

Date: 13 March 2013

Item 14: Cycle Superhighways

This paper will be considered in public

1 Summary

- 1.1 This paper outlines proposals to deliver a new Cycle Superhighway route 5 between New Cross Gate and Victoria and an extension to route 2 between Bow Roundabout and Stratford Town Centre in 2013.
- 1.2 The proposals in this paper have been subject to a Corporate Gateway C/D review, including scrutiny by independent engineers, TfL's Programme Management Office (PMO) and the Independent Investment Programme Advisory Group (IIPAG). The recommendations in this paper were supported by the Projects and Planning Panel at its meeting on 26 February 2013.
- 1.3 A paper is included on Part 2 of the agenda, which contains exempt supplemental information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendations

2.1 The Committee is asked to:

(a) note the paper; and

(b) recommend that the Board:

- (i) approve additional Project Authority of £15.73m to cover implementation of Cycle Superhighways (CS) Programme Route 5 (CS5) and an extension to Route 2 (CS2x) as a further pair of 'pilot' routes. This will bring total project authority to £53.6m, which is within the CS budgeted authority; and**
- (ii) note that Procurement Authority of £9.6m for construction work to be undertaken through the London Highways Alliance Contracts will be approved in accordance with Standing Orders.**

3 Background

- 3.1 The Mayor's Transport Strategy contains an ambitious target to increase cycling numbers in London, with a five per cent modal share for cycling (currently two per cent) by 2026, which equates to an approximate 400 per cent increase compared to 2000.

- 3.2 TfL has an established approach to deliver this growth which is based on an analysis of existing cycling journeys in London and the potential to attract new cycling trips. To date, three focus areas have underpinned the approach:
- (a) short hops in central London: Barclays Cycle Hire has met some of this need, with around 30,000 journeys made by hire bicycle every weekday;
 - (b) commuter journeys from Outer to Inner London: 400,000 of the 4.3 million trips that could be made by cycle every day in London involve commuter travel between inner and outer London and the centre. Barclays Cycle Superhighways (CS) provide cyclists with a safer, faster, more direct and continuous way into central London. Potential customers are supported to use them through training and parking facilities provided both within their home borough and their workplace; and
 - (c) cycling in Outer London: Fifty four per cent of all potentially cyclable journeys are in Outer London. The Mayor's Biking Borough programme is designed to unlock these potential cycling trips.
- 3.3 The baseline CS programme seeks to deliver a series of radial cycling routes by 2015 along recognised commuter routes. The programme contributes to a number of Surface Transport goals including: 'More and safer cycling', and also 'Reduced casualties' and 'Improving the environment', with consideration of 'Reliable roads', 'Quality bus network', and 'More and safer walking'.
- 3.4 The Mayor has recently announced the appointment of a Cycling Commissioner for London, who will oversee the development and delivery of TfL cycling policy, programmes and investment priorities. The Cycling Commissioner has commented on the design of both new and existing Cycle Superhighways. Specifically, comments have been made regarding the proposed design of CS Route 5 to make improvements – mainly relating to the section between Oval and Victoria, where an alternative route is proposed off Vauxhall Bridge Road and additional segregated cycle lanes are proposed on Vauxhall Bridge and around Vauxhall gyratory. TfL is considering and responding to these suggestions, in collaboration with the Cycling Commissioner.
- 3.5 Four Cycle Superhighway routes have been completed to date - the first two pilot routes in July 2010 and the second pair of routes in July 2011. Key benefits include the following:
- (a) an average 77 per cent increase in cycling trips on the routes since they opened;
 - (b) 30 per cent of those cycling trips are new or switched from another mode;
 - (c) 75 per cent of users agree the Cycle Superhighways improve safety for cyclists;
 - (d) users are most satisfied with visibility of the blue lanes, ease of way finding, and comfort of riding surface;

- (e) the main reasons for choosing to use Cycle Superhighways are to improve fitness and save money; and
 - (f) users agree that the Cycle Superhighways help make London feel like a city for cycling and improve safety for cyclists.
- 3.6 The next two routes, the subject of this paper, comprise Route 5 from Victoria to New Cross Gate (CS5), and an extension to Route 2 from Bow Roundabout to Stratford town centre (CS2x). This follows a two year gap since the last two Cycle Superhighways were completed in July 2011, with the planned launch of CS2x in August 2013.
- 3.7 Since the programme was first conceived, and indeed since the second pair of routes was completed in 2011, the external context for the design and delivery of Cycle Superhighways has changed. Hence the scope and cost of CS5, CS2x and the remaining routes will differ significantly from the first four, with consequent implications for the business case both at programme and individual route level. Key factors behind this change of context are:
- (a) lessons TfL has learnt from delivering the first 4 routes;
 - (b) the series of high-profile cycle fatalities in late 2011, which led to the Better Junctions Review and the expectation of higher design standards for cyclists on the road network in general – and on the Cycle Superhighways in particular;
 - (c) lessons learnt from the Better Junctions Review as it has unfolded (and continues to unfold); and
 - (d) a review of the "Go Dutch" design standards.
- 3.8 The particular corridors on which CS2x (and to a degree CS5) are proposed mean they have good potential for providing a significantly increased level of facility for cyclists. This includes substantially greater lengths of segregated and mandatory cycle lanes, introduction of early start facilities for cyclists at appropriate locations, and innovative features such as bus-stop bypass facilities.
- 3.9 While the alignments of future Cycle Superhighway routes are still in some cases uncertain, it is likely that space and capacity constraints will mean these are less suitable for the higher design standards described above. Achieving these standards on the remaining routes could therefore lead to significantly higher direct scheme costs in excess of the currently allocated budget, and impacts on other road users such as bus passengers. The proposed approach therefore is:
- (a) to treat CS2x and CS5 as a further pair of 'pilot' routes so that TfL can assess the costs and other implications of designing and building to higher standards;
 - (b) to provide best estimates that can be made at this time of the benefits and costs (including impacts on other road users) of CS2x and CS5, and feed these into a revised business case for these two routes. This work is presented later in this paper;

- (c) to acknowledge that designing and building CS2x and CS5 to higher standards will have implications for the remaining routes in the programme in terms of financial and other costs and benefits - and hence on the overall Cycle Superhighways programme budget and related business case. These costs, benefits and the overall business case will be revised in due course once TfL has understood the impacts on CS2x and CS5 and has a better sense of how this may affect the rest of the programme; and
- (d) that options for delivering the remaining routes will be reviewed in the light of experience gained in the development of CS2x and CS5.

4 Current Status

Scope

- 4.1 CS5 is 9.3km in length, and includes significant upgrades to 52 junctions, new mandatory and advisory cycle lanes, new 20mph zones, substantial resurfacing, and innovative 'early start' facilities at Vauxhall Bridge/Millbank.
- 4.2 CS2x is 2km in length, and includes 3km of new separated cycle lanes (both directions), specially designed features to help cyclists get ahead of the traffic at bus stops, an innovative junction design to reduce left turn conflicts at Warton Road (Westfield), and upgrades to 13 junctions.

Procurement Strategy Proposals

- 4.3 The following options were considered within the Procurement Strategy prior to confirmation of the preferred construction procurement route.
 - (a) Option 1: Do Nothing;
 - (b) Option 2: Highway Works Maintenance Contract (HWMC);
 - (c) Option 3: Competitive tender – OJEU; and
 - (d) Option 4: London Highways Alliance Contracts (LoHAC).
- 4.4 The LoHAC framework comprises NEC3 Term Service Contracts, which allows schemes to be ordered via a task order on one of three pricing options:
 - (a) Lump Sum;
 - (b) Re-measure; and
 - (c) Target Cost.

Recommended Options

- 4.5 Following an evaluation of the above options, Option 4 is the recommended approach, as it offers best value and allows project completion to schedule. It should be noted that the LoHAC contracts enable open book costing which should provide useful benchmarking data for future Cycle Superhighway phases.

- 4.6 For CS5, LoHAC will not provide a design service as the detailed design and traffic management proposals will be completed by the existing design consultants. In January 2013, the LoHAC contractor (CVU) was engaged to undertake a buildability review of the design and provide traffic management input. The construction task order will be under the lump sum option as this approach provides the greatest cost certainty and transfers the risk for errors in quantities to the contractor.
- 4.7 For CS2x the relevant LoHAC contractor will be commissioned to provide a detailed design and build service, with the scope of works fully defined by TfL at the end of the preliminary design stage. As for CS5, the lump sum option is considered the most appropriate. The contractor is reimbursed for design via a percentage of the construction price.

Schedule

- 4.8 The high level delivery schedule is set out below:

	Nov 2012	Dec 2012	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013	Sep 2013	Oct 2013
CS5	Detailed Design			Contractor Mobilisation			Construction					
		Consultation										Launch
CS2x	Detailed Design			Contractor Mob		Construction						
			Consultation							Launch		

Benefits

- 4.9 The business case has been updated for both CS2x and CS5 incorporating the latest design information.
- 4.10 As discussed in section 2, the design specification for CS2x and CS5 has increased compared to previous routes in response to the changing context for designing for cyclists in London. This has implications for other Surface Transport objectives such as maintaining reliable traffic flow. Where possible, the impacts on other road users as a result of CS2x and CS5 proposed measures have been mitigated, however there remain negative impacts which have been quantified below:

£m (30 year project life)		CS2X	CS5
Cycling Benefits	Ambience	9.1	15.8
	Journey Time	37.6	Not available - see Appendix 1
	Safety	12.4	52.7
	Health	38.5	34.8
	Total benefits	97.6	103.4
Journey Time Disbenefits	Freight	(5.1)	Not available – see Appendix 1
	Taxis	(4.1)	
	General Traffic	(103.0)	
	Buses	(10.1)	
	Total disbenefits	(122.4)	
Operational costs	Bus Operations	(11.1)	

4.11 While the journey time impacts of CS5 are still under assessment, negative impacts on traffic have been identified at a number of locations including Vauxhall Bridge Road (to accommodate traffic lane removal to facilitate new cycle lanes), Millbank/Grosvenor Road (to accommodate early start facilities), and Oval (to accommodate new mandatory cycle lanes and removal of some conflicting movements). However, 480m of new bus lanes are being introduced as part of the proposals, including on the approach to some junctions, which is expected to partially offset negative impacts on bus passengers. Overall, of the 43 signalised junctions along the route, eight will perform less efficiently – with increased queue lengths in peak hours, two will improve, and 33 remain unchanged.

4.12 Other benefits, which cannot currently be quantified, include:

- (a) environmental benefits;
- (b) streetscape improvement benefits;
- (c) economic benefits;
- (d) reputational impact; and
- (e) cultural impact.

4.13 TfL's business case analysis tools are not generally well set-up to quantify the benefits of cycling projects. In countries such as Denmark, Holland and Sweden, which are internationally renowned for their progress on cycling, BCR-type appraisals are not typically used to justify investment in cycling.

4.14 Cycle Superhighways need to be considered within the context of the overall cycling and traffic management portfolio. While incremental quantified business cases for cycling may be finely balanced in the short-term, the aggregate cycling infrastructure and behaviour change projects proposed within the new TfL Business Plan will contribute to the overall five per cent modal share target – with a likely ‘tipping point’ between now and 2026 where the aggregate benefits start to outweigh negative impacts on other modes. This ‘tipping point’ will be further facilitated by innovatively managing the flow of traffic and designating specific areas such as town centre zones.

5 Projects and Planning Panel Views

5.1 At its meeting on 26 February 2013, the Projects and Planning Panel noted this proposal. The Panel concluded that the submitted papers gave a balanced and considered view of the project, with a useful summary of all associated issues.

List of appendices to this report:

Appendix 1: Impacts on other road users

A paper on Part 2 of the agenda contains exempt supplemental information.

List of Background Papers:

None.

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Impacts on other road users

i) Cycle Superhighway route 5

CS5 Junction Operation

At the time of submission final traffic modelling results were not available for CS5 (preliminary modelling results will be available on 28 February, with full detailed modelling results completed by 1 April 2013). Hence it is not feasible to provide a definitive steer on the quantified journey time impact to other road users at this stage.

Key issues known to impact junction operation include:

- Vauxhall Bridge Road/Francis Street: New 2 metre-wide mandatory and advisory cycle lanes are proposed to replace general traffic lanes in both directions on Vauxhall Bridge Road. As a result of lane removal, the Degree of Saturation (DoS) on all approaches to this junction is predicted to exceed 100% in the AM peak (the DoS is already >90% on Victoria Road northbound in the AM peak).
- Vauxhall Bridge Road/Millbank/Grosvenor Road proposals involve a dedicated green light phase to allow cyclists to wait ahead of other traffic before crossing the junction. This option was selected following consultation with external stakeholders as part of the Better Junctions programme, and was seen as a suitable solution to the relatively high number of collisions between cyclists and vehicles¹. New separated cycle lanes on both approaches help cyclists to get to the front of the queue without filtering through other traffic. The DoS on the Grosvenor Road arm of this junction is currently above 100% during peak hours. Consequently, the implementation of proposed 'early start' facilities will have a negative impact on junction operation. However, due to space constraints at this location, under current regulations (Traffic Signs Regulations and General Directions 2002) there is no viable alternative solution that eliminates left-turn conflicts between cyclists and motorists.
- Vauxhall Bridge Road/Wandsworth Road: Buses and cyclists would have their own traffic signal to cross the Albert Embankment junction ahead of other traffic. This would replace the existing facility in the central bus lane. As buses would be turning right and cyclists continuing straight on, this reduces the potential for conflicting movements. This proposal links to proposals for Vauxhall Bridge, where a new 4 metre-wide bus lane on the nearside of the bridge would be shared by eastbound cyclists and buses. These proposals could worsen conditions for general traffic in the AM peak on Vauxhall Bridge Road, which already operates at >90% DoS.
- Oval Junction proposals include new east and westbound mandatory cycle lanes on Camberwell New Road, extended ASLs, and measures to reduce conflicting movements between cyclists and motorists. In the existing situation, the base models show a DoS of >90% on the critical approaches in the AM and PM peaks.

¹ In the 36 months to May 2011 (up until the implementation of CS8) there were 30 collisions recorded at this junction. 14 of these were collisions between cyclists and vehicles.

Additional modelling underway suggests that the operational impact of the proposed improvements can be largely mitigated.

- Camberwell New Road - Bolton Crescent - Foxley Road proposals include a new 5m-deep Advanced Stop Line (ASL) and advisory cycle lane on the Camberwell New Road eastbound approach. These proposals do not affect junction capacity, however the intergreen period has been increased to reflect future growth in cycling numbers, which has pushed Camberwell New Road eastbound DoS above 100% in the PM peak.
- Camberwell Green proposals include removing a traffic lane on the westbound, to facilitate a 2m-wide cycle lane into an ASL. On the eastbound, a new 8m-deep ASL would be introduced to help cyclists get ahead of traffic, with lane operation changes to reduce the potential for conflicting movements. As a consequence, the DoS on Camberwell Church Street westbound is predicted to exceed 100% during peak hours.

The following table reviews the performance of the 43 junctions along the route (Victoria to New Cross Gate); however, this high level assessment is subject to final traffic modelling results:

<p>Red = >90% DoS² Amber = 80-90% DoS Green = <80% DoS Correct at 21 January 2013</p>	
Change in status following CS5 implementation	Number of junctions
No change to RAG status*	33
Worsening performance: Green to Amber	5
Worsening performance: Amber to Red	3
Improved junction performance	2
Total	43

Impact on bus lanes

0.75km of new bus lanes are being introduced on CS5, and 0.27km removed (net impact is +0.48km). The benefits of these additional facilities for buses have not been quantified in the existing business case, as any benefit is linked to journey time calculations. Similarly, journey time disbenefits to bus passengers and associated increased operating costs have not been quantified at this juncture.

² DoS = Degree of Saturation: Values over 85% are typically regarded as suffering from traffic congestion, with queues of vehicles beginning to form.

ii) Cycle Superhighway route 2 extension

CS2x Junction Operation

A detailed assessment has been completed to review the potential impact of CS2x on buses, cyclists, pedestrians and general traffic. Robust TRANSYT and VISSIM modelling has been undertaken for the AM and PM peak periods in order to understand the modal impacts, with Journey Time impacts set out below:

Vehicle Type	Average Eastbound Travel Times - AM			Average Eastbound Travel Times – PM		
	Base	Proposed	Change	Base	Proposed	Change
Cyclist	3m 25s	3m 37s	12s	3m 24s	3m 27s	4s
Buses	3m 56s	4m 08s	13s	4m 02s	4m 19s	17s
Freight	2m 31s	2m 33s	2s	2m 45s	3m 12s	27s
Taxi	2m 41s	2m 36s	-5s	2m 39s	3m 06s	27s
General Traffic	2m 34s	2m 40s	6s	2m 47s	3m 10s	23s

Vehicle Type	Average Westbound Travel Times - AM			Average Westbound Travel Times – PM		
	Base	Proposed	Change	Base	Proposed	Change
Cyclist	5m 45s	4m 46s	-1m 00s	5m 55s	5m 04s	-51s
Buses	8m 30s	9m 38s	1m 08s	6m 53s	8m 09s	1m 16s
Freight	5m 35s	6m 39s	1m 05s	5m 18s	6m 12s	54s
Taxi	4m 56s	6m 02s	1m 05s	5m 58s	6m 29s	31s
General Traffic	5m 04s	6m 25s	1m 21s	5m 49s	6m 45s	55s

Delay and flow data from the VISSIM analysis has been incorporated into an updated business case, produced in line with TfL's Business Case Development Manual (see section 3.6 for outputs).

Key issues known to impact junction operations include:

Westfield (Stratford High Street / Warton Rd / Rick Roberts Way junction)

Currently the largest junction along the proposed route, significant changes are proposed, including – traffic lane removal, slip road removal, footway widening, provision of a 2m cycle lane, 7m ASLs and the trial of two-stage right turns for cyclists (a proposal which also eliminates the potential for left turn conflicts on two arms of the junction).

- The proposals will impact upon capacity with higher DoS and longer queues than existing, however the proposals are in line with LB Newham's aspirations to downgrade this junction (outlined in the Stratford Metropolitan Masterplan) and reduce the 'urban motorway' feel of Stratford High Street.
- In the AM peak Rick Roberts Way is predicted to have a DoS of 113% to ensure Stratford High Street remains below 90%, however LB Newham have previously expressed concerns regarding the number of vehicles using this road as a rat run.
- The average operational cycle time will increase to a maximum of 120 seconds throughout the day, whereas this currently occurs for an hour or two during

periods of peak demand and 80-88 seconds otherwise. The result is an average increase in delays to pedestrians of 3 seconds in peak periods and 12 seconds in the off-peak. However pedestrians will have fewer crossings to negotiate through removal of the slip roads. Pedestrians will also benefit from a wider footway and streetscape improvements.

- The traffic impact upon this junction may cause concern to Westfield stakeholders (the shopping centre is accessed from Warton Road), where longer queues will also be experienced in peak periods over the weekend. However, the proposed changes include the opening of the right turn into Warton Road from Stratford High Street, which is an aspiration of Westfield. Further mitigations will be explored with both Westfield and LB Newham to widen the approach on Warton Road to two lanes and to employ traffic demand management strategies at the centre to smooth the dispersal of shoppers and help mitigate the impact upon capacity.

The Grove / Romford Road / Broadway

The Grove / Romford Road junction is at the northeast extent of the route, but is not on the route itself. The junction is y-shaped in addition to the bus contraflow that exits onto the Grove. Cyclists continuing from the bus contraflow onto Romford Road (where the future extension of CS2 could continue to Ilford) will need to cross the Grove, currently under signal control. A high number of cyclists will join the route from both The Grove & Romford Road.

- The design has been developed with consideration of LB Newham's guidance for the gyratory, which includes taking a 'light touch' approach and limiting any impact upon capacity. There are currently very limited facilities for cyclists, and three lanes of traffic on The Grove to negotiate.
- Proposals include removing one of the three lanes of traffic on The Grove. To mitigate the traffic impact the scope has been extended further along The Grove to include removing the existing bus pre-signal which currently operates with little benefit to buses ahead of traffic, and changing the exit from the contraflow from signal control to give way (buses and cyclists would exit when the pedestrian crossing further north on The Grove holds traffic).
- Following consultation, internal stakeholders have raised concerns regarding conflicting movements on The Grove, with buses and cyclists in the nearside lane seeking to proceed ahead vs. a proportion of vehicles in the offside lanes turning left to use the exit slip onto Romford Road. A central feeder lane is proposed to raise awareness of the presence of cyclists, predominantly mandatory with a small section of advisory to reduce the conflict zone and potential traffic speeds. Although this type of facility is within the LCDS and has been used elsewhere in London, stakeholders are concerned this will give cyclists a false sense of security. Concerns have also been raised regarding the ability of buses and cyclists exiting the contraflow as a give way.
- Consequently - prior to implementation – the design will be revisited with internal stakeholders as part of Road Safety Audit Stage 2, to explore further options and seek consensus on the final proposals.