Impacts of Congestion on the Bus Industry in Wales

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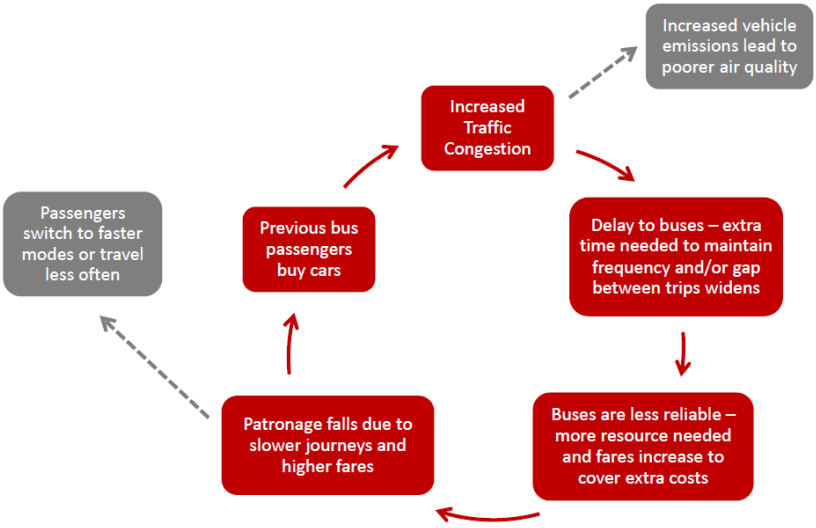
About Us

1. The TAS Partnership Limited ('TAS') is a specialist passenger transport consultancy that has provided qualified, independent advice, research and insight to and on behalf of the UK public transport industry for over 25 years. Our clients have included Welsh central and local government, transport operators and other stakeholders who share our interests in a safe, reliable, efficient and sustainable public transport sector in Wales and the UK.

The Impacts of Congestion on the Welsh Bus Industry

2. Our consultancy work has often led us to analyse and evaluate the impact of congestion on bus services – and how, if left unchecked, it creates a pernicious 'cycle of decline' in the sector (Fig. 1).

Figure 1: The Pernicious 'Cycle of Decline'



3. Congestion has the following impacts on the bus industry:
   (a) Demand for road space exceeding supply – this, in turn,
   (b) Poor productivity;
   (c) Increased operating costs and customer fares;
   (d) Making local bus services uncompetitive and unattractive to users.
4. Our paper summarises the key features of each impact, offering our own views and perspective on how to address the impact of congestion and local bus services in urban environments.

Demand and Supply

5. Fundamentally, congestion forms part of a classic cause-and-effect relationship – where demand (road traffic) exceeds supply (road capacity), resulting in the 'effect' of congestion. Table 1 summarises actual road demand in Wales from 1996 to 2016, based on latest statistical data. We note that:
   (a) Total road traffic from all motor vehicles has increased by 5% over the past decade, and 23% over the past 20 years;

(b) Much of this increase appears to have been driven by growth in cars/taxis and light goods van traffic;

(c) The bus and coach sector has declined by almost a third over the same period, forming less than 1% of total road traffic in 2016.

Table 1 – Total Road Traffic by Mode in Wales, Billion Vehicle Kilometres[1]

Mode	1996	2006	2016	10 Years	20 Years
Cars/Taxis	19.3	22.2	22.9	+3.2%	+18.7%
Light Vans	2.6	3.7	4.6	+24.3%	+76.9%
Goods Vehicles	1.3	1.3	1.1	-15.4%	-15.4%
Motorcycles	0.2	0.2	0.2	0%	0%
Buses/Coaches	0.3	0.3	0.2	-33.3%	-33.3%
Total	23.6	27.6	29.0	+5.1%	+22.9%
Bus/Coach as %	1.3%	1.1%	0.7%		

6. Table 2 summarises demand in terms of the number of licensed vehicles by type over the same period of time. Note that, on average, total licensed vehicles has grown by almost 50% during the past 20 years – though the most significant growth has been in cars/taxis and light goods vans. Buses and HGVs have declined during the past ten years.

Table 2 – Total Number of Licensed Vehicles in Wales, (thousands)[2]

Mode	1996	2006	2016	10 Years	20 Years
Cars/Taxis	1,067.3	1,400.0	1,527.1	+9.1%	+43.1%
Light Vans	110.3	157.0	199.1	+26.8%	+80.6%
Goods Vehicles	18.8	22.5	21.6	-3.7%	+15.2%
Motorcycles	27.0	52.2	57.4	+10.1%	+112.4%
Buses/Coaches	8.5	10.6	9.2	-13.4%	+8.4%
Total	1,231.9	1,642.2	1,814.4	+10.5%	+47.3%
Bus/Coach as %	0.7%	0.6%	0.5%		

7. Further research is required on the causal factors for this increase in demand to ascertain whether there is more at play than simply an increase in vehicles, including:

(a) The impact of new housing developments on existing road infrastructure;

(b) The growth in home deliveries;

(c) The impact and proliferation of 'network disruptor' events, including roadworks and accidents.

Productivity

8. The link between transport efficiency and economic growth has long been understood, highlighted as recently by Sir Rod Eddington in the UK Government-commissioned study in 2005. His report suggested that one solution to reduced economic inefficiency was through a reduction in 'wasted' time – cutting traffic congestion and reducing unproductive travel time, and encouraging people to use the most efficient and effective means of transport for their journey.

[1] Adapted from DfT Road Traffic Statistics, Table TRA0206
[2] Adapted from DfT Vehicle Licensing Statistics, Table VEH0104

9. The operating efficiency of bus services is dependent on the speed (a function of distance/time) at which vehicles are able to proceed, and the predictability (or otherwise) of any delays that could occur *en route*.

10. Congestion has two negative influences on the bus industry and its passengers:

    (a) A "Demand-Side" Effect – congestion leads to slower bus journeys and poor reliability, thus making bus journeys less attractive. The result of this is the loss of passengers to other modes – and transfers to car leads to higher traffic volumes, more congestion and further delays; the pernicious "cycle of decline" (Fig. 1); and

    (b) A "Supply-Side" Effect – congestion and unreliability increase bus industry operating costs. Slower journeys mean extra resource to provide the same timetable to customers; whilst unpredictable delays create longer journey times in order for operators to demonstrate timetable compliance against reliability required by the Traffic Commissioner.

11. It must not be assumed that serious delays due to congestion are restricted solely to urban areas or locations where routes cross the Strategic Road Network (SRN). It is our experience that congestion often begins outside the town or city, with several examples of services in smaller towns and villages having to be retimed to handle the effects of this congestion.

12. The Welsh bus industry relies on an efficient road transport network in order to undertake its business. A failure by Welsh local transport and highways authorities to exercise their full statutory responsibilities for traffic demand management means that, in our opinion, they are inadvertently participating in the economic degeneration of the Welsh bus industry through their passivity towards the effects of congestion on the sector.

Costs and Fares

13. Congestion has three profound effects on the industry's operating cost structure:

    (a) Labour costs – account for almost 60% of the industry's operating costs; congestion accentuates these costs as it increases journey times, requires more driver resources and adversely affects labour efficiency;

    (b) Asset utilisation – the ability to use resources wisely and efficiently; this is primarily a function of the speed at which buses can move and the predictability of the timetable (the 'supply side' effect');

    (c) Fuel costs and consumption efficiency – the growth in traffic congestion means that buses consume more fuel as they need to stop and start more often; this can exacerbate vehicle emissions and contribute to poor air quality on key corridors.

14. Modelling work undertaken by TAS for the Commission for Integrated Transport (CfIT) and the DfT in 2006 and 2007 found that each 1% change in bus speed affected operating costs by 0.8%. Anecdotal evidence suggests that there has been a significant fall in vehicle speeds over the last decade.

Impact on Modal Shift

15. The importance of time – as well as price and quality – drives customer choice in transport. We have argued that this factor – generalised time – is central to an understanding of the economics of the bus industry and how the market works.

16. The combined effect of unreliability and increased journey times is likely to encourage more bus passengers to transfer to other modes. Unpredictable congestion will cause perceptions of longer journey times: people will plan their journey to take account of the worst case, in order to avoid being late for work or missing a connection.
17. The UK has made virtually no progress on the issue of modal shift during TAS' lifetime – it is still widely accepted that a policy to reduce traffic congestion and air quality emissions can be achieved by moving away from private car journeys – though the two policy areas are not inextricably linked.
18. Generalised time also helps to explain why factors such as parking charges, parking restraints and congestion charging are much more important in achieving modal shift than anything bus operators can do themselves. These tools are often outside the control of bus operators – and hence partnership working involving all stakeholders, rather than a prescriptive approach, is key to developing empathy for each stakeholder's challenges and opportunities created by congestion.

Potential Solutions

19. That the inquiry should consider the following potential measures to reduce the impact of congestion on the Welsh bus industry:
    (a) Ensuring that all of the bus industry's stakeholders have an appropriate understanding of the economics of the Welsh bus industry – including the influence of time, quality and cost factors on market demand, and the behavioural and competitive influence of the private car;
    (b) That further regulation of the industry does not necessarily address the fundamental root causes of congestion and their impact on bus services – as demonstrated by the problem of growing congestion on London's bus network;
    (c) Why the growth in rail patronage is seen to be of greater importance to the economy than local buses, when rail benefits as a result of road congestion;
    (d) To review the design and efficiency of road space, including how roads are maintained and funded;
    (e) A need to review car parking policy to 'rebalance' the competitive disadvantage the industry faces in terms of 'hidden' costs of motoring;
    (f) The roles and responsibilities of the various agencies involved in mitigating the effects of congestion on the Welsh bus sector:
        a. Government – improving the efficiency of existing road infrastructure and a review of funding streams to reward efficient movers of people and goods;
        b. The Local Authority – through partnership working, effective and coordinated car parking policy, and effective demand management (through statutory role of the Traffic Management Officer);
        c. The Planning Authority – understanding travel patterns and creating opportunities for good sustainable and public transport access to new and existing developments;
        d. Operators – continued investment in high quality bus services through improved vehicle standards, fares and ticketing systems and customer care; and for the freight sector, the form and function of last-mile logistics.