Department for Transport

Value for Money Assessment for the Local Sustainable Transport Fund

August 2014

The Department for Transport has actively considered the needs of blind and partially sighted people in accessing this document. The text will be made available in full on the Department's website. The text may be freely downloaded and translated by individuals or organisations for conversion into other accessible formats. If you have other needs in this regard please contact the Department.

Department for Transport
Great Minster House
33 Horseferry Road
London SW1P 4DR
Telephone 0300 330 3000
Website www.gov.uk/dft
General enquiries https://forms.dft.gov.uk

Contents

1. Introduction

1.1 Delays on roads in urban areas cost the economy around £11 billion a year[1]. And the impacts of physical inactivity are just as large, leading to billions of pounds of avoidable costs for businesses and the NHS.[2]

1.2 The Local Transport White Paper 'Creating Growth, Cutting Carbon'[3], published in January 2011, placed localism at the heart of the transport agenda in order to cut carbon emissions and create local growth. The White Paper set out ways in which local authorities can stimulate local growth – enhancing access to employment, shops and key local services – at the same time as cutting carbon and delivering other environmental and public health benefits, by improving access via sustainable modes.

1.3 To help deliver this vision, £560m was made available through the Local Sustainable Transport Fund ('the Fund') in 2011. A further £40m was added to the Fund in 2012, to enable the Department to fund a number of high quality bids. During 2011 and 2012, the Department awarded funding to 96 projects, to be delivered by 77 authorities and a number of supporting authorities, which will bring benefits to all regions across England (outside London).

1.4 In line with the published guidance[4], an assessment of value for money (VfM) for all projects was carried out before funding was awarded. For small schemes that applied for no more than £5m Departmental contribution, bidders were not required to submit a full cost benefits analysis. For such schemes, the VfM assessment was based on the likely impact on transport users and the local community set out in the application form as well as based on evidence from similar recent schemes elsewhere. Large schemes (more than £5m Departmental contribution) were required to undertake a proportionate appraisal in line with the Department's appraisal framework (WebTAG). The submitted economic cases were comprehensively scrutinised by transport modellers and economists in the Department.

1.5 This report summarises the findings of the assessment of the VfM for the large projects, which concluded that the 12 projects that received funding represent a combined return on investment of at least 5:1. This conclusion demonstrates that investment in local sustainable transport projects represents very high value for money. The value for money

[1] Cabinet Office 2009 The costs of urban transport http://webarchive.nationalarchives.gov.uk/+/http:/www.cabinetoffice.gov.uk/media/308292/urbantransportanalysis.pdf

[2] NHS (2008) 'Physical activity and the environment - Costing report - Implementing NICE guidance', available at http://guidance.nice.org.uk/nicemedia/live/11917/38990/38990.pdf

[3] https://www.gov.uk/government/publications/creating-growth-cutting-carbon-making-sustainable-local-transport-happen

[4] https://www.gov.uk/government/publications/local-sustainable-transport-fund-application-process-and-bidding-guidance

assessment of the smaller bids suggested that, as a package, these also represented high value for money.

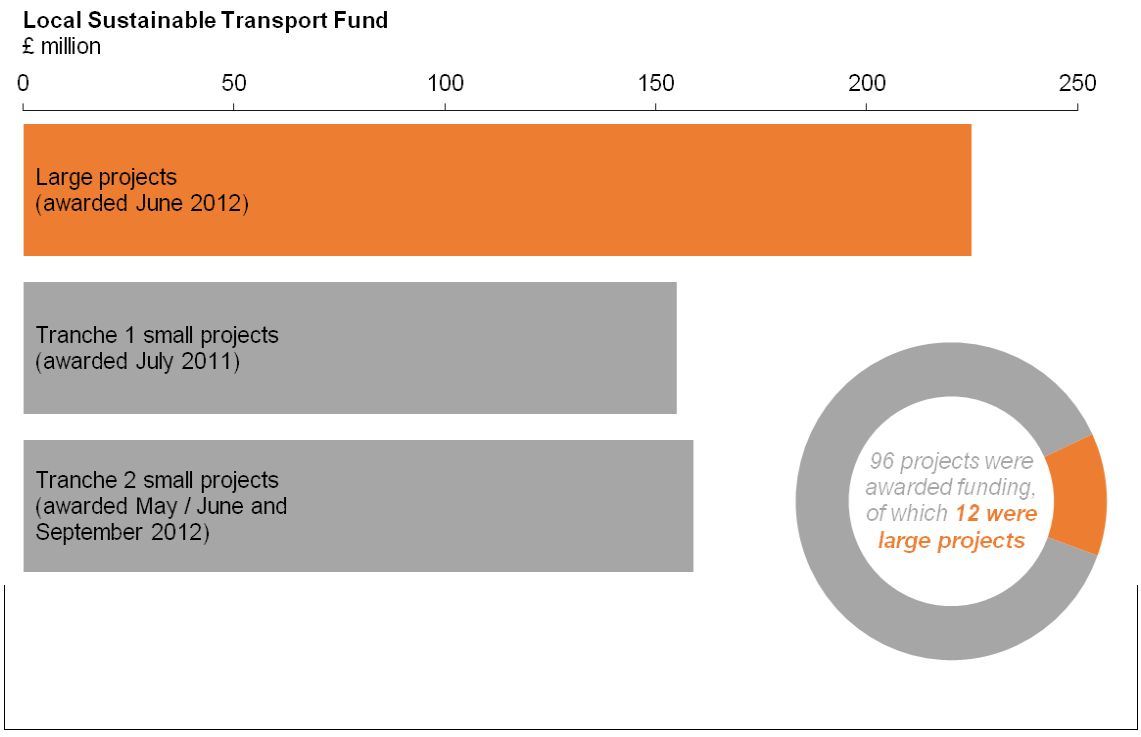
2. Background to the Local Sustainable Transport Fund

2.1 During 2011 and 2012, the Department received 130 bids to the Local Sustainable Transport Fund, collectively representing nearly £800m worth of investment opportunities. All local authorities that were eligible to apply to the Fund submitted one or more applications during three funding rounds, either with individual bids for local delivery, or as joint bids, working in partnership with other local authorities across the country.

2.2 The available funding was allocated in three rounds as illustrated in Figure 2.1:

- On 5 July 2011, Ministers awarded £155m to 39 Tranche 1 projects (small projects up to £5m).
- On 24 May 2012, Ministers awarded £113m to 30 Tranche 2 projects (small projects up to £5m).
- On 27 June 2012, Ministers awarded £225m to 12 Large Projects (above £5m), plus £41m to 14 more Tranche 2 projects (small projects up to £5m).

Figure 2.1: The Three Elements of the Fund



2.3 The final LSTF funding announcement was made on 11 September 2012, for the Tyne and Wear 'Go Smarter to Work' small scheme (£5m).

2.4 As well as investing in these 96 projects across England, the Fund is also providing £11m per financial year for Bikeability[5] cycle training in schools in England. Additionally, some funding was provided in 2011/12 to transitional projects, ensuring some continuity from sustainable transport projects between the termination of previous funding arrangements and the first announcements in July 2011.

2.5 Local authorities are also making local financial contributions which match the Department's overall investment pound for pound across the whole programme. As a result of combined funding from the Department and local contributions for these 96 projects, local authorities are collectively investing over £1bn in implementing local sustainable travel projects from 2011-15.

2.6 Successful projects demonstrated that they will meet the Fund's twin objectives: supporting the local economy and facilitating economic development, and reducing carbon emissions.

2.7 They include a variety of sustainable transport measures designed to enhance growth and reduce carbon; projects include smart ticketing, the promotion of infrastructure for electric vehicles, bus, rail and ferry improvement measures, the promotion of car clubs, and infrastructure improvements for cycling and walking.

2.8 Funding for Bikeability allows for at least 275,000 children to be trained in each financial year, giving them the skills and confidence to cycle safely on today's roads.

2.9 In the spirit of localism, the Department has ensured that local authorities and their partners are able to progress their projects with minimum intervention from the central Government. Local authorities and their delivery partners are the best agents to decide on transport solutions for their communities.

2.10 However, the Department is keen to learn about the effectiveness of the programme. This is in line with the Department's general approach to monitoring and evaluation as well as the need to add to the evidence base for sustainable travel options.

2.11 A Monitoring and Evaluation Framework has been published, which describes how outcomes and benefits from this investment will be monitored and evaluated, without placing disproportionate reporting burdens on local authorities.

2.12 A list of all projects receiving funding, the Monitoring and Evaluation Framework, and information about what is being implemented across the country through the Fund can be found at: https://www.gov.uk/government/organisations/department-for-transport/series/local-sustainable-transport-fund

[5] Bikeability training is provided in schools across England with the purpose of increasing riders' confidence in cycling and improving cycling safety. Typically students will enrol after having learnt how to ride a bike.

3. Economic Appraisal - Summary

Introduction

3.1 The Department carried out a value for money appraisal on all large project business cases in early 2012 as part of the wider assessment process.

3.2 The twelve large projects collectively receive £225m, a significant portion of the money available to local authorities through the Fund. Therefore, the bidding and assessment process was more extensive for these projects. Bidders were required '*to undertake a proportionate approach to modelling and appraisal and to place most effort on those aspects which are most significant to the business case e.g. highest cost, complex/risky elements, biggest impact'.*"[6]

3.3 The Department extensively scrutinised the appraisals received and the various assumptions underlying each analysis. These were benchmarked amongst the bids received as well as against existing evidence on the effectiveness of sustainable transport schemes. The original analysis was amended where necessary to ensure the results had a consistent and generally conservative evidence base. Given the limited time, the aim of this assessment was primarily to establish a 'lower bound' case rather than necessarily produce the 'best estimate'.

Overall BCR

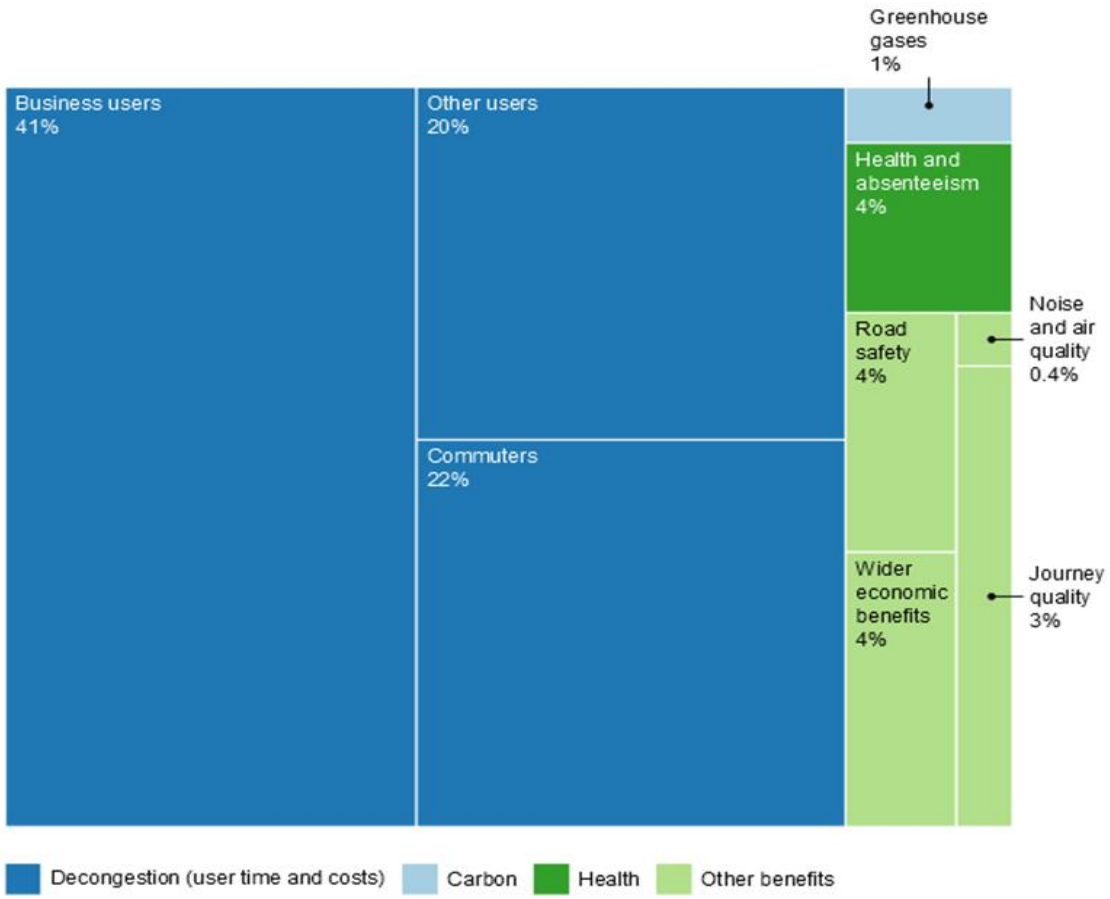
3.4 As a result of this analysis, the Department's conservative estimate of the collective benefit-cost ratio (BCR) of the Large Projects has been estimated to be approximately 5:1[7] - that is, for every £1 spent on these projects, society derives benefits worth at least £5.

3.5 Figure 3.1 below shows a summary of the types of benefits expected from the schemes and their proportions. It is important to note that not all possible benefits have been quantified by all bidders because the guidance had asked for focus to be placed on the most significant aspects. Different bidders interpreted this requirement differently.

[6] DfT (2011) ' Local Sustainable Transport Fund - Supplementary Guidance for Local Authorities Shortlisted for Large Projects', available at https://www.gov.uk/government/publications/local-sustainable-transport-fund-application-process-and-bidding-guidance

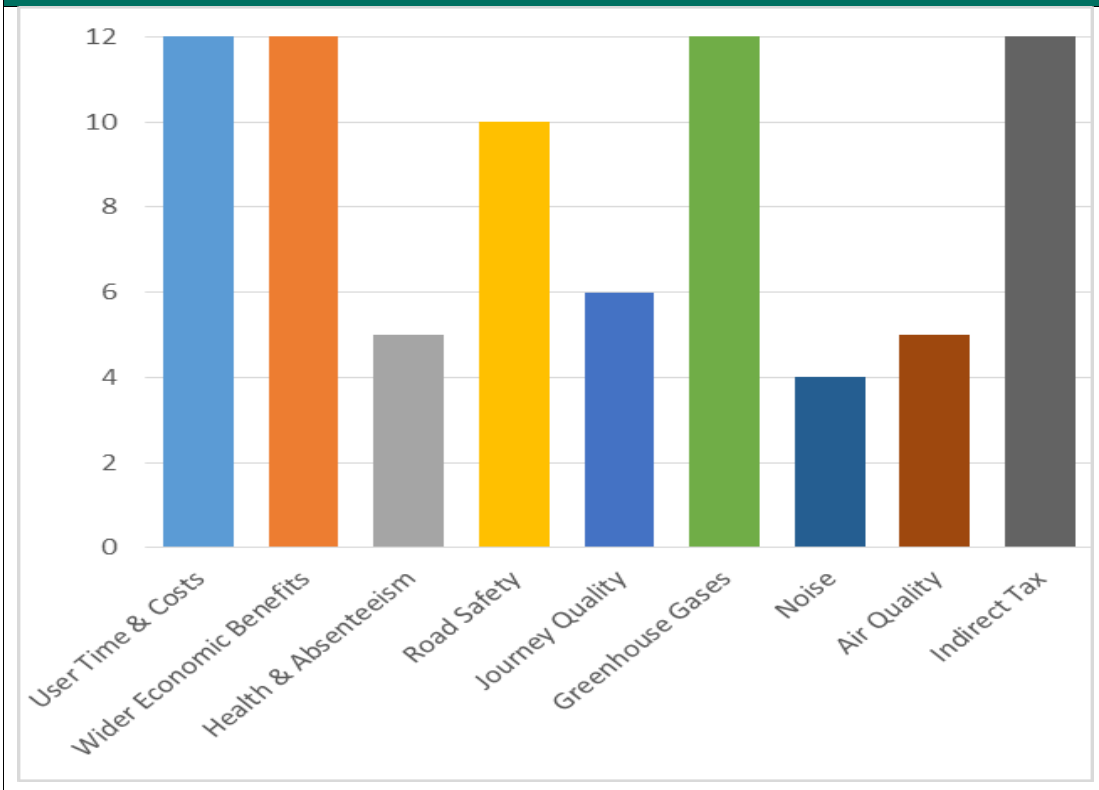
[7] In the absence of significant non-monetised benefits, this is classified as ‘very-high’ value for money by the Department.

Figure 3.1 Split of benefits of the Local Sustainable Transport Fund



3.6 Figure 3.2 shows how many bids included each of the various possible impacts in their analysis. While all bids included estimated decongestion benefits, only a small minority made the additional effort of quantifying health or noise impacts.

Figure 3.2: Number of bids providing estimates of various benefits



Decongestion Benefits

3.7 A major element of the benefits from these projects is decongestion, which benefits businesses and other users - accounting for about 90% of all benefits. This results from people changing their travel choices from car use to more sustainable travel options, such as public transport, walking and cycling. Subsequently, journey times and vehicle operating costs for motorists are reduced.

Health Benefits

3.8 Health benefits result from increased physical activity (based on the reduced relative risk of premature mortality as well as benefits to businesses from reduced absenteeism of staff). Since no firm evidence exists on the scale of NHS savings and wider social benefits from reduced morbidity, these are not captured in the monetised economic benefits.

3.9 Lack of physical activity is a major cause of health problems, such as obesity, diabetes, heart disease and depression, all of which create a significant burden on the NHS. It is suggested that active travel can, therefore, produce a major benefit by reducing these costs.

3.10 As explained above, only a minority of bidders estimated the likely health benefits of their schemes. For those that did, they accounted for up to 20% of the total.

Carbon

3.11 One of the two central objectives of the Fund is to reduce carbon emissions. Ambitious reductions in transport greenhouse gas emissions are needed to help meet current and future Carbon Budgets, as set out in the Carbon Plan[8].

3.12 The modelling results from of the 12 Large Projects show that they are expected to lead to a small reduction of 1.5 million tonnes in CO_2 emissions over the appraisal period. This results from a reduction of approximately 0.01 million tonnes in the First Carbon Budget (2008-2012), 0.6 million tonnes for both the Second (2013-2017) and Third (2018-2022) Carbon Budgets, and 0.2 million tonnes for the Fourth Carbon Budget (2023-2027)[9]. This represents no more than 0.1% of the UK transport emissions forecast over any of those periods.

Indirect Taxation

3.13 The reduction in car use as a result of the 12 projects reduces the amount of fuel burnt, thus reducing the fuel duty revenues expected. In addition, the increased spending on public transport fares reduces the expenditure on other goods that are subject to other indirect taxation (mainly VAT). This is counted as a negative benefit and accounts for -8% of the total.

Other Benefits

2.13 Other benefits include a reduced risk of accidents and improved journey quality and ambience due to developments such as new bus shelters, street lighting or segregated cycling lanes.

2.14 No particular trends emerged among the 12 schemes from analysing non-monetised benefits, such as security or affordability of transport, since schemes were quite varied. Some schemes demonstrated non-monetised benefits from improved journey quality, access to services, reduced severance and option values[10]. No significant adverse impacts were identified as likely consequences of the schemes.

8 Please read on: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47621/1358-the-carbon-plan.pdf

9 The total of the four Carbon Budgets does not add to the total CO_2 emission reduction because the appraisal period for some schemes goes beyond 2027.

[10] Option value is the benefit that people derive from having the choice of different transport options, even if they do not necessarily use them. For instance, a car driver will derive benefits from having a bus route running from his house to his workplace as a contingency mode of travel in the event that he cannot use his car.

4. Submitted Appraisals and Scrutiny - Details

Business cases submitted

4.1 As outlined above, the bids varied in their approach to proportionality of appraisal and to presenting cost benefit analysis. The range of benefits that bidders chose to quantify and the methods for doing so varied considerably.

4.2 If a promoter chose not to estimate some of the potential benefits of their scheme this does not necessarily imply that such benefits would be immaterial.

4.3 For example, one business case relied entirely on the decongestion benefits resulting from their traffic model. The reduction in car traffic was well evidenced and generated a very high BCR. In addition, their proposal included improvements to their public transport offer which could have easily been demonstrated to significantly improve journey quality and other elements that are likely to result in improved health. But, under the proportionality guidance, the promoter chose not to report these (and saved the costs of estimating them).

4.4 Table 4.1 below provides more detail on the methodologies used and the range of benefits estimated as part of the submitted business cases.

Appraisal Scrutiny

4.5 As suggested above, the underlying assumptions as well as the models used were comprehensively scrutinised. Where necessary, clarification questions were issued to local authorities and appropriate adjustments were then applied to the submitted appraisals.

4.6 Bidders had to make assumptions on how effective the various elements of their proposals would be in order to complete their business cases. Analysts in the Department compared the approaches and supporting evidence between different bids and to existing evidence, especially from the sustainable travel towns report[11] but also others, for example on the value of quality factors in the bus market[12]. Assumptions included such

[11] Sloman et al. (2010) The Effects of Smarter Choice Programmes in the Sustainable Travel Towns: Summary Report to the DfT. Available at http://webarchive.nationalarchives.gov.uk/20111005180138/http://assets.dft.gov.uk/publications/the-effects-of-smarter-choice-programmes-in-the-sustainable-travel-towns-summary-report/summaryreport.pdf

12 DfT (2009): 'The Role of Soft Measures in Influencing Patronage Growth and Modal Split in the Bus Market in England' , available on: http://assets.dft.gov.uk/publications/role-of-soft-factors-in-the-bus-market-in-england/report.pdf

details as: how many new cyclists would have otherwise driven a car or how passengers value real time information provided at bus stops.

4.7 Where assumptions were considered to be optimistic, given the evidence provided, adjustments were made. Where possible, these were based on sensitivity tests provided by local authorities or, if not available, they were based on other evidence sources.

4.8 Table 3.1 provides some more detail on the scrutiny undertaken and provides some examples of the adjustments made as a result.

4.9 For all proposals, a consistent optimism bias[13] rate of 44% was used reflecting the planning stage these schemes were considered to be at, given the short period between announcement of the Fund and submission of bids.[14]

4.10 As a result of Ministerial decisions, a number of schemes were only partially awarded the Departmental funding sought. Where it was clear which element was to be excluded from the scheme, the benefits of that element were removed. Where the decision on how to accommodate the funding reduction was left to local authorities, benefits were adjusted in proportion to the funding shortfall, leaving the BCR unaffected. In reality it might be expected that less effective scheme elements are withdrawn, thus raising the BCR.

4.11 It is important to note that it was not possible in the time available to come to a coherent 'best view' of the likely BCRs and value for money of all the proposed schemes. The Department's analysts were not always able, for example, to establish estimates of benefits for which the promoters decided not to provide monetary values. The primary focus was to establish a reasonable lower bound of benefits to avoid funding bids that might fail to provide at least medium value for money.

[13] Optimism bias reflects the tendency for systematically underestimating costs and overestimating benefits in the earlier phases of business case development. It gets added to the otherwise best estimate of costs. The Department's transport modelling guidance WebTAG sets recommended standard rates depending on type of scheme and stage of business case development.

[14] Local Authorities were unlikely to have received cost estimates from contractors, achieved required planning permission or transport orders etc.

Table 4.1: Summary of appraisal methods and Departmental scrutiny		
Type of Benefit	**Method of estimation by local authorities**	**Department's scrutiny and adjustment**
Decongestion (Travel time, vehicle operating costs, carbon emissions, noise/air quality and indirect taxation)	To estimate the decongestion benefits from reducing car use forecast to result from their proposal, most promoters relied on existing local transport models which would model the equilibrium responses to the reduction in demand. The results were then inputted into TUBA software[15] to obtain a monetised estimate of time savings, changes to vehicle operating costs and carbon emissions.	Modellers within the Department assessed the models used for their compliance with WebTAG. On one occasion the model used was not found to provide reliable estimates of decongestion benefits and analysis based on WebTAG decongestion rates was used to estimate benefits instead. Several proposals included the introduction of signal priority for late running buses. One appraisal worked out the full benefits to bus passengers but assumed no dis-benefit to other road users. Other scheme promoters either did not estimate the benefits or allowed for a small delay imposed on other traffic. As no clear evidence on this issue was put forward, we requested additional sensitivity tests from the relevant promoter. The final assessment was based on those results. Scrutiny of 'standard' appraisal assumptions, such as annualisation factors and optimism bias rates, was undertaken. Where appraisals did not have strong evidence or, for example, excluded benefits for certain time periods, an adjustment was made to reflect this.
Wider Economic benefits	One of the bids for funding was supported by an analysis of job creation based on the change in commuting trips within the model outputs.	As the analysis was generally not well evidenced, a 10% uplift to business user impact was applied to represent the benefit from increased competition in less that perfectly competitive markets. This is common practice for schemes where explicit modelling of wider impacts is missing.
Health and Absenteeism	Only five appraisals included monetised estimate of health benefits from more active travelling. These were based on the World Health Organisation's HEAT tool also embodied within WebTAG. For one scheme they represent 22% of the total benefits. Only three of the five went further to also estimate the benefit increased activity levels have through reduced absenteeism. Again, these followed WebTAG.	Generally, the analysis supporting these benefits was found to be sufficiently evidenced. The methods in WebTAG are fairly clear and no problems were found in their application.

[15] TUBA (Transport Users Benefit Appraisal) is a computer program developed for the Department to undertake an economic appraisal for a multi-modal transport study. Available at https://www.gov.uk/government/publications/tuba-downloads-and-user-manuals

Journey Quality	Only half the bids included estimates of Journey Quality benefits, although most proposals contained some elements that would be expected to generate these. The approaches used included the WebTAG guidance on unimodal appraisal for journey quality benefits for cyclists and pedestrians, while benefits for bus users were typically modelled through the mode constant[16].	The use of WebTAG was scrutinised with no significant concerns arising. Where mode constants were being adjusted, evidence on, for example, the quality elements proposed were compared to existing evidence on passengers' valuation of such elements[17]. In one case where significant benefits were claimed for bus quality, the final assessment excluded all of those benefits. This does not mean the proposals are unlikely to significantly improve the journey experience of a large number of users; but this conservative approach addressed the risk that users might not fully distinguish the quality gain in a package delivering so many other related improvements (and the scheme provided high value for money even in the absence of quality benefits).
Road safety	All but two submitted appraisals included monetary estimates of the impact their schemes would most likely have on accidents. These were in general small and a result of reduced traffic flows. They were estimated using traffic model outputs or the decongestion rates approach. For one scheme, safety disbenefits were expected. This is due to a significant redesign of the road network proposed that would significantly benefit non-car modes but would involve more complex vehicular movements.	The road safety benefits were typically a small proportion of the overall benefits and were in line with expectation. As their estimation is directly linked to the estimation of decongestion benefits, no further scrutiny was undertaken.

[16] In transport models the mode constant reflects aspects of traveller's preferences that are not represented by time or money cost.

17 DfT (2009): 'The Role of Soft Measures in Influencing Patronage Growth and Modal Split in the Bus Market in England' , available on: http://assets.dft.gov.uk/publications/role-of-soft-factors-in-the-bus-market-in-england/report.pdf

4.12 Table 4.2 provides a comparison of estimated costs and benefits as submitted and the final ones concluded by the Department's analysts.

Table 4.2 : Costs (PVC) and Benefits (PVB) in £'000 as submitted and adjusted by the Department

	Submitted			Adjusted		
	PVB	PVC	BCR	PVB	PVC	BCR
South Yorkshire	200,929	28,576	7.0	204,630	30,176	6.8
Manchester	476,815	109,354	4.4	401,777	105,734	3.8
Hertfordshire	107,869	20,445	5.3	137,874	19,975	6.9
Nottingham	120,280	26,943	4.5	206,073	26,404	7.8
Bristol	455,160	74,525	6.1	493,820	74,525	6.6
Merseyside	164,796	12,331	13.4	62,182	14,777	4.2
Reading	355,137	20,139	17.6	68,585	18,720	3.7
Surrey	91,095	23,296	3.9	105,361	27,880	3.8
South East Dorset	311,978	16,202	19.3	31,720	15,300	2.1
Telford & Wrekin	27,751	6,822	4.1	12,390	6,635	1.9
West Midlands	473,259	45,289	10.4	157,037	45,289	3.5
South Hampshire	286,970	33,766	8.5	306,964	42,281	7.3
Total	**3,072,039**	**417,687**	**7.4**	**2,190,285**	**428,598**	**5.1**

General Assumptions

3.14 In addition to the assumptions discussed above, a number of more general appraisal assumptions have an impact on the estimation of BCRs. On balance, these are considered to be conservative.

Longevity of behaviour change initiatives

4.13 Bidders applied an average decay rate[18] of 33% to the impacts of soft measures (such as travel planning). This implies that benefits of such interventions fall by over half within two years after funding ceases and less than 10% lasts beyond the fifth year.

4.14 On the one hand, it is clear that measures, such as school travel planning, are unlikely to have lasting impacts once the cohort of students receiving the training has left the school. Similarly when people move jobs or home, the benefits of previous personalised travel planning is diminished.

4.15 On the other hand behaviour change could lead to new habits forming or, for example, 'peer pressure' or 'role modelling' that results in a different travelling culture being established at a school or workplace.

4.16 In the absence of a clear evidence base on the longevity of impacts, the bids have used conservative assumptions here.

[18] Decay rates refer to rate of deterioration of the effects of a particular measure. 33% suggests that within one year of receiving personalised travel planning or other 'smarted choices' treatment, one third of respondents 'forget' what they learned and revert to their original behaviour.

Appraisal Period

4.17 The appraisal periods used in Large Projects varied from 10 to 60 years with an average across the 12 bids of 38 years. The choice of appraisal period is based on the likely lifetime of the asset created by the project. For road or rail infrastructure the usual choice is 60 years while public transport of smarter choices projects often use significantly shorter appraisal periods.

4.18 Considering that effects of smarter choices only affect the earlier years of the appraisal due to decay assumptions (see above), the appraisal periods used were judged to be sufficiently conservative.

5. Conclusion

5.1 The analysis summarised in this paper concludes that the 12 large schemes funded under the Local Sustainable Transport Fund are jointly expected to deliver about five pounds of benefits for each pound invested by local and central Government. On balance this would appear to be a conservative estimate and the upside risks are more substantial than the downside ones.

5.2 At an individual scheme basis, the estimated benefit cost ratios vary between two and eight. With all the non-monetised impacts being positive as well, all the schemes are judged to provide high or very high value for money.

5.3 While this conclusion is based on ex ante appraisal information, it is in line with previous evidence from the evaluation of sustainable transport initiatives.

5.4 The Sustainable Travel Towns evaluation report quotes a decongestion only cost benefit ratio of 4.5. The evaluation of the Cycling Demonstration Towns found that the health benefits alone exceeded costs two and a half times.

5.5 The twelve large LSTF schemes provide high value for money based on estimated decongestion benefits alone. This suggests that sustainable travel measures can be real alternatives to more traditional solutions to congestion problems.