



Welsh Government

## ANNEX 1 – Regulatory Impact Assessment

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.

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## Preamble

This draft regulatory impact assessment (RIA) aims to assess evidence about the costs and benefits of delivering high quality bus networks, comparing a baseline scenario with franchising, and an enhanced partnership approach, such as are being introduced in England, as well as considering further investment beyond legislative change, to set out a comparison between different policy approaches.

The draft RIA considers the cost of a franchising model where each local authority is responsible for franchising services in their area. This provides a conservative resource cost estimate that represents functions duplicated over all 22 authorities. This offers the advantage of providing a fair comparison to an alternative enhanced partnership model, simply on the benefits they can offer passengers, without considering the economies of scale available from franchising at a national level. It also has the advantage of providing a cost comparison that does not pre-suppose the outcome of the corresponding white paper consultation.

Although this local franchising model is not the preferred policy approach set forward in the white paper, which aims above to set out the benefits of taking a regional view of network plans and concentrating franchising skills at the national level, it has been adopted in the draft RIA to give a level playing field for comparison of the different forms of bus governance.

The methodology for assessing costs and benefits is based on relevant transport appraisal guidance as set out within the RIA. Use of guidance has been supplemented by consultation with Welsh Government economists, to ensure the assessment is aligned with the values and strategic transport objectives of the Welsh Government. The costs and benefits presented in this draft RIA are not suitable for comparison with the Explanatory Memorandum prepared for the previous draft bus legislation, which also considered franchising and partnerships. More detailed analysis of potential changes to bus networks has been undertaken to inform this version of the RIA and various cost and benefits assumptions have been amended to reflect plans for bus reform in Wales.

Subject to the outcome of this consultation the draft RIA will be updated to reflect the policy as it is presented in the proposed bill. This will include additional consideration of resources required during the transition period and future steady state operating model.

We would welcome any comments or feedback on the modelling and analysis contained in the draft RIA.

# 1. Introduction

## 1.1. Defining the Policy Problem

### 1.1.1. Falling Patronage of Bus Services

1.1.1.1. Bus journeys account for approximately three quarters of all journeys made by public transport in Wales and perform a critical role in providing access to jobs, services, education, hospitals and leisure activities. Bus use in Wales has been generally falling since the 1980s, from around 180M passenger trips per year in 1986/87, to 130M trips in 2008/09, and 101M trips per year in 2018/19 – a 56% drop since 1987, and a 22% drop since 2009<sup>1</sup>. It should be noted that the population of Wales has increased by 8.2% between 1998 and 2018, and by 3.7% between 2008 and 2018. The fall in bus use has thus taken place against a growth in overall population and total trips by all modes. This trend can be compared with a growth of car traffic (in vehicle kilometres) of 45% from 1993 to 2018<sup>2</sup>. Hence overall the bus services in Wales have collectively not been able to maintain mode share.

1.1.1.2. Over the long period of decline in bus use, regular investment has been made by Welsh Government and local authorities in bus measures and improvements. This includes schemes such as bus stations and interchanges, on-street and segregated bus priority measures, ongoing bus stop improvements, improved online bus information and journey planning via Traveline Cymru, increasing the network of TrawsCymru bus services, significant annual support grants based on operator mileage (Bus Services Support Grant; BSSG), and the all-day concession fare reimbursement scheme. The advent of free concessionary fares for older people and people with mobility difficulties, for a period of some years after their introduction produced the most significant reversal of the declining longer-term ridership trend.

1.1.1.3. Welsh Government's reimbursement of concession fares to operators is made for trips at any time of day, unlike in England where trips in the morning peak are not covered by concession travel. In Wales, fares are reimbursed to operators at approximately two thirds of the regular single fare, which, when concession travellers make a two-way return journey, can often provide a net

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<sup>1</sup> Department for Transport. 2021. [BUS0103: Passenger journeys on local bus services by metropolitan area status and country](#)

<sup>2</sup> StatsWales. 2021. [Volume of road traffic by road classification and year](#)

revenue similar to a normal Return Ticket (or Day Ticket). The reimbursement scheme has had a significant effect on maintaining overall trip numbers. A proportion of concession trips are recognised as ‘generated’ trips which would not have otherwise been made if fares were charged, and also the revenue generated has underpinned the provision of all bus services to attract fare-paying passengers. Selected statistics<sup>3</sup> illustrate the reliance on the concession reimbursement arrangement to maintain patronage levels:

- Half or all bus trips in Wales (50%) in 2019/20 were made by concessionary passengers (up from 43% in 2008); and
- The fall in fare-paying bus patronage from 2008 to 2018 was 25%<sup>4</sup>, whereas the fall in concession journeys was 10% over the same period.

1.1.1.4. Discussions with local authorities, engagement and consultation with bus operators (in the context developing bus reform proposals in 2018-19) and desktop research suggests that the historical reduction in bus patronage is due to a combination of factors. These include:

- Complicated ticket offers and lack of integrated tickets for use on different operators’ services;
- Lack of stability of bus service routes and timetables (which means that people are unwilling to commit to using public transport as part of their daily life);
- Reductions in the number of local authority supported bus services which leads to less bus trips; and
- Slow and unreliable bus journey times makes bus less attractive to potential users, and also increases operating costs – which has a knock-on effect of reduced frequency, which increases waiting times and further reduces attractiveness of buses, and which as a further deterrent to passengers increases the fare prices operators have to charge to cover their costs.

1.1.1.5. Data and research also identify external factors which create challenges to attracting people to use buses, including:

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<sup>3</sup> Department for Transport. 2021. [BUS0105: Concessionary passenger journeys on local bus services by metropolitan area status and country](#)

<sup>4</sup> Department for Transport. 2021. [BUS0103: Passenger journeys on local bus services by metropolitan area status and country](#)

- Increasing car ownership<sup>5</sup> – with the proportion of households in Wales without access to a car or van (for activities such as visiting local shops or going to the doctor) falling steadily from 21% in 2013 to 13% in 2019, which inevitably reduces bus patronage;

The cost of bus travel has increased relative to the cost of motoring. At a UK level, average bus fares have risen by 403% since 1987, compared to just 163% for motoring costs<sup>6</sup>; Activity for work, leisure and retail has shifted from town centres to edge of town, car-served, low density monofunctional spaces like the business park, retail park or owner-occupier estate, creating polycentric patterns of movement<sup>7</sup>. This type of movement does not align well with traditional radial bus services into town centres; and

- A rise in on-line shopping – which tends to reduce the demand for bus travel on core bus routes into town centres.

1.1.1.6. The COVID-19 pandemic from 2020 has also contributed to a trend of working from home for those occupations where this is possible, which is likely to be a long-term phenomenon, and which has beneficial policy outcomes in terms of reducing travel and associated carbon emissions, but also contributes to lowering bus use. Welsh Government announced in 2020<sup>8</sup> a long-term ambition to see around 30% of Welsh workers working from home or near home – giving more people the choice to work in a way that helps their productivity as well as their work-life balance, and with the potential to drive regeneration and economic activity in communities.

1.1.1.7. The importance of car ownership and car availability in peoples' mode choice is underlined by data which shows that the vast majority of bus trips are taken by people with no access to a car for that trip (for example, surveys in Swansea in 2014 indicated that only around 15% of people making bus journeys had access to a car for that trip<sup>9</sup>). It can be concluded that choosing between bus and car is not a practical consideration for most people's journeys, and that a significant proportion of bus patronage in Wales is made up of a 'captive market' of:

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<sup>5</sup> Welsh Government. 2021. Llwybr Newydd: a new Wales transport strategy - [Supporting information: transport data and trends](#)

<sup>6</sup> Department for Transport. 2021. [Bus Back Better: national bus strategy for England](#)

<sup>7</sup> Welsh Government. Foundational Economy Research. 2021. [Small Towns, Big Issues: aligning business models, organisation, imagination](#)

<sup>8</sup> Welsh Government. 2020. [Aim for 30% of the Welsh workforce to work remotely](#)

<sup>9</sup> SSWITCH. 2014. South West Wales Travel Pattern Survey

- people without access to a car (including students, who use buses in large numbers in Wales's university cities); and
- concessionary passengers who travel for free (which comprises of almost half of all bus journeys).

1.1.1.8. Another key inhibitor of bus use is that bus journeys are generally only practical for direct, single leg, bus journeys – which means that bus travel excludes a large proportion of all trips which are not served by direct bus trips. For example, in Cardiff, around 30% of jobs are in the city centre<sup>10</sup> – which is well served by bus. However, the majority of trips in the city are not to and from central areas, and these are generally not well served by bus (and hence are typically made by car). Census data shows that 'direct' journeys on urban radial bus corridors generally have a relatively healthy bus mode-share for Journey to Work of over 20%<sup>11</sup> - but indirect journeys have a much lower bus mode share. An illustrative but realistic theoretical example shows the typical make-up of bus mode share:

**Illustrative theoretical example of bus mode share for direct and indirect journeys**

In a typical urban area with 100,000 trips by all modes in the morning peak period, direct buses may only be a realistic choice for around 40% (or 40,000) of those trips (i.e. those trips which are on radial bus corridors towards the central area). Assuming these radial journeys have a relatively high mode share of 20%, this results in 8,000 bus trips. The remaining 60% of trips (60,000) are not well aligned to radial bus corridors, and hence a much lower bus mode share of around 4% is typical, equating to 2,400 trips by bus. Overall, the number of bus trips is therefore 10,400, equivalent to approximately 10% of all trips. This is an average figure which conceals the wide range of high mode share (for radial journeys which are well served by bus) and low mode share (for non-radial journeys that are not) for movement patterns with different geographical orientations.

1.1.1.9. The illustrative case shows that in order to significantly grow bus usage, it is important to be able to attract some of the 'indirect' journeys, which typically make up the majority of trips in an area but are presently hard to make by bus. For example, a typical car journey across a town, if made by bus, would be likely to involve undertaking an indirect, two or three-leg journey by bus (or by bus and rail), which would presently be an unrealistic and unappealing

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<sup>10</sup> ONS, 2018, Business Register and Employment Survey

<sup>11</sup> Census. 2011. [Method of travel to work](#) - Llysfaen/Llanddulas to Llandudno (Central) 20.5% bus mode share, Leckwith/Canton to Cardiff City Centre 48% bus mode share.

trip due to the lack of co-ordination between bus services, and complex ticketing arrangements. This leads to a conclusion that for bus to meet people's everyday travel needs, the 'in-scope' journey market for bus travel needs to be widened, which in turn means that operating bus service lines as a co-ordinated network is necessarily a key feature of success – such that customers can realistically reach multiple places on the network (with the ability to easily transfer between services as necessary).

1.1.1.10. In summary therefore, the key aspects of the historical fall in bus passenger numbers in Wales are:

- Bus use has reduced over time even though the population has grown, and in comparison, car use has grown significantly;
- Regular investment in bus services and infrastructure by Welsh Government (although beneficial) has failed to overturn the decline in bus use;
- Welsh Government's free concession travel has masked the decline in bus patronage, and temporarily reversed it, and the associated fare reimbursement scheme continues to be fundamental to maintaining bus services;
- Complicated ticket offers, lack of integrated tickets, and lack of stability of bus service routes all combine to make regular bus travel unappealing;
- Reductions in local authority support for bus services has led directly to fewer bus trips;
- Traffic congestion has led to slower and unreliable bus journey times, which makes bus less attractive, and also increases operating costs and thus fare prices (and can lead to a reduced frequency which increases waiting times and further reduces patronage);
- Much land use development in recent years and decades has not aligned with traditional radial bus routes;
- Increasing car ownership, comparatively low costs of motoring relative to bus travel, a rise in online shopping and working from home have also contributed to the decline in bus use.

1.1.1.11. The ability of the bus sector to halt the decline in patronage is inhibited by the tendency for bus operators to follow a logical commercial imperative of focussing on the most profitable market, that comprising people making journeys on radial corridors towards central areas, a focus which is also the strongest defence to deter competitor incursions which would bite heavily into profit margins. This means that the target market for bus companies in an unregulated environment largely excludes the large number of trips

which start and end outside central areas. This effectively caps the potential bus user market to a minority of trips in an area. Addressing this shortfall will necessarily require bus service lines to be operated as a co-ordinated network – such that customers can realistically reach a much wider range of destinations (with the ability to easily transfer between services as necessary).

### 1.1.2. The Present Bus Operating Model

- 1.1.2.1. The bus sector in Wales (and the rest of Great Britain) has been deregulated since 1986, which means that bus operators design routes and set fares for the majority of bus services (subject to operating standards regulated by the Traffic Commissioner).
- 1.1.2.2. Given this arrangement, bus operators quite rationally focus primarily on maximising their revenue in comparison to their operating cost – and hence understandably are not in a position to prioritise ‘policy’ aspects such as maximising mode share of bus in a town or city. Bus operators instead focus on maintaining their core market of passengers, focusing in particular on people whose regular journeys are constrained to radial bus corridors connected to central areas. As noted previously, in the context of growing car ownership<sup>12</sup>, low costs of car use relative to bus fares and a tendency for polycentric land use development (over recent decades), this core bus market has been slowly decreasing.
- 1.1.2.3. Bus operators effectively control and decide where most core bus services are operated in Wales. This has led to a situation in which local authorities’ transport plans have historically focused on bus infrastructure measures – and neglected consideration of the overall bus network in respect of defining goals and objectives, identifying problems, and generating network plans (with co-ordination of routes and frequencies). This lack of focus on long-term network planning for bus is a natural result of the fragmentation of responsibilities between multiple operators and local authorities – with the former focussed on operating their own bus services to best commercial effect and with a completely free hand to run buses where and when they wish, whilst the latter are focussed on setting transport policies and providing and maintaining transport infrastructure whilst lacking an ability to provide bus services other than those serving destinations and times which commercial bus operators do not wish to serve, and having very limited ability to influence the offering provided by commercial operators. Whilst historically there has been a good level of engagement and partnership working between Welsh Government, Local Authorities

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<sup>12</sup> Welsh Government. 2021. Llwybr Newydd: a new Wales transport strategy - [Supporting information: transport data and trends](#)

and bus operators in Wales, there is an inevitable lack of strategic planning and a consequent ‘misalignment of incentives’ (as described in documentation prepared by the UK Department for Transport as part of development of the England-wide 2017 Bus Act<sup>13</sup>).

1.1.2.4. The fragmentation of bus-related activities in Wales involves over 80 bus operators providing around 800 bus routes; 22 local authorities procuring some of these bus services; local authorities also managing BSSG payments to operators; concession passes and reimbursement managed via Transport for Wales; information and timetables provided in various formats via operators, local authorities, and Traveline Cymru; local highway departments maintaining bus stop and road infrastructure; education departments procuring school buses; and four rail franchises operating in Wales with which bus services often compete. There is thus an inherent complexity of interfaces, with a lack of overall planning and clear responsibility for outcomes – which tends to result in each service line being operated as a discrete service with no coordination with other services. This model also leads to financial inefficiencies due to overlaps of bus services (and sometimes overlaps of bus and rail services), and challenges of aligning infrastructure and operational matters.

1.1.2.5. Research studies on the UK’s deregulated environment for bus include conclusions that the current bus model precludes provision of a co-ordinated network and integrated ticketing – with disadvantages noted as follows<sup>14</sup>:

- *“Little opportunity to view the network as a whole”, with tendered services operating as an “add on to the commercial network covering areas and/or time periods which are not considered commercially viable”; and*
- *“In conflict with other policy objectives aimed at stimulating greater use of public transport, such as harmonisation of ticketing systems.”*

1.1.2.6. In terms of funding, in 2018/19 Welsh Government and local authorities in Wales contributed funding of around £115M to the annual bus operator revenue in Wales of approximately £210M (Source: Welsh Government). This means that, even prior to the impacts of the Covid pandemic, over half (c. 55%) of overall bus revenue was government funded. The breakdown of recent annual bus revenue in Wales is summarised as follows (Source: Welsh

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<sup>13</sup> DfT. 2016. [Bus Services Bill Impact Assessments](#)

<sup>14</sup> White, P. 2010. The conflict between competition policy and the wider role of the local bus industry in Britain.

Government):

- Fare-payer revenue at around £95M in 2018/19, which represents around 45% of overall revenue of around £210M;
- Concession fare reimbursement payments of around £68M; and
- Around £47M of grant payments to operators and local authorities (for BSSG and support for tendered services).

1.1.2.7. In the deregulated environment, operators behave rationally by choosing the busiest corridors to operate commercial services, with a reliance on some government support (through the BSSG fund, which provides a per km payment, and with concession fare reimbursement). Bus routes which are not identified by operators as commercial, and which are deemed to be socially necessary, are subsidised by local authorities – with operators contracted to operate these services (via net or gross contracts). In overall terms, and in common with typical international examples of bus networks, each local group of bus services operated in each area of Wales are not commercial in their totality and require significant government financial support.

1.1.2.8. Furthermore, a significant proportion of bus routes in Wales designated as commercial are in fact subsidised via a local authority-funded by de-minimis ‘top-up’ subsidy; for example, to provide services into the evenings and on Sundays. This means that operators can accrue revenue from sale of day-ticket fares for boardings during the daytime – and be subsidised for providing the return trip in late evening.

1.1.2.9. Bus ticketing technology in Wales has been subject to significant improvement in recent years. Payments can now be made via credit/debit card contactless payment or by smartphone app, as well as cash payment on most services. In some areas multiple operator tickets are available (although generally only from bus drivers, rather than in advance through other outlets) which allows passengers to use different operators’ bus services on the same trip, or on the same day, provided they made that choice at the start of their journey. However, these multi-operator tickets are generally more expensive than single operator tickets. Although multiple operator tickets are feasible to implement, the competition requirements of the current deregulated regime means that operators continue to provide their own tickets, if they wish at a lower price, and hence customers are not provided with the simplicity of a single ticketing product (which effectively gives passengers a ‘freedom pass’ which they can use at any time to make planned or ad-hoc trips).

1.1.2.10. If in future, multi-operator tickets were made more widespread and attractive (although without re-regulation there would be a legal

requirement for operators' own ticket systems to remain in operation), this could lead to a growth in linked trips, with passengers using a number of different service lines during a single journey or over a whole day. However, if this increase in multi-leg bus use occurred, a commensurate system for re-distribution of revenue to operators would be needed – on the basis that a simplistic allocation of revenue (e.g. where a passenger first boards a bus, or an equal split for every boarding) would be very likely to result in an inequitable allocation to different operators' services. A fair fare redistribution arrangement would need to consider factors such as vehicle mileage, vehicle travel time (and congestion effects), urban/rural routing, time of day, type and size of bus, passenger numbers, passengers transferring between lines, and cross-subsidisation of services such as late night 'homebound' service with low numbers of passengers. It is therefore likely that even if a multi-operator ticket was to gain a significant market share under the present regulatory arrangements, then the system for reallocation of revenue would effectively dictate the commerciality of operators' businesses. The resulting revenue aggregation and redistribution process and inter-dependency between operators would be likely to raise competition issues. Furthermore, operators would be unlikely to commit to this approach as it would reduce their commercial independence and would also in practice involve continual negotiation and amendments in response to any changes in demand or costs – such as changes to bus services, land use changes, congestion/roadworks, upgrades to parallel rail lines etc. Hence, overall, there are, in the absence of regulatory change, major legal and commercial barriers to putting in place a single ticket system which is used by all passengers, and from which the fare revenue can be equitably redistributed to operators.

1.1.2.11. There has been an emergence in recent years of new mobility solutions such as shared-bike schemes, app-based mobility services (e.g. Uber), micro-mobility services (such as e-bikes and electric scooters), as well as an increased focus by Welsh Government on walking and cycling. Users of these modes are often without access to a car, similar to many bus users, and hence there is a risk that use of, for example, short-hire shared-bikes and improved cycle infrastructure will result in abstraction from bus patronage. This highlights the challenge of the current bus model – with operators typically prioritising their own business plan without coordination to maximise potential synergies with local authorities who are investing in infrastructure and/or providing financial support to other sustainable modes which are likely to abstract from bus patronage to some degree, but could also integrate to feed additional users into bus networks.

1.1.2.12. Hence, the overall situation in respect of the current bus

operating model is as follows:

- There is a fragmentation of responsibilities for bus between multiple operators and local authorities with an associated difficulty of alignment in respect of common goals and policy-based outcomes;
- Local authorities' limited role in managing bus networks means that bus public transport systems are not subject to transport planning as would typically be the case for, for example, road network improvement;
- Bus service lines are typically operated as a set of discrete services with no coordination with other services – as no single organisation has the appropriate capability and directive powers to manage this co-ordination;
- Welsh Government funding accounts for over half of bus operating costs in Wales, but is largely directed to operators without linkage to any long-term improvement strategies; and
- Although multiple operator tickets are feasible to implement under the current arrangements, operators would continue to provide their own tickets, which ultimately fails to provide customers with the simplicity of a single ticketing product. Furthermore, any significant market penetration by a multi-operator ticket will also bring a need for a complex revenue redistribution system to different services and operators, that would likely need continual re-negotiation in response to changes to road conditions, land use, service frequencies etc.

1.1.2.13. Taken together this produces a complex landscape for planning and service delivery of public transport, with a fragmentation of responsibilities, which means that the bus sector is unable to respond in a cohesive and strategic manner to the challenges of long-term declines in ridership.

## 1.2. Rationale for Government Intervention

### 1.2.1. Summary of relevant Welsh Government Policy

1.2.1.1. Welsh Government is promoting and investing in sustainable travel and decarbonisation – underpinned by policy documents:

- **Wellbeing of Future Generations Act:** The Well-being of Future Generations (Wales) Act 2015 places a duty on public bodies in Wales to carry out sustainable development. This means that each public body must work to improve the economic, social, environmental and cultural well-being of Wales.
- **Llwybr Newydd:** The new Wales Transport Strategy sets out a vision of ‘an accessible, sustainable and efficient transport system’. Modal shift is at the heart of the strategy, which means the proportion of trips made by sustainable modes increases and fewer trips are made by private cars. Llwybr Newydd contains a mini plan for buses which sets specific priorities for the sector, including improving the quality and reach of services, addressing congestion hotspots, keeping people safe and delivering new technology and infrastructure.
- **Net Zero Wales:** The Welsh Government has committed to delivering the following targets to decarbonise the bus fleet:
  - The whole Traws Cymru bus fleet to be zero tailpipe emission by 2026;
  - The most polluting 50% of service buses to be replaced by a zero-tailpipe emission bus fleet by 2028; and
  - The remaining 50% of the service bus fleet to be zero emission by 2035.
- **Bws Cymru:** Bws Cymru has considered and developed policies for bus services in the context of Llwybr Newydd. Bws Cymru amplifies and builds on the proposals in Llwybr Newydd to make the bus services more attractive for people to use in order for them to go about their daily lives with ease, promoting social mobility and economic activity. The policies seek to create the environment to allow a greater levels of service provision and flexibility, helping to provide integrated public transport services, seeking to result in increasing patronage from all sectors of society, reducing car use, reducing carbon emissions and improving air quality. In essence, Welsh Government wants to create a bus system with passengers as its focus, which is easy to access, has extensive networks, is easy to use in terms of through ticketing, easy to understand and navigate – expressed in Bws Cymru as each local area or region having ‘One Network, One Timetable, One Ticket’. Bws Cymru

recognises the need to legislate for regulation of bus services to achieve this, whilst laying out a set of actions that are possible in the immediate future to achieve steps in that direction prior to the advent of changes to the bus governance system.

## 1.2.2. Best Practice Bus Networks

1.2.2.1. Addressing shortfalls in the current bus arrangements in Wales requires adoption of best practice for the shape and frequency of services. Best practice guidance states that a network-based approach is essential for public transport success<sup>15</sup> (in terms of service quality, mode share and costs of operation) and depends on addressing the following key requirements:

- An integrated network of bus lines, with easy and comfortable transfer opportunities at several places in the region, not only at the main railway station or city/town centre;
- A simple network with a clear line structure that is easy to understand and remember (for everyone – not just regular users);
- Direct route alignment and the fastest possible speed of vehicle operations with reliable timetables;
- High frequency services where and when the demand is reasonably high;
- Coordinated pulse timetables where demand is weaker in less dense urban areas and rural areas;
- Efficient ‘through’ lines running through central areas and major public transport interchanges, that also connect major origins and destinations outside the central locations;
- Supporting soft measures such as fare structure, ticketing systems, information and marketing, preferably combined with restrictive policy measures towards car use that can significantly influence public transport demand and the success of all the other measures; and
- Efficient arrangement of the network without overlapping services to address the need for financial affordability of operation.

1.2.2.2. Provision of a network of services involves planning and operating bus services as a ‘unified network’, such that passengers are practically able to travel anywhere on that network (easily transferring between services as necessary). Successful European

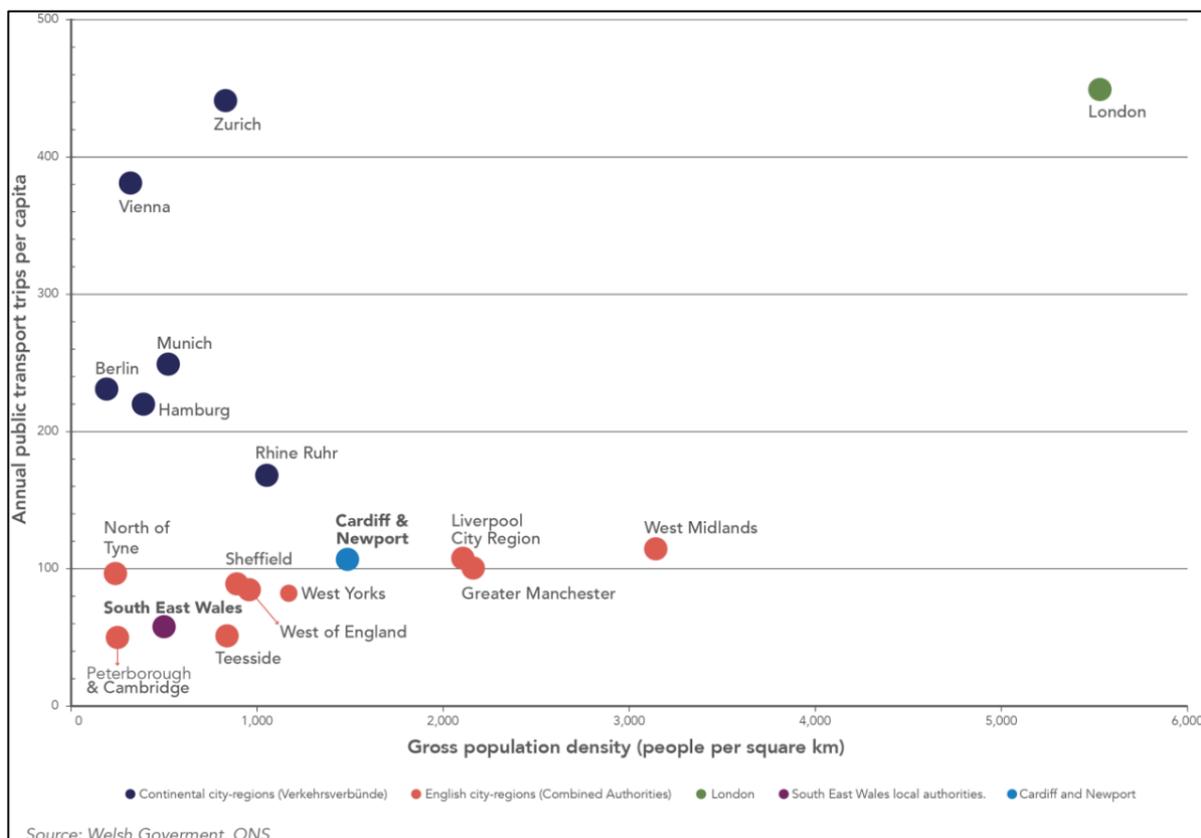
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<sup>15</sup> HiTrans. 2005. [Public transport – Planning the networks](#)

public transport operations demonstrate the benefits of network-based approach to operating bus services. In Nantes in France for example, passenger numbers are significantly higher than comparable UK cities, despite the operating mileage of tram and bus services being comparable to bus operations in UK cities<sup>16</sup>. Adoption of these unified network principles will provide a basis for success for bus-based public transport in Wales.

### Annual per capita public transport in six continental Verkehrsverbünde and equivalent parts of Wales (and comparators in England)

Public transport networks in the city-regions of Munich, Vienna and Zurich (which are 10-30 times bigger than the built-up areas of their main cities, and extend to surrounding towns and villages), function as a single system. Buses, trams, underground and suburban trains are coordinated by public transport governing bodies or Verkehrsverbünde (VV) to provide 'one network, one timetable, one ticket'. Levels of public transport use in the VVs are strikingly higher (3-4 times the number of trips) than in comparable areas of Wales and England, as shown in the graph below<sup>17</sup>.



<sup>16</sup> TAN. 2017. Available at: <https://www.tan.fr/fr/bonjour-la-tan>

<sup>17</sup> Transport for Quality of Life. 2020. [A Wales Transport Policy fit for the Climate Emergency](#)

### **Trips per head for public transport in Wales ranks as the lowest in Europe**

Benchmarking public transport use in Wales against other countries in Europe reveals the poor relative performance. Wales around 42 public transport trips per head in 2018, based on 101 million trips by bus<sup>18</sup> and 31 million trips by rail<sup>19</sup>. This is lower than the respective figures for all 29 European countries referenced in ridership data<sup>20</sup>. Statistics specific to Wales are hidden within the overall UK average of 118 trips per head per year, which is distorted by the significantly higher number of trips in London. Although, it must be recognised that comparison across countries is necessarily inexact due to different profiles of each country in respect of a range of factors which influence public transport use, such as regulatory and governance arrangements, population densities, demographics and economic characteristics.

1.2.2.3. It is important to note that a high usage of buses will necessarily involve making it easy for passengers to transfer between service lines. This aspect of normalising transfer as part of journeys is (perhaps counterintuitively) a characteristic of a successful network operation. Although direct journeys are the most attractive to passengers, it is inevitable that the majority of origin-destination pairs in a region or city are not reachable by a single direct trip, and if made by public transport, would require at least one transfer. Therefore, it is essential that passengers are able to conveniently transfer between services to reach wider destinations.

1.2.2.4. A rule of thumb based on published information<sup>21</sup> is that urban areas with a successful public transport mode share have an average of around 1.5 legs per journey – which would represent a typical range as follows:

- 50% of journeys are direct (0.5 x 1 leg);
- 45% of journeys have 1 transfer (0.45 x 2 leg); and
- 5% of journeys have ≥2 transfers (0.05 x 3 leg).

1.2.2.5. The key aspect for people to adopt regular use of public transport as a lifestyle choice is the practicality of making two and three leg journeys – such that people who typically make direct local

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<sup>18</sup> Department for Transport. 2021. [BUS0108: Passenger journeys on local bus services by region: Great Britain, annual since 1970](#)

<sup>19</sup> Welsh Government. 2018. [Statistical Bulletin: Rail transport, April 2017 to March 2018](#)

<sup>20</sup> UITP. 2018. European Countries Ridership Data

<sup>21</sup> Lunke at al. 2021. [Public transport competitiveness vs. the car: impact of relative journey time and service attributes](#) - This study identifies the average number of public transport transfers as 0.5 – with 38% of the trip segments with one transfer, while 52% were direct routes with no transfers.

journeys can occasionally make longer indirect journeys.

- 1.2.2.6. It should be recognised that developing best practice networks which are designed to be simple for the public to understand, is not a simple process and involves an overall governance arrangement that is capable of planning a complex 'system', comprising a number of components (routes, timetables, ticketing, driver rostering, vehicle type and capacity, vehicle logistics and maintenance, enforcement, infrastructure, and information), all of which need to be synchronised and co-ordinated to achieve successful passenger-facing outputs. The complexity of public transport systems is therefore a key challenge – and requires a systematic orchestration and governance effort to achieve optimal operations.

### 1.2.3. The Need for Bus Planning and Monitoring

- 1.2.3.1. Successful implementation and operation of any major transport scheme or system which addresses objectives of catering for demand, financial efficiency, and wider environmental and economic goals, requires detailed transport planning to be carried out by the relevant transport authority. Typical activities include analysis of travel demand, assignment modelling and capacity investigations, to decide whether to, for example, improve existing roads and junctions or build new infrastructure, or build new rail stations. It is apparent that planning bus networks and systems on a long-term basis, in terms of identifying problems, defining objectives, and generating and evaluating alternatives, has, since bus deregulation in 1985, not been a key feature of local authority Transport Plans in Wales (which have tended to focus on infrastructure measures such as stops, stations and bus priority measures). This gap in bus planning is a logical outcome of the limited role of local authorities in the deregulated bus system in respect of influencing and directing local bus-based policy and network matters.
- 1.2.3.2. International examples of approaches to bus delivery, such as in New Zealand's Public Transport Operating Model (PTOM), involve undertaking two distinct processes – of (a) Bus Planning; and (b) Bus Procurement. Bus planning is undertaken by local government and involves detailed transport planning to devise public transport solutions guided by policies for sustainable travel and economic objectives. This results in a network plan with routes, timetables, and ticketing/fares arrangements.
- 1.2.3.3. Bus procurement, on the other hand, involves translating the planned bus network into an operationalised service, which generally involves contracting operation of all or some service lines to bus operators, which would also include a method for performance monitoring and payment.

### **New Zealand Operating Model for Buses**

The Public Transport Operating Model (PTOM) governs the way regional councils plan public transport services and purchase them from bus and ferry operators.

Under PTOM, regional councils are responsible for providing public transport services. They make their own decisions about how those services operate (including routes, timetables, fares, ticketing etc).

Regional Councils develop regional public transport plans, and then contract public transport operators to operate services.

- 1.2.3.4. Typical examples of successful regional and city public transport systems (in terms of high patronage) have a regional transport authority that is responsible for strategy and delivery of network shape (in terms of routes and frequencies), ticketing systems (including integration across all modes), and all information and branding. Operators are contracted to provide defined services (in terms of timetables and hours of operation) and are paid for delivery of services with payments made according to performance indices (including passenger growth). An example of long-term planning of public transport network which has led to high mode share is in Nantes.

### **Long-term Network Planning in Nantes**

The tram and bus network in Nantes has been subject to a long-term plan<sup>22</sup>. The planning process has included:

- Planning and implementation of three cross-city tram lines in the 1980s/90s
- Planning of a fourth cross-city line, in the 2000s, followed by implementation as a bus rapid-transit (BRT)<sup>23</sup> line (Line 4)
- A long-term, plan for incremental implementation of cross-city (Chronobus) services was developed, including bus priority measures – which were implemented in 2012-14.
- Opening of a further cross-city BRT service (Line 5).

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<sup>22</sup> Allen, H. 2013. [Integrated Public Transport, Nantes, France](#)

<sup>23</sup> Bus rapid transit (BRT) is an approach to designing bus corridors to have better capacity and reliability than a conventional bus system. Typically, as in the case of Nantes, a BRT system includes lanes that are dedicated to buses and provides priority to buses at junctions where they interact with other traffic. BRT systems also have design features to reduce delays caused by passengers boarding/alighting services or paying fares. BRT aims to combine the capacity and speed of a fixed route (e.g. light rail) with the flexibility, lower cost and simplicity of a bus system.

The outcome of long-term planning and incremental implementation has been a gradual increase in public transport use in Nantes over the last 20 years.

### **Co-ordinating of networks of services in Mittelsachsen**

The transport authority for Mittelsachsen<sup>24</sup> region (in Germany) has a key strategic priority to maximise the linkage and co-ordination of modes of transport – including rail, tram, and bus modes (see images of logos below). The authority is also responsible for associated information and public communication.

The authority also manages introduction of complementary mobility services such as car-sharing, car clubs, and demand responsive buses.

In respect of linking modes of transport and transport, the authority also focuses on the development of mobility points and station infrastructure to improve the transfer experience.



1.2.3.5. The ability of transport authorities to manage the overall public transport system is necessary to efficiently manage funding – by allocation of vehicle resource across the network in an arrangement which avoids unnecessary overlaps, ensures that there are regulated headways between different services on the same corridor, and allows some services to operate as feeders to core bus or rail interchanges. This is not the case in Wales, where each area typically has some overlap of services, uneven headways between buses on the same corridors, and very few examples of operation of feeder services to interchange points.

1.2.3.6. Networks which are planned and procured by public authorities generally also undertake thorough monitoring and review to ensure that progress is continually measured in respect of patronage changes and passenger's satisfaction, for example:

- Monitoring performance of services based on an evidence-based approach covering demand, service delivery and customer feedback;
- Undertaking periodic reviews to ensure that services continue to reflect demand and customer expectations; and

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<sup>24</sup> Zweckverband Verkehrsverbund Mittelsachsen (ZVMS). 2021. [Local Traffic Plan 4th Update](#).

- Carrying out customer satisfaction surveys on a regular basis and analyse complaints (this year vs last year comparisons).

1.2.3.7. It is concluded that planning, procurement and monitoring of bus services is a key aspect of long-term success in attracting passengers. Planning of services on a network basis also provides a means to create operational and financial efficiencies. At present in Wales, the fragmentation of responsibilities in the bus sector effectively precludes comprehensive long-term planning of bus networks, and severely inhibits the feasibility of implementing comprehensive network-based initiatives.

#### 1.2.4. Best Practice Success Factors

1.2.4.1. The operation of the bus-based public transport service in Wales can be guided by a number of best practice success factors. These success factors are primarily passenger-focused and contribute towards achieving successful mode share and affordable operations:

- **Area-wide networks with all significant local destinations reachable:** A wide range of key destinations throughout a local area should be reachable in say 45 mins on high frequency bus services during the daytime (with transfers if necessary), and at off-peak times (including evenings and weekends) are reachable by good co-ordination of timings for lower frequency services.
- **One ticket system:** An exclusive ticket system for boarding all buses should be in place, with ticket enforcement automated (especially in urban areas) to allow for passengers to board quickly. It is important to note that operators' having their own ticketing offers alongside a multi-operator ticket is incompatible with the need for passengers to have a single easy-to-understand-and-use ticketing system.
- **Easy To Understand Network:** A public transport network that is inherently easy to understand and use is essential; that is, passengers should be able to understand and negotiate the network easily to reach different destinations. A benchmark for best practice is that a network that can be represented by a simple map, with each individual service shown as an end-to-end line (including in central areas – which in many current networks are unable to be shown clearly on maps due to route complexity).
- **One Brand:** A public transport brand should be present on all vehicles, stops and stations, information sources, and ticketing. This is important in creating a trusted brand which gives passengers confidence to travel frequently and on an ad-hoc basis. An example of this approach can be seen in Dublin's BusConnects initiative, in which the Transport for

Ireland (TFI) logo is shown on the Leap card multi-modal ticket, on bus stops, on the side of buses, and on information media such as online maps and journey planners.

- **Easy and Reliable Transfer:** High quality transfer conditions and arrangements (ticketing, timetables, connection guarantee) are needed to allow passengers to have confidence in relying on transfer to other services to make their journeys. There should be a unified timetable across all bus services and other modes of public transport. Supporting the concept of transfer in Germany includes providing travellers with an alternative means of transport if their public transport service is late and be reimbursed for the cost (e.g. in Nord Rhein Westfalen, the 'Connection Guarantee'<sup>25</sup> typically applies when the local buses or trams are cancelled or are at least 20 minutes behind schedule when leaving the departure stop).
- **Reliable Travel Times:** Journeys by public transport should have reasonable and consistent speeds. The speed of travel could be expressed as, for example a public transport/car travel time ratio of less than 1.5 (e.g. 45 minutes by bus, 30 minutes by car), or a bus speed of say 15 km/hour on urban routes.
- **Easy to Access the Vehicle:** Public transport vehicles should be easy to board by all passengers, including mobility impaired passengers, with immediate entry without a need to queue, and should allow people to easily carry baggage on and off and within the vehicle. This relies on multiple doors for buses operating on busy urban corridors – which is a standard feature of bus operations in typical bus networks in, for example, Germany<sup>26</sup>, France, and generally in urban areas in Europe.
- **Accessible and Comfortable:** Stations and stops should be easy to reach, comfortable with good information, and provide all passengers with easy boarding and alighting of services. Vehicles should be comfortable, well equipped (Wi-Fi, real time information, air conditioning etc) and low crowding levels
- **Public Feedback and Customer Care:** The general public should be given regular opportunities to provide feedback and participate in network evolution

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<sup>25</sup> VRS. 2021. [Mobility Guarantee](#)

<sup>26</sup> Rhein-Main-Verkehrsbund (RMV). 2019. [Minimum Standards for Buses in RMV](#) - which states that buses shall have at least two doors, including one double-wide door, and articulated buses shall have three doors, including two double-wide doors.

- **Passenger Safety, Security, and Health:** Passenger safety, security and health should be inherent in all aspects of people's experience of public transport, including roadside air quality and carbon emissions.
- **Network Efficiency and Financial Affordability:** Although this success factor is not directly customer-facing, it is important that service lines are optimised to limit inefficient overlap of services to maximise overall viability and financial affordability. This ensures that best use is made of available funding, and also addresses the need to make networks understandable. Financial affordability over the long-term will also be assisted by introduction of low emission technology and propulsion systems which have lower fuel costs than diesel-fuelled buses.

1.2.4.2. These success factors can be encapsulated in Welsh Government's aim set out in the Bws Cymru strategy as 'One Network, One Timetable, One Ticket':

- Easy to access – by extensive networks and welcoming infrastructure and drivers;
- Easy to use – through simple ticketing and sensible routes; and
- Easy to navigate – with fully integrated journeys and clear information.

## 1.2.5. Public transport as a lifestyle choice

1.2.5.1. Data from countries with high public transport and sustainable travel mode shares shows that people in cities with joined up networks with single ticket travel are willing to adopt a 'lifestyle choice' to use public transport for much of their weekly journeys. This is dependent on destinations across their local area being practically reachable by public transport – and hence is only achievable with a 'network' approach to planning and operating of services.

1.2.5.2. Travel data for Germany underlines the multi-modal lifestyle nature of people's travel behaviour. For example:

- In medium-sized cities in rural areas of Germany<sup>27</sup>, 6% of people are termed as 'multiple mode users' (who use car, bicycle and public transport modes at least weekly), compared to 4% who use public transport daily or weekly (and other modes more rarely), along with 12% of people using bicycles daily or weekly and all other modes more rarely.

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<sup>27</sup> Federal Ministry of Transport and Digital Infrastructure. 2019. [Mobility Trends in Germany](#)

1.2.5.3. This car-free, multi-modal lifestyle confirms that high use of cycling and public transport are mutually supportive - with travellers relying on different sustainable modes according to their daily needs (including weather impacts). Hence, increasing the rate of sustainable travel in Wales will require co-ordinated investment and governance of improvements to bus, rail and active travel. Costs and funding for single-mode measures will need to consider mutual interactions across sustainable modes. For example, success in growing cycle use in an area may in the short-term result in some abstraction from bus travel but in the long-term should help to increase bus use. Hence, policy and planning for buses needs to carefully consider the role of active travel and new mobility solutions – such that investment in the range of sustainable modes are planned within a co-ordinated governance and funding structure with an aim to increase the proportion of sustainable travel, rather than treating each mode as if their users are a discrete group of people.

### 1.3. Options to Address the Policy Problem

#### 1.3.1. Option 1: Business as Usual

1.3.1.1. Business as usual is based on buses being operated as either commercial services, with operators planning the networks and receiving concessionary fare reimbursement and BSSG, or as non-commercial services, set up through tendering by local authorities with the operator typically taking all fare income i.e. as a net cost contract.

1.3.1.2. Under this option, Welsh Government would be required to maintain a high level of poorly directed subsidy as it has done throughout the period of COVID lockdown, continuing over an unknown but possibly extended period since bus use is, at best, likely to continue below pre-COVID levels for some time. In fact, bus patronage would quite possibly show a long-term depression due to permanently increased working from home until there is significant investment to attract more patronage through better service provision. Given that Welsh Government has an ambition to invest in sustainable transport to meet mode shift and carbon targets, the significant additional subsidy required in a business-as-usual scenario is not considered good value for money.

#### 1.3.2. Option 2: Statutory Partnerships

1.3.2.1. A partnership is an agreement between a local authority and local bus operators to work together to improve local bus services. Putting in place a statutory obligation to implement partnerships across Wales in order to continue to be eligible for bus operating revenue support would represent an incremental approach, encouraging more cooperative approaches between local authorities

and operators. Although 'statutory' the involvement of operators would necessarily be voluntary, in that they could only be signed up to partnership arrangements to which they agreed the content, terms and conditions.

1.3.2.2. Similar provision currently exists in England, with the UK Government's Bus Back Better strategy outlining the expectation for Local Transport Authorities to establish Enhanced Partnerships across their entire areas under the Bus Services Act 2017, and all operators to co-operate throughout the process. New discretionary forms of bus funding in England will only be available to services operated, or measures taken, under an Enhanced Partnership has been made (or where a franchising scheme has been made – see para below).

1.3.2.3. Partnerships set out agreements over a range of bus service components and the actions needed from the local authority and operators for each item, which could include:

- Vehicle specifications;
- Branding;
- Passenger payment methods;
- Ticketing structure;
- Real-time information requirements;
- Frequency of service; and
- Timetables.

### 1.3.3. Option 3: Franchising

1.3.3.1. Franchising is a system where franchisors plan a coordinated network, ticketing and timetable and award the exclusive right to run a bus route or routes to the most competitive bidders. Under a franchising model, bus networks in Wales would be designed and controlled by a single 'guiding mind' authority with powers to design and deliver bus services to maximise coverage and service level achievable within available public resources.

1.3.3.2. Under franchising, a local authority would specify the provision of bus services. Private companies operate services under a contract secured following a competitive tendering process. Other operators may not register other routes within the franchised area, providing exclusivity for the winning bidder. Franchising of bus services would give local authorities control over:

- Where bus services run and when (i.e. the network, hours of operation and timetables)
- Types of ticket available (including discounts for passengers as required)

- Fares and methods of payment which must be accepted (including smart and contactless)
  - What information is available to passengers; and
  - Vehicle specification (including branding, emissions standards and technologies).
- 1.3.3.3. The guiding mind could ensure that there are bus-to-rail connections and bus-to-bus connections, with an integrated timetable and with tickets that are easy-to-use and valid right across the transport network. This outcome is sometimes referred to as ‘One network, one timetable, one ticket’.
- 1.3.3.4. Franchising legislation would not generally define the precise operational approach to franchising, recognising that different approaches to franchising may be appropriate to different parts of Wales. For example, route-by-route franchising or franchising of small batches of routes is likely to be a more suitable approach to ensure that SME operators can participate in the franchising procurement market.
- 1.3.3.5. The required timescale for development and implementation of franchising schemes will be specified in the Bill. It is recognised that some flexibility will be valuable to enable ‘bridging’ contractual arrangements to span the period between the termination of Coronavirus emergency bus support funding and the start of franchising, and that contractual continuity to minimise commercial risk would be beneficial.

## 2. Costs and Benefits

### 2.1. Methodology

#### 2.1.1. Modelling Costs and Benefits

2.1.1.1. The economic assessment model utilised for this RIA uses demographic data, bus passenger statistics, and financial statistics for the three network examples (and for the whole of Wales), available from Government sources. Costs and benefits have been assessed for the three types of Welsh network (major urban, town urban and rural), which have then been extrapolated on a pro-rata basis to an all-Wales level according to the annual bus mileage figures

2.1.1.2. A key guiding principle for demand modelling and economic assessment is proportionality, which refers to striking a balance between the level of detail and the cost of the modelling, considering factors such as the required functionality, data availability, and robustness and resource and time constraints. It was not considered proportional to assess every network in Wales in detail. For the economic and patronage assessment, three example network plans (Cardiff, Pembrokeshire and Wrexham) provide case studies upon which to assess impacts. The results from this analysis give an indication of the economic impacts in other Welsh local authorities, and extrapolation to an all-Wales level on a pro-rata basis using bus vehicle-km. The example networks represent the following types of locations in Wales:

- a large urban bus network (Cardiff);
- a rural / inter-urban network (Pembrokeshire); and
- a smaller urban / town network (Wrexham).

2.1.1.3. Costs have been estimated for initial set-up activities by the Welsh Government, Transport for Wales, local authorities (LAs) and operators. The Welsh Government favours the transfer of responsibilities for some bus functions and related transport matters from local authorities to Corporate Joint Committees (CJCs). However no assessment of which functions would be transferred has been made for this RIA. As such, references to local authorities should be treated as LAs and/or CJCs depending on which body would have responsibility for the relevant function under the future operating model for bus in Wales. It is also possible that some of the functions referred to as LA functions will be centrally undertaken by Welsh Government or by Transport for Wales acting on their behalf. However it is considered that the cost allocations and calculations in this document are robust as a cautious (i.e. high) assessment since they factor in no savings from LA functions being centralised to

concentrate expertise and achieve economies of scale. Annual recurrent costs have been estimated for local authorities, operators and bus users, as have revenue and economic benefits.

2.1.1.4. Estimates of set-up and recurrent costs have been developed using the professional judgement and experience of Welsh Government officials, Transport for Wales and transport consultants commissioned to support the preparation of this RIA and are necessarily indicative at this stage. Where relevant, estimates have been cross-checked by equating the costs to an approximate equivalent Full Time Equivalent (FTE) staff resource, and references have been made from published documentation where appropriate. Additionally, cost estimates were previously discussed with stakeholders across the bus industry in Wales as part of the development of the Explanatory Memorandum for the Public Transport (Wales) Bill in 2019 and have been updated to reflect the currently proposed legislation where relevant. It is noted that the costs identified represent add-on costs over and above present costs. The basis and build-up of costs is described further in Appendix 1.

2.1.1.5. The primary mechanism through which bus improvements are translated into higher demand and benefits for users is through adjustments to the actual or perceived cost of travel. An industry-standard approach has been taken to estimating benefits, drawing on the UK Government's WebTAG transport guidance, which is referred to within WelTAG, and provides detailed guidance on technical aspects of transport economic appraisal<sup>28</sup>. The RIA economic assessment model considers estimates of the impact of the interventions for each option on bus patronage, based on calculating the Generalised Journey Time benefits of each relevant change. Appendix 2 provides a description of the methodology for economic assessment and build-up of benefits.

2.1.1.6. Appendix 2 also describes steps that have been taken to ensure that general principles set out in the Green Book have been applied in a way that is fully aligned with the values and strategic transport objectives of the Welsh Government. Adjustments to the modelling are applied consistently across all scenarios. A full set of adjusted

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<sup>28</sup> Welsh Transport Appraisal Guidance (WelTAG) is a framework for considering proposed changes to the transport system in Wales. It contains best practice for the development, appraisal and evaluation of proposed transport interventions. WelTAG cross refers to the Department for Transport's WebTAG for UK Government transport analysis guidance where appropriate. WebTAG contains detailed technical advice on transport modelling which has been utilised for this RIA, alongside guidance on economic modelling is set out in the Green Book, issued by HM Treasury. Use of these guidance set out in these documents has been supplemented by consultation with Welsh Government economists, to ensure this RIA is fully aligned with the values and strategic transport objectives of the Welsh Government.

and unadjusted values (with standard Green Book rates) is included for all scenarios in Appendix 3 for comparison.

2.1.1.7. The costs and benefits estimates presented in this RIA should not be considered as suitable for comparison with the Explanatory Memorandum prepared for the previous draft bus legislation, which also considered franchising and partnerships. More detailed analysis of potential changes to bus networks has been undertaken to inform this version of the RIA and various cost and benefits assumptions have been amended to reflect latest plans for bus reform in Wales. In addition, a 30-year appraisal period is used for this version, which is longer than the 15-year appraisal period used previously.

## 2.1.2. Assessment Scenarios

2.1.2.1. The Welsh Government has historically provided funding to local authorities to invest in bus infrastructure (for example, bus stops, bus interchanges, bus lanes). The introduction of legislation for improving the regulatory environment for buses in Wales does not necessarily require local authorities to commit to new bus infrastructure. In practice, and given Welsh Government's aspirations around net-zero, it is likely that implementation of the legislative measures would include a range of supporting investment in transport infrastructure and policy measures.

2.1.2.2. Costs and benefits for statutory partnerships and franchising have thus each been assessed under two scenarios, namely:

- Partnerships;
- Partnerships Plus+;
- Franchising; and
- Franchising Plus+.

2.1.2.3. The first scenario in each of these pairs represents a notional scenario in which non-legislative measures, such as bus stop improvements, bus stations, bus priority measures, are not included as they are not directly required or affected by the legislation. These scenarios are referred to simply as 'Partnerships' and 'Franchising'.

2.1.2.4. The legislative proposals can be considered as enabling measures, which provide an enhanced ability to lock in benefits of wider, and potentially substantial, investments in measures such as on-street or bus station infrastructure and bus priority measures. The second set of scenarios consider the inclusion of these measures, which are likely to produce significant benefits and patronage increases at a scale higher than the legislative proposals themselves. These scenarios are referred to as 'Statutory Partnerships Plus+' and 'Franchising Plus+'.

2.1.2.5. Should a local authority decide to bring forward proposals for

improving bus infrastructure to complement changes to the network as a result of the legislative proposals, the decision to proceed would be informed by detailed assessments of the implications of the proposal, which would include a full financial assessment and cost benefit analysis.

### 2.1.3. Timeframes

- 2.1.3.1. It is assumed the earliest the Bill would receive Royal Assent would be in January 2024, subject to the will of the Assembly. Following Royal Assent, the current working assumption is that the subordinate legislation to implement the Bill would not come into force before April 2024. The economic assessment modelling covers a 30-year appraisal period from 2024/25 to 2054/55 to ensure the evaluation of costs and benefits is made over the medium term.
- 2.1.3.2. In line with HM Treasury Green Book guidance, the majority of future costs and benefits have been discounted using the Treasury's central discount rate of 3.5%<sup>29</sup>. The Green Book provides scope for appraisals to use lower discount rates in appropriate cases to ensure that very long-term costs and benefits are given proper consideration. In order to reflect Welsh Government's long-term view and consideration of the impact of policy decisions on future generations rather than a focus on short term impacts, a lower discount rate of 1.5% has been applied in the appraisal to benefits associated with health, well-being, and the environment, as described in Appendix 2.
- 2.1.3.3. Making a prediction of exactly what may happen to bus patronage in the next 30+ years is complicated as there are many factors to consider. Some of the factors that influence travel behaviours and patterns include growth rates in the economy and employment, commuting patterns, changes in shopping and leisure habits, growth in home deliveries, rates of car ownership, car parking provision and cost, demographic changes, journey time reliability and fuel prices. The assessments in this RIA are necessarily outline in nature, and local authorities will need to carry out bespoke investigations for their local area prior to carrying out changes to the way buses are operated.

## 2.2. Option 1: Business as Usual

### 2.2.1. Costs of Option 1: Business as Usual

- 2.2.1.1. Under this option Welsh Government would be required to continue to provide high levels of support just to sustain bus

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<sup>29</sup> HM Treasury. 2020. [The Green Book: central government guidance on appraisal and evaluation](#)

services, as it has with emergency support throughout the period of COVID when there has been lockdown or guidance to the public to avoid public transport where possible. This support would probably be required for an extended period since there are indications that high levels of working from home may continue, some bus users may have permanently switched to other modes, and thus it is not evident when demand may return to pre-COVID levels (or, more precisely, the pre-Covid trajectory of gradual decline).

2.2.1.2. Given the decline in bus patronage in recent years, it is fair to conclude that without action passenger numbers will continue to decline, which would have cost implications. Prior to the impacts of the COVID-19 pandemic, the UK Department for Transport estimated that Welsh bus patronage will fall by around 13% between 2018/19 and 2054/55 (around 0.4% per annum)<sup>30</sup>.

2.2.1.3. Currently, 77% of the c.99 million kilometres of bus trips in Wales each year are on services that operators provide commercially<sup>31</sup>. The decline in bus patronage is likely to lead to a reduction in the commercial viability of many services. The potential cost implication of this decline is that more public sector funding would potentially be needed to support the network and maintain socially necessary services. It is difficult to predict how many bus services operators are likely to decide to stop providing, and of those services, how many local authorities would decide to subsidise, if any.

2.2.1.4. Given the prevailing financial situation and pressures, it is unlikely that more public funding to merely support services at the status quo would be available. This would mean that the provision of bus services would continue to reduce. This could lead to increased reliance on the private car and subsequent negative impacts on congestion and the environment.

## 2.2.2. Benefits of Option 1: Business as Usual

2.2.2.1. Maintaining the status quo is likely to result in the continued decline in patronage placing greater pressure on local authorities and bus operators to review networks with a risk of service withdrawals. This option is the baseline for assessment of the legislative options and hence the costs and benefits of those options are calculated in terms of the change from the business-as-usual

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<sup>30</sup> Department for Transport. 2016. [NTEM data release notes and frequently asked questions](#). NTEM National Trip End Model (NTEM) bus use projections are presented in a software package called TEMPro. The data in NTEM is not based on observations or fare data but is derived from Census data and forecast patterns of population and employment.

<sup>31</sup> StatsWales. 2021. [Vehicle kilometres and passenger journeys on buses and coaches by year](#)

costs.

2.2.2.2. There would be a possible dis-benefit in that the decline in availability of services could also lead to an increase in social isolation and limited access to employment opportunities, where people are left with few alternatives for getting around and therefore cease to take trips they previously would have done.

### 2.2.3. Summary of Costs and Benefits of Option 1: Business as Usual

2.2.3.1. The short-term emergency funding for bus services is not considered an appropriate or financially sustainable situation for Welsh Government in the long-term. Neither is reducing subsidy to pre-COVID levels (and thus impacting level of service) consistent with wider policy and requirement to grow demand for bus services to address the climate emergency. Welsh Government intervention is required to achieve the necessary radically different outcomes for bus.

2.2.3.2. This option is used in order to calculate a baseline for assessment of the legislative options, but that should not be taken to imply that it is considered a realistic option as the basis of future policy.

## 2.3. Option 2: Statutory Partnerships

### 2.3.1. Costs of Option 2: Statutory Partnerships

2.3.1.1. Welsh Government could mandate that all bus services within a local authority area must come under a Statutory Partnership, agreed between the local authority and local bus operators. The decision to proceed with proposals for a partnership would be informed by detailed assessments of the implications, which would include a full financial assessment and cost benefit analysis.

2.3.1.2. Considerations by local authorities and CJs on implementing a partnership would be assisted by availability of detailed regulations and guidance on the types of measures available and any legal considerations (for example, competition issues). It is assumed that the Welsh Government would produce regulations and guidance on partnerships, and it is estimated that the cost would be approximately £100k.

2.3.1.3. It is assumed that Welsh Government would make capital funding available for upgrades to depots to support charging/re-fuelling of low-emission vehicles in line with Net-Zero Wales aspirations as part of partnership agreements. The capital costs per local authority are estimated to be £0.5m for a rural network, £1m for a town urban network, and £1.5m for a major urban network.

2.3.1.4. Local authorities would incur costs in developing a partnership

through gathering information, analysing the bus market, holding and attending meetings with bus operators, seeking legal guidance and following the procedural steps for developing and making a partnership. This could include the use of consultants. The costs per local authority are estimated to be £60k for a rural network, £90k for a town urban network, and £120k for a major urban network<sup>32</sup>. Partnerships would need to be revised at various stages, for example when a new operator enters a local market or when new development requires changes to bus services. An assumption has been made that significant revision to partnerships would be required every five years, with costs to LAs at 50% of the original set up costs.

2.3.1.5. Patronage uplifts are estimated for partnerships, which would result in higher payments to operators for concessionary reimbursement. This would be an additional annual revenue cost to the Welsh Government.

2.3.1.6. Bus operators would also incur costs in setting up a partnership - attending meetings with local authorities, seeking specialist legal advice and reaching an agreement with local authorities for a partnership. The additional costs per bus operator is estimated to be £50k for a rural network, £75k for a town urban network, and £100k for a major urban network. For modelling purposes it is assumed that there are two operators in each partnership on average, and hence operator set up costs per local authority area will range from £100k to £200k. Whilst there is likely to be more than two operators operating within each LA, even in rural parts of Wales, partnership agreements would probably be cross-border, and negotiations would be made with multiple LAs at the same time. Operators which solely operate S63 contracted services would not need to be involved in additional negotiations, which are expected to be comparable with existing arrangements without requiring any additional resources. Bus companies already have discussions with local authorities on issues such as timetables and scheduling and other aspects (e.g. information) of their bus operations. A partnership will formalise discussions on these aspects with local authorities, with a need for more formalised meetings and consultations, and consideration of measures and intended outcomes. For example, operators may agree as part of a partnership deal with local authorities that looks to improve customer service standards to send all drivers and passenger-facing staff on customer care training. All of these costs are new costs for operators. It has been assumed that an additional level of resource (at 50% of the initial transition cost) would be required every five years to negotiate new partnerships, or

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<sup>32</sup> A summary of cost assumptions is provided in Appendix 1.

significant revisions to existing partnerships.

- 2.3.1.7. An allowance of £250k recurring costs has been made to account for strategic programme management, monitoring of partnerships and back-office ticketing and financial monitoring support for multi-operator ticketing. This is equivalent of one FTE per region (four in total).
- 2.3.1.8. The management of a partnership will require ongoing resource requirements for local authorities to administer and monitor the plan, including stakeholder meetings and handling issues such as complaint resolutions. Depending on the scale of the partnership, this could be up to the equivalent of up to ½ FTE per year, with costs of £15k per year for a rural network, £20k per year for a town urban network, and £25k per year for a major urban network. A similar annual cost is assumed for bus operators.
- 2.3.1.9. For modelling purposes, it is assumed that costs for low emission buses are phased in, resulting in 100% of the service bus fleet to be zero emission by 2040. Additional lease costs for low emission vehicles are included within operator recurring costs. These additional costs are offset somewhat by cheaper running costs of electric buses compared to diesel.
- 2.3.1.10. Partnerships could include agreements on pay and conditions in line with Welsh Government's intent for a policy of fair pay for bus workers. It is also assumed that driver's hourly salary would increase to £11.94 under a statutory partnership model, representing a 5% increase on baseline of £11.3733. As pay conditions would need to be negotiated as part of the partnership, it may not be possible to agree this policy with all operators.
- 2.3.1.11. All of the above estimated costs are summarised at a Wales level in Table 1. A further breakdown of costs and benefits is provided in Appendix 3.

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<sup>33</sup> Office for National Statistics. 2021. [Earnings and hours worked - ASHE Table 3: Transport and mobile machine drivers and operatives](#)

Table 1: Estimated Costs for Statutory Partnerships

Item	WG/TfW	LA/CJCs	Operators	Users	Total
Capital Costs	£23.5 M	-	-	-	£23.5 M
Transitional Costs	£0.2 M	£8.0 M	£13.3 M	-	£21.4 M
Recurring Costs	£110.0 M	£13.8 M	£13.8 M	-	£137.7 M
<b>Total Costs</b>	<b>£133.7 M</b>	<b>£21.8 M</b>	<b>£27.1 M</b>	-	<b>£182.6 M</b>

Notes:

1. The values shown are approximate and are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

### 2.3.2. Benefits of Option 2: Statutory Partnerships

2.3.2.1. The benefits of an effective partnership could include a more efficient bus network, improved operating viability for bus operators and improved services for passengers along with potential for increased patronage. For example, if partnerships were established that resulted in coordinated timetables, common ticketing arrangements (noting limitations on the ability for partnerships to set common single fares and operators' own multi-journey tickets), and better information, then buses in that area would become more attractive as a means of transport. This in turn is likely to increase bus patronage resulting in financial benefits for the bus operators in the partnership.

2.3.2.2. Modelling of benefits for Partnerships, for a best-case scenario where all measures such as coordinated timetables, common ticketing arrangements, and better information are put in place at the same time (see Appendix 2), shows an estimated patronage increase of 9% in major urban; 6% in town; and 9% in rural networks in 2040, based on examination of case study networks in Cardiff, Wrexham and Pembrokeshire. This estimate is for the benefits arising from the legislation alone and does not account for additional investment.

2.3.2.3. It is estimated that there would be a significant economic benefit to users. The actual benefits for bus users would depend on what requirements are included in a partnership. It could include fare simplification, improved journey times, easier to understand bus routes and timetables and services at more convenient times. There could also be health and environmental benefits arising from modal shift. Whilst these generally are not 'pure cash' benefits (such as increased fare box revenue) they will have a positive impact on local and national policies. These include reduced congestion, improved access to employment and services, improved air quality, increased

levels of resident satisfaction and increased footfall at key economic centres.

2.3.2.4. A summary of the estimated financial and economic benefits of partnerships is set out in Table 2, with a further breakdown provided in Appendix 3.

*Table 2: Estimated Benefits for Statutory Partnerships*

Item	WG/TfW	LA/CJCs	Operators	Users	Total
Financial Benefits	-	-	£22.3 M	-	£22.3 M
Economic Benefits	-	-	-	£1,880.1 M	£1,880.1 M
<b>Total Benefits</b>	-	-	<b>£22.3 M</b>	<b>£1,880.1 M</b>	<b>£1,902.4 M</b>

Notes:

1. The values shown are approximate and are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

### 2.3.3. Summary of Costs and Benefits of Option 2: Statutory Partnerships

2.3.3.1. Modelling of the costs and benefits impact of partnerships indicates that overall economic benefits would outweigh costs, as shown in Table 3. This is driven principally by the user benefits. Partnerships in major urban areas, town urban, and rural areas will necessarily have different characteristics, and local authorities will need to carefully consider their aims in terms of patronage, social inclusion and catchments – as well as wider policy and economic objectives – when developing partnerships.

*Table 3: Summary of Costs and Benefits of Statutory Partnerships*

Item	WG/TfW	LA/CJCs	Operators	Users	Total
Total Costs	£133.7 M	£21.8 M	£27.1 M	-	£182.6 M
Total Benefits	-	-	£22.3 M	£1,880.1 M	£1,902.4 M
<b>Net Present Value</b>	<b>-£133.7 M</b>	<b>-£21.8 M</b>	<b>-£4.9 M</b>	<b>£1,880.1 M</b>	<b>£1,719.7 M</b>
<b>BCR</b>	-	-	-	-	<b>10.4</b>

Notes:

1. The values shown are approximate and are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

### 2.3.4. Costs and Benefits of Statutory Partnership Plus+ Scenario

2.3.4.1. Estimates of costs and benefits relating to partnerships have so far been based on those arising from the legislation alone, and do not account for additional investment. In practice, and given Welsh Government's aspirations around net-zero, it is likely that

implementation of partnerships would include a range of supporting investment in transport infrastructure and policy measures. The legislative proposals can be considered as enabling measures, which provide an enhanced ability to lock in benefits of wider, and potentially substantial, investments in measures such as on-street or bus station infrastructure and bus priority measures.

2.3.4.2. As set out in Appendix 2, a high growth bus patronage scenario is considered, consistent with meeting the mode share target of 45% of journeys to be made by public transport, walking and cycling by 2040 as set out in Llwybr Newydd. Achievement of this outcome will rely on rapid and complete reform of bus governance in Wales, to enable efficient investment in buses, and design of bus networks and supporting infrastructure to work as complete networks to give the best possible service coverage, working in conjunction with heavy rail and tram services.

2.3.4.3. In addition to the cost assumptions previously set out for partnerships, the Statutory Partnerships Plus+ scenario considers a capital spend of £3bn (2020 prices) for bus infrastructure improvements to 2040, (equivalent to around £165m per annum), associated infrastructure maintenance costs, and an additional £50m (2020 prices) revenue funding per annum for improved frequency of services, and expansion of the geographical reach of the bus network.

2.3.4.4. These capital costs are based on analysis of potential improvements to bus infrastructure in the case study networks, including bus priority measures, bus stops, transfer hubs, station improvements, improved integration with rail and Metro networks and measures to improve information, branding and marketing. Whilst a detailed assessment of the exact spend has not been made, it is likely that a more significant proportion of the spend would be made in Major Urban and Town network areas where congestion and bus stop density are highest. Revenue funding would be focussed on bus service improvements in Rural and Town areas of Wales. Additional revenue could support increased frequency and expansion of scheduled bus services and Fflecsi Demand Responsive Transport (DRT) services – consistent with the ambition of serving *‘every village, every hour’*.

2.3.4.5. It should be noted that this is a speculative representation of future bus patronage growth, consistent with Welsh Government transport policy and addressing the climate emergency. It is not intended to represent a forecast and is not directly linked to specific individual infrastructure measures in the economic assessment. Instead, it is an illustrative example of how significant investment in bus could translate into higher mode share. To achieve these levels of public transport use there will also need to be determined

investment in active travel and accompanying policies to deter car use to support car-light lifestyles.

2.3.4.6. Should a local authority decide to bring forward proposals for improving bus infrastructure to complement changes to the network as a result of the legislative proposals, the decision to proceed would be informed by detailed assessments of the implications of the proposal, which would include a full financial assessment and cost benefit analysis.

2.3.4.7. Table 4 presents a summary of costs and benefits in the Statutory Partnerships Plus+ scenario. The summary identifies that, under a high bus patronage growth scenario consistent with mode share targets in Llwybr Newydd be realised, the benefits would outweigh costs of significant investment in infrastructure and increased services under a partnership approach, with a BCR of 1.4.

2.3.4.8. Should a local authority decide to bring forward proposals for improving bus infrastructure to complement changes to the network as a result of the legislative proposals, the decision to proceed would be informed by detailed assessments of the implications of the proposal, which would include a full financial assessment and cost benefit analysis.

*Table 4: Summary of Costs and Benefits of Statutory Partnerships Plus+*

Item	WG/TfW	LA/CJCs	Operators	Users	Total
Capital Costs	£3,422.8 M	-	-	-	£3,422.8 M
Transitional Costs	£0.2 M	£8.0 M	£13.3 M	-	£21.4 M
Recurring Costs	-£1,633.9 M	£2,352.6 M	£13.8 M	-	£732.5 M
<b>Total Costs</b>	<b>£1,789.1 M</b>	<b>£2,360.6 M</b>	<b>£27.1 M</b>	<b>-</b>	<b>£4,176.8 M</b>
Financial Benefits	-	-	£18.4 M	-	£18.4 M
Economic Benefits	-	-	-	£5,963.2 M	£5,963.2 M
<b>Total Benefits</b>	<b>-</b>	<b>-</b>	<b>£18.4 M</b>	<b>£5,963.2 M</b>	<b>£5,981.5 M</b>
<b>Net Present Value</b>	<b>-£1,789.1 M</b>	<b>-£2,360.6 M</b>	<b>-£8.8 M</b>	<b>£5,963.2 M</b>	<b>£1,804.7 M</b>
<b>BCR</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1.4</b>

*Notes:*

1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

## 2.4. Option 3: Franchising

### 2.4.1. Costs of Option 3: Franchising

2.4.1.1. A franchise enables a franchising authority to issue a contract or number of contracts to run all bus services in a particular area. Franchising powers could be used to implement a very wide range of models from a specific corridor to a whole local network which could cover most of a local authority area, or even more than one local authority area. It is assumed that franchising would be carried out on a 'gross cost' contract basis, with the local authority retaining the revenue and therefore being able to choose how to deploy fare box revenue most effectively, but also thereby carrying the financial risk from future revenue fluctuation (as opposed to 'net-cost' contracts where the operator/s retain the revenue and financial risks).

2.4.1.2. Bus franchising has not been implemented in the UK outside of London, making it difficult to estimate the costs of franchising based on directly comparable evidence. A wide range of cost estimates resulted from engagement and consultation with bus operators. There is potential for economies of scale with implementing franchising, both on the cost side, but also in developing schemes which capture benefits across local authority boundaries. For example, local authorities may decide to combine resources to franchise across a larger area, which could result in savings in terms of staff resources and consultancy/legal support. Having considered the evidence, we consider our cost assumptions to represent a cautious conservative estimate. There would be a cost to the Welsh Government in developing and issuing regulations and guidance for local authorities and CJs on franchising. Guidance will be needed on the basis on which franchising is put into action, covering the various options around structuring contracted services within franchised networks and indicating which are preferable. Guidance will also likely be issued in relation to procurement of contracts and contractual content to ensure provision of social value and to create appropriate incentivisation. A set-up cost of £1m is included.

2.4.1.3. The Welsh Government may also consider that the most efficient approach, should local authorities decide to undertake a franchise, may be to provide support to tackle issues, such as franchise configuration, procurement, and guidance on contract management, implementation, transition, governance and compliance, at a strategic level. An allowance of £5m-£8m has been made for Welsh Government support to address these potential additional set-up issues.

2.4.1.4. It is assumed that Welsh Government would make capital funding available for upgrades to depots to support charging/re-

fuelling of low-emission vehicles in line with Net-Zero Wales aspirations as part of franchising arrangements. The capital costs per local authority are estimated to be £0.5m for a rural network, £1m for a town urban network, and £1.5m for a major urban network.

2.4.1.5. The costs to local authorities of setting up an individual franchise across their areas could also be considerable, but would depend on the content, scale and scope of the franchise. When introducing franchising for the first time, local authorities would incur costs on a range of processes to prepare for implementation.

2.4.1.6. The costs to local authorities in setting up a bus franchise would vary significantly across Wales. For example, the net costs are likely to be lower in some of the rural local authorities, where a significant proportion of bus services are already tendered and contracted through Section 63 (Transport Act 1985) contracts. The costs are expected to range from £500k -£1m in rural network areas, £1m - £2m in town urban network areas and between £2m - £5m for complex commercial networks in major urban areas, where there may be very few subsidised services. It may also be the case that, after some initial franchises in Wales have been successfully delivered, the learning experience will enable future franchising costs for other local authorities to be proportionately less.

2.4.1.7. The costs to operators for competing/tendering for franchising is estimated to be between £250k, £500k and £1m (for rural, town urban and urban networks respectively) assuming four tenders are received<sup>34</sup>. It will be important that local authorities provide high quality information and data on existing bus performance (for example, bus speeds and patronage) to bidders such that the prospective operators do not need to spend resources on investigating current bus network characteristics and developing their own database.

2.4.1.8. Once franchise contracts are introduced, they would be retendered at specific times – and it would be expected that contracts would run for a period of up to ten years to achieve a degree of network stability and optimum contract price and cost recovery from investment in new vehicles (although initial contracts in Wales may be for less time with options for extension). For this RIA it is assumed that franchises would be retendered every ten years. It is assumed that operator costs for bidding for the second franchise will be half the cost of the first round as there will be more data provided to operators on operational details (such as

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<sup>34</sup> A summary of cost assumptions is provided in Appendix 1.

operational characteristics, costs and patronage of the bus network).

- 2.4.1.9. An allowance of £500k recurring costs has been made to account for strategic programme management, monitoring of franchising and back-office ticketing and financial monitoring support for multi-operator ticketing. This is equivalent of two FTE per region (eight in total).
- 2.4.1.10. Local authorities would incur ongoing costs for franchising. They would need to monitor performance of the operators over the duration of the contracts and deal with complaints etc. Many local authorities already perform these functions for their subsidised services. There are likely to be additional requirements, particularly in the form of contract moves from a net cost to gross cost contract. The requirements will vary depending on the scope of the franchise and the proportion of Section 63 contracts already being managed by the local authority. It is estimated that the administrative costs per local authority could be between £50K to £225k per year for additional resources required to monitor performance, manage contracts and reconcile accounts. For future franchises, with a franchised bus network and associated contractual and organisational aspects already in place, and the potential to stagger the timing of franchise tenders, it is assumed that re-franchising will be undertaken by local authorities within the scope of these recurring costs.
- 2.4.1.11. Costs associated with acquisition of a fleet by a successful tenderer (either by buying or leasing) have not been included as it is assumed that such costs are included in the normal amortisation of 'capital' costs of vehicles into the annualised operational costs for a bus fleet. For modelling purposes, it is assumed that costs for low emission buses are phased in, resulting in 100% of the service bus fleet to be zero emission by 2035 in line with Net-Zero Wales targets. Additional lease costs would be offset somewhat by cheaper running costs of electric buses compared to diesel.
- 2.4.1.12. Contractual terms on pay and conditions could form part of franchising contracts. It is assumed that Welsh Government would intend to have a policy of fair pay for bus workers to prevent franchising driving down pay and conditions. It is assumed that driver's hourly salary would increase to £12.22 under a franchising model, representing a 7.5% increase on baseline of £11.37<sup>35</sup>.
- 2.4.1.13. Costs of depots for bus operators have not been included in the franchise costs assessment as an add-on item, on the basis that operators bidding will need to include their depot cost overheads in

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<sup>35</sup> Office for National Statistics. 2021. [Earnings and hours worked - ASHE Table 3: Transport and mobile machine drivers and operatives](#)

the operational costs (as would be the case now for existing operators). It is acknowledged that depot costs could influence overall bus operator costs, and that new entrants seeking to win a franchise tender may need to purchase a depot, and the arrangements for depot ownership (or leasing) will need to be addressed within the local authority's planning for franchising.

2.4.1.14. There will be higher administrative costs for the operator franchisee reporting data to the local authority, but these higher costs are assumed to be offset against efficiencies the franchisee would gain by being the sole provider of services in the franchise area for the duration of the contract.

2.4.1.15. When an operator is unsuccessful in bidding for a franchise, they would no longer be able to run services in that section of the market, which would impact on their revenue or potentially lead to an operator ceasing to trade. They would also lose the opportunity to recover the costs of bidding. In the same way as losing a Section 63 subsidised bus tender, they could still run buses in other areas without franchises and bid for other franchising and subsidised Section 63 contracts.

2.4.1.16. For the purposes of modelling for the RIA, it is assumed that the bus kilometres in a franchised network is the same as the present network – but with rationalisation to address issues such as over-bussing, where two operators compete on the same route; and excess capacity, when an incumbent operator is concerned about the risk of competition on profitable routes and timetables too many buses on that route to discourage competition. In addition, a franchised network would be expected to put in place coordination between services to improve the arrangements for passengers to transfer between services, and to ensure consistent and spaced-out headways between services – which provides more reliability for passengers and removes bus-on-bus congestion at stops.

2.4.1.17. In respect of over-bussing and excess capacity, the Competition Commission's 2011 research into the competitiveness of the bus industry in Great Britain<sup>36</sup> made a number of relevant points, notably:

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<sup>36</sup> Competition Commission. 2011. [Local bus services market investigation: A report on the supply of local bus services in the UK](#)

“We found that 46% of routes, accounting for 63% of services in the reference area, do not face effective head-to-head competition. Only 3% of routes, accounting for 1% of weekly services, are likely to face effective head-to-head competition. For the remaining routes, a lack of flow-level information prevented us drawing firm conclusions on the extent to which they faced head-to-head competition. Nevertheless, the extent of overlap faced by these routes suggested that, at least in a substantial number of cases, a large proportion of passengers on these routes were unlikely to have a choice of operator” (page 10); and

“The process of head-to-head competition, driven by an incentive to increase frequency, could in some circumstances lead to the creation of excess capacity (i.e. more buses being run on the route than can attract sufficient revenue to cover costs). This may reduce the profitability of operators and result in their becoming loss-making. An operator will have an incentive to add services, and it will do so as long as the effect is to add more revenue than the increase in costs. Excess capacity can arise as the competing operators would each add extra services because individually these extra services can be timed so as to take revenue from the rival operator’s services (by running shortly ahead of them) and scheduled to maintain or improve the individual operator’s network advantages” (page 8-8).

2.4.1.18. In terms of revenue costs for the Welsh Government, increased concessionary fare reimbursements to operators associated with patronage uplifts have been included in the modelling. In practice, under a franchising model these concessionary fare reimbursement payments could be stopped, with payments to operators streamlined under a contract agreed with the franchising authority. However, as franchising arrangements are yet to be fully defined, for the purposes of this RIA these increases are included to allow direct comparison between the franchising and quality partnerships options. Costs of operating services may still increase if patronage uplift due to concessions require additional bus capacity, but the impact above the effects of the ridership increase driven by network improvements due to franchising is expected to be minimal.

2.4.1.19. Under the Franchising option, it will be feasible to directly award bus operating contracts to either local authority-owned bus organisations, or private operators, if it is deemed through business case evaluation that this arrangement will be beneficial in terms of outcomes, such as better co-ordination and efficiencies with school transport, or efficient transition from the pre-franchising situation. It has been assumed that local authority-owned bus operators will operate as contracted independent entities in a manner similar to private sector operators.

2.4.1.20. The costs of setting up a local authority-owned operator direct

award are considered to be of a similar scale to the overall cost for a number of operators to prepare tenders for a franchise; for example this equates to a £1M cost for the local authority-owned operator, and a local authority cost of £2M - £5M for preparation and organising the direct award process, which could include initial refurbishment / fit out of an existing Council-owned depot. As for franchising, costs associated with acquisition of a fleet by the local authority-owned operator (either by buying or leasing) are included in the normal amortisation of costs of vehicles into the annualised operational costs; that is, it is assumed that the 'local-authority-owned operator' fleet would have the same average age as the current fleet operating in the area. Ongoing depot costs are also included as an annualised cost.

2.4.1.21. Ongoing costs for both the direct-award operator and local authority are assumed to be similar to a tendered franchise operation, with local authority staff monitoring performance of the operator over the duration of the contract and dealing with issues that arise. As for franchising, it is assumed that the direct award contract would be renewed every five to ten years, and that costs associated with this activity would be similar to re-tendering for a franchise (and indeed a local authority may choose to switch from a direct award to a tendered process, or vice-versa depending on best value and policy outcomes).

2.4.1.22. Table 5 summarises the estimated costs for franchising. A further breakdown is provided within Appendix 3.

*Table 5: Estimated Costs for Franchising*

Item	WG/TfW	LA/CJCs	Operators	Users	Total
Capital Costs	£23.1 M	-	-	-	£23.1 M
Transitional Costs	£12.4 M	£51.9 M	£27.0 M	-	£91.3 M
Recurring Costs	-£16.3 M	£73.7 M	-	-	£57.4 M
<b>Total Costs</b>	<b>£19.2 M</b>	<b>£125.7 M</b>	<b>£27.0 M</b>	<b>-</b>	<b>£171.8 M</b>

Notes:

1. The values shown are approximate and are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

## 2.4.2. Benefits of Option 3: Franchising

2.4.2.1. The main beneficiaries of franchising would be the users, as franchising would result in a better planned and stable overall bus network with services running in a joined-up way with full integration of all bus services and other modes of transport, such as rail. It would also be expected that franchising would involve setting and

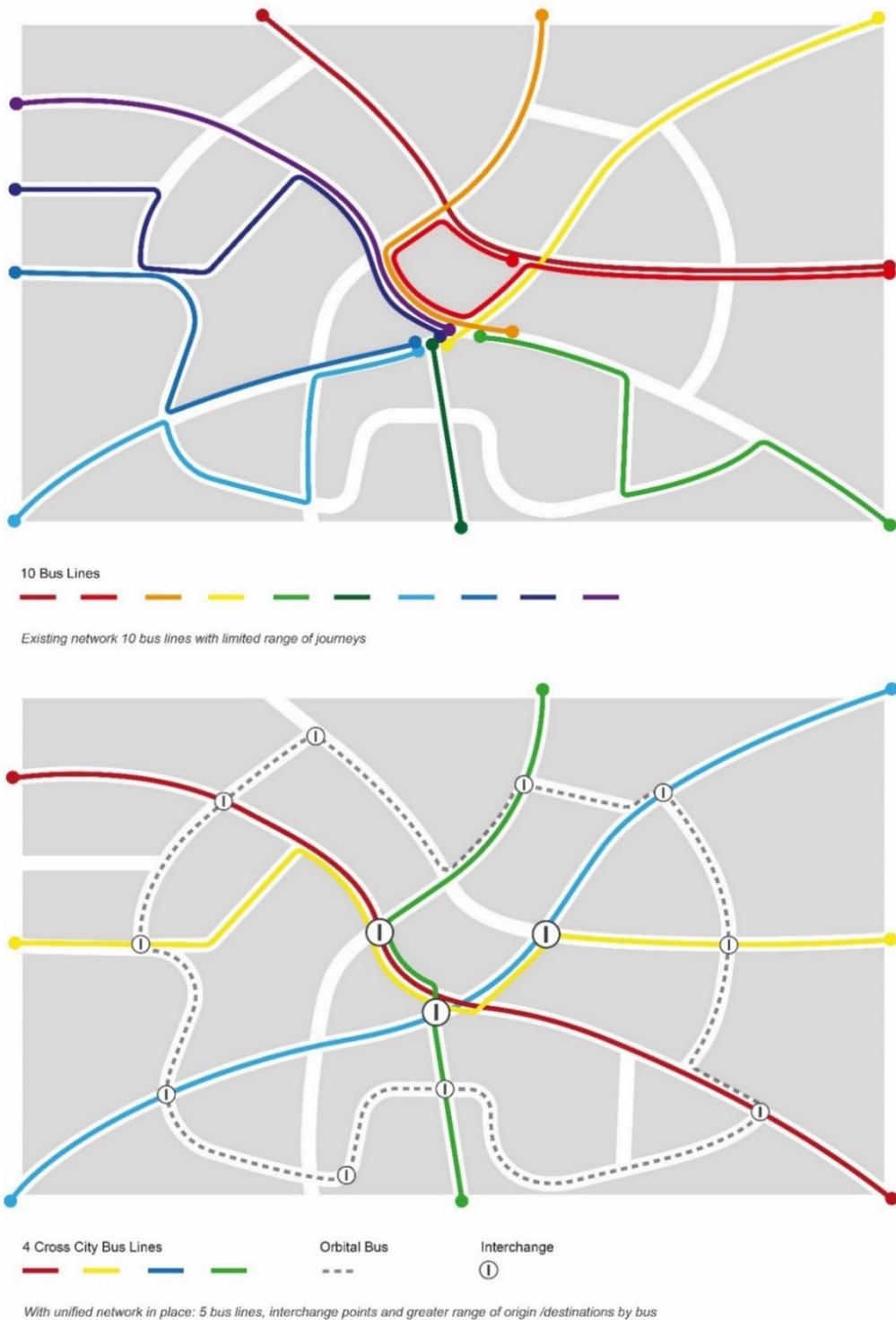
applying more consistent levels of vehicle quality. Additionally, as part of a franchise (even if there are a number of bus operators in the franchise) ticketing arrangements would be based on a single system irrespective of operator. Also, with appropriate patronage-based bonuses in the contract, the local authority and franchise operator would also be incentivised to work together towards increasing patronage.

2.4.2.2. The key outcome of franchising would be ability to create a joined up and unified bus network in each area of Wales. Figure 1 provides an example of a unified network in an urban area, where instead of a number of commercial radial bus routes, often with uneven headways, the network is rationalised to five cross-city services with consistent headways plus an orbital route connecting with the cross-city services. This rationalised network would offer passengers a wider range of destinations, with services passing through on-street interchange locations where passengers could transfer between services (with integrated ticketing also supporting this arrangement).

2.4.2.3. The impacts of a unified network have been considered using the approach outlined in Appendix 2. Benefits to users are expected to be accrued due to:

- improved and more reasonable journey times for journeys involving transfer due to better integration and coordination with other bus routes and public transport modes;
- the ability of passengers to travel on one or more services in the local franchised network using a single integrated ticketing system without needing to plan their journeys or buy a specific multi-operator ticket in advance; and
- better and easier-to-understand information to passengers as a result of having a simplified and planned network of services.

Figure 1: Rationalising bus services to create a unified network



2.4.2.4. On the basis of improvements to aspects of the bus service noted above, estimated patronage uplifts of 22% in major urban; 12% in town; and 17% in rural networks in 2040 would occur, based on examination of case study networks in Cardiff, Wrexham and Pembrokeshire. This estimate is for the benefits arising from the legislation alone and does not account for additional investment.

2.4.2.5. Other wider benefits would also accrue if more people travelled by bus:

- health and wellbeing benefits from additional passengers walking to catch a bus;
- net carbon emissions should be lower due to some travellers switching from car travel; and
- improved air quality on main road corridors should also accrue if some car travellers switched to bus travel.

2.4.2.6. Drawing on international experience, depending on the structure of the franchise contracts, incentivised contracts (for example, bonus arrangements in gross cost contracts) can give a sound basis for operators and local authorities to work together to increase patronage. It is envisaged that contractual arrangements would allow for annual reviews of performance and amendment of routes and frequencies within defined parameters, which would provide franchise operators with opportunities to develop network improvements to attract more passengers.

2.4.2.7. Currently, many local authority areas have a mix of commercial and socially necessary subsidised routes. In some cases, operators run services without a direct subsidy on their commercial routes, and in other cases operators receive a contracted subsidy (from local authorities) for running socially necessary routes. The assumption for the purposes of this RIA is that the bus kilometres in a present network would be maintained, but with all services rationalised into a unified and coordinated network which should allow scope for some additional services to operate (for example, by re-routing competing services on a core corridor to create a high frequency orbital service which would act as a feeder trunk service, or by running rural feeders into inter-urban trunk services) thereby widening the scope of potential bus journeys.

2.4.2.8. In a like-for-like network scenario, it is assumed that operational costs for operators (other than previously set out) will be unchanged from the present if a franchise is put in place. In practice, the franchising authority may seek to vary the network shape and operation – for example a network review could take place with opportunities for stakeholders to comment. As this is not a requirement, costs for such periodic reviews have not been estimated as part of this exercise.

2.4.2.9. There would be benefits to bus franchise operators from the certainty and stability that franchising provides which will enable an operator to better develop training and career progression for their employees could be improved – for example, drivers would be able to transfer between franchisees in the event of retendering of the franchise.

- 2.4.2.10. Franchising would provide local authorities with greater control over the bus network and services to be provided and would provide cross-subsidisation opportunities. For example, bus routes could be planned and coordinated to provide improved convenience for journeys to school or healthcare facilities which provides economies of scale and may reduce the need for bespoke services.
- 2.4.2.11. Local authorities would also be able to ensure that the bus network is integrated with the local and regional rail networks in Wales, for example, by running feeder services to match with rail timetables, thereby reducing the need to run bus services in parallel with rail services which occurs in some locations in Wales.
- 2.4.2.12. Local authority control over bus service provision would also allow for better alignment with delivering on key policy priorities – such as reducing car travel and associated carbon and particle emissions, improving accessibility to key services, maximising social inclusion and improving access to employment.
- 2.4.2.13. Estimated benefits for a bus network operated through a direct award contract to a local-authority-owned or private operator are assumed to be of the same value as for a tendered franchised operation. The practical choice of local authorities to proceed with tendering or awarding contracts directly will in all cases be subject to a detailed investigation of options and their costs and benefits.
- 2.4.2.14. Table 6 provides a summary of the estimated financial and economic benefits of partnerships, with a further breakdown provided in Appendix 3.

*Table 6: Estimated Benefits for Franchising*

Item	WG/TfW	LA/CJCs	Operators	Users	Total
Financial Benefits	-	-	£22.0 M	-	£22.0 M
Economic Benefits	-	-	-	£3,706.8 M	£3,706.8 M
<b>Total Benefits</b>	-	-	<b>£22.0 M</b>	<b>£3,706.8 M</b>	<b>£3,728.7 M</b>

*Notes:*

1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

### 2.4.3. Summary of Costs and Benefits of Option 3: Franchising

2.4.3.1. Modelling of the costs and benefits of franchising (as summarised in Table 7) indicates that overall economic benefits would significantly outweigh costs, primarily driven by user benefits.

*Table 7: Summary of Costs and Benefits of Franchising*

Item	WG/TfW	LA/CJCs	Operators	Users	Total
Total Costs	£19.2 M	£125.7 M	£27.0 M	-	£171.8 M
Total Benefits	-	-	£22.0 M	£3,706.8 M	£3,728.7 M
<b>Net Present Value</b>	<b>-£19.2 M</b>	<b>-£125.7 M</b>	<b>-£5.0 M</b>	<b>£3,706.8 M</b>	<b>£3,556.9 M</b>
<b>BCR</b>	-	-	-	-	<b>21.7</b>

Notes:

1. The values shown are approximate and are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

#### 2.4.4. Costs and Benefits of Franchising Plus+ Scenario

- 2.4.4.1. It is likely that, in practice, and given Welsh Government's aspirations around net-zero, bus reform under a franchising scenario would also include provisions for new bus infrastructure, and expansion of service frequency and coverage. These types of investments have not been included in this RIA analysis for franchising thus far as they are not direct requirements of the legislation.
- 2.4.4.2. As set out in Appendix 2, a high growth bus patronage scenario is considered, consistent with meeting the mode share target of 45% of journeys to be made by public transport, walking and cycling by 2040 as set out in Llwybr Newydd. Achievement of this outcome will rely on rapid and complete reform of bus governance in Wales, to enable efficient investment in buses, and design of bus networks and supporting infrastructure to work as complete networks to give the best possible service coverage, working in conjunction with heavy rail and tram services.
- 2.4.4.3. In addition to the cost assumptions previously set out for franchising, the Franchising Plus+ scenario considers a capital spend of £3bn (2020 prices) for bus infrastructure improvements to 2040, (equivalent to around £165m per annum), associated infrastructure maintenance costs, and an additional £50m (2020 prices) revenue funding per annum for improved frequency of services, and expansion of the geographical reach of the bus network.
- 2.4.4.4. These capital costs are based on analysis of potential improvements to bus infrastructure in the case study networks, including bus priority measures, bus stops, transfer hubs, station improvements, improved integration with rail and Metro networks and measures to improve information, branding and marketing. Whilst a detailed assessment of the exact spend has not been made, it is likely that a more significant proportion of the spend would be made in Major Urban and Town network areas where congestion and bus stop density are highest. Revenue funding would be focussed on bus service improvements in Rural and Town areas of Wales. Additional revenue could support increased frequency and expansion of scheduled bus services and Fflecsi Demand Responsive Transport (DRT) services – consistent with the ambition of serving *'every village, every hour'*.
- 2.4.4.5. It should be noted that this is a speculative representation of future bus patronage growth, consistent with Welsh Government transport policy and addressing the climate emergency. It is not intended to represent a forecast and is not directly linked to specific individual infrastructure measures in the economic assessment.

Instead, it is an illustrative example of how significant investment in bus could translate into higher mode share. To achieve these levels of public transport use there will also need to be determined investment in active travel and accompanying policies to deter car use to support car-light lifestyles.

2.4.4.6. Table 8 presents a summary of costs and benefits in the Franchising Plus+ scenario. The summary identifies that, under a high bus patronage growth scenario consistent with mode share targets in Llwybr Newydd be realised, the benefits would outweigh costs of significant investment in infrastructure and increased services under a franchising model, with a BCR of 2.3.

2.4.4.7. Should a local authority decide to bring forward proposals for improving bus infrastructure to complement changes to the network as a result of the legislative proposals, the decision to proceed would be informed by detailed assessments of the implications of the proposal, which would include a full financial assessment and cost benefit analysis.

*Table 8: Summary of Costs and Benefits of Franchising Plus+*

Item	WG/TfW	LA/CJCs	Operators	Users	Total
Capital Costs	£3,412.1 M	-	-	-	£3,412.1 M
Transitional Costs	£12.4 M	£51.9 M	£27.0 M	-	£91.3 M
Recurring Costs	-£1,909.6 M	£2,407.5 M	-	-	£497.8 M
<b>Total Costs</b>	<b>£1,514.8 M</b>	<b>£2,459.4 M</b>	<b>£27.0 M</b>	<b>-</b>	<b>£4,001.2 M</b>
Financial Benefits	-	-	£18.4 M	-	£18.4 M
Economic Benefits	-	-	-	£9,118.4 M	£9,118.4 M
<b>Total Benefits</b>	<b>-</b>	<b>-</b>	<b>£18.4 M</b>	<b>£9,118.4 M</b>	<b>£9,136.8 M</b>
<b>Net Present Value</b>	<b>-£1,514.8 M</b>	<b>-£2,459.4 M</b>	<b>-£8.6 M</b>	<b>£9,118.4 M</b>	<b>£5,135.6 M</b>
<b>BCR</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2.3</b>

Notes:

1. The values shown are approximate and are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

## 2.5. Summary and Preferred Option

- 2.5.1.1. This RIA has outlined three options for the future delivery and organisation of bus services in Wales, namely business-as-usual, statutory partnerships and franchising.
- 2.5.1.2. The business-as-usual model, involving continued emergency funding for bus services as patronage gradually moves back towards pre-COVID levels is not considered an appropriate or financially sustainable situation for Welsh Government in the long-term. Neither is reducing subsidy (and thus impacting level of service) consistent with wider policy and requirement to grow demand for bus services to address the climate emergency. It is considered that Welsh Government intervention is required to achieve the necessary radically different outcomes for bus, so business-as-usual is not considered a relevant option to be taken forward.
- 2.5.1.3. In terms of achieving the policy outcome of better bus networks as set out in Section 1, Table 9 sets out a summary comparison of the powers available under partnership and franchising approaches.

*Table 9: Summary of Powers for Partnerships and Franchising*

Measures Available	Partnership	Franchising
Specify where and when bus services run	○	▲
Minimum Service frequency or evenly spaced timings	■	▲
Timetables	■	▲
Vehicle specifications (e.g. Wi-Fi, lower emissions)	■	▲
Passenger information standards	■	▲
Route or area branding and/or marketing	■	▲
Single ticketing system for all trips / buses	○	▲
Smart cards and contactless payments	■	▲
Common ticket rules and fare zones	■	▲
Maximum fares for given routes or services	■	▲

*Notes:*

▲ LAs determine the details of the services to be provided – where they run, when they run and the standards of the services

■ LAs can seek formal agreement from a defined proportion of operators

○ Not relevant/Powers not available

- 2.5.1.4. Table 10 presents a Red, Amber, Green (RAG) assessment of how a partnership approach and a franchising approach would compare in respect of achieving the success factors identified from best practice. The assessment concludes that a partnership approach would be less able to address success factors (as introduced in Section 1) in respect of passenger outcomes.

Table 10: Comparison of Partnership and Franchising for Success Factors

Factor	Success aspect	Partnerships	Franchising
Area-wide networks with all significant local destinations reachable	A wide range of key destinations throughout a local area should be reachable in 45-60 mins during the daytime (with transfers if necessary)	Focus is on direct journeys only and hence travel between many destinations not convenient	Network approach with co-ordinated transfers
One Ticket	An exclusive single ticket system for boarding all buses should be in place	Multiple operator tickets side-by-side with operator tickets	Single ticket system for passengers on all services
Easy To Understand Network	A public transport network that is inherently easy to understand	Multiple services with overlapping routes	Generally only one or two services on each corridor, with regulated headways.
One Brand	A public transport brand should be present on all vehicles, stops and stations, information sources, and ticketing	Regional brand would co-exist with operator brands	A single brand for all components
Easy and Reliable Transfer	High quality transfer conditions and arrangements (ticketing, timetables).	Network not fully designed for co-ordinated transfer	Network designed with transfer built-in
Reliable Travel Times	Journeys by public transport should have reasonable and consistent speeds	Delivery of bus priority measures could deliver improvements in speed	Manage bus-on-bus congestion and reduced dwell time, in addition to bus priority
Easy to Access the Vehicle	Easy to board with multiple doors for urban buses	Single door vehicles leading to slower boarding / alighting	Multi-door easy access and associated enforcement, reducing delays at stops
Accessible and Comfortable	Stations and stops are easy to reach, are comfortable with good information, and vehicles are comfortable, and well equipped.	Good quality stops and vehicles	Good quality stops and vehicles
Public Feedback and Customer Care	The general public are given regular opportunities to provide feedback	Partnership can include changes over time with agreement of all parties but likely to be unstable over time	Annual network review can be built-in to delivery of franchised networks
Passenger Safety, Security, and Health	Inherent in all aspects of people's experience of public transport, including roadside air quality and carbon emissions	Multiple different operators and local authorities involved.	Single organisation would be responsible for managing these aspects.
Network Efficiency and Financial Affordability	Service lines are optimised to limit inefficient overlap of services	Some overlaps and corridor inefficiencies	All overlaps and inefficiencies designed out at network planning phase

Notes:

**Red** – Unlikely to offer improvement over business-as-usual arrangements

**Amber** - Can achieve improvements but limited potential to achieve best practice

**Green** - Good potential for best practice

2.5.1.5. This RAG assessment has identified an overall conclusion that the franchising option best addresses all of the key success factors. It is further concluded that even though a partnership approach could improve bus services, it does not provide a realistic means to deliver the necessary step changes to meet Welsh Government's aspiration for 'One Network, One Timetable, One Ticket'. A further disadvantage of a partnership approach is that it would involve perpetual negotiations and modifications in response to operators' commercial imperatives.

2.5.1.6. The selection of franchising as a preferred option is supported by the analysis of costs and benefits presented within this RIA and summarised in Table 11. Whilst costs are broadly comparable between partnerships and franchising over the 30-year appraisal period, benefits for franchising are roughly twice as high.

*Table 11: Summary of Costs and Benefits of Partnerships and Franchising Options*

Item	Statutory Partnerships	Statutory Partnerships Plus+	Franchising	Franchising Plus+
Total Costs	£182.6 M	£4,176.8 M	£171.8 M	£4,001.2 M
Total Benefits	£1,902.4 M	£5,981.5 M	£3,728.7 M	£9,136.8 M
<b>Net Present Value</b>	<b>£1,719.7 M</b>	<b>£1,804.7 M</b>	<b>£3,556.9 M</b>	<b>£5,135.6 M</b>
<b>BCR</b>	<b>10.4</b>	<b>1.4</b>	<b>21.7</b>	<b>2.3</b>

*Notes:*

1. The values shown are approximate and are intended to provide only indicative forecasts of costs and benefits
2. Costs and benefits represent totals over the 30-year appraisal period, discounted to 2020 prices
3. Costs and benefits are shown at a Wales level, based on extrapolation from Major Urban (Cardiff), Town (Wrexham) and Rural (Pembrokeshire) case study local authorities on a pro-rata basis.

2.5.1.7. The cost-benefit analysis prepared for this RIA represents a complex technical exercise, undertaken according to the relevant transport appraisal guidance, which has sought to assess potential costs and benefits to people and the environment that are often difficult to calculate as pounds and pence. The Benefit to Cost Ratio (BCR) results provide a high-level summary which can be compared to estimate the potential trade-offs of each scenario. The BCR of all four options is greater than 1, meaning the expected monetisable benefits of interventions in each scenario outweigh the expected costs. A BCR of above 2 is generally considered high. The selection of a preferred option must not be based on BCRs alone. The relative merits and value for money of each option must be judged in the wider context of ambitions set out in Llywybr Newydd and Welsh Government's response to climate emergency, rather than the highest BCR.

2.5.1.8. The BCRs for 'legislation-only' Statutory Partnerships and Franchising options are higher than values typically presented in

transport business cases, as they do not have significant capital expenditure associated with infrastructure measures (as is typically the case for transport-related investment) but do include significant benefits linked to legislative changes. In practice, it is likely that implementation of legislation to improve bus services in Wales would not be made in isolation but include a range of supporting investment in transport infrastructure and policy measures aimed at delivering a step change in mode share. The legislative proposals should be treated as enabling measures, which provide an enhanced ability to lock in benefits of wider, and potentially substantial, investments in measures such as on-street or bus station infrastructure and bus priority measures. The selection of a preferred option must not be based on BCRs alone. The relative merits and value for money of each option must be judged in the wider context of ambitions set out in Llwybr Newydd and Welsh Government's response to climate emergency, rather than the highest BCR.

2.5.1.9. In summary, a unified, co-ordinated, bus network can only be realised if a single organisation has control over service routes and frequencies – and franchising of bus services by local authorities is an appropriate mechanism to deliver these necessary governance tools. The alternative approach of statutory partnerships, even with more of a role for local authorities compared to previous partnership arrangements, does not provide any party (local government or operators) with the necessary authority to align and deliver the interdependent components of a successful bus system, and would retain the current fragmentation of roles and responsibilities. This conclusion does not imply that bus operators in Wales are not of the required standard to operate quality services, on the contrary, a more stable procurement and operating regime would allow operators to concentrate on a core role of delivering excellent services and high-quality operational practices.

# Appendix 1: Costs Assumptions Summary

## Administrative Costs Assumptions Summary

Cost assumptions for statutory partnerships and franchising are outlined in Table A1- 1 and Table A1- 2 respectively. Where referenced, an approximate FTE cost of between £50k - £65k has been assumed, the variance relates to role, skills, organisation, and regional location.

Table A1- 1: Statutory Partnership Cost Assumptions

Cost Type	Summary of Cost Assumptions
<b>Set Up Costs</b>	
WG / TfW set up costs (paragraphs 2.3.1.2 & 2.3.1.3)	<p><b>£100k</b> (all of Wales)</p> <p>Cost estimate based on inclusion of the following activities:</p> <ul style="list-style-type: none"> <li>• Welsh Government officers prepare guidance document; and</li> <li>• Legal guidance and template partnership contract(s).</li> </ul> <p>This represents an FTE equivalent of about two Welsh Government staff.</p> <p><b>Depot Capex - £1.5m major urban; £1m town urban; £0.5m rural</b> (per LA)</p> <p>An additional capital cost allowance has been made for upgrades to depots to support charging/re-fuelling of low-emission vehicles. This cost has been allocated to Welsh Government on the basis that grant funding to depot owners would be made available to support transition of the bus fleet.</p>
LA / CJC set up costs (paragraph 2.3.1.4)	<p><b>£120k major urban; £90k town urban; £60k rural</b> (per local authority)</p> <p>Assumed cost for setting up a partnership in each local authority area based on the Welsh Government guidance and template partnership contract(s). Cost estimate based on local authority staff undertaking route assessments and consultation with operators on proposed partnerships, with a range from one FTE for a rural local authority to two FTEs for a major urban authority.</p> <p><b>Second and subsequent partnership agreements</b> <b>£60k major urban; £45k town urban; £30k rural</b> (per local authority)</p> <p>Partnerships would need to be revised at various stages, for example when a new operator enters a local market or when new development requires changes to bus services. Costs for ongoing management and minor changes to partnership arrangements are included within the recurring costs, however it is likely that additional resources equivalent to these set-up costs would be required to negotiate significant revisions to partnerships. This could include for example public consultation on bus networks, evaluation and re-design of networks and studies to identify supporting infrastructure measures etc. An assumption has been made therefore that significant revisions to partnerships would be required every five years on average, with costs to LAs at 50% of the original set up costs.</p>
Operators set up costs (paragraph 2.3.1.6)	<p><b>£200k major urban; £150k town urban; £100k rural</b> (per local authority)</p> <p>Cost estimate based on two bus operators negotiating a partnership with the local authority with each requiring between half to one FTE to undertake route assessments, consult with the local authority and negotiate a final deal. Half an FTE is considered more appropriate for a smaller rural network, and one FTE for a major urban network.</p> <p><b>Second and subsequent partnership agreements</b> <b>£100k major urban; £75k town urban; £50k rural</b> (per local authority)</p>

Cost Type	Summary of Cost Assumptions
	Assumed that an additional level of resource would be required every five years on average to negotiate significant revisions to/new partnerships.
<b>Recurring Costs</b>	
WG / TfW recurring costs (paragraph 2.3.1.7)	<p><b>£250k (all of Wales)</b></p> <p>Cost estimate based on the equivalent of one FTE per region (four in total), responsible for the following activities:</p> <ul style="list-style-type: none"> <li>• Strategic programme management, monitoring of partnerships at national level;</li> <li>• Technical and legal support for LAs / CJsCs;</li> <li>• Evaluation of partnerships and interface with policy development;</li> <li>• Engagement with LA/CJsCs and bus operators;</li> <li>• Guidance and knowledge sharing on best practice; and</li> <li>• Procurement of back-office ticketing and financial monitoring support for multi-operator ticketing.</li> </ul>
LA / CJC recurring costs (paragraph 2.3.1.8)	<p><b>£25k major urban; £20k town urban; £15k rural per annum</b> (per local authority)</p> <p>Cost estimate based on the equivalent of up to half an FTE per year additional resource, with costs of between £15k and £25k, depending on the scale of the partnership. It is considered that this includes the following activities:</p> <ul style="list-style-type: none"> <li>• ongoing management of partnerships;</li> <li>• updates to Traffic Regulation Orders;</li> <li>• enforcement and monitoring; and</li> <li>• meetings with operators.</li> </ul>
Operators recurring costs (paragraphs 2.3.1.8, 2.3.1.9 & 2.3.1.10)	<p><b>£25k major urban; £20k town urban; £15k rural per annum</b> (per local authority)</p> <p>Cost estimate based on the equivalent of up to half an FTE per year additional resource, with costs of between £15k and £25k, depending on the scale of the partnership. It is considered that this includes the following activities:</p> <ul style="list-style-type: none"> <li>• ongoing management of WPSs;</li> <li>• compliance and provision of monitoring information; and</li> <li>• meetings with local authority officers.</li> </ul> <p><b>Costs for low emission buses phased in within OPEX modelling</b></p> <p>Additional lease costs included for low emission buses in line with profile identified (i.e. 100% of the service bus fleet to be zero emission by 2040). These additional costs are offset by cheaper running costs of electric buses compared to diesel.</p> <p><b>Increase assumed driver hourly salary to £11.94, representing a 5% increase on baseline of £11.37<sup>37</sup></b></p> <p>An additional increase on driver wages is made in the partnership scenario on the basis that partnerships could include agreements on pay and</p>

<sup>37</sup> Office for National Statistics. 2021. [Earnings and hours worked - ASHE Table 3: Transport and mobile machine drivers and operatives](#)

Cost Type	Summary of Cost Assumptions
	conditions in line with WGs intent for a policy of fair pay for bus workers. This is lower than the cost increase in the franchising scenario, as pay conditions would need to be negotiated as part of the partnership, and it may not be possible to agree this policy with all operators.

Table A1- 2: Franchising Cost Assumptions

Cost Type	Summary of Cost Assumptions
<b>Franchising Set Up Costs</b>	
WG / TfW set up costs (paragraphs 2.4.1.2, 2.4.1.3 & 2.4.1.4)	<p><b>Preparing guidance: £1m</b> (for all of Wales) Cost estimate based on inclusion of the following activities:</p> <ul style="list-style-type: none"> <li>• Welsh Government officers prepare guidance document, estimated as about eight FTEs;</li> <li>• technical support from specialised consultants; and</li> <li>• provision of template contract(s).</li> </ul> <p><b>Support to local authorities: £5m-£8m</b> (for all of Wales) Supporting the transition to franchising, providing guidance on best practice and network development across Wales. Potential for economies of scale in procurement, planning and managing transition at the national level, rather than duplicating processes at LA/CJC level. This cost includes legal advice to address any potential challenge through judicial review.</p> <p><b>Depot Capex - £1.5m major urban; £1m town urban; £0.5m rural</b> (per LA) An additional capital cost allowance has been made for upgrades to depots to support charging/re-fuelling of low-emission vehicles. This cost has been allocated to Welsh Government on the basis that grant funding to depot owners would be made available to support transition of the bus fleet.</p>
LA / CJC set up costs (paragraph 2.4.1.6)	<p>Franchising costs for local authorities including a range of activities:</p> <ul style="list-style-type: none"> <li>• develop and set out governance arrangements;</li> <li>• preparation of business case, as required;</li> <li>• financial investigations on whether the options would require capital spending, such as for the purchase of depots, buses or other infrastructure; and costs associated with the TUPE transfer of staff and their pension protection where relevant;</li> <li>• consultation with operators,</li> <li>• public consultation;</li> <li>• data collection such as patronage, passenger surveys, bus speeds;</li> <li>• preparation of passenger forecast model;</li> <li>• organisational and IT aspects of a bus franchise management office;</li> <li>• Contingency plans for providing replacement services should operators stop running their services before the introduction of the franchising scheme;</li> <li>• an independent review of the economic and financial assessment;</li> <li>• preparation of franchise contract documents;</li> <li>• prepare and undertake the tender process; and</li> <li>• carry out TUPE processes.</li> </ul> <p><b>£2m-£5m major urban; £1m-£2m urban town urban; £0.5m-£1m rural</b> (per local authority) Estimates of set up costs for local authorities have been prepared based on</p>

Cost Type	Summary of Cost Assumptions
	<p>discussions with local government bus officers, operators and other stakeholders – and represent a range of costs from FTEs at CJC/local authority level, to a variety of external costs for aspects such as data collection, external consultants, legal advice, financial and business advice, human resource advice. There is an inherent uncertainty in respect of identifying costs at this stage – and it is likely that costs for local authorities who implement franchising in the short-term will be higher than costs for local authorities taking franchising forward on a longer timescale – due to the learning process and experience gained in the initial franchise authorities (for example contract documents). It is envisaged that re-letting contracts for routes or packages of routes would be undertaken on a rolling basis once the initial process is in place, so costs for LA/CJCs to run subsequent rounds are included in the recurring costs.</p>
<p>Operators set up costs (paragraphs 2.4.1.7 &amp; 2.4.1.8)</p>	<p><b>£1m major urban; £500k town urban; £250k rural</b> (per local authority)  For the purposes of this RIA, it is assumed that four operators bid for a franchise, which is assumed to cover a local authority area. Dividing the costs above per LA by four gives a range of costs per operator of £60-65k for a rural network (c. 1 x FTE), £125k for a town network (c. 2 x FTE equivalents) and £250k (c. 4-5 senior FTE equivalents) for a major urban network contract. These costs account for the fact that, in rural areas, operators may need to bid for a number of smaller contracts within a single LA, rather than all the routes as a single package. As some contracts will be let cross-LA boundaries, extrapolation of these costs on a per LA basis is considered a conservative estimate, which may not be so high in reality.</p> <p><b>Second and subsequent rounds of franchising: £500k major urban; £250k town urban; £125k rural</b> (per local authority)  During the first franchise round the local authority will be gathering data on bus trips and patronage, which it will be able to share with all bidders bidding on the second and subsequent rounds. Therefore the costs of bidding for bidders will be less, as there will be less research to be done by potential new entrants.</p>
<b>Franchising Recurring Costs</b>	
<p>WG / TfW recurring costs (paragraph 2.4.1.9)</p>	<p><b>£500k (all of Wales)</b>  Cost estimate based on the equivalent of two FTE per region (8 in total), responsible for the following activities:</p> <ul style="list-style-type: none"> <li>• Strategic programme management/monitoring of franchising at national level;</li> <li>• Technical and legal support for LAs / CJCs;</li> <li>• Evaluation of partnerships and interface with policy development;</li> <li>• Engagement with LA/CJCs and bus operators;</li> <li>• Guidance and knowledge sharing on best practice; and</li> <li>• Procurement of back-office ticketing and financial monitoring support for multi-operator ticketing.</li> </ul>
<p>LA / CJC recurring costs (paragraph 2.4.1.10)</p>	<p><b>£225k major urban; £125k town urban; £50k rural</b>  This represents a range from approximately one FTE in a rural area to around 4½ extra FTEs for an average Major Urban network. This includes for the following key activities:</p> <ul style="list-style-type: none"> <li>• ongoing management of franchise contracts;</li> <li>• updates to Traffic Regulation Orders;</li> <li>• financial management and accounting;</li> <li>• enforcement and monitoring;</li> </ul>

Cost Type	Summary of Cost Assumptions
	<ul style="list-style-type: none"> <li>• subsequent franchise round competitions; and</li> <li>• contract meetings with operator.</li> </ul> <p>Local authorities already have existing public transport officers involved in managing section 63 subsidised contracts, liaising with commercial operators and promoting information/marketing. The costs above represent net costs in addition to these activities.</p>
<p>Operators recurring costs (paragraphs 2.4.1.11, 2.4.1.12, 2.4.1.13, 2.4.1.14 &amp; 2.4.1.15)</p>	<p><b>Increase assumed driver hourly salary to £12.22, representing a 7.5% increase on baseline of £11.37<sup>38</sup></b></p> <p>An additional increase on driver wages is made in the franchising scenario on the basis that</p> <p><b>Costs for low emission buses phased in within OPEX modelling</b></p> <p>Additional lease costs included for low emission buses in line with profile identified (i.e. 100% of the service bus fleet to be zero emission by 2035). These additional costs are offset by cheaper running costs of electric buses compared to diesel.</p> <p><b>Assume no change to other administrative costs</b></p> <p>Other staff and operating costs not associated with drivers and vehicles represent around 25% of operators total costs<sup>39</sup>. Franchising arrangements will impose some additional requirements on operators in terms of the need to monitor contractual performance and carry out reporting, liaison and accounting procedures as part of the contract with the local authority. However, there would also be reduced administrative effort required of operators in terms of planning routes, ticketing offers, branding and marketing. For the purposes of this RIA, it is expected that these costs would remain largely unchanged.</p> <p><b>Potential for other OPEX savings not included in modelling</b></p> <p>It is assumed that the franchised networks will have the same operating mileage as the present networks but will be better rationalised and coordinated. Franchising could reduce operator costs as a result of:</p> <ul style="list-style-type: none"> <li>• stability of network resulting in longer term economies of scale and reduced need to carry out activities in respect of competing with other operators;</li> <li>• better rationalisation of headways to reduce bus-on-bus congestion at stops which will reduce dwell times;</li> <li>• improved network coverage leading to higher patronage; and</li> <li>• consistent and standardised ticketing / boarding arrangements for all buses which should reduce dwell times at stops.</li> </ul> <p>Franchising thus provides opportunities for operators to reduce operating costs in some areas, however no savings have been accounted for within the modelling to provide a conservative estimate of potential costs.</p>

<sup>38</sup> Office for National Statistics. 2021. [Earnings and hours worked - ASHE Table 3: Transport and mobile machine drivers and operatives](#)

<sup>39</sup> CPT [Cost Index](#). 2019. Adding category '2 Other labour and staff costs' and '7 Other operating costs' gives a total of 26.3%.

## High Growth Scenario Costs Assumptions Summary

As set out in Appendix 2, a high growth bus patronage scenario (of around three times current usage) represents a plausible target and potential realistic outcome for Wales – with appropriate investment and governance in place, including policy-based initiatives to promote use of public transport over private car travel. This is considered consistent with meeting the mode share target of 45% of journeys to be made by public transport, walking and cycling by 2040 as set out in Llwybr Newydd.

Achievement of this outcome will rely on rapid and complete reform of bus governance in Wales, to enable efficient investment in buses, and design of bus networks and supporting infrastructure to work as complete networks to give the best possible service coverage, working in conjunction with heavy rail and tram services.

As a result, and in addition to the Administrative Costs assumptions set out above, the following broad cost assumptions for additional spend in the 'Partnerships Plus+' and 'Franchising Plus+' scenarios have been made:

- Additional capital spend of £3bn (2020 prices) for bus infrastructure improvements to 2040, (equivalent to around £165m per annum) and associated infrastructure maintenance costs; and
- Additional £50m (2020 prices) revenue funding per annum for improved frequency of services, and expansion of the geographical reach of the bus network.

Capital costs are based on analysis of potential improvements to bus infrastructure in the case study networks, including bus priority measures, bus stops, transfer hubs, station improvements, improved integration with rail and Metro networks and measures to improve information, branding and marketing. Whilst a detailed assessment of the exact spend has not been made, it is likely that a more significant proportion of the spend would be made in Major Urban and Town network areas where congestion and bus stop density are highest.

Revenue funding would be focussed on bus service improvements in Rural and Town areas of Wales. Additional revenue could support increased frequency and expansion of scheduled bus services and Fflecsi Demand Responsive Transport (DRT) services – consistent with the ambition of serving '*every village, every hour*'.

It should be noted that this is a speculative representation of future bus patronage growth, consistent with Welsh Government transport policy and addressing the climate emergency. It is not intended to represent a forecast and is not directly linked to specific individual infrastructure measures in the economic assessment. Instead, it is an illustrative example of how significant investment in bus could translate into higher mode share. To achieve these levels of public transport use there will also need to be determined investment in active travel and accompanying policies to deter car use to support car-light lifestyles.

# Appendix 2: Methodology and assumptions for calculation of Benefits

## Modelling Benefits Methodology

### Overview

The economic assessment model prepared for this RIA utilises demographic data, bus passenger statistics, and financial statistics for three network examples (and for the whole of Wales), available from government sources<sup>40</sup>. Assessment of the proposals is underpinned by an economic assessment model that calculates demand impacts, cost implications and economic benefits in accordance with DfT's Transport Appraisal Guidance (TAG) and best practice in economic evaluation.

A key guiding principle for demand modelling and economic assessment is proportionality, which refers to striking a balance between the level of detail and the cost of the modelling, considering factors such as the required functionality, data availability, and robustness and resource and time constraints. Although the overall project represents changes to bus networks across the whole of Wales, at this stage, it was not considered proportional to assess every network in Wales in detail. For the economic and patronage assessment, three example network plans (Cardiff, Pembrokeshire and Wrexham) provide case studies upon which to assess impacts. The results from this analysis give an indication of the economic impacts in other Welsh local authorities, and extrapolation to an all-Wales level on a pro-rata basis. The example networks represent the following types of locations in Wales:

- a large urban bus network (Cardiff);
- a rural / inter-urban network (Pembrokeshire); and
- a smaller urban / town network (Wrexham).

The economic assessment includes estimates of operating costs, administrative costs and capital expenditure. The demand modelling provides a means to illustrate the potential growth in passenger numbers, and to identify the scale and range of measures which are likely to be needed to achieve the targeted growth. The demand figures are then used to estimate the impact on revenues.

The RIA covers a 30-year appraisal period from 2024/25 to 2054/55 to ensure the evaluation of costs and benefits is made over the medium term. In line with HM Treasury Green Book guidance, future costs and benefits have been discounted using the Treasury's central discount rate of 3.5%<sup>41</sup> (unless otherwise stated), to a 2019/20 base year.

### Passenger Demand Impact

The demand modelling provides a means to estimate the potential growth in passengers, compare potential growth in each scenario and illustrate the relative importance of measures aimed at achieving that growth. The calculations require two key sets of inputs:

- Estimated current passenger journey numbers and forecast change in passenger numbers in a 'do minimum' scenario (as described below);

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<sup>40</sup> Department for Transport. 2021. [Bus Statistics](#).

<sup>41</sup> HM Treasury. 2020. [The Green Book: central government guidance on appraisal and evaluation](#)

- Estimated journey times before and after network and other improvements have been implemented (generally expressed in transport planning studies as Generalised Journey Time – which includes perceived time to reflect quality and reliability aspects).

Outline matrices of bus travel, including the origin-destination pattern, for each case study area have been obtained and summarised from the SEWTM (South East Wales Transport Model), NWTM (North Wales Transport Model) and SWMWTM (South West & Mid Wales Transport Model) strategic models.

In order to provide a robust baseline for planning measures to grow bus patronage, it is useful to identify a ‘do minimum’ scenario. Forecasts are taken from the DfT’s National Trip End Model<sup>42</sup> (NTEM), which is generally used as the basis for future travel forecasts for DfT transport business cases. The modelling approach assumes a continued decline of bus demand in the business-as-usual option as set out in NTEM, which suggests that bus journeys in Wales will decline by 4.3% over the period to 2030, but with decline in each local authority varying between 1.4% and 8.3%.

### Generalised Journey Time

The primary mechanism through which bus improvements translate into higher demand and benefits for users is through adjustments to the actual or perceived cost of travel, which is expressed in the term Generalised Journey Time (GJT). The GJT combines the costs of different elements of a journey – such as wait time, in-vehicle time and reliability – into a single overall measure. By applying values of time to each element of bus travel (using standard values which are published in WebTAG and elsewhere), it is possible to calculate the direct and non-direct travel times for users.

Some interventions directly affect users’ journey times (for example, improved bus network coverage, improved service frequency, bus priority measures). Other measures (for example improved bus stops and vehicles) relate to the quality of bus services. Such quality factors can have some impact on actual journey times, but they also affect the way users perceive bus services and make bus travel more attractive at any given level of cost or journey time. There are a range of values in technical literature – typically based on ‘willingness to pay’ or stated preference surveys – which express these improvements as reduction in GJT. This allows quality factors to be incorporated into the modelling frameworks in a similar way to actual changes in fares or journey times.

The formula for calculating the average GJT within bus networks takes the form:

$$GJT = IVT + S + I + R + Q$$

Where:

- **IVT** is the ‘in-vehicle’ travel time;
- **S** is the service interval penalty;
- **I** is the interchange penalty;
- **R** is the reliability of bus services; and,

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<sup>42</sup> Department for Transport. 2016. [NTEM data release notes and frequently asked questions](#). NTEM National Trip End Model (NTEM) bus use projections are presented in a software package called TEMPro. The data in NTEM is not based on observations or fare data but is derived from Census data and forecast patterns of population and employment.

- **Q** is a service quality factor

The potential uplift in passenger demand is calculated by applying an elasticity of demand with respect to GJT (where elasticity is a parameter which determines the relationship between changes in GJT and changes in demand). The value of the elasticity is based on recommended values identified in a 2018 study for the DfT<sup>43</sup>.

*Table A2- 1: Elasticity Values*

Journey Type	GJT Bus Elasticity Value
Commute	-1.15
Leisure	-1.05

### **Bus System Components**

Significant growth of passenger numbers is generally reliant on provision of high-quality passenger experience across all components of the bus system. The range of potential bus improvements and initiatives that have been considered in this study are summarised in Table A2- 2, each of which is modelled in turn.

*Table A2- 2: Modelled Components of Bus System Improvements*

Theme	Bus System Components
Network Arrangements	Network Arrangements
	Integrated Ticketing
Infrastructure	Improved Corridor Speeds
	Bus Stops / Transfer Hubs
Vehicles	Bus Boarding / Alighting
	Vehicle Quality & Decarbonisation
Enablers	Information, Branding & Marketing
	Transport Policy

The key element of a bus improvement strategy for Wales is to plan and operate bus services as a co-ordinated network in each area and allow people to choose to rely on buses to meet their day-to-day travel, with a wider range of realistic destinations by bus. Provision of integrated ticketing, which allows seamless transfers between buses using a single ticket is a key aspect of a network-based approach. Co-ordinated networks in urban areas will comprise high frequency services with a series of interchange points where services meet, whereas in rural areas (with lower frequency services) an effective network will rely on consistent and co-ordinated timetables.

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<sup>43</sup> RAND Europe. 2018. [Bus fare and journey time elasticities and diversion factors for all modes: A rapid evidence assessment.](#)

In general, bus priority measures in Wales which have involved on-road bus lanes or segregated busways have delivered measurable improvements in journey times, reliability, user satisfaction and patronage increases. In the context of a network-based approach, infrastructure measures (such as bus priority measures, interchanges and bus stop improvements) can potentially produce higher levels of patronage across the whole network and can also reduce operating costs – and hence justify significant capital costs.

New vehicles and automated ticketing systems can allow faster boarding and alighting, reducing dwell time at stops and speeding up journeys. They can also provide a high degree of comfort for passengers and lower levels of emissions in line with Welsh Government's decarbonisation commitments. Transitioning to a zero-emission fleet is a core part of the future strategy for bus in Wales.

In combination with a network-based approach, improved travel information (with easy-to-understand network maps), and adoption of a single brand for each local network, have a fundamental role in attracting people to use, and trust, the bus network. Wider transport policy initiatives, such as limitation on parking, or traffic management, are also important in incentivising people to use sustainable modes.

### **Assessment Scenarios Overview**

Costs and benefits for statutory partnerships and franchising have each been assessed under two scenarios. The first represents a notional scenario in which non-legislative measures, such as bus stop improvements, bus stations, bus priority measures, are not included as they are not directly required or affected by the legislation. These scenarios are referred to simply as 'Statutory Partnerships' and 'Franchising'. Under the franchising option, tendering of services to operators is the basis for assessing costs, but with an alternative of a direct award (to either a local authority-owned operator or a private operator) also considered.

In practice, and given Welsh Government's aspirations around net-zero, it is likely that implementation of the legislative measures would include a range of supporting investment in transport infrastructure and policy measures. These supporting measures are likely to produce significant benefits and patronage increases at a scale higher than the legislative proposals themselves. Hence the legislative proposals can be considered as enabling measures, which provide an enhanced ability to lock in benefits of wider, and potentially substantial, investments in measures such as on-street or bus station infrastructure, low emission bus fleets and bus priority measures. These scenarios are referred to as 'Statutory Partnerships Plus+' and 'Franchising Plus+'.

The remainder of this section provides a description of the modelling assumptions applied in each scenario, relating to benefits for each of the elements assessed. Table A2- 3 provides an overview of benefits categories and notional scale of impact in each of the scenarios. Some benefits have been quantified within the economic modelling, whilst others are referred to qualitatively within the RIA text.

Table A2- 3: Summary of bus system component benefits by option scenario

Bus System Component	Statutory Partnerships	Franchising	Statutory Partnerships Plus+	Franchising Plus
Network Arrangements	■ ■	■ ■ ■ ■	■ ■	■ ■ ■ ■
Integrated Ticketing		■ ■		■ ■
Improved Corridor Speeds		□	■ ■	■ ■ ■ ■
Bus Stops / Transfer Hubs		■	■	■ ■
Bus Boarding / Alighting		■ ■ ■ ■		■ ■ ■ ■
Vehicle Quality & Decarbonisation	■ ■	■ ■ ■ ■	■ ■	■ ■ ■ ■
Information, Branding & Marketing	■	■ ■	■	■ ■
Transport Policy			■ ■ ■ ■	■ ■ ■ ■

Key:

- Benefits referred to qualitative only within RIA text, but not quantified
- Benefits quantified within economic modelling
- ■ ■ ■ Low to high beneficial impact for option scenarios (indicative only)

Key assumptions for each of the components are explained in further detail in in turn in the following sections. Benefits are applied in the model for each category by two key sets of inputs:

- GJT benefits – based on WebTAG values and evidence from literature; and
- Proportion of trips affected – reflecting that the benefits of some measures only apply to a proportion of passengers e.g. interchange hubs are only used by those using multiple services

Throughout the descriptions of key assumptions, benefits estimates are referred to in financial (cash) and economic (non-cash) terms, as described below:

Financial impacts:

- **Operator benefits:** This is the additional revenue bus operators may receive, based on extra patronage multiplied by average ticket prices; and

- **Government benefits:** This covers central government benefits and local government benefits.

Economic impacts:

- **User benefits:** The approach to estimating passenger economic benefits is to monetise the range of benefits according to their Generalised Journey Time (GJT) savings. This approach summates actual time savings (if journeys are made more quickly) and ‘perceived’ time savings as a result of improvements to elements of the bus system (such as information). This approach follows the general approach set out in Department for Transport’s Transport Appraisal Guidance (WebTAG)<sup>44</sup>. The GJT benefits of each relevant change to network arrangements, integrated ticketing, vehicle quality and travel information are based on standard values of time published in TAG and other research documents. There are a range of values in transport planning research literature – typically based on ‘willingness to pay’ style surveys – which equate these improvements to an equivalent reduction in GJT or fares. We have also included health benefits to reflect the fact that travelling by bus is expected to involve more walking than travelling by car, and the social value of trips that could not take place without an effective bus network.
- **Non-user benefits:** Non-user benefits (e.g. time savings to other travellers if more passengers use buses, carbon reductions, accident reductions, etc.) are also calculated according to WebTAG guidance.

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<sup>44</sup> Department for Transport. 2021. [Transport Analysis Guidance \(TAG\)](#)

## Benefits of Network Arrangements

Key assumptions for network arrangements in each of the modelled scenarios are provided below in Table A2- 4.

Table A2- 4: Summary of Network Arrangements Modelling Assumptions by Scenario

Scenario	Summary of Modelling Assumptions
Statutory Partnerships	<p><b>GJT improvements and demand uplift calculated based on case study unified networks for Cardiff (Major Urban), Wrexham (Town) and Pembrokeshire (Rural).</b></p> <p>A partnership approach would enable only partial influence over the shape of the network. There are significant obstacles to delivering the types of changes that would create passenger benefit. Allocation of bus resource from different operators to specific routes (e.g. to create a high frequency orbital service line, or a feeder line to an interchange hub) would not be feasible due to the likely need for cross-subsidisation involving reallocation of revenue between operators - and hence the necessary full co-ordination between services and efficient use of overall bus resource would not be achievable. Even with a partnership in place there is unlikely to be sufficient incentive for operators to invest in significant network changes over the long term. The GJT benefits have been set to 50% of the franchised network, to reflect these trade-offs.</p> <p>Network improvements in a partnership model are likely be limited to better timetable co-ordination of services and ticketing improvements. For the present network, wait times for interchange have been subject to a penalty time of 7.5 minutes (an industry standard value), whilst an interchange penalty of 5<sup>45</sup> minutes has been used in the calculation of GJTs for Statutory Partnerships to reflect the complexity for passengers of interchanging between different operators' services compared to the fully co-ordinated franchised network.</p>
Franchising	<p><b>GJT improvements and demand uplift calculated based on case study unified networks for Cardiff (Major Urban), Wrexham (Town) and Pembrokeshire (Rural).</b></p> <p>The network would be planned so that every service is fully co-ordinated and routed to interchange hubs. For the present network, wait times for interchange have been subject to a penalty time of 7.5 minutes (an industry standard value) whilst an interchange penalty of 2.5 minutes is used in GJT modelling to reflect easier transfer opportunities, simplified network with limited duplication of services and standard headways. This is considered a robust figure, with some UK research<sup>46</sup> suggesting that a guaranteed connection could reduce the bus penalty to 0.9 minutes.</p> <p>No competition between service lines would allow the bus vehicle resource to be planned as a many-to-many grid network of high frequency services with planned transfer points – which dramatically increases the range of practical journeys possible by bus.</p> <p>A planned approach would improve network coverage, by efficient allocation of resources to create an appropriate mix of frequent services, long-distance express services, feeder services; for example, instead of operating low frequency services into central areas, these services could be operated as short feeder services at high frequency to interchange hubs.</p>
Statutory Partnerships Plus+	As per Statutory Partnerships.
Franchising Plus+	As per Franchising.

<sup>46</sup> Scottish Executive Central Research Unit. 2001. Interchange and Travel Choice - Volumes 1 and 2.

## Benefits of Integrated Ticketing

Key assumptions for integrated ticketing in each of the modelled scenarios are provided below in Table A2- 5.

Table A2- 5: Summary of Integrated Ticketing Modelling Assumptions by Scenario

Scenario	Summary of Modelling Assumptions
Statutory Partnerships	<p><b>No Impact</b></p> <p>An enhanced partnership could enable integrated ticketing, but majority agreement would be required. As many operators already provide multi-operator tickets, the benefits of new partnership agreements on ticketing are considered negligible. Operators would probably retain their own ticket offers - meaning the ticketing offer to passengers will retain a level of complexity. Changes to ticketing arrangements on a network basis would continue to be very challenging. For example, use of a single multi-operator ticket or introduction of flat fares would require significant negotiation with each individual operator to agree how subsidy payments and revenue reimbursement would work for different types and combinations of journeys. This considerable administrative burden and requirement for complex revenue redistribution processes would act as barriers to the introduction of simple, straightforward, affordable tickets for passengers.</p> <p>A successful network would tend to have an increasing number of two and three-leg journeys, which would further increase the complexity of revenue allocation – which would inevitably have winners and losers and would ultimately be incompatible with a deregulated competitive environment. Overall, the key benefit of a simple to understand ‘freedom pass’ ticket will be unachievable within a partnership approach.</p>
Franchising	<p><b>Apply 1.43 minutes<sup>47</sup> GJT improvement to 50% of fare-paying journeys to account for simplified ticketing.</b></p> <p>One ticket system for all services, giving passengers full everywhere-to-everywhere access across the bus network; effectively a ‘freedom pass’. The simplicity of a single ticket system for all services and journeys is a critical aspect of allowing people to make a lifestyle choice to use buses to fulfil a significant proportion of their travel needs. Bus passengers would benefit from flexible use of ticketing products across different bus services. A simple, integrated ticketing system would facilitate multi-leg journeys without excessive cost by reducing the cost of journeys that currently require separate tickets.</p> <p>Proportion of trips affected reflects the fact that not all journeys would benefit from simplified ticketing (i.e. single leg trips, or those where multi-operator tickets are already available).</p>
Statutory Partnerships Plus+	As per Statutory Partnerships.
Franchising Plus+	As per Franchising.

<sup>47</sup> Department for Transport. 2020. [TAG Unit M 3.2 Public Transport Assignment](#)

## Benefits of Improved Corridor Speeds

Key assumptions for improved corridor speeds in each of the modelled scenarios are provided below in Table A2- 6.

Table A2- 6: Summary of Improved Corridor Speeds Modelling Assumptions by Scenario

Scenario	Summary of Modelling Assumptions
Statutory Partnerships	<p><b>No Impact</b></p> <p>Infrastructure measures to improve corridor speeds are considered within the EQP+ scenario.</p>
Franchising	<p><b>Minimal impact – benefits not quantified</b></p> <p>Infrastructure measures to improve corridor speeds are considered within the Franchising+ scenario.</p> <p>There may be opportunities to improve bus journey times on some corridors by reducing over-bussing by improving co-ordination of services and rationalising headways. However this is likely to be limited to a limited number of corridors, and shorter sections of routes in urban centres, thus not considered significant.</p>
Statutory Partnerships Plus+	<p><b>Journey time savings are applied based on examination of potential bus priority measures in the Cardiff (Major Urban), Wrexham (Town) and Pembrokeshire (Rural) case study networks. The proportion of passengers affected is weighted by the proportion of bus-kilometres operated on corridors with infrastructure improvements.</b></p> <p>This measure would reduce OPEX and allow operators to improve journey speed and / or increase frequency (or to improve profitability).</p> <p>A partnership approach would seek to ensure that the operator and local authority are fully aligned in respect of the location and usage of bus priority measures. Infrastructure can however be inefficiently used (at a level less than planned) as there is no direct control over bus routes and frequencies.</p> <p>Inertia in planning and implementing bus schemes due to the lack of overall control of both main parties (the local authority and bus operator) can hinder investment of resources and commitment in the project development process.</p>
Franchising Plus+	<p><b>Journey time savings are applied based on examination of potential bus priority measures in the Cardiff (Major Urban), Wrexham (Town) and Pembrokeshire (Rural) case study networks. The proportion of passengers affected is weighted by the proportion of bus-kilometres operated on corridors with infrastructure improvements.</b></p> <p>In a franchised network, the local authority can ensure that bus priority measures are fully aligned with core service routes and that measures are properly targeted at major delay locations – and are well-maintained and operated by the highway authority. This will ensure the long-term maintenance, enforcement and usage of bus priority measures, provided governance arrangements allow responsibility for franchising and road allocation in the same place.</p> <p>Direct control of bus routing would speed up project planning processes, as infrastructure design and bus routing, frequency, and bus stop planning would be carried out as an integrated process from the outset. In practice, this would mean bus priority measures could be delivered quicker and at lower cost.</p>

## Benefits of Bus Stops / Transfer Hubs

Key assumptions for bus stops/transfer hubs in each of the modelled scenarios are provided below in Table A2- 7.

Table A2- 7: Summary of Bus Stops / Transfer Hubs Modelling Assumptions by Scenario

Scenario	Summary of Modelling Assumptions
Statutory Partnerships	<p><b>Apply a 0.45p benefit for paper timetables &amp; 1.69<sup>1</sup> minute improvement for RTPI (at bus stops) to half of the level of passengers (compared to franchising scenario) in each case study network.</b></p> <p>Whilst there should be more stability of bus timetables and routes than in the do-nothing case, there is also often a lag between information displayed at bus stops and changes to bus services by commercial operators. Multi-operator routes, branding and ticketing makes information and fares more complex to understand and display at bus stops. Network maps may only be available in some areas, or may only show the bus routes of the operator publishing them. Transfer is not a key feature of the present network and introduction of transfer hubs and facilities will need formal partnership agreement to ensure services will operate via the hubs.</p> <p>As a result, it is unlikely that the same number of passengers would have the benefit of better information and knowledge of services when compared to the franchising scenario, and the benefits are applied to half as many passengers in each of the case study networks.</p>
Franchising	<p><b>Apply a 0.45p<sup>48</sup> benefit for paper timetables &amp; 1.69<sup>1</sup> minute improvement for RTPI (at bus stops) to proportion of passengers affected in each case study network.</b></p> <p>In a franchising scenario, fewer service numbers would call at most stops, particularly in urban areas. There would also be long-term certainty, and a stable network of bus services with consistent routes, numbering and branding. This would allow stops to become 'stations' (or 'hubs') – with better branding and information and accompanying facilities such as cycle parking/shared-bike rental able to be installed within a comprehensive and planned mobility network. Changes to bus schedules would be limited within a franchise regime – with a reduced need for frequent updates of timetable information at stops.</p> <p>Transfers between bus services would be a key feature of a franchised, joined-up, unified network – and planned introduction of transfer hubs and facilities is a major benefit of having control over where buses run e.g. feeder buses connect with core high frequency services at bus hubs. The benefits identified are applied as a proxy for passengers having better information and knowledge of services at improved bus stop/interchange facilities.</p>
Statutory Partnerships Plus+	<p><b>Apply a 1.08<sup>1</sup> minute improvement to proportion of passengers using new bus stops in each case study network.</b></p> <p>With a Partnership in place, there should be more stability of bus timetables and routes and bus stops upgrades can take place.</p>
Franchising Plus+	<p><b>Apply a 1.08<sup>1</sup> minute improvement to proportion of journeys for new bus shelters, 0.45p<sup>2</sup> benefit for paper timetables &amp; 1.69<sup>1</sup> minute improvement for RTPI (at bus stops) to proportion of passengers affected in each case study network.</b></p> <p>Stops would be upgraded to a uniform standard with better branding and information, and facilities such as cycle parking/shared-bike rental. Changes to bus schedules would be limited with a reduced need for frequent updates of timetable information at stops.</p>

<sup>48</sup> Steer Davies Gleave. 2004. Valuation of Station Facilities, Draft Final Report to GMPTE.

## Benefits of Improved Bus Boarding / Alighting

Key assumptions for bus boarding/alighting in each of the modelled scenarios are provided below in Table A2- 8.

Table A2- 8: Summary of Boarding / Alighting Modelling Assumptions by Scenario

Scenario	Summary of Modelling Assumptions
Statutory Partnerships	<p><b>No Impact.</b></p> <p>Operators are migrating to smart/cashless boarding, but urban operators have shown no inclination to modify their fleet to double door vehicles with for improved boarding/alighting. Hence boarding / alighting times will remain as a significant proportion of the overall journey time (which can be as much as 30% for urban bus routes).</p> <p>Including a move to multi-door operation and boarding / alighting would not be realistically achievable under a partnership due to the major long-term commitment involved in vehicle configuration and associated ticketing / revenue enforcement arrangements.</p>
Franchising	<p><b>A 5% journey time improvement is applied to Major Urban and Town networks as multiple door boarding is rolled out across the fleet. No adjustment is applied to rural networks. The proportion of passenger journeys affected is consistent with the profile of fleet improvements as noted in the Vehicle Quality line.</b></p> <p>Franchising will enable a planned a long-term transition to buses with multiple doors (primarily in urban areas) – which together with on-board tap-on ticketing facilities will significantly ease boarding (with associated reduced dwell time).</p> <p>Previous analysis by pteg<sup>49</sup> suggests that if all bus passengers were to switch to pre-paid tickets, bus operating costs could fall by 3% due to lower journey times and demand would increase by 3.8%. The addition of multiple door boarding would provide further journey time savings. A 5% journey time improvement is considered conservative based on analysis of existing dwell times on urban corridors in Wales.</p> <p>No adjustment is applied to rural networks, on the basis that bus stop dwell times do not form as considerable delays when compared with urban corridors.</p>
Statutory Partnerships Plus+	As per Statutory Partnerships.
Franchising Plus+	As per Franchising.

<sup>49</sup> pteg. 2015. [Public Transport Ticketing Schemes Block Exemption Review \(CMA\) – Consultation Response](#)

## Benefits of Vehicle Quality & Decarbonisation

Key assumptions for vehicle quality and decarbonisation in each of the modelled scenarios are provided below in Table A2- 9.

Table A2- 9: Summary of Vehicle Quality & Decarbonisation Modelling Assumptions by Scenario

Scenario	Summary of Modelling Assumptions
Statutory Partnerships	<p><b>Decarbonisation benefits of zero emission bus fleet quantified. Assumed Net Zero Wales commitments are not met (100% of the service bus fleet to be zero emission by 2040).</b></p> <p><b>Apply following adjustments: Modern, comfy bus with Wi-Fi and chargers: 6p (Fare-Payers) &amp; 2.20 minutes (Conc.). Proportion of trips affected is in line with the roll out of new fleet.</b></p> <p>Partnerships could involve agreement on vehicle types and propulsion systems. However, operators would need financial support to transition to zero emission buses and would be likely to require funding. The transition would be piecemeal with separate agreements for funding for each operator.</p>
Franchising	<p><b>Decarbonisation benefits of zero emission bus fleet quantified. Assumed Net Zero Wales commitments are met (i.e. 100% of the service bus fleet to be zero emission by 2035).</b></p> <p><b>Apply following adjustments: Modern, comfy bus with Wi-Fi and chargers: 6p (Fare-Payers) &amp; 2.20<sup>50</sup> minutes (Conc.). Proportion of trips affected is in line with the roll out of new fleet.</b></p> <p>Franchising is likely to have an economy of scale cost-reduction benefit if buses are purchased via franchising authorities – and could also enable a greater scope for identifying additional funding plan e.g. developers could potentially fund a fleet upgrade on a particular service line.</p> <p>An organised, Wales-wide programme for transitioning to zero emission buses would potentially provide a basis for a planned cascading of zero emission buses throughout Wales.</p>
Statutory Partnerships Plus+	As per Statutory Partnerships.
Franchising Plus+	As per Franchising.

<sup>50</sup> Steer Davies Gleave. 2017. [West Yorkshire Stated Preference Research Final Report](#)

## Benefits of Information, Branding & Marketing

Key assumptions for information, branding and marketing in each of the modelled scenarios are provided below in Table A2- 10.

Table A2- 10: Summary of Information, Branding & Marketing Modelling Assumptions by Scenario

Scenario	Summary of Modelling Assumptions
Statutory Partnerships	<p><b>Apply a 0.49 minute<sup>51</sup> GJT adjustment to 50% of trips</b></p> <p>A single online real time platform and ticketing arrangements could be included as part of online journey planners. However, ticketing arrangements and network maps would remain somewhat complex with overlap of different operators' services and would not be available to all customers. Individual bus operators would generally seek to continue to control marketing of their services, perhaps with an overarching network brand.</p>
Franchising	<p><b>Apply a 0.49 minute<sup>12</sup> GJT adjustment to 100% of trips</b></p> <p>Under franchising, there would be a unified brand if bus services in Wales and a single, clear point of contact with comprehensive information provided through various channels (e.g. on buses, at stops and stations, and on the web). All services would be included in a single information platform, with integrated information on other transport modes (e.g. rail, shared mobility services). A single network brand in an area matches with the concept of a unified network. A unified brand will ensure that the network is simple to understand and easily recognisable, giving customers confidence in using the public transport network.</p> <p>Network maps to be produced which will be easy to understand with limited overlap and information on transfer possibilities provided due to no competition barrier between different services.</p> <p>Marketing could be aligned to local authority and Welsh Government priorities e.g. climate change, health, air quality issues etc. There are opportunities to promote and market network benefits to bus users/public.</p>
Statutory Partnerships Plus+	As per Statutory Partnerships.
Franchising Plus+	As per Franchising.

<sup>51</sup> Department for Transport. 2020. [TAG Unit M 3.2 Public Transport Assignment](#) - apply 29% for Web Based Information (Table 2 - Valuation of Information Provision) to the RTPI at 1.69 (TAG Table M 3.2.1)

## Benefits of Wider Transport Policy

In respect of assessing potential patronage increases due to improved bus networks, application of elasticity-based assessment of demand within this RIA, according to the guidance outlined in WebTAG, is considered a conservative approach. Whilst this approach is widely used, for example in rail patronage forecasting, it does not fully account for step-changes in connectivity due to the fact that it is based on factoring existing bus usage. If demand between an origin-destination pair is very small, application of a significant GJT improvement results in only a small uplift. In considering a comprehensive investment in an integrated public transport network to improve connectivity right across the network, additional mode shift to public transport is likely to be much larger.

In addition to the impacts of significant connectivity improvements, consideration of longer-term elasticities resulting from sustained investment in public transport and measures to manage demand for car trips is required. Llwybr Newydd<sup>52</sup> sets out Welsh Government's transport ambitions to 2040, and includes the following measures which are pertinent to consideration of the long-term impact of policy on potential demand for buses:

- target of 45% of journeys to be made by public transport, walking and cycling by 2040;
- target of 30% of the workforce to work at or near to home on a regular basis;
- deliver a strategy for fair road-user charging in Wales as part of a broader package of measures to improve travel choices;
- Support measures that move away from individual vehicle ownership to shared solutions, including car-sharing, car clubs, bike sharing and Mobility-as-a-Service (MaaS);

Similar ambitions to reduce the number of journeys taken by private cars and increase the number of people walking, cycling and using public transport. are reflected in other policy, including:

- An aim is to reduce the number of car miles travelled per person by 10% by 2030<sup>53</sup>;
- Place based approach to land use development, promoting transit orientated development, focusing higher density and mixed-use development around public transport stations and stops and promotion of car-free and low car developments in accessible locations<sup>54</sup>; and
- Carrying out a review of Welsh Government's support for projects to increase road capacity<sup>55</sup>.

It is recognised that supporting a step-change, high growth, modal shift to buses (and trains) will require a large capital investment and ongoing revenue support beyond the current level. Over time, this wider transport policy context, supported by continued investment in the public transport network, is likely to influence perceptions of public transport and support lifestyle choices which mean that more journeys are made by bus (e.g. to reduce household car ownership or to change work/home location).

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<sup>52</sup> Welsh Government. 2021. [Llwybr Newydd: the Wales Transport Strategy](#)

<sup>53</sup> Welsh Government. 2021. [Net Zero Wales: Carbon Budget 2 \(2021-2025\)](#)

<sup>54</sup> Welsh Government. 2021. [Future Wales: The National Plan 2040](#)

<sup>55</sup> Welsh Government. 2021. [Roads Review](#)

The key assumptions to account for impacts of wider transport policy in each of the modelled scenarios are provided below in Table A2- 11.

Table A2- 11: Summary of Wider Transport Policy Modelling Assumptions by Scenario

Scenario	Summary of Modelling Assumptions
Statutory Partnerships	<p><b>Wider Transport Policy Not Included</b></p> <p>Purpose of this scenario is to consider the impact of changes to the regulatory framework for buses in isolation to allow direct comparison between options.</p>
Franchising	<p><b>Wider Transport Policy Not Included</b></p> <p>Purpose of this scenario is to consider the impact of changes to the regulatory framework for buses in isolation to allow direct comparison between options.</p>
Statutory Partnerships Plus+	<p><b>Apply demand multiplier of 2.9 (as per growth in Franchising Plus+ scenario) to account for impact of Wider Transport Policy measures such as road user charging</b></p> <p>Uplift consistent with Franchising+ scenario to allow direct comparison between scenarios. As this is applied to a lower base demand, the target mode share target set out in Llwybr Newydd would not be met by 2040.</p> <p>It is noted that partnerships will require agreement between operators and local authorities, and compromises may have to be made in terms of what is deliverable. The commercial imperative for operators will be to some extent incompatible with fixing a long-term operational plan needed to create certainty for improvement measures. In addition, agreed network arrangements would require renegotiation every time a 3<sup>rd</sup> party bus operator intended to operate a new service. As a result, the network is unlikely to be as stable as under franchise arrangements. This would cause significant risks in relation to investment and policy decisions, meaning that wider transport policy would have as significant an impact.</p> <p>That said, it is difficult to assess the potential long-term impacts of wider policy measures with partnerships in place. Use of the same growth rate as the Franchising Plus+ scenario provides a best-case scenario, and a basis for like for like comparison. Although, for the reasons set out above, there are significant risks associated with network stability in a partnership model, and franchising is considered to provide significantly sounder basis for locking-in the benefits of wider transport policy.</p>
Franchising Plus+	<p><b>Apply demand multiplier of 2.9 to align with mode share targets set out in Llwybr Newydd</b></p> <p>Equivalent to trebling bus patronage in Wales by 2040 (2018 base year), which is considered consistent with meeting the mode share target set out in Llwybr Newydd.</p> <p>A franchised arrangement will provide long-term, stable and coherent network. This provides a sound basis for incorporating additional investment in public transport infrastructure and policy measures to reduce the number of journeys taken by private cars would have maximum effect.</p>

## How can high growth in bus patronage be achieved?

Potential changes in how often people use buses has been investigated to understand how realistic a future high growth bus scenario is. The baseline from which to consider future growth is that current usage of buses in Wales is approximately 100M trips per year (in 2018), which equates to an average 32 trips per person per year. In practice, usage varies from well over 200 trips per year for some people for whom public transport is convenient, to virtually no trips at all for some people.

In order to understand how a step change increase in bus use could be achieved, a potential future scenario has been built based on the following steps

- (1) Survey data collected for South West Wales<sup>56</sup> provides a basis to understand how public transport usage varies amongst the population. The data provides a range of categories of frequency of bus use (from daily use to less than monthly) and shows the proportion of people in each category of use, including those who never use bus.
- (2) Similar survey data for Germany has been identified which shows typical bus and rail use for each category of use (per week and per month);
- (3) The two sets of data have been compared, from which an illustrative scenario for Wales has been built. This scenario shows that if bus use in Wales jumps one category of use, then a tripling of overall trips could result. For example, this growth scenario would involve people who currently use buses twice a month increasing their use to twice per week.

Data for this illustrative example of how bus use could increase substantially is shown in Table A2- 12 which shows a typical frequency of bus use per week in South West Wales, with an approximate average bus use per head of 37 (which is broadly equivalent to the average Wales bus usage in 2014<sup>57</sup>), and for train trips at 10 trips per head per year<sup>58</sup>. For Germany, the equivalent public transport use per inhabitant per year (in 2018) is estimated at 104 i.e. around 2½ times greater than usage in Wales.

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<sup>56</sup> SWWITCH. 2014. South West Wales Travel Pattern Survey

<sup>57</sup> Department for Transport. 2021. [BUS0108: Passenger journeys on local bus services by region: Great Britain, annual since 1970](#)

<sup>58</sup> Welsh Government. 2018. [Statistical Bulletin: Rail transport, April 2017 to March 2018](#)

Table A2- 12: Illustrative example of existing bus mode share

Frequency of Use category	Bus Use (Wales example)			Train Use (Wales example)			Germany - all PT		
	Trips/ month <sup>4</sup>	Percentage <sup>1</sup>	Trips/1000 people	Trips/ month	Percentage <sup>2</sup>	Trips/1000 people	Trips/ month	Percentage <sup>3</sup>	Trips/1000 people
Daily	40	2.3%	920	40	1.0%	400	50	13%	6500
1-3 days/week	16	13.8%	2208	12	1.1%	132	20	10%	2000
1-3 days/month	4	3.9%	156	4	4.7%	188	5	13%	650
Less than monthly	1	7.2%	72	1	22.4%	224	1.2	22%	264
Never	0	72.8%	0	0	70.7%	0	0	41%	0
Total trips per 1000 people/month	-	100%	3356	-	100%	944	-	99%	9414
Average Trips/year/person/year <sup>4</sup>	-	-	37	-	-	10	-	-	104

Notes:

1. Based on Pembrokeshire data from South West Wales Travel Pattern Survey 2014 (SWWITCH); to represent average values for Wales
2. Based on South West Wales data from South West Wales Travel Pattern Survey 2014 (SWWITCH); to represent average values for Wales
3. Based on *Mobility in Germany; 2018 data*<sup>59</sup>. Trip numbers per month have been increased by a factor of 1.25 to represent more trip-making per day in Germany where public transport is more comprehensive.
4. Total trips per year is assumed to be a multiplier of 11 x 1 month of trips to allow for holiday, illness, weather etc for say 1 month when residents do not make local trips.

Inspection of data for public transport usage in Germany (in Table A2- 12) shows that the difference between Wales and Germany is that the frequency of weekly usage in Germany is effectively a category higher than is the case in Wales. For example, in Wales, around 14% of people use buses between once and three times per week, whereas in Germany 13% of people use public transport on a daily basis<sup>59</sup>.

Table A2- 13 provides an illustrative basis for a future high growth scenario for Wales, in which the use of buses is assumed to increase by one 'frequency of use' category. For example, people who currently use buses 1-3 times a month increase their usage to 1-3 times per week and so on. The proportion of people who never use buses has been reduced to 41% to match average German public transport usage. As can be seen in Table A2- 13, this high growth scenario results in bus usage at around three times current use (at 105 trips per inhabitant, compared to a baseline of 37 trips per inhabitant), and it is also noted that over 95% of these bus trips are made by people who already use buses.

<sup>59</sup> Federal Ministry of Transport and Digital Infrastructure. 2019. [Mobility Trends in Germany](#)

Table A2- 13: Illustrative example of potential future bus mode share

Frequency of Use category	Bus Use (Existing estimation)			Bus Use (Potential future estimation)		
	Trips/ month	Percentage	Trips/1000 people	Trips/ month	Percentage	Trips/1000 people
Daily	40	2.3%	920	50	16.1%	8050
1-3 days/week	16	13.8%	2208	20	3.9%	780
1-3 days/month	4	3.9%	156	5	7.2%	360
Less than monthly	1	7.2%	72	1.2	31.8%	382
Never	0	72.8%	0	0	41.0%	0
Total trips per 1,000 people/month	-	100%	3,356	-	100%	9,572
Average Trips/year/person/year	-	-	37	-	-	105

It is concluded that a high growth bus patronage scenario (of around two to three times current usage) represents a plausible target and potential realistic outcome, with bus as a key part of a multi-modal metro system across Wales, and appropriate investment and governance in place, including policy-based initiatives to promote use of public transport over private car travel and investment in s for the most densely populated parts of Wales.

It should be noted that this representation of future bus trips per inhabitant is not intended to represent a forecast but is instead meant as an illustrative example of how people’s willingness to use bus more can translate into a significantly higher mode use.

# Aligning the Economic Appraisal with Welsh Government's Strategic Objectives

## Overview

Welsh Government have set out ten strategic well-being objectives in the Programme for Government<sup>60</sup>. These priorities are reflected in the new Wales Transport Strategy, Llwybr Newydd<sup>61</sup> which sets out the Welsh Government's specific priorities for transport in detail.

Drawing on, and synthesising, the well-being objectives, the specific commitments set out in the Programme for Government and Llwybr Newydd, key Welsh Government values pertinent to this RIA comprise:

- Promoting well-being and health;
- Addressing climate change;
- Promoting social justice; and
- Improving the quality of jobs and increasing employment.

This section describes how general principles set out in the Green Book<sup>62</sup> have been applied in a way that is fully aligned with the values and strategic transport objectives of the Welsh Government, taking each of the strategic objectives above in turn. Adjustments to the modelling are applied consistently across all scenarios.

## Promoting well-being and health

It is recognised that transport has a wide range of implications on both health and general well-being. There is a large body of evidence linking active travel to better health and well-being outcomes, with successful projects showing high value for money once the health benefits are monetised.

Increased use of bus services is associated with greater levels of walking amongst passengers to access/egress to/from bus stops. The World Health Organisation (WHO) Health Economic Assessment Tool (HEAT) has been used to estimate the monetised health benefits of increased walking to and from bus stops. HEAT is an open-source online tool used to estimate the value of reduced mortality that results from regular walking or cycling. It calculates the economic value of mortality rate improvements as a result of a specified increase in walking/cycling distances due to transport interventions, with the aim of facilitating evidence-based decision-making. HEAT is recognised as an industry standard

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<sup>60</sup> Welsh Government. 2021. [Programme for government 2021 to 2026: Well-being statement](#)

<sup>61</sup> Welsh Government. 2021. [Llwybr Newydd: The Wales Transport Strategy](#)

<sup>62</sup> HM Treasury. 2020. [The Green Book: central government guidance on appraisal and evaluation](#)

tool and has been applied on several active travel related projects across the UK<sup>63,64,65</sup>, including in Wales<sup>66</sup>, to make the case for investment.

Based on input parameters specifically for Wales, a unit rate of £853 has been obtained from HEAT, which is an estimate of the annual economic value of reduced mortality per person, per kilometre of additional walking. This unit rate is applied in the model to for trips switching from car to bus (calculated based on WebTAG diversion factors) to account for additional walking to/from bus trips, based on an additional walk of 1,160m per bus trip (580m access to origin bus stop and 580m egress from destination bus stop)<sup>67</sup>.

However there is also likely to be some disbenefit resulting from current walking trips that switch to bus as a result of improved service provision. To account for this, it is assumed that existing walking trips switching to bus (calculated based on WebTAG diversion factors). Would involve 570m less walking, based on an average walking trip distance (1,150m<sup>20</sup>) minus the average walk to a bus stop (580m<sup>20</sup>). This assumes that people switching to bus would walk half as far to a bus stop on average, as journeys with a shorter walking distance to bus stops are more in scope to be replaced by bus trips, rather than walking the whole way.

Other health benefits would arise from improved local air quality and reduced noise, associated with mode shift from car to cleaner, ultra-low emission buses. In addition, factors such as journey time reliability, crowding and comfort all affect passenger satisfaction and could have a positive impact on wellbeing. Whilst these impacts could be significant, they have not been quantified at this stage.

### **Addressing climate change**

The impacts of climate change and associated adaptation and mitigation measures are a key concern for the Welsh Government both in the short and long term. All projects must adhere to carbon budgets and need to align with achieving net zero carbon emissions by 2050.

Carbon prices are a central element in determining the environmental impact of a project. The Green Book uses carbon prices<sup>68</sup> that are aligned with Welsh Government policies and that thus adhere to the goal of net-zero emissions in 2050. To reflect uncertainty in quantifying the cost of carbon emissions, the guidelines provide a central estimate, accompanied by higher and lower series. The higher series has been used in the economic appraisal to reflect the high focus the Welsh Government has on reducing carbon emissions.

Quantifying local air pollution and noise form another vital part of understanding the environmental impacts of policy. The economic benefits associated with mode share to bus are included within the appraisal as part of the Marginal External Costs (MECs) calculations, based on WebTAG guidance.

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<sup>63</sup> Transport for London. 2015. [Valuing the health benefits of transport schemes](#)

<sup>64</sup> Transport for Greater Manchester. 2013. [Vélocity 2025: A cycling plan for 2025 and beyond](#)

<sup>65</sup> SEStran. 2020. [Cross boundary active travel routes, connecting people and places](#)

<sup>66</sup> NRW. 2014. [Economic assessment of the health benefits of walking the Wales Coast Path](#)

<sup>67</sup> WYG. 2015. [How far do people walk?](#)

<sup>68</sup> BEIS. 2021. [Valuation of greenhouse gas emissions: for policy appraisal and evaluation](#)

### **Discount rate**

The Green Book applies a standard discount rate of 3.5% per annum to future benefits and costs. In effect, this discount rate gives preference to present benefits over future benefits, reflecting the view that people generally prefer to receive goods and services now rather than later.

The Green Book provides scope for appraisals to use lower discount rates in appropriate cases to ensure that very long-term costs and benefits are given proper consideration. In order to reflect Welsh Government's long-term view and consideration of the impact of policy decisions on future generations rather than a focus on short term impacts, a lower discount rate of 1.5% has been applied in the appraisal to benefits associated with health, well-being, and the environment. This means that long-term impacts on these items are not reduced by as much as other future benefits when performing BCR calculations.

### **Promoting social justice**

#### *Distributional Analysis*

Promoting social justice and combatting the adverse effects of inequality are given high priority by the Welsh Government. Distributional analysis refers to the assessment of the impact of interventions on different groups in society. Although it is not proportionate to conduct a full assessment of distributional impacts at this stage, the HM Treasury Green Book provides a technique to assess the impact on people of different income levels.

Distributional weights that reflect the economic principle of marginal utility of income have been applied in the modelling (i.e. that the value of an additional pound of income is higher for a low-income individual than a high-income individual). DfT National Travel Survey data on the number of bus trips per person per year by income quintile have been utilised (the data covers England, but the pattern is assumed to be the same for Wales). This shows that the distribution of bus passengers is 'skewed' towards the lower-income quintiles. This is combined with information on income in each quintile from the Department for Work and Pensions and the recommended Green Book marginal utility of income (1.3) to produce weights to apply to the user benefits estimates.

#### *Social Value*

While most interventions are modelled through adjustments to GJTs or costs, there are some exceptions, in which interventions have been modelled as a direct uplift in demand, without a corresponding change in GJT or cost. For example, in the case of the provision of extra Sunday services, the effect of the intervention is to provide users with a travel opportunity that would not otherwise be available. Such an improvement does not lend itself to measurement through changes in GJT.

In such cases, a 'Social Value' methodology has been employed. The social value of bus travel refers to the principle that the provision of bus services enables certain trips that would otherwise not be made at all, thereby allowing people to undertake a wider range of activities. The guidance in WebTAG, which is based on a 2013 study<sup>69</sup>, provides a

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<sup>69</sup> Mott Macdonald. 2013. [Valuing the social impacts of public transport](#)

methodology for splitting out the social benefit of a bus proposal from the overall impact as calculated using the rule of half.

The values identified in Table A2- 14, as set out in WebTAG are applied in the model to monetise the value of wholly 'new' bus trips, that would not take place if the bus service were not available (based on values provided in WebTAG)

*Table A2- 14: Value of Social Impact*

Value of social impact per return bus trip that would not be made (2010 prices)	
Concessionary Pass Holder	£3.84
Non-Holder	£8.17

## **Improving the quality of jobs and increasing employment**

### *Agglomeration Impacts*

Helping disadvantaged groups access employment and improving the quality of jobs, productivity and pay are key priorities for the Welsh Government. Improved bus networks can promote the effective matching of people to jobs and lead to better employment prospects as well as increasing effective economic mass and other benefits such as widening labour pools for businesses.

Improved bus networks, particularly in major urban areas could improve employment accessibility and labour supply, therefore having a direct impact on wage earnings and job choices<sup>70</sup>. These agglomeration benefits can be calculated quantitatively to using expected density changes to calculate productivity<sup>71</sup>, however this has not been undertaken at this stage due to limited data available for the Welsh context. Instead, these impacts are referred to qualitatively within the RIA.

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<sup>70</sup> Börjesson et al. 2019. [Agglomeration, productivity and the role of transport system improvements](#)

<sup>71</sup> Graham, D. and Gibbons, S. 2018. [Quantifying Wider Economic Impacts of Agglomeration for Transport Appraisal: Existing Evidence and Future Directions](#)

# Appendix 3: Cost and Benefits Estimates Summary

## Adjusted Cost and Benefits Estimates Summary

A breakdown of estimates of costs and benefits for the four scenarios as presented in the RIA are included in the following tables:

Table A3- 1: Cost and benefit estimates for Statutory Partnerships (2020 prices);

Table A3- 2: Cost and benefit estimates for Statutory Partnerships Plus+ (2020 prices);

Table A3- 3: Cost and benefit estimates for Franchising (2020 prices); and

Table A3- 4: Cost and benefit estimates for Franchising Plus+ (2020 prices).

These results include the following adjustments made in the economic appraisal to align with Welsh Government's strategic objectives, described further in Appendix 2:

- Income distribution uplift factor included (taken from Green Book guidance on distributional weightings)
- High carbon values used (as opposed to central values, as per WebTAG)
- Lower discount rate of 1.5% applied to benefits associated with health, well-being, and the environment

## Unadjusted Cost and Benefits Estimates Summary

The second set of tables show unadjusted estimates of costs and benefits for the four scenarios, with standard Green Book inputs applied. These results are not presented within the RIA, but are included here for comparison purposes:

Table A3- 5: Cost and benefit estimates for Statutory Partnerships (Unadjusted, 2020 prices);

Table A3- 6: Cost and benefit estimates for Statutory Partnerships Plus+ (Unadjusted, 2020 prices);

Table A3- 7: Cost and benefit estimates for Franchising (Unadjusted, 2020 prices); and

Table A3- 8: Cost and benefit estimates for Franchising Plus+ (Unadjusted, 2020 prices).

In overview, it can be seen that the adjustments recommended by Treasury guidance to place higher value on Welsh Government objectives produce an uplift in the BCR values in the order of 50%.

## **Note on presentation of public funding / subsidy costs**

For transparency, the economic modelling for this RIA retains line items that show the existing funding mechanisms – ‘Concessionary Reimbursement’ and ‘BSSG’ – and the changes to their amounts resulting from any interventions. The ‘Change in Public Funding’ line considers any additional change to funding requirements above and beyond the existing defined mechanisms.

In practice, under a franchising model concessionary fare reimbursement and BSSG payments could be stopped, with payments to operators streamlined under a contract agreed with the franchising authority. The net effect on the public transport budget would be the same whether the funding comes from concessionary reimbursement or a contract fee, as, if subsidy/reimbursement payments were scrapped then operators would expect an additional contract fee to make up for lost revenue and maintain profitability.

Likewise, in the modelling, rearranging costs between ‘Concessionary Reimbursement’, ‘BSSG’ and ‘Change in Public Funding’ line items does not affect the overall size of the Present Value of Costs or Present Value of Benefits. As franchising arrangements are yet to be fully defined, for the purposes of this RIA, the presentation of these line items is consistent in all scenarios to allow direct comparison between the franchising and quality partnerships options, and avoid getting lost in the detail of exactly how different pots of funding will be named/defined in future

Table A3- 1: Cost and benefit estimates for Statutory Partnerships (2020 prices)

Item	Organisation	Summary Grouping	WG/TfW	LA/CJCs	Operators	Users	Total
<b>Costs</b>							
WG Setup	WG/TfW	Transitional Costs	£0.2 M	-	-	-	<b>£0.2 M</b>
LA Setup	LAs/CJCs	Transitional Costs	-	£3.1 M	-	-	<b>£3.1 M</b>
LA Setup (Subsequent)	LAs/CJCs	Transitional Costs	-	£4.8 M	-	-	<b>£4.8 M</b>
Operators Setup	Operators	Transitional Costs	-	-	£5.2 M	-	<b>£5.2 M</b>
Operator Setup (Subsequent)	Operators	Transitional Costs	-	-	£8.0 M	-	<b>£8.0 M</b>
WG Recurring	WG/TfW	Recurring Costs	£7.9 M	-	-	-	<b>£7.9 M</b>
LA Recurring	LAs/CJCs	Recurring Costs	-	£13.8 M	-	-	<b>£13.8 M</b>
Operators Recurring	Operators	Recurring Costs	-	-	£13.8 M	-	<b>£13.8 M</b>
Capex	WG/TfW	Capital Costs	£23.5 M	-	-	-	<b>£23.5 M</b>
Infrastructure Opex	LAs/CJCs	Recurring Costs	-	-	-	-	-
Concessionary Reimbursement	WG/TfW	Recurring Costs	£88.7 M	-	-	-	<b>£88.7 M</b>
BSSG	WG/TfW	Recurring Costs	£61.9 M	-	-	-	<b>£61.9 M</b>
Change in Public Funding	WG/TfW	Recurring Costs	£-48.5 M	-	-	-	<b>£-48.5 M</b>
<b>Benefits</b>							
Operator Revenue	Operators	Financial Benefits	-	-	£142.7 M	-	<b>£142.7 M</b>
Concessionary Reimbursement	Operators	Financial Benefits	-	-	£88.7 M	-	<b>£88.7 M</b>
BSSG	Operators	Financial Benefits	-	-	£61.9 M	-	<b>£61.9 M</b>
Change in Public Funding	Operators	Financial Benefits	-	-	£-48.5 M	-	<b>£-48.5 M</b>
Operator Opex	Operators	Financial Benefits	-	-	£-222.6 M	-	<b>£-222.6 M</b>
User Benefits - Journey Time & Quality	Users	Economic Benefits	-	-	-	£1,748.3 M	<b>£1,748.3 M</b>
User Benefits - Health	Users	Economic Benefits	-	-	-	£94.0 M	<b>£94.0 M</b>
Congestion	Users	Economic Benefits	-	-	-	£34.7 M	<b>£34.7 M</b>
Other Non-User Benefits	Users	Economic Benefits	-	-	-	£7.8 M	<b>£7.8 M</b>
Greenhouse Gases	Users	Economic Benefits	-	-	-	£36.5 M	<b>£36.5 M</b>
Indirect Taxation	Users	Economic Benefits	-	-	-	£-41.1 M	<b>£-41.1 M</b>
<b>Summary</b>							
Capital Costs			£23.5 M	-	-	-	£23.5 M
Transitional Costs			£0.2 M	£8.0 M	£13.3 M	-	£21.4 M
Recurring Costs			£110.0 M	£13.8 M	£13.8 M	-	£137.7 M
<b>Total Costs</b>			<b>£133.7 M</b>	<b>£21.8 M</b>	<b>£27.1 M</b>	-	<b>£182.6 M</b>
Financial Benefits			-	-	£22.3 M	-	£22.3 M
Economic Benefits			-	-	-	£1,880.1 M	£1,880.1 M
<b>Total Benefits</b>			-	-	<b>£22.3 M</b>	<b>£1,880.1 M</b>	<b>£1,902.4 M</b>
<b>Net Present Value (+ve = net benefit)</b>			<b>£-133.7 M</b>	<b>£-21.8 M</b>	<b>£-4.9 M</b>	<b>£1,880.1 M</b>	<b>£1,719.7 M</b>
<b>BCR</b>							<b>10.4</b>
<b>Notes</b>							
1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits (and are discounted to 2020 prices over a 30-year appraisal period)							

Table A3- 2: Cost and benefit estimates for Statutory Partnerships Plus+ (2020 prices)

Item	Organisation	Summary Grouping	WG/TfW	LA/CJCs	Operators	Users	Total
<b>Costs</b>							
WG Setup	WG/TfW	Transitional Costs	£0.2 M	-	-	-	<b>£0.2 M</b>
LA Setup	LAs/CJCs	Transitional Costs	-	£3.1 M	-	-	<b>£3.1 M</b>
LA Setup (Subsequent)	LAs/CJCs	Transitional Costs	-	£4.8 M	-	-	<b>£4.8 M</b>
Operators Setup	Operators	Transitional Costs	-	-	£5.2 M	-	<b>£5.2 M</b>
Operator Setup (Subsequent)	Operators	Transitional Costs	-	-	£8.0 M	-	<b>£8.0 M</b>
WG Recurring	WG/TfW	Recurring Costs	£7.9 M	-	-	-	<b>£7.9 M</b>
LA Recurring	LAs/CJCs	Recurring Costs	-	£13.8 M	-	-	<b>£13.8 M</b>
Operators Recurring	Operators	Recurring Costs	-	-	£13.8 M	-	<b>£13.8 M</b>
Capex	WG/TfW	Capital Costs	£3,422.8 M	-	-	-	<b>£3,422.8 M</b>
Infrastructure Opex	LAs/CJCs	Recurring Costs	-	£2,338.8 M	-	-	<b>£2,338.8 M</b>
Concessionary Reimbursement	WG/TfW	Recurring Costs	£1,209.5 M	-	-	-	<b>£1,209.5 M</b>
BSSG	WG/TfW	Recurring Costs	£61.9 M	-	-	-	<b>£61.9 M</b>
Change in Public Funding	WG/TfW	Recurring Costs	-£2,913.3 M	-	-	-	<b>-£2,913.3 M</b>
<b>Benefits</b>							
Operator Revenue	Operators	Financial Benefits	-	-	£1,843.7 M	-	<b>£1,843.7 M</b>
Concessionary Reimbursement	Operators	Financial Benefits	-	-	£1,209.5 M	-	<b>£1,209.5 M</b>
BSSG	Operators	Financial Benefits	-	-	£61.9 M	-	<b>£61.9 M</b>
Change in Public Funding	Operators	Financial Benefits	-	-	-£2,913.3 M	-	<b>-£2,913.3 M</b>
Operator Opex	Operators	Financial Benefits	-	-	-£183.5 M	-	<b>-£183.5 M</b>
User Benefits - Journey Time & Quality	Users	Economic Benefits	-	-	-	£4,304.9 M	<b>£4,304.9 M</b>
User Benefits - Health	Users	Economic Benefits	-	-	-	£1,367.8 M	<b>£1,367.8 M</b>
Congestion	Users	Economic Benefits	-	-	-	£502.1 M	<b>£502.1 M</b>
Other Non-User Benefits	Users	Economic Benefits	-	-	-	£108.7 M	<b>£108.7 M</b>
Greenhouse Gases	Users	Economic Benefits	-	-	-	£113.0 M	<b>£113.0 M</b>
Indirect Taxation	Users	Economic Benefits	-	-	-	-£433.3 M	<b>-£433.3 M</b>
<b>Summary</b>							
Capital Costs			£3,422.8 M	-	-	-	£3,422.8 M
Transitional Costs			£0.2 M	£8.0 M	£13.3 M	-	£21.4 M
Recurring Costs			-£1,633.9 M	£2,352.6 M	£13.8 M	-	£732.5 M
<b>Total Costs</b>			<b>£1,789.1 M</b>	<b>£2,360.6 M</b>	<b>£27.1 M</b>	-	<b>£4,176.8 M</b>
Financial Benefits			-	-	£18.4 M	-	£18.4 M
Economic Benefits			-	-	-	£5,963.2 M	£5,963.2 M
<b>Total Benefits</b>			-	-	<b>£18.4 M</b>	<b>£5,963.2 M</b>	<b>£5,981.5 M</b>
<b>Net Present Value (+ve = net benefit)</b>			<b>-£1,789.1 M</b>	<b>-£2,360.6 M</b>	<b>-£8.8 M</b>	<b>£5,963.2 M</b>	<b>£1,804.7 M</b>
<b>BCR</b>							<b>1.4</b>
<b>Notes</b>							
1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits (and are discounted to 2020 prices over a 30-year appraisal period)							

Table A3- 3: Cost and benefit estimates for Franchising (2020 prices)

Item	Organisation	Summary Grouping	WG/TfW	LA/CJCs	Operators	Users	Total
<b>Costs</b>							
WG Setup	WG/TfW	Transitional Costs	£12.4 M	-	-	-	<b>£12.4 M</b>
LA Setup	LAs/CJCs	Transitional Costs	-	£51.9 M	-	-	<b>£51.9 M</b>
LA Setup (Subsequent)	LAs/CJCs	Transitional Costs	-	-	-	-	-
Operators Setup	Operators	Transitional Costs	-	-	£16.8 M	-	<b>£16.8 M</b>
Operator Setup (Subsequent)	Operators	Transitional Costs	-	-	£10.2 M	-	<b>£10.2 M</b>
WG Recurring	WG/TfW	Recurring Costs	£15.7 M	-	-	-	<b>£15.7 M</b>
LA Recurring	LAs/CJCs	Recurring Costs	-	£73.7 M	-	-	<b>£73.7 M</b>
Operators Recurring	Operators	Recurring Costs	-	-	-	-	-
Capex	WG/TfW	Capital Costs	£23.1 M	-	-	-	<b>£23.1 M</b>
Infrastructure Opex	LAs/CJCs	Recurring Costs	-	-	-	-	-
Concessionary Reimbursement	WG/TfW	Recurring Costs	£158.3 M	-	-	-	<b>£158.3 M</b>
BSSG	WG/TfW	Recurring Costs	£61.9 M	-	-	-	<b>£61.9 M</b>
Change in Public Funding	WG/TfW	Recurring Costs	-£252.3 M	-	-	-	<b>-£252.3 M</b>
<b>Benefits</b>							
Operator Revenue	Operators	Financial Benefits	-	-	£273.7 M	-	<b>£273.7 M</b>
Concessionary Reimbursement	Operators	Financial Benefits	-	-	£158.3 M	-	<b>£158.3 M</b>
BSSG	Operators	Financial Benefits	-	-	£61.9 M	-	<b>£61.9 M</b>
Change in Public Funding	Operators	Financial Benefits	-	-	-£252.3 M	-	<b>-£252.3 M</b>
Operator Opex	Operators	Financial Benefits	-	-	-£219.7 M	-	<b>-£219.7 M</b>
User Benefits - Journey Time & Quality	Users	Economic Benefits	-	-	-	£3,419.7 M	<b>£3,419.7 M</b>
User Benefits - Health	Users	Economic Benefits	-	-	-	£177.4 M	<b>£177.4 M</b>
Congestion	Users	Economic Benefits	-	-	-	£67.4 M	<b>£67.4 M</b>
Other Non-User Benefits	Users	Economic Benefits	-	-	-	£15.0 M	<b>£15.0 M</b>
Greenhouse Gases	Users	Economic Benefits	-	-	-	£151.5 M	<b>£151.5 M</b>
Indirect Taxation	Users	Economic Benefits	-	-	-	-£124.2 M	<b>-£124.2 M</b>
<b>Summary</b>							
Capital Costs			£23.1 M	-	-	-	£23.1 M
Transitional Costs			£12.4 M	£51.9 M	£27.0 M	-	£91.3 M
Recurring Costs			-£16.3 M	£73.7 M	-	-	£57.4 M
<b>Total Costs</b>			<b>£19.2 M</b>	<b>£125.7 M</b>	<b>£27.0 M</b>	-	<b>£171.8 M</b>
Financial Benefits			-	-	£22.0 M	-	£22.0 M
Economic Benefits			-	-	-	£3,706.8 M	£3,706.8 M
<b>Total Benefits</b>			-	-	<b>£22.0 M</b>	<b>£3,706.8 M</b>	<b>£3,728.7 M</b>
<b>Net Present Value (+ve = net benefit)</b>			<b>-£19.2 M</b>	<b>-£125.7 M</b>	<b>-£5.0 M</b>	<b>£3,706.8 M</b>	<b>£3,556.9 M</b>
<b>BCR</b>							<b>21.7</b>
<b>Notes</b>							
1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits (and are discounted to 2020 prices over a 30-year appraisal period)							

Table A3- 4: Cost and benefit estimates for Franchising Plus+ (2020 prices)

Item	Organisation	Summary Grouping	WG/TfW	LA/CJCs	Operators	Users	Total
<b>Costs</b>							
WG Setup	WG/TfW	Transitional Costs	£12.4 M	-	-	-	<b>£12.4 M</b>
LA Setup	LAs/CJCs	Transitional Costs	-	£51.9 M	-	-	<b>£51.9 M</b>
LA Setup (Subsequent)	LAs/CJCs	Transitional Costs	-	-	-	-	-
Operators Setup	Operators	Transitional Costs	-	-	£16.8 M	-	<b>£16.8 M</b>
Operator Setup (Subsequent)	Operators	Transitional Costs	-	-	£10.2 M	-	<b>£10.2 M</b>
WG Recurring	WG/TfW	Recurring Costs	£15.7 M	-	-	-	<b>£15.7 M</b>
LA Recurring	LAs/CJCs	Recurring Costs	-	£73.7 M	-	-	<b>£73.7 M</b>
Operators Recurring	Operators	Recurring Costs	-	-	-	-	-
Capex	WG/TfW	Capital Costs	£3,412.1 M	-	-	-	<b>£3,412.1 M</b>
Infrastructure Opex	LAs/CJCs	Recurring Costs	-	£2,333.8 M	-	-	<b>£2,333.8 M</b>
Concessionary Reimbursement	WG/TfW	Recurring Costs	£1,363.9 M	-	-	-	<b>£1,363.9 M</b>
BSSG	WG/TfW	Recurring Costs	£61.9 M	-	-	-	<b>£61.9 M</b>
Change in Public Funding	WG/TfW	Recurring Costs	-£3,351.2 M	-	-	-	<b>-£3,351.2 M</b>
<b>Benefits</b>							
Operator Revenue	Operators	Financial Benefits	-	-	£2,127.2 M	-	<b>£2,127.2 M</b>
Concessionary Reimbursement	Operators	Financial Benefits	-	-	£1,363.9 M	-	<b>£1,363.9 M</b>
BSSG	Operators	Financial Benefits	-	-	£61.9 M	-	<b>£61.9 M</b>
Change in Public Funding	Operators	Financial Benefits	-	-	-£3,351.2 M	-	<b>-£3,351.2 M</b>
Operator Opex	Operators	Financial Benefits	-	-	-£183.5 M	-	<b>-£183.5 M</b>
User Benefits - Journey Time & Quality	Users	Economic Benefits	-	-	-	£7,231.0 M	<b>£7,231.0 M</b>
User Benefits - Health	Users	Economic Benefits	-	-	-	£1,552.6 M	<b>£1,552.6 M</b>
Congestion	Users	Economic Benefits	-	-	-	£574.5 M	<b>£574.5 M</b>
Other Non-User Benefits	Users	Economic Benefits	-	-	-	£124.5 M	<b>£124.5 M</b>
Greenhouse Gases	Users	Economic Benefits	-	-	-	£133.8 M	<b>£133.8 M</b>
Indirect Taxation	Users	Economic Benefits	-	-	-	-£498.1 M	<b>-£498.1 M</b>
<b>Summary</b>							
Capital Costs			£3,412.1 M	-	-	-	£3,412.1 M
Transitional Costs			£12.4 M	£51.9 M	£27.0 M	-	£91.3 M
Recurring Costs			-£1,909.6 M	£2,407.5 M	-	-	£497.8 M
<b>Total Costs</b>			<b>£1,514.8 M</b>	<b>£2,459.4 M</b>	<b>£27.0 M</b>	-	<b>£4,001.2 M</b>
Financial Benefits			-	-	£18.4 M	-	£18.4 M
Economic Benefits			-	-	-	£9,118.4 M	£9,118.4 M
<b>Total Benefits</b>			-	-	<b>£18.4 M</b>	<b>£9,118.4 M</b>	<b>£9,136.8 M</b>
<b>Net Present Value (+ve = net benefit)</b>			<b>-£1,514.8 M</b>	<b>-£2,459.4 M</b>	<b>-£8.6 M</b>	<b>£9,118.4 M</b>	<b>£5,135.6 M</b>
<b>BCR</b>							<b>2.3</b>
<b>Notes</b>							
1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits (and are discounted to 2020 prices over a 30-year appraisal period)							

Table A3- 5: Cost and benefit estimates for Statutory Partnerships (Unadjusted, 2020 prices)

Item	Organisation	Summary Grouping	WG/TfW	LA/CJCs	Operators	Users	Total
<b>Costs</b>							
WG Setup	WG/TfW	Transitional Costs	£0.2 M	-	-	-	<b>£0.2 M</b>
LA Setup	LAs/CJCs	Transitional Costs	-	£3.1 M	-	-	<b>£3.1 M</b>
LA Setup (Subsequent)	LAs/CJCs	Transitional Costs	-	£4.8 M	-	-	<b>£4.8 M</b>
Operators Setup	Operators	Transitional Costs	-	-	£5.2 M	-	<b>£5.2 M</b>
Operator Setup (Subsequent)	Operators	Transitional Costs	-	-	£8.0 M	-	<b>£8.0 M</b>
WG Recurring	WG/TfW	Recurring Costs	£7.9 M	-	-	-	<b>£7.9 M</b>
LA Recurring	LAs/CJCs	Recurring Costs	-	£13.8 M	-	-	<b>£13.8 M</b>
Operators Recurring	Operators	Recurring Costs	-	-	£13.8 M	-	<b>£13.8 M</b>
Capex	WG/TfW	Capital Costs	£23.5 M	-	-	-	<b>£23.5 M</b>
Infrastructure Opex	LAs/CJCs	Recurring Costs	-	-	-	-	-
Concessionary Reimbursement	WG/TfW	Recurring Costs	£88.7 M	-	-	-	<b>£88.7 M</b>
BSSG	WG/TfW	Recurring Costs	£61.9 M	-	-	-	<b>£61.9 M</b>
Change in Public Funding	WG/TfW	Recurring Costs	-£48.5 M	-	-	-	<b>-£48.5 M</b>
<b>Benefits</b>							
Operator Revenue	Operators	Financial Benefits	-	-	£142.7 M	-	<b>£142.7 M</b>
Concessionary Reimbursement	Operators	Financial Benefits	-	-	£88.7 M	-	<b>£88.7 M</b>
BSSG	Operators	Financial Benefits	-	-	£61.9 M	-	<b>£61.9 M</b>
Change in Public Funding	Operators	Financial Benefits	-	-	-£48.5 M	-	<b>-£48.5 M</b>
Operator Opex	Operators	Financial Benefits	-	-	-£222.6 M	-	<b>-£222.6 M</b>
User Benefits - Journey Time & Quality	Users	Economic Benefits	-	-	-	£1,173.3 M	<b>£1,173.3 M</b>
User Benefits - Health	Users	Economic Benefits	-	-	-	£65.5 M	<b>£65.5 M</b>
Congestion	Users	Economic Benefits	-	-	-	£34.7 M	<b>£34.7 M</b>
Other Non-User Benefits	Users	Economic Benefits	-	-	-	£7.2 M	<b>£7.2 M</b>
Greenhouse Gases	Users	Economic Benefits	-	-	-	£17.7 M	<b>£17.7 M</b>
Indirect Taxation	Users	Economic Benefits	-	-	-	-£41.1 M	<b>-£41.1 M</b>
<b>Summary</b>							
Capital Costs			£23.5 M	-	-	-	£23.5 M
Transitional Costs			£0.2 M	£8.0 M	£13.3 M	-	£21.4 M
Recurring Costs			£110.0 M	£13.8 M	£13.8 M	-	£137.7 M
<b>Total Costs</b>			<b>£133.7 M</b>	<b>£21.8 M</b>	<b>£27.1 M</b>	-	<b>£182.6 M</b>
Financial Benefits			-	-	£22.3 M	-	£22.3 M
Economic Benefits			-	-	-	£1,257.3 M	£1,257.3 M
<b>Total Benefits</b>			-	-	<b>£22.3 M</b>	<b>£1,257.3 M</b>	<b>£1,279.6 M</b>
<b>Net Present Value (+ve = net benefit)</b>			<b>-£133.7 M</b>	<b>-£21.8 M</b>	<b>-£4.9 M</b>	<b>£1,257.3 M</b>	<b>£1,096.9 M</b>
<b>BCR</b>							<b>7.0</b>
<b>Notes</b>							
1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits (and are discounted to 2020 prices over a 30-year appraisal period)							

Table A3- 6: Cost and benefit estimates for Statutory Partnerships Plus+ (Unadjusted, 2020 prices)

Item	Organisation	Summary Grouping	WG/TfW	LA/CJCs	Operators	Users	Total
<b>Costs</b>							
WG Setup	WG/TfW	Transitional Costs	£0.2 M	-	-	-	<b>£0.2 M</b>
LA Setup	LAs/CJCs	Transitional Costs	-	£3.1 M	-	-	<b>£3.1 M</b>
LA Setup (Subsequent)	LAs/CJCs	Transitional Costs	-	£4.8 M	-	-	<b>£4.8 M</b>
Operators Setup	Operators	Transitional Costs	-	-	£5.2 M	-	<b>£5.2 M</b>
Operator Setup (Subsequent)	Operators	Transitional Costs	-	-	£8.0 M	-	<b>£8.0 M</b>
WG Recurring	WG/TfW	Recurring Costs	£7.9 M	-	-	-	<b>£7.9 M</b>
LA Recurring	LAs/CJCs	Recurring Costs	-	£13.8 M	-	-	<b>£13.8 M</b>
Operators Recurring	Operators	Recurring Costs	-	-	£13.8 M	-	<b>£13.8 M</b>
Capex	WG/TfW	Capital Costs	£3,422.8 M	-	-	-	<b>£3,422.8 M</b>
Infrastructure Opex	LAs/CJCs	Recurring Costs	-	£2,338.8 M	-	-	<b>£2,338.8 M</b>
Concessionary Reimbursement	WG/TfW	Recurring Costs	£1,209.5 M	-	-	-	<b>£1,209.5 M</b>
BSSG	WG/TfW	Recurring Costs	£61.9 M	-	-	-	<b>£61.9 M</b>
Change in Public Funding	WG/TfW	Recurring Costs	-£2,913.3 M	-	-	-	<b>-£2,913.3 M</b>
<b>Benefits</b>							
Operator Revenue	Operators	Financial Benefits	-	-	£1,843.7 M	-	<b>£1,843.7 M</b>
Concessionary Reimbursement	Operators	Financial Benefits	-	-	£1,209.5 M	-	<b>£1,209.5 M</b>
BSSG	Operators	Financial Benefits	-	-	£61.9 M	-	<b>£61.9 M</b>
Change in Public Funding	Operators	Financial Benefits	-	-	-£2,913.3 M	-	<b>-£2,913.3 M</b>
Operator Opex	Operators	Financial Benefits	-	-	-£183.5 M	-	<b>-£183.5 M</b>
User Benefits - Journey Time & Quality	Users	Economic Benefits	-	-	-	£2,889.1 M	<b>£2,889.1 M</b>
User Benefits - Health	Users	Economic Benefits	-	-	-	£861.4 M	<b>£861.4 M</b>
Congestion	Users	Economic Benefits	-	-	-	£502.1 M	<b>£502.1 M</b>
Other Non-User Benefits	Users	Economic Benefits	-	-	-	£98.7 M	<b>£98.7 M</b>
Greenhouse Gases	Users	Economic Benefits	-	-	-	£63.2 M	<b>£63.2 M</b>
Indirect Taxation	Users	Economic Benefits	-	-	-	-£433.3 M	<b>-£433.3 M</b>
<b>Summary</b>							
Capital Costs			£3,422.8 M	-	-	-	£3,422.8 M
Transitional Costs			£0.2 M	£8.0 M	£13.3 M	-	£21.4 M
Recurring Costs			-£1,633.9 M	£2,352.6 M	£13.8 M	-	£732.5 M
<b>Total Costs</b>			<b>£1,789.1 M</b>	<b>£2,360.6 M</b>	<b>£27.1 M</b>	-	<b>£4,176.8 M</b>
Financial Benefits			-	-	£18.4 M	-	£18.4 M
Economic Benefits			-	-	-	£3,981.1 M	£3,981.1 M
<b>Total Benefits</b>			-	-	<b>£18.4 M</b>	<b>£3,981.1 M</b>	<b>£3,999.5 M</b>
<b>Net Present Value (+ve = net benefit)</b>			<b>-£1,789.1 M</b>	<b>-£2,360.6 M</b>	<b>-£8.8 M</b>	<b>£3,981.1 M</b>	<b>-£177.3 M</b>
<b>BCR</b>							<b>1.0</b>
<b>Notes</b>							
1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits (and are discounted to 2020 prices over a 30-year appraisal period)							

Table A3- 7: Cost and benefit estimates for Franchising (Unadjusted, 2020 prices)

Item	Organisation	Summary Grouping	WG/TfW	LA/CJCs	Operators	Users	Total
<b>Costs</b>							
WG Setup	WG/TfW	Transitional Costs	£12.4 M	-	-	-	<b>£12.4 M</b>
LA Setup	LAs/CJCs	Transitional Costs	-	£51.9 M	-	-	<b>£51.9 M</b>
LA Setup (Subsequent)	LAs/CJCs	Transitional Costs	-	-	-	-	-
Operators Setup	Operators	Transitional Costs	-	-	£16.8 M	-	<b>£16.8 M</b>
Operator Setup (Subsequent)	Operators	Transitional Costs	-	-	£10.2 M	-	<b>£10.2 M</b>
WG Recurring	WG/TfW	Recurring Costs	£15.7 M	-	-	-	<b>£15.7 M</b>
LA Recurring	LAs/CJCs	Recurring Costs	-	£73.7 M	-	-	<b>£73.7 M</b>
Operators Recurring	Operators	Recurring Costs	-	-	-	-	-
Capex	WG/TfW	Capital Costs	£23.1 M	-	-	-	<b>£23.1 M</b>
Infrastructure Opex	LAs/CJCs	Recurring Costs	-	-	-	-	-
Concessionary Reimbursement	WG/TfW	Recurring Costs	£158.3 M	-	-	-	<b>£158.3 M</b>
BSSG	WG/TfW	Recurring Costs	£61.9 M	-	-	-	<b>£61.9 M</b>
Change in Public Funding	WG/TfW	Recurring Costs	-£252.3 M	-	-	-	<b>-£252.3 M</b>
<b>Benefits</b>							
Operator Revenue	Operators	Financial Benefits	-	-	£273.7 M	-	<b>£273.7 M</b>
Concessionary Reimbursement	Operators	Financial Benefits	-	-	£158.3 M	-	<b>£158.3 M</b>
BSSG	Operators	Financial Benefits	-	-	£61.9 M	-	<b>£61.9 M</b>
Change in Public Funding	Operators	Financial Benefits	-	-	-£252.3 M	-	<b>-£252.3 M</b>
Operator Opex	Operators	Financial Benefits	-	-	-£219.7 M	-	<b>-£219.7 M</b>
User Benefits - Journey Time & Quality	Users	Economic Benefits	-	-	-	£2,295.0 M	<b>£2,295.0 M</b>
User Benefits - Health	Users	Economic Benefits	-	-	-	£120.2 M	<b>£120.2 M</b>
Congestion	Users	Economic Benefits	-	-	-	£67.4 M	<b>£67.4 M</b>
Other Non-User Benefits	Users	Economic Benefits	-	-	-	£13.8 M	<b>£13.8 M</b>
Greenhouse Gases	Users	Economic Benefits	-	-	-	£82.4 M	<b>£82.4 M</b>
Indirect Taxation	Users	Economic Benefits	-	-	-	-£124.2 M	<b>-£124.2 M</b>
<b>Summary</b>							
Capital Costs			£23.1 M	-	-	-	£23.1 M
Transitional Costs			£12.4 M	£51.9 M	£27.0 M	-	£91.3 M
Recurring Costs			-£16.3 M	£73.7 M	-	-	£57.4 M
<b>Total Costs</b>			<b>£19.2 M</b>	<b>£125.7 M</b>	<b>£27.0 M</b>	-	<b>£171.8 M</b>
Financial Benefits			-	-	£22.0 M	-	£22.0 M
Economic Benefits			-	-	-	£2,454.6 M	£2,454.6 M
<b>Total Benefits</b>			-	-	<b>£22.0 M</b>	<b>£2,454.6 M</b>	<b>£2,476.6 M</b>
<b>Net Present Value (+ve = net benefit)</b>			<b>-£19.2 M</b>	<b>-£125.7 M</b>	<b>-£5.0 M</b>	<b>£2,454.6 M</b>	<b>£2,304.8 M</b>
<b>BCR</b>							<b>14.4</b>
<b>Notes</b>							
1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits (and are discounted to 2020 prices over a 30-year appraisal period)							

Table A3- 8: Cost and benefit estimates for Franchising Plus+ (Unadjusted, 2020 prices)

Item	Organisation	Summary Grouping	WG/TfW	LA/CJCs	Operators	Users	Total
<b>Costs</b>							
WG Setup	WG/TfW	Transitional Costs	£12.4 M	-	-	-	<b>£12.4 M</b>
LA Setup	LAs/CJCs	Transitional Costs	-	£51.9 M	-	-	<b>£51.9 M</b>
LA Setup (Subsequent)	LAs/CJCs	Transitional Costs	-	-	-	-	-
Operators Setup	Operators	Transitional Costs	-	-	£16.8 M	-	<b>£16.8 M</b>
Operator Setup (Subsequent)	Operators	Transitional Costs	-	-	£10.2 M	-	<b>£10.2 M</b>
WG Recurring	WG/TfW	Recurring Costs	£15.7 M	-	-	-	<b>£15.7 M</b>
LA Recurring	LAs/CJCs	Recurring Costs	-	£73.7 M	-	-	<b>£73.7 M</b>
Operators Recurring	Operators	Recurring Costs	-	-	-	-	-
Capex	WG/TfW	Capital Costs	£3,412.1 M	-	-	-	<b>£3,412.1 M</b>
Infrastructure Opex	LAs/CJCs	Recurring Costs	-	£2,333.8 M	-	-	<b>£2,333.8 M</b>
Concessionary Reimbursement	WG/TfW	Recurring Costs	£1,363.9 M	-	-	-	<b>£1,363.9 M</b>
BSSG	WG/TfW	Recurring Costs	£61.9 M	-	-	-	<b>£61.9 M</b>
Change in Public Funding	WG/TfW	Recurring Costs	-£3,351.2 M	-	-	-	<b>-£3,351.2 M</b>
<b>Benefits</b>							
Operator Revenue	Operators	Financial Benefits	-	-	£2,127.2 M	-	<b>£2,127.2 M</b>
Concessionary Reimbursement	Operators	Financial Benefits	-	-	£1,363.9 M	-	<b>£1,363.9 M</b>
BSSG	Operators	Financial Benefits	-	-	£61.9 M	-	<b>£61.9 M</b>
Change in Public Funding	Operators	Financial Benefits	-	-	-£3,351.2 M	-	<b>-£3,351.2 M</b>
Operator Opex	Operators	Financial Benefits	-	-	-£183.5 M	-	<b>-£183.5 M</b>
User Benefits - Journey Time & Quality	Users	Economic Benefits	-	-	-	£4,852.8 M	<b>£4,852.8 M</b>
User Benefits - Health	Users	Economic Benefits	-	-	-	£981.2 M	<b>£981.2 M</b>
Congestion	Users	Economic Benefits	-	-	-	£574.5 M	<b>£574.5 M</b>
Other Non-User Benefits	Users	Economic Benefits	-	-	-	£113.1 M	<b>£113.1 M</b>
Greenhouse Gases	Users	Economic Benefits	-	-	-	£76.8 M	<b>£76.8 M</b>
Indirect Taxation	Users	Economic Benefits	-	-	-	-£498.1 M	<b>-£498.1 M</b>
<b>Summary</b>							
Capital Costs			£3,412.1 M	-	-	-	£3,412.1 M
Transitional Costs			£12.4 M	£51.9 M	£27.0 M	-	£91.3 M
Recurring Costs			-£1,909.6 M	£2,407.5 M	-	-	£497.8 M
<b>Total Costs</b>			<b>£1,514.8 M</b>	<b>£2,459.4 M</b>	<b>£27.0 M</b>	-	<b>£4,001.2 M</b>
Financial Benefits			-	-	£18.4 M	-	£18.4 M
Economic Benefits			-	-	-	£6,100.4 M	£6,100.4 M
<b>Total Benefits</b>			-	-	<b>£18.4 M</b>	<b>£6,100.4 M</b>	<b>£6,118.8 M</b>
<b>Net Present Value (+ve = net benefit)</b>			<b>-£1,514.8 M</b>	<b>-£2,459.4 M</b>	<b>-£8.6 M</b>	<b>£6,100.4 M</b>	<b>£2,117.6 M</b>
<b>BCR</b>							<b>1.5</b>
<b>Notes</b>							
1. The values shown are approximate are intended to provide only indicative forecasts of costs and benefits (and are discounted to 2020 prices over a 30-year appraisal period)							