Interurban Bus

Time to raise the profile

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Contents

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Responsibility for comments and inferences drawn – and for any errors – remains solely with the report's authors.

Foreword

The importance of connectivity in shaping local economic prosperity is much discussed, both in terms of digital (broadband speeds) and personal travel – for instance to access job markets or to reach increasingly 'regionalised' key services. Today's policy makers are even considering re-opening long closed branch railways to reach places that seem remote or cut off from jobs and opportunity.

Here we examine a mode of transport that is little understood and often over-looked. While rural bus services have been drastically cut back in recent years, a set of Interurban Bus routes have not only survived, but – as we found in carrying out this research – prospered. So much so, that we found the quality of service that Interurban Bus offers is in many respects comparable and sometimes better than that found on the secondary rail network.

Growing patronage of Interurban Bus services suggest that awareness levels are good in the local areas they serve. But, unlike rail, there is no sense of a national network (although in Wales, there is one in the making). The research provides pointers – but no more – into how a joined up national public transport system could emerge.

But we saw the first task as being to identify 'what's out there', hidden in plain sight as it were. Knowing what's available in terms is important for individuals and businesses making location decisions. Here is a case where information affects choices that have a fundamental effect on economic outcomes at a local level.

Much of what is needed ahead is a coherent approach to using digital technology, just as much in public transport as in other sectors. For those contemplating how best to fill gaps left by today's rail network, or how to serve communities 'left behind', Interurban Bus could be the answer.

1.0 Introduction

The general perception of rural transport provision is one of decline, associated with extensive rail service closures in the 1960s, and cuts since in rural bus services. However, as this report will show, a marked contrast can be seen in Interurban Bus services linking towns and cities. Operating across rural areas in several regions, observably some are prospering, while at the same time, deep rural bus services are experiencing large-scale cut-backs. Interurban Bus services are, in general, commercially operated, and in recent years have often experienced increased service frequencies, more direct routings and higher service quality, notably through use of higher-standard vehicles. Strong (or at least stable) ridership growth has been the result.

In many cases, Interurban Bus services complement today's rail network and provide connections lost when secondary and rural railway lines were closed many years ago. But information about these services is hard to find. Alongside rail, their profile is minimal. Yet they may provide a cost-effective alternative to rail operation, let alone some very expensive plans to re-open rail links.

Variations exist between the provision of a planned Interurban Bus network with public funding (the TrawsCymru network in Wales being the best example) and commercial initiatives elsewhere, and between networks of Interurban Bus routes, and free-standing routes. A key motivation for this study was to explore how national awareness of such services could be improved. Could Interurban Bus service provision be thought of in the same way as (say) a local rail service? And how could available connections between Interurban Bus services and rail services be enhanced and promoted? At the outset then, we sought answers to the following questions:

1. Do Interurban Bus services provide links currently missing from the rail network with a service quality that could be considered comparable to those typically offered on a secondary or branch line rail service?

2. Are contemporary Interurban Bus services dependable, and resilient – so resistant to change and likely to remain in existence in the longer term?

3. What polices should be adopted to foster, retain and improve Interurban Bus services – and could they be better integrated with the national rail service offer?

At the outset, we noted that Interurban Bus services were licensed in the same manner as other local bus services, and for convenience, we used a simple working definition for Interurban Bus:

> **"where two or more urban areas (typically towns, but might be cities) are linked by a bus service with intermediate stops typically to serve villages en route."**

In practice, we found that the degree to which deviations are made to serve villages off major roads varies, but in recent years has tended to diminish as operators have focussed more strongly on the major passenger flows. Interurban Bus services have become quicker, as a result.

We used a case study approach, casting the net widely, looking for those interurban services that could offer a model or template for wider use and which met a significant travel need. We were guided in this trawl by the life-time knowledge of the subject held by one of the report's authors, Emeritus Professor Peter White, University of Westminster. Much of the research was carried out by Dylan Luke, now at DfT.

The report is set out as follows. In Chapter 2, we trace through the history of Interurban Bus services and outline their key characteristics. Chapter 3 provides a set of case studies of individual Interurban Bus routes, and Chapter 4 has three regional network case studies. In Chapter 5, we examine what lies ahead for Interurban Bus service provision, and we examine current short-comings and opportunities in information provision and other challenges of this digital age. Chapter 6 draws together our conclusions and provides a set of recommendations.

2.0 The evolution of Interurban Bus services

Early background

The development of railways in the nineteenth century in Britain provided a very comprehensive network by 1900. Some further expansion occurred after this period, including new rural lines under the Light Railways Act of 1896 which simplified the legal processes involved in obtaining authorisation.

However, rail technology was not well-suited to low-density flows, and many lines carried low volumes of traffic from their opening. The development of road motor transport in the first decade of the twentieth century created a technology both for private transport (the car) and public transport (bus) which offered much lower costs and greater convenience. Initial impacts were small, but following the First World War, rapid growth occurred. Early services were slow and carried short-distance traffic, but as vehicles improved (pneumatic tyres) and roads (asphalt surfaces) road transport became increasingly competitive with rail for longer-distances. In many cases, bus services offered higher frequencies and were more convenient than railways.

Interurban Bus services emerge

By the late 1920s a comprehensive bus network had been developed by a mix of large regional companies and numerous local 'independents'. In addition to village-to-town links, many services took the form of interurban routes, connecting two or more towns via a series of intermediate villages. This helped to provide higher load factors (through combining local and interurban passenger flows) and to justify a higher level of service. These services increased the degree of competition with rail, although typically remaining much slower, especially where indirect routings were followed to serve intermediate villages.

There is no explicit definition of 'interurban', these services being licensed in the same manner as other local bus services, but a convenient working definition we adopt here is where: **two or more urban areas (typically towns, but might be cities) are linked by a bus service with intermediate stops typically to serve villages en route**.

Following the Road Traffic Act of 1930, consolidation into large companies occurred in many areas, and independent services were acquired by large companies (although this pattern varied substantially from one area to another). These larger companies in turn were often subsidiaries of national holding companies, such as Tilling or BET. The railway companies acquired shareholdings in these companies, in some cases their own directly-run operations (such as those of the Great Western) passing to them.

A number of lower-density passenger rail services were closed in the 1920s and 1930s, a process which may have been aided by the railways companies' involvement in the larger bus companies. However, there was little integration of rail and bus operations, apart from some provision of ticketing, such as inter-available returns between the same points, and some through ticketing facilities.

Parallel bus services provided an opportunity for railways to rationalise their own services by cutting out little-used intermediate stops to focus on longer-distance traffic. There were few examples of this (one is York to Scarborough in North Yorkshire, leaving only Malton and Seamer as intermediate stations), and it did not become a general practice. A case study of the shift from rail to bus, and later developments, (Lincolnshire), is described elsewhere[1].

Express coach services

The development of road vehicles and increased speeds also enabled introduction of 'express coach' services from the 1920s, expanding rapidly during the 1930s. These services catered for longer-distance traffic, such as London to the South West of England, usually with vehicles of a much higher specification than local buses. Speeds were generally much lower than rail, but often a wider range of through services was offered and connections were provided through a few major hubs such as Cheltenham. These services proved particularly appealing to holiday travellers, the coach market developing a highly seasonal form. However, there was little differentiation of service provided for travel at a regional level (e.g. around 30–80 km), for which bus services using standard vehicles with high density seating were the norm. A few exceptions did develop, such as the Neath & Cardiff Luxury Coach Company's service in the Cardiff – Neath – Swansea corridor, but these were rare.

At this time, an 'express' service was legally defined as one on which no standing passengers were carried, and on which a specified minimum fare applied – the latter was set at a relatively low figure, resulting in many short-distance services being classified as 'express' – a definition that was to cause much confusion later when these criteria were replaced. The Transport Act 1980 introduced a distance-based definition (initially one of all passengers being carried a distance of at least 30 miles measured in straight line, reduced in 1986 to one of 15 miles) for the express coach market[2].

The deregulation of coach operation in 1980 allowed operators to introduce and withdraw routes without notice. It led to some new market entrants alongside the dominant service provider (National Express, a NBC subsidiary), but over the years, National Express's domination of the sector was re-affirmed.

1. White, P.R. 'Roads replace railways' Chapter 5 in Mills, D.R. (ed) Twentieth Century Lincolnshire. History of Lincolnshire, Vol XII. History of Lincolnshire Committee for the Society for Lincolnshire History and Archaeology, Lincoln, 1989.

2. Defined by White & Robbins (2012) as long-distance services that are 'open to the general public, either by pre-booking or ticket purchase at time of boarding', The authors identify these services as distinct from other types of services 'providing day excursions, or extended tours (including overnight stays) for a party of passengers who remain together throughout the trip'. See White, P. and Robbins, D., 2012. 'Long-term development of express coach services in Britain'. Research in Transportation Economics, 36(1), pp.30–38.

The British Transport Commission era: the 1940s and 1950s

World War Two saw suspension of all express coach services, and some Interurban Bus services were reduced too, with an increased role for rail. Under the Transport Act of 1947, the railway system was nationalised under the British Transport Commission (BTC), as 'British Railways'. As a consequence of railway companies' shareholdings, two regional bus groups (Tilling and Scottish) also came into public ownership. Some of the larger independent companies also sold out to the state at this time, anticipating possible compulsory nationalisation, often being merged with the existing regional companies in the area concerned. There were also proposals for 'area schemes' to rationalise bus and rail operations within the same region, but none of these came into effect. Closures of thinly-used rural railways resumed during the 1950s, although not on a large scale.

As car ownership grew from the early 1950s, this had direct effects on rail and bus ridership, resulting in the first cutbacks to bus network coverage, and also a general reduction in bus service frequency. Spread of television ownership also reduced demand for evening and weekend services (a glance at many rural/Interurban Bus service timetables of the 1920s and 1930s will show that schedules were often geared to evening and weekend demand such as cinema visits, rather than the journey to work market, for example). The bus industry responded largely by an incremental programme of service cuts, with little innovation in working methods or staff productivity, apart from a shift from conductors to one-person operation which, by retaining cash-based fare collection, often worsened service quality and journey speed through extended dwell times at stops. However, reductions in networks generally affected the least-used rural (village-to-town) routes rather than major interurban services.

Rationalisation of the railway network

The BTC was broken up in 1963, with the railways becoming the responsibility of the British Railways Board (BRB), and regional bus and coach companies separated out under the Transport Holding Company (THC). This may have reduced the already very limited integration of bus and rail provision, which could have proved useful during the period of extensive rail closures which followed. It was the intention that the state-owned businesses would continue to cover all costs from user revenues rather than receive general subsidy.

The separation of the railways may have accelerated the pressures to radically reduce costs, and focussed attention on the large part of the rail network that carried very low volumes of passenger traffic. The economics of highly seasonal operations (such as Summer Saturday services to coastal resorts), and wagonload freight traffic were questioned. Following the appointment of Dr Richard Beeching as chair of BRB, an extensive review of the rail network's future was conducted. This resulted in radical reductions in seasonal passenger services (a function also covered to a large degree by the express coach sector) and wagonload freight, together with local stopping rail passenger services on many routes, releasing capacity for long-distance traffic (for example, on the East Coast main line north of Peterborough). Some duplicate main lines and many rural railways closed entirely.

Figure 2.1: **A comparison of the rail network in 1963 (left) 1984 (right)**

While the 'Beeching Report' has been widely criticised, it was inevitable that continued operation of many of the low-density passenger routes could not be justified, especially as the need for replacement investment in rolling stock and infrastructure would have become evident in due course. Passenger data at that time was rudimentary, reliant on pre-printed ticket stock sales, and this may have led to understatement of the importance of feeder traffic from branch lines to main routes. For example, a study in 1975 of the Barnstaple – Exeter line, the sole route in north Devon to survive the Beeching 'axe', showed that about 75% of its users were neither travelling to the end of the branch at Exeter nor intermediate stops, but interchanging at Exeter for points elsewhere on the rail network, notably London[3]. Where branch lines closed, very little provision of connecting replacement bus services was evident, although it might well have been in the commercial interests of the railways to do so, in order to retain feeder traffic.

3. Stephen R. Williams, Peter R. White and Paul Heels 'The Exeter – Barnstaple line: A case for improvement or closure?' Modern Railways, August 1976, pp 300–303.

Little attention was paid to potential losses of feeder or interurban traffic in closure Public Inquiries. Instead a criterion of 'hardship' to individual users, based on personal evidence, was considered, rather than a more strategic view of the role such lines served. This often led, in turn, to a fragmentary pattern of replacement bus services, geared to local demands over parts of the former line, rather than aiming to serve the longer-distance traffic carried. One of the few exceptions to this pattern was the Interurban Bus service between Bude and Exeter via Okehampton, provided from closure of the corresponding railway service in 1966[4], and surviving to this day.

The fragmented replacement pattern can be seen in the example of the East Lincolnshire railway, a secondary main line route connecting Grimsby, Louth, Boston, Spalding and Peterborough. Little effort was made to replace the interurban links which were lost, the main focus being instead on some limited short-distance links, which were often withdrawn after a few years. In this case, John Hibbs, then a traffic officer with BR Eastern Region, had proposed a limited-stop replacement bus service over the main route, connecting principal towns served[5] but no action was taken to implement it. As elsewhere, a fragmentary pattern of replacement bus services was provided instead.

Bus services were seen as unsatisfactory replacements, not only due to lower speeds, but also poor vehicle quality. Very little through ticketing to the rest of the rail network was provided. Replacement bus services were sometimes included in rail timetables, but often in an inconsistent form, and this practice declined over time.

The national rail timetable, when available in full format[6], includes a very small number of Interurban Bus services, principally those connecting with the East Coast Main Line (table 26), and the London – Cornwall main line (table 135). But the selection of bus routes covered in the National Rail Timetable is in effect random.

The relationship between some of the Interurban Bus routes studied and railway closures is illustrated in Table 2.1 overleaf.

It will be seen from Table 2.1 that the bus services which have effectively emerged to replace interurban rail links often appeared in their present form many years after the rail closures, as opportunities were identified by operators for commercial upgrading of such services.

4. Turns, Keith The Independent Bus. David & Charles, Dawlish, 1974. Chapter 12.

5. Lincolnshire Transport Review , November/December 1970, pp 124/125.

6. December 2015 – May 2016.

Current route	Year current service introduced (see text above)	Relevant railway lines, now closed	Year of closure
X5 – Oxford-Cambridge	1995	Varsity Line (Oxford-Bletchley-Bedford-Cambridge)	1967
X1 – Norwich-Kings Lynn-Peterborough	1998 (as the X94)	Midland and Great Northern Joint Railway (Norwich-Kings Lynn-Peterborough); Kings Lynn-Dereham-Norwich line	1959 (pre-Beeching); 1968
X93 Scarborough-Whitby	2014	Scarborough and Whitby Railway	1965
36 Leeds-Harrogate-Ripon	2004	Leeds-Northallerton Railway	1967 (between Harrogate and Ripon); Leeds – Harrogate remains open
33 Exeter-Bude	2011	Okehampton-Bude line; Exeter-Okehampton year-round services	1966
Mendip Xplorer (Bristol – Wells, Glastonbury and Street	2015	Somerset and Dorset Joint Railway (Bristol-Bath-Shepton Mallet); Cheddar Valley line ((Bristol-) Yatton-Wells-Frome	1966, 1963
Interconnect 7, 9, 51	2005–2006	East Lincolnshire Railway (Peterborough-Spalding-Louth-Grimsby)	1970
Interconnect 5	2002	Lincolnshire loop line (Boston-Lincoln)	1963

Table 2.1**: Case study routes: relationship with rail closures**

Notes:

1. In some of these cases, routes are long-established, in some cases from the 1920s. Dates shown refer to current route numbers/branding.

2. The 36 service long predates the Beeching era; 2004 here refers to its establishment as an upgraded service, distinct from others provided by its operator, Blazefield.

3. Some of the Lincolnshire InterConnect services were renumbered at the end of January 2018 – numbers previously used are shown here.

Subsequent rail developments

The closure programme in effect ceased through the 1970s and, in some respects, has been reversed. Local stations have reopened on some lines which retained through services (for example, between Lincoln and Sleaford, and in West Yorkshire) and selected re-openings of whole routes, such as the Nottingham-Mansfield-Worksop line in England, the Ebbw Vale line in Wales, and the 'Borders Railway' (Edinburgh – Tweedbank) in Scotland have been generally successful. Lines which remained open since the early 1970s generally experienced improvements in the quality of rolling stock, and in the frequency of services during the period of the 'Regional Railways' sector within British Rail in the 1980s. Under subsequent franchising to Train Operating Companies, further improvements have often occurred, sometimes as part of the bid specification.

The dramatic general growth of rail demand since 1995/6 occurred not only on suburban and intercity routes, but also in the regional sector, even where little improvement in services has taken place[7]. This has led to further calls for re-opening interurban routes such as the Aberystwyth – Carmarthen line in West Wales. But these schemes have high capital costs. Earlier research by Greengauge 21 has pointed to the Exeter – Okehampton – Tavistock – Plymouth route as a strong prospect in a case study that identified the importance of wider network benefits in the strategic case for re-opened (or new) lines.[8]

Bus service developments to 1986

In 1967 the remaining large privately-owned regional bus holding company, BET, sold out to the state. Within England, its operations were merged with those of THC to form the National Bus Company (NBC), and in Scotland, the Scottish Bus Group (SBG) took a similar role. NBC came into existence from January 1969. Operations were handled through existing local companies, each of which was given a financial target. A common brand image was adopted, with simplified liveries. Express coach operations were brought together under the 'National Travel' (later 'National Express') brand, enabling comprehensive marketing and network planning. However, little effort was made centrally to develop product differentiation for regional interurban services, which remained at the initiative of each subsidiary (although Midland Express was an exception across former Midland Red bus companies in the 1980s).

While most of the bus network continued to cover its costs, continued impacts of rising car ownership began to raise questions about the need for substantial public expenditure to support rural services. Some assistance was provided by the Fuel Duty Rebate (FDR) from central government, initially for 'rural' services only, which effectively reduced fuel costs. Local authorities had permissive powers to support bus services, and from the late 1960s/early 1970s, bus operators began seeking such support in order to continue provision of rural services. However, given the dominance of incumbent operators in many areas, local authorities rarely had the option of seeking to contract services competitively from lower cost operators.

7. Le Vine, S. and Jones, P. On the Move: Making Sense of Car and Train Travel Trends in Britain. RAC Foundation, London, 2012.

8. See http://www.greengauge21.net/blog/rural-reconnections-the-social-benefits-of-rail-reopening-exeter-okehampton-tavistock-plymouth-a-case-study/ of June 2015.

Costing systems used in the bus industry were crude, generally taking the form of a simple average cost per bus mile for all services operated by a company. However, revenues from ticket sales were available at route-specific level, and hence an estimate of route-level profitability could be made. For example, an analysis of the Crosville company's network (covering urban areas around Liverpool, but also extensive rural regions in north Wales), showed a very wide variation in apparent profitability on this basis[9]. While losses for low-density rural routes may not have been surprising, the lack of route-specific costing led to a very distorted pattern. This question of profitability was raised by local authorities when operators sought assistance for existing "loss making" services, for example by Norfolk County Council in respect of Norwich – Kings Lynn routes.

The bus industry was thus prompted to adopt a more rigorous costing system[10], devised in the mid-1970s in collaboration with the Chartered Institute of Public Finance and Accountancy (CIPFA) by which name the system became generally known. This broke down costs into components which were 'time-based' (principally staff), 'distance-based' (such as fuel) and those related to peak vehicle requirement (PVR), such as vehicle capital cost and depot overheads. The largest component is time-based (drivers alone comprising about 40% of the total), not distance. Hence, a route with a high average speed (such as an interurban service) would incur lower costs per bus-km (for a given size of bus) than one with a low average speed (such as one within a congested urban area). Some seemingly loss-making interurban services were in fact profitable on this basis, and the scope for commercial expansion of interurban services became more apparent. However, a consequence of higher speeds on interurban services is that as driver costs per bus-km are reduced, fuel costs become a higher proportion of the total, which is thus more sensitive to changes in such costs. These in turn are influenced both by world market prices for fuel, and the rate of Bus Service Operators Grant (BSOG). While this continues to this day, it has changed in scope and been reduced, the total payment in England falling from a peak of £470m in 2009-10 to £254m in 2015/16, at 2015/16 prices[11] Equivalent grants in Wales (BSSG) and Scotland operate on a slightly different basis, the latter being a flat rate per bus-km (which tends to favour rural and interurban services).

In the late 1970s, the NBC developed the 'Market Analysis Project' (MAP) concept, aimed at identifying commercially-viable networks within each company, given the uncertainty of local authority funding. This may also have reinforced the importance of more profitable interurban links, but in some cases may also have encouraged less direct routing, in order to combine existing traffic flows using larger vehicles.

9. Phil Drake 'Making money and losing it – Crosville in the 1960s' Omnibus Society Provincial Historical Research Group Journal no 184, January – February 2017, pp 2–6, and no 185, March-April 2017, pp 5–11.

10. An early stage in this process is described in A. Beetham 'An approach to operational costing in the bus industry' Paper at Seminar on Rural Transport at the Polytechnic of Central London November 1973, pp 11–19.

11. Source: DfT. Figures quotes are estimated net support paid by central and local government (at 2014/15 prices) for local bus services and concessionary travel by area type in England.

Bus industry deregulation and privatisation

Under the Transport Act of 1985, the local bus industry in Britain, outside Greater London, was subject to 'deregulation' from October 1986. Existing 'quantity' licensing (road service licences for each route) and regulation of fares was removed, general network subsidies were no longer permitted, and operators were asked to register those services which they regarded as 'commercial', i.e. covering all costs (including capital) from user revenue, fuel duty rebate, and compensation for concessionary fares. Incumbent operators were no longer protected from rival operators who could register parallel services over the same route.

It was accepted that many services might not be 'commercial' so local authorities were given powers to secure such services through contracts, to be awarded by competitive tendering. This enabled operators other than the incumbents to bid for such work. In place of the bus licensing system, registration was required of any route 42 days in advance with the local traffic commissioner – later extended to 56 days – with equivalent notice periods for service withdrawals. The commercial network registered in 1986 proved perhaps more extensive than many had expected, one probable factor being a move away from nationally-agreed wage rates which enabled lower, market-based, rates to be paid in rural areas. Radical improvements in productivity, notably through reducing management and engineering staff, also assisted in cutting unit operating costs.

Local authorities generally sought to replace previous services where gaps were created in the networks thus registered. These applied to low-density rural areas and also to periods of time (typically evenings and Sundays) including over some interurban routes that had registered commercially for core periods of higher travel demand. Where such journeys were awarded by contract to operators other than the incumbent, passengers could be confronted by separate bus companies with separate liveries on an individual route at different times of the day/week, and in some cases, a lack of inter-available ticketing too. Comprehensive timetable information was also sometimes lacking. In subsequent years, some of the subsidised services reverted to commercial operation, either through the regaining of contracts, or by companies deciding that commercially-registered operation might be worthwhile to sustain promotion of the service as a whole.

The fragmentary nature of tendered services generally made it difficult for local authorities to pursue a strategic 'network planning' role. However, in some rural regions where the proportion of tendered to commercial services was very high (notably parts of North and West Wales) something close to this became feasible.

The process of deregulation may have stimulated a further emphasis on the principal interurban routes in operators' commercial behaviour. A sharper demarcation developed between commercially-registered interurban routes and other services, especially where demand-responsive operation has been introduced. In some cases, creation of two 'sub-modes' enabled interurban routes to follow more direct alignments, as small settlements could be served by demand-responsive services, allowing more direct routing for the main Interurban Bus line.[12]

12. An example would be Bwcabus in West Wales and TrawsCymru service T1 (see Chapter 5).

The deregulation process was also accompanied by privatisation, albeit on a longer timescale. The existing state-owned regional companies (NBC and SBG) were privatised, often with existing regional subsidiaries being broken into smaller units and sold separately to stimulate competition. Privatisation of the local authority-owned municipal fleets was also encouraged, although most of their operations were largely within their own urban areas and had little involvement in the interurban sector.

Many of the earlier privatisation sales were to management and employee buy-outs (MEBOs). In some cases, further sub-division of operations through separate brands was adopted, notably by the former West Yorkshire Road Car Company of Harrogate, serving a region of North Yorkshire west, north and east of Leeds. Services from Leeds via York to the coast (Whitby, Scarborough, Bridlington) were rebranded as 'Yorkshire Coastliner', with local identities for the Harrogate and Keighley networks. A distinctive brand was also later adopted for the Leeds – Harrogate – Ripon Interurban Bus service 36 (as discussed in Chapter 4).

A subsequent phase of privatisation saw many of the earlier MEBOs consolidated into larger holding groups, such as Stagecoach and Arriva. While reproducing in some respects the former patterns of NBC and SBG (see Table 2.2 opposite), a more mixed structure is evident. Local managements have (to varying degrees) retained their ability to initiate changes. In some cases, common brand names have been adopted for 'premium' services within each group, for which higher-spec vehicles are used on local bus services (for example, with higher quality seating – in some cases at lower density – and interior fittings) such as Stagecoach 'Gold', and Arriva 'Max'. These have been applied to interurban services in a number of cases. Given that the majority of costs are those such as drivers and fuel, the incremental costs of such marketing enhancements are small, and may be covered by a corresponding increase in revenue from higher ridership.

Although Table 2.2 may imply a reasonably competitive market structure[13], at least between the 'big five'; regional markets are much more concentrated, with local markets typically dominated by individual members of the big five (geographic segmentation). The majority of interurban services looked at in this report are run by members of the big five operators, either through commercial operation, or contracted services.

In addition to permissive powers for local authorities to support non-commercial local services, Government later introduced specific funding to enable innovation in rural areas. The 'Rural Bus Grant' (RBG), introduced in 1998, was given to areas below a certain population density, paid on a per capita basis, enabling substantial expansion of rural services in some cases (the grant has since been discontinued). In addition, a 'Rural Bus Challenge' (RBC) grant was introduced, for an initial three-year period, based on competitive bids, to stimulate innovative services. In some cases, the services provided a stimulus to upgrading interurban services which subsequently proved largely commercially viable, an example being Interconnect 6 in Lincolnshire.

13. Inputting the market shares from Table 2 gives a *Herfindahl* Index measure of 0.1225, indicating reasonable competitive pressure.

	England	Scotland	Wales	Reference area
Market size (£m)	**3,258**	**630**	**204**	**4,092**
First Group	21	35	18	23
Stagecoach	20	26	19	21
Arriva	16	3	15	14
Go-Ahead	8	0	0	7
National Express	8	3	0	7
Total large operators	**73**	**67**	**52**	**72**
Large municipal operators	3	17	17	6
Mid-sized non-municipal operators	6	0	10	5
Other operators	18	16	22	18

Table 2.2: **Coach and bus operator market share shown as percentage (2008/9)**

Source: Competition Commission: Local Bus Services Market Investigation: a report on local bus services in the UK (excluding Northern Ireland and London), December 2011.

Interurban Bus: funding and profitability

Most Interurban Bus services are profitable – that is, the companies receive no specific subsidies for their operation. But there are avenues by which public sector financial support is provided in some instances.

Today's Interurban Bus operations can be:

» **Fully Commercial**
Many interurban services are run on a commercial basis, meaning that the running of buses is the remit of a commercial enterprise (who can withdraw or alter routes at 56 days' notice). Examples include the 36 Leeds-Harrogate-Ripon; X5 Cambridge-Oxford; and X1 Norwich-Kings Lynn-Peterborough.

» **Partly Subsidised**
Subsidy through Competitive Tendering became the government's adopted revenue support (subsidy) mechanism following local bus deregulation in 1985[14]. Operators make bids for contracts for services specified by public authorities (with quality, timetable and fares set out). The successful bidder is then responsible for the day-to-running of the route. Typically, these arrangements are contracted at the individual route level, and often apply to selected services within an established route at specific times of day/week (so the otherwise commercial bus operation linking Okehampton and Exeter receives revenue support for the peak hour commuter service from Devon County Council, for example).

» **Grant Assisted**
There have been grants available to support Interurban Bus services – and these were used to help establish the InterConnect network in Lincolnshire, as described in Chapter 4, for example.

The Bus Services Act 2017 offers opportunities for new arrangements between bus companies and local authorities (primarily applicable to England only). The legislation largely envisages individual local authorities using the new powers, which extend, in principle, to the idea of franchising bus networks, which could, in theory, extend to large areas. There is some provision for adjoining authorities to collaborate, which would be necessary to apply such arrangements to interurban routes.

14. See Competitive Tendering for Bus Services, Steer Davies Gleave for Department of Transport, 1985 (unpublished).

Interurban Bus: service quality and fares

Vehicle quality has been raised by a general requirement for all buses on local services (including interurban) to have low-floor accessibility from January 2017. Compliant vehicles have been introduced over a twenty-year period, attracting additional ridership from users such as those in wheelchairs or with child push-chairs, who would not previously have been able to use the service.

Stemming from the Transport Act 2000, a minimum level of concessionary travel for older and disabled users was established at half the equivalent adult fare (local schemes existed in many areas prior to this, but with no compulsion on local authorities to provide them). More generous free travel schemes were introduced in Wales and Scotland, followed by England from 2006 (initially only in the area of residence, but from 2008 over England as a whole). Pass eligibility is now defined using the female retirement age, and increases in line with it. Such concessions stimulated large growth in bus travel, especially in rural areas. Rural and interurban services benefitted not only from increased use by local residents, but also by visitors, affecting some tourist areas in particular[15]. Financial compensation to the bus companies for offering the concessionary fare is not the full adult fare forgone, but the net revenue loss to the operator (which takes account of ridership growth due to the concession). Hence, a percentage of the equivalent adult fare is paid over, with the intention being that operators should be 'no better off, no worse off', as a result[16]. Within Wales and Scotland, a common compensation rate applies, but in England it is set at county level. Hence, the operator of a cross-boundary service may receive different levels of compensation on different sections of the same route.

While in general concessionary travel has resulted in increased use of interurban services, there can be distortions in route-level commercial viability from the use of compensation at a flat rate per bus trip irrespective of travel distance (rather than one related to a graduated distance-based fare scale which would produce higher revenue for the longer trips typical of interurban services).

Local authorities have permissive powers to support local bus services, but this is not a mandatory requirement. Given the obligation to offer compensation for concessionary fares and pressures on local authority budgets, severe cutbacks have taken place in some areas, including cases where all support has been removed (e.g. Cumbria, Oxfordshire). In general, main interurban routes have been much less affected, but these may now be the only remaining local bus services in areas through which they pass. In some cases, local authority land-use planning strategy may also favour concentration on interurban routes, such as the policy of concentrating new housing in market towns in Oxfordshire.

15. White, Peter and Baker, Stuart 'Impacts of free concessionary travel in an English rural region' in Transport Policy January 2010, Vol 17, issue 1, pp 20–26.

16. This rate is typically around 50–70%, but can fall outside this range.

The Interurban Bus travel market

Interurban travel from one urban area to another differs from 'local' movement (e.g., from a village or suburb to the nearest town centre). Typically, interurban trips are made less often, and for a different mix of purposes – for example, access to major regional shopping centres, visiting friends and relatives, day trips, travel to higher education facilities sometimes at weekends or start/end of term, and access to regionalised health facilities and, of course, journeys to work.

Although residents of villages and small towns make fewer bus trips than residents of England as a whole (which would be expected, given higher bus use in large cities), when expressed in terms of distance travelled by bus per annum, the differences are less marked. While in 2013/14 inhabitants of 'rural towns[17] and fringe areas' made 34 local bus trips per year compared with an average for all areas in England excluding London of 61, bus-km travelled per person per year differed by much less – 253 versus 279[18].

Within the population distribution of most countries, a fairly clear urban hierarchy may be defined. Taking the capital, or largest city, this would form the highest level (London, in the case of England), followed by the next largest set of cities which form regional centres (such as Greater Manchester). Successive levels may then be defined down to small market towns. In most cases, fewer facilities are offered in the smaller urban areas, for example in terms of the range of shopping centres, education or health facilities. Much travel demand can then be seen as the need to move from lower to higher order centres. This can be seen, for example, in business travel by inter-city rail which generally displays a much stronger peak flow towards London than away from it in the morning.

In a much earlier study co-authored by one of the authors of this report[19], the interurban rail, bus and coach network in the 1970s was analysed, following the 'Beeching closure' era, to examine the extent to which express coach and Interurban Bus services filled the gaps which had resulted. Use was made then of the urban hierarchy defined by Smith[20] and the concept remains relevant to understand the way in which Interurban Bus routes have developed since.

The need for interurban travel may have increased as employment opportunities in smaller urban areas diminished, notably those affected by industrial decline (the reopening of passenger rail services from former coal mining areas to regional centres in the East Midlands, and in South Wales, could be seen as an example of this). In addition, the quality of shopping centres has in some case declined, and health facilities have become more centralised. An increased role for further (as distinct from higher) education may also stimulate greater interurban travel, to centres where colleges are located.

17. Defined as those under 10,000 population.

18. Derived from an aggregate of data for 2013 and 2014, NTS tables 9903 and 9904.

19. P.A.Stanley and P.R.White 'A Review of Medium-Density Interurban Public Transport' Discussion paper no 2, Transport Studies Group, Polytechnic of Central London, November 1973.

20. Smith, R.D.P. 'The Changing Urban Hierarchy' Regional Studies, Vol 4, pp85–96.

As the more comprehensive rural bus networks offered in earlier decades have declined, especially those which link centres of similar size and function, service provision to higher order centres may have increased.[21]

Summary

Although rural bus services have generally declined, a marked exception arises in the case of interurban services, linking towns via intermediate villages on main roads. Because of the highly commercial nature of the current framework, operators will naturally be drawn to the more profitable routes in a way that they weren't pre-1985. A consequence of deregulation and reduced levels of subsidy is the movement away from low-density local and rural provision, towards high-density limited stop services.

To a large extent, these operate on a commercial basis, and receive little support from public expenditure, apart from Bus Service Operator Grant and concessionary travel compensation. Changes in bus industry costing methods and scope for initiatives by local company managements have aided this process. Such services often complement the rail network. However, these services often developed many years after the rail closures in the same area, and were not planned as direct replacements. Changes in activity patterns tend to reinforce the role of larger urban centres, to which smaller market towns require good links.

21. Such changes can be seen, for example, in the case of Bourne, a market town in south Lincolnshire. In the 1960s, daily interurban bus services were offered from Bourne to all the other market towns within a radius of about 30 km (Spalding, Sleaford, Grantham, Stamford) alongside a more frequent (hourly) route to the regional centre of Peterborough. Apart from the Stamford service, most of the services to the other market towns have disappeared or been reduced to market day only operation. However, the Peterborough service now runs half hourly, serving a city with a major regional shopping centre.

Name	Branding	Route	Operator	'Big Five'?	Date of intro/rebrand
X1	Excel	Norwich – King's Lynn – Peterborough	First (Norfolk & Suffolk)	✔	1998 as the X94, rebranded as the X1 in 2005.
X4	Gold	Milton Keynes – Northampton – Peterborough	Stagecoach (Midlands)	✔	X4 replaced two smaller routes in 2000, upgraded to Stagecoach Gold in 2011.
X5	Cross Country	Oxford – Cambridge (via Bedford and Milton Keynes)	Stagecoach (East)	✔	1995, increased to half-hourly service in 2005, relaunched in 2008.
33	Cross Country	Hereford – Ross-on-Wye – Gloucester	Stagecoach (West)	✔	Launched in 2011 as a competitively tendered service.
36	36	Leeds – Harrogate – Ripon	Transdev (Harrogate Bus Company)	✘	Long-established bus service. Rebranded in 2003, with new vehicles and further upgrading since.
X93	MAX	(Middlesbrough) – Scarborough – Whitby	Arriva (North East)	✔	Launched as part of Arriva's MAX brand in 2014.
376	Mendip Xplorer	Bristol – Glastonbury – Street	First (West of England)	✔	Rebranded as the 'Mendip Xplorer' in 2015.
Cityzap		Leeds – York, Leeds – Manchester	Transdev (Blazefield)	✘	Leeds-York route launched in 2016, Leeds–Manchester in 2017.
6/6A		Bude – Exeter	Stagecoach (South-West)	✔	Launched in 2012 as the X9/X10, renamed the 6 in 2015.
28/29	Regency Route	Brighton – Tunbridge Wells via Lewes, Uckfield & Crowborough	Go-Ahead (Brighton & Hove Bus Company)	✔	Older service relaunched as the 29 in 2004, rebranded as the 'Regency Route' in 2011.

Table 3.1: **The selected single-route interurban case studies**

3.0 *Case studies: single route Interurban Bus services*

The single-route interurban bus services discussed in this chapter are typically run based on demand and commercial viability, and without subsidy. They tend to be provided as individually branded routes by regional subsidiaries of larger operators.

For ease of understanding, single-route interurban services will be loosely defined as sharing the following characteristics:

- Services are individually branded (that is – at the route level);
- They are run commercially (with exceptions, as will be seen);
- They use high quality vehicle fleets with a set of attractive customer focused features;
- They offer an appropriate service frequency that is attractive to the market on offer.[22]

We exclude coach services, even though coaches provide, in a few instances, useful interurban connections as well as their prime function of longer distance travel to and from London, major airports etc.

Table 3.1 provides summary information on the single-route services that comprise our case studies. We go on to look briefly at the use of bus-only infrastructure to support interurban bus.

The majority of these routes are provided by Big Five[23] operators, with the notable exception of Transdev Blazefield (a British regional company which is a subsidiary of the French Transdev group).[24] Some routes were introduced or significantly upgraded in the 1990s, around the same time as the consolidation of the UK local bus market into the Big Five. Others are more recent but have their roots in NBC-era local links.

22. We rejected the idea of a standard or threshold service frequency level because in effect, the level of demand will very largely determine frequencies and we aim to cover areas both with low levels of demand as well as high. Service frequencies can be hourly (as in the case study of Hereford – Gloucester), or less, or as high as six buses per hour (the case of Harrogate-Leeds).

23. First Group, Stagecoach, Arriva, National Express and Go-Ahead.

24. This company dates from privatisation of the former West Yorkshire Road Car subsidiary in the 1980s, the major operator in an area to the north of Leeds that was split up into distinctive local brands.

In a little more detail, single-route services share the following features:

» **Strong branding and marketing campaigns; ongoing investment**
Because most routes are run on a commercial basis, there is an incentive for operators to pursue advertising campaigns and encourage shift from other forms of transport. Branding and strong livery/bus design promotes customer loyalty and brand recognition, (which also may deter potential competitors). Brands may be refreshed regularly and ongoing investment is also a feature.

» **Service frequency in keeping with rail services, that are attractive to the market offered**
Many routes have peak weekday frequencies upwards of half-hourly, comparable with typical rail service frequencies. In remoter areas, service frequencies are lower, typically bi-hourly.

» **Limited stops**
Operators generally eschew frequent stops in rural areas in favour of a higher speed service linking higher population areas. In some cases (as will be seen, in the cases of the X5 or X1) this is due to a perceived need to compete better on journey times with rail or car travel.

» **High standards of on-board service**
Features such as free Wi-Fi, leather seats, extra leg room, luggage space and audio announcements are commonplace.

» **Commercially provided services**
As we shall see, all services studied except Route 33, for which revenue support is competitively tendered, are run entirely commercially. Services are provided because the operators deem there is sufficient demand for the services to be profitable, and not because of 'strategic need'.

» **A complex relationship and history with the rail network**
The relationships and interactions that interurban bus services have with the rail network vary and can be split into three categories, as described later.

How interurban bus services have evolved

How a route has developed over the longer term helps understand whether there has been stability in terms of route and level of service offered. The trend direction in size of market served/market penetration also becomes apparent.

The X1 route (Norwich – Peterborough) serves as a useful case study.[25] The X1 is an interurban service provided by First Bus and runs from Norwich, the county town of Norfolk, via Dereham, to Kings Lynn in the west of the county, then south-west via Wisbech to Peterborough in Cambridgeshire. At the eastern end, the route used to continue from Norwich to Great Yarmouth and Lowestoft, although that part has been split into a separate service, still numbered the X1, 'for operational reasons'[26]. The X2 service, also operated by First, runs between Norwich and Lowestoft via Beccles.

While the terminal points of the service, Norwich and Peterborough, are linked on the rail network (via Ely on the Cambridgeshire – Norfolk border), the route is strategically useful because it links major towns in Norfolk and Cambridgeshire that are no longer served by the rail network. Prior to closure in 1968, Kings Lynn was linked to Norwich via Swaffham and Dereham on the Kings Lynn – Dereham – Norwich line. The towns were also linked by the Midland and Great Northern Joint Railway, which linked Peterborough to Kings Lynn via Wisbech and closed in 1959. Whilst Kings Lynn remains rail-served (as the terminus of the Fen line, with services to Ely, Cambridge and London), all of the other places served en route have lost their rail services but are now calling points on the X1 Route. The evolution of the X1 is an example of a substantially upgraded interurban service, and spans the history of such services well. It was substantially improved following deregulation and privatisation, and on to the present day.

Today, the X1 service runs much the same as it did following the re-brand of 2004, with slight improvements to morning and evening frequency. Over time, the X1 route has gone from a middling frequency rail replacement bus, to a privatised skeleton service, to an affordable long-distance and high-frequency interurban luxury service. The development of service X1 forms part of a broader marketing and service innovation strategy adopted by First Eastern Counties, as described in an extended interview with its Business Director: ridership in 2015/16 was 2.25m passengers, representing a growth of 20% over the preceding two years (Coach and Bus Week 14 June 2016, pp 16–24). It is noteworthy that upgrading did not directly follow the rail closures, but occurred many years later, as commercial potential of the service was identified. It is also significant that the service offers much better access to the city centre of Norwich than the rail station. From its branding as the 'Rail Link' service in 1982, through rail tickets are still valid from Peterborough to Wisbech, King's Lynn, Swaffham and Dereham.

25. Information on the history of the X1 route was gained from Eastern Counties and First Bus timetables, courtesy of the Omnibus Society Library in Walsall.

26. Coach and Bus Weekly, Excellence on the X1, July 2017 https://cbwmagazine.com/excellence-on-the-x1/. The Norwich – Peterborough section is now branded as 'excel'.

X1 service evolution timeline

1959 – The Midland and Great Northern Joint Railway is closed, removing the link between Kings Lynn and Peterborough.

1963 – The Beeching Report does not recommend closure of the Kings Lynn – Dereham – Norwich line, stressing its importance as a freight route.

1968 – Kings Lynn-Dereham-Norwich line is closed.

1971 – Link between Norwich and Kings Lynn via Dereham and Swaffham is provided by the 34/34B bus service. Buses run roughly every one and a half hours, with a limited evening and Sunday service. The journey takes about two hours for the full route. The 336 bus links Kings Lynn to Peterborough via Wisbech, with a more frequent service than the 34/34B. Both services are provided by the Eastern Counties subsidiary of the National Bus Company (NBC).

1974 – Norwich-Kings Lynn is re-numbered 434/435/436. The service remains patchy, with a greater frequency of buses on the Dereham-Kings Lynn section of the route.

1979 – Introduction of additional services between Dereham and Norwich on routes 834/835/836 with a half hourly frequency at peak times. The morning frequency of the full Norwich-Kings Lynn route falls. The 336/337 continues to link Kings Lynn to Peterborough, with a frequent morning and afternoon service.

1982 – Considerable improvement in the 434 service. Weekday frequency is upgraded to hourly, with little evening and weekend change. A Rail Link (bus) service is introduced by British Rail between Kings Lynn and Peterborough stations, operating via Wisbech, with four services per day in each direction.

1983 – Eastline 794 service is introduced between Peterborough and Norwich, running five buses per weekday. Service on 434 between Kings Lynn and Norwich is reduced to just three buses per day.

1985 – Transport Act 1985 deregulates the local bus industry.

1987 – Eastern Counties privatised in a management buyout.

1993 – Improvements are made to the 794 following the removal of the Rail Link service. Two extra journeys added in each direction Monday – Saturday, and one on Sunday. Kings Lynn Station also included as a stopping point.

1994 – Eastern Counties is sold to GRT Group.

1995 – GRT Group merges with Badgerline to form First Group. Appearance of First branding on the 794 timetables. Accompanies a slight improvement in weekday service.

1996 – 794 renumbered the X94, and increased to two-hourly. New Volvo B10M coaches introduced. 434 service withdrawn between Norwich and Swaffham.

1997 – X94 is extended eastwards from Norwich to Great Yarmouth. The route is significantly improved, with an hourly weekday service between Peterborough and Norwich (half of those buses continue on to Great Yarmouth). Journey time between Kings Lynn and Norwich cut down to an hour and a half.

1999 – Extension of the service to Gorleston, near Great Yarmouth. Improvements such as more comprehensive evening service and railway station ticketing (multi-modal integration).

2000 – X94 extended to Lowestoft in Suffolk on weekdays. Evening and Sunday journeys extended to Lowestoft in 2007.

2001 – New hourly Excel service X95 is introduced (Lowestoft – Yarmouth – Norwich – Dereham – Shipdham – Watton), increasing combined frequency to half hourly over the common section with the X94.

2002 – Route is rebranded as a coach service, with ten new Volvo B12 coaches despite offering the same vehicle spec as before. The X94 offers 'luxury travel' and continues the hourly frequency.

2004 – Route rebranded as the X1. Peak weekday service upgraded to half hourly, with a considerable improvement in evening and Sunday frequency (hourly). Frequency varies somewhat depending on the section of the route, but peak frequency is maintained on the main trunk route (Great Yarmouth-Norwich-Kings Lynn). X95 service is withdrawn.

2013 – First introduces new Alexander Dennis Enviro400 buses, fitted with leather seats, air conditioning and Wi-Fi.

2014 – Norfolk – Great Yarmouth – Lowestoft section is now run separately to Peterborough – Kings Lynn – Norwich section, but still retained as part of the X1 service.

2016 – Reduced evening service between Norwich and Peterborough.

The timeline of the X1 service cannot be taken as being indicative of the evolution of all interurban services[27], but serves as an illustration of the kinds of changes many of these kinds of routes have gone through since the 1960s. It effectively replaced a rail link, while other cases partially replace and partially compete with rail, as in the case of the 28/29 'Regency Route', which dates from a 1977 service between Brighton and Tunbridge Wells, operated jointly by Southdown and Maidstone & District Motor Services (the NBC subsidiaries for Sussex and Kent respectively).[28] Here, service frequency has expanded greatly in the intervening years, with the route now providing buses every ten minutes between Lewes and Brighton at peak times – where the service has a direct rail competitor – but much lower frequencies elsewhere, where demand is lower and the bus route broadly follows the route of the now closed Wealden line between Lewes and Uckfield (for which section a railway re-opening campaign exists).

Service frequency enhancement is not uncommon across these routes. The 36 service between Leeds, Harrogate and Ripon dates back to long-established local bus services out of Harrogate, North Yorkshire, predating the closure of the Leeds-Northallerton line north of Harrogate in 1967. The successor operator to the West Yorkshire company, the Harrogate Bus Company (the result of a multitude of management buy outs and mergers following privatisation), was purchased by Blazefield in 1991, which in turn was purchased by Transdev in 2006. Significant upgrades to the service took place in 2004, 2012 and 2016. It is now firmly established as a premium, high frequency service.

On-board features

Many interurban services offer a so-called 'luxury' experience. This can vary from route to route but generally follow a similar pattern. Operators utilise these features more than typical local bus services to ensure passenger comfort over long-distance routes but also to build a brand image and encourage customer retention. Table 3.2 outlines the most common of these features across the case study routes.

27. Some routes, such as the Cityzap services between Manchester, Leeds and York, were created much more recently and therefore lack the complex timeline of the X1.

28. Since privatisation, the service has been provided by Brighton and Hove Buses, a subsidiary of Go-Ahead.

		Practical		Convenience				Customer comfort and amenity
Name	Operator	Disabled access (low-floor bus)	Extra luggage space	Online ticketing	Mobile app	Transferable tickets	Rail integration	Onboard toilets
X1	First	✔	✘	✔	✔	✘	PLUSBUS	✘
X5	Stagecoach	✔	✔	✔	✔	✔	PLUSBUS	✔
33	Stagecoach	✔	✘	✔	✔	✘	PLUSBUS	✘
36	Transdev	✔	✘	✔	✔	✔	Multi-modal top up card using the MCard and MetroCard schemes	✘
Cityzap	Transdev	✔	✘	✔	✔	✔		✘
X39	Arriva	✔	✘	✔	✔	✔	PLUSBUS	✘
376	First	✔	✘	✔	✔	✔	PLUSBUS	✘

Table 3.2: **Summary of practical, luxury and convenience features**

All of the single-route services make use of low-floor vehicles with disabled/wheelchair access. Moreover, all the routes studied make use of new technology to offer both mobile apps and online ticketing. Another common theme is use of Plusbus, a ticket that adds local unlimited bus travel around rail journey destination towns, generally within a tight catchment area that precludes their use for interurban travel. Although it offers a useful form of integration, Plusbus only works when the rail journey tickets are pre-purchased and cannot be purchased on bus for the first leg of the journey However, it is possible to pre-purchase Plusbus tickets for each end of the rail journey prior to travel.

The provision of customer features like leather seating and charging facilities is less widespread. The X5 service between Oxford and Cambridge along with the Transdev services are the most comprehensive, offering Wi-Fi, charging and leather seats, although the Transdev services do not provide on-board toilets. Other services, like the 33 or 28/29 Regency Route, don't provide additional customer amenities/ service features.

A premium service: 36 Leeds – Harrogate – Ripon

The best example of a high quality – even perhaps 'luxury' service – is the 36 operating between Leeds, Harrogate and Ripon. The route is highly frequent (running every 10 minutes at peak times), popular, and offers quality leather seating, in-built USB charging points, Wi-Fi, contactless payment integration (and even sky lights in their most recent vehicle upgrades). Its history has a low-point in the mid-1980s. Buses between Harrogate and Leeds first appeared in 1924, with buses between Harrogate and Ripon following shortly after, in 1925. Combined through services from Leeds to Ripon begun later that year, and the service was named route 36 in 1936, and operated by Harrogate & District Road Car Co[29].

Throughout the 1970s, following nationalisation of the Tilling group companies in 1948, the route was operated by West Yorkshire Road Car Company (a local subsidiary of the NBC), and had a peak frequency of every 15 minutes, with a half hourly Sunday service[30]. Frequency was reduced to one bus per hour across the full route, in 1985, though an augmented half hourly frequency between Harrogate and Leeds was maintained, and evening and weekend services were restructured as tendered operations, following deregulation.

The 36 route was acquired by Blazefield Travel in 1991. Throughout the 1980s and 1990s, there was experimentation with various offshoot services. These alternative routes were abandoned in 2004, when, following a pattern of increased service frequency over the course of the 1990s, Blazefield decided to significantly upgrade the fleet and to present the 36 as a service distinct from others on offer.

Following an extensive marketing campaign, with £2.5m invested in '13 premium luxury vehicles'[31], Blazefield began rapidly improving the 36 service, creating a single route between Leeds and Ripon, with a 20-minute frequency. The evolutionary upgrades continued under new owners, Transdev, a French-owned conglomerate, with the introduction of an iPhone app in 2009, four buses per hour in 2011, and leather seats and Wi-fi across the board, in 2012. The service was further rebranded in 2016, with the 'riding redefined' tagline and comprehensive marketing campaigns. Peak frequency was increased to six buses per hour in 2017.

As evidenced by its early start and high morning frequency, the 36 caters to the commuter market, especially between Harrogate and Leeds. This means that buses compete closely with train services, provided mainly by Northern and also by a single daily Virgin Trains East Coast service. Table 3.3 compares the two routes (bus and rail), and their relative costs and journey times between Harrogate and Leeds.

29. Harrogate & District 36/36A timetable 16th April 2000.

30. Of note is that the bus even had a half-hourly weekday frequency back in 1957, before closure of the Leeds – Northallerton north of Harrogate.

31. Blazefield promotional material for the 36, November 2004.

	Harrogate › Leeds, AM		Harrogate › Leeds, PM		Fares			
Mode	**Journey time**	**Frequency**	**Journey time**	**Frequency**	**Day return**	**Weekly**	**Monthly**	**Yearly**
Rail	37m	4/hr	35m	4/hr	£9.60	£39.60	£152.10	£1,584.00
36 Bus	58m	5/hr	1hr5	5/hr	£7.70	£34.00	£102.00	£880.00
			Cost per journey	**Rail**	£4.80	£3.96	£3.80	£3.30
				36	£3.85	£3.40	£2.55	£1.83
			Train/Bus cost ratio		**1.25**	**1.17**	**1.49**	**1.80**

Table 3.3: **A comparison of commuter services by train and interurban bus**

As might be expected, Harrogate – Leeds journey times on rail are considerably (almost 50%) less than using the 36 bus. Service frequency is higher in both the morning and evening by bus. Because average cost per journey for commuting (assuming ten journeys per week) decreases a lot faster on the 36 than by rail, the relative benefit of switching to bus for long-term season tickets holders is larger than for short-term passengers. The 36 is attractive for regular commuters.

Given the very substantial rail journey time advantage, however, it might be surprising that the bus service is expanding, and clearly doing so in response to market demand – and this we know because it is a subsidy-free operation. There is another factor in play which is that the 36 offers a considerable 'access advantage' over the rail alternative. In both Harrogate and Leeds, the 36 provides numerous entry and exit points (stops) in the centre of town and closer to the suburbs. This means that the 36 offers more comparable door-to-door journey times, reducing the apparent journey-time differentials that are so apparent with many interurban bus services where there is a rail alternative. Figures 3.1 and 3.2 show the numerous stopping points of the 36 in Leeds and Harrogate, compared to the train stations (just one in each of Leeds and Harrogate city centres).

Total volumes of passengers travelling on the commuter trains between Leeds and Harrogate are substantial, and even a 5% modal shift from rail to bus at peak times would require an extra two buses/hour. But the rail service, just like the 36 bus, serves important intermediate destinations. The services are both complementary and in competition. For a commercial operation like the 36 bus, this is a benefit, since it spreads downside business risks and adds benefit from further innovations.

Figure 3.1: **Stopping points in Leeds**
Source: http://www.harrogatebus.co.uk/36.htmamended

Figure 3.2: **Stopping points in Harrogate**
Source: http://www.harrogatebus.co.uk/36.htmamended

Mendip Xplorer History

Services under this title are operated by First West of England, as successors to the Bristol Omnibus Company which established them many years ago. They serve the Mendip Hills area south of Bristol and Bath, which lost its rail connections in the 1960s. Services comprise:

126 Weston Super Mare – Wells (via Winscombe, Axbridge, Cheddar)

There have at times been very minor detail differences to the routeing between Weston and Winscombe, as this service has fitted in with others on this corridor. Otherwise this route followed is unchanged since its introduction. It has been subject to competition but in the past year is on its own between Winscombe, Cheddar and Wells. The Sunday service operated two-hourly in the summer only.

376 Bristol – Wells – Glastonbury – Street (via Whitchurch, Clutton, Chewton Mendip)

Apart from local re-routings to cover housing areas in Street, the route of this service has not changed at all. The frequency was increased to every 30 minutes on Sundays as part of the relaunch in 2015, meaning that a half-hourly headway is retained across all seven days of the week.

173 Bath – Wells (via Peasdown, Radstock, Midsomer Norton, Chilcompton, Binegar)

This service has changed significantly. For a very long time, and at least since the 1960s this was an hourly route. From August 2015 it was augmented every hour by adding an extra journey as route 174 between Bath and Wells but between Midsomer Norton and Wells this ran via Shepton Mallet, instead of Chilcompton and Binegar. This re-established a lost link between Shepton Mallet and Bath. In addition, it created a combined service between Wells & Bath every half hour and this is joined between Midsomer Norton and Bath by an additional half-hourly operation on service 172. Services 172/3/4 between them provide four buses an hour between Midsomer Norton and Bath. This service has increased its patronage to such an extent that it is to be converted from single to double-deckers from 29th April 2018.

Since Deregulation in October 1986, evening and Sunday operations have been extremely complex. In particular, after 1998, Sunday services were all subsumed into the 'Somerset Sunday network', funded by Rural Bus Grant money, which saw them linked at Wells with others to form cross-country through routes. Operation subsequently reverted to the incumbent commercial operator and has settled down to be hourly to Bath via Shepton Mallet and half-hourly between Street and Bristol.

The Mendip Explorer services thus offer an example where ridership growth may be attributable very largely to enhanced vehicles and other aspects of service quality, rather than changes in routing or frequency. Upgrading of 376 (Bristol – Wells – Glastonbury – Street) in 2015 with new vehicles was followed by a 30% rise in passenger numbers, as cited in the 2016 UK Bus Awards[32].

Relationship with rail

An interesting question is whether or not single-route interurban bus services can be said to 'fill gaps in the rail network'. We identified three categories of 'gap filling':

1. Interurban bus routes that link towns with **no existing rail services to larger towns and cities** on the rail network. Examples include two in the west country:

   - The Mendip Xplorer routes that link Wells, Glastonbury and Street (all places without a rail service) to Bristol and Shepton Mallet (no rail service) with Bath.

   - The 6 and 6A buses, run by Stagecoach, provide a route between the isolated north Cornwall coastal town of Bude and Exeter (via Oakhampton).

32. UK Bus Awards 2016 'Big Book of Big Winners', page 38 (finalist in 'Marketing Initiative of the Year').

2. Routes that **link towns which are on the rail network, but lack a suitably direct rail connection**. These buses typically fill gaps left by the closure of secondary railway lines:

   - The X5 route runs between Oxford and Cambridge, also passing through Milton Keynes, Bedford and St Neots (each rail served, but by radial routes to London with no cross-connectivity). This is due to the substantial closure in 1967 of the railway running between Cambridge and Oxford, via Bicester, Bedford, and Bletchley (south of Milton Keynes)[33].

   - The 33 County Link service between Hereford and Gloucester, via Ross-on-Wye restores a gap in the rail network left by the closure of the Hereford, Ross and Gloucester Railway in 1964. In the 1930s the line carried Hereford – London through services (shorter and quicker than via Worcester). A train journey between Hereford and Gloucester today requires an interchange at Newport in Wales for a total journey time of around two hours (compared to the bus journey time of 1 hour 45 minutes) and a significant fare premium (£21.60 for a standard single, compared to £4.60 on the bus). For Ross, this route also fits into the first category well, given that the intermediate town of Ross-on-Wye has gained upgraded links to the larger towns of Hereford and Gloucester.

3. Routes that provide **interurban links while at the same time competing with rail**. Out and out competition with rail is limited and never embraces the entirety of an interurban bus route's offering (which serves places that the railway doesn't reach).

   - *Cityzap* is a new brand of interurban service operated by Transdev from a base in Yorkshire. Cityzap provides two routes, one linking Leeds with York and one linking Leeds with Manchester. Cityzap is promoted as a 'luxury' service much like the popular 36 bus also provided by Transdev, and offers a (relatively) high-speed and limited-stop alternative to rail.

   - The 28/29 Regency Route (Brighton & Hove Buses) competes with rail between Brighton and Lewes. Whilst other sections of the route cover gaps in the network left by the closure of the Wealden Line, there remains a very frequent direct rail link between Brighton and Lewes on the East Coastway line. By offering a combined 10-minute frequency with a multitude of attractive fares options, the Regency Route competes strongly with this rail link.

In summary, there is a range of ways in which interurban bus is filling rail network gaps. Where there is overlap, customers have a choice of travel modes and this may act as a competitive spur for both rail and bus operators. And elsewhere in the country, interurban bus has developed (alongside the reduction in subsidised/tendered revenue support routes) with the relationship to the rail network often an incidental feature.

33. The Bedford – Bletchley section never closed and the Bicester – Oxford service has since been restored. Plans to recreate the Oxford – Cambridge link have been the ambition of a group of local authorities who first commissioned studies of the opportunity in 1994 – see https://t.co/Y8qpx6s8G7 for reaction to the 1996 report release.

The X5: Cambridge-Oxford and the planned East West Rail route

The X5 route between Cambridge and Oxford, run by Stagecoach, has a complex inter-relationship with the rail network. While it fits into the second category by providing east-west links to many towns already on the rail network, there are sections where it actively competes with rail. With a planned full-scale restoration of the train line it replaced, it may soon compete across the length of the route. But then this is a fast-growing area of significant prosperity and with a highly dispersed pattern of employment locations. So this is an important case to consider separately.

Serving many of the same towns and villages as the east-west (currently abandoned) through rail line between Cambridge and Oxford, the X5 was launched in 1995 as a premium coach service. Initially branded as the 'Varsity' route, it was rebranded as 'Cross Country X5' in 2008. The route is popular and, as of 2014, carried 1.3 million passengers annually, operating with half hourly frequency (increased from hourly in 2005).

Figure 3.3 shows a broad comparison between the X5 route and the partly disused Varsity Line between Oxford and Cambridge. The Varsity Line (in purple) used to connect Oxford to Cambridge, via Bicester, Bletchley, Bedford and Sandy, until sections of the line were closed in 1967. Today the X5 route starts in Oxford, makes its way to Bicester, but goes north of Bletchley to the more populous city of Milton Keynes (not in existence when the railway was closed, but rapidly growing in population since the X5 route was introduced). From there the X5 reconnects with the Varsity line route at Bedford, before skipping north of the old line at St. Neots and finishing in Cambridge.

The importance of the X5 route (and a determinant of its popularity) is demonstrated in Table 3.4, which details a comparison of journey times between links on the X5 and equivalent rail journeys. With the exception of where the X5 parallels the re-opened section of the Varsity line between Oxford and Bicester, the X5 provides a similar or shorter journey time at a similar, or significantly reduced, cost.

In 2011, 15 years after its initial promotion by local authorities, the UK government announced its support for the East West Rail Link (EWRL). EWRL, now backed by £110m in Government funding, is likely to cost closer to £1bn to re-instate just the western section (Bletchley – Bicester/Aylesbury). Government has asked that work on the missing eastern section (Bedford – Cambridge) is accelerated into the 2020s. Strategically the link is very important, as it would provide a key connection between four of the main north-south lines in the network (Chiltern, West Coast, Midland and East Coast Main Lines), but its primary focus will be on opening up major new housing developments and providing rail commuter opportunities into Oxford, Milton Keynes and Cambridge.

What does potential restoration of the Oxford – Cambridge rail link mean for the X5? Given the experience elsewhere, for instance with Harrogate – Leeds, where an established interurban bus service that is slower but offers better city centre coverage than rail is prospering, the X5 route would seem likely to survive and potentially prosper. After all, neither Oxford nor Cambridge has a centrally located rail station, and the pattern of employment growth in these cities and Milton Keynes is dispersed.

Figure 3.3: **A (stylised) comparison of the X5 and Varsity line route**
Source: http://www.nationalrail.co.uk/static/documents/content/routemaps/nationalrailnetworkmap.pdf

Figure 3.4: **The Varsity Line (with disused, abandoned or freight only sections in blue)**
Source: https://en.wikipedia.org/wiki/Varsity_Line

The expected high levels of housing growth and potential use of the planned east west 'Expressway' road may offer some significant new opportunities for more and faster journeys. Much may depend ultimately on the effective provision of bus priority access routes into the cities of Oxford and Cambridge and across Bedford.[34] It is unlikely that the consequential impacts on the X5 service have featured in any of the East West Railway or Expressway investment appraisals to date. While in this instance, in a strongly growing corridor, there will probably be room for both interurban bus and rail modes, this example serves to illustrate the importance of avoiding looking at rail (re)-openings and new road construction (the Expressway) in isolation. It should be instead an opportunity to look for an optimised overall public transport network solution.

Interurban Bus infrastructure: the Cambridge-St Ives and Leigh-Manchester busways

Both of these corridors have been provided with new busway infrastructure, built along disused rail alignments and in both cases, the services offered fall under our definition of interurban.

The Cambridgeshire busway is the most striking example of upgraded interurban bus services replacing a one-time rail link. It is the longest busway (exclusively used by buses) in Britain, and indeed, the longest guided busway in the world. Between the north west of Cambridge city and St Ives it utilises the track-bed of the former Cambridge – St Ives rail line, closed to passenger services in 1970.

Bus services continued to be provided over this corridor, but were badly affected by congestion on the A14 road, resulting in low speeds and unreliability. Reopening of the rail line to passenger services was considered as an option, but the station is poorly located for the centre of Cambridge, and bus services over the busway could provide higher frequency, better city centre access and through running to destinations beyond the busway itself. The rail station at Cambridge is served, providing connecting facilities, and at Huntingdon some services pass close to the station on the East Coast main line. The corridor has substantial housing development, with new construction now occurring at Northstowe, directly linked to the busway

Opened in 2011, over a total length of about 25 km, the busway provides a link from St Ives to Cambridge through the rural region north-west of the city, and also a short link south of the city to Addenbrookes Hospital and Trumpington Park & Ride. Within the city, use is made of existing street sections benefitting from bus priority, especially in access to the city centre. Services are provided by two operators, the great majority being by the local subsidiary of Stagecoach, with more limited operations by Whippett (a long-established local independent, now a subsidiary of Tower Transit). The X5 route discussed above uses a different corridor to access Cambridge.

34. Initial estimates (http://www.eastwestrail.org.uk/nostalgia-taking-us-back-future/) suggest the Oxford-Cambridge journey on the new and improved Varsity line could take as little as 1 hour and 15 minutes.

The benefit-cost ratio (as quoted at the public inquiry into authorisation of the busway) was 2.26. Given the rapid growth in ridership and large diversion from car (see below) it is likely that out-turn benefits would at least equal the forecast. However, out-turn capital costs were about 15% higher than forecast, and a dispute between the contractor and the County Council continues in respect of construction defects. A comprehensive description of the scheme is provided by Brett and Menzies[35]. A very high level of service is provided, with a combined frequency of 11 buses per hour at inter-peak times over the busiest section. Bus services operate commercially, with operators paying an access charge for use of the busway.

A large-scale user survey was undertaken about one year after opening by the Atkins consultancy[36]. Busway users were also the subject of an attitudinal survey by Passenger Focus[37]. A strong growth in busway usage was reported from the outset with year 2 monthly ridership forecasts attained in the first three months. Steady growth has continued since, at about 3% per annum, total passengers reaching 3.77m in calendar year 2016[38], and now approaching 4 million. A large component of growth has come from car users, especially through park and ride sites such as those at St Ives and Longstanton.

The Atkins survey showed that 24% of passenger trips on the busway services had been diverted from car, even excluding those formerly car-sharing or receiving lifts. In addition, the Passenger Focus survey indicated that 44% of respondents had 'easy access' to private transport compared with about 25% for bus users in areas outside larger conurbations covered in the same survey. A much younger age profile was found than is typical of bus use, 55% on the sample (aged 16 upward) being aged 16 to 34. Overall satisfaction levels were generally high at 87% (the combined percentages 'satisfied' or 'very satisfied'). The analysis of the Atkins passenger surveys also indicates a user profile closer to that for rail users in terms of income, mode choice available, and age. However, the Atkins user survey only identifies origins and destinations at the level of the stop used on the busway, not the ultimate origins and destinations. Hence, one cannot identify the ultimate origins of Park & Ride users, or the extent of interchange to rail services at Cambridge or Huntingdon cannot be identified.

A busway such as Cambridge would be expected to attain a higher-than-average output than most local bus services in terms of passenger-km per litre of fuel used, and high load factors. In calculations made for an illustrative case broadly equivalent to the Cambridgeshire busway services, fuller details of which are provided elsewhere[39], fuel consumption was found to average about 2.5 km/litre. Fuel efficiency in terms of passenger-km per litre is found to be approximately 75 compared with about 20 elsewhere.

35. Brett, A. and Menzies, B. (2014) 'Cambridgeshire Guided Busway, UK: An Analysis of Change' Proceedings of the Institution of Civil Engineers (Transport), June, Vol 167, no TR3, pp 124–133.

36. Atkins (2013) Cambridgeshire Guided Busway: Post-Opening User Research. Final Report, September.

37. Passenger Focus [now Transport Focus] (2013): Bus Passenger Survey, March [a national survey, sampling bus users in England from many areas, and using different operators].

38. Menzies, Bob. Personal communication, Cambridgeshire County Council, 21 March 2017.

39. White, Peter. Impacts of Bus Priorities and Busways on Energy Efficiency and Emissions. Greener Journeys, London, September 2015.

Source: Wikimedia Commons.

The Leigh busway, opened in 2016, has also been a success. From Leigh, the V1 limited-stop bus service joins 7 km of guided busway to Ellenbrook, before using 6 km of bus lanes and sections of reserved bus lanes through Salford and Manchester city centres. The V2 service from Atherton to Manchester joins the guided busway at Tyldesley.

In daytime operation from Monday to Saturday at least eight buses per hour run in each direction on the guided section. More than 2 million passengers were carried in the first year of operation of the Leigh – Salford – Manchester service that uses the Leigh busway, and about 20 per cent previously made the equivalent journey by car.

Summary and conclusion

Although the routes followed by many interurban bus services can be traced back over a period of 50 years or more, the use of branding, product differentiation and customer service features on interurban services is a more recent innovation.

Most interurban bus service providers are forward-looking and clearly optimistic with regards to their individual routes (reflected in high levels of investment in vehicle fleets).

In some cases, single-route services actively compete in part with rail across key corridors, looking to provide an access advantage or reduced journey costs. Whilst there is great diversity in the nature of many of these services, their future looks as strong as the secondary rail network. In two cases, where busways have been built to support interurban bus service, their usage has exceeded expectations and they support a particularly efficient operation.

The ten case study routes were selected because they illustrate key features of interurban bus in relation to the area of research interest – namely their ability to perform a wider role in delivering social and economic benefit in the way that the rail network does. There are many more 'single route' interurban bus services across the country of equivalent standard to those covered in our case studies.

4.0 Interurban Bus networks

In this chapter, we move on to consider situations in which there is a network of interurban bus routes operating under a single brand, rather than an individual route. We have three main case studies to illustrate this type of operation, one in each of Wales, Scotland and England:

- **TrawsCymru**, which covers a very wide part of rural Wales linking remoter communities to the major Welsh cities and to key local/regional market centres;
- **Express City Connect (ECC)**, a network of services based in Fife, Scotland; and
- **InterConnect**, a network of services in Lincolnshire.

A short history of the development of these three interurban networks is given in Annexes A, B and C. Unsurprisingly, interurban route networks exhibit segments of variable profitability, depending on passenger demand levels. In such cases, it can then make sense for public sector funders either to support the 'weaker links' in the network financially, or, if the whole network requires subsidy, to support it at that level. In the case of the TrawsCymru services, use has been made of tendering to inject some financial support and also of a Statutory Quality Bus Partnerships (SQBP)[40]. In the case of InterConnect, Rural Bus Challenge grant funding was a crucial spur to action, but Express City Connect has developed and prospered as a purely commercial operation.

Interurban network case study 1: TrawsCymru

Across a large part of Wales, there is a network of interurban bus services operated by several bus companies under a unified TrawsCymru brand. The current network is a fairly recent innovation (the first route, the T4 was introduced in 2011). It now offers a regular weekday and Saturday service across six corridors, with regular Sunday links on two of the routes. The routes that comprise the TrawsCymru network are shown in the panel overleaf[41] (stops in bold denote railway interchanges).

As may be seen, in each case TrawsCymru routes terminate at places which remain on the rail network, and serve some key towns en route which are also rail-served. Route T6 is an exception to this pattern: one of its end points (Brecon) lost all three of its rail routes in the 1960s, but the connections available between TrawsCymru routes at Brecon mean that Route T6 still provides, with an interchange at Brecon, a useful link between rail connected places, for example between Newtown and Llandrindod (in Mid Wales) and Neath and Swansea (in the south).

40. Introduced in 2000, SQBPs, which can be implemented in tandem with commercial or tendered services, are arrangements organised by local authorities to upgrade bus services and improve infrastructure in a given area. Local authorities provide guidelines about minimum standards of service that must be met in order for operators to run services in that area, and in turn operators have relative freedom over routes and general service provision.

41. TrawsCymru also operate a seventh service, the T9 Cardiff Airport service, though it will not be covered in this section as it has more in common with express airport-city links.

The TrawsCymru network of interurban bus services

T1: **Aberystwyth** – Aberaeron (for the T5) – Llanbedr Pont Steffan – **Carmarthen**
Hourly weekday and Saturday service starting at 6am, with four buses in each direction on Sundays.

T1C: **Aberystwyth** – Aberaeron – Llanbedr – **Carmarthen** – **Swansea** – Cardiff Bay – **Cardiff**
Once daily weekday and Saturday service in each direction.

T2: **Bangor** – Caernarfon – **Porthmadog** – Dolgellau (for the T3) – **Machynlleth** – **Aberystwyth**.
Six weekday and Saturday buses in each direction, with limited evening service and three buses per day on Sundays.

T3: **Wrexham** – Llangollen – Corwen – Bala – Dolgellau (for the T2) – **Barmouth**
Every two hours weekday and Saturday service frequency, with an augmented hourly frequency between Barmouth and Dolgellau; one evening bus, and four Sunday buses in each direction.

T4: **Newtown** – **Llandrindod** – Builth Wells – Brecon (for the T6) – **Merthyr Tydfil** – Pontypridd – **Cardiff**
Approximately every two hours weekdays and Saturdays and an extremely limited Sunday and evening service. Half hourly service between Cardiff and Merthyr Tydfil.

T5: **Aberystwyth** – Aberaeron (for the T1) – New Quay – Cardigan – **Fishguard** – **Haverfordwest**
Hourly weekday and Saturday service; no Sunday buses, but a good evening service.

T6: Brecon (for the T4) – Ystradgynlais – **Neath** – Swansea Bay Campus – **Swansea**
Hourly weekday and Saturday buses; five Sunday buses in each direction.

Service frequencies and individual bus features vary, though all buses feature the same TrawsCymru branding and livery. The T1C route is unlike the other TrawsCymru routes in that it is less frequent, and was introduced to replace the discontinued commercial 701 service run by Lewis Coaches until August 2016. TrawsCymru also offers through tickets for local bus and National Express services, with an aim to offer greater integration with rail services in the near future[42].

With an average subsidy per passenger journey of £0.42 as of 2016/17, the T4 requires the least amount of revenue support out of all the TrawsCymru corridors, primarily due to commercial operation between Merthyr Tydfil and Cardiff. Perhaps due to its recent introduction, the T6 is the most heavily subsidised route, with an average subsidy per passenger journey of £1.23.

42. Welsh Government, TrawsCymru Annual Report 2016–17, 2017.

The Winkler Report

The eventual roll-out of TrawsCymru followed guidelines and recommendations set by Victoria Winkler of the Bevan Foundation in her February 2014 report, 'Review of TrawsCymru', commissioned by the Welsh Government. Winkler set out the following main recommendations[43]:

Winkler Report Recommendations

- The network should comprise "medium- to long-distance, strategically important bus services that connect key towns in Wales and which complement the rail network". She suggested that these services could follow a mix of commercial and tendered provision mechanisms.
- She argued that there was a strong case for five main north-south corridors, with possible expansion to 10 or even 12 in total.
- Any further additions to the network should be based on a solid strategy of proving a need and demand for the service, without simply replicating the rail network.
- There should be a single TrawsCymru brand image across the whole network, with effort made to keep features and amenities consistent across corridors and operators.
- Buses should be high-spec and low-floor, in order to best 'ensure disabled access whilst maintaining comfort', and TrawsCymru should strive to provide the best services for passengers, in terms of buses, bus stations, and passenger facilities.

In short, Winkler recommended that the network be comprehensive; feature recognisable branding and livery; use the latest in customer service features; and not compromise on reliability. She argued that the needs of more rural passengers required links up through the urban hierarchy and should not come second to more long-distance links, or to the needs of commuters.

Table 4.1 shows the various TrawsCymru services and a comparison of service quality against other modes of transport. In principle, most routes also compete with rail, though most rail journeys take longer than the comparable TrawsCymru service, are more expensive, and many require interchange (at Shrewsbury, in England). The main competitor to TrawsCymru therefore, is car journeys, and this is addressed in the Winkler report. Winkler describes a need for each route to take no more than 50% longer than an equivalent car journey. This is challenging, given her requirement that the needs of rural inhabitants are not de-prioritised.

43. Winkler, V. Ibid.

Service	Weekday and Saturday Frequency	Overall service reliability	Number of stops per hour of journey time	Average Subsidy per journey 2016/17	Bus Fare	End-to-end journey time	Journey time of comparable car journey	Percentage excess of bus journey time over car	Journey time of comparable train journey	Train frequency	Train Fare (advance single)
T1 Aberystwyth – Carmarthen	Hourly	97.73%	8.89	£0.66	£10 for a TrawsCymru day ticket – allows for unlimited travel on any TrawsCymru service all day. As a local bus service, TrawsCymru is also eligible for travel using concessionary bus passes, available for elderly and disabled passengers.	2 hours 15 minutes	1 hour 24 minutes	**61%**	6 hours (change at Shrewsbury)	Hourly afternoon frequency	£30
T2 Bangor – Aberystwyth	Every two hours	94.2%	6.15	£0.91		3 hours 15 minutes	2 hours 23 minutes	**36%**	4 hours 12 minutes (change at Shrewsbury)	Roughly every two hours, no evening trains	£25.50
T3 Wrexham – Barmouth	Every two hours between Barmouth and Wrexham, augmented frequency between Barmouth and Dolgellau.	87.39%	5.71	£1.08		2 hours 45 minutes	1 hour 36 minutes	**72%**	3 hours 30 minutes (change at Shrewsbury)	Every two hours	£14.50
T4 Newtown – Cardiff	Every 2 hours, half hourly between Cardiff and Merthyr Tydfil.	91%	6.93	£0.42		3 hours 45 minutes	2 hours 23 minutes	**57%**	3 hours (change at Shrewsbury	Hourly	£23.50
T5 Aberystwyth – Haverfordwest	Hourly	100%	12.30	£1.06		3 hours 10 minutes	1 hour 51 minutes	**71%**	6 hours 45 minutes (change at Shrewsbury)	Every two hours	£29.50
T6 Brecon – Swansea	Hourly	Data not available	10.42	£1.23		1 hour 55 minutes	1 hour 8 minutes	**69%**	–	–	–

Table 4.1: **TrawsCymru service features and modal comparisons**

As a proxy for rural connectivity, Table 4.1 also shows the number of intermediate stops for each route, per hour of journey time. The need to make multiple stops in small towns and villages is one of the main contributors to increases in the journey differential between buses and cars, creating a rough correlation between this metric and the bus-car total journey time differential. Out of the targets set by Victoria Winkler, this journey time requirement is the only target not entirely satisfied, reflecting the point that these two key aims are somewhat incompatible. David Hall notes that, since the contracts for provision are managed by local authorities, requirements that TrawsCymru routes serve smaller towns that wouldn't be served by limited-stop coaches are included in contracts, as an alternative to providing a greater variety of local services. In some cases, these local requirements can be served by *Bwcabus* demand responsive services, such as in the Teifi Valley and Lampeter areas, allowing for improved journey times on the T1 and T5 services.

Table 4.1 also reveals an important user cost advantage of TrawsCymru. While the costs of car travel are mostly sunk, meaning average cost falls as distance travelled increases[44], TrawsCymru offers cost savings of at least 50% over comparable rail journeys. Individual services are contracted on a 'net cost' basis, i.e. operators retain fare box revenue and retain the risk on fares. However, contracts specify that operators are to accept network and area tickets which are competitively priced. Some sample adult single fares are as follows:

- T2 Bangor to Aberystwyth = £5.40 (86 miles) or 6.28 pence per mile
- T3 Wrexham to Dolgellau = £6.70 (50 miles) or 13.4 pence per mile
- T4 Brecon to Cardiff = £7.00 (41 miles) or 17 pence per mile
- T5 Aberystwyth to Cardigan = £5.35 (40 miles) or 13 pence per mile.

A weekend free travel trial was introduced by the Welsh Government for all TrawsCymru bus services in July 2017 and runs until May 2018. The outcomes are being monitored. It has seen patronage increases of 58% on weekends between July and the end of October compared to the equivalent period the year before.

An advantage that rail appears to offer over TrawsCymru is shown by the latest reliability statistics[45]. Whilst TrawsCymru is at least 87% reliable across all services for which data is available, Arriva Trains Wales, the main operator in Wales, is at least 97% reliable across all sectors[46]. TrawsCymru offers a service frequency roughly comparable to that of equivalent rail connections, with a higher frequency in some cases. For example, the T5 runs at an hourly frequency to and from Aberystwyth, where rail connections are also available on the Cambrian line (which has a two-hourly service).

44. This means that TrawsCymru may be less of an attractive alternative over car journeys for those making semi-regular journeys, for example weekly or monthly visits to see family.

45. TrawsCymru, TrawsCymru State of Network Report, TrawsCymru Strategic Management Board – 5th May 2016.

46. See https://www.arrivatrainswales.co.uk/ATWOverall/ for rail performance data. The usefulness of the bus vs rail performance comparison is hampered by inconsistency in the definition of reliability between modes. The train reliability measure shows the percentage of all trains arriving at their final destinations within five minutes of advertised, whereas the stricter Traffic Commissioners' bus standard can also be applied at intermediate bus stops.

Nevertheless, the remaining Winkler recommendations are largely fulfilled. In terms of passenger comfort and facilities, the TrawsCymru network is in line with most interurban services. Buses provide Wi-Fi, spacious leather seating and room for luggage, as many passengers will be undertaking long journeys. Buses typically don't have USB chargers, or on-board toilets at the moment, though a switch to luxury coach-spec buses in 2018/19 may well change this. The current fleet of vehicles, whilst varying between operators, are predominantly low-floor bus models with ample accommodation for disabled passengers. The buses are primarily single-decker, with the exception of the T3 (which uses low-floor double-decker models), and all use a distinct light green and white livery. In contrast, the branding scheme for TrawsCambria was fragmented and inconsistent. On the side of each bus is a simplified route map, detailing major stopping points and rail interchanges.

Integration with other modes of transport, especially with rail services, is mixed. Integrated localised bus and rail tickets are offered via the CymruConnect service. Through tickets with Bwcabus, a network of local fixed route and demand responsive services, and National Express, are available. There are also plans to further integrate the network with the new Wales and Borders Rail Franchise starting in 2018/19.

While not specifically mentioned in Winkler's review, of note is the average subsidy per journey on TrawsCymru services. As of the 2016/17 financial year, this ranges from £0.42 to £1.23 per passenger journey. This is especially relevant given that in the 2016/17 financial year Arriva Trains Wales (ATW) received £0.26 in subsidy for every passenger kilometre travelled, based on over 1 billion in total passenger kilometres[47]. When factoring in the average passenger journey distance of 38km across the whole network in 2016/17[48], the average subsidy per ATW passenger journey is £10.00, much higher than the subsidy costs incurred by TrawsCymru.

While the level of rail subsidy per passenger will undoubtedly vary between lines, and is probably even higher still on the more comparable rural rail parts of the Arriva Trains Wales network, TrawsCymru appears to represent considerably better value for money.

47. Rail Finance, Office of Rail and Road, 2016–17 Annual Statistical Release, 11th October 2017.

48. Office of Rail and Road, Arriva Trains Wales Key Statistics – Table 2.2, 6th July 2017, revised 30th November 2017.

Patronage

In providing the TrawsCymru network, the Welsh Government not only aims to improve public transport quality and integration, but to increase the use of these services. The following statistics detail some very basic ridership trends on TrawsCymru services in the past few years, and a comparison with its predecessor TrawsCambria[49]. Table 4.2 shows initial patronage on TrawsCambria services in the 2011/2012 financial year (the last year when TrawsCambria as a full network existed), along with patronage for their TrawsCymru equivalents in 2014/15 (the first year when T1–T5 services were all available). Initial take-up of the TrawsCymru services was impressive, with all five corridors boasting growth of over 50%, and four of the five reporting growth of over 100%. Table 4.3 additionally shows patronage statistics for TrawsCambria and TrawsCymru services between 2007/08 and the present day, whilst also demonstrating that all the patronage growth cannot be attributed to TrawsCymru introduction, though the correlation in many cases is hard to deny.

Since introduction, between 2014/15 and 2015/16, two out of the five services showed growth of close to 10%, or higher. Patronage on the T3 stayed almost static, whilst T4 patronage fell slightly. By far the biggest growth in passenger use is the T2 service between Bangor and Aberystwyth, showing growth of around 100% between 2014/15 and 2015/16, arguably due to the consolidation of its status as a TrawsCymru service[50]. Growth between 2015/16 and 2016/17 was less impressive than the previous two years, though two routes still showed growth of over 10% (the T2 and T4 services). Demand for the T3 service fell by 13%, though this may have been in part due to the route's operator going out of business in 2016 and causing disruption.

Though it may be too soon to reach many accurate conclusions, the data already available (displayed visually in Figure 4.3) show a substantial increase in ridership following introduction and integration of services under a common brand. Before introduction of the TrawsCymru network, patronage on TrawsCambria services was mostly static, with patronage on the X94 service dipping slightly before its TrawsCymru equivalent was introduced. With the exception of the T2, all TrawsCymru corridors experienced considerable growth following introduction of the new network brand, with some experiencing even further growth since. New corridors are being considered. It can also be seen from Figure 4.3 that, over a ten-year period, there has been underlying stability in patronage overlain with significant upturns in passenger demand when services have been improved.[51]

49. Kindly provided to us by David Hall.

50. The status of the X32/T4 service is a bit unclear. Whilst the X32 service was withdrawn and the T4 introduced in 2012, the T4 did not have TrawsCymru branding or livery until much later.

51. The patronage statistics apply to contracted journeys only. The majority of TrawsCymru routes are competitively tendered, with a small minority of route sections being delivered on a commercial basis. David Hall estimates the proportion of patronage on commercially provided parts of the TrawsCymru network to be in the region of 18%.

Delivery of the TrawsCymru network

The initial TrawsCymru network was run by a number of operators, each with a slightly different method of provision. This is explored in great detail by Victoria Winkler, making recommendations as to the optimal delivery mechanisms for each route going forward, tailored to the individual characteristics of each route.

Many of the commercial services which used to compete (at least in places) with TrawsCymru routes have now been withdrawn[52]. The low levels of population density and hence demand across many of the routes makes it difficult for operators to offer fully commercial services, leading Victoria Winkler to suggest a mix of commercial provision and competitive tendering on many routes. Table 4.4 shows the proposed delivery methods outlined by Winkler, alongside the present-day arrangements.

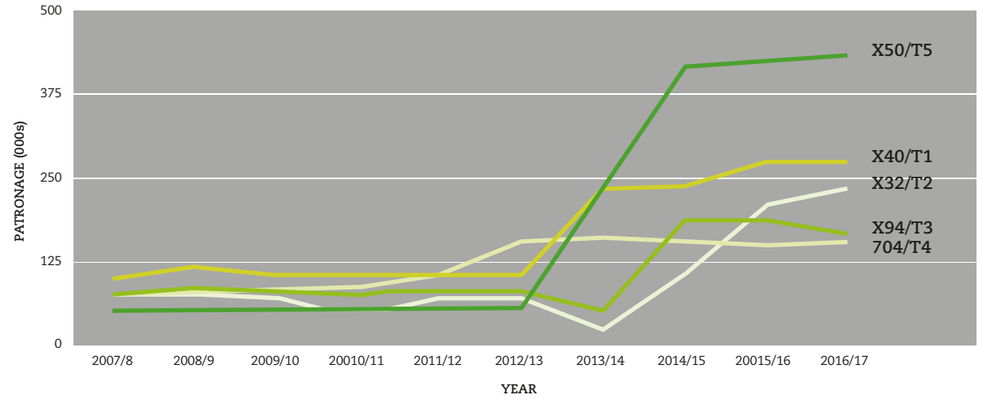


Figure 4.3: **TrawsCymru and equivalent TrawsCambria patronage trends**

52. Arriva Buses in Wales used to run several longer-distance routes in Wales including its CymruExpress brand. All of these routes have since been withdrawn and Arriva currently only provides local services on the north coast.

TrawsCambria Service Number	TrawsCambria patronage in 2011/12	TrawsCymru replacement	Patronage in year of TrawsCymru brand introduction (2014/15)	% Change between 2011/12 and 2014/15
X40 Aberystwyth – Carmarthen	102,000	T1	240,211	+135.5%
X32 Bangor – Aberystwyth	53,412	T2	108,588	+103.3%
X94 Wrexham – Barmouth	75,246	T3	187,718	+149.5%
702 Newtown – Brecon	86,339	T4	153,311	+77.6%
50 / X50 Aberystwyth – Cardigan	152,321	T5	417,336	+274.0%

Table 4.2: TrawsCymru Patronage Statistics (Contracted journeys only)

Year	X40 / T1	X32 / T2	X94/T3	704/T4	X50 / T5	T6
2007/8	101,260	76,140	80,016	78,774	51,824	
2008/9	117,830	78,773	86,369	80,580	54,682	
2009/10	102,980	70,469	79,223	81,322	59,001	
2010/11	102,000	53,412	75,246	86,331	60,321	
2011/12	106,018	69,699(*)	80,214(*)	108,233	56,457(*)	
2012/13	106,018	69,699(*)	80,214(*)	152,636	56,457(*)	
2013/14	234,654	23,561	52,227	161,541	249,673	
2014/15	240,211	108,588	187,718	153,311	417,336	
2015/16	271,395	210,996	187,947	149,770	428,180	
2016/17	273,938	234,430	166,637	155,648	434,350	81,298

Table 4.3: **A comparison of patronage on TrawsCymru and TrawsCambria services since 2007/08**
Note: patronage figures in green cells refer to TrawsCymru, and others refer to TrawsCambria.

TrawsCymru Route	Operator(s)	Average subsidy per journey in 2016/17	Delivery mechanism: Winckler's Recommendation	Current delivery mechanism
T1 Aberystwyth – Carmarthen	First Cymru	£0.66	SQBP, with some tendering of some morning and evening journeys	Tendered contract until 2021 with Carmarthenshire County Council. Integrated closely with Bwcabus network
T2 Bangor - Aberystwyth	Lloyds Coaches	£0.91	SQBP, also separation of route into tendered and commercial sections, dependent on demand and passenger density	Tendered contract to 2022 with Gwynedd C.C., with some journeys operated commercially
T3 Wrexham – Barmouth	Lloyds Coaches	£1.08	SQBP, with specifications over connections and 'service quality written into contracts'	Contract with Gwynedd CC to 2020
T4 Newtown – Merthyr – Cardiff	Stagecoach	£0.42	N/A	Commercial between Merthyr and Cardiff, tendered between Newtown and Merthyr to 2018 with Powys CC. SQBP between Brecon and Newtown
T5 Aberystwyth – **Haverfordwest**	Richards Bros.	£1.06	Competitive tendering	Contract to 2022 with Ceredigion and Pembrokeshire CCs. SQBP

Table 4.4: **Summary of Proposed and Current delivery methods for the *TrawsCymru* network**

Winkler also recommended that long-term provision may be best achieved via a franchise system, similar to the current National Rail scheme. Following a consultation on the future of bus services in Wales, 75% of those consulted agreed[53]. The differences between franchising and tendered contracts in this case is an important one, with consultees suggesting that; 'a contract involves a payment to perform a specified activity whereas a franchise implies some sort of exclusivity'[54]. This in turn implies that commercial operators would be prohibited from running their own services along TrawsCymru routes, although with the previous commercial viability concerns along many TrawsCymru corridors, these concerns may be overblown.

Earlier concerns over delivery of these services and their financial arrangements are now much reduced. Winkler describes tension with Arriva Buses in Wales over the commercial provision of their CymruExpress network, and competition with shorter local buses along TrawsCymru, creating conflicts of interest for the contract holders. At present the system of staggered tendered contracts seems to be working well, although it may not offer the best long-term solution. A frequently recommended improvement is the re-allocation of power to tender individual route contracts from local authorities (as specified by the Transport Act 1985) to the Welsh Government, a solution currently being explored for TrawsCymru.

Does TrawsCymru fill gaps in the rail network?

Figure 4.4 shows the current TrawsCymru network, overlaid against the rail network, with information on key interchange points. With the exception of the Heart of Wales line, which runs south-westwards from Craven Arms to Llanelli, the Welsh rail network is an east-west affair, with branches. In her report, Winkler stressed the importance of north-south corridors, providing links in a way that the rail network fails to do so. TrawsCymru's recognition of these principles is clearly demonstrated by the T4 route (Cardiff – Newtown) and the combination of the T1 and T2 routes (Carmarthen – Aberystwyth – Bangor).

The rail network in Wales, even when it was at its fullest extent, failed to provide adequate (and certainly not speedy) north-south links. The Aberystwyth – Carmarthen line, running a similar route to the T1, served as a north-south link, but was closed during the Beeching cuts in 1965[55]. The route currently run by the T5 serves coastal towns between Fishguard and Aberystwyth some of which (but not all) were once accessible via local branch lines. The T3 between Barmouth and Wrexham is an east-west route across the centre of Wales, from the Cardigan Bay to the important town of Wrexham in north east Wales. The end-to-end route reduces total journey time by 33% compared to an equivalent train journey (which requires a change at Shrewsbury), runs at an equivalent frequency, and serves places such as Bala and Dolgellau en route which have lost their rail services (this corridor was served by the line from Barmouth to Ruabon, prior to its closure in 1964).

53. Welsh Government, Improving local bus services in Wales – Consultation outcome report, Bus Services Policy Discussion, May 2017.

54. Welsh Government, Consultation outcome, 2017.

55. There is currently a campaign to restore the rail line between Aberystwyth and Carmarthen.

The T2 between Aberystwyth and Bangor fills a specific gap in the rail network between Porthmadog, Caernarfon and Bangor. It offers a competitive end-to-end link that would otherwise take over 4 hours by train (changing at Shrewsbury), reducing the journey time between Aberystwyth and Bangor to 3 hours and 15 minutes. The T2 also cuts the journey between Bangor and Porthmadog[56] down to one hour. The T2 is the lowest frequency TrawsCymru service, primarily due to pre-existing local buses services providing links between Bangor, Caernarfon and Porthmadog, and rail between Porthmadog and Aberystwyth.

Potential expansion of the TrawsCymru network

Expansion of the network is an immediate priority for the Welsh Government, especially given the success of existing routes. The network, while extensive, is not comprehensive, and there are a number of corridors that could be of benefit if introduced. Along with endorsing the pre-existing T1-5 routes, Victoria Winkler made preliminary suggestions for a number of further corridors that could be provided in the future:

- T6: Wrexham-Ruthin-Denbigh-St. Asaph-Rhyl.
- T7: Carmarthen-Llandovery-Brecon-Abergavenny.
- T8: Newtown-Welshpool-Oswestry-Wrexham.

We had the opportunity to discuss this subject and others with network manager David Hall, who identified some potential areas for expansion of the service as follows, including some overlap with Winkler's recommendations. In general, both David Hall and Victoria Winkler stress the importance of extending the T4 corridor further north, along with the introduction of an east-west link in Northern Wales:

Figure 4.6: **Railway lines in Wales pre-Beeching, with the lines in black recommended to be closed.**
Source: Beeching, 1963

- Bangor-Oswestry[57] via the A5; this route would run south-east via (rail-served) Betws-y-Coed and Llangollen.

- Brecon-Chepstow via Abergavenny and Monmouth; this route covers three towns in south-east Wales, before stopping in Chepstow on the English border. While it is possible to travel by train from Abergavenny to Chepstow, the journey is indirect and requires a change at Newport. No public transport alternatives currently exist for the whole route and Monmouth has no rail service.

56. Bangor and Porthmadog both have stations on the rail network, but are not connected by any direct route, meaning that a journey between the two would take over five hours by rail.

57. For which the railway station is at nearby Gobowen which this route could serve shortly before reaching Oswestry.

Figure 4.4: **The 2017 TrawsCymru network**
Source: *TranwsCymru*

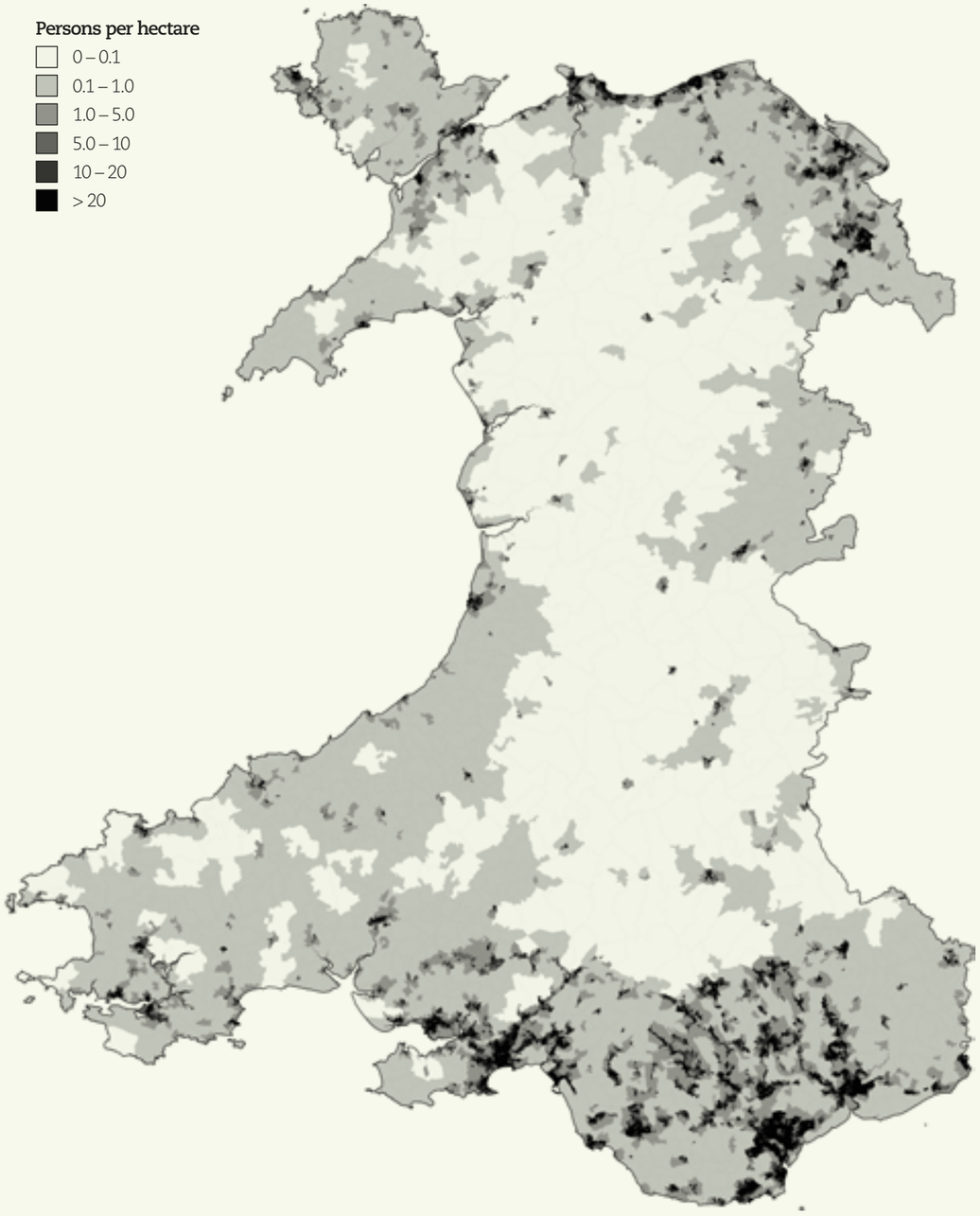


Figure 4.5: **Population density of Wales**
Source: Wikimedia Commons, user SkateTier

- Newtown-Wrexham via Oswestry; this service could cross-connect with the previously identified potential route between Bangor and Oswestry, and the T3 service between Barmouth and Wrexham. The route is almost identical to the T8 corridor proposed by Victoria Winkler, with the only difference being a connection at Oswestry, (just) in England.

A number of key challenges and opportunities have been identified by David Hall:

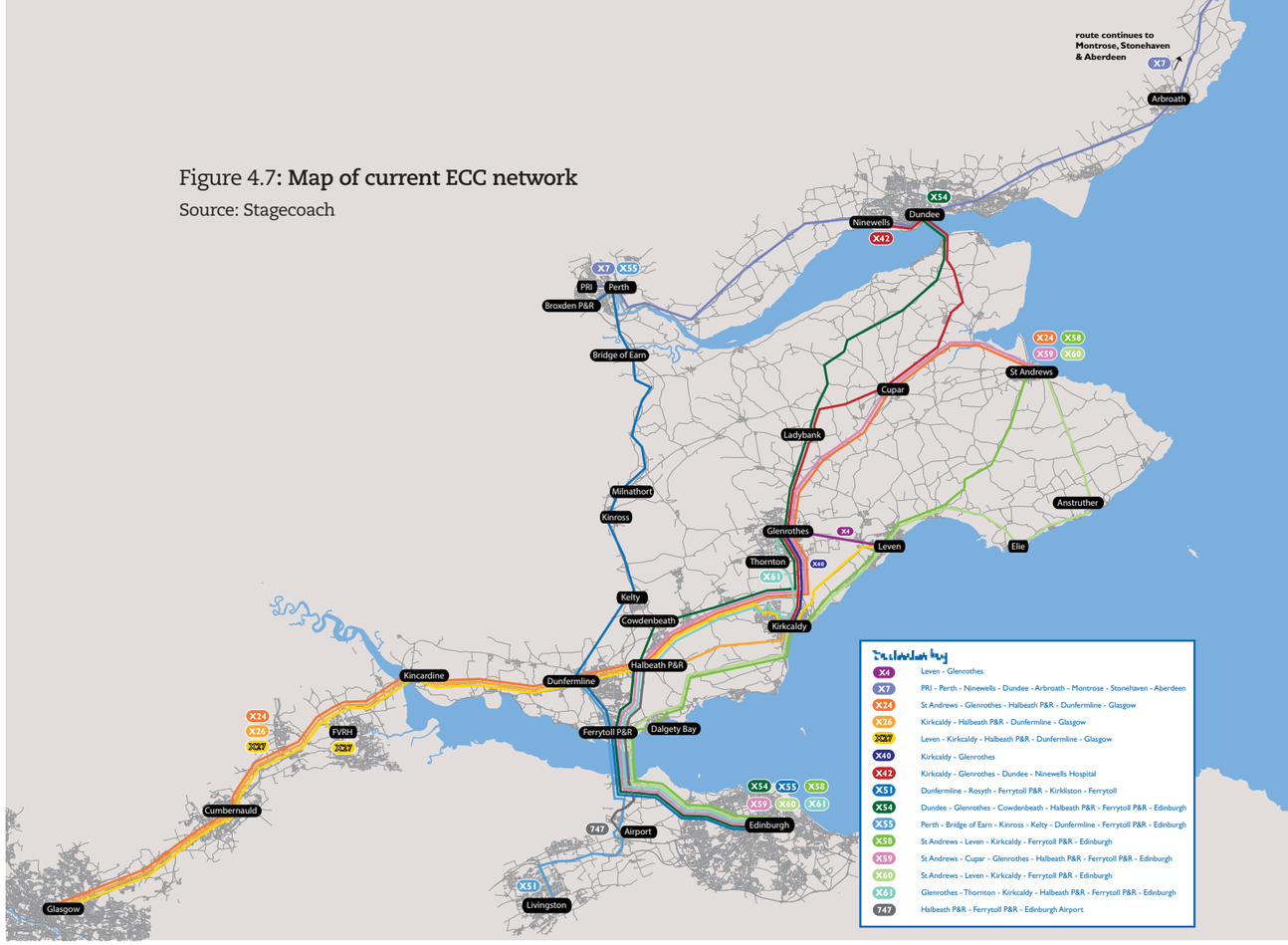
- Ensuring better integration with the new Wales and Borders rail franchise which is due to commence in May 2018;
- Improving facilities for passengers at bus stops and key interchanges served by TrawsCymru, the majority of which remain within the control of local authorities;
- Improving marketing of TrawsCymru services to visitors and tourists to Wales;
- Looking for opportunities to make travel more comfortable for longer distance passengers travelling over two hours, through the introduction of more comfortable buses and coaches and the provision of convenient toilet and refreshment facilities at key interchanges.

Interurban network case study 2: Fife's Express City Connect

Express City Connect (ECC) is an interurban network in Fife, Scotland run by Stagecoach, as part of its subsidiary Stagecoach East Scotland. Despite also being a network of interurban services, ECC is a very different service to TrawsCymru. ECC provides routes on the basis of commercial demand, rather than strategic need, leading to a very different build-up of routes and introduction timeline. Fife is a unitary council area in Eastern Scotland, situated to the north of Edinburgh and south of Dundee. Fife is the third largest council area in Scotland, its population of around 367,000 accounting for just under 7% of the whole Scottish populous. Geographically, the majority of Fife residents are situated in the south, with over a third of residents situated in the major towns of Dunfermline, Kirkcaldy and Glenrothes.

In 2007 Stagecoach Express was relaunched as Stagecoach Express City Connect, comprising services X54, X58, X59 and X60 from various parts of Fife to Edinburgh; X24, X26 and X27 to Glasgow; and X54 to Dundee. In May 2009, new route X51 was launched providing a new public transport link with Livingston, home to one of Scotland's largest shopping centres. Initially operating on weekends only to cater for shoppers, the service was quickly expanded to run seven days a week from August 2009 in response to passenger demand. The service frequency has been further improved since, with journeys now running hourly every day of the week. In February 2010, new route X42 was launched under a Bus Route Development Grant partnership with Fife Council, providing the first direct public transport link between Ninewells Hospital in Dundee and Victoria Hospital in Kirkcaldy. The route became self-financing after three years and now operates on a wholly commercial basis using route number X53. Express City Connect has been wheelchair accessible with WiFi and leather seats since launch in 2007, and was one of the first examples of free Wi-Fi on coaches in the UK.

Figure 4.7: **Map of current ECC network**
Source: Stagecoach



In September 2011 new route X7 was launched, expanding the Express network's reach as far north as Aberdeen. Initially operating between Aberdeen and Dundee, the route was extended to Perth in November 2014. Consistent passenger growth has been achieved and the frequency was boosted on the busy Perth – Dundee section in July 2017 to reflect rising passenger demand. In November 2015 links to Perth were further improved with the introduction of new service X55, linking Perth with Edinburgh via Halbeath Park & Ride, a link not previously offered by public transport. In August 2016 Fife – Glasgow service X24 was extended to Glasgow Airport, providing Fife's first direct public transport link with Scotland's second busiest airport. Passenger growth recorded across the Fife – Glasgow services enabled the frequency to be increased to four journeys per hour (Mon-Sat daytime) between Fife and Glasgow from June 2017.

Early network maps show a simpler network, providing a more unified path into Edinburgh. The Ferrytoll Park & Ride site was utilised extensively, with up to ten services passing through at one point, and with the opening of Halbeath Park & Ride facility in 2013 services were also provided from that point. The nearby town of Dunfermline retained the same frequency as before by boosting service 55 to three journeys per hour as route X55, to create better access points for commuters. ECC introduced wheelchair accessibility and Wi-Fi in 2011, and upgraded their fleet to include leather seating and air conditioning in 2014.

ECC offers a relatively comprehensive network, providing through links to Edinburgh and Glasgow, from many points in Fife, including places not served by rail such as St Andrews and Leven. It is a network that competes with rail, especially in the more populous south.

As a main part of its service, ECC utilises Park & Ride facilities north of the Forth Road Bridge to enlarge its catchment area and exploit the considerable commuter market, at the same time de-congesting major routes in and out of Edinburgh. While some discontinued rail links have in effect been replaced by parts of the Express City Connect network, the majority of routes run between towns that have retained a rail service.

Express City Connect (ECC) as an interurban service

ECC has a number of key attributes:

- ECC is branded (at a network level) with buses featuring a consistent livery complete with the ECC logo.
- Buses feature amenities such as complementary Wi-Fi, charging points, air conditioning and leather seating.
- The ECC vehicle fleet consists of "wheelchair accessible coaches with toilets, similar to the vehicles used by express coach operators like National Express and Megabus". Other than the Edinburgh–St Andrews route, which is only 30% slower than the journey by car, are services are around 60–85% slower than the same journey by car. The longer journey times are explained in part by serving settlements by-passed by major roads, and the park & ride sites. However, the vast majority of customers are not using the full route, the bulk of passengers boarding at Halbeath/Ferrytoll to travel to Edinburgh, which is extremely comparable with car in terms of journey time.
- ECC offers plenty of journeys unavailable on the rail network, including links to St Andrews and the eastern corner of Fife.
- The ECC network is run on a commercial basis by Stagecoach East Scotland and is not subsidised by Fife County Council (or others).
- Service frequency varies depending on geographical location, but combined frequency is densest where demand is high; around Dunfermline, in particular the Halbeath Park & Ride site.

Table 4.5 details some of the more important routes, their frequency, peak vehicle requirement (PVR) and journey times (both for the service and for an equivalent car ride). All of the identified routes are at least two hours in length and have an hourly frequency. Information on individual ticket prices is available via the operator's website (examples are shown in table 4.7) and a Fife-wide day pass is available for £10.70.

Route		Frequency	PVR	Total journey time		Percentage increase in journey time, bus comapred to car
				Express City Connect	Car	
X24	Glasgow – Halbeath – St Andrews	Hourly	7	3 hours 10 mins	1 hour 50 mins	73%
X26	Glasgow – Halbeath – Leven		5	2 hours 40 mins	1 hour 25 mins	86%
X56	Edinburgh – Perth		4	2 hours	1 hour 11 mins	69%
X58	Edinburgh – Leven		4	1 hour 50 mins	1 hour 8 mins	62%
X60	Edinburgh – Leven – St Andrews		6	2 hours 50 mins	1 hour 37 mins	75%
X54	Edinburgh – Halbeath – Dundee		5	2 hours 40 mins	1 hour 38 mins	84%
X59	Edinburgh – Halbeath – St Andrews		5	2 hours 5 mins	1 hour 36 mins	30%

Table 4.5: **ECC service network key (selected) route characteristics**
'PVR' denotes 'peak vehicle requirement', which has been inferred from the published timetables. Frequency of all services shown is hourly.

A considerable number of the routes offered by the ECC finish in Edinburgh, with most passing through Dunfermline after starting out further north-east. Two limited-stop express services run from Fife towards Glasgow city centre, with an additional route serving both Glasgow city centre and Glasgow Airport. One route goes north out of Fife towards Perth, connecting with another service between Perth and Dundee.

A recent technical press news report indicates that at the time of its launch in 2007 the network was carrying 72,000 passengers per week, a figure which has now reached 100,000. £21m has been invested in the bus fleet, upgrading vehicle specifications. and expanding capacity[58]. With the current fleet of vehicles, Stagecoach claim that, with on-board features such as toilets, Wi-Fi, charging facilities, leather seats and air-conditioning, they provide the 'latest in luxury coach travel'[59].

58. Passenger Transport, 3 November 2017.
59. https://www.stagecoachbus.com/news/east-scotland/2017/october/stagecoach-marks-10-years-of-the-express-city-connect-brand-in-east-scotland.

Link	Relevant ECC services	Combined frequency	Bus journey time	Equivalent Train link	Frequency	Average Journey Time
Glasgow City Centre – Dunfermline	X24, X26, X27	Three buses per hour (midday)	1 hour 10 minutes	Glasgow Queen Street – Haymarket – Dunfermline	Two trains per hour	1 hour 20 mins
Halbeath P & R – Ferrytoll P & R – Edinburgh City Centre	X5, X9, X54, X56, X59	Every ten minutes	1 hour 10 minutes	Dunfermline Queen Margaret – Edinburgh Waverley	Four trains per hour	45 mins
Dunfermline – Ferrytoll P & R – Edinburgh City Centre	X5, X55	Every 20 minutes	1 hour 20 minutes	Dunfermline Town – Edinburgh Waverley	Four trains per hour	40 mins
Kirkcaldy – Ferrytoll P & R – Edinburgh City Centre	X58, X60	Every half an hour	1 hour 40 minutes	Kirkcaldy – Edinburgh Waverley	Five/six trains per hour	45 mins
Ferrytoll P & R – Edinburgh City Centre	X5, X9, X54, X55, X56, X58, X59, X60	Every five minutes	45 minutes – 1 hour	North Queensferry – Edinburgh Waverley	Four trains per hour	24 mins
Glenrothes – Halbeath P & R	X9, X24, X26, X54	Four buses per hour	30 minutes	Glenrothes with Thornton – Dunfermline Queen Margaret	Two trains per hour	23 mins
Glenrothes – Dundee	X53, X54	Every half an hour (midday)	55 minutes – 1 hour 10 minutes	Glenrothes with Thornton – Dundee	One train per hour	One hour
Glenrothes – St Andrews	X24, X59	Every half an hour	45 minutes	–	–	–

Table 4.6: **Comparisons of ECC services and rail alternatives**

Park & Ride (P&R) frequencies

Although the frequency of individual routes never rises above hourly, the combined frequencies over many key route sections leads to high combined peak service frequency on key portions of the network, a few examples of which are included in Table 4.6. Many of these route sections compete with rail, mainly for the commuter market. Table 4.6 also includes the frequency, journey times and fares for these equivalent rail links.

The commuter corridor from Fife, over the Forth and into Edinburgh along the M90/A90 benefits from substantial bus and coach priority measures between the Forth and Edinburgh. As of 2011, 14,500 commuters travelled into Edinburgh from Fife every day[60], with slightly fewer than 3,000 travelling in the opposite direction. Of those 14,500, just 4,000 travelled by train.

By taking advantage of the P&R sites at Ferrytoll (just north of the Queensferry Crossing) and Halbeath (east of Dunfermline, at the intersection of the M90 and the A92), commuters can drive from home locations across Fife, park their cars, and enjoy the high frequency combined ECC service into Edinburgh.

The operator indicates that the bulk of passengers are commuters travelling from Fife to Edinburgh and Glasgow, with links such as Glenrothes/Kirkcaldy/Dunfermline to Edinburgh, Glenrothes/Dunfermline to Glasgow, Glenrothes to Dundee and Dundee/Arbroath to Aberdeen among the busiest. Depending on the time of year there is also a surge in travel to St Andrews from places like Edinburgh and Glasgow for tourist travel, as well as the coastal routes during the summer season. There can also be peaks in travel during better weather with concession passengers on these coastal routes and to prime tourist locations.

There is a fairly consistent level of passenger demand made up of commuters, students and leisure travellers, with additional demand from leisure travellers in August and December, notably during the Edinburgh Festival (for which additional services were operated for the first time in August 2017), and Christmas shopping. Student demand falls away during college and university holidays over summer and at Christmas as would be expected, although this is offset by increased leisure travel at these times.

An important characteristic of the ECC P&R operation is that it forms just a part of a commercial service network. The role of the local authority has been limited to provision of site facilities, and no operating subsidy is needed for the P&R services, in contrast to many other bus-based P&R schemes in Britain. The P&R sites are also useful for those using Glasgow and Edinburgh airports[61]. While not branded as ECC, the Jet 747 service from Fife to Edinburgh Airport is included on ECC maps, and runs via both Halbeath and Ferrytoll P&R facilities. The 747 service runs at a 20-minute frequency, and while not in the same high-floor coach style as other ECC services, also offers free Wi-Fi, leather seating and disabled access. The X24 ECC service offers hourly connections between Glasgow Airport, Halbeath P&R, Dunfermline and St Andrews.

60. Travel to Work: Commuting into, out of and within the City of Edinburgh, Strategic Planning Policy, Planning & Transport, Place, City of Edinburgh Council – March 2016.

61. Source: Colin Hamilton of Fife Council.

Route	Single	Period return	Day return	Dayrider	Weekly Megarider	Four-week Megarider
Glasgow – St Andrews	12.00	18.50	N/A	14.90	43.10	165.50
Edinburgh – Perth	11.30	18.50	8.00	14.90	43.10	165.50
Edinburgh – Leven	11.30	18.50		10.70	28.70	110.30
Edinburgh – St Andrews	12.00	18.50	n/a	10.70	28.70	110.30
Edinburgh – Dundee	12.00	18.50	n/a	10.70	28.70	110.30
Halbeath P&R or Ferrytoll P&R – Edinburgh	5.20	9.00	6.40 peak 5.60 off-peak	10.70	28.70	110.30

Table 4.7: **Examples of fares on Express City Connect services as of January 2018 (£)**

The main difference between ECC and other interurban networks examined like Lincolnshire Interconnect and TrawsCymru lies in its provision of high-quality services to the centres of two major cities (Glasgow and Edinburgh), which along with its role as a P&R service give a strong focus on the commuter market. It is worth noting that, while ECC connections to the more rural areas of Fife may not be as comprehensive as its P&R services or city links, Fife retains an extensive network of local bus services.

Offering a day pass allowing travel across the whole network for just £10.70, the ECC network provides considerable value for money compared to rail services. The ability of ECC (as a 'local' bus service) to offer concessionary passes to elderly and disabled passengers are an important one.

ECC services allow on-board payment, unlike Megabus and National Express coach services, but with fixed fares, operators are unable to exploit yield management pricing structure to optimise loadings and revenues. Peak period ECC passengers are more likely to be commuters, travelling shorter distances, taking advantage of the high frequency services between the P&R sites and Edinburgh, and quite probably not reflecting the typical profile of an express coach service user. Daytime ECC passengers, on the other hand, are more likely to take up the entirety of their journeys by bus, travel longer distances, and make use of discounts schemes like the concessionary fares pass, or the student unirider ticket.

As indicated earlier, Express City Connect operates on a wholly commercial basis after receipt of BSOG. As such, the fares collected and reimbursement revenue from carrying concessionary passengers must cover all the costs of operation while generating a profit to reinvest in sustainable bus and coach services. The company indicates that while it can stimulate demand to an extent with new destination offerings (such as with the routes added to Livingston shopping centre and Glasgow Airport), level of service provision is dependent on people having a reason to travel in the first place and this is largely dictated by wider economic conditions outside the company's control. Factors such as low fuel prices, free or cheap parking at out of town shopping centres and the decline of traditional town centre high streets as shopping destinations have all contributed to a reduction in demand for leisure travel to county towns over the years. The closure of local employers and concentration of service sector jobs in the cities, particularly Edinburgh's financial services industry, has seen commuter distances grow as people seek employment opportunities further afield from their local towns or have moved away from the cities to take advantage of lower property prices.

Interurban network case study 3: Lincolnshire's Interconnect

Following rail closures in 1970, links by rail between Skegness and Lincoln (via Boston and Sleaford) were very indirect. The first application of the InterConnect concept was to Service 6, Lincoln-Wragby-Horncastle-Spilsby-Skegness. By the 1980s, the through journey time was two hours, but a once hourly service had declined to only four through journeys each way over the whole route.

Government introduced the Rural Bus Grant (RBG) and Rural Bus Challenge (RBC) in 1998. The former, allocated on per capita basis in low density regions such as Lincolnshire, enabled a considerable reintroduction of conventional fixed-route bus services in rural areas. The RBC provided scope for a more experimental approach, both with demand-responsive services, and upgrading of interurban routes to offer better quality facilities to users. The demand-responsive services (initially 'Call Connect Plus', now simply 'CallConnect') now offer services in many parts of the county, run by small wheelchair-accessible minibuses. These serve areas defined broadly by catchment areas of market towns, providing both links for local use, and potential connections with the major interurban routes, to which through tickets are offered.

From February 1999, with the help of some RBC funding, Service 6 was accelerated to a running time of about 1 hour 45 min, eliminating some minor diversions via small settlements, and an hourly frequency (Mon-Sat) was re-created. New low-floor single-deckers were used on the service. Improved infrastructure was provided in the form of shelters and information points at stops en route, notably at interchange points with CallConnect and local fixed-route bus services at Horncastle and Spilsby.

An account of the impacts of the RBC-funded InterConnect project, focussing on service 6, was provided in 2005 by Le Masurier *et al*[62]. A more recent review of the appropriate roles of fixed route and demand-responsive services in rural areas using Lincolnshire examples in some detail is also available[63].

InterConnect ridership doubled from 170,000 in the year ending in 1998 (before upgrading) to 350,000 in 2006 (since figures shown are only for this route, not the whole InterConnect network). Double-deckers replaced the single-deckers initially used, to cope with demand. Further growth continued, subsequently peaking at about 470,000 in 2012, before falling back to 416,000 in 2017. Free concessionary travel may have been an important component of growth after 2006, and such travel now forms about 40% of demand on the service. InterConnect operation is very largely commercial, apart from some evening and Sunday journeys.

As well as serving town centres, the InterConnect serves County Hospital in Lincoln, an important provider of specialist healthcare services for surrounding towns and villages. There is some seasonality in demand, ranging from about 28,000 passengers per month in winter to 35,000 in summer. The element of feeder traffic from CallConnect is relatively small (for the CallConnect network as whole, only about 5% of trips involve interchange with the fixed-route network). It is noteworthy that, while CallConnect clearly provides a valuable service for its users in isolated rural settlements, ridership of InterConnect 6 alone substantially exceeds the whole CallConnect network (about 300,000 p.a.).

Following the success of InterConnect 6, the concept was then extended to further routes operated by Stagecoach. Of the services listed below, 1 and 53 experienced passenger growth of similar magnitude to Route 6, i.e. around 100%. In many cases, this coincided with conversion of services to low-floor operation, which would itself stimulate some increases in ridership.

InterConnect Services summary 2017 (Stagecoach) with Monday–Saturday daytime frequencies	
1.	Lincoln – Waddington – Leadenham – Grantham (hourly service)
3 (53).	Lincoln – Market Rasen – Caistor – Grimsby (hourly service; two-hourly Market Rasen – Grimsby)
6.	Lincoln – Skegness (hourly service)
7.	Boston – Wainfleet – Skegness (hourly service). Parallels rail service, but with a better frequency and access to Boston town centre.
9.	Skegness – Mablethorpe – Louth (hourly service)
37.	Spalding – Crowland – Peterborough (hourly service)
51.	Grimsby – Louth (hourly service)
100.	Lincoln – Gainsborough – Scunthorpe (hourly service)
505.	Spalding – Holbeach – King's Lynn (every 20 minutes)

In addition, the InterConnect brand has been applied to services operated by independent bus companies:

InterConnect Services summary (independent operator (Brylaine))	
5.	Spalding – Boston – Coningsby – Woodhall Spa – Lincoln. (hourly service)
7.	Boston – Wainfleet – Skegness. (hourly service; half-hourly combined with Stagecoach 7)

The 'InterConnect' brand also includes an interurban service operating in South Lincolnshire/ Norfolk: 505 Kings Lynn-Long Sutton-Holbeach-Spalding.[64] This long-established NBC service, running hourly, was transferred to independent operation in 1987. In February 2002 its operator, Fowlers, upgraded the service to InterConnect standard. A period of operation with intensive inter-independent competition followed, but from 2009 the service was operated wholly by Norfolk Green, an operator based at Kings Lynn, which radically improved many rural and interurban services in West Norfolk. This forms the most striking example of frequency improvement, with the Mon-Sat daytime frequency eventually increasing from hourly, to every 30 minutes by 2008, and subsequently every 20 minutes under Norfolk Green operation (a level more usually associated with urban bus services, rather than interurban). The Sunday service was also greatly improved, at one time running half-hourly (now hourly). Demand grew by 18% between 2009 and 2013. Following retirement of the managing director, the Norfolk Green business passed to the Stagecoach group in 2013, and is now operated as Stagecoach Norfolk.

62. Le Masurier, P., Barker, A-M., Housely, A. and Cross, T 'Short and long-term impacts of the Rural Bus Challenge Project 'InterConnect' on social inclusion and the quality of life' Paper at UK Transport Practitioners' Meeting, Birmingham, July 2005.

63. See White, Peter. Chapter 15 "The roles of 'conventional' and demand-responsive services" in Corinne Mulley and John Nelson (eds) Paratransit: Shaping the Flexible Transport Future, Emerald, Bingley, 2016. Further discussion on the outcomes of the CallConnect operations is provided by Barry Connor in Chapter 12 "UK DRT: From niche market to total transport?" in Mulley and Nelson.

64. The area served by the 505 provides a particularly marked contrast between the settlement pattern along the route itself, and the surrounding area. A string of large villages supports a high level of commercial service, whilst the adjoining drained fenland area has a low density, scattered population for which demand-responsive operation is more appropriate.

Passenger profiles and attitudes

As noted, the 'InterConnect' brand in Lincolnshire was expanded from the original service 6 in 1999 to a number of other services, including Stagecoach's Lincoln – Grantham service as 'InterConnect One' initially using single-deck vehicles, but converted to double-deck operation by 2008. Frequency was doubled to half-hourly (but reverted to hourly for through journeys in 2010) and through running time was 1 hr 20 min.

An extensive passenger survey of InterConnect Route 1 was conducted by Steer Davies Gleave in 2008[65], comprising four focus groups, a sample of users on board the service (644 respondents) and a telephone survey in the catchment area of the route (500 respondents) at the same time as the on-board survey, which therefore also included non-users of the service. It provides rare insight into the profile of Interurban Bus users. While the on-board survey showed, as might be expected, most user trips originated within walking distance of stops (and most trips were destined for either Lincoln or Grantham), a substantial number originated at greater distances from the route, as shown in Figure 4.10.

A profile of Interurban Bus users

The survey showed that 39% of trips were for shopping, and 18% for work. Other important purposes were entertainment/leisure, and visiting friends and relatives (both at 14%). In line with this, only about 10% of the trips (other than work or further education) were made 5 times a week or more, the majority of such trips being made weekly or less often. Almost 50% of trips by younger people surveyed (16-34) were to visit friends and relatives. Most trips by those age 65 upward were for shopping, with leisure and entertainment, and health-related trips, also important for this age group.

Source: Steer Davies Gleave, for Lincolnshire County Council, 2008

Focus group outcomes emphasised the lack of shopping facilities in smaller settlements, and some dissatisfaction with Grantham as a shopping centre, leading to Lincoln being favoured by respondents.[66] Access to cheaper food shopping was also important. Overall, 27% of respondents reported using the service more frequently than before, this figure varying little by previous duration of use, suggesting that even longer-established users were influenced by service improvements.

65. Steer Davies Gleave, 'InterConnect One Project' for Lincolnshire County Council, 2008. Data quoted are from the summary powerpoint presentation to the County Council.

66. Evidence of the continuing relevance of the urban hierarchy concept identified on the Introduction.

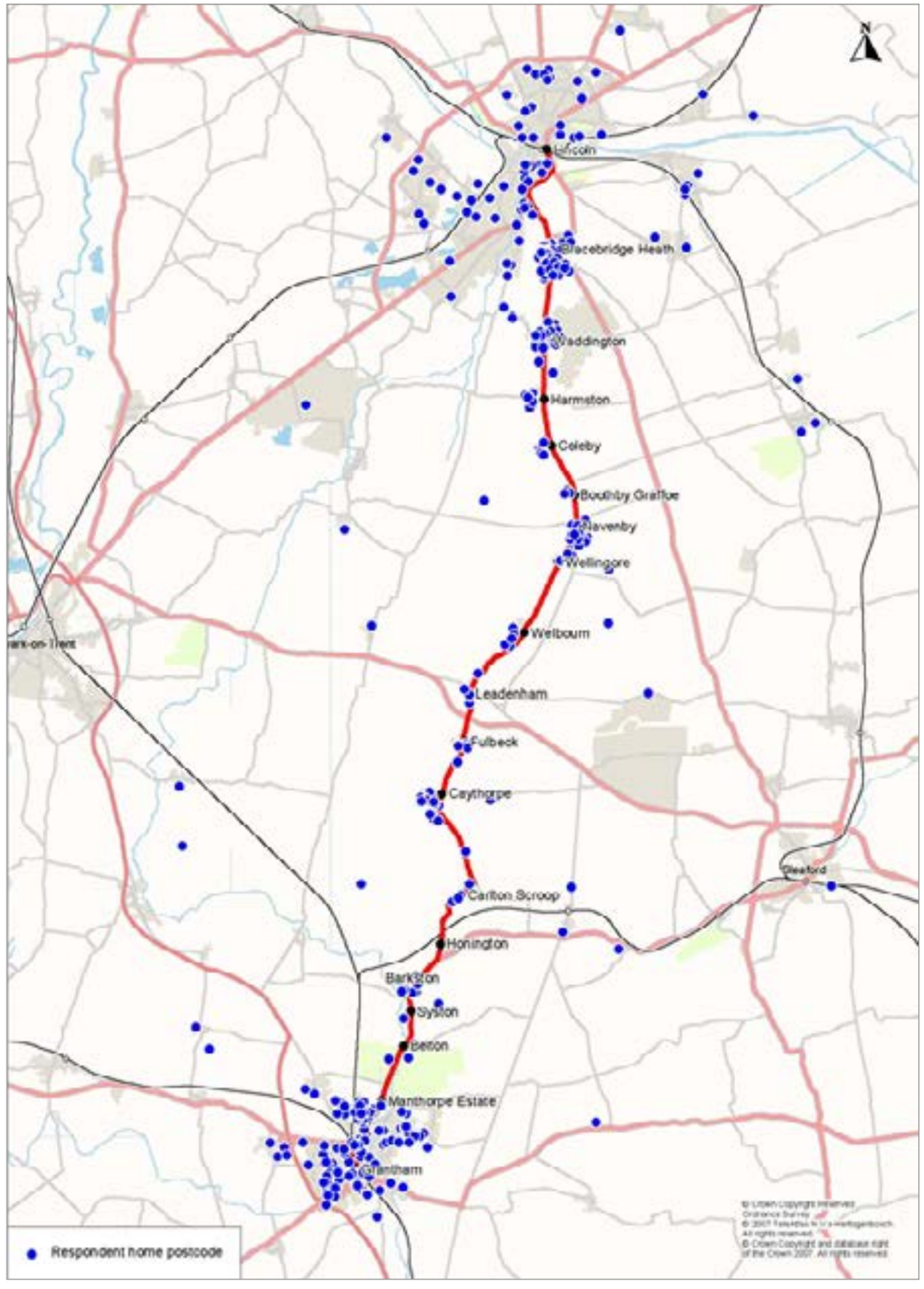


Figure 4.10: **Origins of users on an Interurban Bus service : InterConnect One in Lincolnshire.**

Attractiveness of the then half-hourly frequency was also noted by focus group respondents. In the on-board survey, substantial modal shift was found: 48% of trips had been made before using other modes, either at the same frequency as by bus, or less often. Of the trips diverted from other modes, 71% had been made as car driver or passenger, generally at the same frequency as subsequently made by bus. Overall, 39% of the on-board survey sample (239 trips) were making trips that had previously been made by car. Of entirely new trips, the most important category was for shopping, followed by work. However, the bus users as a whole tended to come from lower social-economic groups, and, in comparison with the telephone survey respondents, had much lower access to a car (18%, compared with 47%).

Awareness of the InterConnect brand was limited, respondents being much more familiar with Stagecoach as the operator. In terms of barriers to use, the lower evening and Sunday frequency in comparison with the half-hourly Mon-Sat daytime service was stressed and 59% of on-board respondents said they never used the service after 1900 or on Sundays. Overall user satisfaction was very high, averaging 4 on a scale of 1 to 5, with little variation in response apart from a lower rating for evening and Sunday frequency. Daytime frequency earned the highest satisfaction score, and provision of at-stop information the worst.

Conclusions on Interurban Bus regional networks

We have examined three networks of interurban bus services operating at a regional scale in Wales, Scotland and England. They can all be fairly described as networks, but they have their differences: in Wales, TrawsCymru stands in for the absence of railways across much of the country; in Scotland the ECC network connects the Fife catchment across the First of Forth with Edinburgh; in England, Lincolnshire's InterConnect serves as a common brand and defines the standard for a set of interurban bus routes across the County.

But across the rest of Britain, while there are significant numbers of individual interurban bus routes of good quality – as we saw from the previous chapter – networks per se are absent. TrawsCymru provides a good example of a strategically designed public transport network, introduced with a specific aim of improving links to and between towns and cities while also serving remoter intermediate villages, in ways that would be inconvenient or impossible by rail. It fills huge gaps in the Welsh rail network, to which it is very largely complementary with few overlaps. It is a network that is prospering; and it is clearly capable of further extension as it delivers very wide connectivity at low levels of subsidy.

There are other examples of large areas that could be served with an equivalent network of interurban routes, but they are not as large as rural Wales where TrawsCymru operates and so are more likely to be able to support existing commercial operations. TrawsCymru and InterConnect both demonstrate the importance of identifying strategically significant routes that may not otherwise be provided, or provided at an insufficient frequency, by commercial operators without grant assistance.

TrawsCymru can be contrasted with the Express City Connect (ECC) in Fife which operates on a purely commercial basis with no revenue support, other than concessionary fares reimbursement and bus service operators grant[67]. The ECC network focuses on delivering high combined frequency services into the main cities beyond the borders of the Kingdom of Fife, combining longer distance journeys with higher frequency commuter services with an emphasis on catering to commuters via Fife's Park & Ride services. ECC services, in comparison with express coach services such as Scottish Citylink that use similar vehicles, have advertised fixed fares, with an on-board payment option and concessionary fares eligibility. The constraints of the Firth of Forth crossing that ECC services overcome are a key factor and this narrows the number of obvious parallels.

The InterConnect network in Lincolnshire, achieved with the help of some (short-lived) grant funding from 1998, provides connectivity across a wide geography that is largely bereft of rail services. As with TrawsCymru, enhanced service frequency has evidently been a key driver of patronage growth. The Lincolnshire network has also evidenced the importance of Interurban Bus in providing a viable alternative to car use.

67. The Bus Services Operators Grant (BSOG), available to all operators of local bus services in the UK, is not a form of subsidy. Instead it acts as a partial rebate of fuel duty incurred as part of standard service provision. BSOG offers duty rebates on a sliding scale, according to sulphur content and other environmental parameters.

5.0 Future development: digital and related technologies

What lies ahead for interurban services?

Interurban services have been on an upward trajectory over the past decade or two, with improvements in patronage being driven by better quality vehicles, higher service frequency and better branding and marketing initiatives. With each service being independently run by different operators there is no overarching strategy to illuminate a way forward. But we can identify areas of further improvement, and as in other fields, there are many opportunities to use new technology that will further strengthen the role of interurban buses.

First, it is useful to consider factors influencing the demand for interurban travel and the changing nature of interurban services as a consequence.

As identified in the Lincolnshire 'Interconnect One' survey, along with commuter journeys, a significant component of interurban travel is composed of travel up the urban hierarchy to larger urban centres. Trip purposes include shopping, leisure, visits to friends and family, and travel to increasingly centralised medical and local government services. While demand for many of these types of journeys is likely to be relatively stable, shopping trips will be sensitive to trends in internet shopping and the attractiveness of high-street shopping locations.

Growth in personal car use in the latter part of the 20th century was associated with falls in bus use[68], although the causality of this association is somewhat complicated[69]. A multitude of developments to personal vehicles are possible in the near future and need to be considered. Urban bus services, especially in major cities, are facing competition from new forms of car hire such as Uber, Lyft and others. Bus patronage in London, growing for many years, has declined over the last year. Growth in car-hire, ride-share and internet-accessed personal taxi services (sometimes packaged under 'Mobility as a Service' labels), currently mainly affecting large urban areas, might in turn threaten interurban bus too. But the economies of scale on offer for the likes of Uber in major cities are not available in rural areas, and the model is less well-suited to interurban corridors (where there is a risk of empty running return journeys that affect pricing).

68. White, P.R., 1997. What conclusions can be drawn about bus deregulation in Britain? Transport Reviews, 17(1), pp.1–16.

69. Goodwin, P.B., 1993. Car ownership and public transport use: revisiting the interaction. Transportation, 20(1), pp.21–33.

While the long-run impact of a general reduction in personal car ownership could have positive effects on public transport use[70], evidence to date suggests that the fall in car ownership and driver licence holding has happened in Britain across younger age groups and mainly in the largest cities, where good public transport is available as an alternative, across a rich variety of forms. Car availability is simply more critical for mobility in rural and remoter areas. An ageing population profile, however, is likely to see growing proportions of residents unable to drive.

Another possible impact of significance can be seen in the development of car-sharing in other countries. Services such as 'BlaBla Car' in France, and similar operations in Germany (including organised lifts for non-car-owners) appear to have had substantial effects on the interurban public transport market. As yet, they have had little impact in Britain (possibly due to cultural factors, e.g. willingness to share with strangers over long distances), but this could change.

When autonomous vehicles become a reality, they will no doubt have a role in longer distance as well as local car hire/share. But the cost of their use for interurban travel faces the same problem as taxi-style services face of empty running costs without suitable return journeys.

Another issue is whether interurban bus has a long-term future in competition with transport modes including rail and express coach. Many interurban services mirror routes formerly provided by now disused railway lines, meaning that re-opening of these lines could pose a competitive threat. In areas of major growth such as in the English Heartlands, interurban bus and new rail services are likely to find complementary functions – as happens today in West Yorkshire on routes such as Harrogate-Leeds. But the situation is less sustainable in deep rural areas. If the Wealden Line Campaign[71] which seeks the re-opening of the line which ran from Lewes to Tunbridge Wells, via Uckfield and Crowborough, or the Traws Link Cymru Campaign[72] whose top priority is the reintroduction of rail links in Western Wales, in particular the Aberystwyth – Carmarthen line, were to be successful then the parallel interurban bus routes described in this report would lose significant patronage.

The express coach market, dominated by two firms, National Express, formerly a subsidiary of the NBC, and Megabus, introduced in 2003 and owned by Stagecoach, offer limited stop journeys between transport hubs like Birmingham, Heathrow Airport, London and Manchester, and the rest of the UK. Would expansion of this mode, with which interurban bus appears to be converging in terms of vehicle qualities, if not design, represent a more likely way forward than interurban bus?

70. http://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf.

71. http://www.wealdenline.org.uk/

72. http://trawslinkcymru.org.uk/our-proposals/

Express coaches offer book-ahead ticketing, make use of yield management pricing to make sure services achieve high load factors, and offer discounts to those who book well in advance. Fares for express coach services are lower than rail, and while difficult to analyse because of their extreme range are arguably at a broadly similar level to longer-distance interurban services like the First X1 or Stagecoach X5. Historically there has been little overlap between express coach markets and interurban routes[73], though there would be implications for the upgraded interurban bus market were this to change.

The Transport Act of 1980 deregulated the express coach market. Changes to legislation meant that operators could announce the introduction or withdrawal of routes overnight, with the removal of road licensing and price controls, although 'quality' controls were improved[74]. The aim of this legislation was to improve the state of competition in the express coach industry, and improve the ease with which operators could set up new routes and cut fares, thus placing competitive constraints on incumbent operators. It is this flexibility that could do most damage if express coach operators were to decide to compete with interurban services.

Express coach operators could enter the local market quickly, divert vehicles from other areas of the country sharply, and provide cheap fares via their yield management systems. But the rules of operation of express coach have meant that they carry passengers long distances with minimal stopping points; except for sections registered as local bus services, they cannot carry passengers over distances of less than 15 miles measured in a straight line. White and Robbins[75] point out that the majority of express coach passengers are in lower income groups, placing a lower value on time, including elderly passengers and students making 'one-off' rather than regular journeys. Upgraded interurban services, just as local bus routes, qualify for elderly and young persons' concessionary travel schemes whereas express coach services do not (except in Scotland). Taking these factors together suggests that express coach operators would be able to capture only a modest section of the interurban market – in terms of both geographic and market segments.

Of some relevance to interurban bus services, is the existence of 'commuter coaches', operating between Kent and London. These coaches, for example those provided by Kings Ferry[76], offer attractive season tickets and a luxury limited stop service, which may be enticing for commuters travelling on buses with numerous stops, such as the 36 in Yorkshire. The London commuter services are generally registered as local bus services and/or have London Service Permits, although not carrying local passengers within Greater London.

73. National Express currently offers no direct coaches between Oxford and Cambridge, the route of the Stagecoach X1 service, while Megabus redirects potential customers to X5 services. National Express currently offers direct services between Norwich and Peterborough, and one daily service from Norwich to Kings Lynn, on the X1 route corridor. Scottish Citylink presents an intermediate position in this express coach – interurban bus distinction. Cash fares (if seats are available) and concessionary travel apply on all Citylink routes within Scotland.

74. White, P. and Robbins, D., 2012. Long-term development of express coach services in Britain. Research in Transportation Economics, 36(1), pp.30–38.

75. White, P. and Robbins, D. 2012, page 31.

76. http://www.thekingsferry.co.uk/commuter-services/fares-and-tickets.

While express coach services may have the potential to offer a competing service to interurban routes, the extent to which they may exercise this potential is limited. Longer-distance coach routes would only offer an attractive proposition to those travelling the whole length of the route, and not making intermediate stops, whilst the availability of concessionary and student discounts on interurban services also dampen the competitive potential of express coaches. Moreover, many interurban services, like the TrawsCymru and Express City Connect networks, already offer a coach-like travel experience, with the convenience of on-board payment and multiple stopping points.

Flexible routes

The recently launched Cityzap service, run by forward-looking operator Transdev Blazefield, attempts to compete with rail along the length of its two routes. Cityzap carries 8,000 passengers a week and runs two links, between Leeds and York, and a newer service between Leeds and Manchester (both competing with rail). Cityzap promises journey times of 55 minutes from Leeds to York and between 75 and 90 minutes from Leeds to Manchester, slower, but at a considerable price advantage over rail. In order to achieve these ambitious timing targets, Cityzap utilises what it calls a 'ZapNav' functonality[77]. Buses are fitted with satellite navigation technology, allowing drivers to choose between a variety of different pre-approved routes, avoiding congestion and minimising travel time. The extent to which this innovation has improved journey times is unclear.

It remains to be seen where else exactly this kind of strategy could be implemented[78], but the Cityzap service seems to have been at least a minor success[79]. Whilst these kinds of services are not exactly new (Oxford Bus Company services to London Heathrow employ a similar strategy), if there is a movement towards services requiring fewer intermediate stops, they could become more common.

Mobile ticketing

Known as m-ticketing, mobile ticketing represents a key innovation in the local bus industry that could see considerable growth in the coming years. In the past few years many operators have started offering m-ticketing applications (most use platforms set up by Masabi) though some apps are underused and/or unreliable. Typical features of m-ticket apps include up-to-date timetabling, live bus times, and remote ticket purchasing, with a variety of payment options. The use of m-ticket apps allows passengers to purchase flexible tickets, more easily access season ticket and frequent traveller options. There are benefits to operators as well: journey times are reduced with shorter stop dwell times, drivers can carry less cash, and there is access to valuable customer profiling through ticketing and preference data.

77. Passengers of the future – how to get young people using the bus, Smith A., Transport Times http://transporttimes.co.uk/news.php/Passengers-of-the-future-how-to-get-young-people-using-the-bus-242/.

78. The Leeds – York and Leeds – Manchester city pairs are relatively unique in that the road networks are good enough to offer temporary route flexibility if one route becomes congested.

79. http://www.transdevplc.co.uk/media-centre/index.jsp?newsID=86.

Table 5.1 below shows the apps available for a few popular operators, with user bases and average ratings on Google Play and Apple App Stores. With the notable exceptions of Transdev Go (a very new app, only introduced in October 2017) and the First Bus iOS version, most apps are rated between two and three stars on average. To explain these low ratings, some users report issues with payment mechanisms, user interface, and offline use. Others report that apps are helpful in principle, but the difficulties with glitches and lagging outweigh the benefits. At present these issues associated with m-ticketing may be a barrier to their more widespread use, but user interface improvements and greater exposure may promote higher take-up. Moreover, trials testing m-ticket integration with the ITSO technology common in smartcards are currently underway in North Yorkshire, promising greater convenience to passengers and operators.

Crowd-sourced and demand-responsive travel

Another example of the enthusiasm for innovation displayed by Transdev and its constituent operators is the recently released Vamooz app. This is a crowd-sourced transport mobile app promising bespoke, user-generated journeys currently not provided by bus or train networks. Users of the app propose routes for Vamooz drivers to run, either on a one-off or regular basis, which are then voted on and the most popular routes selected. Cost per passenger falls as more people sign up for each user-generated service, providing incentives for passengers to spread the word. Demand-responsive travel is nothing new: Lincolnshire County Council launched its CallConnect service in 2001, providing services to rural residents via call, web or text. But Vamooz[80] and others such as the Thomas Abelman 'Sn-ap' service[81], which has been operating between London and Nottingham in response to demand, allows for the creation of new interurban routes and expansion of services on the basis of stated and then revealed preferences.

App	Google Play		Apple App Store	
	No. of downloads	Avg.rating (number of ratings	Avg. rating	(number of ratings)
First Bus mTickets	500,000 – 1,000,000	2.3 (3,495)	4.5	(9,447)
Stagecoach Bus	100,000 – 500,000	2.3 (2,677)	2	(1,159)
Arriva m-ticket	100,000 – 500,000	1.7 (725)	2.5	(153)
National Express Coach	100,000 – 500,000	3.5 (2,737)	3	(585)
Brighton & Hove M-Tickets	100,000 – 500,000	2.4 (1,068)	3	(379)
Transdev Go	1,000 – 5,000	4 (57)	4.5	(81)

Table 5.1: **A comparison of the major m-ticketing apps**

80. The idea for Vamooz came when trying to figure out how to relieve the overcrowded 36 buses (http://www.passengertransport.co.uk/2016/12/app-aims-to-create-crowdsourced-buses/).

81. The 'sn-ap' service mobile application matches potential passengers with similar pick-up points and destinations, then commissions local coach services to carry out the journeys. Sn-ap essentially offers a vertically de-integrated version of Vamooz, with lower operating costs as a result.

Information and ticketing for Interurban Bus

A particular issue with the way that interurban services are currently run is the lack of an integrated information and ticketing platform. Whilst the rail network has National Rail enquiries and Trainline, the complex local and long-distance bus markets have no such integrated information and ticketing hub. This, combined with a lack of infrastructural presence (this, the rail network has in spades) has led to limited knowledge and awareness of interurban services.

The Bus Services Act 2017 enshrines open data provision for the bus industry in law. How this challenge will be met has been the subject of a recent seminar.[82] The Act doesn't lack ambition:

> **"we want the information on local bus services to be available to passengers across England and to be as good as or better than that available to rail passengers and bus passengers in London".**

If this aim is met, interurban – as well as purely local bus – will have moved a great step forward. One possibility – that might address the scale and complexity involved, especially with regard to fares (on which subject bus companies will have to overcome concerns on commercial sensitivities), would be to prioritise open data provision for interurban, where it is likely to be of wider value than for purely local services.

Information and ticketing is currently available for interurban services on two distinct platforms, namely the route-planning service, Traveline (which we discuss later), and individual operator websites, which typically provide both online ticketing and information about their own services. The problem with operator web-sites is that it is necessary to know the name of the service provider to investigate what's on offer.

Information from individual operators with regard to their own interurban routes is typically comprehensive and user-friendly. For example, the section on the Arriva website detailing its MAX branded interurban services, in particular, the X93 service between Scarborough, Whitby and Middlesbrough, is very informative. The website offers a map with key towns highlighted, explains features well, along with providing timetable PDFs and a comprehensive pricing schedule.

Unfortunately, while individual providers such as Arriva offer a good knowledge base, there is no universal platform offering multi-operator information on these kinds of services. An extensive operator-provided website for a given geographical area is unhelpful if potential users lack information on which operators serve the area.

Some operators also offer a route-planning service, but only for routes operated by their own buses. For example, in-putting a journey between Guildford and Brighton into the Stagecoach route planner recommends interchange at Midhurst and Worthing, rather than a competitor's service operating via Horsham.

82. See Beate Kubitz, Local Transport Today issue739, 19 January 2018, page 10, in which the author points out that the current file exchange protocol of bus route and service data – TransXchange – is 'not quite universal' and that while some have suggested obligating local authorities to meet the open data demand of the 2017 Act, the costs involved in doing so would be a constraint.

Figure 5.1: **Arriva MAX X93 route map**
Source: https://www.arrivabus.co.uk/north-east/services/x93---middlesbrough-to-scarborough/

Traveline is a journey-planning website, introduced by Government in 2004, after being announced in 2000. The primary aim of Traveline is to aid and improve the planning of local and longer-distance public transport journeys in the UK with an easy-to-use service. Traveline integrates bus, rail, underground, tram and ferry modes. It uses the National Public Transport Access Node (NaPTAN) database, which stores and categorises every transport node (railway station, bus stop, taxi rank etc.). Traveline/NaPTAN is also used so support Google Maps and Apple Maps journey planner applications, allowing for a more user-friendly experience, with interactive maps and comparisons with car journeys. In terms of basic journey planning, Traveline is a useful resource, but it fails to offer much more than a comparison of available buses and trains, and corresponding journey times. There is little information on types of buses and the nature of onboard amenities that may be crucial for individual passengers. Traveline also lacks any integration with ticket provision. There is no information on ticket prices or on how to purchase tickets; nor are there comparisons of the cost of the various journeys on offer. Journey time is only one determinant of passenger travel decisions; to make informed journey planning decisions, potential passengers also want to consider quality factors and the cost of the various options.

While Traveline undoubtedly serves a useful purpose within the public transport sphere in the UK, there are many improvements that could be made, some of which are already available in other route-planning services, and others that take inspiration from services available elsewhere. First, improvements could be made in terms of visual aids and visualisation of routes. The need for these changes can be illustrated by an example – the potential passenger is called Janet.

Suppose Janet was seeking to make a journey Bicester in Oxfordshire, to Cambridge, leaving at 11:30am on a weekday, a journey that can be done on either Stagecoach X5 or (with a lengthier journey involving changes and at much greater cost) by rail. By default, searching on Traveline gives Janet results in order of the next service to leave, meaning that the first recommended service is by train, changing at Birmingham New Street for a total journey time of four hours and 36 minutes. Alternatively, Traveline suggests travel via a Chiltern Railways service to Marylebone Station, a trip on London Underground (or bus along Euston Road) and a train to Cambridge from Kings Cross, along with a multitude of later trains. For Janet, information on the X5 is nowhere to be seen, as Traveline simply lists the fastest, soonest services[83]. This is partly because searches on Traveline are also highly dependent on the precise selection of departure and arrival points, as total journey times include walking times. Admittedly, this feature would be more useful for local bus services, when individual stops are harder to find, but is much less relevant for train or interurban services.

In contrast, the **Google Maps** route-planning service conveniently lists the available public transport options, namely the Chiltern Railways service leaving at 11:57, with interchange in London, the following 12:16 and 12:26 rail services, along with the 11:30 X5, which stops outside Bicester North station. Travel times are independent of walking, and Google Maps provides an easy visual reference of routes on a map. The selection of another tab reveals alternative routes for travel by car (via the A41 or A43), bicycle or on foot. When weighing up alternatives on Google Maps, the service provides details on the stopping points and timings of various modes, with external inks to operator websites, where tickets can be purchased. Moreover, on Google Maps users can choose to search for routes with the fewest transfers or least amount of walking.

One answer then would be simply to use Google Maps instead of Traveline, but many people, especially elderly passengers, may be more familiar with Traveline services. If it is to be updated, the following improvements should be made:

» **Better integration of maps and visual aids**
A comparison of the routes available on different modes would be useful. While Traveline currently offers viewing of routes on a map, this is just one route at a time, reducing scope for comparison.

» **Better comparison of alternative modes of transport**
Traveline currently only shows the fastest mode of transport as standard, meaning that if other modes are available, then they are masked by a multitude of other, faster mode (as in the case of the X5). Users can alter settings to filter out certain modes if need be, but this is undesirable.

» **Better comparison with non-public modes of transport**
Admittedly, whilst Traveline's remit is to improve knowledge and accessibility of public transport in the UK, a comparison with car journeys would be helpful to those weighing up public transport options against driving.

83. Potential passengers can filter just for bus journeys if they were already aware of the existence of the X5, but in this case Traveline just returns information on train services.

» **Better availability of information on fares and external links**
Whilst Traveline provides information on live departure and timetables in the case of bus services, there are no links to external sites or information. Traveline provides no information on the type of bus or train, the cost of tickets, or where they can be purchased.

Trainline is a commercially run route-planning and integrated ticketing service focused on the rail network. Introduced in 1997, with online ticketing available in 1999, Trainline operates a service similar to many train operators[84] in that it offers route-planning and journey time comparison services for train journeys, combined with price comparison facilities. However, Trainline does not offer any kind of journey-planning or price comparison information for other travel modes, as implied by its name. Nevertheless, Trainline integrates ticketing between multiple rail operators well, and users are not required to purchase separate tickets from different rail companies, a model that could be followed by any multi-operator bus ticketing facility. The 'Plusbus' facility enables passengers to purchase day tickets for local bus travel to and from stations they are using at the same time as their rail tickets.

Checkmybus.com is an international route-planning and price comparison website. It compiles possible journeys from a variety of operators and modes, allowing users to compare prices and journey times across a number of journeys for any given search. While available in the UK, the search engine gives more comprehensive results for searches in continental Europe, particularly in Italy and France. For example, inputting a journey from Rome to Perugia after 17:00 was found to give details on five direct coaches, 63 train journeys, and three possible car pool journeys, all with current prices. After comparing prices and selecting the appropriate journey, users are redirected to individual operators' websites to purchase tickets. As part of the search process, users are able to filter by price, duration or distance to bus stop, allowing users to search according to their own preferences. As of 2017, search options in the UK are limited, with enquiries only typically listing journeys run by express coach operators like Megabus and National Express[85]. Checkmybus in the UK also lacks a train comparison component at present. If Checkmybus was able to extend comparison options to train franchises and bus operators in the UK, then it would offer a very usable platform for potential passengers to assess interurban and longer distance transport options.

Integration to the level of price-comparison would be harder for bus than train services. The number of UK train operators is considerably smaller than the number of UK bus operators, although the complexity of the national fares system for rail (with the ability to find the best prices through split-ticketing, for example) is a countervailing factor. The use of area franchises for rail passenger services leads to some useful area-wide franchise-specific information provision but this advantage breaks down where multiple franchises exist. With the wide range of commercial bus operators in the UK, each operating either on a commercial basis (and with direct incentive not to provide information on competing services) or via a complex system of tendering and partnerships, the intricacies of offering multi-operator and multi-modal integration cannot be easily glossed over.

84. Trainline also runs ticketing facilities for about half of the main interurban operators on their individual websites, as part of large-scale integration on the National Rail Enquiries platform.

85. For example, enquiring about journeys between Carmarthen and Aberystwyth only returns the one daily Megabus service, ignoring the T1 TrawsCymru service. Similarly, inputting Glasgow to St Andrews (following the Express City Connect X24 route) only returns National Express and Megabus services between Glasgow and Dundee.

The **Bus Services Act of 2017** put in place guidelines for local authorities to pursue 'Advanced Quality Partnerships' (AQPs), effectively extending the scale and scope of the Quality Partnership Schemes legislated in the Transport Act of 2000, but rarely used. The aim of AQPs is to enable local authorities to contract for quality in the provision of services. In exchange for providing better infrastructure such as bus lanes or traffic management policies, local authorities can be more demanding with their requirements of operators. Local authorities can now contract in 'new standards [which] may relate to:

- The marketing and promotion of bus services, ticketing and fares;
- How passenger information is provided; or
- Operators' participation in ticketing and smartcard schemes'[86].

Interurban operators could therefore be encouraged to offer greater disclosure on the types of services that are being run, fares information etc. But introduction of AQPs mainly pertains to the local authority areas in which services are provided, meaning their use with interurban services may be problematic, with multiple local authority areas covered by many interurban routes. This difficulty may prove even more apparent with Enhanced Partnerships (EPs), a more extensive scheme seen as an intermediate stage between AQPs and franchising.[87]

Intermodal connections, interchange and ticketing

There is considerable disparity in the level of information on the connectivity between rail and interurban bus services. Ultimately, while many services connect quite well with rail, actively promoted and advertised connectivity is lacking for the majority of interurban bus services.

Thanks to the Welsh Government's long-term strategy of a fully integrated multi-modal public transport system, the TrawsCymru network allows for good integration with rail. Included as part of the universal bus livery is a simplified route map, complete with clearly visible rail interchange points; information also widely available as part of the TrawsCymru website and timetables (see Figure 5.2, taken from a recent T2 timetable). Moreover, a concerted effort is made to schedule stopping points at train stations, with some timetables going as far including train arrival and departure times, and some attempts to synchronise these timings with bus arrivals and departures.

Unfortunately, actual street-level integration is often lacking. Interurban 'station' bus stops are not always directly next to the station, and signage or information at stations regarding TrawsCymru is rare. Moreover, there is no information regarding TrawsCymru on the website of Arriva Trains Wales, providers of the lion's share of Welsh train services.

86. Butcher, L., Rutherford T., Briefing Paper – Bus Services Act 2017, House of Commons Library.

87. White, P., 'Prospects in Britain in light of the Bus Services Act 2017' Paper presented at 15th International Conference on Competition and Ownership in Land Passenger Transport ('Thredbo 15') Stockholm August 2017, unpublished.

The Mendip Xplorer brand run by First Bristol, Bath and the West and provides services between Bath and Bristol on the rail network and towns in North Somerset, as described in Chapter 3. Mendip Xplorer route 376 starts at Bristol Bus Station, stops at Bristol Temple Meads station, and travels along the A37 to Glastonbury, Wells and Street. Despite joint ownership of the Mendip Xplorer and the Great Western Railway franchise by First Group (GWR operates most train services at Bristol), the ease of connectivity between bus and rail is still poor. Not only is there no mention of the Mendip Xplorer on the GWR website, but the 376 bus stops are at Temple Meads Gate, 200m away from Bristol's main railway station. The situation is slightly better in Bath for the 172, 173 and 174 Mendip Xplorer buses. Here, information is provided on the GWR website via a PDF link from National Rail, detailing bus services from Bath Bus Station, though there is no particular distinction given to the Mendip Xplorer[88].

Information from train operators on connecting bus services is typically worse than information from bus providers about interchange with the rail network. Tiny sections on interchange are listed at the bottom of webpages hidden away in large operator websites[89]. In some ways, this is understandable: the benefits to bus operators of providing interchange with rail operators are more substantial due to the larger passenger base and possibilities for market expansion, hence buses tend to stop at train stations if possible, or provide some information about how to connect with the rail network.

Figure 5.2: **TranwsCymru service timetable**

There are a couple of interesting exceptions to this rule. The most significant is provided by South Western Railway, the franchise holder for the South Western franchise, which provides rail services to London Waterloo from Surrey, Hampshire, Dorset and beyond. On the South Western Railway website there is a section dedicated to the provision of connecting bus services from key stations to towns and villages absent from the rail network. South Western offer through tickets to bus services provided by Stagecoach, Morebus (a Go-Ahead subsidiary) and Southern Vectis, in addition to services run by First Bus, owned by South Western's parent company FirstGroup. In this way, South Western Railway provides information and ticketing on services operated by competitor companies, continuing what had been started by its predecessor franchise-holder, Stagecoach.

88. http://www.plusbus.info/home.

89. For example, the section on bus interchange at Norwich on the Abellio Greater Anglia website is buried at the bottom, under information about bike storage, taxis and pricing information for three different car parks.

A second example, noted earlier: through 'rail' tickets are also offered via the X1/excel service from Peterborough to intermediate towns (see page 21). The weakness is: how would you know whether to ask?

With the rise of smartcard technology, the ease of offering multi-modal journeys through integrated or flexible ticketing is improving. Smartcard technology can also provide operators with far more comprehensive information on the types of journeys made, tickets bought and distance travelled. The Key smartcard is a branded smartcard introduced by Go-Ahead group in 2011 for use on buses provided by their various regional constituent companies, such as Brighton & Hove Buses, or the Oxford Bus Companies. The Key offers easier, more convenient season ticket purchasing with online topping up, and multi-trip ticketing. This smartcard technology has also been extended to train franchises owned by Go-Ahead: Thameslink, Southern and London Midland. Though multi-modal integration is now available by Plusbus extensions to rail season tickets (for example, in order to travel on Brighton & Hove buses with a Southern smartcard), greater integration is promised in the future[90]. Many of the interurban operators already offer excellent value, area-based, day tickets that could be adopted, providing interurban travel at an affordable price.

Sections 7 and 8 of the Bus Service Act 2017 relate to ticketing, and in particular, to attempts to encourage multi-modal travel by 'updating existing powers to establish multi-operator and multi-modal ticketing schemes'[91], mainly targeted towards bus and rail ticketing. With the continued adoption by rail and bus operators of smartcard technology as operators recognise the benefits of better data collection and flexible ticketing schemes, such multi-modal ticketing will surely become more widespread.

90. https://www.smartbuses.co.uk/smart-card/faq/can-i-use-my-key-on-services-operated-by-other-bus-companies/16/.

91. Butcher and Rutherford, op.cit, page 37.

Conclusion

Change is being driven by digital technology breakthroughs and applications across all sectors of the economy. The changes affect both the market for interurban bus and the way in which it operates.

One of interurban bus's key benefits is that it provides the only scheduled transport connections for many places, some of them remote. But the availability of service information, timings and fares is poor (despite the efforts of individual bus companies). Digital information technology is capable of changing this weakness, and doing so quickly.

Newly emerging transport modes will, for some, replace the need to own vehicles – a trend that started some time ago in major cities amongst younger age groups – which now form a target market for operators such as Uber. Providing such services in rural areas, just like for conventional taxis before them, is less rewarding and competitive pricing is harder. But for some, they will offer an alternative to a scheduled bus service, typically quicker, more convenient, but more expensive.

Express coach has been examined as a potential rival. Its pricing system has been adapted to the digital age, but under its regulatory framework, it cannot offer a service for travel over the distances typically served by Interurban Bus; nor is it eligible for local funding or partnership arrangements; and neither does it provide for concessionary travel.

Interurban Bus overlaps and competes with rail in some corridors (providing customers with some mode choices) but most of the examples studied are complementary and this benefits the economics of both modes. Indeed, one of the threats to a few well-established Interurban Bus operations is the risk of branch railway re-openings.

Interurban bus has already proven itself, with the right management drive – and sometimes with modest levels of public grant funding – fully capable of attracting new ridership, including in preference to private car use. It has done so without the benefit of ticket and service co-ordination with the rail network with which it so frequently could act in conjunction.

Overall, it is clear that there are huge opportunities to enhance the appeal of interurban bus services further through the use of new technology and customer-focused digital applications. Real time information at bus stops is a great help to the waiting passenger. Enhanced information systems on services, timings and fares could help Interurban Bus 'come in from the cold' and become a recognised attribute of local and regional economies.

Image © Andrew Stopford

6.0 Conclusions and recommendations

On the basis of the interurban bus routes and networks studied as part of this report, a number of key conclusions can be drawn.

To recapitulate, we are not concerned here with either scheduled express coach services – which prosper commercially today on longer distance trunk routes to the capital and other cities and the largest airports – nor on conventional bus services, which are predominantly urban in nature (the rural bus network having experienced major cut-backs over the last ten years or so).

The characteristics of interurban bus were set out in Chapter 1 as:

> **"two or more urban areas (typically towns, but might be cities) are linked by a bus service with intermediate stops typically to serve villages en route."**

The case studies we have examined reveal common characteristics for success which can define a way forward.

With the growth of flexible ways to purchase personal travel, and the scope that clearly exists to improve passenger waiting facilities (for example, better bus shelters with real time information) the observable if gentle trend towards speeding up interurban services with fewer but better bus stops will surely continue. Smarter ticketing systems can help further speed-up services, with reduced stop dwell times. Interurban Bus could then get closer to rail in terms of one of its few areas of disadvantage which is journey speed.

At the outset, we set out to answer the following questions:

1. Do interurban bus services provide links currently missing from the rail network with a service quality that could be considered comparable to those typically offered on a secondary or branch line rail service?

2. Are contemporary interurban bus services dependable, and resilient – so resistant to change and likely to remain in existence in the long term?

3. What polices should be adopted to foster, retain and improve interurban bus services – and could they be integrated with the national rail service offer?

In other words, does the interurban bus mode have a role to play that is being ignored when consideration is given to the benefits of rail connectivity across the nation? Could it provide a solution that is cost-effective yet still attractive and dependable in the way that railway services have come to be regarded, after the 40-year period of virtually no railway line closures (and indeed some openings)?

Do interurban bus services provide links currently missing from the rail network with a service quality comparable to that typically offered on a secondary railway line?

The answer to this question across the range of services examined in this research reviewed is certainly yes.

There are two elements we have considered:

- the extent to which interurban bus services fill gaps left in the national rail network;
- the comparability of service quality and frequency between contemporary interurban bus and rail.

Filling gaps in the national rail network

The relationship between contemporary interurban services and rail in our case studies we found often to be complex. By splitting the between-mode relationships into four distinct possibilities, we can draw out some common threads:

1. Some interurban bus services **provide links completely absent from the rail network** (e.g. 376 Bristol-Glastonbury-Street, 33 Hereford-Ross-Gloucester, X93 Scarborough-Whitby, T1 Aberystwyth-Carmarthen).[92]

2. Others **fill gaps and duplicate/compete with rail services**. Individual interurban bus routes can both patch holes in the rail network over sections of their routes, while replicating rail links in other sections (e.g. X5 Oxford-Cambridge, 28 Brighton-Lewes-Uckfield-Tunbridge Wells, X1 Norwich-Kings Lynn-Peterborough, 36 Leeds-Harrogate-Ripon). These services are some of the most frequent and high-specification routes studied, in part stimulated by the need to compete with rail along significant portions of routes.

3. Some **set out to build a market by competing with rail** – but none we have studied exclusively do so, although CityZap comes close.

4. Others **aim to divert passengers from car** by providing easy car access points at P&R sites and by using purpose built busways. By taking advantage of bus priority provision and P&R facilities, Express City Connect (ECC) routes in Fife as well as services on the Cambridge-St.Ives and Leigh busways address commuter markets well, and attract passengers from private car.

92. Typically, these services either now mirror railway routes closed following the Beeching Report, and/or provide connections to towns isolated by line closures.

In general, while there are distinct differences in the characteristics of the routes offered by the set of case study interurban operators, and how these routes interact with the rail network, they have certainly managed to fill gaps in the rail network.

Two of the regional-scale interurban networks examined, with some level of government/local authority sponsorship – TrawsCymru and Lincolnshire Interconnect – provide evidence that areas with minimal rail coverage can be provided with inter-connecting networks of valuable interurban bus services. They may provide a way forward for other similar areas with sparse rail coverage, such as Cumbria and North Devon /North Cornwall.

Interurban bus service quality and frequency compared with rail

Service frequencies by interurban bus are often as good as hourly, and in deeper rural areas where lower frequencies are provided, not inconsistent with the less frequent offerings on rural branch railway lines, and in some cases much better than the frequency of the railway services that pre-dated them (for example, between Aberystwyth and Carmarthen in West Wales). There are also some higher than hourly frequency interurban services such as those between Leeds and Harrogate (every ten minutes) and Kings Lynn – Spalding (every 20 minutes).

Table 6.1 provides a brief overview of the service frequencies and onboard features of some key interurban services with the aim of getting an idea of the variation that exists. As required by the Public Service Vehicle Accessibility Regulations 2000, all interurban buses are wheelchair accessible, and most have a greater provision of onboard features. Typical is provision of Wi-Fi, non-standard on many local buses and only now being introduced across the rail network, as are mobile apps (with the exception of TrawsCymru and Lincolnshire Interconnect). Mobile charging facilities are less common, as are onboard toilets (but then these are not available on a number of trains either).

Wi-Fi and charging facilities appear on many interurban bus services, when many train operators do not yet include them. TrawsCymru plans to upgrade vehicles to a high-floor coach-style specification (already in use on the Oxford-Cambridge X5 service) in 2018/19, allowing the provision of on-board toilets, obviously highly desirable for longer distance journeys.

For rail, on-board toilets are seen as the norm, other than on shorter distance and urban routes where high load factors take priority[93]. Luggage storage is available in the form of overhead luggage racks for smaller items, and sometimes floor-ceiling stacks located near doors. There is typically greater variety in seating provision than on interurban bus services, and many provide tables.

We conclude that, in general, interurban bus customer service features are comparable to those on rail network services and in many cases better. In particular, accessibility to bus vehicles is better than is generally on offer with rail.

93. https://www.rssb.co.uk/library/groups-and-committees/2014-09-report-key-train-requirements.pdf.

Route		Peak service frequency	Commerciality/ Provision mechanism	Onboard features
33	Hereford – Ross-on-Wye - Gloucester	Hourly	Tendered	Mobile app
36	Leeds – Harrogate – Ripon	Every ten minutes	Commercial	W-Fi, leather seats, charging, mobile app
X93	Scarborough – Whitby – (Middlesbrough)	Half hourly	Commercial	Wi-Fi, leather seats, mobile app
X1	Norwich – Kings Lynn – Peterborough	Half Hourly	Commercial	Wi-Fi, leather seats, mobile app
X5	Oxford – Cambridge	Half hourly	Commercial	Toilets, Wi-Fi, charging, leather seats, mobile app
T1	Aberystwyth – Carmarthen	Hourly	Tendered, with SQBP	Wi-Fi, planned expansion will provide onboard toilets
T4	Newtown – Merthyr Tydfil - Cardiff	Bi-hourly, with an augmented frequency between Cardiff and Merthyr Tydfil	Tendered, with SQBP	Wi-Fi, planned expansion will provide onboard toilets
IC7	Boston – Skegness	Half hourly	Commercial	
IC6	Lincoln – Skegness	Hourly	Commercial	Wi-Fi, leather seats
X24	Glasgow – Halbeath P&R – St Andrews	Hourly	Commercial	Toilets, Wi-Fi, leather seats, charging, air conditioning, mobile app
X26	Glasgow – Halbeath P&R – Leven	Hourly	Commercial	

Table 6.1: **A summary of service frequency and features offered by selected interurban bus routes**

Are interurban bus services dependable and resilient?

This question is important not just for those contemplating an individual journey, but also for people making key decisions about where to live or to work – issues of great bearing on the sustainability of local economies. It is a question that matters not just to those who have no car available, but also those for whom a fall-back option of using public transport is a factor (the so-called 'option value' of a timetabled service, as assessed in studies by the Institute for Transport Studies at the University of Leeds[94]).

The performance of the interurban routes examined here has shown that, against a backdrop of declining bus use more generally, with a list of innovations, interurban routes have been prospering in recent years. So far, so good.

In Chapter 5 we reviewed the factors that will bear upon Interurban Bus operation in the years ahead. We can see no reason why Interurban Bus should not continue to prosper, since it is a travel mode very largely immune to public expenditure constraints and there are major opportunities to use digital technology to improve customer awareness and satisfaction.

Local Authorities and Enterprise Partnerships would do well to examine ways of supporting the promotion and presence of their existing Interurban Bus routes and see if they can support the introduction of more where they are missing. It is not too late for them to consider the kind of strategic questions that were not asked at the time local rail services were abandoned in the 1960s.

One problem has to be tackled and that is the limited notice period for service withdrawal. This would serve as a barrier to incorporation into rail timetable databases which are reviewed annually. For well-established routes, this should not be a problem for the bus owning companies concerned (as evidenced by the selected appearance of some Interurban Bus routes in the current national 'rail' timetable). Where bus companies need to make cuts or changes – and it is worth noting they are operating in a competitive market-place – it is often the Local Authority that can step in to assure service continuity. For start-up routes, it would be important to avoid saddling companies with long-term commitments they are not in a position to make.

This suggests that Local Authorities should be able to call on a national service continuity fund to ensure the operation of advertised interurban bus services over such time period as necessary until the next (annual) timetable re-set. A separate fund is needed because clearly – as evidenced by the cutbacks to rural routes in general, they now have insufficient funding to support bus service development in general. This would then provide the public with a reasonable level of assurance on the dependability of an Interurban Bus service, and allow advanced booking for instance, of some relevance when combining bus travel with rail[95]. It in turn implies a need to designate qualifying interurban bus services, because we are not suggesting that this facility should extend to all services, only those that add to the overall pattern of national and regional connectivity.

94. See for example Shires, J., Johnson, D., Mackie, P. and Fowkes, A. 'Bus and the economy II: The role and value of bus services outside towns and cities – A case study of Shrewsbury', 2014.

95. This could be a great benefit for those trying to promote car-free tourism, for example.

What polices could be adopted to foster, retain and improve interurban bus – and – could they be integrated with the national rail service offer?

Our overview of interurban services may suggest they are doing just fine without any other policy support or guidance. But there are undoubtedly some initiatives – particularly with regard to information systems and at interchanges – that would support their further development and allow for their better integration with other public transport modes. And there are parts of the country lacking Interurban Bus routes of the upgraded form considered in this report where the evidence presented here suggest they might well prosper.

Journey Planning Information

There is an urgent need to ensure that information on interurban use services is available in the form of accurate timetable information, stop location and user facilities and fares/ticketing/concessions. Traveline, as was shown in Chapter 5, ought to provide this facility but in practice doesn't. It would be unfortunate if this information requirement was only made available through websites such as Google Maps.

Potential improvements to existing services could lead to the development of multi-modal ticketing and information platforms in the UK. One way this could be achieved would be through the addition of bus ticketing on rail websites like National Rail Enquiries or Trainline, possibly in the form of area-wide day tickets as offered by most operators running such services, in the same form as 'Plusbus' tickets for local bus travel around stations to/from which rail users are buying tickets.

Trainline currently offers route-planning facilities to major bus-stations, and no doubt this could be expanded with the help of Traveline's NaPTAN. To be of greatest use, it would require a certain degree of ticket-booking integration between train and bus operators, or indeed amongst bus operators[96]. Provisions included in the Bus Services Act of 2017 may make this easier to achieve.

Websites like Checkmybus.com could help if operators provide information on services in any given area, with timetables, stopping points, and journey times, along with links to purchasing facilities on operator websites. Then when comparing the public transport options for travel between two points, potential passengers can balance cost against travel time, compare options from express coach, train and interurban bus operators from one centrally directed platform. As is the case with Checkmybus.fr and Checkmybus.it, when customers decide which service is right for them, they are directed to an external link, with operator-provided ticketing services. The guidelines provided in the Bus Services Act 2017 are a start towards allowing and encouraging this type of development to happen.

96. Due to the large degree of integration built into the franchise system, the existing inter-modal train booking infrastructure is very good.

Interchange Improvements

The natural path for Interurban Bus service providers to follow is to seek to complement rail service provision, benefitting thereby from 'through' travellers. Locally, some elements of overlap and inter-modal competition will arise, no doubt, but this should not distract policy makers and planners from seeking to radically improve interurban bus-rail interchange.

Some rail stations provide excellent forecourt provision for bus services (Dorking would be a case in point) but others prioritise access for cars and taxis. Signage and information is often poor. Interurban bus (along with, in some cases urban/local bus) should be regarded as part of the scheduled connectivity offer at the many rail stations where the two modes come together.

Interurban bus services suffer from a lack of visual presence. There is an asymmetry in visual identifiers on the ground, resulting in it being much easier for passengers travelling by bus and requiring connections to the train network than passengers travelling by train wishing to find departure points for connecting interurban bus services.

Recommendations

Operators like Transdev, Stagecoach and First will no doubt continue to improve services on their flagship interurban routes, upgrade vehicles and offer more amenities like Wi-Fi, charging facilities, extra legroom and even on-board toilets.

To help customers and those assessing home or business location decisions, having certainty of service continuity is important. It is not well-met by the 56-day notification period. A more nuanced arrangement is needed for the Traffic Commissioners to oversee for what we call below 'qualifying' Interurban Bus routes that can be incorporated dependably into travel service databases. This would offer flexibility to allow timetable/service changes with limited notice periods as now, but would also require a commitment that the core service is not abandoned without an 18-month notice period.

Overall, the aim is to help establish a 'missing mode' – the Interurban, distinct both from short-distance conventional bus routes that may continue to lose their market base and from express coach services which are not suited to regional provision (and not subject to any registration notice period).

But there will be more than just a continuation of best practice if the Interurban Bus is to provide as full a role as clearly it could.

We therefore make the following recommendations for other bodies to take forward to get much fuller value from interurban bus.

1. **DfT** possibly in conjunction with Confederation of Passenger Transport (CPT) – should identify and keep up to date a register of Interurban Bus routes that meet an industry-agreed quality standard (equivalent to the Coach Marque for instance) – qualifying services – and the DfT should instigate a national service continuity fund to ensure the operation of these interurban bus services over such time period as necessary until the next (annual) timetable re-set.

2. **Local and highways authorities** should be obliged to seek ways of improving the infrastructure provision for Interurban Bus, when considering highway improvement plans, with specific aims to allow faster transit times (possibly with bus priority measures) and improved bus stop waiting areas.

3. **DfT/CPT** should host a public competition to develop a suitable logo/image to signify Interurban Bus to complement the British Rail double arrow motif and provide for its use in wayfinding and signage systems.

4. **Local authorities and LEPs** should seek ways to promote the connectivity benefits that Interurban bus offers, to help foster inward investment and sustainable patterns of development with reduced car dependence; they should also seek to maintain the established qualifying interurban bus network.

5. **Network Rail** should be obligated to look at the scope to enhance the visibility and ease of access for interurban bus services where they can readily connect with rail at their railway stations.

6. **DfT** as and when it comes to look at ways of improving national rail fares and ticketing (through franchisee obligations or otherwise) should consider how best to incorporate add-ons for partner services of Interurban Bus operators.

7. **Local authorities** should seek to explore ways of using the new powers conferred by the Bus Services Act 2017 to support bus companies seeking to enhance interurban bus service provision.

8. **DfT** should obligate rail franchisees to provide information on qualifying interurban bus services that connect with rail.

9. **Network Rail** in fulfilling its obligations to provide national timetable data, should be required to include information equivalent to that for rail on the qualifying interurban bus services' timetables at least at principal calling points.

10. **Local authorities** should use the powers contained in the Buses Services Act 2017 to work together with adjoining partner authorities as necessary to help foster the development of Interurban Bus working in partnership with the bus operating companies.

Annex A: ***TrawsCymru network development history and prospects***

TrawsCymru has its roots in 'TrawsCambria', a coach service dating back to 1979, when the Welsh Office and National Bus Company introduced three north-south routes to serve gaps in the rail network left behind following closures to the rail network. These closures had particularly marked effects in rural Wales, splitting the network into three parts (the trunk route and branches in South Wales, the Birmingham - Aberystwyth and Cambrian Coast services, and the North Wales services), It was thus not possible to travel within Wales between north and south by rail.

Figure A1: **The TrawsCambria network in 2005**

Early TrawsCambria routes had more in common with long-distance express coach services, such as those provided by National Express. For example, the 700 Route ran from Bangor to Cardiff, via Newtown, a total journey of over 200 miles. Services were very infrequent, running just once daily in each direction all year round, with additional summer services in some cases. An account of early development is provided by Noton[1]. Over the years, various services were expanded and cut back, until the network consisted of just one route running on a commercial basis, the 701 between Cardiff and the north coast.

Following devolution of power to the Welsh Assembly in the late 1990s, the Welsh government outlined its plan for an integrated coach network, specifically highlighting the importance of long-distance routes, and laid out plans for eight new routes[2]. By 2004, the 701 Route was discontinued and the TrawsCambria network was re-introduced as a series of publicly endorsed, but privately-operated bus routes. The 701 Route was split into the X32 and the X40, and new routes including 704 Brecon – Newtown and X94 Wrexham – Barmouth were introduced. The new network addressed concerns that long-distance coaches were unsuitable for Wales due to 'geographical and population distribution'[3] by providing both longer routes between larger towns and links to intermediate towns along the way.

The initial TrawsCambria network was provided as a mixture of commercial and tendered services which, whilst initially promising, led to a number of issues. According to David Hall, current TrawsCymru manager, the TrawsCambria network was fragmented, suffered from a lack of centrally directed marketing or co-ordination, and was unreliable[4]. Total ridership (just over 450,000 in 2012/13) was considered to be poor, given the scale of the network.

Following public consultation in 2010, it was decided that the TrawsCambria network was to be re-launched and re-branded as TrawsCymru in 2012. This rebrand accompanied identification of new, strategically important corridors, along with re-naming of the X40 as the T1C service (to be operated by Arriva Buses Wales). Also planned were the T2 (Express Motors and Lloyds Coach) and an upgraded T4/704 service (Stagecoach). Before the T1C could be introduced, however, Arriva Buses Wales withdrew their X40 service and introduced their own CymruExpress interurban network, a commercial venture unaffiliated with the Welsh Government. CymruExpress also served as a Wales-wide interurban network, and included replacements for the TrawsCambria X40 and X50/550 services. In the meantime, the T2, T4 and T9 TrawsCymru services were introduced, having been unaffected by the CymruExpress service. Arriva's competitive venture was short-lived, and CymruExpress ceased operations in December 2013.

The Welsh Government was given another chance to implement TrawsCymru, and the roll-out was continued with the T1 service between Carmarthen in August 2014, after the originally planned T1C service between Aberystwyth and Cardiff was abandoned. Following the T1 service were the T3 (Wrexham-Barmouth, in November 2014), T5 (Aberystwyth-Haverfordwest, in January 2015) and T6 (Swansea-Brecon, in September 2016).

1. Noton, B.G. (National Welsh Omnibus Co) 'TrawsCambria – a Long-distance Rural Network' Paper at Ninth Annual Seminar on Rural Public Transport, Polytechnic of Central London, November 1980, pp 23–35.

2. Winkler, V., Review of TrawsCymru: Report for the [Wales] Minister for Economy, Science and Transport, February 2014.

3. Hall, D., 'TrawsCymru – "Connecting Wales"', Presentation to the Omnibus Society, October 2015.

4. Hall, D, Ibid.

Potential expansion of the TrawsCymru network

Expansion of the network is an immediate priority for the Welsh Government, especially given the success of existing routes. The network, while extensive, is not comprehensive, and there are a number of corridors that could be of benefit if introduced. Along with her endorsements of the pre-existing T1-5 routes, Victoria Winkler made preliminary suggestions for a number of further corridors that could be provided in the future:

T6: Wrexham-Ruthin-Denbigh-St. Asaph-Rhyl
T7: Carmarthen-Llandovery-Brecon-Abergavenny
T8: Newtown-Welshpool-Oswestry-Wrexham.

We had the opportunity to converse with the TrawsCymru network manager David Hall on this subject as well as others. He identified some potential areas for expansion of the service as follows, including some overlap with Winkler's recommendations. In general, both David Hall and Victoria Winkler stress the importance of extending the T4 corridor further north, along with the introduction of an east-west link in Northern Wales:

- Bangor-Oswestry[5] via the A5; this route would run south-east via (rail-served) Betws-y-Coed and Llangollen.

- Brecon-Chepstow via Abergavenny and Monmouth; this route covers three towns in south-east Wales, before stopping in Chepstow on the English border. While it is possible to travel by train from Abergavenny to Chepstow, the journey is indirect and requires a change at Newport. No public transport alternatives currently exist for the whole route and Monmouth has no rail service.

- Newtown-Wrexham via Oswestry; this service could cross-connect with the previously identified potential route between Bangor and Oswestry, and the T3 service between Barmouth and Wrexham. The route is almost identical to the T8 corridor proposed by Victoria Winkler, with the only difference being a connection at Oswestry, (just) in England.

Merthyr Tydfil-Neath. This service is an east-west connection and connects two rail-served towns already served by the TrawsCymru network, but between which the rail journey is circuitous and requires a change at Cardiff. This route could be extended back along the Head of the Valleys road to Abergavenny.

5. For which the railway station is at nearby Gobowen which this route could serve shortly before reaching Oswestry.

Annex B: ***The development history of Fife's Express City Connect interurban bus network***

Prior to comprehensive closure, Fife was covered by a network of rail lines, including coastal links between Rosyth, Kirkcaldy and St Andrews, and county-wide east-west links. Fife's rail network was much reduced following the Beeching Report of 1963, with rationalisation of the network leaving essentially just the Edinburgh – Kirkcaldy – Dundee/Perth main line and a loop via Dunfermline. Locations such as the university city of St. Andrews and resort of Leven were cut off. Express coach deregulation produced a rapid growth on services within Scotland from 1980, making use of the already-constructed motorway network, notably the 'Saltire Cross' services (Edinburgh and Glasgow – Perth – Dundee/Aberdeen, and Inverness), but these served Fife only to a limited extent.

The ECC network developed out of a number of express coach services that served Scotland in the 1980s and earlier. National Express operations within Scotland in the 1980s operated under the Caledonian Express brand, providing key routes in and around Scotland's large cities like Dundee, Glasgow, Aberdeen and Edinburgh. Stagecoach, founded in 1980, also provided express coach services in Scotland, though left the market in 1988. National Express took control of Stagecoach's express coach operations, with the intention of integrating Stagecoach's own services in Scotland into its Caledonian Express brand. In 1989, express coach routes operating under the Stagecoach Caledonian Express brand[6], provided book-ahead coach services, with onboard ticket purchasing allowed, subject to availability.

In 1991 Stagecoach purchased Fife Scottish, formerly of the Scottish Bus Group, with the intention of providing local bus services in Fife and East Scotland. Stagecoach then re-entered the express coach market with its Stagecoach Express brand, introducing frequent stop, high-floor coaches operating in and around Fife. Routes like the X24, X26 and X27 provided links to Glasgow, with the X54 and X59 serving Edinburgh[7]. Further expansion of the network followed towards the end of the 1990s and beginning of the 2000s[8], and by 2006 the network was extensive, closely resembling the current ECC network, and making good use of the Park & Ride site at Ferrytoll, near the Queensferry Crossing of the Firth of Forth.

6. http://archive.commercialmotor.com/article/10th-august-1989/16/national-express-grows.

7. All five are currently in operation as part of the ECC network.

8. Stagecoach express material from 1st May 2000 mentions a lot of the ECC routes (X24, X26, X27, X54, X59, X60), boasting comfortable coaches with a 'first class feel'.

In 2007 Stagecoach Express relaunched as Stagecoach Express City Connect. Early network maps show a more streamlined network, providing a more unified path into Edinburgh. The Ferrytoll Park & Ride site was utilised extensively, with up to ten services passing through at one point, and with the opening of Halbeath Park & Ride facility in 2013, many coaches were rerouted away from Dunfermline to create better access points for commuters. ECC introduced wheelchair accessibility and Wi-Fi in 2011, and upgraded their fleet to include leather seating and air conditioning in 2014. ECC offers a relatively comprehensive network, providing through links to Edinburgh and Glasgow, from many points in Fife, including places not served by rail such as St Andrews and Leven. It is a network that competes with rail, especially in the more populous south.

While not branded as ECC, the Jet 747 service from Fife to Edinburgh Airport is included on ECC maps, and runs via both Halbeath and Ferrytoll Park & Ride facilities. The 747 service runs at a 20-minute frequency, and while not in the same high-floor coach style as other ECC services, also offers free Wi-Fi, leather seating and disabled access. The X24 ECC service offers hourly connections between Glasgow Airport, Halbeath Park & Ride, Dunfermline and St Andrews.

Annex C: ***Short history of Lincolnshire's interurban bus network***

By the early 1950s most of Lincolnshire[9] was covered by services of the Lincolnshire Road Car Company (LRCC), a subsidiary of the Tilling group. Municipal operators served Lincoln, and the Grimsby-Cleethorpes urban area, but did not operate interurban services, apart from some short-lived competitive expansion following deregulation in 1986.

As part of the privatisation of NBC, in 1988 LRCC became part of a group including the Yorkshire Traction Company, which in turn was sold to Stagecoach in 2005. Prior to this, LRCC had taken over Lincoln City Transport, and Stagecoach had acquired the Grimsby - Cleethorpes operation. A pattern thus developed in which most fixed-route bus services are operated by Stagecoach/ LRCC, but unlike some other rural areas smaller independents remained important, not only on local services into market towns, but on some interurban routes, notably Delaine's Bourne – Peterborough operation. Deregulation also saw intensive independent competition in the south east of the county, following which LRCC closed depots at Boston, and Holbeach (near Spalding) in 1989, leaving this part of the of the county to independent operators, including interurban routes.

Within the county, Lincoln is the principal centre, but a substantial north-south flow was handled by the East Lincolnshire line (Grimsby-Louth-Firsby-Boston-Spalding-Peterborough), with through services operating along it: Cleethorpes-Grimsby-London. The Boston-Woodhall Junction line closed in 1963 (although some through Boston - Lincoln trains continued to run via Sleaford), and Grantham to Lincoln in 1966. Major closures followed in 1970, notably the East Lincolnshire line between Grimsby and Firsby, and Boston and Peterborough, and the Firsby-Lincoln service. Construction of chord at Newark enabled the Cleethorpes-London service to be diverted via Lincoln and Newark. Some other routes proposed for closure were retained, notably the Barton-on-Humber branch, and the Spalding-Peterborough section which was reopened after a brief period of closure, in 1971. The line south east from Spalding to March was subsequently closed in 1982. In the north of the region, the principal service was focused on the Cleethorpes-Grimsby-Scunthorpe-Doncaster-Sheffield corridor from 1968 (serving the main centres of population). The former main route between Grimsby and Sheffield via Brigg and Gainsborough was downgraded to Saturday-only operation from 1993, but an hourly Lincoln-Gainsborough-Sheffield service continues.

9. The current local government structure comprises the administrative county of Lincolnshire (a two-tier pattern, with districts), centred on Lincoln, and the unitary authorities of North East Lincolnshire (centred on Grimsby) and North Lincolnshire (centred on Scunthorpe). Prior to formation of the unitary authorities in the 1990s, these formed part of the short-lived Humberside County formed in 1974.

A proposal was put forward by John Hibbs in 1963/64, then working at BR Eastern Region, for an express-licensed bus replacement for the East Lincs line[10], but this was not implemented, and only a fragmentary pattern of replacement bus services, some short-lived, was provided for the links affected by its closure.

From the early 1970s, the existing bus network became increasingly dependent on financial support from local authorities, principally Lincolnshire County Council, but saw little innovation. Further 'thinning out' continued as low-density routes were cut, and service frequencies were reduced on remaining routes (especially evening and Sunday journeys). In some cases, local independent companies took over services from LRCC, although such services were not always sustainable when run commercially.

Following deregulation, LRCC registered a network of services it regarded as 'commercial', retaining most interurban links, but cutting back elsewhere. Extensive independent bus company entry in the south east of the County highlighted scope for commercially-viable interurban operations. After a period of intensive competition, a more stable network developed from the early 1990s.

For many years, LRCC's principal interurban routes ran up to hourly in cases such as Lincoln-Grantham, Boston-Spalding, but less regularly on other routes (such as Lincoln – Gainsborough).

InterConnect Services summary (independent operators)

5. Boston-Coningsby-Woodhall Spa-Lincoln. For many years, a very limited service operated over the southern part of this route, connecting with a Horncastle-Lincoln service. Under RBG, an improved service, running through to Lincoln, was established. This subsequently expanded to an hourly frequency under the InterConnect brand from July 2002, and was linked with the existing hourly Boston-Spalding service, operated throughout by Brylaine of Boston.

7. Boston-Wainfleet-Skegness. Hourly service operated by Brylaine of Boston, which stemmed from competition in the immediate post-deregulation era, branded alongside the LRCC service, offering a combined half-hourly service by 2005.

10. Lincolnshire Transport Review , November/December 1970, pp 124/125.

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