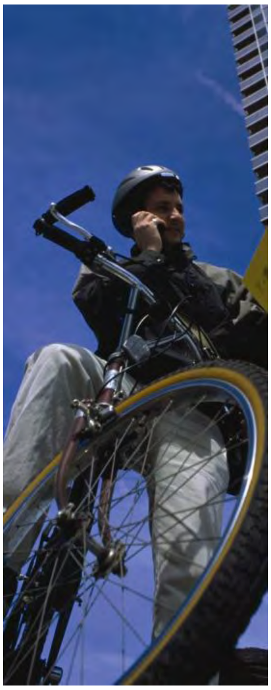
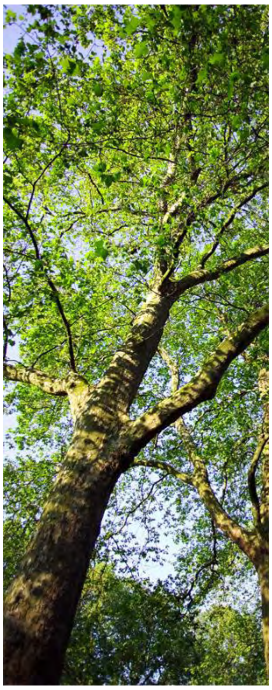
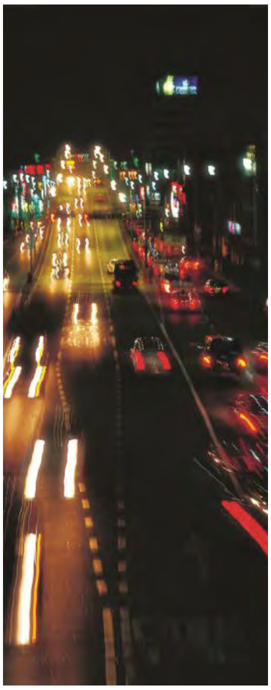
Appendix F:
Economic Appraisal Report

BIRMINGHAM CYCLE REVOLUTION

Birmingham City Council

Birmingham City Cycle Ambition Fund Bid

The Economic Case

April 2013
Birmingham City Council

Mott MacDonald

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Content

1. The Economic Case for the Birmingham Cycle City Ambition Grant application

1.1 Summary

The economic case for the Birmingham's Cycle City Ambition Grant application discussed in this report demonstrates that the proposed package of schemes has a compelling value for money (VfM) case. The economic case has been prepared in line with the bid guidance and follows the approaches set out in WebTag 3.14.1 for cycling schemes. It captures, using a variety of evidence bases including local Birmingham case evidence, the following individual economic benefits which are discounted to 2010 and reported in 2010 prices as required by WebTag 3.5.6:

- *Journey ambiance benefits*. This quantifies the infrastructure and environmental quality of the proposed cycle routes. It also reflects the extent to which safety concerns about cycle travel are addressed to make the proposed new and improved cycle routes attractive to encourage cycling as an alternative to motorised travel. In this economic case, the benefits attributable to journey time ambiance are significant and are estimated to be £49m over the economic life for the infrastructure schemes.
- *Mortality benefits.* This is normally a significant impact of cycling interventions. Cycling schemes such as those proposed in this application increase physical activity which in turn improves health and reduces mortality in all age groups within the population. In this assessment mortality benefits account for £29m of the total benefits of the Birmingham Cycle City Ambition Grant application. The estimation of these benefits has been carried out in line with the World Health Organisation HEAT methodology.
- *Absenteeism benefits.* Improved health will naturally reduce short-term illness which accounts for roughly 95% of all absences from work. The economic benefits gained through the contribution of absenteeism benefits from the cycling interventions are business benefits and are estimated at £3m in this assessment.
- *Accident benefits*. Increased cycling tends to increase the number of cycling related accidents but reduces road accidents proportional to any reductions in distance by motorised travel. The rate of increase of cycling accidents does, however, reduce as an increase in cycling levels is achieved. Nevertheless cycling accidents produce negative benefits for cycling schemes. For the extensive package of measures for Birmingham, accident benefits are estimated at -£5m, a disbenefit.
- *Environmental benefits.* Implementation of the proposed cycle schemes within the application is expected to produce an element of mode shift from motorised travel. The benefits arising from reduced carbon emissions have been quantified to be less than £1m of benefits. The mode shift forecasts have not been assessed for journey time impacts on motorised travel.

The Present Value of Cost (PVC) for the package of schemes is **£24.7m** discounted to 2010 and in 2010 prices including optimism bias. Taken together with the total Present Value of Benefits (PVB) of **£76m** for the Birmingham cycling infrastructure schemes and supporting schemes this produces a **benefits-to-cost ratio (BCR) of 3.08**. This represents High Value for Money according to the Department for Transport value for money criteria.

1.2 Estimating Demand for the Birmingham Cycle Schemes

The package of schemes includes main and parallel cycle routes through four quadrants within Birmingham, Birmingham City Centre schemes, and a series of supporting measures. All these schemes have an impact on cycling demand within Birmingham and will generally shift demand from motorised travel. In order to assess the level of existing cycle network usage and the level of forecast demand, a number of key data sources and evidence bases were used. The evidence base includes the following:

a. Household interviews carried out by Mott MacDonald between 2009 and 2012[1]. Among other useful data, the cycling household interview report provides the number of bicycles per household for Birmingham and the average cycle trip length/distance by trip purpose. Analysis of this data provided an estimation of existing cycling demand in Birmingham and what proportion of this were commute trips. Average cycle trip length was also calculated from this data as 3.7km to allow sensible route lengths to be used in estimation of benefits.

b. Cycling Demonstrations Towns report for the DfT[3]. This report provides a summary of evidence on changes in cycling and physical activity in six towns following the first phase of the Cycling England / Department for Transport Cycling Demonstration Town investment programme between October 2005 and March 2009. The outcomes of this study were used, together with other data specific to Birmingham, to estimate the expected level of cycling demand changes. This stands at 27%, which is consistent with the demonstration towns report.

c. Cycling trends in Birmingham report[2]. This report provides information of current overall levels of cycling Birmingham and the general trend of cycling levels from 2005 to 2010. Accident levels involving cyclists are also analysed and trends developed in this report. This source of data has been used to develop, together with the other data sources discussed, the levels of cycling in Birmingham and establish the background growth in cyclists within the Birmingham area. An annual growth of 11% in cyclists has been registered between 2008 and 2011.

From the household interview data, it has been established that 6% of households in Birmingham own and use a bicycle. However, as the frequency of cycle usage is not available in that data, the household interview data has been supplemented by other sources of evidence such as the Cycling Trends report and the Cycle England report[3] in order to establish the likely frequency of cycle trips. From that analysis, it is estimated that on average there were 5,393 trips made every weekday in 2012. This forms the basis of the demand forecasting in this appraisal.

The background cycling growth of 11% is only assumed to the implementation of the schemes in 2016; thereafter the background growth is assumed to be zero in order to avoid overestimation of benefits. The breakdown of cycling trips by Birmingham area is shown in Table 1.1 below:

Table 1.1: Daily cycle trips (2016)

Birmingham area	Proposed new or improved infrastructure	Estimated daily existing users	Forecast daily users with interventions	New demand (no. of cyclists)
North Birmingham	59.7km	2,219	2,818	599
East Birmingham	30.4km	1167	1,482	315
South Birmingham	58.9km	2,190	2,781	591

[1] Cycle and Walk Trips Analysis using PRISM Household Survey Data, Mott MacDonald, 2013.

[2] Cycling Trends in Birmingham Technical report, SUSTRANS, 2011

[3] Analysis and synthesis of evidence on the effects of investment in six Cycling Demonstration Towns, DfT Report, 2009, Cycle England

Birmingham area	Proposed new or improved infrastructure	Estimated daily existing users	Forecast daily users with interventions	New demand (no. of cyclists)
West Birmingham	34.4km	1279	1,624	345
City Centre	28.0km	1041	1,322	281
TOTAL	212.4km	7,896	10,027	2,132

The assumption underpinning the forecast demand is that, with the new interventions in place, demand will adjust in line with other cycling schemes at an overall rate of 27% which is in line with the conclusions and observations from the Cycling Demonstration Towns report and Birmingham Cycling Trends[2] report. The cycle routes will be maintained and a cost for this is included in the appraisal. Therefore, it will be assumed that the increase in cycling is maintained over the appraisal period of the package of schemes, i.e. there is no decay in the usage of the schemes over this period.

The impact of the supporting measures has been included in the estimates of cycling level growth above – the evidence base used to derive the increase in cycling does include some supporting measures such as those proposed here. The scale of the supporting measures for Birmingham is wider and, therefore, the estimation of benefits must be seen as conservative. The supporting measures include the following:

- Public cycle parking facilities. Installation of Sheffield style cycle parking stands or cycle hoops affixed to existing street furniture. This also includes accompanying public cycle pump/tool stations at key locations. These measures are applied to all Birmingham cycling areas.
- Private cycle parking facilities. These include grant awards and/or direct cycle stand installations with an optional canopy for all day commuter parking where needed.
- Brompton docks. This includes the installation of automatic locker based dispensers of Brompton folding bikes. These will be installed at Brindley Place, Eastside and New Street Station.
- Station cycle hubs. Extension of Centro Cycle Hub concept - Smart Card accessed secure roofed compound cycle park at suburban stations. This promotes bike and ride journeys and reduces cycle theft.
- 20mph zones. Various residential roads and possibly in local centres on main routes. This reduces excessive vehicle speeds, encourages more confident cyclists to take up a dominant position within the road.

The full costs of the supporting measures are included in the appraisals. No specific transport modelling has been carried out for these supporting measures and their individual impacts will be described only qualitatively elsewhere in the bid documentation.

1.3 Calculation of costs and benefits

1.3.1 Economic benefits

The economic benefits of the proposed cycle schemes are calculated based on a number of key data components which include, among others, the following:

- Existing number of cyclists in Birmingham
- Estimated number of cyclists when the new schemes are in place
- Number of commuter trips
- Average cycle trip lengths in Birmingham
- Car kilometres saved by the interventions
- Existing and forecast accident totals
- Nature of the schemes (length, secure parking availability, etc.)

For the purposes of the economic assessment it will be assumed throughout that the demand response to the new infrastructure throughout Birmingham will be similar, i.e. the increase in cycling per kilometre of new infrastructure, for example, will be the same throughout Birmingham.

1.3.2 Length of appraisal period

The proposed infrastructure has a long useful life and will be maintained. Maintenance costs are included in the costs for the scheme. In line with other cycling schemes, and the example case in WebTag 3.14.1, the appraisal period is 30 years. All benefits are discounted to 2010 and reported in 2010 prices as required by DfT guidance.

1.3.3 Rate of decay of users

Once the cycling infrastructure is in place, cycling demand is forecast to increase by around 27% as discussed above. The background increase in cycling in Birmingham is around 11% per year. In order to avoid overestimating benefits, this appraisal assumes that background growth in cycling of 11% per year is only reliable for the short term – beyond 2016 no background growth in cycling is assumed. Further, the response of 27% occurs at implementation of the schemes and no further mode shift is assumed beyond 2016. These assumptions allow a more conservative estimate of benefits to be made where reliability of existing evidence beyond the short-term is not well-supported or researched.

1.3.4 Scheme costs

The economic case development requires investment costs for design and construction together with operating/maintenance costs. The schemes for the Birmingham Cycle City Ambition Grant application have been specified for each scheme individually. In developing the economic case the costs are added together, optimism bias applied +15% (WebTag 3.5.9 Bicycle schemes), and the total adjusted to market value at +19%. The costs estimated and which will be paid by Birmingham City Council and Government are not subject to indirect taxation and are therefore expressed in the factor cost unit of account. Business costs and benefits are also assumed to be in the factor cost unit of account as businesses are free of indirect taxation because they can claim it back.

This is summarised in the table below.

Table 1.2: Summary of scheme costs

	Costs
Capital Costs (2013 prices)	£21,910,000
Maintenance/operation Costs	£990,000
Total Scheme Cost (unadjusted)	**£22,900,000**
Add Optimism Bias at +15% to Risk Adjusted Costs (WebTag 3.5.9)	£26,186,500
Scheme costs in market prices (i.e. +19%)	£31,161,935
Total Scheme Cost (discounted to 2010 and in 2010 prices)	**£24,685,759**

The total costs stand at **£24.6m** discounted to WebTag base year of 2010 and in 2010 prices.

1.4 Calculation of journey ambiance impacts for Birmingham

Journey ambiance benefits for the Birmingham cycle schemes are made up of changes in cycle route environmental quality, comfort and convenience as well as perceived safety improvements. These are impacts that are directly apparent to users and are subject to the rule-of-a-half in the calculations, i.e. current cyclists experience the full ambiance benefits of a new or improved scheme while the benefits experienced by new cyclists are divided by two. In estimating these benefits for the Birmingham schemes the following scheme parameters and assumptions have been taken into account:

- Length of route. Cyclists do not usually traverse the whole of a designated cycle route and will not complete the whole of the journey using the cycle infrastructure. In line with WebTag 3.14.1, for purposes of calculating journey ambiance benefits, all route lengths have been capped at the average cycle trip length for Birmingham. This has been calculated from household interview data as 3.7 km which, because of the urban nature of Birmingham, is shorter than and delivers more conservative estimates of journey time ambiance benefits than the NTS national average cycle trip length value[4] of 4.8 km.
- Infrastructure quality. A further consideration related to route length is the quality of the cycle infrastructure – whether it is new or an improvement of an existing cycle routes. For purpose of journey ambiance calculations, full ambiance rates are applied to new sections of a cycle infrastructure while only half the ambiance rates are applied to improved sections. This, again, is consistent with the appraisal guidance.
- Type of scheme (off-street, on-street, etc.). WebTag 3.14.1 prescribes a set of scheme types which are assigned specific ambiance values – for example, off-road segregated cycle tracks have 7.03p/min ambiance rate while shared bus lanes have a value of 0.77p/minute. These are given in Table 1.7 for reference. All the Birmingham schemes have been carefully assigned the most appropriate WebTag category. The types are shown in the list of schemes in Table 1.6.
- Secure parking. All routes have been assumed to have secure cycle parking areas- extensive security-enhancing measures have been proposed as part of the supporting measures for the Birmingham schemes. The appraisal of the proposed infrastructure takes all the associated costs of the supporting measures into account.
- Changing and shower facilities. It is assumed that all *commuting* cyclists have access to shower and changing facilities. However, because the supporting measures do not include specific changing and shower facilities, economic benefits associated with this component of journey ambiance have not been estimated, and are assumed to be zero.
- Existing and new demand. In line with WebTag 3.14.1 Para 1.7.1 the rule of a half has been applied to calculation of journey ambiance benefits with each new cyclist experiencing half the ambiance benefit of an existing cyclist. The levels of demand are summarised in the preceding section.
- Annualisation. Demand is given at daily levels and benefits are initially calculated at this level. In this appraisal, the annualisation factor used to convert journey ambiance benefits is 253 and reflects the number of working days in a year.
- Average cycle time on infrastructure. It is assumes that 95% of cyclists again use the infrastructure on the return trip. The total cycle time is therefore slightly less than twice the time taken to cover the route distance. This is consistent with WebTag 3.14.1 case study as well as the household interviews carried out for Birmingham.

[4] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/35600/nts0306.xls

Based on the above parameters and assumptions, Birmingham journey ambiance benefits have been calculated for all routes in the package of measures. The table below gives an example of parameters and calculation components of ambiance benefits using the *A47 Nechells Parkway Main Corridor*.

Table 1.3: Journey ambiance parameters and calculations

	Value
Route	A47 Nechells Parkway Main Corridor
Route length (km)	7.7
Average Trip Length (km)	3.7
Average Cycle Speed (km/hr)	20
Average cycle time (min)	20
Percentage of return trips	90%
Type of route	Off-road segregated cycle track
Journey ambiance rate for type of route (p/min)	7.03
Secure parking value (p)	98.14
Changing/shower facilities (p)	0
Existing cyclists per day	286
New cyclists	31
Proportion of commuters	63%
Average ambiance benefit per cyclist per day	**£2.39**

When all routes are taken into account the total level of journey ambiance benefits are £49m, discounted to 2010 and in 2010 prices over the full appraisal period.

1.5 Calculation of Mortality Benefits

Physical activity reduces the number of deaths in any age group. The calculation of benefits in this economic case follows the methodology developed by the World Health Organisation through research[5] carried out in 2007. That methodology is implemented in an accompanying model[6] available on the WHO website which has been used to validate the results of our appraisal. The benefits calculated here relate to reduced mortality only - absenteeism benefits are calculated separately. The benefits are calculated with WHO Copenhagen Study (which produced the HEAT methodology) as a base.

The table below summarises the various parameters and assumptions that have been used in the calculation of mortality benefits in this economic case. The calculations are based on the total number of new people that take up cycling as a result of the Birmingham cycling interventions.

[5] Quantifying the health effects of cycling and walking, 2007, World Health Organisation

[6] http://www.heatwalkingcycling.org/index.php

Table 1.4: Mortality benefits from increased cycling in Birmingham

MORTALITY BENEFITS CALCULATIONS	Value	Source/evidence
Mean cycle distance travelled in Birmingham (km)	3.7	Household interviews for Birmingham
Mean speed on route (km/hr)	20	National average cycle speed. Cycle England.
Proportion of user who make return trip	90%	WebTag 3.5.1 and Cycle England
Average days travelled on route per year	253	Working days
Mean distance travelled per year per cyclist (km)	1781	
Mean distance in HEAT reference study (Copenhagen) (km)	1620	HEAT manual
Relative Risk in HEAT reference study, of all-cause mortality	0.72	Heat Manual, WebTag 3.14.1
(1-Relative mortality risk) for Copenhagen	0.28	
(1- Relative Risk) for Birmingham	0.31	
Mean proportion of England & Wales aged 15-64 who die from all causes	0.00174	Office of National Statistics, 2011
Increase in cyclists	2,132	
Expected deaths in this population	3.7	
Lives saved in 1 year in Birmingham as result of interventions	1.14	
Cost of life (2010 prices)	£1.654m	WebTag, DfT Highways Econ Note 1
Reduced mortality annual benefits (2010 prices) – One year, undiscounted	**£1,893,208**	
Mortality benefits (full horizon, discounted)	**£29m**	

The calculation of mortality benefits is not subject to rule-of-a-half (a requirement of WebTag 3.14.1 Para 1.8.9) and the outputs have been validated against HEAT estimates and shown to be similar. A common concern in relation to mortality benefits is that any increase in cycling may be offset by a corresponding reduction in other forms of activity, i.e. there calculated benefits may actually exaggerate the positive health impacts of cycling overall. However, the Cycling Demonstrations Towns[3] study confirmed that this is not the case - in that study the overall proportion of inactive people fell when the cycle schemes were implemented. The same expectation is assumed for the Birmingham cycle schemes.

1.6 Calculation of Absenteeism Benefits

Cycling interventions increase physical activity which in turn improves health and reduces short-term absences from work due to ill health. These are business benefits as they relate to work absences. The method applied to quantify these benefits is that set out in WebTag 3.14.1 Section 1.9 which has been applied by TfL and others.

The evidence available suggests that short-term sick leave is reduced by a minimum of 6% and a maximum of 32% with a 30 minutes exercise per day (WHO, 2003). The current average number of days lost to sickness in the UK[7] is 4.6 days – 95% of these are categorised as short-term. The table below summarises the benefit calculation for absenteeism benefits.

[7] Sickness Absence in the Labour Market, April 2012, ONS - http://www.ons.gov.uk/ons/rel/lmac/sickness-absence-in-the-labour-market/2012/rpt-sickness-absence-in-the-labour-market---2012.html#tab-Sickness-absence-in-the-UK-labour-market

Table 1.5: Absenteeism benefits from increased cycling

Item	Value	Evidence/Source
Average sick leave in UK)	4.6 days	ONS, 2011
Short-term short leave proportion	95%	ONS,2011
Short-term sick leave (days)	4.4 days	
Reduction in short-term illness due to cycling	19%	Mid-range of WHO, WebTag 3.14.1 values
Average absenteeism days saved per new cyclist	0.83 days	
Average gross salary (£)	26,500	ONS, 2011
Annual benefits per cyclist (£)	87	
New cyclists following interventions	2,132	
Total Annual Benefits (£)	£185,401	
Full appraisal horizon benefits (2010, discounted)	**£2.9m**	

Calculation of absenteeism benefits has not been subjected to the rule of a half; WebTag requires that these are treated this way so that they are consistent with the treatment of other benefits from improved levels of health and accident costs.

1.7 Calculation of accident benefits

Changes in numbers of accidents following implementation of the schemes have been quantified in monetary terms. Accidents benefits are made up of the following two components:

- Cycle-related accident changes following any increases in cycle usage due to the proposed new schemes. As observed above the proposed infrastructure is forecast to increase cycling demand which will, all things being equal, increase the number of accidents involving cyclists although the rate of cycling-related accidents reduces with increasing number of cyclists.
- The increase in accidents has been calculated in line with WebTag 3.14.1 and is estimated as 3.5% above the base year values. This takes account of background accident changes, and the proportion of infrastructure that is off-street.
- Accident changes for motorised modes due to mode shift effects to the new/improved cycling infrastructure. It is assumed in this work that the increase in cycling that the schemes produce come from model shift from motorised travel. The reduction in car kilometres is therefore used as the basis for calculating changes in road accidents.

1.7.1 Cycle-related accident benefits

Accident benefits due to increased cycling levels		
Base accident level (all accidents 2010)	177	Birmingham cycling trends report
Background change in accidents	-1%	Birmingham cycling trends report
Forecast increase in cycling	20%	
Accident elasticity parameter	0.40	WebTag 3.14.1 Para 1.6.7
Proportion of off-street infrastructure	47%	
Increase in accidents	4.8%	Takes account of off-road
Forecast accident level (after schemes)	186	
Average accident value for pedal cyclist (2010)	44,810	Highway Economics Note 1
Annual accident benefits per year (£)	**-£382,509**	

Essentially the proposed package of schemes is likely to increase cyclist-related incidents. This simply follows the fact that there will be more cyclists using the cycle network which makes use of road space. Accidents contribute negatively to overall economic benefits of the schemes.

1.7.2 Motorised accident benefits

Accident reductions from motorised travel will arise where total travel is reduced. The increase in cycling reduced motorised travel by 1million kms. By applying published accident rates in the UK, this reduction in kms is equivalent to a reduction in road accidents of 0.5 accidents. Taken over the appraisal horizon of the Birmingham schemes this produces economic benefits of £43k annually.

Accident benefits due to reduced motorised travel		
Total annual accidents in the UK (2003)	188,342	Need to update
UK annual motorised km per accident (2003)	2,086,630	Need to update
Reduction in road kilometres following cycle scheme implementation	1,997,759	
Reduction in accidents in Birmingham	0.00051%	
Reduced accidents	0.96	
Average accident value all road users (2010)	44,920	Highway Economics Note1
Annual motorised accident saving (£)	£43,007	
Total annual accident benefit	-£339,502	
Total benefits (full appraisal period, discounted)	-£5.2m	

Taken together with increase cycle-related accidents discussed above, the overall accident dis-benefits are estimated as -£5.2m.

1.8 Environmental Benefits

The environmental benefits calculated for the Birmingham cycle schemes relates to carbon reductions due to reduced motorised travel only. This is calculated in line with DfT guidance and covers the full appraisal period which has been set at 30 years.

Carbon emissions benefit		Source / Evidence
Increase in cyclists	2,132	Demand forecast
Average kms per day for cars	3.7	Household interviews
Annualisation	253	
Reduction in number of kms	1,997,759	
Average speed (km/hr)	40	
Environmental benefits per year (£)	15,994	
Total benefits (over full appraisal period)	**£0.2m**	

The contribution of environmental benefits to the overall economic benefits of the scheme is very small and accounts for £0.2m of the overall benefits.

1.9 Summary of Costs and Benefits (discounted to 2010)

Analysis of Monetised Costs and Benefits	
Scheme capital and maintenance cost	£24,685,759
(includes Optimism Bias)	
Public Accounts PVC	£24,685,759
Consumer Users TEE (congestion)	-
Greenhouse gases	£246,729
Physical activity	£29,205,421
Journey quality	£48,883,270
Reduced Absenteeism	£2,860,072
Accidents	-£5,237,298
Tax Revenue (loss of)	-
Present Value of Benefits	£75,958,195
Benefit to Cost Ratio (BCR)	3.08

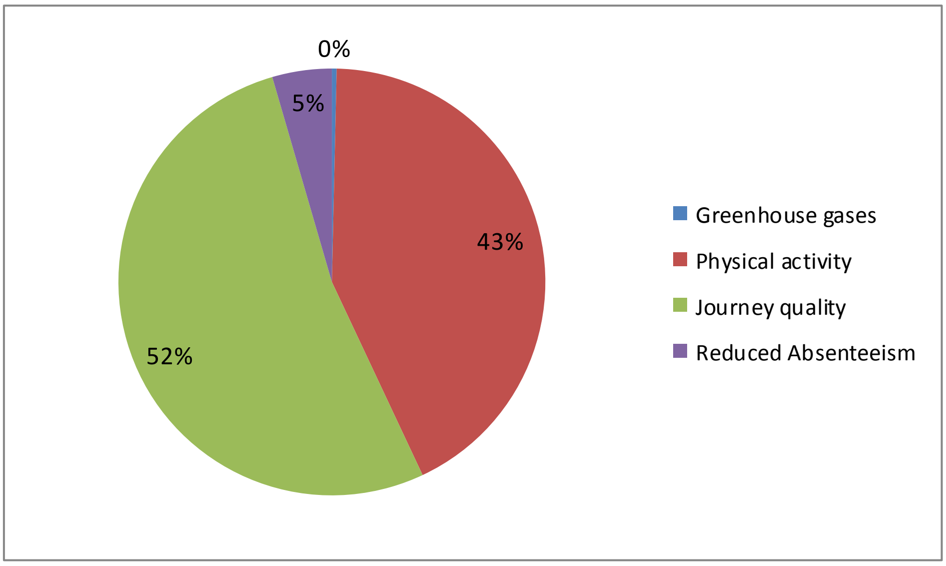

Table 1.6: Proposed cycling schemes

	ROUTE	REF	ROUTE LENGTHS 2016 (km)		CAPITAL COST	Type of Scheme	TOTAL BENEFITS (discounted to 2010)	TOTAL COSTS (with optimism bias and discounted)
			NEW	IMPROVED				
	NORTH BIRMINGHAM							
1	Birchfield Road Parallel Route #1	A	5.8	2.1	£243,000	On-road non-segregated cycle lane	£2,531,876	£301,439
2	River Tame Way	RT	2.2	3.2	£455,000	Off-road segregated cycle track	£2,273,841	£564,423
3	A34 Birchfield Road Main Corridor	12	6.1		£560,000	Shared bus lane	£1,913,350	£694,675
4	Birchfield Road Parallel Route #2	B	3.8		£165,000	On-road non-segregated cycle lane	£1,781,743	£204,681
5	North Birmingham Route	NB		3.0	£38,000	Off-road segregated cycle track	£1,169,133	£47,139
6	Deykin Avenue (North Birmingham Route) to Bevington Road and Moor	C	2.5		£271,000	On-road non-segregated cycle lane	£1,106,927	£336,173
7	Gravelly Hill Parallel Route #1	D	2.9		£200,000	On-road non-segregated cycle lane	£1,314,671	£248,098
8	A5127 Lichfield Road / Gravelly Hill Main Corridor	1	6.2		£530,000	Shared bus lane	£1,931,044	£657,460
9	Canal Route North-East (1)	BF		8.5	£1,115,000	Off-road segregated cycle track	£2,419,664	£1,383,147
10	Gravelly Hill Parallel Route #2	E	2.8		£185,000	Off-road segregated cycle track	£1,544,984	£229,491
11	Lichfield Road Parallel Route	F	2.9		£240,000	On-road non-segregated cycle lane	£1,314,671	£297,718
12	A47 Nechells Parkway Main Corridor	2A	7.7		£415,000	Off-road segregated cycle track	£3,784,063	£514,804
13	North Birmingham Supporting Measures	SM(N)			£670,000			£831,129
			42.9	**16.8**	**£5,087,000**		**£23,085,967**	**£6,310,375**
	EAST BIRMINGHAM							
14	A47 Nechells Parkway Main Corridor	2B	3.0		£95,000	Off-road segregated cycle track	£1,692,848	£117,847
15	Nechells Parkway Parallel Route	G	4.5		£259,000	On-road non-segregated cycle lane	£1,956,322	£321,287
16	Canal Route North-East (2)	GU & TV		5.0	£540,000	Off-road segregated cycle track	£1,766,756	£669,865
17	B4128 Bordesley Green Main Corridor	3			£0			
18	Bordesley Green Parallel Route #1	H			£0			
19	Bordesley Green Parallel Route #2	CV	2.3	4.3	£1,000,500	On-road non-segregated cycle lane	£1,922,286	£1,241,111
20	A45 Coventry Road Main Corridor	4			£0			£0
21	Coventry Road Parallel Route	I	3.0		£230,500	On-road non-segregated cycle lane	£1,367,927	£285,933
22	Canal Route South-East	GU		7.0	£675,000	Off-road segregated cycle track	£2,139,846	£837,331
23	Warwick Road Parallel Route	(GU)		Inc	£0			£0
24	A41 Warwick Road Main Corridor	J	2.3		£195,000	On-road non-segregated cycle lane	£1,006,225	£241,896
25	East Birmingham Supporting Measures	SM(E)			£670,000			£831,129
			15.1	**16.3**	**£3,665,000**		**£11,852,210**	**£4,546,397**
	SOUTH BIRMINGHAM							
26	Stratford Road Parallel Route	CV	2.2	5.8	£764,500	Off-road segregated cycle track	£2,758,859	£948,355
27	A34 Stratford Road Main Corridor	K		7.1	£254,000	Off-road segregated cycle track	£2,158,501	£315,085
28	Alcester Road Parallel Route #1 (Alcester Road to Stratford Road	L	5.4		£11,000	On-road non-segregated cycle lane	£2,180,781	£13,645
29	A435 Alcester Road Main Corridor	6	4.8		£430,000	Off-road segregated cycle track	£2,673,011	£533,411
30	Alcester Road Parallel Route #2	M	4.1		£256,000	On-road non-segregated cycle lane	£1,856,563	£317,566
31	Pershore Road Parallel Route	RV		6.5	£55,000	Off-road segregated cycle track	£2,046,574	£68,227
32	A441 Pershore Road Main Corridor	7			£0			
33	A38 Bristol Road Main Corridor	8		7.7	£850,000	Off-road segregated cycle track	£2,270,428	£1,054,417
34	Canal Route South-West	WB		9.0	£2,565,000	Off-road segregated cycle track	£2,512,937	£3,181,858
35	Bristol Road Parallel Route	N	3.6	2.7	£34,500	On-road segregated cycle lane	£2,058,271	£42,797
36	Chad Valley Route	CH			£0			
37	South Birmingham Supporting Measures	SM(S)			£670,000			£831,129
			20.1	**38.8**	**£5,890,000**		**£20,515,924**	**£7,306,488**
	WEST BIRMINGHAM							
38	B4124 Harborne Road Main Corridor	9A	3.3		£435,000	On-road non-segregated cycle lane	£1,530,866	£539,613
39	Hagley Road Parallel Route #1	O	3.2		£703,000	On-road segregated cycle lane	£1,477,846	£872,065
40	A456 Hagley Road Main Corridor	9B			£0			
41	Hagley Road Parallel Route #2	HW	0.8	3.8	£87,000	Off-road segregated cycle track	£1,849,398	£107,923
42	Canal Route North-West (NCN5)	BM		4.5	£1,185,000	Off-road segregated cycle track	£1,673,483	£1,469,981
43	A457 Dudley Road Main Corridor	10			£0			
44	Dudley Road Parallel Route	P	7.5	0.5	£80,000	On-road non-segregated cycle lane	£2,764,360	£99,239
45	A41 Soho Road Main Corridor	11	4.8		£685,000	On-road segregated cycle lane	£2,034,304	£849,736
46	Soho Road Parallel Route #1	Q	5.0		£98,000	On-road non-segregated cycle lane	£2,081,021	£121,568
47	Soho Road Parallel Route #2	R	1.0		£75,000	On-road non-segregated cycle lane	£403,156	£93,037
48	West Birmingham Supporting Measures	SM(W)			£670,000			£831,129
			25.6	**8.8**	**£4,018,000**		**£13,814,433**	£4,984,290
	CITY CENTRE							
49	Canal Route City Centre	DB		3.5	£220,000	Off-road segregated cycle track	£1,418,686	£272,908
50	City Centre Links	CC	11.6	12.9	£700,000	On-road non-segregated cycle lane	£5,270,974	£868,343
51	City Centre Supporting Measures	SM(CC)			£320,000			£396,957
			11.6	**16.4**	**£1,240,000**		**£6,689,660**	**£1,538,208**

Table 1.7: Journey ambiance values/rates - WebTag 3.14.1 - Table 4 (2010 values)

Scheme Type	Value (p/min)
Off-road segregated cycle track	7.03
On-road segregated cycle lane	2.99
On-road non-segregated cycle lane	2.97
Wider lane	1.81
Shared bus lane	0.77
Secure cycle parking facilities	98.14
Changing and shower facilities	20.82