



Cardiff City Council Bus Strategy

Technical Report: June 2021

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Introduction

Aim of this Report

This report by Sterling Transport Consultancy sets out the background to the role buses play in the life of the city and how they could facilitate the ambitions set out in the Cardiff 'Transport White Paper' and the policy objectives stated by Welsh Government in Llwybr Newydd: the Wales Transport Strategy 2021.

At this stage, the report is not a statement of the Council's preferred policy in relation to be buses but is intended to provide an independent view of the factors affecting the bus and what policies and measures the eventual bus strategy could contain.

A series of drivers for change areas identified, each of which has the potential to shape the eventual policy choices made within the bus strategy.

The report outlines choices in terms of how the network can be configured and provides a commentary on what a successful bus network should aspire to. The report offers a review of service 'types' to inform decisions about the 'shape' of the network and how a successful network could be achieved through matching services types to markets for travel.

Finally, the report identifies a series of potential measures and outcomes that could form central elements of the eventual bus strategy. These relate to service quality and network coverage, what the passenger would expect (in terms of fares, tickets and information), infrastructure and fleet issues together with governance and measuring success.

The need for a bus strategy

The purpose of the eventual Bus Strategy will be to set out what is needed in Cardiff to ensure excellent bus services which will meet the needs of both current and potential passengers in Cardiff and deliver the transport, environmental and social objectives of the Government and the Council.

The strategy will need to deal specifically with the contribution bus services make in providing an effective transport network. However, it is recommended the term 'bus' should be read to include scheduled coaches as these play an important role in providing a more direct, express-type, service which can be appropriate for some local travel demands. In addition, the strategy would also need consider bus related education transport which in part allows the Council to meet its statutory duties under the Education Acts.

This Technical Report provides a basis for a new bus strategy to be developed and to inform the process of consultation and agreement necessary for the Strategy to be successful.

Introduction - 2

Cardiff City Council is the highway and transport authority for the Cardiff council area. In addition to these statutory responsibilities, the City is the Capital City of Wales and also provides an important source of jobs and services for the whole of South Wales. As such, the choices for transport in Cardiff have effects far beyond the Council's area and across a wide range of issues from economic development to the environment and social mobility.

A bus strategy for the Cardiff City area, therefore, would have implications for the wider transport network and public policy landscape.

Covid19

The Covid 19 situation has seen major changes in social behaviour and working practices that will have impacts in both the short- and medium-terms. The outcome is that in the short term at least public transport will be reliant on significant and essential public subsidy. The current Welsh Government financial support ("BES2") is ongoing but there is a common acknowledgment with *de facto* movement restrictions still in place, further funding will be necessary.

Much debate is in play about what the "new normal" long-term transport picture may be.

The conundrum for the bus industry now is that there is a real possibility that it could become seen as an irrelevance unless the market for travel is rebuilt decisively to present itself as a

credible means of travel for environmental aspects of transport policies to stand. This is not just an economic or political issue, but crucially a behavioural one too. The Council's recovery strategy has placed 'movement' at the heart of restarting the City's economy and rebuilding the social fabric within the City.

Emerging research¹ has indicated that 20% of public transport demand may 'disappear'. If this is the case, further public subsidy could become a medium for change rather than a short-term necessity.

The Welsh Government's BES2 emergency bus network funding has stabilised the network and paved the way for a more proactive role for government in the bus network.

1 – Systra <https://www.systra.co.uk/en/newsroom-37/latest-thinking/article/life-for-buses-after-lockdown>



Context to the Bus Strategy

Context

Buses are the backbone of Cardiff's public transport system

Public transport is essential to the City and City Region given its size and population density, because there is simply not room for everyone's car in the Cardiff urban area and because car ownership is not universal across the area.

The vast majority of public transport in the region is provided by buses. The rail network only covers a small number of the main corridors. Because it takes a very long time to plan and build new rail infrastructure or, in urban areas, fixed systems such as light rail or bus rapid transit, this will remain true, at minimum, for the medium term, and will always be true to some extent.

Interchange with rail is a further role the bus network plays as is the linking of communities unable to access the rail network. Both form an essential elements of an urban 'Metro' concept.

As a result, consideration of the bus network is a study of most of the public transport in the Cardiff city area and indeed the wider city region. It is also a study of what can be achieved soon, because buses are the only public transport system whose services are easy to revise in response to changing pressures and opportunities.

Concerns around climate change, air quality and traffic congestion focus attention on sustainable travel modes, including public transport.

In policy terms the Welsh Government's 2018 White Paper "*Improving public transport*" set the tone for the future development of the bus network. At the core of White Paper's proposals to reinvigorate bus networks is the premise that "*the bus network must be more attractive to encourage a shift away from private cars*". The 2021 National Transport Strategy is also reflective of these aims.

Big issues

Covid 19 Recovery

The Cardiff Council Covid Recovery Strategy is shaping the plans to restart the Cardiff economy and to ensure the social wellbeing of the City is restored.

The objective are designed around the need to be 'open for business' and being safe in the post covid environment. The aims are to:

- Re-open Cardiff
- Create a welcoming city centre and local centres (accessible to all)
- Support businesses to re-open
- Re-establish footfall in the city centre, local centres and key destinations in a safe way that complies with social distancing requirements
- Help people to access the city centre, local centres and key destinations around the city in the absence of normal public transport capacity



Policy Context

Cardiff Covid 19 recovery strategy – continued

- Promote Cardiff so that it develops a brand and reputation as a safe, supportive, accessible, green and forward-thinking place to visit

The strategy indicates that car travel has been natural choice whilst access to public transport has been socially distanced. The aim is now to reverse this short-term effect with safe and easy to use to public transport, including bus services.

The strategy set out a range of bus friendly measures that will generate a new confidence in using the network.

- Safe and socially distanced bus boarding areas
- Measures to respond to a lower level of bus capacity available.
- Further bus priority measures to ensure that bus travel remains the fastest and most reliable option for most journeys

As the recovery strategy is taking an ‘open for business’ approach, ongoing development of the bus network is essential to provide the necessary levels of access to places of work, education and leisure that will enable the recovery.

South East Wales (M4) Transport Commission (Burns commission)

The South East Wales Transport Commission was set up to examine sustainable transport options following the Welsh Government decision not to proceed with the Newport M4 relief road.

The Commission has published its final report and supporting evidence that highlights the poor links along the M4 corridor for communities in the hinterland of Cardiff and Newport leaves public transport as not being a valid travel option for many.

Cardiff is noted as *“a very significant attractor destination. Many trips into the city originate from the west and the north of Cardiff.”*

The Commission indicates that *“..the bus network does not well serve travel patterns and integration is hindered by the regulatory model.”*

The Commission notes the dense network of bus services in Cardiff (and Newport) and the development of express coach routes but that both are firmly focused on city centre destinations. Integration of these service with other non-car modes are seen as key to a fully effective no car-based travel system. Transit based planning is a key recommendation to bind public transport into land use decision making.

Context

South East Wales (M4) Transport Commission (Burns commission) - continued

The Commission makes detailed recommendations that form a central element of the bus strategy by:

- *Creating new rapid bus and commuter cycle corridors across Cardiff and Newport, connecting to the rail backbone and Cardiff Council's public transport proposals*
- *Aiming for 90% of the population in Cardiff to be within 1 mile of a railway station or (bus) rapid transit corridor. The A48 route to the east of Cardiff is highlighted as a key example of this proposal.*

The Commission's recommendations are closely aligned the bus strategy aims of faster, more reliable, routes that link key destinations to where people live.

Cardiff's Transport White Paper

In 2019 the City Council produced a White Paper that sets out a possible framework for transport in the City. This relates the transport system to growing city, its spatial choices and air quality and the need to secure economic growth whilst also reflecting community cohesion and social mobility needs.

The White Paper seeks a socially inclusive transport system that seeks to address the urban challenges of social inequality in Cardiff given transport's role as an instigator of change.

The White Paper sets out a low carbon transport proposition that includes:

- A South Wales metro (rail and light rail) network
- A cross city, value for money, prioritized bus and P+R network, including short, medium and long-distance services
- A South Wales wide public transport ticketing system with a proposed £1 fare for a single local bus journey within the City area
- Proactive promotion of active travel solutions
- Close management of residual private vehicle traffic with the potential for a road access charging process.

Wales National Transport Strategy 2021

A new national Transport Strategy for Wales "Llwybr Newydd: the Wales Transport Strategy 2021" has set out a vision that has the bus as a central theme to providing a public friendly Wales.

- National policy will allow the City to play a greater role in the development of the network by:
- Providing a stable and coherent network of bus services that are fully integrated with other modes of public transport that are reliable, affordable, flexible, easy to use, low carbon
- Rolling out the technology and infrastructure to deliver ultra-low emissions buses
- Progressing new bus legislation that gives the public sector more control over local bus services.

Policy Context

A wide range of policies in areas beyond transport will drive the shaping of the public transport network, its services and operational structure.

National Policies

Climate change

Concerns around climate change, air quality and traffic congestion focus attention on sustainable travel modes, including public transport.

The Environment (Wales) Act 2016 requires Welsh Government to reduce emissions of greenhouse gases (GHGs) in Wales by at least 80% for the year 2050 (against a 1995 base). The 2019 document “Prosperity for All: A Low Carbon Wales” provides a series of pathways to achieve this goal.

In terms of buses key to this strategy is the target for a zero-emission bus, taxi and private hire vehicle fleet by 2028.

Policy 47 of “Prosperity for All: A Low Carbon Wales” sets out a series of measures identified by government to change the framework within which buses operate as part of an integrated transport system.

Economic development

Economic development will define in any ways the future of Wales and Cardiff in particular. Economic inclusively, spreading opportunity and promoting well-being are at the centre of government policy to deliver a strong, resilient and diverse economy.

Economic development - continued

Transport is an essential plank of the development of the economy. Access to jobs and education / training is crucial to securing economic and social mobility.

The National Economic Strategy¹ commits to delivery of the South Wales Metro and to maximize the efficiency of the existing transport network by addressing bottlenecks and pinch points. Access to the transport network maximized by increasing the amount of residential, business and leisure space within walking distance of public transport to improve connectivity and increase its contribution toward the lowering of carbon footprints.

Future Generations Act 2015

Through the Future Generations Commissioner this sets out the long-term view of a future Wales. Free travel for younger generations, 50% of transport capital targeted at public transport and investment in smarter means of travel for the future are at the heart of the ‘ask’ for future generations.

Planning

Current land use planning policy² requires proactive consideration of public transport in terms of making spatial choices and when considering planning applications.

Planning policies will evolve to support zero emission transport and development which reduces the need to travel through effective spatial analysis.

1 - Prosperity for All: economic action plan 2017

2 – Planning Policy Wales Issue 10 - 2018

Geographic Context

Like most European cities, Cardiff presents features that make public transport essential, and require that it be highly efficient.

Severe road space limitations

Across most of Cardiff, especially in the older core, the road-width is fixed and will never be wider. Efforts at widening roads in built-up areas are extremely costly and frequently destructive.

Intensification of land use

In response to growing demands for housing and commercial space, both central and outlying areas are growing. More and more people are living within the same limited area.

These two factors combined mean that more and more people are trying to use a fixed amount of road space. If they are all in their cars, they simply do not fit in the space available. The result is congestion, which cuts people off from opportunity and strangles economic growth.

The only alternative to congestion is for a larger share of the public to rely on public transport and other alternative modes.

This requires services that most efficiently respond to the city's changing needs, as well as corridor improvements – as being pursued by City Council – to give buses a level of priority over cars that reflect the vastly larger numbers of people on each bus.

The Cardiff Local Plan

The Cardiff local development plan (LDP) 2006 - 2026 sets the spatial portrait for the Cardiff city area.

Cardiff has a significant need for new homes including family homes and affordable homes. Cardiff also plays a key role as economic driver of the wider city-region, providing much needed jobs for the whole region. The plan aims to ensure the delivery of 41,415 new dwellings and 40,000 new jobs which would provide the city with a 25% increase in housing (from 142,382 to 178,594) and a 20% increase in jobs (from 198,400 to 238,400).

The plan indicates that the overall approach seeks to minimize travel demand and provide a range of measures and opportunities which reduce reliance on the car.

The core transport related goal of the plan is set out in policy KP8 which is to achieve the target of a 50:50 modal split between journeys by car and journeys by walking, cycling and public transport for new development. Infrastructure planning sets out a series of bus related measures:

- Rapid transit corridors, including heavy rail, light rail, tram train and bus rapid transit;
- Key bus corridors and the wider bus network including bus priority measures and passenger facilities;
- Transport interchanges to support integration between modes including, bus and rail stations, facilities for bus and rail-based park and ride, park and share.

Geographic Context

The predicted changes in population over the coming years will be a key determinant of how the transport network will need to function. As a function of land intensification and socio-economic development the indicators of growth show an increasing population in all but one of the local authority areas that surround Cardiff.

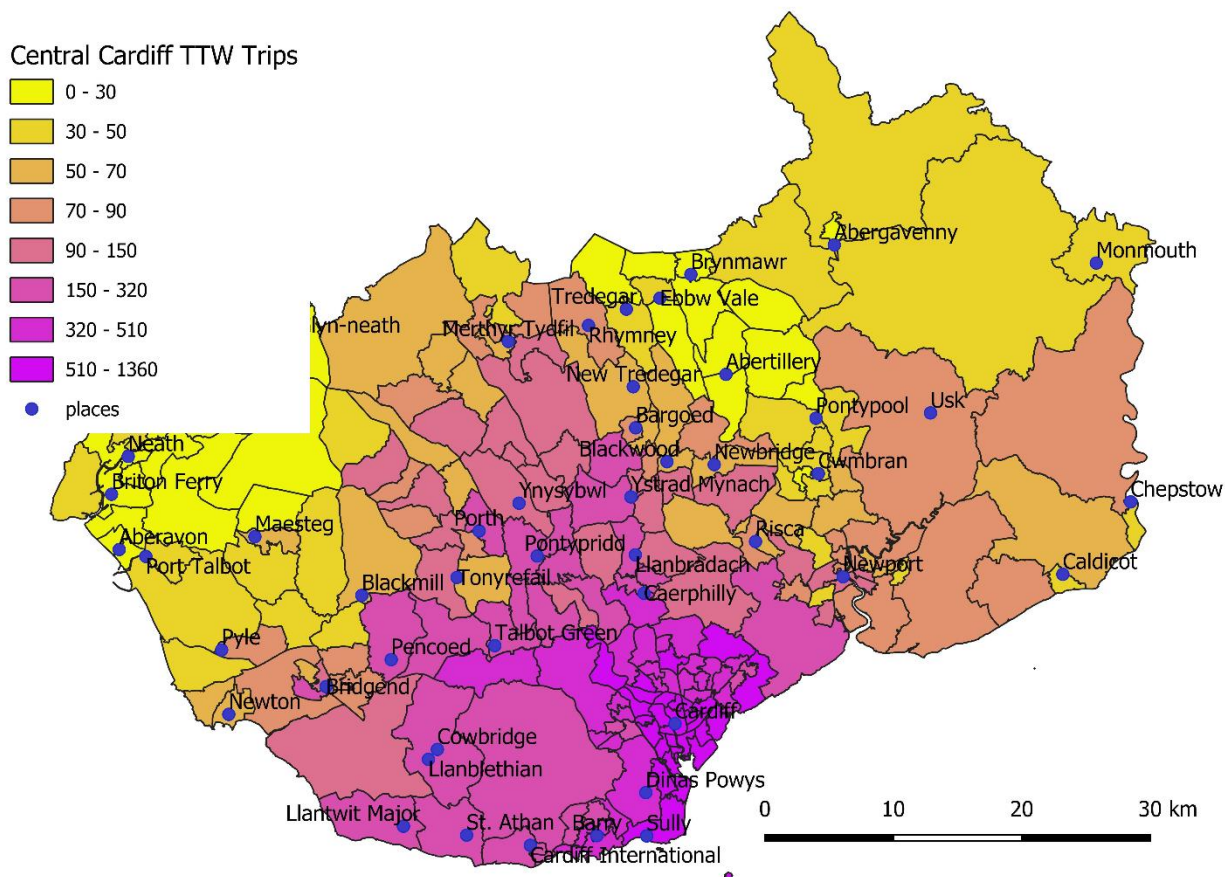
Predicted Population Change 2020 - 2043

| | 2020 | 2043 | % Change |
|-------------------|---------|---------|----------|
| Cardiff | 366,311 | 388,890 | +6% |
| Blaenau Gwent | 69,615 | 69,244 | -1% |
| Bridgend | 146,417 | 158,718 | +8% |
| Caerphilly | 181,585 | 184,948 | +2% |
| Merthyr Tydfil | 60,567 | 63,538 | +5% |
| Monmouthshire | 94,768 | 101,230 | +7% |
| Neath Port Talbot | 143,577 | 151,889 | +6% |
| Newport | 155,763 | 176,632 | +13% |
| Rhondda CT | 241,492 | 254,145 | +5% |
| Torfaen | 93,587 | 98,178 | +5% |
| Vale of Glamorgan | 133,864 | 147,987 | +11% |

Source - Stats Wales Population projections by local authority and year, 2018.

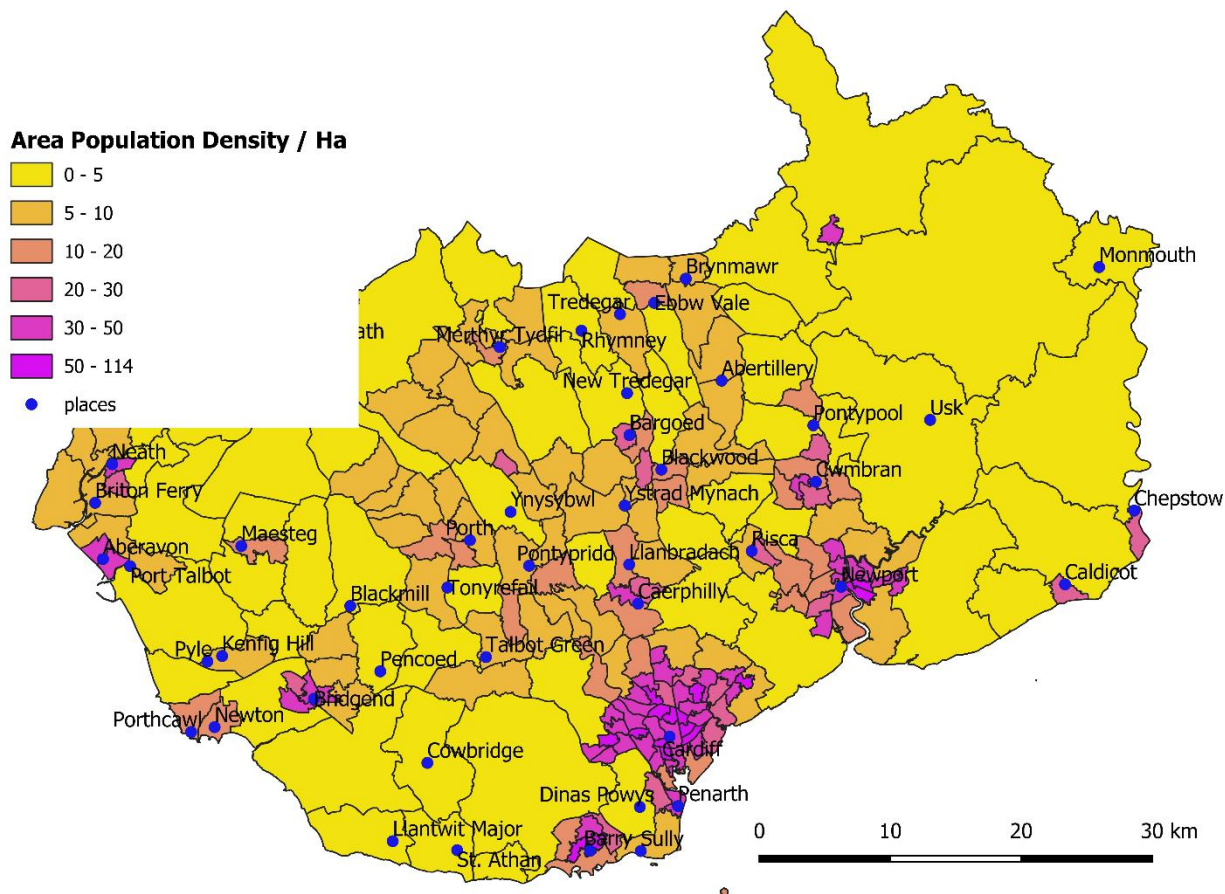
This increase in population would require additional transport provision but with an effectively static level of highway capacity as indicated, public transport will have to work harder in the future to cater for higher levels of movement.

Geographic Context



The centre of Cardiff is a significant journey attractor from across the region. The map above shows the number of trips into Central Cardiff (MSOAs Cardiff 32 and Cardiff 49 which cover the city centre and Cardiff Bay respectively) for work purposes in the 2011 census. As can be seen the Valleys and the area from Newport to Bridgend have strong links to Cardiff. Both road based transport and rail will play a part in delivering this regional connectivity.

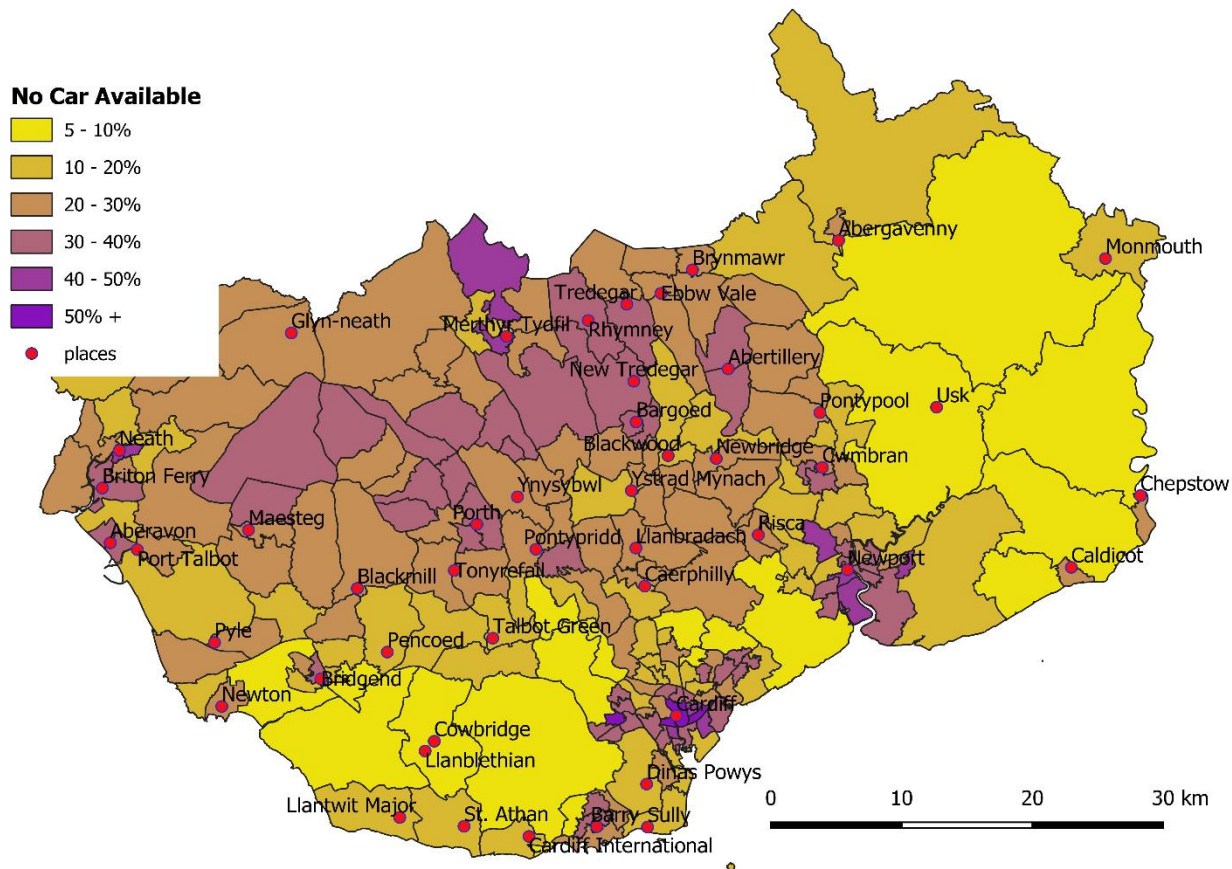
Geographic Context



The population density around the city is a good indicator of the likely take up of mass transit options. For this reason residential density is a key metric to assess the strength of public transport markets. Work by Dijkhuis and Javara (2019) has identified that for public transport an optimum density of 35 dwellings per hectare or more (around 80 people / Ha) is 'good for public transport.

As can be seen above much of the regional surrounding Cardiff is relatively thinly populated with the key urban areas and the Valleys being the main centres of population. This will allow bus network design to be concentrated on key corridors to Cardiff to serve the strong flows to the city.

Geographic Context



The lack of a car in a household has historically been seen as an indicator of economic activity. Conversely it can be argued that an alternative premise is that low car ownership actually points towards either a dependency on public transport or an inclination towards communities being self-contained.

As the data shows significant areas have high levels of households without a car. The bus network in these locations is an essential mobility tool to ensure that access to jobs, education and local facilities is available.



Transport matters

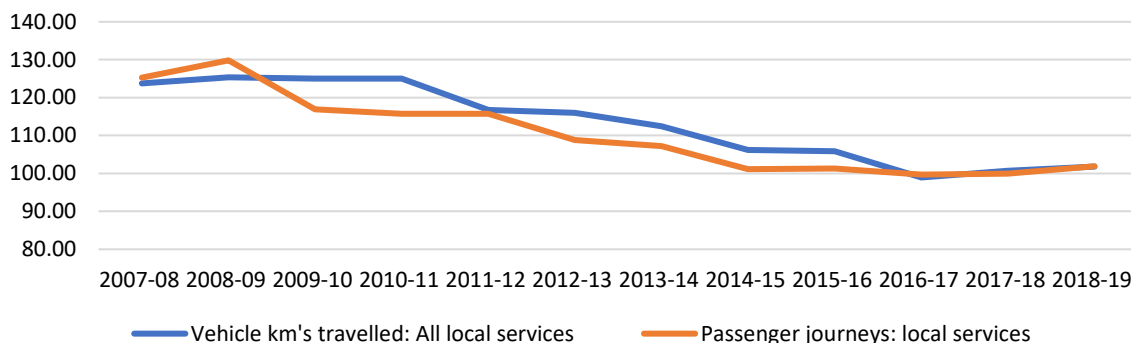
Transport Context

The decline in bus journeys across Wales pre-Covid19 mirrors trends seen elsewhere in the UK. As can be seen above, capacity as measured in terms of mileage run, has reduced concurrently with the reduction in passenger numbers.

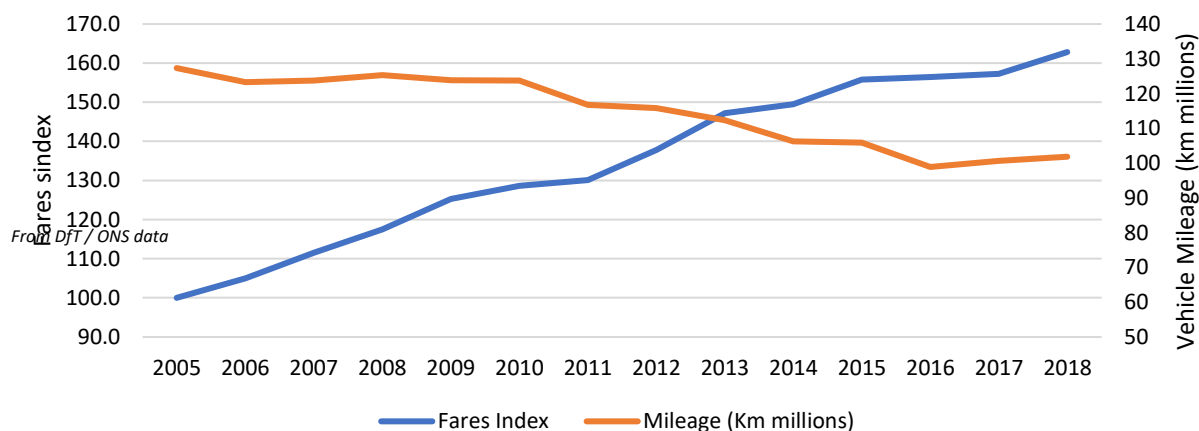
This trend is reflective of a (generally) commercially provided bus network where demand and the supplied capacity are intrinsically linked together.

Similar data has been used to assess the linkage between mileage and cost (fares). In essence, fares have risen as the quantum of service delivered has reduced. The implication is that lower levels of service at an increased cost to users has made the service less attractive and perceived as being poorer value for money.

Wales Bus Passenger journeys (millions) and Bus Service Mileage (km - millions)



Bus industry Price Index / Mileage Run



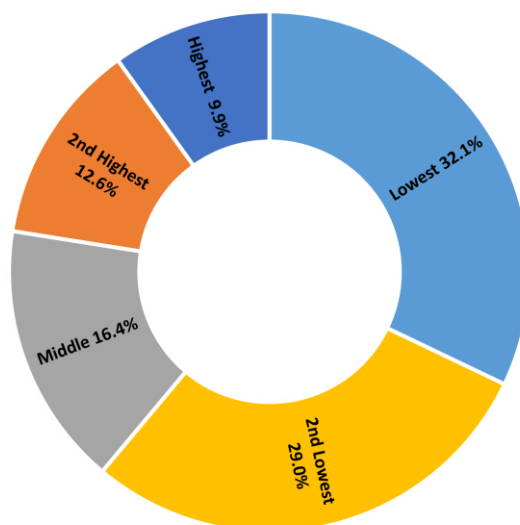
Transport Context -

National data from the UK national travel survey indicates that the bus service is used by all socio-economic groups and by all income groups. It is however, noted that lower income groups are especially reliant on bus services for travel and that the bus is a key tool for social mobility with circa 60% of users in the 2 lower income quintiles.

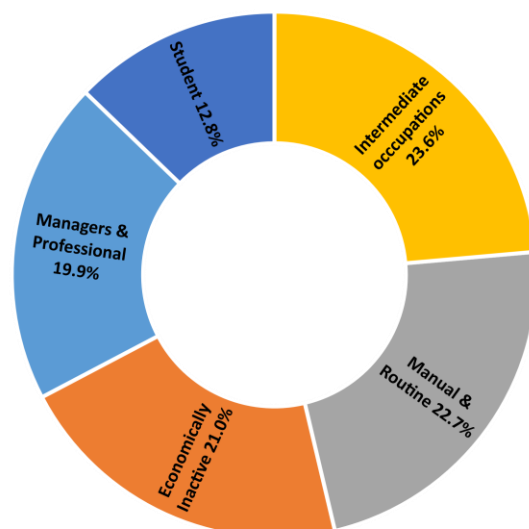
Although the data is at a national level the implications for South Wales are significant given the low IMD rankings that occur locally in the urban context.

This makes the challenge of providing a socially equitable bus network a key challenge for the South Wales Metro project to work and especially in the Cardiff area and for the supporting transport network.

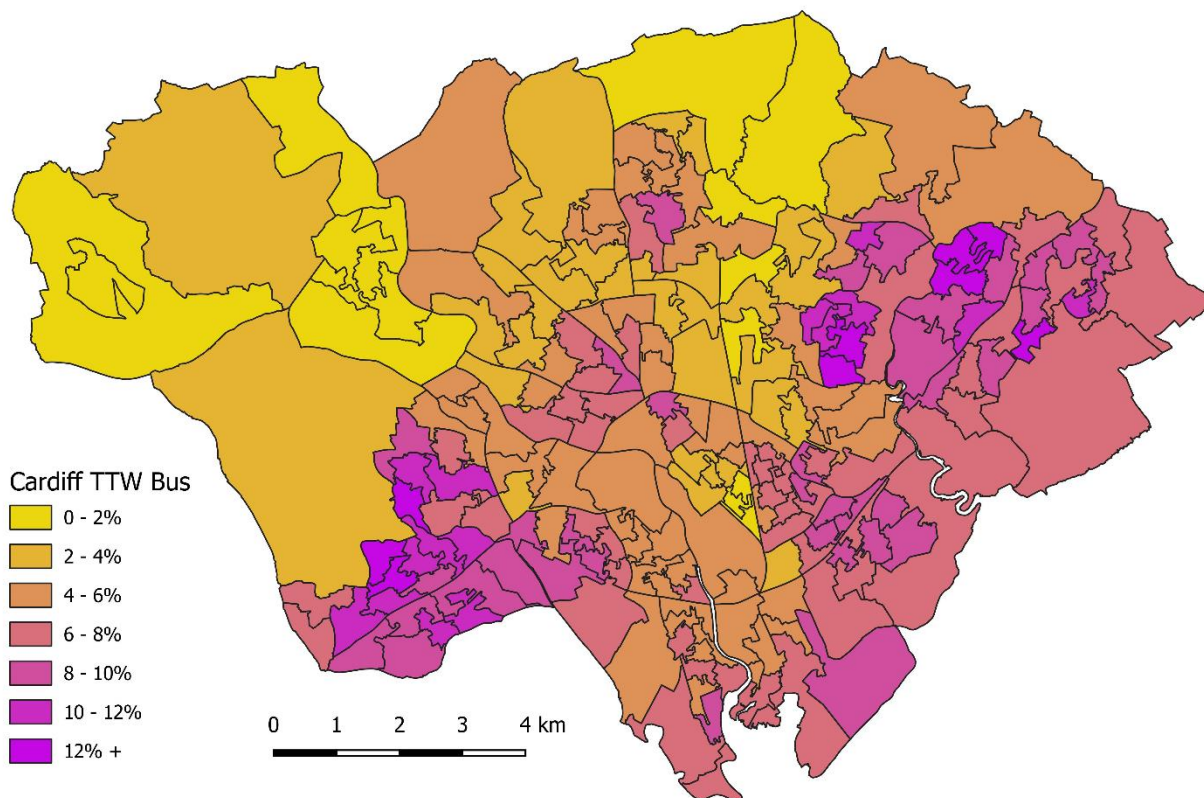
Bus Patronage by Income Quintile



Bus Patronage by Socio-Economic Classification

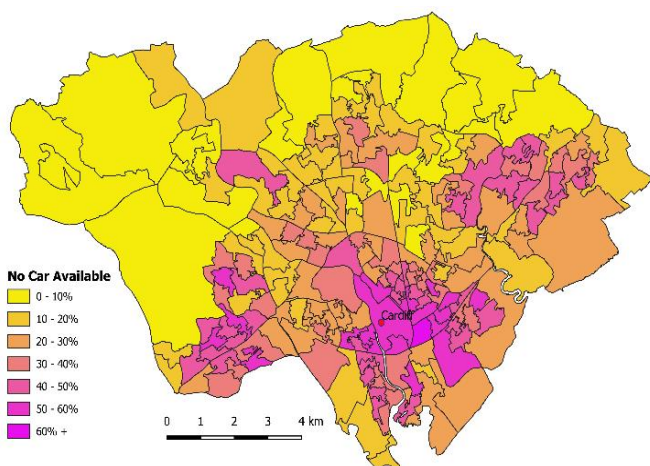


Local travel to work by bus



Within Cardiff the propensity to travel by bus is high with significant areas showing bus mode shares of over 10% of journeys to work. As seen above, the areas to the west and north-east has the highest bus mode share. This is reflected in current service frequencies with 20+ buses per hour along the Cowbridge Road corridor and 15+ buses per hour on the A48 axis.

Local Car availability



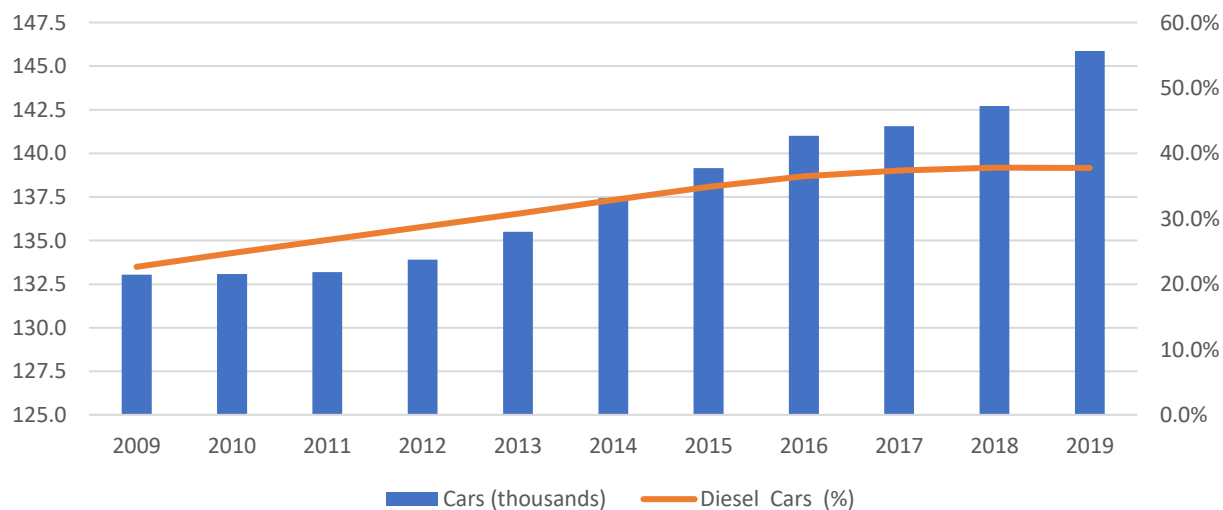
As noted previously access to a car by households has traditional been seen as a proxy for economic activity or social mobility. The key strategy issue is that the data shows significant areas of the city where the population are reliant on the public transport network for travel.

The number of licensed cars in Cardiff is recorded together with the percentage of diesel cars. This shows an ongoing increase in car numbers and an increasing percentage of diesel cars.

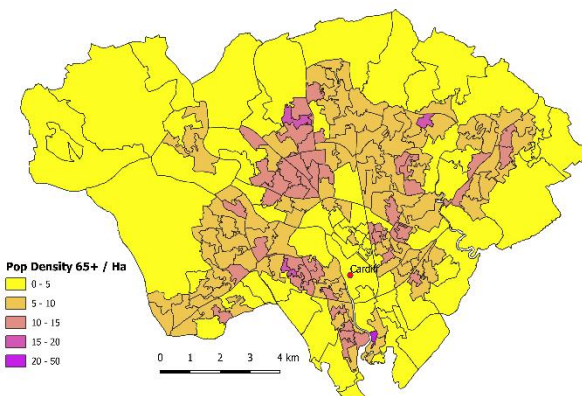
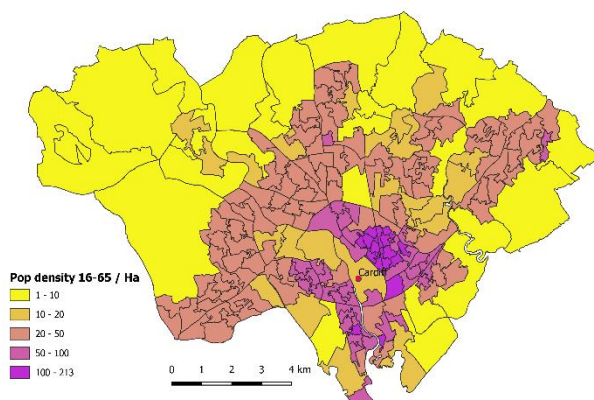
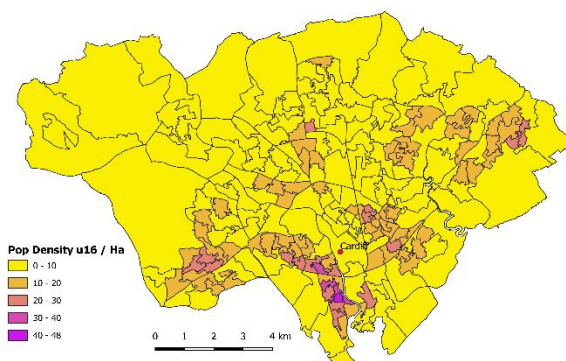
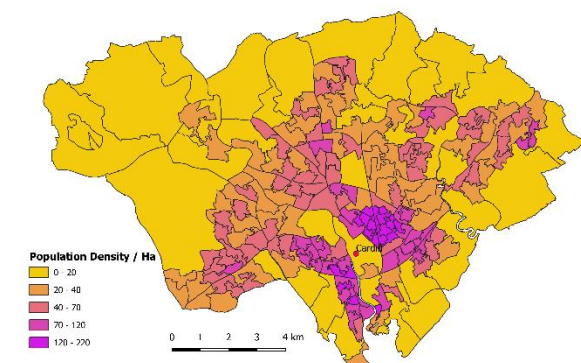
Recent changes in taxation policy appear to be affecting the level of diesel car ownership whilst overall car numbers continue to rise.

Electric cars numbers have remained static at around 1% of the car fleet and the number of licenced PSVs in Cardiff has also remained stable at circa 8,000 vehicles, including minibuses.

Licensed Cars - Cardiff



Where people live



These maps show where the population of Cardiff is distributed by age using density per Hectare as a comparative measure.

We have considered following age groups: the u16s - in education, the working age population and the 65+ age group.

As can be seen the younger age group is concentrated in a smaller number of locations whilst the working age population is spread throughout the city. The 65+ age group is distributed more evenly through the city.

The implication for service planning is that trips for educational purposes will be concentrated on locations with the greatest density of u16s and the city centre. The network for commuting would need to reflect the strong concentration of the working age group in the arc around the city and for the 65+ age group a number of corridors show higher densities for this age group.



Growth in Cardiff

| | | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---------------------------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| Pop increase | | | 879 | 1,779 | 2,811 | 3,973 | 5,260 | 6,633 | 8,069 | 9,422 | 10,722 | 12,020 | 13,326 |
| remove under 5s | 94.3% | 0 | 829 | 1,678 | 2,651 | 3,746 | 4,960 | 6,255 | 7,609 | 8,885 | 10,111 | 11,335 | 12,566 |
| mode share | 10.2% | 0 | 85 | 171 | 270 | 382 | 506 | 638 | 776 | 906 | 1,031 | 1,156 | 1,282 |
| bus size / PVR Inc | 35 | 0 | 3 | 5 | 8 | 11 | 15 | 19 | 23 | 26 | 30 | 34 | 37 |

| | | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 |
|------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Pop increase | | 14,489 | 15,476 | 16,374 | 17,261 | 18,073 | 18,759 | 19,324 | 19,914 | 20,551 | 21,213 | 21,884 | 22,580 |
| remove under 5s | | 13,663 | 14,594 | 15,441 | 16,278 | 17,043 | 17,690 | 18,223 | 18,779 | 19,379 | 20,003 | 20,637 | 21,293 |
| mode share | | 1,394 | 1,489 | 1,575 | 1,660 | 1,738 | 1,804 | 1,859 | 1,915 | 1,977 | 2,040 | 2,105 | 2,172 |
| PVR Increase | | 40 | 43 | 45 | 48 | 50 | 52 | 54 | 55 | 57 | 59 | 61 | 63 |

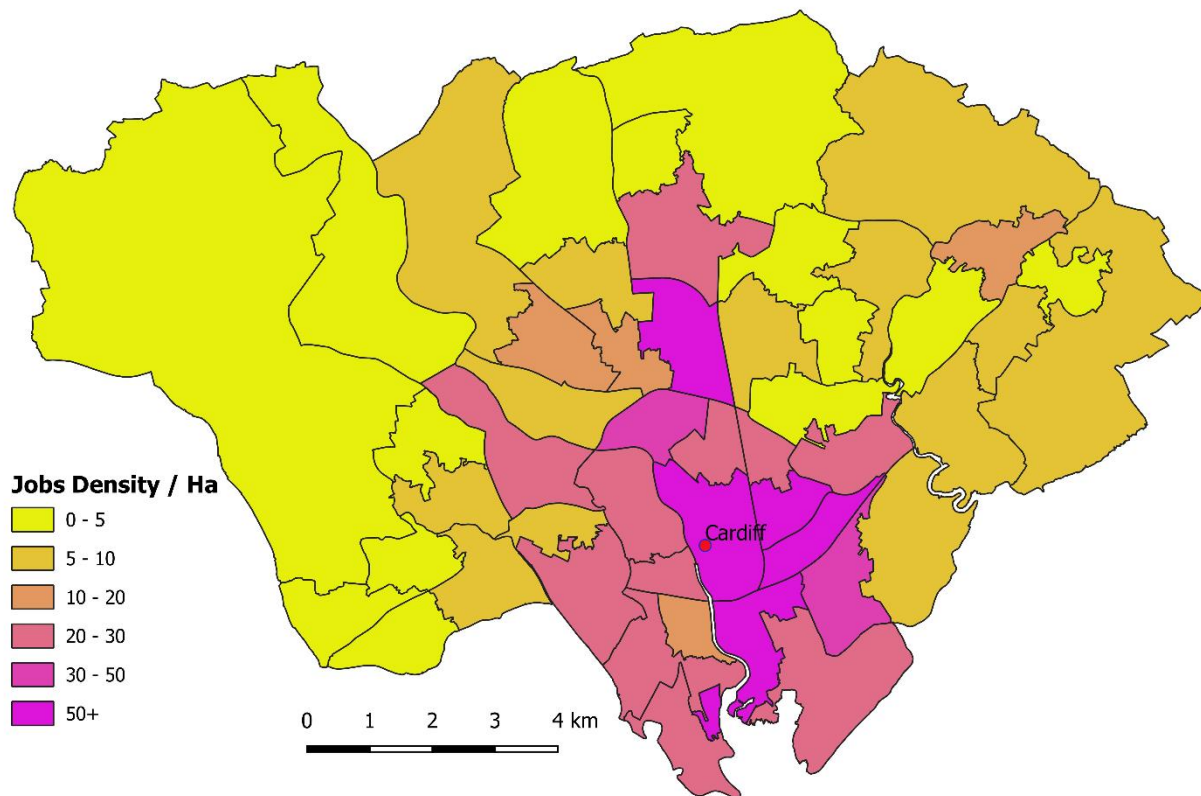
The table above shows the potential impact in Cardiff of population growth on bus provision. It shows the increased peak vehicle requirement should population growth follow expected trends and bus journey mode share remains the same as current at circa 10.2% of journeys.

As bus operators will seek to spread the cost of additional vehicles over a full operating day it is expected that bus movements could rise by between 40 and 80 additional buses per hour in 20 year's time. As now, a significant proportion of these additional movements are likely to occur on routes to / from the city centre.

This is before the Cardiff White Paper initiatives and the potential for smaller vehicles providing more responsive services have been considered.

Questions of infrastructure capacity and the use of kerb space emanate from this growth in the population. It also reasonable to anticipate the need for at least one new bus garage in the city to cater for the additional vehicles, irrespective of the regulatory regime in place.

Where people work



The map sets out the estimated level of jobs / Hectare within the Cardiff area.

This shows the high density of jobs in the City Centre and Bay area based on the pre-covid19 distribution of jobs as estimated from people's travel to work habits and work at home numbers.

The patterns shows an economy distributed along traditional lines with a strong city centre and key local centres of jobs such as the University of Wales Hospital also showing high densities of employment.

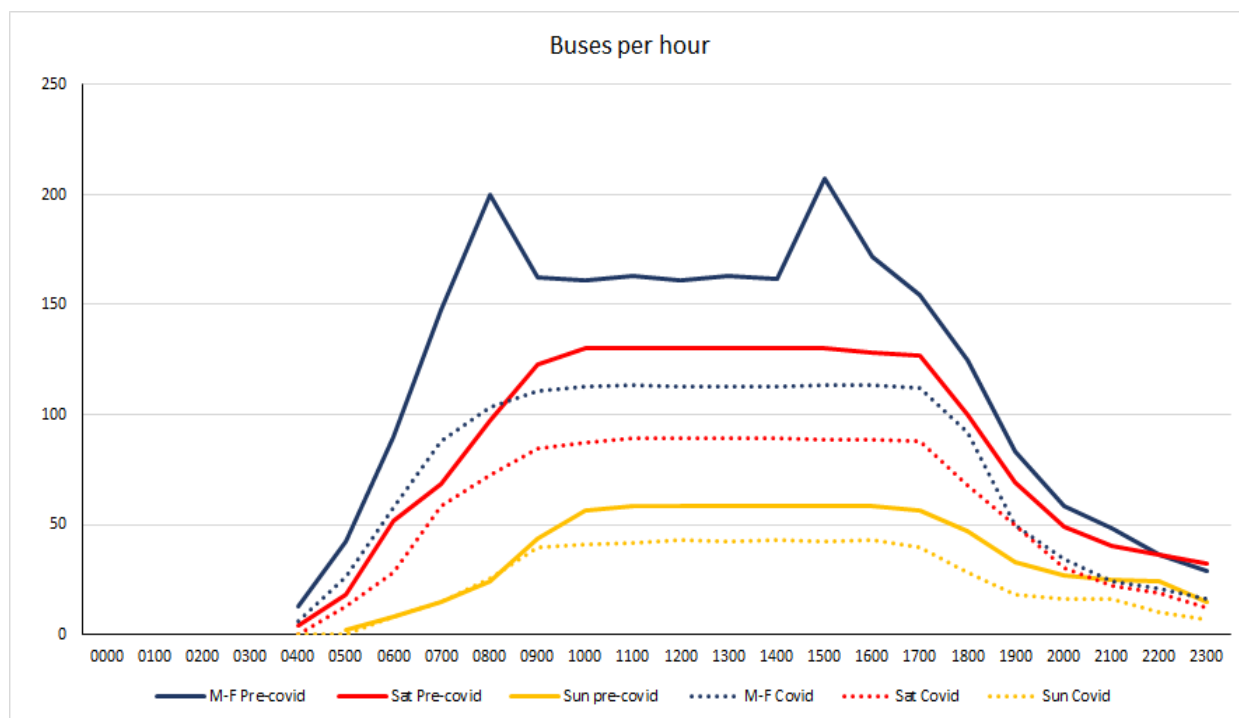
The current bus network

The current bus network is one still operating under the stricture of the covid19 situation. A review of pre-covid19 bus frequencies has been made together with a Covid19 related assessment in November 2020.

A detailed assessment of bus service frequencies is set out in Appendix 2. This shows the typical frequencies for each service by time of day and sets out the hours of operation. By implication the data in Appendix 2 shows how long a wait for a bus is likely on any particular route.

The table below sets out the number of buses in services in Cardiff by the hour.

Whilst not a direct indicator of frequencies, it does shows that the majority of services run between 0700 and 1900 (1000 and 1700 on Sundays) and that on Monday to Friday services do not increase against the peak times of non-school related demand. In addition, 48 dedicated school buses are deployed during school terms which account for the spikes in activity between 0800–0900 and 1500–1600 on Monday to Fridays.

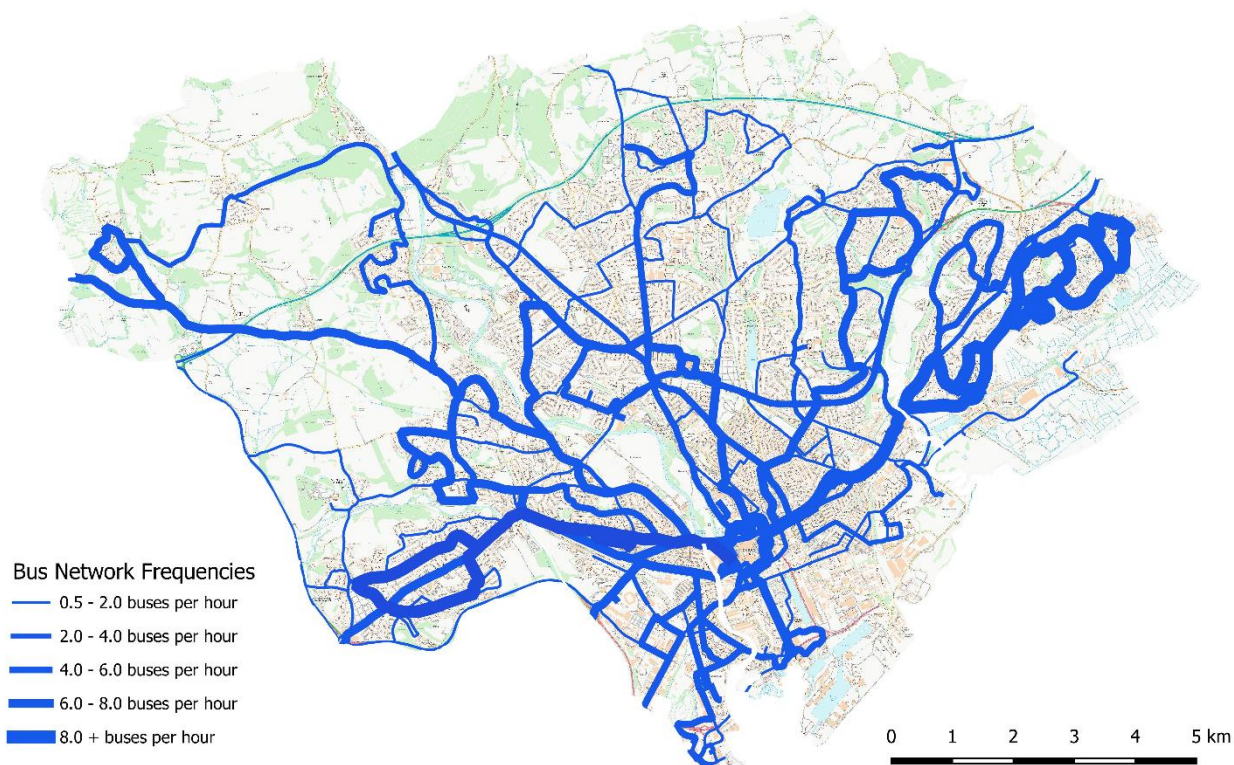


The current bus network

Geometry of the bus network

The current bus network is essentially radial in network. The vast majority of services have the city centre as a destination or pass through the city centre.

Whilst this does create high frequency corridors on the approaches to the city it does limit the ability to make journeys that either pass through the city or are of an orbital nature.





Strategy Coverage and Choices

Drivers of Change - 1

Socio-economics

Cardiff is a developing city; its population and economics have evolved over time and will continue to do so.

Demographic change will drive changes in the transport system and the demand for travel as these will drive spatial choices for land use and environmental outcomes.

Population increases will put additional pressure on the transport system (and also other infrastructure) that will require a proactive reaction from both policy and delivery perspectives.

City Deal

The Cardiff Capital Region City Deal, worth £1.2 billion of public funding, was signed in 2016. Over its lifetime, local partners to the City Deal are expected to deliver up to 25,000 new jobs and leverage an additional £4 billion of private sector investment.

In transport terms, the major element of the city deal is 'in principle' funding for the Cardiff valley lines rail electrification and development of the South Wales Metro concept.

The level of investment projected is therefore driving fundamental change in the fabric and transport network of the city-region.

Cardiff Transport White Paper

The Cardiff Transport White Paper proposes radical change in the way the transport system in Cardiff operates.

The White Paper proposes a clear path to achieving a low car, low carbon city transport system. It identifies that urban bus services, longer distance services (including TrawsCymru and coach services) will have a key role to play in meeting this ambition.

The White Paper recognises Cardiff's unique location as a local, regional and national centre and sets out plans for priority measures that would benefit both city services and those from the surrounding region. Bus Park and Ride will also form an essential element in reducing the level of car traffic within the urban area.

Drivers of Change - 2

Climate emergency and Climate Change Act: “Net Zero”

The Climate Change Act 2008 (2050 Target Amendment) Order 2019 came into force on the 27th June 2019. It introduces a target for at least a 100% reduction of greenhouse gas emissions (compared to 1990 levels) in the UK by 2050 (otherwise known as the ‘net zero’ target).

Cardiff City Council declared a climate change emergency on 28th March 2019. The approved Councillor motion states that the Council, in terms of transport, is committed to

- Increasing use of electric vehicles (e.g. buses, taxis and council vehicles) and provision of charging points within the city
- Achieving a 50:50 modal split between car and sustainable modes of travel for journeys to work by 2026.

The City has 4x Air Quality Management Areas in place at the time of writing. Each is for NO₂ exceedances driven in the main by traffic emissions. These are:

- Ely Bridge – parts of the A48 and A4119 roads
- Stephenson Court – Newport Road area
- Llandaff – Cardiff Road
- City Centre – St Marys Street and Westgate

Covid 19

The Covid 19 situation has seen major changes in social behaviour and working practices that will have impacts in both the short- and medium-terms. The outcome is that in the short term at least public transport will be reliant on significant and essential public subsidy. The current Welsh Government financial support is scheduled to terminate at the end of the 2021-22 financial year but there is a common acknowledgment with *de facto* movement restrictions still in place, further funding will be necessary.

Much debate is in play about what the “new normal” long-term transport picture may be.

Unless the market for bus travel is rebuilt decisively it will be difficult for buses to be presented as a credible means of travel for the Decarbonising Transport policy to stand. This is not just an economic or political issue, but crucially a behavioural one too.

Emerging research¹ has indicated that 20% of public transport demand may ‘disappear’. If this is the case, further public subsidy could become a medium rather than short-term requirement.

The Cardiff recovery strategy sets out the ambition for opening the city again.

1 – Systra <https://www.systra.co.uk/en/newsroom-37/latest-thinking/article/life-for-buses-after-lockdown>

Drivers of Change - 3

TfW rail network improvements

The TfW rail franchise commits to substantial investment and additional services on the rail network. The valley lines electrification will change the frequency and journey times for services to Cardiff

As the rail network acts a series of key transport spines a Metro bus network will need to make connections at key centres for integrated longer distance journeys.

Technological change

Technological change presents significant opportunities and also risks.

Changing vehicle types and the fuels used give the bus industry the ability to promote its green credentials.

Uncertainty over the long-term future of different fuels and uncertain taxations regimes act as barriers to change and investment

Information provision and service management has been revolutionized by new technologies but giving effective access to all user groups remains challenging.

Legislative change

Bus services

Bus service legislation and funding is a devolved matter to Welsh Government.

- Bus Services (Wales) Bill.

The Bus Services (Wales) Bill was intended to *“provide local authorities with an improved range of tools to use when planning and delivering local bus services within their area, and to improve the availability of information on bus services”*.

The Bus Services (Wales) Bill has not proceeded but further reform of bus service provision is committed in the 2021 Wales Transport Strategy: Llwybr Newydd.

Local Government and Elections (Wales) Act 2021

The Local Government and Elections (Wales) Act seeks to promote joint working between Councils and specifically the concept of “Joint Committees”. For matters such as public transport which cross pre-defined council boundaries the potential case for these arrangements is likely to be strong.



Strategic Vision

The bus network has a fundamental role to play in maintaining the area's social fabric. As such it is right that such a key service sets out a vision for its future.

The vision should include the following objectives:

- To be best-in-class: A high quality network of road-based public transport services that are reliable, frequent, convenient and affordable, and that meet the needs of residents, businesses and visitors. The bus to be an attractive mode of travel, which offers a real alternative to the car. The network encompasses all forms of road-based mass, shared, transport including bus, demand responsive transport and community-based transport.
- To promote sustainable growth: The bus network underpins economic and housing growth by connecting people with places and services. It enhances quality of life and supports healthy choices, whilst protecting and enhancing the environment.
- To provide equitable opportunity for all: The bus network provides convenient access to jobs, facilities and services for all, irrespective of income, age, ability, location or access to a car.
- To provide a zero-carbon network at the point of use.

To support the strategy, Appendix 4 to this report provides brief case examples of locations where the bus service is seen as an asset to the community and the transport dynamic in conjunction with other policies has generated change in the attractiveness of the bus service.

What a good network looks like - 1

Primary journey purposes

On local bus services, invariably passengers travel to reach a destination to access an activity. These journey purposes range from regular essential journeys such as for work or education, through less frequent trips for essential shopping or to visit health facilities to journeys for non-essential shopping and leisure (including tourism) purposes.

It is generally agreed that the journeys for the more essential activities should be considered more important and therefore, provided more frequently or with a wider choice of destination.

In terms of primary journey purpose(s), the aim is for the bus network to be inclusive and provide social mobility for all groups. Some examples of the journey purposes the network will seek to meet are outlined below:

- Employment
- Education and Training
- Healthcare
- Shopping
- Social and Leisure Activities.

Network design

As described in more detail on the next page, a good bus network has a number of essential characteristics that make it usable

- Affordable – in terms of providing good value for money and allowing for maximum fares (capping) and non-penalty interchange.
- Accessible – both being physically accessible to all groups and communities but also in the sense of being easy to use with straightforward timetables, integrated ticketing and seamless interchange.
- Available – the network provides a level of coverage and a level of service, which is appropriate to demand and which can link communities to locations of travel demand
- Acceptable – the network is of sufficient quality, particularly in terms of punctuality and experience that a potential passenger would be confident in relying on it.

What a good network looks like - 2

For the road-based public transport network to be considered best-in-class, it would have to aim to display the following characteristics:

- Buses at convenient times to the destinations people want to reach.
- Co-ordinated routes, services, fares and information, providing seamless travel even with interchange.
- Direct connection to the rail network as part of the overall South Wales Metro framework.
- Sufficiently frequent to be attractive, with journeys throughout the day that offer users flexibility, choice and convenience.
- Reliable services that are on time, giving confidence to users.
- Attractive and comfortable service, including high quality vehicles, friendly drivers, pleasant waiting places and readily available and understandable information.

Bus services would support and encourage sustainable growth by:

- Responding to changing land use patterns and the needs of new developments.
- Moving towards the use of low or zero emission vehicles.
- Offering good connectivity between places, including direct access to larger employment sites.

- Providing a stable network that offers certainty and gives confidence to users.
- Building demand on main corridors to help develop the market for higher capacity mass rapid transit services, where appropriate.
- Integrating with other travel modes.

Bus services would provide opportunity for all through:

- An understandable network, with clockface timetabling and simple fares structures, that is clearly promoted and easily recognised through branding and comprehensive marketing.
- High quality and consistent passenger infrastructure, vehicles and customer care.
- Straightforward interchange at designated points, with easy transfer between services and other modes.
- Flexible and responsive services that offer travel options where fixed route services are not viable.
- User-friendly sources of information available through a range of formats and media throughout the journey.

Zero Carbon Network:

- A Zero Carbon Network will be the standard to be aimed for reached within one cycle of fleet renewal. In the intervening period a Euro-6 emission standard fleet will be sought.

Network Coverage - 1

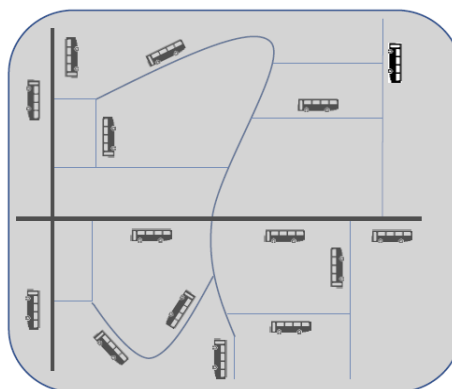
To generate an effective strategy a consideration of the coverage the network is designed to achieve requires detailed assessment of a range of factors.

Access to the network

The standard in the UK has been for a 400m walk to a bus stop to be considered as 'adequate'. This makes no reference to the frequency or hours of operation of the service provided, nor to its quality. A quotient based on access time (i.e. time taken on walking to/from the bus stop distance and average waiting time linked to bus service frequency) would appear a more direct measure of accessibility to the network when the real competitor is the private car with a very low access time in a car park situation or effectively zero access time in the residential setting. However, it is important to note that this is not a full picture only showing how accessible the network is, not how useful to users the services are.

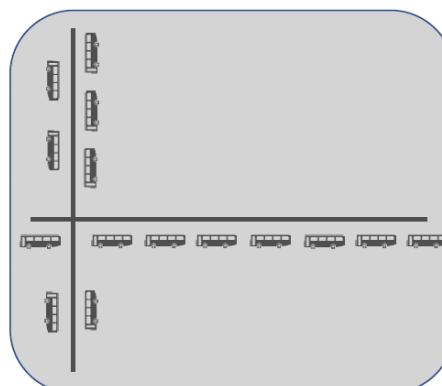
A local network

In this scenario most local roads would have a bus series, albeit at relatively low frequencies. This would provide a highly accessible network based on the 400 walking distance criteria but frequencies on individual roads would remain low with potentially long waiting times. This approach can be described as **'maximizing access'**.



A core network

The core network would seek to deploy resources onto main corridors with high frequency services linking the main housing locations and key destinations. Services would operate at least every 10 minutes would operate and be branded by route or corridor. The 400m walking distance may be exceeded in certain circumstances. This approach can be described as **"maximizing service levels"**.



Network Coverage - 2

Peak hours or all-day services ?

Peak hour services are expensive to operate with limited ability to share their fixed costs. The changing dynamic of peak travel may see a need to focus on education related transport and all-day services. Evidence indicates that circa 20% of peak hour car traffic can be directly attributable to education so peak hour only services may be best concentrated on this market to ensure that 'linked' car trips are reduced.

Longer distance routes

These play an essential role in service provision on radial routes into the city centre. The use of radial routes, stopping at frequent intervals does create less competitive journey times for longer distance passengers and therefore offers little attractiveness for travel into the city centre from outside the city. This can be seen in the current services on the A470 corridor where the X4 takes around 30 minutes from Pontypridd to Cardiff whilst stopping service take up to an hour for a similar journey. For a fully functioning bus network the need to speed up interurban journeys is key to ensuring that the bus network beyond the city boundary operates as a valid means of travel into the city.

A highly prioritised corridor serving the A48 park and ride (for interchange) would support the M4 Commission's ask for a M4 regional bus service.

Orbital services

Orbital services form a separate group of service patterns and one which potentially will rise in importance as land use densities increase and city centre employment patterns change over time. The development in Cardiff of a series of local rail stations on the main line through South Wales, the location of park and ride facilities and development patterns that currently emphasize major developments on the urban fringe will create a requirement for orbital routes to link key locations without the need for travel through the city centre.

Service typologies - 1

To aid the development of the network a series of service typologies have been developed to cast the future network around. These reflect geography of South Wales.

Urban services

To cover the main urban centres and urban employment, education and leisure facilities operating on a commercial basis wherever possible at high 'turn-up-and-go' frequencies on a 6 or 7 days per week basis.

Smaller vehicles should be considered to enable penetration of residential areas where possible. High quality bus-stops would be provided. The services would integrate with the wider bus and rail network at primary interchanges in the main urban area and have consistent and reliable journey times as a result of significant bus priority infrastructure.

A key type of urban service will be orbital routes around the city that connect the main housing locations to radial routes and key locations such as the University Hospital and the proposed Cardiff East parkway railway station.

We would expect these local services to run 6 or 7 days per week from around 0600 to 2300 and 0900 to 2300 on Sundays. On weekdays frequencies would be typically every 10 minutes or better with reduced frequencies in the evenings and on Sundays. Route or corridor branding will be key to attracting market share.

Interurban services

Main towns would be connected by inter-urban, potentially limited stop, services. These would run regularly throughout the day, with clock face timetables where possible and frequencies reflecting demand and the presence or otherwise of parallel rail links, use direct routes and be operated using high quality and comfortable vehicles. Stops would have high quality infrastructure offering safe and secure places to wait including at primary interchanges in the main urban centres.

Services are likely to be recognized through a specific brand. Some of these corridors could benefit from dedicated infrastructure and priority measures in the main urban areas.

We would expect these services to operate at least 6 days per from around 0600-2100 and 0900-2100 on Sundays where Sunday operations are provided. On weekdays 20-30 minute frequencies are desirable between 0700 and 1900 with at least hourly services at other times. Route or corridor branding will be key to attracting market share.

We would expect a move towards a Bus Rapid Transit (BRT) Network for Interurban services and urban services on key corridors backed by strong bus infrastructure investment. BRT is seen as an innovative mode of transport with journey times and comfort levels that are based on those of a light rail system while maximizing the flexibility and lower costs associated with bus technology.

Service typologies - 2

Local 'link' services and feeder services

The core network would be supported by a network of local town services or feeder services connecting rural areas or isolated urban estates to the core network at designated hubs. Where sufficient demand exists, conventional bus services may be offered.

Where demand is more limited or dispersed (in terms of geography or time of day), flexible, responsive transport, or community-based services, may be provided.

These services could take various forms, including crowd-sourced funding and be provided by different types of operators, including taxis and private hire cars.

We would expect these services to operate at least 6 days per from around 0800-1800 and be dovetailed with education transport provision and possible social services transport. We would expect some form of local identity to be adopted within a common product / brand.

Night Bus Network

A number of UK cities outside of London have introduced comprehensive nighttime bus networks especially at weekends to cater for the evening and night time economies. On other nights of the week skeleton networks support the movement of key workers and bus company's own employees .

Should the night-time economy in Cardiff reappear in a substantial form post-covid19 then consideration of how a night time bus network could be instigated on key corridors should be examined.

At this stage we set out no recommended service pattern or timings for this type of service, dependant as it is on the re-emergence of the evening and night economy, but examples are known of 'mass departures' from city centres at specific times which would in theory allow for cross-city journeys to be made by interchange whilst also providing services on key routes.

Special types of services

Park and Ride

Park and Ride whilst predominantly a parking management measure is heavily dependent on the quality and frequency of the associated bus link.

The current P+R offer on the A48 should be extended as patronage requires; pricing would need to be aligned with city centre car parking offer and, if possible, offer a lower price point.

New Park and Site sites will form an essential backbone to a public transport led city transport vision and should be located at or near the urban fringe on key radial corridors and/or to serve specific locations e.g. the University of Wales hospital

Park and ride should encourage long stay use as it is noted that short stay parking would still have a role to play in retaining a retail offer in the city and to ensure that premium priced short stay parking for business visitors was still available.

We would expect P+R services to have following characteristics; operating at least 0700 to 1900 Monday to Saturday with a minimum 15 minute frequency. Ideally the P+R services would be dedicated but we recognize that the ability to serve key locations en-route would strengthen the case for P+R provision

Education transport

Evidence suggests that a degree of road congestion is caused by car based 'linked trips' to education establishments.

A series of distance based statutory requirements apply to the provision of school travel. Cardiff City Council's policy is also to provide transport for pupils with Additional Educational Needs.

A development of this policy to include journeys under the statutory distance could have a major beneficial effects in terms of congestion and air quality as evidence indicates that at peak times between 15 and 25% of journeys are educated related.

We recommend that careful consideration is given to how a dedicated education bus network could be developed.

Social services and NHS transport

Social service and the NHS provide for high volume of transport movements albeit focused on individual service users. The resources used do, however, have elements of downtime that could be used at marginal cost to provide public services if the vehicle types are suitable.

We recommend that an identification of usable downtime in these service areas is conducted to identify the degree to which cross-working could be secured on a resource sharing basis.

Pillars of Success

To generate a successful bus network that forms part of the South Wales Metro a number of “pillars of success” have been identified that could be used to shape the future network. Whilst it noted that TfW are about to commence a data driven exercise to ascertain current and future travel demands the delivery of the Metro concept will need a supportive framework and investment. This work has identified both quality related, future related and delivery related matters that could form the basis for the successful delivery of Metro bus elements.

- A high quality service that is reliable and has a high degree of priority compared to car travel.
- A network that provides clear coverage of South Wales with services that are easy to use and affordable.
- Clearly defined service types are deployed to match current demand and are flexible to respond to future demand.
- A bus network that provides interchange to the rail elements of the South Wales Metro.
- A zero-emission fleet in line with fleet renewal cycles and the best emission standards for remaining non-zero emission vehicles in the intervening period.
- Infrastructure to provide interchange and P+R facilities.
- Processes to gain economies of scale in back office functions and to agree regional priorities for bus.
- A regulatory framework that suits the circumstances of South Wales and Cardiff in particular.
- Funding principles are set and commercial / operational risks are borne by the appropriate party(s).
- A network that deals proactively with current preference for the private car.
- Alignment of the wider policy framework locally and nationally. This may include policies areas such as the Local Development Plan, parking policies, environmental policies and economic development aims.



Potential Bus Strategy Measures and Outcomes

Strategic Answers

Strategy Outcome 1

The bus network must be placed as the mode of choice for urban journeys that are not capable of being taken by active modes of travel – the CITY-METRO.

The bus network in Cardiff must be placed as the mode of choice for urban journey journeys where active modes of travel are not capable of being used.

This will require promotion of the bus network in terms of a product for sustainable travel and a range of complementary policy choices being made to support levels of investment and revenue.

The bus network must support the wider policy agendas:

- A zero / low carbon transport system
- A network that supports the M4 Commission's strategy
- A bus network that supports social equality and economic activity.

The supportive policy landscape across all areas of the Council's remit will need to include:

- Land use planning – the choices for growth being appropriate to mass transport
- Inwards investment and economic development – designed to support businesses locating in the most suitable locations for access by mass transport
- Health and Social Care – the active travel element of a bus journey (network access and egress) is a complimentary policy area that often receives support in isolation
- Education – much congestion is created by the journey to school

Big Moves

To deliver the goal of a bus network that is the first choice for urban travel a small number of 'big moves' are essential.

1. To ensure that if a traffic management scheme is implemented that the bus network is a beneficiary from the outcomes, be they in terms of finances, traffic flow or management of car parking across the city.
2. To introduce a capped fare system that ensures the cost of bus travel is at or below the cost of private motoring. The aim is to introduce the White Paper proposal for a £1 fare for any single bus journey within Cardiff
3. To introduce a tiered network of services that deal with movements away from the key corridors – this may include DRT and shared taxis for low volume flows
4. To provide a bus transport system dedicated to education transport that reduces traffic at school times to at or near school holiday levels
5. Achieving these goals will require a change in mindset that mirrors the White Paper ambition. The key to success will be placing the bus network in the widest context possible as an environmentally friendly social development and mobility tool.

A quality service

Strategy Outcome 2

A new high standard for bus services and vehicles should be developed. This would be the trigger for public funding for service support and investment in the fleet.

To move the bus network forward in South Wales a consistent quality of service is essential. The current operations present a mixed quality picture with some high frequency routes operated by modern vehicles with associated information provision, some routes operating with relatively new vehicles but limited information provision for potential users and recent examples of good practice in the development of demand responsive led services.

In the context of developing a quality network, the Wales voluntary BSSG standard should be seen as a minimum rather than a target.

In addition to vehicles and service delivery, users see a number of areas that are capable of influence to maximize use of the bus network including:

- A range of fares and ticketing options that cater for different needs and travel patterns
- Off-bus or capped contactless payment to minimize boarding times
- Clear and relevant branding and service identity. A single point for users to access all information and off bus ticketing is an essential item

- Delivery of information. This would cover planning journeys, booking services and easy access payment options. It would need to utilize the latest technology and devices that ensure it is accessible to all.

It is important to note a number of initiatives to deliver some of the above requirements are already in place. For example Cardiff Citybus, NAT and Stagecoach are already using contactless payment and a city RTPI system exists.

We would recommend a new South Wales and Cardiff specific 'statement of service quality' is determined to avoid the use of the lowest common denominator BSSG standard. This would reflect the high level of demand responsive / community led services present in the region, the degree of Interchange anticipated through the Metro concept and the degree to which the individual authorities have influence over operator standards (e.g. through tenders). It would also allow forward looking trends to be established seeking continuous improvement.

The ideal network

Strategy Outcome 3

An 'ideal' network should be developed as a specification to ensure that funding opportunities and potential regulatory change has a framework to work within.

To move the bus network forward in South Wales a consistent quality of service is essential as stated in Strategy Outcome 2, however, this must be backed by the development of a suitable network.

We recommend that a core network of urban bus services be identified, closely mirroring as a starting point only the pre-covid19 network. This would focus on the main corridors into the city and also start the development of an orbital route from the University of Wales Hospital to the A48 park and ride site serving the new developments in North East Cardiff and business parks located close to the M4.

The development of a Bus Rapid Transit (BRT) network should be made a priority, with the initial target being the speeding up of interurban journeys into the city area by a combination of stopping pattern management and infrastructure investment. This network will need the support of adjacent Councils to develop.

Alongside this core network of services a new network of 'link' services should be established. The initial focus should be on identifying a network operated by smaller vehicles to provide non-core services to the University of Wales Hospital and also to examine direct routes to the Bay area employment location. There may also be a case in some locations for services operated by smaller vehicles penetrating key housing locations away from the core network.

We also recommend that current out of town employment sites be reviewed to identify if potential for dedicated, potentially demand responsive, services exist. An assessment of business models to achieve a cost neutral provision should be part of this assessment.

A network of dedicated education related services should be developed and rolled out to reduce the level of car-borne education journeys.

Opportunities for night-time services should be explored.

The new network would be supported by a ring of park and ride sites (and services) at or near the main motorway junctions serving the city.

When identified these park and locations should also become interchange points for the core network, 'link' services and education services to interact. This will enable very local services to provide a level of access to the core network that otherwise would dilute the core network product.

A further number of hubs in urban areas should be prioritized for development to facilitate interchange between services. The University Hospital of Wales would appear to a location that would benefit from the increased level of access such a hub could create.

Network coverage

Strategy Outcome 4

The network should seek to cover all urban mobility requirements that cannot be achieved by active travel

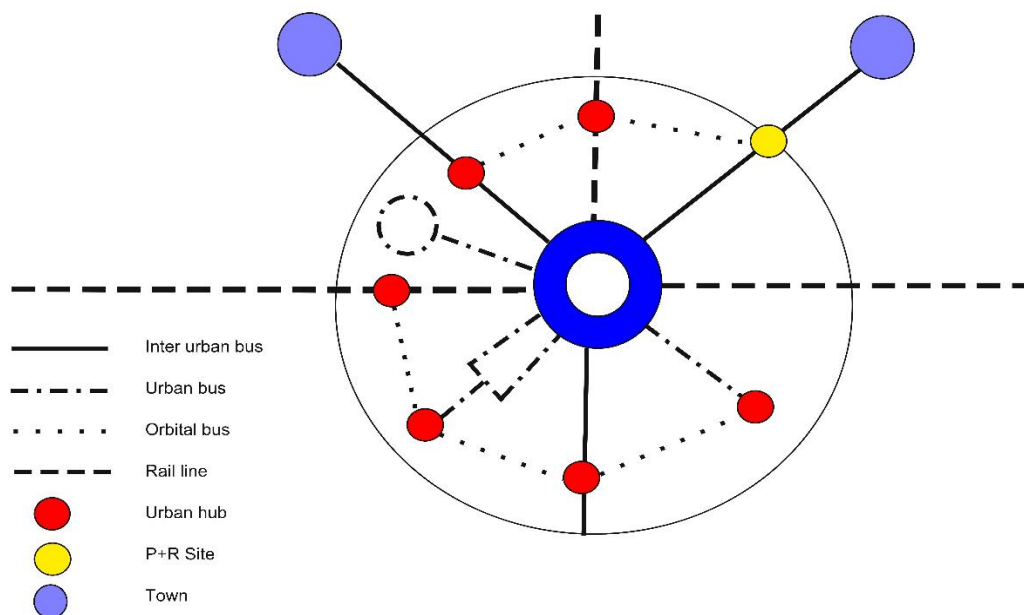
The CITY-METRO public transport concept is based on the general principle of universal access to the network.

The key principle to support this is that the network offer should support a range of access requirements; as seen in the socio-economic data a “one size fit all” approach is not appropriate given the complex landscape within which the network must operate.

A comprehensive bus network would offer high levels of connectedness and accessibility to facilities and services for those who have no alternative and those who should be choosing to use the bus as the preferred method of urban transport.

The concept of full network coverage will require interchange between types of bus services and between bus and rail services. Interchange will need to occur at the primary urban hubs but to ensure that suitable routes can penetrate into adjacent areas and local communities effectively without dilution of the key interurban routes interchange will be required at a more local level also.

Appendix 1 overlays this concept onto the Cardiff Transport White Paper proposals to show what a network following this concept could resemble.



Diagrammatic network illustration of general network principles

Fares, Ticketing and Information

Strategy Outcome 5

These matters are central to driving increasing use. The provision of universal and easy to use payment and information systems are key to providing a high of level of confidence to users.

In addition to vehicles and service delivery, users see a number of areas that are capable of influence to maximize use of the bus network including:

- A range of capped fares and ticketing options that cater for different needs and travel patterns
- Off-bus or capped contactless payment to minimize boarding times
- Clear and relevant branding and service identity. A single point for users to access all information and off-bus ticketing is an essential item
- Delivery of information. This would cover planning journeys, booking services and easy access payment options. It would need to utilize the latest technology and devices that ensure it is accessible to all.

It is important to note a number of initiatives to deliver some of the above requirements are already in place. For example, the Welsh Government led purchase of standard ticketing and RTI equipment provides the basis of a single information system.

We have recommended that a new South Wales specific 'statement of service quality' is determined to avoid the use of the lowest common denominator BSSG standard.

This standard would reflect the need for high levels of parallel fleet investment, the degree of Interchange anticipated through the CITY-METRO concept and the degree to which the Council can influence operator standards (e.g. through tenders). It would also allow forward looking trends to be established seeking improvement.

We also recommend that a fare capping scheme is developed potentially using a concessionary fare type model to deal with any revenue shortfalls unless the regulatory system deals with this at source.

Bus Infrastructure Provision

Strategy Outcome 6

Bus Infrastructure provision will be central to the CITY-METRO. A prioritised programme is necessary to commit funding and to secure ‘build back better’ outcomes post covid19.

Infrastructure provision for buses will be key to ensure the system operates efficiently and can deliver seamless journeys. The CITY-METRO will require infrastructure to prioritize journeys on radial routes. The allocation of space for bus services and passenger facilities will be key to delivery of an effective network. TfW has indicated that it will be leading on the development of information and ticketing systems. A recommended programme of infrastructure development and delivery is set out in Appendix 3.

Bus Rapid Transit implies a high degree of bus priority to speed up buses. The main application of this should be on radial routes carrying the highest frequencies of bus services. This would also support the M4 Commission’s proposal for a A48/M4 bus rapid transit scheme.

Park and Ride sites will be central to reducing car use for trips entering the city. Located on radial routes at or near the key motorway junctions these sites should have secure parking and facilities buildings.

Bus priority. In addition to the BRT proposals on main radial routes there will be a need for localized bus priority measures. This category could include bus gates to provide more direct access to new developments, signal priority at key junctions or conventional bus lanes.

Street furniture is an essential element of the bus journey experience. Unless all stops along a bus route are equally accessible, passengers may be unable to board or alight a bus at their desired location.

The Equalities Act (2010) places a duty on both public transport operators and highway authorities to provide reasonable adjustments so that disabled passengers are not disadvantaged. Bus passengers are also pedestrians at each end of the bus trip and all elements of their journey should be considered including the convenience and comfort of the waiting environment. Ideally a common identity for street furniture should be developed. RTI should be provided at all stops and consideration be given to cycle storage at key locations including at non park and ride bus hubs in the urban area.

In the **City Centre** bus access should be maintained to key destinations. The opening of the new bus station will provide a centrally focused location for all major services. The city centre bus network will need to be dovetailed with the emerging and changing street scene to provide a high level of access.

DRT booking systems will be essential for a full role out of DRT. A single system should be the desired goal with a central contact point for booking whether by app or in person contact.

Delivery and maintenance. Delivery of the majority of bus infrastructure should be within the powers of Council as highway authority and in limited circumstances through the planning process. A programme that identifies priority areas for works will be required. The installation of significant bus infrastructure will require a commensurate increase in maintenance commitments.

The Bus Fleet

Strategy Outcome 7

The bus network will reach zero emission standard as soon as practical. Planning and highway management policies will be aligned to allow this to be achieved and grants made available for fleet renewal

To move the bus network forward in South Wales a fleet of zero emission buses in the medium-long term is essential. The current bus fleet in the city region has an estimated average of around 9 years. The Stagecoach fleet is on average around 2.5 years newer than the Cardiff Citybus fleet although investment by Citybus announced in April 2021 will reduce this gap and provide a start towards an electrically powered fleet.

In comparison DfT data in 2018 indicated an average bus age across Wales of 7.8 years. This compares unfavourably to some high-profile fleets across the UK where average vehicles ages of 4 to 6 years are quoted.

Changing vehicle type and the fuels used give the bus industry the ability to promote its green credentials. Uncertainty over the long-term future of different fuels and uncertain taxation regimes are acting as a barrier to change and investment.

The aged fleet and the need to identify a suitable new fuel system that can be rolled out across operators and which is suitable for the wide range of operations anticipated is a major barrier to the heavy investment necessary. In addition to the fleet, depot infrastructure will need similar heavy investment to cater for high tech vehicles and new fuel sources.

The nature of the bus network in South Wales suggests that heavy investment by operators in the short term is unlikely and in the medium term would be dependent on the regulatory model adopted.

Given local and national policy, and the declared climate emergency, the bus network and its supporting infrastructure must aim for net-zero emission and carbon neutrality. Given Cardiff prominence, a zero-emission fleet as soon as practical is suggested to be a prerequisite to position the CITY-METRO network as the green transport solution for the City.

One option to accelerate the fleet renewal process could involve public investment to take fuel choices and investment risk away from the private sector.

This investment could be channelled in several ways, for example:

1. Direct purchase of vehicles to an agreed fuel specification through grant arrangements. This would remove a major risk from operators in terms of fuel specifications and other technologies.
2. Grant purchase and deployment of depot equipment or publicly owned refuelling stations for zero emission buses. This would remove a major investment risk from operators in terms of fuel type and, if suitably located, would enable decarbonisation of the Council's vehicle fleets to be accelerated as well.

Governance issues

Strategy Outcome 8

The governance of bus services should place risk and reward with the appropriate parties and allow for investment in fleet, infrastructure and operations

The current situation with central government funding the majority of bus operating costs during the covid19 situation will in time revert to the point where the covering of operating costs may be possible.

At that point, fundamental choices will be required about how service and network patterns are developed and what organisations are responsible.

At the current time, the choices available to the Council are based on the statutory approaches in the Transport Acts 1985 and 2000, as amended. Changes in the legislative framework in England have not, to date, been replicated in Wales.

Although the future is unclear and new legislation highly likely, the need for public funding for operations and for a significant acceleration of fleet investment will continue into at least the medium term.

Statutory Partnerships and Quality Contracts have the potential to allow this requirements to be met and a newly shaped bus network to emerge.

The key to the choice of regulatory models will ultimately be a question of funding sources and availability but the precise regulatory approach will be shaped by a number of interdependent factors:

- Future Welsh Government legislation and policy positions
- The level of investment a reinvigorated commercially operated network could generate (if any)

- The degree to which competition law requirements would enable the Council to act as a honest broker and network funder
- The availability of cross-funding from the White Paper's road access management approach(s).
- The degree to which the approaches noted would allow operator incentives to be in place for service coverage and quality. Ultimately, the question of revenue risk allocation will determine this question.

We note the high bar to Quality Contracts although a road access management proposal could form the policy basis for such a scheme given the fundamental change this could give to travel choices, dependant on the detail of any such road management proposal. We also note that Statutory Partnerships in number of major English Cities did bring about key change and improvement to the bus network, albeit when aligned to a strong investment by the local councils in bus friendly infrastructure.

We note that various other bus network governance models exist. We are drawn to investigating the 'Hong Kong model' further. This has area concessions with a required quantum of service in a particular geography but also a high degree of commercial operator freedom within the set geographic bounds.

A further governance consideration for the delivery of the CITY-METRO approach is the cross-boundary nature of such an approach. This will require regional engagement and agreement given the market for travel to / from Cardiff.

Funding

Strategy Outcome 9

A sustainable funding model using the proposed road access charges to make the bus network self supporting should be developed

To move the bus network forward as defined by the CITY-METRO proposition the question of securing substantial and ongoing funding will need to be answered.

Current funding sources are focused on revenue spend with both local and national sources used to provide direct subsidies for operations, compensation for concessionary fares and support for infrastructure. A linked but stand-alone source of funding is section 106 planning agreements to provide support for bus services into specific new developments.

The future funding mix will still need to be of two types:

- Capital investment
- Ongoing revenue funding

The Cardiff Transport White Paper proposals for a road access charging or some other form of transport related revenue raising proposition (e.g. work place parking levies or a revised car park charging regime) provides the basis for a sound revenue footing to be achieved locally supported by use of general funds and section 106 agreement monies as these become available.

Fare capping as an outcome has already been discussed as a parallel to the current concessionary fares regime should regulatory change not give fare setting powers to the Council.

At present, the regulatory system would require the Transport Act 1985 to be followed to distribute any subsidy, but securing additional frequencies are a possibility with the later amendments to this Act.

Cross-subsidy from revenue raising activities on the bus network should be assessed – bus stop advertising revenue is already collected as an example of areas that could be explored.

The purchase of new vehicles through capital has been shown to be possible and will be key to a prompt move towards a zero-emission fleet. This will also save around 15-25% of operational costs due to lower fuel costs. The issue will be to ensure that vehicle bought with capital remain in the city. There are several models through which this could be achieved that would be acceptable and not distort the market for bus services but also result in a quality uplift. Other capital investments would need to be considered as investment capital.

Options for capital funding beyond existing funds should be considered. Options may include:

- Central Government grants
- City Deal funds
- Local Authority borrowing via PWLB/Bonds subject to an income stream to ensure affordability and sustainability
- Planning obligations

How success can be measured

Strategy Outcome 10

The success of the bus network should be assessed through a series of KPIs to measure service delivery, on time performance and user satisfaction

Ultimately, success will be based on the use of buses increasing as a proportion of the overall travel demand as part the 50:50 split between car and sustainable modes.

Using a set of regional or city based KPIs to monitor network operations and target investment (both in terms of capital monies and resources to resolve issues as they emerge) is an essential step to building a better network.

Although at this stage of developing the Metro concept no specific KPIs are recommended there is a need to identify the type of KPIs that are relevant. The KPIs would be influenced by external bodies such as the Welsh Traffic Commissioner or funding providers and would allow for improvement beyond the current baseline Welsh bus standard.

Examples are set out below.

- Patronage by route and geography
- Patronage referenced against car availability
- % of fleet zero emission
- % of 'hubs' and other infrastructure delivered against programme
- % of services run and 'lost' mileage
- % of services 'on time'
- MoT pass rates
- Compliance with cleaning regimes

There also is a need to assess the social and economic effects of the bus network. At this stage no detailed analysis of the economic value of the current bus network in South Wales has taken place.

Work by ITS Leeds¹ has sought quantify the effect of bus network improvements on the Index of Multiple Deprivation measure.

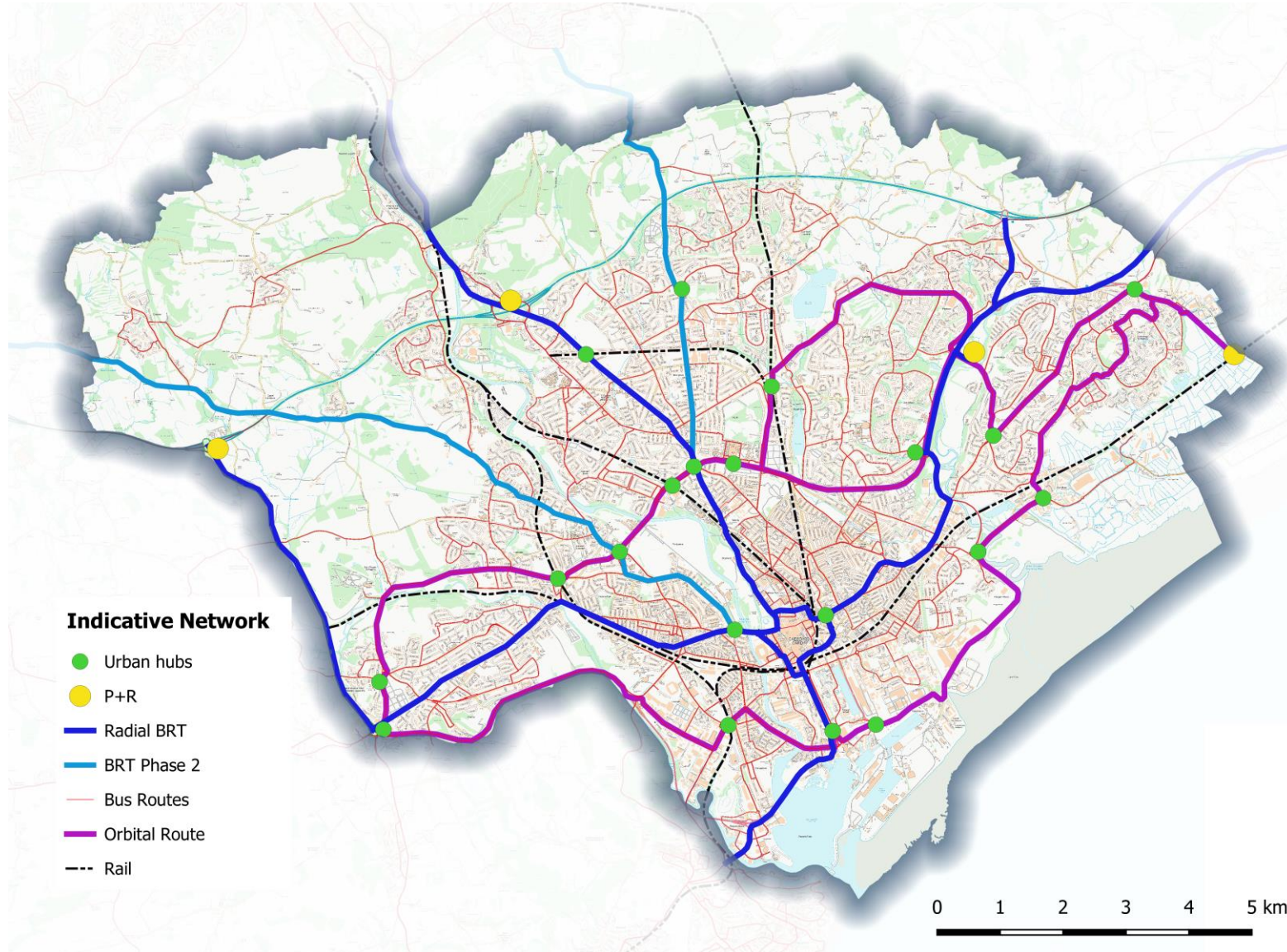
Given that the bus-based CITY-METRO and wider regional Metro network will have such effects and also affect agglomeration as seen in GDP / GVA it would appear pertinent to subject the networks that emerge from the CITY-METRO concept to this type of assessment.

1 ITS Leeds 2016, Study of the value of local bus services to society

Appendix 1 Potential 'White Paper' Bus Network



Cardiff Transport White Paper – Possible Bus Network





Appendix 2 Bus Network Information

Service Frequencies – Pre Covid19

| TIME (HOUR) | MONDAY TO FRIDAY | | | | | | | | | | | | | | | | | | | | | | | SATURDAY | | | | | | | | | | | | | | | | | | | | | | | SUNDAY | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|--------|----|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Cardiff Citybus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8/9/9A | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 17/18 | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 21/23 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 24/25 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 28/28A/28B | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 44/45/X45 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 49/50 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 51/53 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | 15 | | | | | | | | | | | | | | | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | |
| 57/58 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 62/63/63A | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65/65A | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 66 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 92/92B/93/94/94B | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 95/95A/95B | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 96/96A | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 97 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 98 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9C | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 / M3 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| H59 | 10 | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| H95 | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| X59 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 502 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NAT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10/10A | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 89A | 120 | | | | | | | | | | | | | | | | | | | | | | | 120 | | | | | | | | | | | | | | | | | | | | | | | 120 | | | | | | | | | | | | | | | | | | | | | | | | |
| 89B | 120 | | | | | | | | | | | | | | | | | | | | | | | 120 | | | | | | | | | | | | | | | | | | | | | | | 120 | | | | | | | | | | | | | | | | | | | | | | | | |
| C2 | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| C8 | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| x1 | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | | | |
| Stagecoach | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 86K | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 122 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 124 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| X3 | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| X4 (T4) | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 136 | 120 | | | | | | | | | | | | | | | | | | | | | | | 120 | | | | | | | | | | | | | | | | | | | | | | | 120 | | | | | | | | | | | | | | | | | | | | | | | | |
| First Bus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| X2 | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |



Appendix 3 Infrastructure development and delivery programme

Infrastructure development and delivery programme

The bus infrastructure development and delivery programme is designed to ensure that a pipeline of schemes can be implemented. The programme recognises that strategic infrastructure such as major interchanges, ticketing systems and real time information systems are now being taken forward on a national and regional basis by Transport for Wales.

The bus infrastructure proposals are directly aligned to the current Cardiff Local Development Plan and Policy T9 in particular which sets out the framework for the delivery of the 'City Metro' concept across Cardiff.

It is clear that existing schemes should be completed and monitored, and that establishing a prioritized and ongoing programme of infrastructure enhancements is necessary. A basic requirement is for the major radial routes to have a full set of priority measures drawn from a toolkit of solutions in place to support the Council's wider transport and environmental aspirations. Longer term proposals e.g. orbital bus route infrastructure and additional P+R are included for ongoing development.

The initial programme shown in this Appendix focuses on the next five years. It provided for a range of scheme development activities that will coincide with the development of the proposals in the Cardiff transport white paper.

The programme provides five general phases through which each infrastructure proposal will move:

Stage 1 – Conformation of challenges and opportunities, define the goals sought and assessment of potential options to deliver

Stage 2 – Feasibility design and confirming the business case

Stage 3 – Detailed design, formal processes and funding approvals

Stage 4 – Delivery

Stage 5 – Monitoring of the delivered outcome

These stages broadly align with the Welsh Government's Weltag processes for businesses and funding.

Quick Wins

The city Council is working to identify 'Quick Wins' on the major corridors. Examples that could be developed further include:

- Bus 'hub' at University of Wales hospital.
- Resolution of the future of Castle Street and how bus access into Castle Street is achieved
- Options for bus priority on North Road (A470 south of Colum Road)
- Options for technology based priority on Newport Road (A48 / A4161 corridor) between Albany Road and Elm Street (single carriageway section).

Infrastructure development and delivery programme

| Proposal | Current Situation | 2021 | 2022 | 2023 | 2024 | 2025 | 2025 onwards |
|--|--|---|--|-------------------------------|------------------------------------|------------------------------------|--|
| Develop / complete radial route priority programme – develop links to M4 commission programme on A4161/ A48 corridor. | The A4161 already has significant bus priority in place but there sections with no priority. The A48 has no specific priority and free flow left turn lane for all traffic at the A4161/A48 roundabout. The A4161/B4487 roundabout has no priority on any approach | Review M4 commission recommendations | Identify solutions | Feasibility design | Design | Delivery | Delivery by 2027 then monitor |
| Develop / complete radial route priority programme – develop A470 corridor. | No significant priority currently south of the M4 roundabout apart from the approaches to the M4 roundabout. The operation of a tidal flow system on North Road controls a 3 lane arrangement over the stretch from Corbett Road to the Maindy railway bridge. North of the M4 partial priority on the inbound carriageway is in place | Review solutions available | Feasibility design | Design | Delivery | Delivery | Monitor |
| Develop alternative bus corridor to main A470 corridor to north Cardiff | Works already underway at Merthyr Road | assess current issues | Identify solutions | Feasibility design | Design | Delivery | Monitor |
| Develop / complete radial route priority programme – Ninian Park Road / NW Cardiff routes | Limited priority, need to confirm priorities | Confirm if A4119 or Landsdowne Road the major priority corridor | Feasibility design | Design | Delivery | Delivery | Monitor |
| Resolve city centre access and bus stand issues | City centre has seen changes in traffic flows and bus routes due to covid19 measures. A long-term solution that provides cross-city centre access to the main interchange points is desirable. Current bus stand arrangements are capacity constrained for a post covid19 network | Review of stand capacity and bus routings | Confirm solutions / TfW & operator engagement | Design | Delivery | Monitor | Monitor |
| Orbital route definition and establish priorities – Rhymney River bridge at A48 P+R being one example of a necessary piece of infrastructure | Route choice limited by current network and service viability | Review solutions available | Identify solutions | Identify solutions | Develop and deliver programme | develop and deliver programme | Delivery continues |
| Central Bus station commissioning and monitoring | The existing bus station works are nearing completion | Delivery | Delivery | Delivery / Monitor | Monitor | Monitor | Monitor |
| 'Targeted' and developer led improvements | Developers are proposing isolated elements of priority through planning applications | Develop criteria for s106 spend based on where priorities are needed | Develop and deliver programme | Develop and deliver programme | Develop and deliver programme | develop and deliver programme | Monitor |
| P+R enhancements – programme based on covid19 recovery rate. | P+R offer will need to recover post covid19 before development is taken forward further | Confirm P+R is in the 'recovery' phase' | Develop and deliver programme | Develop and deliver programme | Progress individual site proposals | Progress individual site proposals | Progress individual site proposals continues |
| Street Furniture | Historically a supply, maintain and advertise contract applied to bus shelters. Quality of stop infrastructure varies by age and location although a general identity has been established. Road markings at bus stops are present but clarity is variable | Assess current bus stop quality and contractual position re shelters. Review highway design guide for meeting current and future requirements | Update highway design guide and define upgrade programme | Delivery / Monitor | Delivery / Monitor | Delivery / Monitor | Monitor |



Appendix 4 Case Studies

Case Studies - 1

1. Brighton and Hove

Brighton & Hove City Council has been at the forefront of bus prioritisation for many years. Brighton has an extensive bus network with 20km of bus lanes used by 3000 buses a day. The council has had the ability to enforce them through CCTV and fixed penalty notices since 2005.

Brighton & Hove have identified key corridors in and out of the city in order to maximise how attractive bus travel is to passengers. They have also identified real time passenger information as a key driver to increasing bus use. Information on when a bus will arrive and how long it will take is key to allowing people to make informed choices about travel as well as allowing the council to monitor public transport performance.

Brighton & Hove have also agreed a bus partnership with the main operators within the city.

The City Council has identified five critical factors for their success:

- prioritising road space for buses
- improved passenger waiting areas
- real time information displays
- ITS – Intelligent Transport System
- bus lane and traffic regulation enforcement.

2. Nottingham

Nottingham has continually sought to improve public transport on offer in the city. It has also sought to deliver bus priority and innovative public transport funding mechanisms.

In the 1970s an area based traffic management strategy created the city's long standing and successful park and ride offer. The park and ride system has been supported by an extensive radial route bus priority programme (which also benefit other non park and ride bus routes), city centre parking management and proactive marketing and signing.

The current bus partnership with the main operators has allowed effectively a low emission zone for buses in the city centre to be created, a bus stop 'booking system' to manage routes in the central area and supports a multi-operator bus ticketing scheme. A reset of traffic priorities around the city centre has allowed bus access to the central area to be retained whilst directing through traffic away from key areas.

The introduction of a workplace parking levy has changed the level funding available for public transport with recorded income running at £10m+ per annum.

A council owned bus company also has been retained and along with the main private sector operator promotion of the bus network is vigorous; the results show pre-covid steadily increasing passenger levels with evidence suggesting 40%+ of journeys into the city centre are by public transport.



Case Studies - 2

3. Bristol

Bristol had until recently a 'legacy' bus network. The main operator has seen continued retrenchment over a number of years as traffic conditions worsened and strong economic growth encouraged a 'car culture'.

The West of England received a significant £70 million programme of investment as part of the Greater Bristol Bus Network around 10 years ago. This focussed on improving 10 bus corridors, benefitting up to 70 bus routes as well as helping to advance the technological offer. This has been supported by a further £30 million invested in the form of 142 new buses in Bristol and 179 buses across the wider West of England. The new buses meet the Euro VI emission standards.

Further investment of £230 million has been made by the Government in the Metrobus BRT system introduced in 2018, with dedicated lanes aimed to improve bus prioritisation and ease congestion. Insights from the early years of operation show largely positive outcomes with a significant number of users having transferred from commuting by car to Metrobus.

A fundamental recast of the legacy bus network in 2016-2018 has resulted in increased patronage and a network that now is capable of delivering modal shift. A reset of the price point for bus fares has been instrumental in making the inner city bus network a valid and affordable travel option which has resulted in substantial patronage growth, on some corridors of 20-30%.

4. Cornwall

Cornwall Council signed its Devolution Deal with Government to gain greater powers of governance over public transport. It secured £9.5m Local Growth Funding from the Local Enterprise Partnership and invested £2.9m to deliver improvements for passengers such as upgraded waiting facilities, new vehicles and real time information displays in bus stops across the county.

This work was carried out in partnership with local bus operators under the title 'One Public Transport System for Cornwall'. Using maximum length (8 year) contracts to support bus routes in the County's many rural areas has encouraged operator investment against a set of minimum standards. A "Transport for Cornwall" brand has been developed for tendered services across the county.

To address Transport Focus research concerns about value for money Cornwall Council is about to be introduce real terms cuts in fares through existing partnership and tendering arrangements.

Whilst the One Public Transport System for Cornwall' is still a relatively new concept the early results are encouraging with ongoing market growth pre-covid and a willingness to tackle issues such as affordability.



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