

# The Benefits of Improving Access to the United Kingdom Rail Network via the Access For All Programme



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# The Benefits of Improving Access to the United Kingdom Rail Network via the Access For All Programme

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# Abstract

"Access for All" is a United Kingdom government funded programme to make stations more accessible for people with disabilities by providing step free access along with complementary measures such as improved wayfinding information. Steer Davies Gleave was commissioned to evaluate the programme in a manner consistent with official guidance ("WebTAG"), and to quantify the benefits to rail passengers and train operators.

This paper describes what data was collected, how it was collected, how it was analysed and what the results were. It also identifies some important lessons for improving the implementation of the programme, which may have wider applicability.

In summary, the programme was shown to have a positive economic case even when only considering the narrow benefits included within WebTAG. Additional social and community benefits were also identified, and it was highlighted that better promotion of the programme would improve its value for money even further.

While this particular case study focusses on United Kingdom rail stations, the lessons and methodological approach are applicable more widely.

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# **Introduction and scope**

The Access for All (A4A) programme is a Department for Transport (DfT) funded initiative to improve accessibility at key stations on the rail network. It provides for the creation of obstacle free routes through the station to the trains, plus complementary improvements funded via a "small schemes" fund, all aimed at making stations more accessible for disabled passengers.

The fund initially committed spending of GBP 370 million over the period 2004 - 2015. In addition, the small schemes fund has delivered smaller scale accessibility improvements at more than 1 100 stations. The Main Programme is now seeing GBP 160 million extension of the fund and programme from 2015-2019.

The United Kingdom's Department for Transport (DfT) commissioned a research study to quantify the benefits of the current Access for All Programme in order to support additional funding for the programme for 2015-2019. The 2015 study followed a previous study completed in 2010, also undertaken by Steer Davies Gleave. The full 2015 report is available to download from the Steer Davies Gleave website<sup>1</sup>. Further information about the programme can be accessed via the Network Rail website<sup>2</sup>.

Research was required to specifically look at:

- What are the benefits to passengers of the programme?
- What are the benefits to train operators?
- How could the programme be further improved?
- What are the wider social benefits and what BCR metric should be used to assess the benefits of investment in accessible pedestrian routes on railway stations?

The research comprised the following elements:

- Selecting a representative sample of stations which had benefitted from Access for All investment;
- Accessibility audits of the selected stations;
- Station user interview surveys at the selected stations;
- Classified count surveys using video cameras, which enabled the volume of passengers with walking aids and luggage to be counted, along with overall usage and usage of the lifts;
- Analysis of station usage and Railcard sales at selected stations and control stations in order to support the quantification of impacts;
- Business Case assessment to determine the benefit to cost ratio (BCR) of the Access for All programme.

## Study stations

Following analysis of those stations included in the Access for All programme to date, the following stations were selected as a representative sub-sample:

- Bridgend;
- Huddersfield;
- Kidderminster;
- Purley;
- Rutherglen; and
- Vauxhall (London).

This sample of stations provides a good spread of locations, station sizes and types, as shown in Table 1.

Station	Location	Station Type	e Type of Works (main elements)		Spend/user
Bridgend	Wales	Medium mixed use station	2 lifts installed and a new footbridge	March 2012	GBP 0.94
Huddersfield	Yorkshire & the Humber			September 2011	GBP 0.48
Kidderminster	West Midlands	Medium mixed use station	2 lifts installed and a new footbridge	July 2008	GBP 1.37
Purley	London	Medium commuter station	4 lifts (platform to subway) and substation, significant station refurbishment	July 2008	GBP 1.22
Rutherglen	Scotland	Medium mixed use station	1 lift installed, new ticket office and foyer renewal	March 2009	GBP 1.62
Vauxhall London	London	Large commuter station	4 lifts (platform to subway) and substation, significant station refurbishment	July 2012	GBP 0.15

#### Table 1. Study stations

# **Station Accessibility Audits**

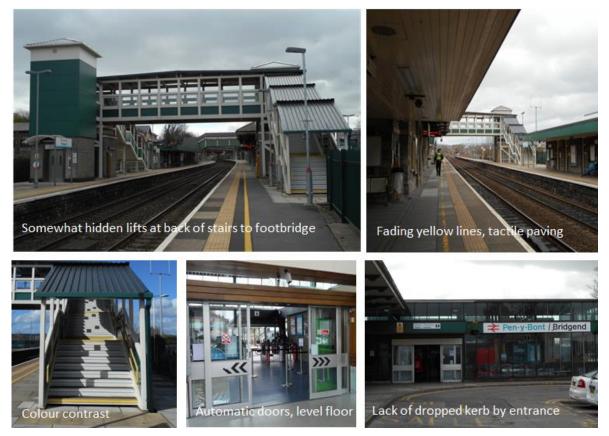
The Accessibility Audits were used to assess the presence and quality of station provisions from an accessibility perspective. Their overall aim was to assess the effectiveness of the Access for All investment in making it easy for people with a disability or encumbrance to move around the station and through it to access the rail network.

In general, the provision and quality of accessibility infrastructure varied. While most stations have the infrastructure in place, on several stations we identified issues relating to the location of the infrastructure, the signage to it and maintenance. Some specific issues included:

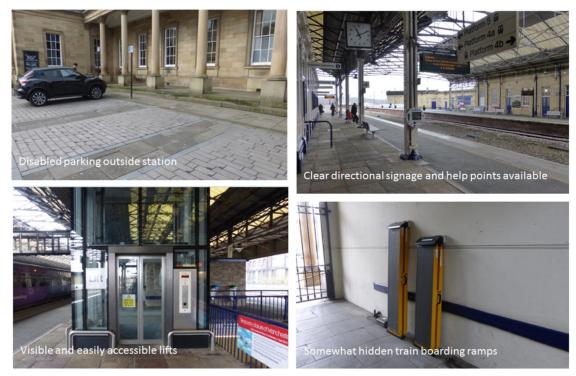
- Inaccessible ticket machines and ticket counters;
- Difficulty in locating the help points and induction loops;
- Lack of presence of station attendants on platforms;
- Lack of lift visibility; and
- Fading warning tactile/coloured strips on platform edge.

The images below illustrate the variations in quality of implementation at each of the study stations.

# **Bridgend station**



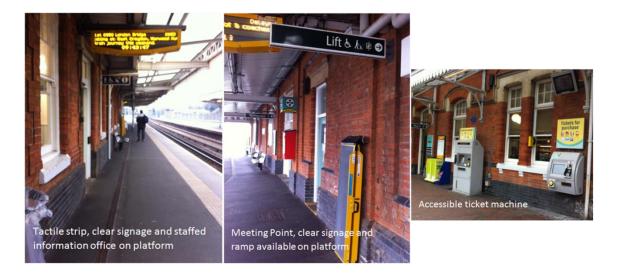
## Huddersfield



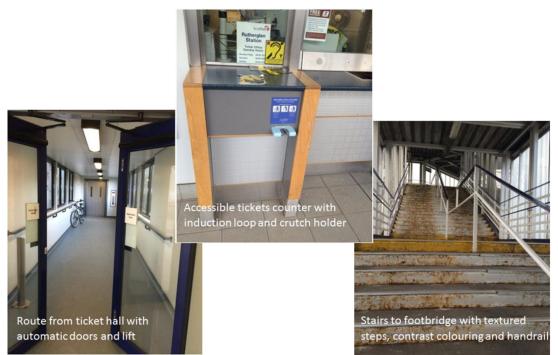
#### Kidderminster



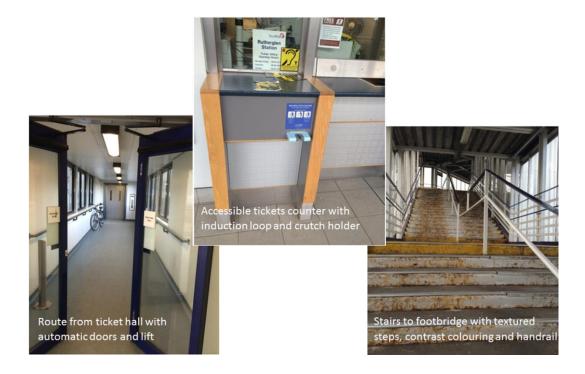
# Purley



## Rutherglen



## Vauxhall



# Station user interviews

The station user interviews involved relatively short face-to-face interviews conducted with passengers waiting for a train. To ensure the capture of views of disabled station users, the interview survey was based on a quota sample in order to over-sample disabled passengers.

In total, 1 849 passengers were interviewed, with the sample by passenger category being:

- Mobility Impairment 220
- Wheelchair User 14
- Hearing Impairment 96
- Visual Impairment 137
- Encumbered 832
- Unencumbered 834.

The questionnaire included questions concerning:

- General travel behaviour and use of rail;
- Basic details about current trip (purpose, use of Railcard, etc.);
- Ratings for relevant station attributes, and overall ease of use of station;
- Reasons for any low ratings;
- Awareness of any improvements to the station;
- Effect of any improvements on use of the station and general perceptions of accessibility of the rail network;
- Whether the current trip would have been made without the improvements (to identify generated trips); and
- Passenger details (Postcode, demographic, mobility / disability details).

#### Awareness of improvements

Overall, 41% of station users had noticed the improvements made at the stations "in the last few years". Amongst passengers with a disability the recognition was higher, with 57% of mobility impaired passengers and wheelchair users noticing the improvements at these stations.

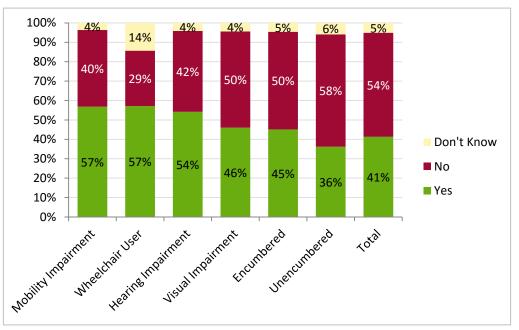


Figure 1. Are you aware of any changes made to this station in the last few years to make it easier to use the station?

## Satisfaction

Most (82%) users of the six study stations said that they found getting from the entrance to the platforms 'very easy'. This was also true of the disability groups, with the vast majority describing access from the entrance to the platforms either 'fairly easy' or 'very easy'.

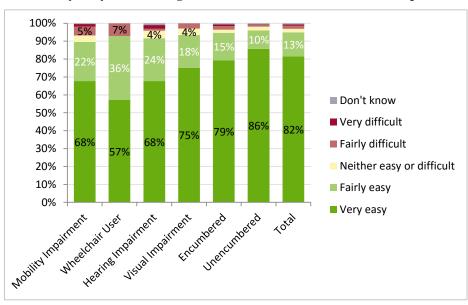


Figure 2. How easy did you find it to get from or to the station entrance to the platforms?

Respondents were also asked to categorise the overall accessibility of the station they were using, and the majority (70%) said they felt that the station was definitely suitable for everyone to use, with a

further 24% saying that they felt it was possibly suitable for everyone to use. This did leave 6% overall and 14% of wheelchair users saying the station is not suitable for people who are disabled or travelling with bulky items.

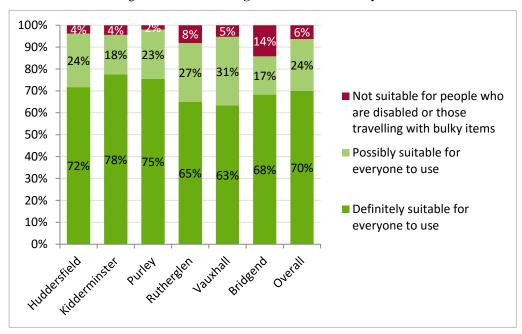


Figure 3. Overall rating of station accessibility

#### Impact of improvements

Respondents who said they were aware of improvements were asked if the improvements had affected their use of the station and 11% of all station users said that they had increased the number of trips they made from that station, with 6% having increased the number of trips significantly.

This figure was higher amongst some disabled groups, with a third of wheelchair users, 19% of hearing impaired passengers, and 15% mobility impaired passengers having increased their use of the station.

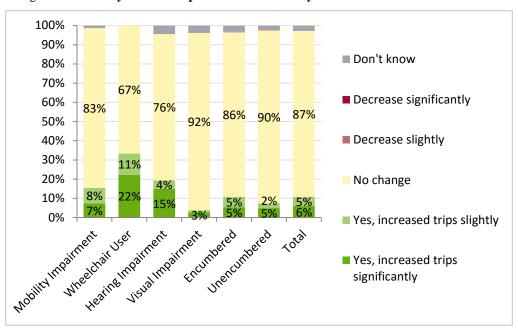
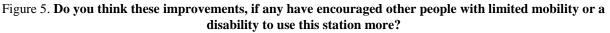
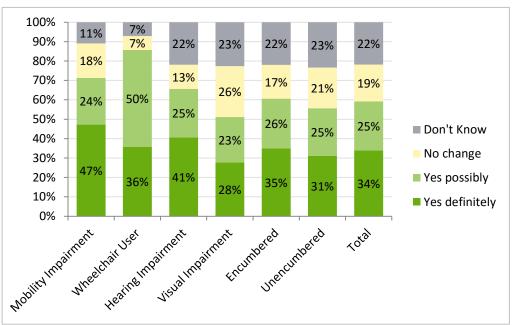


Figure 4. Have any of these improvements affected your use of this station?

In general, station users felt that the improvements at the study stations would encourage people with limited mobility or a disability to use the station more, with 59% saying that the improvements would definitely or possibly encourage others with a disability to use the station more. This figure was higher amongst the mobility impaired (71%) and the hearing impaired (66%).

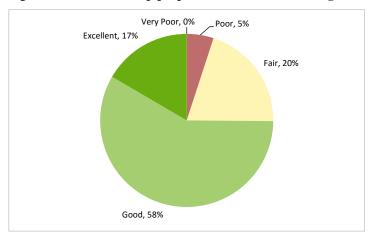




#### Provision for passengers with different disabilities

This section considers the overall provision at the study stations for passengers with different disabilities, assessing the quality of provision for those with difficulties walking, seeing, and hearing, and those encumbered by luggage.

Those with a mobility difficulty were generally satisfied with the facilities provided for passengers that have difficulty walking – three quarters described them as either 'good' or 'excellent', with only 5% describing them as 'poor'. Figure 6 provides the details.



#### Figure 6. Facilities to help people with difficulties walking

Base = respondents with a mobility difficulty

Two-thirds (64%) described the facilities for people with difficulties seeing as 'good' or 'excellent' with only 4% describing them as 'poor'. Some room for improvement was identified with 32% saying the facilities are 'fair'.

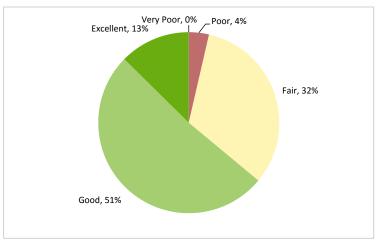
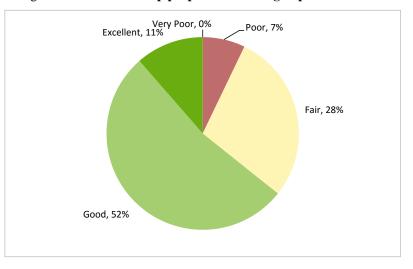
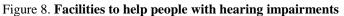


Figure 7. Facilities to help people with difficulties seeing

Base = respondents with a visual impairment

Similarly, while the majority (63%) rated the facilities for people with hearing difficulties as either 'good' or 'excellent', nearly a third (28%) rated them as 'fair' and 7% as 'poor'. However, on a more positive note, none said they are 'very poor' (see Figure 8).





Base = respondents with a hearing impairment

Overall, those carrying bulky luggage or equipment were happy with the facilities provided for them, as shown in the following figure (Figure 9). However, 8% did rate the facilities as 'poor' or 'very poor'.

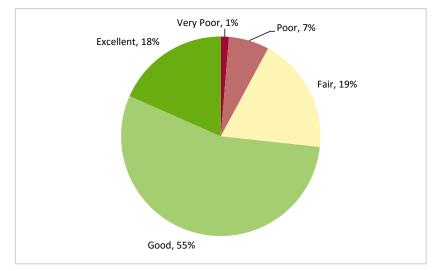


Figure 9. Facilities to help people with difficulties carrying bulky luggage or equipment

Base = respondents encumbered by luggage

The impact of provision of facilities for disabled people on station choice is notable amongst some disability groups, particularly for wheelchair users, with the majority saying that they would either always or occasionally travel further to a station which is easier for disabled people to use. Just under a third of mobility impaired and hearing impaired passengers felt the same.

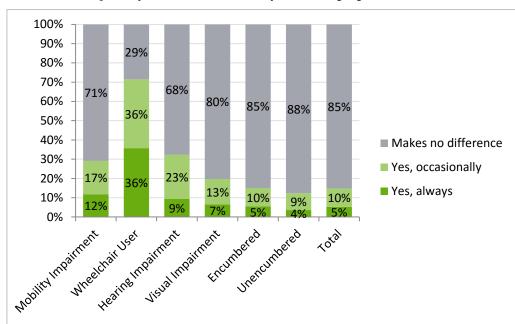


Figure 10. When considering which station to use, would you travel further in order to start or end your journey at a station that is easy to use for people with disabilities?

#### Lift usage

The numbers of passengers using the lifts for an average weekday and average Saturday are shown in Table 2, by type of disability. This highlights the point that the majority of lift users are actually passengers without any disability or encumbrance (73% on a weekday and 61% on a Saturday). Passengers encumbered by luggage are the second largest category, with people with a mobility difficulty only representing 2-3% of lift users.

Comparing the lift usage to the overall station usage indicates that overall, 5% of the station users use the lifts. Lift usage did vary substantially from station to station, with both the volume of passengers and the proportion of passengers using the lifts varying. In fact, the proportion of passengers using the lifts ranged from 1% to 8%, with a key factor believed to be the visibility and consequent awareness of the lifts.

Day of week	Mobility	Wheelchair	Hearing	Sight	Encumbered	Unencumbered	Total
Weekday	67	7	0	69	915	2925	3982
Saturday	39	2	0	16	546	938	1541
Weekday	2%	0.2%	0%	2%	23%	73%	100%
Saturday	3%	0.1%	0%	1%	35%	61%	100%

#### Table 2. Lift usage counts

# **Economic appraisal**

The economic appraisal is based on a spreadsheet model developed based on Department for Transport WebTAG guidance<sup>3</sup>. The model therefore has 'standard' elements (e.g. economic appraisal parameters and economic performance metrics) that are common to all economic appraisals and fully consistent with current WebTAG guidance, as well as 'scheme specific' elements that vary on a case by case basis (e.g. scheme cost, demand, benefits, opening date etc.). As far as we are aware, this is the only example of where WebTAG has been used to assess accessibility benefits, but there is no specific reason why other schemes or programmes cannot be evaluated in this way.

There are a number of potential economic benefits from improved accessibility at stations. In broad terms these accrue to three sets of people; existing station users who gain from an improvement in the accessibility and general quality of provision; new users who are attracted to use the station due to these improvements and who gain a benefit from doing so; and non-users who are indirectly affected as a result of 'externality' impacts stemming from a change in transport demand and network costs. These potential benefits are set out in Table 1.

User group	Description	Example impacts of accessibility schemes		
Existing Trips / Users	People who already use the stations.	Benefits from improved accessibility – due to obstacle free access, better signage and information, trained staff etc.		
New Trips / Users	New station and rail users.	Benefits from improved accessibility – due to obstacle free access, better signage and information, trained staff etc.		
Non-Users	Those who do not change their behaviour as a result of the scheme, but who are affected in some way as additional people using rail have 'second order' impacts on the wider transport network.	Benefits from a reduction in car trips, leading to reduced accident and emissions costs, as well as decongestion benefits for other road users. Crowding impacts will occur if accessibility improvements lead to enough increase in rail passengers to create crowding disbenefits for existing rail users.		

#### Table 3. Potential economic benefits from station accessibility improvements

### User benefits

The user benefits are based on the growth in station usage due to the station improvements, as *identified* in the post-implementation *station users* surveys. This is then used to calculate the percentage change in generalised costs per station and user group using a generalised cost elasticity of -1. The 'Do Minimum' generalised costs (in minutes) are calculated based on the weighted journey times for the

different parts of a rail journey, and the 'Do Something' generalised costs (in minutes) are the 'Do Minimum' generalised cost multiplied by the percentage change.

The user benefits for the existing users are based on the difference between the 'Do Something' and the 'Do Minimum' generalised costs, the value of time (VoT) and the number of existing users. as shown in the formula below:

User Benefits  $_{existing users} = (`Do Something' GC - `Do Minimum' GC) * VoT * No <math>_{existing users}$ 

New users get half of the benefits experienced by existing users. The 'rule of half' is based on the assumption that new users' willingness to pay is equal to that of the average existing user.

#### Non-user benefits

Non-user benefits are benefits that accrue to people and businesses who are not direct users of the improved stations. The externality benefits are derived from the reduction in car vehicle kilometres resulting from modal transfer to rail due to the accessibility improvements at the stations.

The reduction in vehicle kilometres drives the following externality benefits:

- Decongestion Decongestion benefits result from the removal of cars from the road and accrue to remaining cars on the road network. The benefit per kilometre removed depends on the existing level of congestion;
- Infrastructure Reduced infrastructure costs resulting from a reduction in car kilometres;
- Accident reduction Accident reduction results from the removal of car kilometres;
- Reduction in carbon emissions Carbon emissions are also reduced as a consequence of the reduction in car kilometre;
- Reduction in local air and noise pollution Locally, air and noise pollution is reduced as a consequence of the reduction in car kilometre.; and
- Indirect taxes indirect loss in government tax revenue following reduced car kilometres principally due to reduced petrol usage.

#### Rail operator benefits

The growth in station use will result in an increase in rail fare revenue to the train operating companies. The additional rail revenue is calculated based on the increase in demand per user group and station and the average cost of an off-peak return ticket at each station, adjusted to account for Railcard usage (as identified in the station user survey).

Additional revenue from retail spending on stations and trains and Railcard purchase have not been included, although these would be expected to increase with increased station use.

### Appraisal assumptions

The economic appraisal is based on the following assumptions:

- Assumed overall scheme construction start year of 2009 –for purpose of appraisal a single representative start point has been selected, and scheme opening year of 2010. This reflects the average construction start and opening years for the selected stations (however, exact construction start years have been used for the cost rebasing for each individual station);
- An appraisal period of 60 years, as standard in DfT appraisal guidance. In addition a sensitivity test at 30 years has been undertaken;
- All scheme costs and benefits are presented in 2010 prices and values in line with DfT guidance;
- The discount rate used is 3.5% for the first 30 years, then 3.0% thereafter, in line with guidance;
- Costs are assumed to grow in real terms, e.g. a real increase above general inflation. The assumption employed is that all costs (operating costs and fares / revenues) increase at a real growth rate of 1% per annum;
- Values of Time and Value of Time Growth in line with DfT guidance:
- All benefits have been valued at an average non-work value of time of GBP 6.04 per hour based on the 'other' market price (in 2010 prices). This is a prudent assumption as the value of 'other' travel time is lower than that of 'commuting' and 'business';
- The non-work real growth in the VoT has been applied to all benefits over the appraisal period (from WebTAG);
- Average rail demand growth of 2.5% per annum has been assumed up to 2035, beyond which no further growth is assumed. This is somewhat lower than the observed rail growth between 1987 and 2014, so provides a conservative estimate. The growth rates and 'cap year' are consistent with those employed for 'standard' DfT rail appraisals;
- Externality benefits based on DfT's Marginal Externality Costs (WebTAG). This varies by station depending on location and dominant road type assumptions;
- The demand uplift due to the improvements has been calculated based on the station user surveys where passengers were asked if the accessibility improvements had led to an increase in their usage of the station. The percentage that stated that they had increased their usage were multiplied with the assumed increase, 1/3 more trips for those saying they had increased their number of trips "significantly" and 1/10 more trips for those saying they had increased their number of trips "slightly";
- Of the new demand 50% is assumed to be modal transfer from car;

- To take into account general growth unrelated to the accessibility improvements at the selected A4A stations, the growth numbers have been reduced by subtracting the average control station growth;
- Unencumbered users are assumed to have no growth related to the station accessibility improvements. This is a conservative assumption as 3% of this group indicated that they had increased their use following the station accessibility improvements. This approach was adopted because of the relative uncertainty over the valuation for these users (for example how much benefit did they actually get from using the lifts?). However, a sensitivity test was used to quantify this potential benefit.

### Appraisal results

The appraisal gave an overall positive benefit cost ratio, but with substantial variation between the different stations. Overall, the benefits exceed costs by 2.4:1 with one station (Vauxhall) having a very high BCR of 11.3:1.

The key economic benefits of the scheme are user benefits, especially benefits to existing users, which provide over half of the total benefits. These existing users include, for example, passengers with luggage or travelling with small children.

It is important to recognize that the BCR calculation does not include the following benefits:

- Benefits to 'unencumbered' users -there will also be benefits the unencumbered due to general renewal of station facilities and improved quality of signage, information, lighting and removal of clutter;
- The value of improvements of this nature (i.e. inclusiveness) that the general population (i.e. those who do not use the scheme) place on such interventions, based on their principles and ethics about the role of Government (and by extension Government expenditure) in supporting an inclusive society;
- 'Option values' for potential users of the scheme. The value that potential users would gain would derive from the possible future benefits associated with:
- Anticipation of future need i.e. people who will have children / get old;
- Ability to travel if temporarily incapacitated e.g. injured ; and
- The ageing of the population means that in the future more people will likely come into the various disabled categories.

#### Sensitivity testing

Sensitivity testing was used to verify the robustness of the results and highlight the key parameters affecting them. The following tests were used:

- 1. Operating & maintenance costs (central case 1.5% pa, test case 3% pa);
- 2. Capital cost (test case +50% on actual costs);

- 3. Demand elasticity (central case -1, test case -0.5);
- 4. Generalised Cost (central case 130, test case 100);
- 5. Uplift in demand (central case based on survey results from each station applied to that station, test case based on the average survey response across all stations applied to each station);
- 6. Base Demand (50% of central case);
- 7. Benefits from new trips (central case 50% benefit, test case 25%);
- 8. Including unencumbered users (central case 0% benefit, test case 1% increase in trips);
- 9. Modal shift from car (central case 50% modal shift, test case 25%);
- 10. Fare levels (test case 50% of estimated fare levels);
- 11. Appraisal period (central case 60 years, test case 30 years); and
- 12. Rail trip growth (central case 2.5%, test case 5.0% closer to the observed growth in national rail trips over the last 30 years).

The overall outcome of the sensitivity testing was that even in the worst case the business case was still positive (a BCR of 1.08). At the other extreme, including benefits to unencumbered users raises the BCR to 19.45.

# Conclusions

The overall conclusion is that the Access for All programme benefits users and society more generally, and has a positive business case. In other words, the benefits of improving the accessibility of rail stations by creating step-free access outweigh the costs even using a fairly narrow business case assessment methodology.

At the same time, the business case is dependent on the particular circumstances of the station, with the crucial factor being the number of disabled and encumbered passengers using the station.

It is important to recognize that the business case is only part of the story. Improved access to stations has important social benefits in terms of giving everyone the opportunity to travel by rail. Its benefits also extend well beyond people with a disability, most obviously to passengers with luggage, but also to what we've termed "unencumbered" passengers: in effect, all passengers benefit to some extent. The passenger survey data provides some good supporting evidence for this.

This study does highlight some general lessons outside of just the Access for All programme. In particular, to maximize the impact of investment in infrastructure ("hard measures") a co-ordinated programme of complementary "soft" measures should be implemented. These should include (but not be limited to):

- Communications to raise awareness of the improvements targeted not just at people already travelling, but also at those put off from travelling by perceived difficulties in accessing services. Typically this may include a launch event and coverage in local media (newspapers, magazines, radio);
- Clear passenger information and signage on-site;
- Good information available at the journey planning stage (typically on websites) which clearly identifies the accessibility features available;
- Staff training and awareness so they can help and support disabled passengers without taking away their independence.

Another general conclusion is that accessibility to a transport service is only as good as the weakest link. In the rail example, the benefit of improving access to stations is severely compromised if passengers cannot then get on their train. This should be borne in mind when considering funding priorities.

Finally, in terms of who benefits, a good scheme to improve accessibility can actually benefit everyone, not only people with a disability. All passengers benefit to some extent, as does the transport operator (which benefits from increased patronage), and society more widely. Society can benefit both in an economic sense where improved access to public transport encourages switching from less efficient private transport, and in a social sense in terms of helping to create a more level playing field and a more caring society which everyone can proud of.

# Notes

- 1.<u>http://www.steerdaviesgleave.com/sites/default/files/elfinder/Reports/Access4AllBenefitResearch2015.</u> pdf\_(last accessed 27 January 27 2016).
- 2. http://www.networkrail.co.uk/improvements/access-for-all/ (last accessed January 27 2016)
- 3. https://www.gov.uk/guidance/transport-analysis-guidance-webtag (last accessed 27 January 2016)



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