



Arbenigwyr mewn Busnes  
Experts in Business

Cynulliad Cenedlaethol Cymru / National Assembly for Wales  
Pwyllgor yr Economi, Seilwaith a Sgiliau/ Economy, Infrastructure and Skills Committee  
Masnachfrait Rheilffyrdd a chyflwyno Metro / Rail Franchise and the Metro  
Ymateb gan Ffederasiwn Busnesau Bach /  
Evidence from Federation of Small Businesses

23<sup>rd</sup> February 2017

Russell George AM  
Economy, Infrastructure and Skills Committee  
National Assembly for Wales  
Pierhead Street  
Cardiff  
CF99 1NA

Dear Russell

### RE: Rail Franchise & the Metro

FSB Wales welcomes the opportunity to contribute to the Economy, Infrastructure and Skills Committee inquiry into the future of the Wales and Borders Rail franchise and the South East Wales Metro.

FSB Wales is the authoritative voice of businesses in Wales. With 10,000 members, a Welsh Policy Unit, two regional committees and twelve branch committees; FSB Wales is in constant contact with business at a grassroots level. It undertakes regular online surveys of its members as well as a biennial membership survey on a wide range of issues and concerns facing small business.

In order to inform the 2016 National Assembly elections, FSB Wales commissioned a number of work-streams to build an evidence-base around the needs of Wales' smaller business. One of the areas of focus was transport and infrastructure. Professor Stuart Cole produced a report into the needs of smaller firms in relation to transport entitled *Moving Wales Forward*. A copy of the report is attached for the Committee's reference.

The following key themes were highlighted in the report:

- The majority of FSB Wales members surveyed judged their car/van as being the most important mode of transport. However, around 10 per cent said that trains were an important mode of transport for their business.
- For business users to make greater use of trains, four priorities areas were identified. They were; lower fares, increased network coverage, increased service frequencies and better integration of public transport services and ticketing. This was seen as key to model shift.
- Issues of quality were of significant importance to many business users. For instance, many business users would like to see their journey (particularly longer journeys) as taking place in something more similar to a mobile office environment. However, due to issues such as overcrowding and lack of services such as on-board Wi-Fi, this is presently unattainable across much of the network.
- Pursuing greater integration of public transport with services and the economic environment is crucial. The concept used in our research was *Information + Interchange + Investment + Imagination = Integration*.

FSB Wales would like to see the next Wales and Borders franchise focus on the themes highlighted above. This is also relevant to the discussion around the Metro, specifically about integrating the various modes of transport. In particular, the next franchisee should set out the level of investment needed to reduce overcrowding, improve the current rolling stock used in Wales and increasing the frequency of services.

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Furthermore, the use of the transport estate should become a part of wider town centre regeneration discussions. For instance, many train stations in Wales have excess capacity in terms of building that could be used innovatively as business incubation space or retail space for new independent businesses.

This could also be applied to the supplier opportunities the Wales and Borders franchise offers. For instance, the next franchisee could examine increasing the proportion of Welsh products offered to customers, or ensure that local businesses are able to occupy retail space in stations as opposed to larger chains.

I hope you find the comments above of interest to your inquiry. Please do not hesitate to contact FSB Wales should you require any further information.

Yours sincerely

A handwritten signature in black ink that reads 'Janet Jones'. The signature is written in a cursive style and is positioned above a horizontal line that serves as a separator.

**Janet Jones**  
**Wales Policy Chair**  
**Federation of Small Businesses Wales**



# MOVING WALES FORWARD

Published: May 2016  
Professor Stuart Cole  
[fsb.wales](http://fsb.wales)

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# FOREWORD

Transport is a key issue facing FSB members across the length and breadth of Wales.

Whether they are based in Cardiff, Cardigan or Conwy, businesses often rely on getting people or goods to the right place at the right time.

But for businesses in many parts of Wales, achieving that can be a real challenge, with the limitations of current transport provision all too apparent. It is with that in mind that we asked Wales' foremost transport expert Professor Stuart Cole to undertake this report for us.

As part of the work he has undertaken we gathered the views of our members from across Wales, getting them to share their experiences of Wales' transport system.

And while it comes as no surprise to us that we have many members whose business means that they need to use road transport, there are many who would make greater use of public transport if it better met the needs of their business.

This report looks at what measures can be put in place if we are to move towards a better and more integrated transport system that better meet the needs of all types of businesses in every part of Wales.

I very much hope that it will lead to a more considered discussion of transport policy here; one which will encourage policymakers to think beyond any one part of Wales.

From my many discussions with our members I know that transport is an issue for businesses across the whole of Wales, and it is essential that we develop a transport system that better supports local economies in every part of our nation.

**Janet Jones**  
**FSB Wales Policy Chair**



## About the author:

Professor Stuart Cole BA, MSc, FCILT, FICE, FRSA is one of Wales' foremost experts in transport and economic policy, with almost 40 years of experience spanning government, local government, private sector, and academic roles. He has served as an advisor to the Welsh Government's Minister for Economy, Science and Transport on active travel and public transport, is a member of the Great Western Railway Advisory Board, and is Emeritus Professor of Transport at the University of South Wales. He was awarded a CBE in 2012.

# PART 1 : THE CHALLENGE OF ROAD TRANSPORT

This report presents current trends in transport infrastructure and usage in Wales and critically examines current government policy.

The complaint most often heard from businesses, small and large, is that the roads are getting worse and congestion is having an adverse effect on business efficiency. This report asks whether that is really the issue? If so, then could we reduce congestion by making part, or all, of our passenger journeys by means other than the car - by bus, train, taxi, walking, or cycling or some combination (called integrated travel) of them all?

There is insufficient space in urban areas to create large-scale road infrastructure other than at high-cost levels in terms of land purchase and construction. Until the 1990s, motorway construction frequently involved physically dividing communities and demolishing existing homes – a good example of this being Port Talbot. More recently, the adverse environmental consequences of large-scale road construction have become unacceptable to many.

Clearly, a policy of road building to tackle perceived problems of congestion has to be rethought. Instead, policy options involving public transport investment, investment in active travel and the integration of people movement

within and between modes should be pursued.

The most relevant argument which suggests major road building may be the wrong approach is evidence from the Department for Transport's (DfT) traffic forecast scenarios. Welsh traffic flow data and speed maps show average speeds on most roads at a level just below the legal limit. Lower speeds are found on single carriageway roads compared with dual carriageway roads or motorways as would be expected. Evidence in this report suggests that if equivalent levels of comfort to the car could be provided via other forms of transport – bus, rail, cycling, walking – travellers could be persuaded to change mode.

## Modal Split

The 2014 modal split (**Figure 1.1**) for travellers taken from the Office of National Statistics (ONS) data for Wales and from the FSB Wales member survey (FSB 2014) showed the car / light van as by far the predominant mode of travel (74.2% and 81.0% respectively). Allowing for sample error these two figures may be regarded as similar. Complaints about the road system may be a result of it being used the most and its problems being most familiar to those travellers in the survey.

All freight and goods traffic was excluded from the survey as the network at present does not provide for much of that to be moved other than by road freight transport.

Small businesses in Wales use the car more than any other mode of transport (FSB, Wales 2014) and their views of Welsh Government transport policies and expenditure reflect this.

When small businesses were asked what the Welsh Government's top priority should be, most called for investment in road infrastructure, better traffic management and improved rural transport.

## The impact of congestion

There is a general lack of reliable financial data on the impact of an inefficient transport network on business success and on costs. Both the FSB and the CBI have surveyed members and found that an evaluation of financial consequences can be extrapolated from survey data. But it was also found that an accurate figure of the degree by which costs increased as a result of poor infrastructure or road delays is difficult to calculate in terms of individual companies.

A leading Welsh road haulage company (Owens 2014) put the costs it faced into separate categories:

- Congestion with more wear and tear on mechanical items on their lorries (e.g. gearbox from different speeds and changing gear);
- Increased drivers' hours and the consequent costs of additional drivers or delays on statutory rest and off road stops. This was not a criticism of the regulations per se but their consequence on costs from increased driver journey time resulting from poor infrastructure;
- Extra vehicles required to maintain a schedule and meet demand thus incurring extra costs;
- Contracts turned down because of additional vehicles required thus losing turnover.

Businesses were asked (FSB Wales survey 2014) how transport problems affect them. The biggest impacts were financial with reduced turnover (35%), reduced profits (43%), and fewer customers (35%), factors which reflect one another but might also be a part of the overall reduction in the purchase of goods and services resulting from the general economic downturn since 2008. Increased costs affected 52% of businesses, and this partially reflects comments made in respect of the road infrastructure with factors such as increased journey times and increased vehicle maintenance costs.

For a small number of respondents it led to the closure of the business or branch (4%), reduction in the number of business vehicles (7%), and a reduction in the range of goods / services (9%).

The crucial issue is the ability to trade effectively in the marketplace.

**Figure 1.1 Modal Split Work Travel**  
Total number of employed persons: 1,363,615

Mode	% ONS	FSB
Home workers	5.4	
Train	2.1	9.8
Bus	4.6	9.8
Taxi	0.5	
M/cycle	0.6	
Car / van	74.2	81.0
Cycle	1.4	
Walk	10.6	4.1
Other	0.6	

Sources: **ONS**: National Transport Plan (2014) / Census 2011 Office of National Statistics – Primary mode of travel to work). **FSB**: Federation of Small Business Wales Survey (2014). Based on Q2 How important is each of the following methods of transport your business operations?

The FSB Wales 2014 survey findings and comments highlight issues such as where business takes place, the impact on cost base, and transport as a factor in the decisions about business / site closures and staff layoffs. However, there is a limit which has to be placed on the causal link between transport network quality or capacity and business success or failure. The evidence is not conclusive.

As the car is seen as the 'crucial' mode (81%) and the Census / National Transport Plan (NTP, 2014) shows it to represent 74% of commuting trips it can be assumed that it is this mode which is most criticised. But the traffic speed maps do not support this argument except in peak periods.

## Criticisms of the road network

From the 2014 FSB Wales survey, the business view of the road network was a negative one. The poor state of repair, traffic congestion and delays resulting from road works were the most cited factors.

Much of the criticism (FSB Wales survey, 2014) of the transport network in Wales relates to traffic congestion resulting in lower speeds and longer journey times on major roads. However the Welsh Government road maps (**Figures 1.2, 1.3, 1.4**) show major routes such as the A55, M4 / A48 / A40 with average speeds over an 18 – hour day of 60 – 70 mph. The maximum national speed limit is 70 mph.





There is also a belief that the trend of road traffic in Wales (**Figure 1.5**) is one of growth: historically from around 22bn kilometres in 1993 to a peak in 2007 of around 27 bn kilometres. However, since then the figure has plateaued mirroring the trends in car ownership (**Figure 1.7**).

This trend is not peculiar to Wales. A similar pattern has taken place in many other major advanced economy countries where car usage has plateaued or declined - Germany, Australia, France, UK, United States and Japan (**Figure 1.6**).

The conclusion which can be drawn from the evidence presented above is that while car usage may not have peaked, the rate of growth has slowed down considerably and to an extent where major new roads (and in particular motorways) cease to be justified on current traffic forecasting grounds. The issue of traffic forecasts is covered later in this report.

The evidence above indicates that impact of road infrastructure on business may not be as great suggested by many.

This raises several questions.

- To what extent should the Welsh Government build more road capacity to solve peak time congestion problems when over the whole day capacity is clearly adequate?
- Are there other solutions to the movement of people by car? How can active travel and public transport help?
- Will these problems worsen as some forecasts have suggested or do the forecasts overstate rates of growth?
- For how long has a possible flattening of demand or lower rates of growth in demand been occurring?

**Figure 1.4: Map showing journey speeds on main roads – South Wales**



## Current transport methodologies

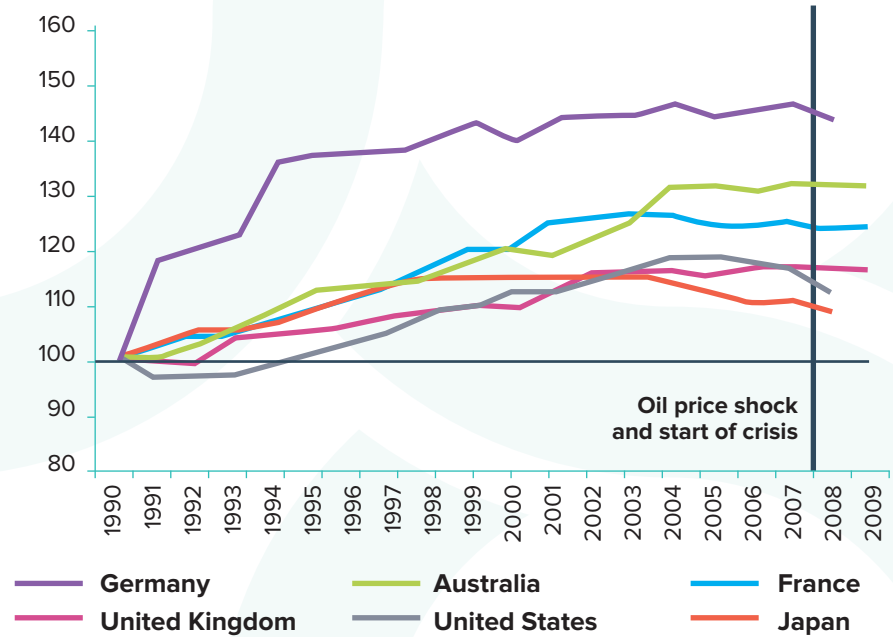
The evaluation techniques used by governments in Wales are:

- WeITAG (Welsh Transport Planning and Appraisal Guidance 2009). This is the Welsh equivalent of Scotland's Scottish STAG and NATA in England. All are similar, but WG is updating WeITAG at present.
- Sewta scoring framework for initial sieve of schemes and for small schemes (Sewta 2014).
- HM Treasury Five Case Model (HM Treasury 2012).

These methods only cover costs and benefits in resource cost terms to the Welsh economy as a whole or to the local economy. There are two key elements derived from the old Department for Transport CoBA model which cover journey time savings and fuel cost reductions resulting from a road scheme. The evaluation models need to be extended to include an assessment of commercial impacts – whether positive from new investment, or negative from lack of infrastructure investment. According to these models, the impact of traffic congestion on businesses resulted in lost time, less efficient business operations and therefore increased costs. Tackling road congestion hotspots is then seen as the highest priority.

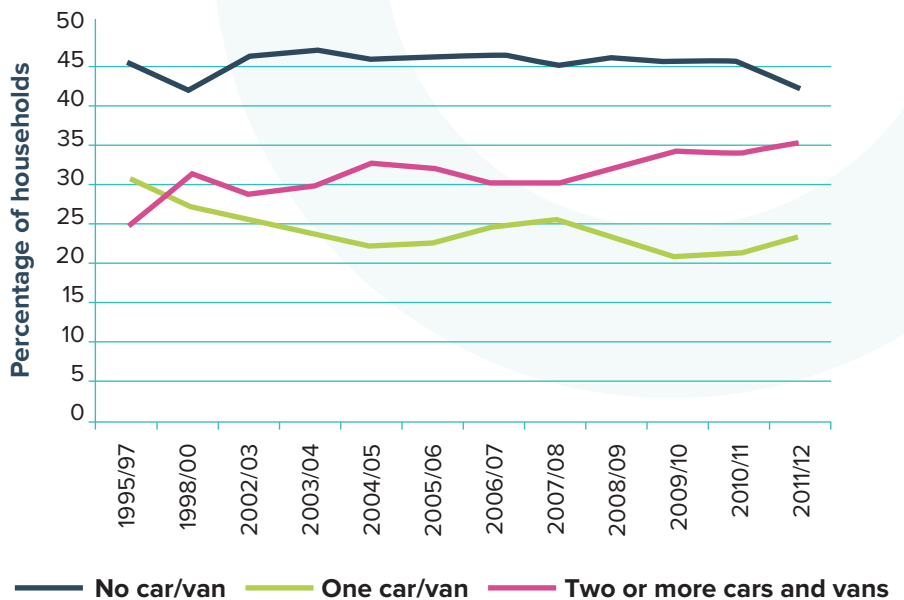
The DfT's transport appraisal procedures have also been criticised by several city regions in a recent report (Investing in city regions – the case for long term investment in transport (Volterra, 2014)). It sums up the current appraisal process as fundamentally aligned to measuring transport benefits in time savings with the same value everywhere to

Figure 1.6: Car usage plateau / decline – international comparison



Source: International Transport Forum statistics

Figure 1.7: Current trends in car ownership 1995 – 2010



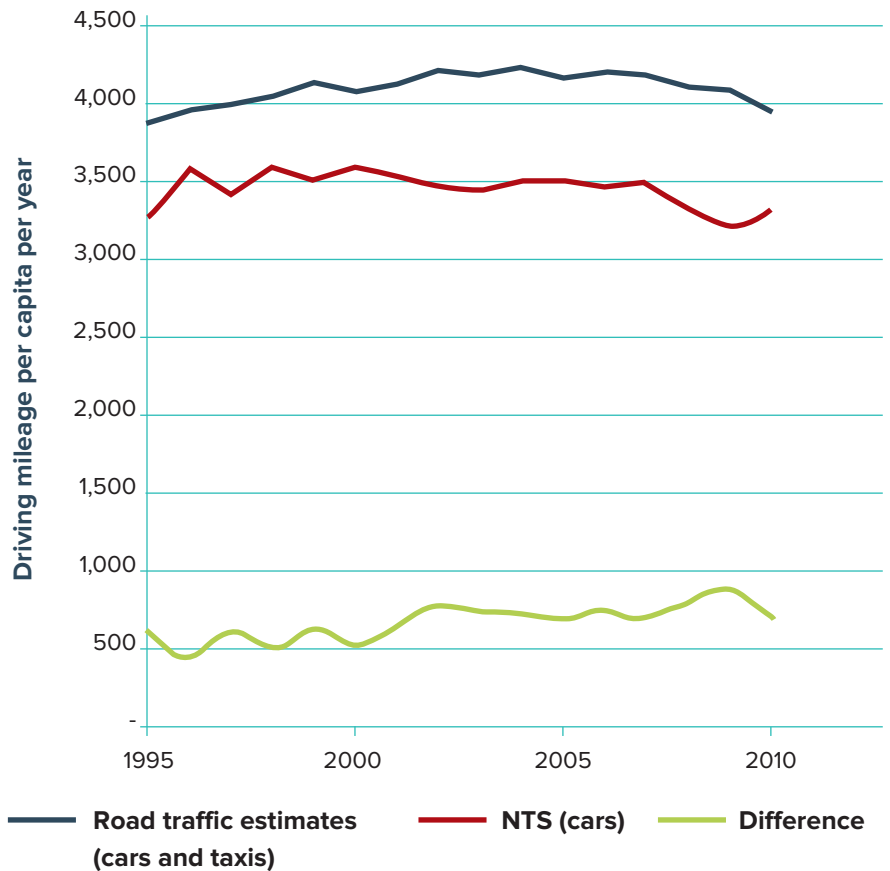
Source: Household car ownership for Wales, National Travel Survey, Department for Transport, London, 2013

ensure equity in investment. The underlying assumption means that transport investments are there to generate welfare improvements (based on generalised cost) and not to generate economic output and therefore aid business expansion and increased employment.

The report refers to projects such as Canary Wharf, originally intended to take light industrial premises, and for which the Docklands Light Railway would have been adequate. However, property developers saw an opportunity for higher footprint buildings employing and housing more than 100,000 people. For this an extension to the Underground (Jubilee Line) was built. The justification was not resource cost savings or welfare benefits criteria but the potential direct and indirect contributions to economic prosperity. The report says growth “can be created by access and consideration of what might happen in the absence of such investments” (Volterra, 2014). The return on such an investment should include fares, taxation on land value uplift, increased tax revenue from additional employment and profits. At present only revenue is considered as a net cost reduction in the appraisal.

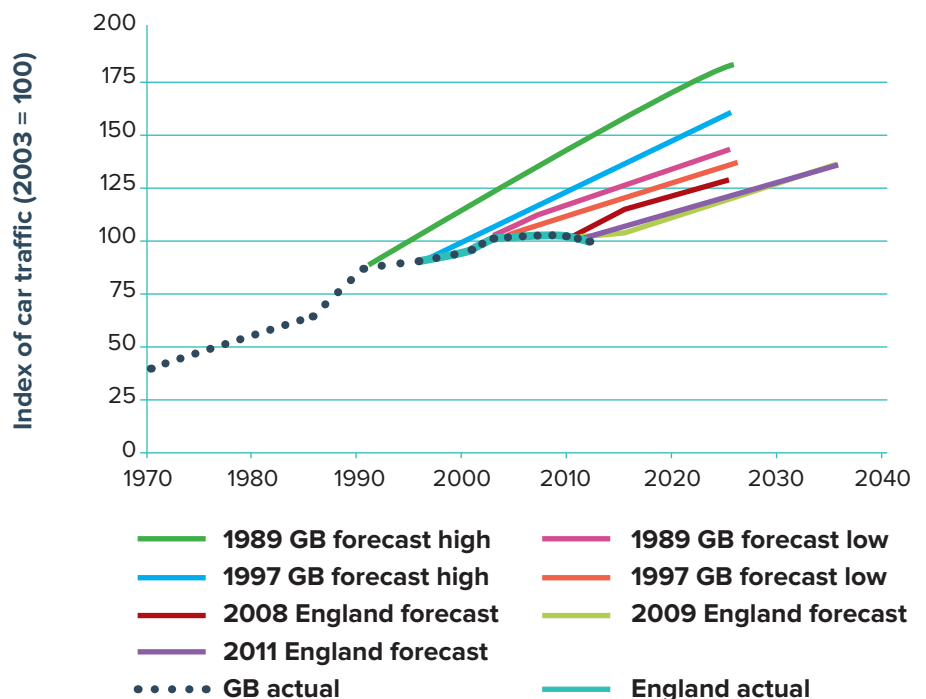
Given the shortcomings in the current methodology employed by Welsh Government and others, it is clear that we need to develop a new and improved methodology for assessing transport investment in Wales. Current evaluation approaches to transport projects are fragmented and do not take full account of the wider impact on communities.

**Figure 1.8: Discrepancies between NTS Traffic Count Data (PJ1) and Road Traffic Estimates (forecasts)**



Source: LeVine, S & Jones, P (2013), On the Move, Technical Compendium, RAC Foundation, ORR, Scottish Government, Independent Transport Commission, Edinburgh and London

**Figure 1.9: DfT Forecasts and actual car traffic growth**



Source: Goodwin, P & Mitchell K (2010). Analysis of DfT data, Institute of Advanced Motorists, London

## Traffic forecasts

Government policy at DfT and Welsh Government was for many years based on predict and provide – predict traffic demand and then provide the required capacity according to the forecast demand.

It is these forecasts that are now being called into question. There has been a consistent difference between the forecast road traffic estimates for cars and taxis and the National Transport Survey for cars over the period between 1995 and 2010. This has varied between 12% and 15% with the discrepancy getting wider in more recent years (**Figure 1.8**).

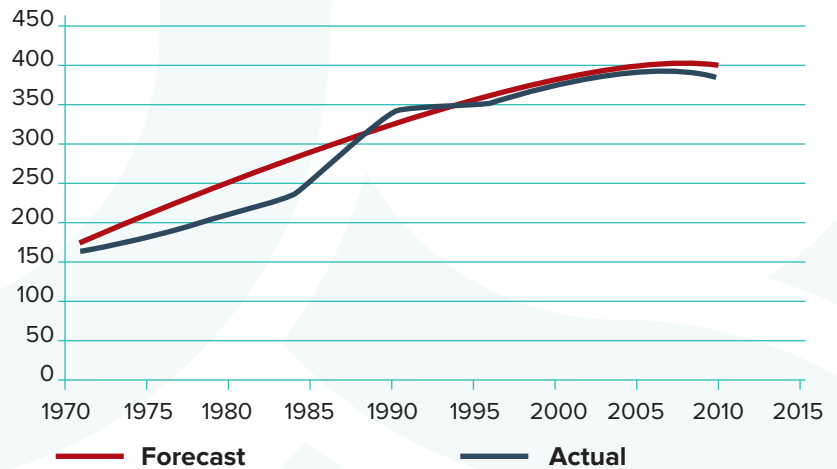
The forecasts are based on assumptions covering changes in:

- GDP;
- Population;
- Car ownership;
- Personal earnings.

The output figures are dependent on the assumed changes in these causal variables over the period of the forecast. As **Figure 1.9** shows, the forecasts relating to current flows made between 1989 and 2011, on which the recent road programme depended, consistently overestimate traffic levels. Traffic has grown but in some cases imperceptibly.

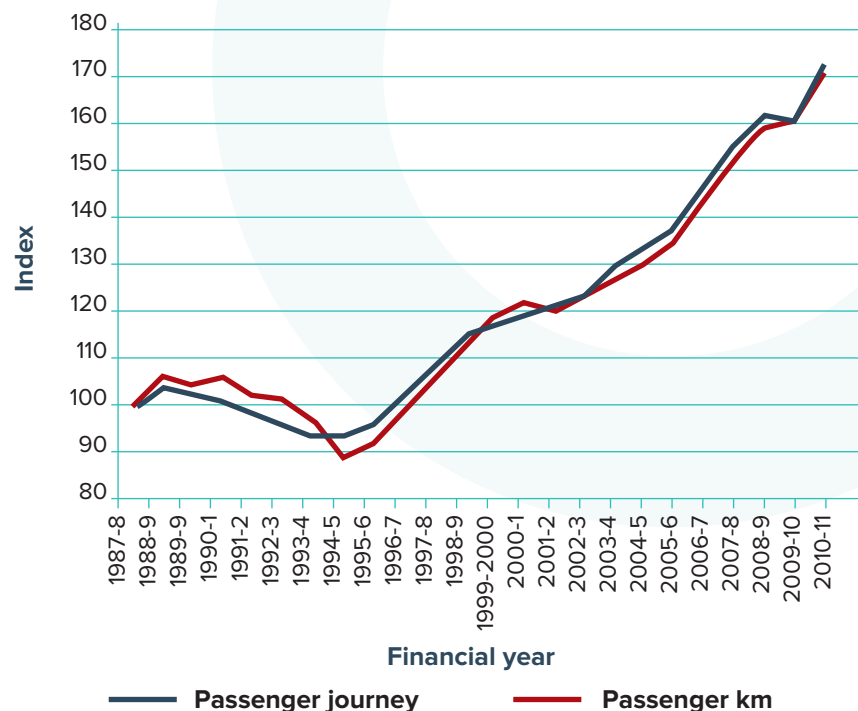
In Wales the Government's own figures show that car flows are in some cases falling. The predictions made more recently by the DfT continue to be overestimates. The consistent overestimation of traffic levels raises a serious question over the causal variables being used in the forecasts and their estimated values.

**Figure 1.10: Car usage saturation forecasts (1973)**



Source: Tulpule AH (1972), Forecasts of vehicles and traffic in Great Britain Report LR543, Transport & Road Research Laboratory; Mitchell K (2013) analysis.

**Fig 1.11: Trends in GB Rail Passenger Traffic 1987 – 2011**



Source: Office of Rail Regulation, London (2013)

The DfT traffic figures show a similar trend with a levelling out of traffic flows to 2014 (reflecting for example the Welsh Government's figures for the M4 J26 – J 27 flows) (WG, 2013; Cole, 2014). The forecasts then become inconsistent with trends in recent years, suggesting that growth will return resulting in an increase in traffic levels of 20% by 2030 (Figure 1.9), despite the lower levels of traffic flow seen in more recent years.

The current forecasting model (TEMPRO) uses assumptions on projections for the following variables:

- Population;
- Household income;
- Workforce;
- Employment.

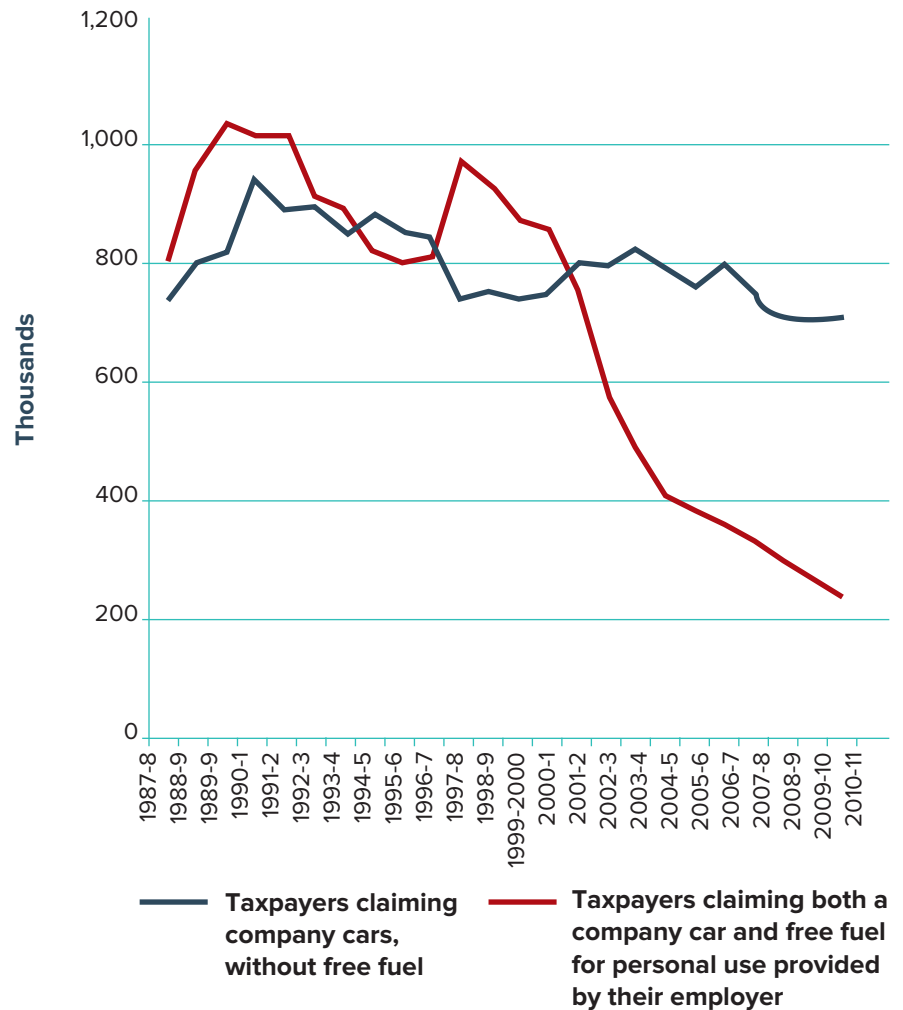
Crucially, TEMPRO excludes public transport proposals and their possible impact on traffic flows.

There was substantial traffic growth in the late 1990s, but a levelling off from 2001 with a slight fall to 2012. There is therefore limited traffic evidence to suggest any change from the traffic flow plateau which has been in evidence since 2001 and a falling mean line from 2005.

The underlying trends for traffic over the last eight years have been affected by:

- The economic downturn with wages falling in real terms or unemployment reducing work journeys;
- Traffic congestion on strategic routes resulting in a transfer to train;
- Improvements in rail service capacity and reliability following investment by the Welsh Government in rail services since the new franchise took effect in 2004 / 05;

Figure 1.12: Company car tax regime UK – impact on usage



Source: On the Move Figure 5.3 RAC Foundation et al (op cit)

- The increase in petrol costs compared with rail fares has resulted in a cross price elasticity effect with a modal shift from car to rail.

The traffic forecast and the actual position saw a levelling off by 2007. However in the late 1980s, the forecasts had consistently overestimated traffic flows. Incorrect assumptions on the underlying variables overestimated actual car traffic growth.

If there is a basic change in the relationships between demand and the variables used to predict

demand then those changes have to be reflected in forecasting models.

This does not always happen and often assumptions about growth in modal demand do not even reflect the actual over several years. Therefore the forecasts are wrong not because the wrong variables are used but more that the values and relationships attached to the causal variables are over or under estimated.

Traffic forecasts in past years, for example Tulpule (1972), expected saturation in car usage to occur in

about 2010. That meant that anyone aspiring to own a car had one and from then on only replacement vehicles would be bought. The traffic forecasts were very accurate but Professor Phil Goodwin suggests possibly for the wrong reasons. It may have been a coincidence of counteracting assumptions.

A major report on traffic forecasts suggests causal factors are missing from the DfT model: The 'On the Move' (RAC 2013) report suggests possible causal factors for the flattening of car usage:

- Increases in car costs;
- Income and GDP effects;
- Deterioration in road conditions;
- Improvements to the rail network (and in South Wales these will be significant in terms of track capacity, train capacity especially in peak commuter periods, and reduced journey times following electrification and development of the Capital Region Metro);
- Spatial planning policies such as integrated plans for housing shopping and leisure on major housing development sites;
- Smarter choices;
- Improved mobile and internet communications reducing the need to physically transfer documents and the need to physically be at the same location to facilitate a meeting;
- Company car ownership and free fuel taxation regulations relating to payment in kind, have cut the number (in Great Britain) of taxpayers claiming both car and free fuel for personal use provided by employers from over 1m in 1989/90 to 220,000 in 2010/11.

Professor Phil Goodwin (Goodwin, 2012) also suggested non – transport trends as causal variables in the plateauing of car use.

Figure 1.13: Income and car usage – no longer linked

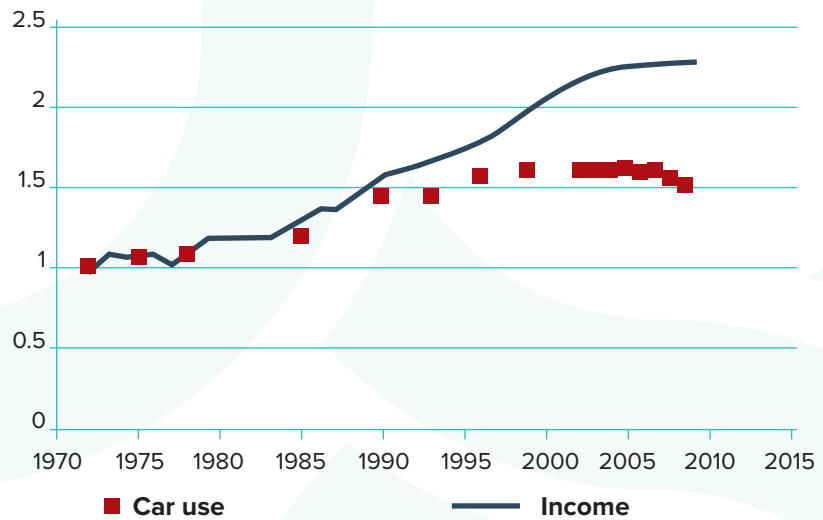
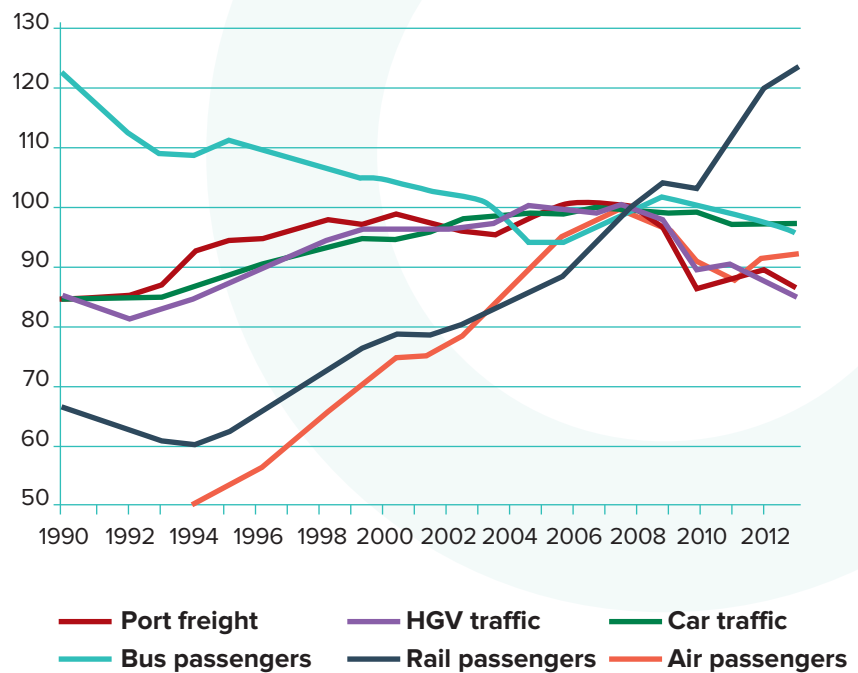


Figure 1.14 Changes in transport demand



DfT (2014) Moving Britain Ahead: Transport analysis developments and challenges, Department for Transport, London

- Cultural and attitudinal changes;
- Health, and environment as motivational factors to cut down on car use;
- Demographic changes – ageing population; more single person households; women having children at a later age; young people and ‘empty nesters’ going back to live in city centre locations;
- Changing images of contemporary life and work/life balance;
- An increase in online shopping;
- The growth in internet access, e-mails etc. from mobile phones.

## Rail usage impacts

Rail usage continues to rise from 1994 – 95 (index 90) to 2010 – 11 (index 172). This almost doubling of passengers does not however provide the only factor in the fall or flattening of car usage.

Any continuation of the trends seen in the recent recession, or cross price / service elasticity factor creating more modal shift to rail could result in even greater increases in rail travel.

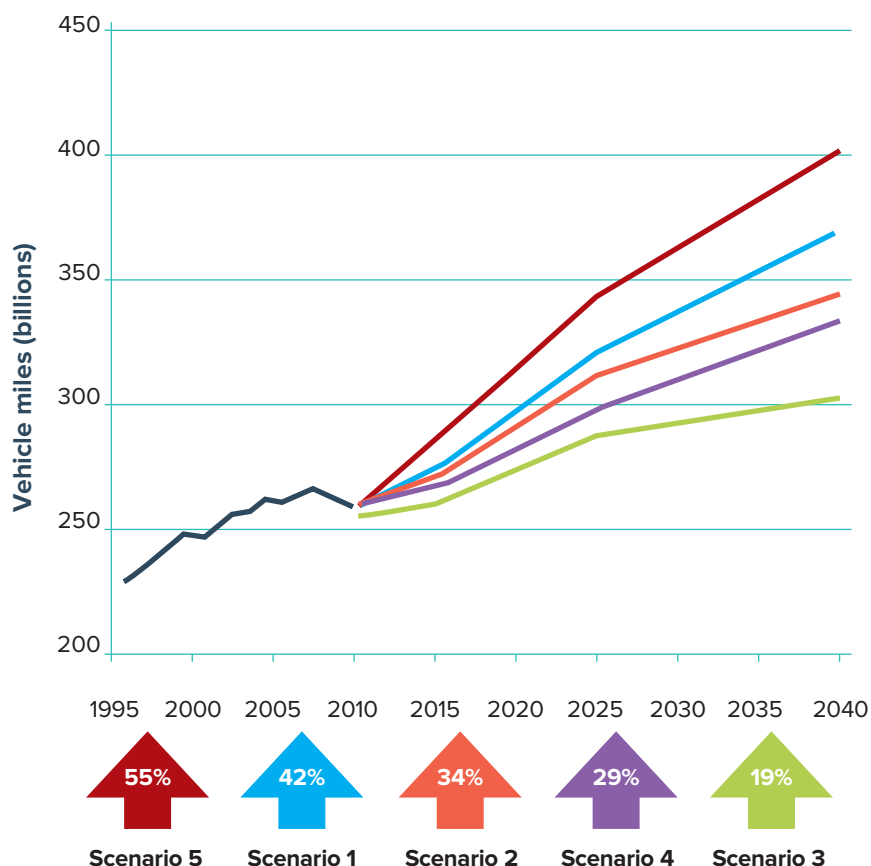
## Fuel price impacts

Fuel prices are a short term influence on car use – the price elasticity of car travel is such that if the real price of fuel rises by 10% and remains at that level for a time then traffic volume falls by about 1% per annum and by 3% over five years or more. Despite short term ‘price wars’ by major supermarket, the long term change in real fuel prices is the key determinant. The real pump price of petrol and diesel in pence per litre increased from either side of 80p over the period 2000 to 2007 to either side of 100p per litre by November 2012. The impact of the recent drop in fuel prices remains to be seen.

## Company car taxation impacts

The report (RAC, 2014) suggests that the company car reduction may be a one off movement but gives no evidence for this. As **Figure 1.12** shows, changes to company car taxation policy can have a marked impact on company car usage.

Fig 1.15 Forecasting demand for future travel



DfT (2014) Road Investment Strategy - Strategic Road Network, Department for Transport, London

## Population impacts

In the longer term two other factors have an effect on car usage in a direct relationship. Firstly, if the population rises then car usage will generally rise as car usage is similar per average car user. In Wales the population projections from the 30 – 69 age group is fairly constant from 2010 to 2034. The under-29 age group is fairly constant while the over-70s group shows a gradual increase (RAC, 2014). It is this latter group which shows (in the case of males) an increase in usage but that would be expected to be largely in the off – peak times of day.

Secondly, in terms of car ownership, the number of cars per household is important. Car ownership amongst households with one car has remained fairly constant (**Figure 1.7**). The percentage of households with more than one car has increased while there are fewer households in 2009/10 with no car than there was in 1995/97.

However new car/all vehicle registrations in Wales have fallen consistently between 2004 and 2011. In 2004 over 120k vehicles/100k cars were registered; by 2011 the ‘all vehicles’ figure was at 80k and car registrations at around 70k. The slight recovery to about 85K vehicles (of which about 72K were cars) can hardly reflect Society of Motor Manufacturers



and Traders's view of new car sales being "particularly healthy" (SMMT, 2015).

## Impact of personal income

Many researchers suggested (1974 (Zahavi), 2000 (Schaeffer and Victor) and 2010 (Metz)) that if time availability for travel is reached then there will be a peak in car use. The saturation level has been reached for the desire, need and freedom (of time) to travel. Consequently car usage has peaks. Indeed in the case of some higher paid people the amount of car travel falls. This may be because they have considerably less in-work travel.

Income elasticity of car travel (**Figure 1.13**) indicates that if real income rises by 10% then traffic volume rises by about 2% in a year increasing to 5% or more over 5 years. The impact on vehicle numbers rises by 4% in the short term and 10% in the longer term. In Wales and in the south east in particular, since 2006, real earnings have fallen.

Schaffer and Victor suggested that income elasticity in relation to distance is strong but travel time is fixed or at a maximum. Thus those on higher incomes move to fast modes. Total distance goes on increasing but slow modes such as the car are replaced by air or high speed train. They suggested that car use in the United States had reached its maximum by 2010 and declined in OECD countries.

Metz suggested that if distance (increasing with speed) has diminishing marginal utility and total travel time is fixed then total travel time (including car time) is

saturated. We have reached that point in the mid 2000s and that plateau now continues. If there is a decline, that is due to an economic recession.

The fall in car usage has also affected all income groups other than those earning under £10,000 per annum, with the biggest fall being among those earning more than £30,000 per annum. The peak car effect has been more marked for those men aged 16-29 where there has been a fall in usage. For those aged over 29 the pattern for personal car use has been a slight rise to 2003 and a flattening out of demand since then to 2010.

## Changes in DfT transport forecasting scenarios

The DfT has changed its approach to road traffic forecasting since the current methodology was introduced, although that older process is still in use, for example in the M4 relief road options (Black, Purple and Red) around Newport. In the Blue Route proposal (Cole, 2014) the new approach was recommended.

Road traffic flows in England are predicted to grow by between 19% and 55% between 2010 and 2040 in the DfT's latest traffic forecast published in May 2015. This is despite a flattened trend and reduced car traffic demand since 2004.

The only increasing trends were air traffic which fell sharply from 2007, and rail passenger traffic which looks to continue its upward trend on a consistent basis since 1994. This has generally avoided any "recession" effect. It may

have resulted from factors such as congestion, environmental concern and a change in lifestyle especially in urban areas and amongst young males (Goodwin, 2013).

The increasing criticism of the current methodology from transport planning and economics professionals was based on the continuing significant differential between forecast and actual traffic flows. **Figure 1.14** shows this was marked in recent years with actual flows hardly changing since 2006 yet with predictions continuing to show a rise. The National Transport Model (NTM) relates to the English road network but is essentially the same model as that used in Wales.

From 2015, the DfT has employed a scenario based approach (**Figure 1.15**):

- Scenario 1 assumptions are as in the 2013 forecast with a base line affected by increases in incomes and costs (e.g. fuel) as the causal variable for travel choices and trips;
- Scenarios 4 and 5 are a variant of Scenario 1 with higher and lower oil price increases respectively;
- Scenario 2 removes the income elasticity element in the forecast so that income is no longer a causal variable because DfT reckons the strength and nature of that relationship may be changing;
- Scenario 3 takes into account the decline in trip rates over the last 10 years (**Figure 1.15**) and extrapolates that rate to 2040. DfT give the view that the recession is a part of the cause. However, levelling off of trip numbers began around 2004 (**Figure 1.15**).

The National Transport Model (a variation of which specifically for Wales is used by the WG) according to the DfT has a “good track record” when inputs for GDP growth, fuel costs and population are correct. However, with such a range of growth assumptions a cynic might say at some point it is bound to be correct. English regions such as the North East / North West with similar economic characteristics to Wales have the lowest rate of traffic growth.

“There will also be other factors such as congestion constraining traffic and greater choice of other modes” – DfT. However, traffic planners argue that the other causal factors suggested by Professors Jones (RAC 2013) and Goodwin (2013) have still not been included.

Stephen Joseph of the Campaign for Better Transport says that the DfT “have at last accepted major traffic growth is not happening but that forecasts still include questionable assumptions that car ownership will continue to climb and motoring costs will continue to fall” (LTT, 2015).

## DfT position on new methodology

Dr Amanda Rowlatt, DfT Chief Economist (2015a) in her presentation at the Transport Economists Group (Rowlatt, 2015b), set out the DfT position. In January 2015, DfT published its report ‘Understanding the Drivers of Road Travel’. This reported on a varied range of new evidence-based analysis including statistics, social research, modelling and appraisal using tools developed with leading transport experts. A key objective was to understand why the growth

in national traffic has slowed down over the last 20 years and in particular in the last ten. Reference was made by Dr Rowlatt to the suggestion that car travel had reached a peak (Jones & Levine, RAC, 2013).

However DfT disagreed with this conclusion and argued that aggregate trends are masked by changing behaviours with young men driving less while women and older people are driving more; some temporary factors such as company car taxation rules and some longer term – economic and demographic (Jones, Goodwin, Blue Route Report op cit). The DfT has also produced a further report providing a detailed discussion of the factors underlying the Road Transport Forecasts 2013. This considers factors DfT now know (but presumably did not before) which influence travel decisions - not just income and costs but changes in car ownership, demographics, planning data and congestion levels. This last element may well cause an increase in, for example, rail travel, home-working and/or changes in times of day for journeys.

DfT continues to assert it has correctly accounted for changes in population levels, GDP and fuel costs and it has tracked travel trends closely. This is not entirely the case. The DfT also say they “know commentators and academics doubt our forecasts and question whether these forecasts give sufficient consideration to other factors at play” (LTT, 2015). DfT suggest that a contributor to this scepticism has been the lack of transparency around the forecasting approach and the assumptions underlying them.

DfT, and therefore the Welsh Government Transport Division, conclude that traffic volumes continue to grow. This conclusion reflects factors such as income increases and population levels, reductions in fuel costs derived from increased fuel efficient vehicle engines. The DfT review (DfT, 2015) found the other variables (above) - demographic change and congestion-related capacity constraints are important. However there is much work to be done on the impact which technological change, changing social attitudes or lifestyles have on traffic flows.

DfT will produce a new version of demand assumptions for schemes in 2016 following this current review of causal variables.

## Urban policy and transition

Economically wealthy cities with high incomes and growing populations show the greatest reduction in car use. Such a trend exists in London, Munich and Paris and in smaller cities such as Strasbourg.

Cardiff has those same characteristics. It is:

- Economically buoyant with increasing employment opportunities, many at higher income levels;
- Home to a large student population who choose entertainment and lifestyle spending before car ownership and usage;
- A young city with a significant proportion of people under 30 years, who are more likely to be city centre dwellers, and/or non-car owners who prefer to walk or cycle.

There have been reductions in car use in medium-sized towns and in 'sustainable travel towns' (2004 - 08) and lower car use in high density new urban developments. This is the case in Cardiff and Newport. Thus policy impacts and lifestyle change have also reduced car usage, lower levels of car usage are not restricted to an economic downturn.

Travel behaviour will continue to evolve. The real issue then is by how much will car use grow and will it be anywhere near the previous forecast? The scenarios suggest it could be as low as 19% (Scenario 3) over the period 2010 to 2040. Wales would be expected to have one of the lowest growth rates in Great Britain and at present has a negative growth (i.e. reduction) in traffic flow.

## Transport forecasts – conclusions

There was substantial growth in traffic in the late 1990s but a levelling off from 2001 with a slight fall to 2012. There is therefore limited traffic evidence to suggest any change from the traffic flow plateau which has been in evidence since 2001 and a falling mean line from 2005.

The conclusions to be drawn on future trends applicable to most British and European Union road projects are:

- The presumption that car mileage has peaked arises from contrasting trends of reduced car usage in London, accompanied by increases in rural areas. It might be suggested therefore that areas such as Cardiff, Newport (and Valleys / Vale) and Bristol could be in between those two extremes.

- The forecast outcome (WG 2013) does not reflect the recent trend and shows a sharp uplift from 2012 to 2030 of 20%: an average growth of just over 1%;
- The assumptions are based on economic activity and car ownership rather than projected changes in modal split with no interpretation of the impact of major rail investment;
- The main drivers of the growth in car use – income, prices (e.g. fuel, competing public transport), population size and projections have not changed in any major way;
- Car usage is likely to grow following economic recovery or increased consumer confidence, at a declining rate but in proportion to population change through the 30 – year forecasting period;
- We can expect less driving by men (the higher in numerical terms and therefore a higher base figure), more by women;
- The biggest reduction in male mileage (30 – 60) was due to a reduction in company car use following higher taxation and so has this run its course?

“But the future depends on which trends win out e.g. will women’s mileage continue to increase and will those in their 20s keep low mileage in the future?”.

– Professor Peter Jones

# PART 2 : BEYOND THE CAR

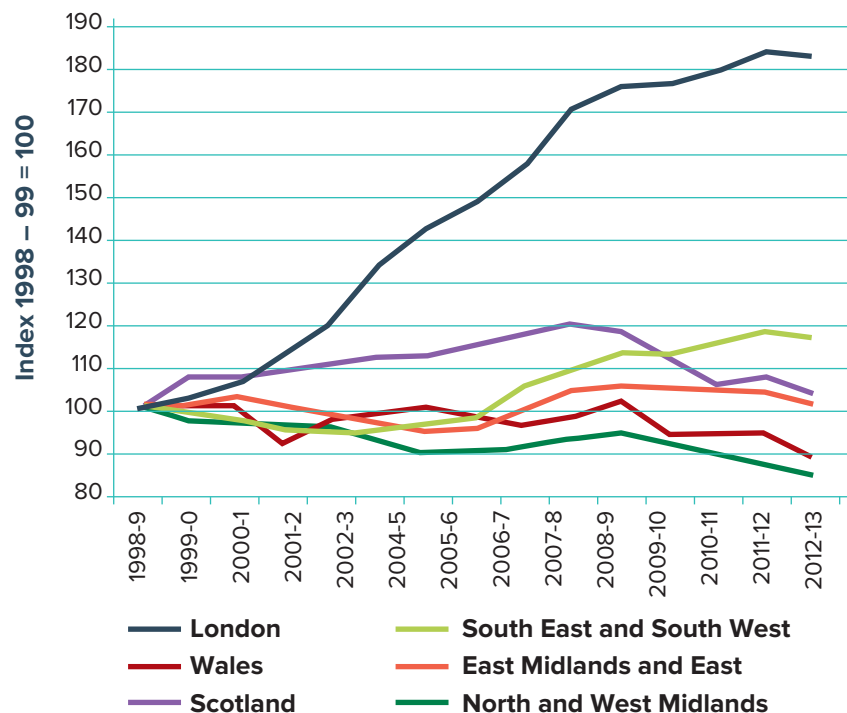
## Bus services

Buses are often seen as a form of public transport unsuitable for business travel particularly outside London. A variety of factors account for this in a central London context. The use of buses for very short journeys in place of more expensive taxis combined with their frequency and modern fleet makes them “acceptable” to business users. Taxis are also available for specific business trips and the Underground for longer central trips or long suburban journeys and commuting. London also has a central transport body, Transport for London, with control over all aspects of transport either directly or indirectly. It has full control over all bus services in London which were never deregulated.

Figure 2.1 shows how factors such as convenience, frequency, comfort pricing structure and multi-ride ticketing has led to growth where elsewhere demand has fallen or stayed level. This chapter will show how if some of the London characteristics are adopted, passenger growth can be achieved (e.g. TrawsCymru and Bwcabus).

Analysis of comments in the FSB Wales survey (2014 Q9) on public transport highlighted the following priorities for business travellers if they were to be persuaded to transfer from car usage to bus/train:

**Figure 2.1: Bus passengers: Trends in passenger numbers 1998 – 99 to 2012 – 13, Wales, Scotland and English regions**



Source: On the Move Figure 5.3 RAC Foundation et al (op cit)

- Lower rail and bus fares;
- Increased public transport coverage;
- Increased service frequencies;
- Better integration of bus/train services and provision of multi-ride ticketing.

These were the top four measures that would encourage companies and employees to use the public transport network more often for business. The following analysis shows how this is also seen as the way to increase public transport patronage and shift modal split away from the car.

It also identifies the delivery issues in operational and public finance terms and points out that most congestion is in urban areas. These same areas are more likely to have the critical mass of travellers who could justify the investment level involved. Two cases of rail investment in rural areas have recently been reconsidered.

Discussions with leading bus/coach/rail operators and local authorities gave a collective picture of how they saw demand causes and the development of the business.

Companies who discussed the market were:

- TrawsCymru and Bwcabus directly from Professor Stuart Cole who created and set up both operations for the Welsh Government and is now advisor to the operations and has been advising the Minister on the next stage in the development of the business as an integrated whole over the next three years;
- NAT Group;
- Cardiff City Transport;
- Stagecoach;
- First Cymru;
- Edwards Coaches;
- Brodyr Richards;
- Arriva Buses Cymru;
- Lloyds Machynlleth;
- Express Motors;
- Trenau Arriva Cymru/Arriva Trains Wales;
- First Great Western;
- National Express – Coach.

## Price elasticity of demand

The lower the price the more likely people are to use the transport service offered. This is a basic principle of economics and is generally true of passenger transport as it is of most other services with the exception of luxury non-essential services such as the cruise, Venice Simplon Orient Express or luxury chauffeur-driven car markets.

Price reductions might in themselves attract new passengers to the services; these are often travellers who did not use that service or used it less frequently. This is a form of dormant demand held down by the price level. In a competitive market there will be a variety of prices and the movement of one or other

can determine which particular transport service is purchased. The rise in petrol prices in Great Britain to 134.9p per litre led to a reduction in non-essential journeys by car.

There are three determinants of such journeys (Cole, 2005). Demand elasticity will be low (i.e. little change from a price rise / fall) if:

- The journey is essential;
- There is no practical alternative mode (in journey time, route availability);
- The cost of the journey forms a very small percentage of the traveller's income.

The most recent high point for petrol prices was accompanied by a shift to public transport, but this was not as great as might have been possible. This may be because there was often no practical alternative.

The decision by the traveller as to which mode to use will determine demand and a cross-price elasticity effect can result in passengers looking at the competitive costs on offer from car, coach, bus and train.

## Quality factors

### Speed of Service

For many commuters the journey time from home to work is a key criterion in modal choice. Journey time will be affected by both the quality of the infrastructure (which will increase productivity and reduce costs), and the consequent or possible speed of the vehicle.

In international travel between London and Paris the arrival of Eurostar with relatively modest fares (advanced purchase) competitive with those of British

Airways and Air France attracted most of the airline passengers onto the railway. The journey time of 2h15m (city centre to city centre) has also been a factor for the major part of the market.

Journey time and price are considerations for those travellers between Swansea and Cardiff where competition exists between Great Western Railway/Arriva Trains Wales, the First Cymru Greyhound and National Express Coach services. From Bangor to Carmarthen the public transport options are TrawsCymru (T1/T2) via Aberystwyth and the Arriva Trains Wales service via Cardiff. Often the route mileage for the journey by rail may be greater than the equivalent journey by car / bus / coach. However the journey time may be similar.

### Frequency / Times of operation

The service times must be those which suit travellers' needs. Many people wish to arrive at work by 08.00 – 09.00 and leave between 16.00 and 17.30. This is the most used operating period for bus companies and includes the retail market and much of the travel market.

What it does not do is serve the evening market or those working shifts. These are often subsidised services tendered by local authorities. It also means that with reduced expenditure levels these evening services are being reduced and companies may not be prepared to take the financial risks that come from their development. Thus while a journey into a central business district may be possible by bus the return journey may not. On the railway network the timetables and subsidy is

determined within the franchise agreement with both legs of the journey in and out being provided. The financial risk can be partly with the Government and partly with the train company (Arriva Trains Wales).

Frequency is an important factor in attracting passengers and seen as a quality element. For urban travellers the high frequency bus / train are more likely to occur either commercially in densely-populated areas or tendered at certain times of day. But reliable bus services in rural areas have been shown to be a reason for success in growing passenger numbers and perception of public transport as an option, even though the frequency may only be hourly.

The competition legislation originates from the British bus deregulation and EU competition rules. It has had positive benefits where two or more companies compete for a route, usually in urban areas such as Cardiff or Newport. However, the pattern is more likely to be one of no interchange of tickets particularly between different companies' commercial operations, and subsidised services (e.g. evening) and commercial (usually daytime) services operating the same route. There are also patterns of operation where one company operates more or less exclusively in one area of a city and another in the remainder.

### Standard of Service

Public transport users set the standard of service by:

1. Reliability and timekeeping of the bus or train
2. The quality and cleanliness of the vehicles
3. Easy and comfortable interchange between services

4. Helpful and polite staff and customer care Information which is easy to obtain, easily understood and up to date / real time
5. Clean, as new as possible vehicles or trains
6. Comfortable, secure waiting areas or railway stations
7. Ease of purchase of the correct ticket
8. Convenient park and ride for cars, cycles and well lit safe walking routes to the boarding point.

### Comfort

Many users of public transport make a comparison with their car and the bus / train in terms of the travel experience. While there is the advantage of being driven in public transport, the accommodation can be crowded or overcrowded. Train advertisements have sold the train as a mobile office (particularly for long journeys) and this remains true as a comfort element. But narrow seat pitches and inadequate seat back flat surfaces lose that advantage over the car.

### Reliability

A frequent reason for loss of patronage is the failure to get passengers to their destination or to a connecting service at the scheduled time. Passengers have an expectation that their train will arrive at or close to the time set out in the timetable.

### Safety

This is always a concern for all travellers, government and operators. However, public transport compares well to the private car in terms of safety.

### Case Study – Quality

Based on Welsh Government and Carmarthenshire County Council survey results the area of north Carmarthenshire and Ceredigion served by the Bwcabus and TrawsCymru integrated bus operation and linked to the train services at Aberystwyth and Carmarthen have attracted passengers with growth rates of up to 40% per annum.

The market research carried out for these services has shown an increase in demand resulting from high level of reliability and timekeeping, high quality interiors on the TrawsCymru services with high brand values such as leather seats, on board free Wi-Fi, clean vehicles inside and out provided with a 95% consistency of provision, integrated into other services such as the Bwcabus and feeder bus services.

### An integrated transport policy

There is a generally accepted view that the long term (30 – 40 year time span) solution to the energy and pollution consequences of the motor car in Europe and the other oil-using areas of the world must be the delivery of an integrated transport policy. Wales is in this regard representative of the EU as a whole.

As a relatively small country with an established pattern of spatial development, Wales has clearly definable areas, namely:

- Major urban areas;
- Valleys communities;
- Affluent rural areas ( often referred to as “urban shadow”);
- Rural market towns
- Remote (often called “deep rural”) areas.

Each of these area types has particular transport needs. Future aspirations for transport service provision in each area type need to be explicitly stated so that a blueprint can be developed with appropriate targets for service provision by each transport mode.

The Welsh Government, both directly and by commissioning studies and reviews, has moved towards the recognition of transport problems and has identified some possible solutions. These include the extension of transport concessions, extension of Transport Grant allocation to cover a three-year period, and increased use of transport telematics.

There is a clear recognition that the urban journey-to-work movement is where the most dramatic changes must occur. This does not mean that other aspects of policy, such as greater inclusivity (with a focus on accessibility rather than simply mobility) should not be vigorously pursued, in parallel. However, without addressing the journey-to-work problem, it is unlikely that other aspects will achieve or deliver overall aspirations.

Changes in the powers of the Welsh Government and the National Assembly for Wales should be sought on the basis of a clear rationale. In the case of transport much of the responsibility already lies with national or local government institutions. There are some developments for which powers already exist (e.g. the Joint Transport Authorities provided for in the 2006 Transport (Wales) Act) but which have not yet been implemented.

Logistics and supply chain management facilitate operational freight integration to achieve commercial objectives and the most efficient means of moving goods. There is no similar framework on the passenger side where there are four policy and operational aspects to integrate.

## Integrated Transport Policy – definition

Considerable discussion has surrounded this policy but what does it mean?

An Integrated Transport Policy examines four relationships:

- **Integration within and between different types of transport** – better and easier interchange between car/bus/rail etc. with better information on services and availability of integrated tickets. The same applies between public and private transport, between motorised and non-motorised (walking, cycling) transport and within public transport;
- **Integration with the environment** – considering the effect of transport policies on the environment and selecting the most environmentally-friendly solution whenever possible;
- **Integration with land use planning** – to reduce the need for motorised travel and to ensure new developments can be reached by public transport;
- **Integration with policies on social welfare, education, health and wealth-creation** so that cross-cutting policies on issues such as social inclusion, school travel, cycling and walking, and the profitability of business work together rather than against each other.

The preferred structure to achieve such integration nationally, regionally or locally has two prerequisites:-

- a. A single policy and budgetary authority at the strategic (geographic) level both national and regional. This would also be the co-ordinating body for all modes of public transport.
- b. Co-ordinating bodies at operational level to achieve seamless interchange between modes, within modes, and between modes and land uses/human activities. This relates to physical interface and the provision of through ticketing.

## Experience in other European Union States

While services in (b) may be provided by contractors, provisions in (a) must involve a single body at the national and regional level carrying out both functions. This may be through a government department or an arm's-length corporate body or company.

The elements of such a system exist in other member states of the European Union where high investment levels, together with policies for the co-ordination of services, fares and infrastructure developments, may be found in major centres as well as in local areas.

The Regional Councils of France have transport as a major policy issue with their responsibility covering local railway services (along with Societe Nationale de Chemins de Fer – SNCF) and bus operations in the municipalities.

In Sweden regional public transport bodies run local bus and rail services in a country with extensive rural areas, a small population (8m) and a concentration of people in a small part of the total land area.

The Netherlands has a national ticketing system for local public transport (originally called the Nationale Strippenkaart) and a national railway service, but with provinces being responsible for stations and for all bus, rail and train-taxi services which may be directly operated by a government-owned body or by a private company franchised by the appropriate local or national authority. Track operations are retained by the state-owned Railned.

In Austria, the Land (equivalent to the consortia areas) has responsibility within its area for all local public transport and land use planning. This is linked into a national policy for rail services. Joint ticketing exists on all services within the Land. Austrian Railways (a public sector body) retain operational control and ownership of the track.

This report proposes that Wales would follow the above in many ways, but would be taken further to the point where management control, finance, policy and service provision (though not necessarily service operations) would be conducted by one national, and four associated regional, bodies (the Joint Transport Authorities proposed in the Transport (Wales) Act 2006) based on the geographical areas of the current transport consortia and county council groupings.

## Elements

If the analysis is confined (for the moment) to passenger transport then the elements identified below can be integrated (with a trade-off in expenditure between them based on a single multi-modal evaluation technique).

The elements are:

- Road investment;
- Rail investment (infrastructure, rolling stock);
- Bus investment (terminals and vehicles);
- Public transport interchanges;
- Walking/cycling facilities investment;
- Traffic management (physical and fiscal);
- Public transport fare levels) and consequent;
- Public transport service level) contractual payments.

## Rationale

The key objective of integrated transport for Wales would be to provide for a split between accessible and affordable modes of travel which are both sustainable and become the preferred modes of travel.

Wales, as indicated above, has a variety of spatial characteristics:

- Densely populated urban areas (e.g. Cardiff, Newport, Merthyr, Ebbw Vale, Swansea, Wrexham);
- Major towns (e.g. Neath, Port Talbot, Llanelli, Aberystwyth, Llandudno);
- Important rural centres (e.g. Carmarthen, Haverfordwest, Castell Newydd Emlyn, Llandeilo, Brecon, Newtown, Ruthin, Denbigh);
- Deep rural Wales (e.g. Ceredigion, Powys, Gwynedd).

The potential for journey modal transfer from car to public transport

therefore varies between urban and rural areas.

However this difference can be narrowed though a radical new approach to rural bus services. Regular-interval fixed-timetable operations suit urban areas with high patronage levels but have only limited value in rural areas. The Bwcabus computer/satellite/GPS and flexible scheduling bus system responds to demand and has enabled a radical and successful (in increased patronage terms) approach to rural public transport.

Generally there is a need for improvements in the public transport system before car users can be persuaded to change, and non-car owners are able, to make reasonably timed and priced journeys.

Its current powers provide the Welsh Government / National Assembly with an exclusive national role only in roads, with a further role in road/rail transport through its links with local authorities. Rail expenditure is split between the Welsh Government (train services funding), the Westminster Department for Transport (train services and track funding) and Network Rail (track investment and borrowing funds). This severely limits its ability to balance investment between the best solutions to transport problems.

## 4I's Concept

As outlined previously, the 4I's concept identified the following as the integration equation for passenger transport:

**Information + Interchange + Investment + Imagination = Integration**



The absence of any of these elements will hinder or even prevent the development of an integrated passenger transport system. A transport body for Wales could effectively manage each of these elements.

## Active travel

The principles set down in the 2013 Active Travel (Wales) Act and the subsequent documents - Design Guidance; Action Plan; and Delivery Plan - form the first stages in the Welsh Government's move to encourage active purposeful travel to and from work.

But this starting point has to be taken further through the integration of walking and cycling with public transport. In addition to complete trips by bike or on foot, there is a large untapped market of current car commuters. They need clear route information, suitable waiting areas and secure cycle parking at railway and bus stations and at key bus stops to be persuaded over time to change to a multi-modal journey.

There is increasing evidence of the impact of creating high quality interchange facilities such as secure cycle storage at suburban railway stations (as suggested by Abellio Rail in their application of the Bike2Go scheme (Evans, 2014)) and at major bus stops serving a large population or several routes. This evidence is mounting as more locations are constructed and we learn more of the impact of longer term schemes like the Netherlands and Denmark. Many railway stations have cycle storage and this may need to be made secure or extended.

Waiting facilities at railway stations are generally adequate and in some cases good. At bus stops the quality varies between good and poor, with no shelter from the elements at all in too many locations.

Such a modal shift has benefits for small businesses in terms of reduced parking costs, increased sales and reduced road congestion. In Antwerp 'Sheffield' type cycle stands erected by retailers have improved sales for individual businesses and whole locations.

It is not easy to identify which type of infrastructure scheme provides the greatest benefit as it will often depend on where the scheme is located, the target audience for the intervention and the relative impact of the scheme. For example, upgrading a crossing from pedestrians-only to include cyclists along a key corridor may have more impact than a long section of new route between two small settlements. Experience indicates the greatest benefits are derived from schemes which have a clearly defined target audience and use a combination of infrastructure and promotional/behaviour change elements. (WLA, 2014)

There are several different benefits which could have different policy weightings depending on the priorities of the community or government.

These include:

- Health (Davies, A, 2014; MOL 2014);
- Numbers of people cycling or walking to work;
- An integrated approach to personal mobility, through modal change from motor car and its effects on:

- congestion from fewer motor cars
- CO<sup>2</sup> emissions
- other environmental factors
- car / person accident levels
- increased use of buses and trains leading to increased revenue; reduced public revenue support (subsidy); justification of further investment in public transport services and facilities (from bus shelters to rail / bus stations)
- increased public transport revenue/reduced subsidy
- Improved shopping environment leading to increased spend;
- Access to facilities improved;
- Convenience, accessibility, comfort for pedestrians and cyclists.

## Benefits

'Encouraging cycling to work reduces traffic at peak times reducing pressure on other forms of road and public transport and travel times for other road users' (SQW 2007). This benefit has been achieved through improved walking and cycle paths, but has to be put into the context of 100,000 people commuting into and out of Cardiff every day (CCC, 2015). While some people living in the inner suburbs may be persuaded to travel to work by cycle or walking, for most a primary objective has to be a modal change to public transport, with part of the journey at both ends by foot or bicycle, and making increasing use of the south east Wales Metro investment over the next 20 years (Metro 2014). Investment in public transport must also keep in mind how people are to get to bus / tram stops and to railway stations. Varying levels of investment are to be encouraged in other towns and cities in Wales but should always be on an integrated basis.

Current Welsh, Scottish and English Benefit Cost Ratio (BCR) appraisal methodologies do not take anything approaching full account of the health benefits of walking and cycling. Health benefits were / are not included in Department for Transport CoBA, and New Approach to Transport Appraisal (NATA) techniques and the HM Treasury Transport Business Case. In consequence a cycle junction scheme to improve safety would:

- Have accident reduction values but these are a small proportion of the monetised values (ex CoBA);
- Have delays for the general motorised traffic which have a higher value for travel time than cyclists and pedestrians (ex CoBA);
- Have no monetised health benefits for either personal health or savings for the NHS. This applies in Wales also.

These values can be monetised however using the HEAT (2008) technique, as can monetised benefits from reduced sickness absenteeism and the costs to the business sector. Other factors which are not monetised and therefore largely ignored at present, are benefits of reduced illness, costs to the NHS, improved air quality and improved well-being.

Many of the discussions have revolved around the absolute cost of a particular scheme. However, of equal importance has been the opportunity cost of constructing one scheme rather than others; or the selection of a more expensive scheme in place of a lower cost option. In selecting a more expensive solution the Welsh Government may have other factors such as traffic / rail usage growth in mind and to build for growth may be the better option.

## National Transport Plan

There is a need in the post consultation preparation of the National Transport Plan to ensure that active travel modes and their integration with one another is considered. There are particular types of scheme which can be more successful than others in terms of the elements outlined above. Such schemes might include:

- Provision of information on cycling and walking routes and facilities in particular network maps;
- Schemes with community involvement and which reduce community severance;
- Links between small rural settlements and a regional urban centre;
- Scoring highly on buildability, projected demand, community use and cost;
- Continuation or 'filling gaps' on existing routes;
- Hub and spoke routes into town centres and public transport hubs;
- High quality surfaces and lighting; feel secure routes;
- Segregated cycle paths and footpaths within the central business districts;
- Significant peak time public transport schemes reducing car flows and congestion costs;
- Schemes that increase public transport use thus contributing to subsidy reduction.

## Achieving success

Delivery of active travel schemes should involve closer working between Welsh Government and local authorities throughout the feasibility / design and funding stages.

An arm's-length dedicated unit (covering walking, cycling and public transport interchange) for

feasibility, design and funding (or an alternative in-house unit with the technical experience) is also necessary. This is the format used in Scotland and by TfL.

Barriers exist to the success of walking and cycling schemes. These include:

- Funding levels in Wales (currently an estimated £5 per head (£15m)) are less than in Scotland – £10 per head – equivalent to £30m pa in Wales. Considerably more per head is spent in other EU states and if we aspire to a Netherlands level of active travel a catch up expenditure of £60m for several years would be required;
- Annual grant arrangements hampering deliverability of schemes – this could be solved by a more flexible 3-year rolling funding programme;
- Local authorities have no 'stock' of schemes with feasibility and design stages which can be completed in the one-year period;
- The lack of a route strategy - to be solved consequent on the Active Travel Act 2013 provisions;
- The lack of public transport integration to generate additional movements;
- Land purchase - timescale, cost - may put off WG / local authorities;
- Walking and cycling is not part of mainstream appraisal but road construction is included;
- WeITAG does not lend itself to many of the benefits (time savings not achieved; health benefits not included);
- Many benefits have no monetised values.

## Walk, park and ride

Park and ride or walk and ride have emerged in the view of many (WLA, Sustrans, TfL) who responded to the discussions as probably the most effective way in the short-

to-medium term by which current travellers will be persuaded to make at least part of their trip on foot or bicycle. This was referred to by Sustrans as “the final mile”. The objective was also referred to as being to get motorists out of their cars rather than to have public transport users’ transfer to walking or cycling. Clearly the former would bring advantages in terms of healthy lifestyles but could also contribute to reduced congestion in urban areas.

## Urban vs. rural

A distinction between urban and rural also becomes an issue in determining the most likely successful schemes if they were judged in terms of the numbers of people using active travel journeys rather than car or public transport. If total use was a primary criterion then the urban schemes would continuously be the more successful. A means of making a distinction between urban and rural areas in prioritising schemes is needed. But conversely this should be put into the context of the lower travel distance involved in urban areas giving a greater likelihood of success if demand levels, construction costs and distances are all considered.

Bus and train companies (with local authorities) already have, or could, encourage such integration. Through such integration those who currently drive to / from work or to the local railway station by car may be persuaded to begin a move to active travel thorough part of their journey.

## Appraising schemes

Robust evidence on the performance and benefits of cycling and walking investment is required to compete effectively

with investment for other transport modes, especially roads. Until the benefits are taken into account there will be underinvestment at a national and local level. Active travel schemes should be compared with other local transport schemes so that these can demonstrate their value for money.

Cycling and walking are not catered for comprehensively in WeITAG or the HM Treasury Transport Business Case. They are catered for in the scoring system in some local authorities which should provide for health benefits and active travel within the mainstream appraisal process where Benefit Cost Ratio based investment conclusions are derived.

A Cycling Demand Forecasting Handbook to bring demand and appraisal together in parallel with rail and road demand analysis and to measure levels of walking and cycling for various categories of activities - work, education, health etc. together with the other benefits and outcomes for pedestrians, cyclists, economic impact, modal shift, risks to delivery and the delivery stages and potential delays / costs is necessary.

## Measures of benefits

There are different methodologies for measuring success. In summary they are:

- Benefit Cost Ratio (BCR) a form of cost benefit analysis using monetary measures or established measures where this is not possible. This would fit into WeITAG (2008) and to the HM Treasury Transport Business Case (Decision, 2012; DfT 2011);
- HEAT (created by the World Health Organisation WHO) for monetising health benefits;

- number of users;
- scoring system (variations as used for Scottish Government / Sewta / SWWITCH / TfL / English Counties).

## Demand-based schemes

Under the previous system used in Wales consultation could take place to assess demand. Latent demand is harder to assess than road traffic demand. In the latter, traffic congestion is a good indicator of excess of demand over supply. That was the format of ‘predict’ (traffic flow from current capacity under supply and forecast growth using established techniques) and ‘provide’ (additional road space).

The present integrated transport investment appraisal should be a ‘provide and promote’ approach. This uses new elements within the forecasting model and assigns more importance to active travel and public transport modes especially when compared to the current DfT traffic forecasting model (DfT, 2010; Goodwin, P 2013; Jones, P 2013; TfL 2015). However, that latent demand is not easily teased out and the transfers sought are also from the motor car to active travel and not from public transport. Research employing stated preference techniques (SQW 2007) could be used but further methodology is suggested in the Design Guidance. The analysis of potential demand is required at the feasibility stage as part of developing both local strategic routes and national routes.

Journey time (transport demand research suggests) is a primary factor in determining modal choice. Even for short journeys of less than one mile the motor car may be used rather than walking. Journey time

when coupled with convenience and weather may further influence modal choice. (TfL, 2009a, 2009b, 2011).

For longer journeys particularly to/from work, the disparity in journey time may be even greater - e.g. a journey of 10 minutes by car may take 30 minutes by bike, often determined by road quality and speeds.

In rural areas, this disparity may be greater where the distance from home to work may be many more miles (10, 20, or 30) and cycling/walking may not be a consideration.

In the view of some local authorities there is currently no provision for consultation / research or for a feasibility study. This would also include a cost analysis.

The feasibility stage would explore design in more depth (keeping in mind the Design Guidance) and more accurate costing.

This potential cost risk on local authorities is seen as one reason why only a small percentage of pre-delivery money was spent. (WLA 2014 a-d; 2015).

There are however many unknowns about the cycling market and what influences demand. TfL (2015) has suggested a Cycling Demand Forecasting Handbook along the same lines as the rail industry's Passenger Demand Forecasting Handbook. This has determined assumptions for demand input into market appraisal. Cycling modal split assignment (route choice) and the measurement of demand causal factors (below). WG should join with TfL in developing this valuable tool for implementing the Act.

## Key characteristics of demand

- Journey time comparison between modes;
- Weather (SPA 2014a, b);
- Relative locations of work, school, health facilities, homes;
- Accessibility of walking and cycling facilities;
- Interchange at bus stops / bus stations and railway stations;
- Population density (current or potential from land use changes e.g. housing estates juxtaposed to city centres);
- Deliverability (land ownership);
- Community-backed schemes;
- Topography of, for example, valleys throughout Wales;
- To meet a socio-economic need.

It is often suggested that a 'shopping list' of schemes does not represent a plan. However it can do so if the objective is clear, for example to create a strategic cycling network within a local authority area, and if the WG funding criteria are used to determine inclusion. It is particularly so if community connectivity with central business hub is to be maximised.

A list of active travel schemes can represent a plan if together they complete a strategic cycle network within a local authority area and take account of the funding criteria e.g. transport grant funding which promoted access to town centres from residential areas.

## Integrated Transport Schemes

The basis of the WG transport policy is to integrate different modes of transport with the intention of reducing car use.

New highway plans must be tested (as required by the Act) to see if provision is made for active (but also public transport) travel through the Welsh Government grant and funding processes. This applies also to any Welsh Government funded / part-funded bus or rail stations. New railway stations such as Energlyn, Ebbw Town or Pye Corner have cycle storage facilities. Information on all stations' cycle storage should appear on the new Wales and Borders network maps.

There are two separate cycling and walking markets (WLA (2014)); TfL (2008; 2009a, b, 2011; 2012a; 2014 b,c,d,g), Transport Scotland (2013), PJA (2015) to which any persuasive initiatives have to be aimed:

- Those who will cycle/walk at all times in all weathers to those who cycle/walk in relatively dry weather along the full route between home and work / shops / leisure facilities.
- Those who will, instead of car use, given the facility and information, cycle or walk to public transport interchange facilities at rail and bus stations or for relatively short distances and in dry weather. (SPA, 2014a, b).

Both have potential for growth and have similar market characteristics to the 'car all the way to work' modal shift to 'car to the railway station park-and-ride site' which has been a travel change characteristic on Valley Lines services over the last ten years for car users and walking passengers.

The 4I's approach has been a part of the attempts to move travellers from cars to public transport. The same approach could be used to achieve a modal shift (for all or part of the journey) from cars to walk or cycle.

**Information + Interchange + Investment + Imagination = Integration**

The Design Guidance (WG 2014b) Chapter 7 relates to integration of modes in particular in improving facilities for walking and cycling to / from public transport facilities (railway stations; bus stations; bus stops with several routes) and cycles on buses. However, the Design Guidance (sections 5 and 7) does recommend public transport interchanges should be given a high priority when routes are developed making it easier / shorter for walkers and cyclists. Bus and train stops should be well connected to the walking / cycling networks with well signed, high quality surface routes to work and residential areas. These have enabled penetration into the multimodal market.

There was also a shift from car travel for the entire journey to rail thus also potentially contributing to the financial position of the railway service and reduced subsidy or improved revenue and service quality.

In Scotland, Transform Scotland (TS 2014 a-d) makes the case 'for sustainable transport across all modes'. Their Interchange Audit Toolkit could usefully be applied to several existing and proposed bus stations in Wales to bring out all these benefits.

Examples are

- Already constructed - Swansea, Aberystwyth, Llanelli, Carmarthen, Caerphilly, Brecon, Haverfordwest, and Rhyl;
- Under construction so could be incorporated – Newport;
- Planned - Cardiff (the plans here could be tested against the Transform Scotland Audit Toolkit).

# CONCLUSION AND RECOMMENDATIONS

This report provides the basis for much potential improvement in transport across Wales. Further research is needed into some of the specifics but the following conclusions can be drawn:

- Welsh Government should, working with DfT where necessary, change the methodology behind traffic forecasts to ensure that in future, forecasts better reflect actual traffic flows and road usage.
- Welsh Government should develop a new methodology for assessing the worth of transport projects which takes account of latent demand for active travel, rather than simply concentrating on the easier-to-assess road traffic demand. This methodology should include all forms of transport, and reflect the importance of rural as well as urban schemes.
- Longer-term and more flexible funding models should be adopted for the delivery of travel schemes with a move away from short-term annual grant arrangements, where these exist.
- Public transport timetables should better meet the needs of businesses and local economies.
- Affordable public transport options should be available to travellers, including business travellers, in every part of Wales.

The cost of travel, rather than just time taken, should be a key issue.

- Joint Transport Authorities should be established to oversee regional transport provision.
- A new arm's length body, Transport for Wales, should be set up to lead on integrated transport, transport policy and provision.
- Powers over bus regulation should be fully devolved to Wales at the earliest opportunity.

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