Birmingham Cycle Revolution: Phase 3

Economic Case

January 2015

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Contents

1 Introduction

This document sets out the economic case for Birmingham City Council's bid for funding for Birmingham Cycle Revolution Phase 3. It provides the detailed justification for the headline figures included in the main funding bid proforma.

Currently, significant elements of phases 1 and 2 of the CCAG project are in the process of being implemented on the ground. Monitoring data from schemes which have recently been implemented as part of the City Council's Local Sustainable Transport fund (LSTF) programme are indicating that similar measures to the ones being indicated as part of the CCAG project are contributing significantly to objective of increasing overall cycle usage. For example, before and after monitoring on Green Routes where improvements have been undertaken as part of the Bike North Birmingham LSTF project has indicated overall increases in cycling activity of approximately 25%. Similarly, before and after monitoring of the A38 Bristol Road corridor in south Birmingham, where cycle infrastructure improvements have been undertaken as part of the 'Smart Network, Smarter Choices' major LSTF scheme, have indicated increases in cycle usage of up to 29% at certain points along the corridor.

The approach to economic appraisal that we have adopted is essentially the same as that used in the successful Cycle City Ambition Grant (CCAG) bid to DfT in 2013 for the delivery of Phase 1[1] and to the Greater Birmingham and Solihull Local Enterprise Partnership for Phase 2[2]. It incorporates the various route improvements that are included in the Phase 3 package and updates various economic parameters in accordance with the latest version of DfT's WebTAG guidance[3].

Section 2 sets out the detailed methodology used for the calculation of the following impacts:

- Scheme costs
- Journey quality
- Mortality
- Absenteeism
- Road accidents
- Environmental impacts
- Indirect tax revenues

Section 3 provides a summary of the results.

[1] http://www.birmingham.gov.uk/cs/Satellite?c=Page&childpagename=Sustainable-Travel%2FPageLayout&cid=1223415457481&pagename=BCC%2FCommon%2FWrapper%2FInlineWrapper
[2] http://centreofenterprise.com/wp-content/uploads/2014/03/97-Business-Case.pdf
http://centreofenterprise.com/wp-content/uploads/2014/03/97-Business-Case-add-1.zip
[3] https://www.gov.uk/transport-analysis-guidance-webtag#guidance-for-the-appraisal-practitioner

2 Detailed methodology

2.1 Assumptions

The following subsections set out some of the general assumptions made in our appraisal methodology. Assumptions that are specific to particular impacts (for example, journey quality) are set out in the sections dealing with each impact.

2.1.1 Economic base year and discounting

WebTAG requires that the results of an economic appraisal are presented in 2010 prices discounted to 2010.
Where required we have adjusted the price base of all values to 2010 using the GDP deflator measure of inflation, as required by WebTAG Unit A1.2.
Discounting to 2010 has been done using a discount rate of 3.5% up to 2044 and 3.0% for the last 3 assessment years, as set out in Table A1.1.1 of the WebTAG data book[4].

2.1.2 Appraisal period

We have assumed that all Phase 3 schemes will be completed by 2018 (though some routes will be completed before then). In line with the assumption used by the DfT in the appraisal of the first phase of the Cycle City Ambition Grants we have assumed a 30 year appraisal period, from 2018 to 2047 inclusive.

2.1.3 Annualisation

Benefits have initially been calculated for a single weekday. These are factored up to a full year using an annualisation factor of 253 (the number of normal working weekdays in a year, i.e. excluding holidays). Weekends and bank holidays have not been explicitly included, thus giving a conservative estimate of benefits.

2.1.4 Cycle trip characteristics

Analysis of household travel diary surveys carried out in the West Midlands between 2009 and 2012 showed that the average length of a cycle trip is 3.7km[5].
An average cycling speed of 20km/h is used in the calculations, the figure obtained from Cycle England for the Phase 1 CCAG bid and detailed in DMRB Volume 11 Section 3 Part 8.

2.1.5 Demand forecasts

Analysis carried out for the Phase 1 CCAG bid estimated that, on average, 5,393 trips were made on an average weekday in Birmingham in 2012 and that this would increase by 11% a year (based on recent trends) up to 2016, giving 7,896 trips a day. Thereafter there would be no further increase unless cycling infrastructure was improved. For consistency, we have used the same basic assumption.

However, in recognition of the fact that Phase 2 was less extensive than Phase 1 (99.5 route kilometres compared with 212.4) we have reduced the number of cycle trips affected proportionally. This has been

[4] The discount rate drops to 3.0% after 30 years.

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

repeated for Phase 3, which includes a route of 107km and gives 4,569trips a day that benefit from the Phase 3 schemes. These trips have been split between the individual route corridors in proportion to the length of each corridor, as was done for the Phase 1 and 2 bids.

Also in line with Phases 1 and 2 we have assumed that completion of Phase 3 will increase cycling levels along the affected routes by 27%. That figure was taken from the Cycling Demonstration Towns report for DfT[6].

2.1.6 Impact on car traffic

A number of the benefit calculations depend on the reduction in car traffic (measured in vehicle kms) following a transfer from car to cycle.
To calculate this reduction we have made the conservative assumption that only 50% of new cycle trips transfer from car (the remainder being from public transport or walking, or are completely new trips) and that the average length of the car trip was 3.7km (i.e. the same as the average cycle trip length).

2.1.7 Summary of assumptions

Table 2.1: Summary of key assumptions

Item	Assumption
Appraisal period	2018-2047 inclusive
Average cycle trip length	3.7km
Average cycle speed	20km/h
Annualisation factor (single weekday to whole year)	253
Cycle trips per day over affected network	5,803
Increase in cycling due to Phase 3 schemes	27%
Discount rate	3.5% p.a.
Proportion of new cycle trips that transfer from car	50%

2.2 Scheme costs

The total cost of the Phase 3 routes is £30M (2014 prices). The predicted spend profile is:

Table 2.2: Spend profile

Year	£M
2015/16	2
2016/17	7
2017/18	21

[6] Analysis and synthesis of evidence on the effects of investment in six Cycling Demonstration Towns (2009). http://webarchive.nationalarchives.gov.uk/20120607215928/http://www.dft.gov.uk/publications/analysis-synthesis-of-evidence-on-investment-effects-in-six-cycling-demonstration-towns

The following adjustments were applied to these costs for the purposes of the economic appraisal, in line with the requirements of WebTAG Unit A1.2:

- Optimism bias of 15% was added
- Converted from factor costs to market prices by multiplying by the indirect tax correction factor of 1.19
- Adjusted to 2010 prices using the GDP deflator[7]
- Discounted to 2010

Together, these adjustments resulted in a present value of costs (PVC) of £30.10M (2010 prices, discounted to 2010).

2.3 Journey quality

Journey quality (previously referred to as journey ambiance in WebTAG) is defined as "*a measure of the real and perceived physical and social environment experienced while travelling*"[8]. In the context of cycling schemes it includes impacts relating to the fear of accidents[9], quality of the infrastructure being used and environmental conditions on the route (such as levels of noise and air pollution).
The WebTAG data book contains values for journey quality of various measures as follows:

Table 2.3: Value of journey quality benefit of cycle facilities, relative to no facilities (2010 prices & 2010 values)

Type of facility	Value (pence/minute)
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

Source: WebTAG data book Table 4.1.6

These values have been increased in real terms in future years by applying the real growth in GDP per capita set out in the WebTAG data book.

Each route improved was allocated to one of the five categories of cycle facility listed in the table above. The average time spent on the route by each cyclist was calculated using the length of the route[10] and the assumed average cycle speed. Multiplying this time by the appropriate value from the table above gives the journey quality benefit in monetary terms for each cyclist on the route.

However, Phase 3 includes improvement works not quantified in the table above. Over 30km of existing cycle route is proposed to be reconstructed using sealed surface to replace crushed stone materials. Although this is not creating a new off-road segregated cycle track there will be significant cycle time

[7] https://www.gov.uk/government/publications/gdp-deflators-at-market-prices-and-money-gdp-march-2013

[8] WebTAG Unit A4.1 https://www.gov.uk/government/publications/webtag-tag-unit-a4-1-social-impact-appraisal

[9] i.e. the *perceived* risk. The actual impact on accident numbers is appraised separately.

[10] For routes longer than 3.7km the distance travelled per user was capped at 3.7km, i.e. the average cycle trip length in Birmingham.

benefits perceived by cyclists. For the purpose of this analysis it was therefore assumed that a 2p/min value can be achieved from this improvement.

Further improvements include adding 23.5km of new signage and 4km of improved lighting to existing cycle routes. In order to quantify these improvements the values provided for pedestrians (shown in the table below) were applied.

Table 2.4: Values of aspects in pedestrian environment (2010 values and 2010 prices)

Scheme type	Value (pence/minute)	Source
Street lighting	3.8	Heuman (2005)
Directional signage	0.6	Heuman (2005)

Source: WebTAG data book Table 4.1.7

Following WebTAG guidance, the rule of a half was used to calculate total benefits, i.e. new cyclists on the route are assumed to receive half the benefit of existing cyclists. Daily benefits were then annualised, extended to the full 30 year appraisal period and discounted. This resulted in a present value of benefits (PVB) for journey quality of £11.9M (2010 prices, discounted to 2010).

2.4 Mortality and absenteeism (physical activity)

Mortality and absenteeism benefits both arise from the increase in physical activity that comes from more people using cycles to get around rather than motorised modes. This decreases their risk of a premature death (mortality) and results in their taking fewer sick days off work (absenteeism). The calculation of both impacts follows the guidance in WebTAG Unit A5.1, which in turn makes use of the Health Economic Assessment Tool (HEAT) developed by the World Health Organisation[11]. This is based on evidence from a reference study in Copenhagen.
We have adopted a conservative approach of only including benefits for new users.

2.4.1 Mortality calculations

Based on the average cycle trip length (including the return journey) and the annualisation factor we estimate that each cyclist in Birmingham cycles 1781km a year. This compares to 1620km in the HEAT reference study in Copenhagen.
In the HEAT study cycling 1620km a year reduces the annual mortality risk in the 15-64 age group by 28%. Following WebTAG guidance we extrapolated this based on the distances travelled to estimate a 31% reduction in mortality risk in this age group.
Based on the average all-causes mortality rate in England and Wales in this age group[12], a reduction in this rate of 31% for new cyclists, and 1234 new cyclists we estimated an average reduction of 0.89 deaths per year. Multiplied by the WebTAG value for a life saved of £1.64M (2010 values and prices), extending

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

[12] 0.00235 (or 2.35 per 1000 population) according to WebTAG

to the 30 year appraisal period and discounting resulted in a PVB for mortality benefits of £30.82M (2010 prices, discounted to 2010).

2.4.2 Absenteeism calculations

Following WebTAG, we assumed that each new cyclist has 0.4 fewer sick days per year. With an average wage of £25,116 per year[13] this gives an annual benefit per new cyclist of £836. Over the full appraisal period and discounted this resulted in a PVB for absenteeism benefits of £1.03M (2010 prices, discounted to 2010).

2.5 Car decongestion benefits

Any transfer of trips from car to cycle reduces congestion and provides a benefit to road users. Based on the assumptions set out in section 2.1.6 we estimated that the Phase 3 schemes will reduce car traffic by 578,061km a year.

To this figure we applied a decongestion benefit value of 29.7p per car km, obtained from Table A.5.4.2 of the WebTAG data book[14].

Over a full appraisal period and discounted this resulted in a PVB for car decongestion benefits of £3.62M (2010 prices, discounted to 2010).

2.6 Accident benefits

The appraisal of accident benefits was split into two parts:

- Accidents involving cyclists
- General road traffic accidents

The starting point for accidents involving cyclists was the Sustrans report 'Cycling Trends in Birmingham: Technical Report' (2011). This showed that between 2008 and 2010 there were an average of 236 cyclists a year injured in traffic accidents in Birmingham. In line with assumptions made elsewhere, we estimated that 119 of these were on routes that would benefit from the Phase 3 schemes.

22% of the new infrastructure from Phase 3 is off-road. We assumed a casualty rate of zero for cyclists on off-road routes, which reduced the annual casualty total to 93.04.

On the other hand, increased levels of cycling tend to lead to more cyclists involved in accidents. On the remaining on-road routes cycling levels were predicted to increase by 27%. Using an elasticity of casualties with respect to amount of cycling of 0.4 (WebTAG A4.1) gave an estimated increase in casualties of 10%.

The net result is a predicted 102.38 cyclist casualties a year, 16.3 fewer than without the Phase 3 schemes in place. Using the WebTAG value of £50,829 per cycling casualty (data book Table A4.1.2, 2010 values and prices) this resulted in an annual benefit of £827,928 (2010 values and prices). In practice this is likely to be an underestimate, as supporting measures such as the introduction of 20mph zones around the cycle routes should help to reduce accident rates further. Also, it does not take account of the positive impact on on-road accidents resulting from junction upgrades, including new cycle stages, and additional

[13] Figure from ONS, based on November 2014

[14] Specifically, this is the figure for 'Other roads' for the area type 'Inner and Outer Conurbations'

crossings, compared to having no special provision for cyclists. These measures are proposed at 7 locations.
For general road accidents we took the predicted reduction in car vehicle kilometres from section 2.5 and applied an accident benefit of 3.4p per car km (Table A.5.4.2 of the WebTAG data book interpolating for opening year 2018), giving an annual benefit of £19,538.
Over the full appraisal period, and after discounting, this resulted in a PVB for accident benefits of £17.85M (2010 prices, discounted to 2010).

2.7 Environmental benefits

Environmental benefits were also calculated using the predicted reduction in car vehicle kilometres, and the values per km in Table A.5.4.2 of the WebTAG data book. For 'Other Roads' in the area type 'Inner and Outer Conurbation' this gives the following values per km:

Table 2.5: Environmental benefits per car vehicle km reduced

Impact	p/km
Air quality	0.04
Noise	0.20
Greenhouse gases	0.84

Applied to the predicted reduction in car vehicle kilometres, and over the full appraisal period this gave the following PVBs:

Table 2.6: Environmental benefits per car vehicle km reduced

Impact	PVB (£)
Air quality	£3,381
Noise	£16,904
Greenhouse gases	£70,998
Total	**£91,283**

2010 prices discounted to 2010

2.8 Indirect tax revenues

Any transfer of trips from car to cycling leads to a reduction in government indirect tax revenues, mainly due to the loss of duty and VAT from petrol and diesel sales.
Table A.5.4.2 of the WebTAG data book gives a loss of 5.3p of revenue per car vehicle kilometre. Over the full appraisal period the loss of revenue had a present value of -£447,964 (2010 prices discounted to 2010).

3 Summary of results

The following table summarises the results of the appraisal, using the WebTAG standard Analysis of Monetised Costs and Benefits (AMCB) table.

Table 3.1: Analysis of monetised costs and benefits[15]

Noise	£	16,904
Local Air Quality	£	3,381
Greenhouse Gases	£	70,998
Journey Quality	£	11,882,178
Physical Activity	£	31,856,798
Accidents	£	17,851,545
Economic Efficiency	£	3,618,896
Wider Public Finances (Indirect Taxation Revenues)	-£	447,964
Present Value of Benefits (PVB)	**£**	**64,852,737**
Present Value of Costs (PVC)	**£**	**30,102,431**
OVERALL IMPACTS		
Net Present Value (NPV)	£	33,749,067
Benefit to Cost Ratio (BCR)		2.2

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

With the exception of the loss of government indirect tax revenues, and the cost of the scheme itself, the impacts are positive.

A BCR of 2.2 puts Phase 3 firmly in DfT's 'high' value for money category (defined as a BCR between 2.0 and 4.0).

[15] Individual rows may not sum exactly to the total due to rounding.

Appendices

Appendix A. Phase 3 Proposal Elements

BIRMINGHAM CYCLE REVOLUTION PHASE 3 (DfT Funding, CCAG Phase 2, 2015-18) NOTE: ..... = Link to Green Travel Districts (GTDs)

MAIN CORRIDORS

High-quality 'showcase' routes on main corridors, including a high degree of segregation from both pedestrians and vehicles and pedestrians, significant schemes at main junctions, and / or use of quieter parallel roads to avoid difficult junctions and pinchpoints where necessary.

The schemes will follow a 'Birmingham Connected' philosophy of roadspace reallocation, to ensure the needs of pedestrians and public transport are also considered. They will also link to the GTDs where possible.

The routes will include both enhancements to existing cycle facilities on some corridors but also measures on routes with no cycling provision at present.

A34 Birchfield Road to B4138 Kingstanding Road
City Centre to Kingstanding via Perry Barr 9.5km

A5127 Lichfield Rd / A38 Tyburn Rd / B4148 Walmley Rd
City Centre to Walmley via Salford Circus 11km

A45 Coventry Road
City Centre to Birmingham Airport via Small Heath 9km
(inc links into Solihull MBC)

A38 Bristol Road Corridor
City Centre to Longbridge via Selly Oak & Northfield 12.5km

B4124 Harborne Road to Ridgacre Road City Centre to Quinton via Harborne 7km

Further development work is needed to identify what is achievable. Assuming 30km of the 49.0km identified above is deliverable @ £500k per km the cost would be:

Works & Fees = £14.00m
Contingency = £1.00m

TOTAL COST = £15.00m

PARALLEL ROUTES

Parallel Routes

Local 'parallel routes' in and around each of the 10 Green Travel Districts (exc City Centre), providing local links to shopping areas, transport hubs.

Allocation of £175k per GTD = £1.75m total.

Works & Fees = £1.60m
Contingency = £0.15m

TOTAL COST = £1.75m

CITY CENTRE

City Centre

Any further routes or measures identified but not delivered under Phase 1, including cycle tracks in wide footways on Queensway and Ring Road

Works & Fees = £0.70m
Contingency = £0.05m

TOTAL COST = £0.75m

OTHER

Programme Management, Marketing & Promotion, Evaluation and Monitoring

TOTAL COST £0.75m

LOCAL LINKS

Local Links (GTD Area Pilot)

A pilot scheme consisting of minor measures within a residential area to improve connectivity and permeability to encourage short trips by cycling and walking.

Location for pilot to consist of a self-contained residential area of around 1.0-2.0 square kilometres – linking to a GTD, proposed or existing main corridor and / or off-road cycle routes, and including its own local shops, schools, transport hub etc.

Preferred location for the pilot is around Soho Road GTD, Handsworth. Other locations (eg Castle Vale, Kingstanding, Weoley Castle) could be considered.

Assumed allocation of £500k

Local Links (Green)

A number of small local access schemes relating to the Green Route locations included in this phase of the programme. £500k

Local Links (Canals)

A number of small local access schemes relating to the Canal Works locations included in this phase of the programme. £500k

Works & Fees = £1.40m
Contingency = £0.10m

TOTAL COST = £1.50m

CANAL WORKS

Birmingham & Fazeley Canal
Hansons Bridge to Minworth

Tame Valley Canal
Walsall Road to Hamstead

Worcs & B'ham Canal
Kings Norton Junction to Hawkesley / Wast Hill Tunnel

Stratford-upon-Avon Canal
Kings Norton Junction to Priory Fields / Solihull Lodge

B'ham Old Main Line Canal
Soho Loop

10km @ £250k/km = £2.5m total

Signing Strategy £150k

Accesses
Improved access to Tame Valley Canal, eg Kingsdown Avenue, Old Walsall Road, Aldridge Road

Northbrook Street

Pershore Road Access Steps

Masshouse Ln / Primrose Hill
Foyle Road / Wast Hill

Assume 7 accesses @ £300k each = £2.1m

Major Schemes
The Ackers Access Bridge
Edgbaston Tunnel Towpath
Ashted Tunnel Ballustrade
Assume £1.2m in total

Green Route Lighting
Trial of solar studs or similar lighting for off-road route to be identified,
4km @ £12k/km = £50k total

Works & Fees = £5.50m
Contingency = £0.50m

TOTAL COST = £6.00m

GREEN ROUTES

River Tame / Sandwell Valley
(inc drainage improvements)
1.5km = £250k

Cole Valley Route North
Stechford Viaduacts – *subject to agreement with N Rail)*

Cole Valley Route South
Works south and west of Yardley Wood
2.0km = £200k

Castle Bromwich Hall
(partly in Solihull)
2.0km = £200k

Sheldon Country Park
Coventry Road to Bell Lane and Hatchford Brook area
4.0km = £400k

Rea Valley Route
Birmingham Great Park area
1.0km = £100k

The Valley Parkway
Northfield to Bournville
(partly on BVT land)
3.0km = £300k

Castle Walkway
Selly Oak to Weoley Castle
1.5km = £150k

Woodgate Valley Country Park
West Boulevard to Lapal
3.5km = £350k

Harborne Walkway
Harborne to Winson Green
2.5km = £250k

Green Route Lighting
Trial of solar studs or similar lighting for off-road route to be identified,
4km @ £12k/km = £50k total

Works & Fees = £2.10m
Contingency = £0.15m

TOTAL COST = £2.25m

20mph

Variable 20mph Speed Limits
To be located outside schools particularly on main roads, focussing on the GTDs and Local Link GTD Pilot Area
£250k

Works & Fees = £0.23m
Contingency = £0.02m

TOTAL COST = £0.25m

SUPPORTING MEASURES

The items below will be focussed on the new Green Travel Districts

Public Cycle Parking and Mini Cycle Hubs in Local Centres
Eg m-stands, pumps, tools with sponsorship opportunity, focus on local centres and transport hubs etc in GTDs £500k

Private Cycle Parking / Top Cycle Location Grants
Organisations and educational establishments, particularly in the GTDs)
£500k

Cycle Hire (Brompton Docks)
Potential locations in each GTD plus Uni of Bham sites)
9 sites @ £40k = £350k total

Big Birmingham Bikes
Extend scheme to remainder of the city £400k

Works & Fees = £1.60m
Contingency = £0.15m

TOTAL COST = £1.75m

Appendix B. Main Corridor Measures

HARBORNE ROAD CORRIDOR					
LOCATION	**TYPICAL MEASURES**	**LENGTH (km)**	**COST PER KM**	**TOTAL**	
Five Ways to Greenfield Crescent	Shared-use footway with segregation	0.4	£250,000	£100,000	
Greenfield Crescent to Augustus Road	Segregated two-way cycle track, inc road widening where required	0.7	£1,000,000	£700,000	
DITTO	Allowance for stats diversions where widening required	N/A	N/A	£300,000	
Highfield Road junction	Junction upgrade to include new pedestrian and cycle stages on signals	N/A	N/A	£250,000	
Vicarage Road junction	Junction upgrade to include new pedestrian and cycle stages on signals	N/A	N/A	£250,000	
Augustus Road junction	Junction upgrade to include new traffic signals with pedestrian and cycle stages	N/A	N/A	£500,000	
Augustus Road to Nursery Road	Cycle lanes with segregation where possible	1.2	£500,000	£600,000	
Harborne Local Centre	Minor measures to make local centre more cycle friendly	1.1	£100,000	£110,000	£2,810,000
Lordswood Road (to Court Oak Rd)	Minor measures (cycle logos and signing)	0.4	£100,000	£40,000	
Court Oak Road	Minor measures (cycle logos and signing)	1.0	£100,000	£100,000	
Ridgacre Road (to Quinton Island)	Segregated cycle lanes within existing dual c/way (traffic reduced to one lane each way)	2.2	£250,000	£550,000	
	TOTAL COST	**7.0**		**£3,500,000**	

BRISTOL ROAD CORRIDOR					
LOCATION	**TYPICAL MEASURES**	**LENGTH (km)**	**COST PER KM**	**TOTAL**	
Bristol Road / Belgrave M'way	Add toucan crossing phases to existing pedestrian crossings on ring road (inbound and outbound)	N/A	N/A	£1,000,000	
Belgrave M'way to Priory Road	Increase segregation on existing 'shared use' footway	1.4	£200,000	£280,000	
Bristol Road / Pershore Road / Priory Road	Add pedestrian / cyclist stages to both sets of traffic signals	N/A	N/A	£1,000,000	
Priory Road to Selly Oak New Road	Increase segregation on existing 'shared use' footway	1.7	£200,000	£340,000	
Selly Oak Local Centre	Separate local centre scheme under LSTF programme	N / A	N / A	£0	
Chapel Lane / Harborne Lane triangle	Separate scheme as part of retail park and other redevelopments	N/A	N/A	£0	
Harborne Lane to Bell Lane	Increased segregation on existing cycle lanes, possible bus lanes?	3.0	£200,000	£600,000	£3,220,000
Northfield Local Centre	Minor measures to make local centre more cycle friendly	0.8	£150,000	£125,000	
Frankley Beeches Rd to Longbridge Island	Increase segregation on existing 'shared use' footway	2.3	£200,000	£460,000	
Longbridge Island to Great Park	Convert existing inside lanes to cycle lanes	1.5	£200,000	£300,000	
Longbridge Island to Cofton Park	Increase segregation on cycle lanes currently proposed under LSTF	1.8	£500,000	£900,000	
	TOTAL COST	**12.5**		**£5,005,000**	

A45 COVENTRY ROAD CORRIDOR					
LOCATION	**TYPICAL MEASURES**	**LENGTH (km)**	**COST PER KM**	**TOTAL**	
Watery Lane Middleway at Adderley Street	Signalisation of existing cycle crossing point on Ring Road (to be done under separate Pinchpoints scheme)	N/A	N/A	£0	
Kingston Road, Arthur Street, Camelot Way, Glover Street	Minor measures on predominantly residential roads to improve conditions for cycling.	1.5	£100,000	£150,000	
Coventry Road at Arthur Street	Improved crossing point for cyclists and pedestrians over Coventry Road	N/A	N/A	£100,000	
Small Heath Park	Improved route through park, possibly including permanent lighting	0.7	£250,000	£175,000	
Coventry Road (Small Heath Park to St Benedicts Road)	Cycle lanes or other road-paint measures to improve conditions for cyclists on the carriageway.	0.25	£100,000	£25,000	
Coventry Road (St Benedicts Road to Heybarnes Circus)	Possible shared-use two-way on southern footway.	0.45	£100,000	£45,000	
Heybarnes Circus	Physical changes to roundabout and upgrade of crossings to allow cyclists to cross the junction	N/A	N/A	£500,000	
Coventry Road (Heybarnes Circus to Swan Island)	Segregated (hybrid) cycle tracks one one or both sides where possible. Shared bus+cycle lanes or shared-use footways in other areas.	2	£1,000,000	£2,000,000	£2,495,000
Swan Island to 'Wheatsheaf' junction	Bus+cycle lanes (if provided as part of Sprint scheme - requires Roadspace Reallocation Review) or on-street cycle lanes where space allows, or 'shared-use' footway elsewhere (inc some paving of grass verges)	2.3	£500,000	£1,150,000	
'Wheatsheaf' junction to Hatchford Brook / Airport	Bus+cycle lanes (if provided as part of Sprint scheme - requires Roadspace Reallocation Review) or on-street cycle lanes where space allows, or 'shared-use' footway elsewhere (inc some paving of grass verges)	1.8	£100,000	£180,000	
	TOTAL COST	**9.0**		**£4,325,000**	

LICHFIELD ROAD / TYBURN ROAD / WALMLEY ROAD						
LOCATION	**TYPICAL MEASURES**	**LENGTH (km)**	**COST PER KM**	**TOTAL**		
Lancaster Circus - Dartmouth Circus - Aston Cross (Rocky Ln)	Increase segregation on existing 'shared use' footways and paths	1.8	£100,000	£180,000		
Aston Cross (Rocky Lane) roundabout	Turbo-roundabout or similar to improve conditions for cyclists	N/A	N/A	£250,000		
Rocky Lane to Waterlinks Boulevard	Measures already included in Cycle City Phase 1	N/A	N/A	£0		
Waterlinks Boulevard roundabout	Improved route through park, possibly including permanent lighting	N/A	N/A	£250,000		
Waterlinks Boulevard - Aston Hall Road	Measures already included in Cycle City Phase 1	N/A	N/A	£0		
Aston Hall Road to Salford Circus	Increase segregation on existing 'shared use' footway	0.5	£250,000	£125,000	£805,000	
Salford Circus	Scheme to either improve subways and pedestrian crosisng points or remove subways and replace with surface-level crossings	N/A	N/A	£2,000,000		
Tyburn Road (Salford Circus to Chester Road)	Bus+cycle lanes (if provided as part of Sprint scheme - requires Roadspace Reallocation Review) or on-street cycle lanes where space allows, or 'shared-use' footway elsewhere (inc some paving of grass verges)	4	£500,000	£2,000,000		
Eachelhurst Road (Tyburn Road to Walmley Village)	Bus+cycle lanes (if provided as part of Sprint scheme - requires Roadspace Reallocation Review) or on-street cycle lanes where space allows, or 'shared-use' footway elsewhere (inc some paving of grass verges)	1.7	£250,000	£425,000		
Walmley Village (to Fox Hollies Road)	Minor measures to make local centre more cycle friendly	0.6	£50,000	£30,000		
Walmley Road (Fox Hollies Road to Reddicap Heath Road)	Minor measures (cycle logos and signing)	2.4	£100,000	£240,000	£2,695,000	
	TOTAL COST	**11.0**		**£5,500,000**		£3,500,000

BIRCHFIELD ROAD / ALDRIDGE ROAD / KINGSTANDING ROAD					
LOCATION	**TYPICAL MEASURES**	**LENGTH (km)**	**COST PER KM**	**TOTAL**	
Lancaster Circus to The Broadway via Birchfield Road and High Street Aston	Increase segregation for cyclists from traffic. Provide shared-use footways where possible, segregated where achievable. Improve existing bus lanes for cyclists in other areas. Include facilities for cyclists at main traffic signal junctions	3.4	£800,000	£2,720,000	
Six Ways Aston	Improve existing crossing points for cyclists	N / A	N / A	£250,000	£2,970,000
Perry Barr Island / One-Stop / UCE	Separate LGF scheme to improve existing pinchpoint and difficult junction for cyclists. In the short-term, cycle route to follow parallel route via Wellhead Lane (see below)	N / A	N / A	£0	
The Broadway / Stoneleigh Road / Wellhead Lane	Minor measures to improve conditions for cyclists on predominantly residential roads, tying in to existing parallel route avoiding Perry Barr Island	1.1	£100,000	£110,000	
A453 Aldridge Road (Wellhead Lane to Kingstanding Road)	Look at options for roadspace reallocation within existing dual c/way, including removing one traffic lane or providing bus+cycle lanes	1.6	£250,000	£400,000	
B4138 Kingstanding Road (to Hawthorn Road)	Look at options for roadspace reallocation within existing dual c/way, including converting inside lanes to parking and cycle lanes or providing bus+cycle lanes	1.3	£200,000	£260,000	
B4138 Kingstanding Road (Hawthorn Road to Kings Road)	Look at options for roadspace reallocation within existing dual c/way, including converting inside lanes to parking and cycle lanes or providing bus+cycle lanes	1.2	£200,000	£240,000	
B4138 Kingstanding Road (Kings Road to George Fredrick Road)	Look at options for roadspace reallocation within existing dual c/way, including converting inside lanes to parking and cycle lanes	0.9	£100,000	£90,000	
	TOTAL COST	**9.5**		**£4,070,000**	

£2,810,000.00
£3,220,000.00
£2,495,000.00
£3,500,000.00
£2,970,000.00

£14,995,000.00