2</sup> emissions in a small car, 41.4kgs in a larger car but only 8.6kgs of CO<sup>2</sup> on a train.<sup>40</sup>

38 [www.pteg.net](http://www.pteg.net)

39 [www.crossrail.co.uk/news/press-releases/crossrail-appoints-property-framework-to-maximise-future-development-opportunities](http://www.crossrail.co.uk/news/press-releases/crossrail-appoints-property-framework-to-maximise-future-development-opportunities)

40 [www.transportdirect.info/Web2/JourneyPlanning/JourneyEmissionsCompare.aspx](http://www.transportdirect.info/Web2/JourneyPlanning/JourneyEmissionsCompare.aspx)





Lee Waters, National Director, Sustrans Cymru

## Getting people out of their cars

Call it what you like, the Metro concept centres around getting people out of their cars by making the alternatives easier and more convenient. Mark Barry has often talked about a 'turn up and go' public transport system: a seductive concept. But like most simple ideas, it is devilishly difficult to achieve.

The jagged edges of the devolution settlement, allied with a complicated and fragmented system of regulation and ownership, means that even if there's a will to change there's not a straightforward way. There is no doubt momentum behind the Metro concept. I now sit with others on the Welsh Government's Task Force to try and transform the rhetoric into the reality. The group is charged with coming up with "recommendations for a rapid transit system for south-east Wales using rail, light rail, bus and active travel".

The inclusion of active travel, in layman's terms walking and cycling, is significant. The traditional approach to public transport has been to draw a thick black line around 'the curtilage of the station'. In other words how people get to and from the buses and trains is not the concern of the operators. And nor has it been a traditional concern of those who debate the paucity of 'integrated transport' either. However, that is changing.

Getting connections to onward destinations is not just a matter of having a bus waiting close to the train station - we need to think of the door-to-door journey. How do people get to stations, what the professionals insist on calling 'nodes' or 'interchange facilities'? And how can we extend the reach of the public transport network by thinking more broadly about the onward journey?

Of the journeys we make to rail stations 85 per cent are less than five miles, and 65 per cent are below 1 mile. Indeed, over half the people in the Vale of Glamorgan live within a 15 minute walk of their nearest train station. Once you include cycling in the calculations the potential reach of the public transport network expands enormously. Then, virtually the whole of Cardiff and Newport live within a 30-minute bike ride of the main station.

It is essential, therefore, that the development of the Metro encompasses the need for safe routes to stations for active travel, and the need for secure cycle parking and storage, and not only the traditional (and very expensive) approach of creating park and ride facilities. It is vital that we use the momentum behind the Metro concept to take a more imaginative approach to transport more generally. Building expensive infrastructure may be necessary, but it is not a sufficient step to encourage people to use their cars less.

The research shows that people are swayed in their travel choice by a lack of information about alternatives to the car. For example, a study of three large English towns published by the Department for Transport found that in around half of journeys a viable public transport alternative already existed for a local journey made by car, but people did not know about it.

The research also showed that a further barrier to people leaving their car at home was a severe misperception about relative travel times. For example, in Darlington, Peterborough and Worcester people on average over-estimated travel time by public transport by around two-thirds and for cars under-estimated travel time by one fifth. In other words, because of habitual car use, and lack of familiarity with public transport, people think jumping in the car, rather than going by bus or bike, is quicker than it actually is.

There is ample evidence to show that increasing awareness and encouraging people to change their habits has the potential to change people's travel behaviour. This should be central to the development of the Metro concept.

Early results from the UK's largest programme of Personalised Travel Planning that Sustrans has been carrying out for the Welsh Government in Cardiff shows that the simple act of providing tailored information about travel choices to people has reduced car use in the city by 8 per cent. Meanwhile, use of public transport has jumped by 23 per cent, the number of walking trips increased by 18 per cent, while cycling use has leapt by a staggering 196 per cent - though it still only accounts for 3 per cent of trips in Cardiff.

There is much to grapple with in turning the idea of a 'rapid transit system for south-east Wales' into reality. There will be lots of complicated detail about integrated ticketing, and timetabling to divert the professionals. But to really fulfil its potential to advance the integrated transport agenda the planners need to think afresh. Doing more of the same will produce more of the same.

The new approach must be based around interventions that affect the 'mental map' of someone setting out from their front door. Instead of automatically jumping in the car, they can be encouraged to make at least part of their onward journey by foot or by bike. That change in mind set has the potential to make public transport a viable option for more people, and it can drive up levels of physical activity. If the Task Force can succeed in that, it will make a real difference, and I will be pleased to have been a part of it.



Victoria Winckler, Director, Bevan Foundation

## Transforming our perception of the Valleys

A Metro for the Cardiff City region could be one of the most significant developments for the south Wales economy for decades. It has the potential to cut travel times to acceptable levels, to make rail travel a mode of choice not last resort, and to spread prosperity throughout the region. No longer will the Heads of the Valleys be more than an hour's journey away from Cardiff. And it's not just Cardiff – the metro could reduce the current severe constraints on travel to London so that no longer will the earliest one can arrive in London be 10 a.m. with the last train leaving at 7:15 p.m.

But for the metro to reach its full potential it must do much more than increase the speed at which people can get out of the Valleys to Cardiff. Done well, a Metro has the potential to transform the south Wales Valleys and people's perceptions of it.

### Intergration with other modes

The Metro will be a boon for everyone within easy reach of a metro station. But the geography of the Valleys means that many communities are some distance away from a station, even if the Metro is enhanced beyond the current rail network. Day-time bus services in many Valley communities are generally frequent, not least because of the low levels of car ownership in these areas. However, their integration with the rail network is mostly very poor even at main destinations. In Merthyr Tydfil, for example, the train station is a six minute, third of a mile walk away from the bus station, with no signage or directions. In Ebbw Vale, the bus station is two miles from the train station with no connecting bus service.

Off-peak, many local bus services end by 6pm leaving the commuter arriving at a Valleys train station effectively stranded. So if the Metro is to have a wide impact, it is vital that there are good interchanges with other forms of travel, at off-peak as well as peak times.

### Fast, frequent and affordable

One of the great attractions of the Metro is its impact on journey times and the prospect of greater frequency of services. Patronage of the Merthyr Tydfil and Aberdare services increased when both became half-hourly rather than hourly services. Ebbw Vale has yet to benefit – miss a train here and it is a long, cold wait on the platform for 59 minutes.

But the Metro will only make a significant difference to the prosperity of south Wales if it is affordable as well as fast and frequent. A peak-time return from a Heads of the Valleys station to Cardiff was £7.40p in January 2013. That's nearly two hours gross wages for an under 21-year-old on the minimum wage, and a substantial chunk out of any low-paid workers' earnings.

### Develop potential in the Valleys

Cardiff will of course be a key destination for all Metro routes. But Cardiff will no longer be the only place with potential for development. If the various Valleys are well connected with Cardiff and with each other, the friction of distance can be reduced. Cardiff will no longer be the only location for major developments. There are many other places just a few minutes journey away which may not only be as good as Cardiff, but even better.

Just imagine. A new national art gallery for Wales need not be in Cardiff but could be a 20-minute journey away in Pontypridd. A new Cardiff University cutting-edge research centre needn't be in the city centre but could be located in Ebbw Vale say, or Merthyr Tydfil. And new, sub-regional shopping centres could develop. Merthyr's Cyfarthfa Retail Park already attracts thousands of shoppers from across the upper Valleys and the southern part of Powys, and with the imminent arrival of Marks and Spencer it is set to grow. People from Cardiff and beyond will have rapid access to the many leisure activities in the valleys and Brecon Beacons.

So there mustn't just be one way traffic. With energy, imagination and a willingness of all parties to recognise that Cardiff **and** the Valleys have great potential, the outlook could be rosy.

Roger Tanner, Planning Professional

## Joining up an iconic regional agenda

In my experience the most effective visions are those that have a foundation in concrete proposals – proposals that give rise to possibilities, which in turn provide opportunities to realise that vision. Thus it is with the Metro concept, which is intermediate in this process. It is built on the certainty that some £500 million will be invested on electrification of the South Wales Main line and the Valley lines over the next five years. From this we can see the possibility of the long-term Metro plan opening up opportunities for development and investment in areas that would never have been considered had the status quo prevailed.

Mark Barry's by now, iconic Metro diagram shows a grid of rapid transit routes connecting all areas of the south-east Wales city-region. As far as unlocking the development potential of the network is concerned, the key locations will be the stations and stops where people can access the network.

Of strategic importance in unlocking the regeneration potential of the Metro concept is the fact that most of the crucial 'nodes' of the system – that is, where one or more routes join together – are in town centres. The unitary local authorities established in 1996 have been busy creating transport interchanges in many of the region's town centres, facilitating easy modal transfer between bus, rail and, through park and ride facilities, the private car.

As the region moves from a manufacturing to a service based economy, the locational requirements for employment are changing:

- From large sites, with low job density per hectare, to small compact high rise offices accommodating many hundreds of workers per hectare.
- From proximity to motorway junctions (handy for quick access to raw materials coming in and finished goods moving out), to locations that large numbers of workers can access by public transport and preferably where urban facilities such as shops, cafes and banks are but a convenient short walk away.

All these trends point to town centres as the preferred location for employment growth. This is already the case with city centres such as Cardiff. However, the polycentric nature of urban settlement patterns in south-east Wales has tended to work against this. The Metro should encourage many smaller centres to also become centres for service employment, spreading prosperity and opportunity throughout the region.

In particular, the Metro offers town centres in the Valleys, where land and property is relatively cheap and there are many vacant town centre properties, the opportunity to become 'hubs of enterprise' where new businesses can incubate and grow with minimal overheads and start-up costs. The forthcoming round of European Structural Funds (2014-20) offers a grand opportunity to finance a comprehensive regeneration strategy for the city-region, combining support for the Metro network, transport interchanges, town centre property improvements and enterprise initiatives in a mutually supportive whole.

Thus a vision of south-east Wales where all parts of the city-region enjoy economic prosperity and where increasing numbers of people work in stimulating town centre environments rather than soulless business parks and industrial estates is not a pipe dream. Instead it could be the outcome of a logical programme of initiatives launched through an initial massive investment in public transport infrastructure.

## Planning ahead for the Metro

It should be a major objective of the Metro Consortium to get the proposals for new or enhanced transportation routes proposed in the Metro into the formal spatial planning system. At the very least proposed route lines and station locations need to be protected from being pre-empted by other development, as has happened all too often in the past. At best, Metro proposals could be incorporated as positive proposals in the appropriate development plan.

A major constraint in the current planning system in Wales is that LDPs should not contain any proposals that cannot be delivered in the plan period (usually 15 years). The Metro project is long term and being realistic, much of it cannot be implemented in the next 15 years but may be practicable in the following 15. By then however many potential routes may have been prejudiced by housing or other developments across them.

The Metro Consortium should make representations to the Planning Minister that significant strategic transport routes should be able to be protected in LDPs beyond the plan period – an opportunity to lobby for this will come shortly with the consultation on the draft Wales Planning Bill in 2013 (see below).

A precedent has already been set regarding former railway lines, which can be protected beyond the plan period under a clause in TAN18 (Transport) published in 2007, which states:

*“8.23 Blight should be kept to a minimum by including in plans only firm schemes on which work will commence within the plan period. Planning authorities should consult with the relevant transport infrastructure authorities to ensure the feasibility of a scheme commencing within the lifetime of a plan. This timescale limitation does not apply to the safeguarding of disused railway lines or disused inland waterways where their re-use for transport purposes may be a realistic possibility after the end of the plan period...”*

## Development Plans

Currently there is no formal regional planning in Wales. Instead each local authority is required to produce a Local Development Plan (LDP) for its area, which will include among other things transportation proposals and land use allocations for housing, retailing and employment.

Currently 4 of the 10 local authorities in South-East Wales have adopted LDPs (Caerphilly, Merthyr Tydfil, RCT and Blaenau Gwent). 4 others are well advanced and should be adopted in 2013 or 2014. It is too late for the Metro proposals to be included in any of these plans, although Caerphilly's is due for its 4-year review in 2014 and the others will also be required to review their plans 4 years after adoption. There will be opportunities to make representations at Plan reviews and they should be taken. The Vale of Glamorgan deposit plan may be subject to revision and therefore delay.

This leaves the Cardiff LDP which recently reached the consultation on Strategy stage. The next stage will be for the detailed plan to be put on deposit, probably in the autumn of 2013 leading to an Examination In Public late in 2014 and hopefully adoption in 2015. The Metro Consortium should seek a meeting with Cardiff city planners to 'Metro-proof' the all-important Cardiff LDP before the deposit plan is published (by which time the plan will be very hard to change.)

## Regional Plans

The Welsh Planning Minister set up an Independent Advisory Group (IAG) in 2011 to consult widely and come up with proposals for the forthcoming Wales Planning Act. The IAG reported last September and among their 97 recommendations were a robust set of proposals for introducing regional plans in Wales, at least for the two city-region areas (one of which is South East Wales) later identified by the Business and Enterprise minister.

The planning minister will be publishing a white paper and a draft planning reform bill in 2013. This will be an opportunity for the Metro Consortium to scrutinise any proposals for regional planning and make representations to ensure that long term planning for transportation networks such as the Metro are facilitated in any new regional planning frameworks.



Henk Broekema, AMI Consultancy

## Offering a new travelling experience

When would we consider a Cardiff Metro to be a success story?

Three criteria should be considered:

1. The transport system should contribute to the goal of attracting investments and stimulating economic growth.
2. The business case for developing the various elements of the infrastructure system – like specific bus services or railway upgrades - should prove sensible.
3. Stakeholders across the field should be enthusiastic - 'success' is after all in the eye of the beholder.

In this contribution I will address the two of the stakeholders, the public transport users of the future, and those involved in the development of Cardiff Metro.

### Future users

Developing a transport system like the Cardiff Metro is not just about upgrading a railway or offering a new bus service. Instead, it is about offering an experience. Travelling is an experience. Whether a transport system offers a good or a bad experience will make the difference between people using it or not. As such, the user experience will impact on the business case and should be continuously kept in mind.

To make travelling a positive experience, it is particularly important to recognise that people travel from door-to-door. Establishing fast and frequent railway services is therefore of limited value if people struggle to reach their final destinations. To offer a travelling experience that can compete with a journey by car, the integration of various modes of public transport is a pre-requisite.

As an example of integration, let me share some experiences of travelling in the Netherlands (my country of origin). From the moment I put my feet on the ground at Schiphol Airport I start using public transport and other integrated services. First I may travel by train to Amsterdam Central Station. For my onward journey, I may rent a bicycle or a scooter, or I might travel by taxi. The next morning I might take a metro, tram or bus to one of Amsterdam's railway stations, in order to catch a train to a client elsewhere in the country. When I arrive at my final railway station, I may cover the final miles to my client's office using a 'car club' car - conveniently located at numerous railway stations.

However, perhaps the best example of integration is what happens by the time I fly home to Cardiff: all the legs of my journey - whether I made them by train, bus, tram, metro, bicycle, taxi or 'car club' car - are combined on one invoice that will be sent to my employer. To summarise, an integrated transport system should offer its users a reliable, frequent, fast, cost-effective and comfortable door-to-door travelling experience.

### Managing the Metro

To develop a transport system that offers such a good door-to-door experience, numerous people and organisations across sectors will have to co-ordinate their activities. Given the huge number of people and organisations involved, managing the co-ordination between them should be considered as a project in itself. The successful delivery of a Cardiff Metro should therefore start with orchestrating the involvement of stakeholders.



It is important to recognize that this should not focus on the business case for a Metro, nor on the way in which car parking, rail, bus and active travel should be integrated. Instead, it should be about assuring proper co-ordination and collaboration between the people and organisations that are involved in the development of the Cardiff Metro.

For example, it should be about the facilitation of creative dialogues between stakeholders, ensuring that all are involved, with their minds focused on opportunities and success. People across a wide range of organisations and sectors should feel inspired to contribute to the Cardiff Metro. Therefore, the first tangible objective of the project should be to establish a Metro Delivery Authority that enjoys widespread support.



Geraint Talfan Davies, Chairman, Institute of Welsh Affairs

## A new brand

If rail electrification is to be a transformative project for south Wales, it would be helpful if it looked like a transformation. It is not too fanciful, therefore, to think now about the way the Metro – the trains, the stations and everything that goes with them - is designed and branded. If the Metro is to weld a city region it needs to have a consistent image across the newly electrified network, emphasizing the cohesion of the area more than the transient brand of an operator.

My guess is that all of us have in our mind's eye an image of a modern rail network - probably Swiss or German - with well-designed rolling stock using stations that are equally well designed and creating the feel that many of us have experienced on the best European urban networks. There are also good design precedents that we can look to in this country.

There is the London Underground and Harry Beck's famous map of the tube, whose principles have stood the test of time since 1931, turning up in every diary you have ever bought. Then there is the famous British Rail double arrow logo – designed by Gerald Barney, part of the Design Research Unit, a collective of designers that had such an influence on British design through their work at the Festival of Britain in 1951. Barney's logo even survived the fragmentation arising from privatization.

The Metro needs the kind of comprehensive approach to design that British Rail instituted in the 1960s, to bring some sense of unity to 2,000 stations, 4,000 locomotives and 23,000 carriages. Similarly, a design policy for the Metro should incorporate the design of the rolling stock, its livery, stations, maps, and timetables in a way that creates a cumulative impact that will change how the people of south Wales, rail users and non-users, and outsiders think of the place. The aim should be to leapfrog over others not just catch up.

Although the Metro is, apparently, to be run with 'cascaded rolling stock' - someone else's cast offs, a psychological curse on the youngest child – these trains are likely to be a good bit more modern than the boneshakers that traverse the Valleys today. We should press for the best that can be afforded, and ensure that we are not at the back of queue. However, of whatever vintage, they need a livery that speaks of the quality to which the city region must aspire. The same needs to be said of station design. We need to commission the best architects to design stations of a human scale that give more than a gesture of shelter against our worsening climate, and yet embody flair and imagination. This policy needs to apply to every station not a favoured few - not to deliver uniform solutions, but uniform quality.

Such a design policy is unlikely to emerge from a train operator, with a limited term franchise and a limited sense of ownership of the system. It is more likely to emerge from a Passenger Transport Executive with a system-wide responsibility that could even extend beyond the rail system into the bus network – an executive that can bring a focused pressure on Network Rail, with whom it will have to work.

We need to have that influence from the very beginning. That is why we need to establish a passenger transport executive as soon as possible – to ensure that the fragmented rail system we have in this country does not visit its defects on us all by creating a widening gap between vision and execution just at the moment of greatest promise.



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Mark Barry

March 2013





Metro Consortium

## A Cardiff City Region Metro: transform, regenerate, connect

Mark Barry

This report is a follow up to, "A Metro for Wales' Capital City Region – Connecting Cardiff, Newport and The Valleys" commissioned by the Cardiff Business Partnership and published by the IWA in 2011. Building on the confirmation of valleys electrification and the developing city region debate, the report sets out a vision for a Cardiff City Region Metro focussed on economic development and regeneration. It demonstrates that a strategic regional plan is needed to enable Cardiff to compete more effectively with rival cities across Europe and also help places like Pontypridd, Ebbw Vale and Newport play a more prominent role in the economy of the wider city region. It also argues for the creation of a dedicated "Metro Delivery Authority" with the expertise and resources able to develop and deliver the Metro vision.

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