

APPENDIX 3 - E-W modelling information

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East-West Cycle Superhighway – benefits and impacts to road users

Overall context

Two broad trends have been seen on central London's roads over the last eight years: a significant reduction in motor traffic and a significant rise in cycling. Motor traffic in central London has fallen by around 17% per cent since 2006/07. On many of the routes covered by the superhighway, the reduction has been greater: traffic has fallen by 28 per cent on Victoria Embankment and by 30 per cent on Upper Thames Street, for instance. However traffic flows in central London have stabilised in the last year.

Cycling in London has more than doubled in the last decade. Bikes now make up around a quarter of rush hour traffic in central London - but there are few special routes or facilities for them.

This scheme aims to allocate road space more in line with the actual usage of the road network. The great majority of the road space would still be for motorists but part would be reallocated to cyclists. It aims to reduce conflict between cyclists and motor vehicles and to provide safer, more comfortable journeys for cyclists.

The route of the Superhighway has been chosen to minimise impacts to other users. Far less of it is served by buses than most other main roads and there is much less business loading or residential parking along it, for example. However, there are impacts – both benefits and disadvantages - for other users, which this document describes in more detail. The information is accompanied by a table of data ([LINK](#)). The numbers included in the text below are taken from column D, showing the difference between the current situation on-street and the situation expected if the scheme were to be implemented. Column B outlines the expected situation by December 2016 if the scheme were not built, taking account of the impact of other schemes planned for delivery by this date.

Pedestrians and environment

There would be a net increase of over 4,000 square metres of pedestrian space – widened footway, traffic islands, bus and coach stops - along the route.

On the Victoria Embankment, the wide dividing island between the narrowed road and the cycle lane would shift traffic noise and fumes further from pedestrians and the river. The scheme would give the street more of a boulevard appearance.

At Parliament Square, the scheme would provide two long-demanded new pedestrian crossings into the middle of the square, realising more of its potential as a pedestrian space. New, wider pedestrian islands would be created at the Westminster end of Westminster Bridge to cope with high numbers of tourists.

A new traffic-free pedestrian boulevard would be created on Horse Guards Road, removing a major barrier between Whitehall / Horse Guards Parade and St James's Park.

On Constitution Hill, the scheme would remove conflict on the shared pedestrian/ cycle track. Pedestrians and cyclists would get their own more clearly separated tracks.

High quality materials would be used to enhance the look of the streets and reflect their importance. On parts of the scheme, the segregation will be removable for state occasions.

Waiting times for pedestrians to cross the route would either remain the same as now, or increase slightly, by no more than 9 seconds. Some 25 crossings would be shortened and four crossings, which are currently two-stage (requiring pedestrians to wait in the middle of

the road), would become one-stage to allow pedestrians to cross entirely in one movement. Pedestrian countdown would be installed at 18 signalised crossings along the route and there would be 14 new traffic light controlled crossings pedestrians. Collectively, these changes would offer significant safety improvements for pedestrians crossing at those points.

General traffic (excluding buses)

There would be longer journeys for motor vehicles at the busiest times of day on several parts of this route, and on routes heading towards the Cycle Superhighway. However, journey times on much of the route would increase only slightly and some journeys would be shorter.

The traffic modelling analysis looks at journey times at the busiest single hour in the morning and evening peaks. The model assumes that traffic volumes in central London will remain at current levels. Traffic in central London has fallen over the last eight years, though it has recently stabilised. It also includes the impact of the advanced traffic signal management programme which will change signal phasing to more effectively regulate the flow of traffic into central London.

Travelling westbound from East Smithfield (east of Tower Hill) to St Margaret Street on Parliament Square, journey times in the morning would increase very slightly from 18 minutes 15 seconds to 18 minutes 34 seconds. Those journeys in the opposite direction in the morning would be quicker by 2 minutes 59 seconds, reducing from 14 minutes 50 seconds to 11 minutes 51 seconds. In the evening, journey times for those vehicles heading eastbound would also reduce from 16 minutes 37 seconds to 12 minutes 45 seconds. For general traffic heading westbound on this route in the evening, journey times would increase from 17 minutes 6 seconds to 23 minutes 14 seconds.

For general traffic heading from Westminster Bridge southern roundabout to Hyde Park Corner westbound through Parliament Square along the route, journey times would remain at today's levels of 8 minutes 3 seconds in the morning. Westbound journeys in the evening would increase very slightly from 8 minutes 1 second to 8 minutes 34 seconds. For general traffic heading east on this route, journeys would increase from 7 minutes 2 seconds to 16 minutes in the morning. The same journey in the evening would increase from 7 minutes 37 seconds to 13 minutes 59 seconds.

On the Bayswater section, northbound from Lancaster Gate to the Westway (Harrow Road) on Westbourne Terrace, average journey time in the evening peak would fall slightly, from 5 minutes 4 seconds to 4 minutes 53 seconds. The same journey in the morning would also fall, from 4 minutes 36 seconds to 4 minutes 20 seconds. Travelling southbound from Westway to Lancaster Gate, average journey time in the morning peak would increase from 4 minutes and 36 seconds to 6 minutes 16 seconds. A journey southbound in the evening would take slightly longer from 4 minutes 51 seconds to 5 minutes 18 seconds.

The Westway flyover section of the Superhighway is being consulted on separately next year and journey time impacts for that section will be published then.

The biggest changes to journey times would not occur in central London or on the superhighway section, but on the A1203 and A13 east of Tower Hill, where road space would remain the same as now but westbound traffic will be held longer at various points to control the flow on to Tower Hill and Upper Thames Street. To evaluate the scale of these impacts, we have modelled a journey between the eastern end of the Limehouse Link Tunnel and Hyde Park Corner. The current journey time westbound is currently 34 minutes 34 seconds in the morning and 30 minutes 51 seconds in the evening. Once the scheme is built, journeys for general traffic in this direction would be 50 minutes 28 seconds in the

morning and 44 minutes 20 seconds in the evening. The same journey eastbound is 27 minutes 51 seconds in the morning and 30 minutes 51 seconds in the evening. Once the scheme is built, these journey times would increase to 35 minutes 29 seconds in the morning and 35 minutes 6 seconds the evening.

We plan to further reduce journey time delays using a number of other techniques which we successfully used during the Olympic Games. These include:

- greatly increased enforcement against illegal parking and loading on these routes to keep unplanned disruption to a minimum;
- a freight management and consolidation strategy, which encourages freight operators (on these and other routes) to plan their activity to avoid the busiest times and locations;
- a behaviour change strategy (on these and other routes), which encourages drivers to use alternative forms of transport; and
- a travel demand management strategy to provide more comprehensive and specific travel advice to road users, which would help them make informed journey choices to avoid busy times and busy locations.

The figures given above do not include the effects of these further techniques. However, experience of pilot schemes suggests they could be of substantial help in further reducing journey time impacts.

Parking and loading

On most of the route, there is no residential parking. On the northern section from Lancaster Gate, some residential parking would be removed, as well as small amounts of parking on some side roads.

The public parking on the Victoria Embankment would also be removed. Changes to parking and loading on the Embankment can be found at <https://consultations.tfl.gov.uk/cycling/3cd789da>

Buses and tourist coaches

The vast majority of the new Superhighway will run on roads which are not served by TfL buses. However, four short sections – Tower Hill, Parliament Square, Hyde Park Corner and Lancaster Gate/ Westbourne Terrace – are served by buses. Traffic modelling has been undertaken for four bus routes which go through the scheme area at these points and which broadly represent the impact of the scheme on bus journeys.

- **Bus route 15** between Tower Hill and Byward Street - only journeys heading west in the morning would be affected, taking up to one minute extra at the busiest hour. Journeys heading east in the morning would not change. Journeys in the evening would benefit in both directions by up to two minutes heading west and by up to one minute heading east. The overall effect is positive.
- **Bus route 453** between Westminster Bridge and Trafalgar Square - journeys towards Trafalgar Square in the busiest hour in the morning would be 2-5 minutes longer than now. Heading in the opposite direction towards Westminster Bridge from Trafalgar Square, journeys during the busiest hour in the morning would be 7-10 minutes longer than now. Journeys in the evening on this route would experience an extra 1-2 minutes in both directions. The overall effect in the immediate scheme area is negative. However, we are introducing a new bus priority point at Westminster Bridge Road, just west of Elephant and Castle, to avoid buses travelling in a south / east direction being further delayed at this point.
- **Bus route 16** from Grosvenor Place to Park Lane via Hyde Park Corner – journey times would increase by less than a minute in the busiest peak hours for most

journeys except those heading north in the morning, where the journey would be quicker by up to one minute.

- **Bus route 94** from Lancaster Gate to Marble Arch - the remodelling of the gyratory would benefit eastbound journeys, which would be up to 2 minutes quicker in both the morning and the evening. Westbound journeys, however, would be 1-2 minutes longer in the morning and 2-5 minutes longer in the evening. The overall effect is slightly negative.

Where there are negative impacts on journey times for bus routes impacted by the scheme, a programme of work is being developed to save time elsewhere along the affected route by addressing delays and giving priority to buses at certain pinch-points. Floating or "island" bus stops would be provided for TfL bus stops, tourist bus stops and commuter coaches, where these stops are alongside the cycle track.

Reassignment of cyclists

We expect that cyclists currently using other roads east-west through the West End and City, would transfer to the new route, reducing the potential for conflict between motorists and cyclists on these mixed-traffic streets.

Broader public transport benefits

The cycle superhighway would have a capacity of around 3000 cyclists an hour in both directions. This is the equivalent of the capacity of 10 trainloads (based on seating capacity) or around two and a half trainloads (based on crush-standing capacity), on the District and Circle Underground lines that run beneath a large part of the Cycle Superhighway. Adding this additional capacity to London's transport network would complement the improvements we are already making to the District and Circle lines, by offering Londoners a different transport option to make their journeys through central London.

Explanatory note on accompanying traffic modelling data table

TfL has used traffic modelling techniques to calculate the expected journey time changes on certain routes through the scheme area at the busiest hour in both the morning and evening peak. The data table attached ([LINK](#)) outlines the expected journey times through three modelled stages;

- **Base model (column A)** – current situation on street. Journey times for general traffic and cyclists are taken from TRANSYT models. Journey times for buses are taken from Hyperion data
- **Future base model (column B)** – Expected situation for general traffic in December 2016 if the East-West and North-South Cycle Superhighway schemes were not built, but taking account of the impact of all other TfL road schemes delivered by this date. Without the scheme, traffic signal timings in the scheme area would not change, so pedestrian wait times would remain as they are currently
- **Future journey times with scheme (column C)** – Expected on-street conditions in December 2016 once the East-West and North-South Cycle Superhighway schemes are built. These journey times taking account of the advanced traffic signal management programme, which will change signal phasing to more effectively regulate the flow of traffic at certain locations to keep central London moving

The attached data table includes information for four sample routes through the scheme area for general traffic, four bus routes which go through the scheme area to represent the impact of the scheme on bus journeys, four cycling routes along the Cycle Superhighway route and four example pedestrian crossings.

Further detailed modelling information is available on request by emailing your requirements and contact details to trafficmodelling@tfl.gov.uk.

Complementary Measures

The impacts calculated through the traffic models do not take account of a range of additional complementary measures that would have beneficial impacts on journey times for buses and general traffic.

- Where there are negative impacts on journey times for bus routes shown in the table, a programme of work is being developed to save time elsewhere along the affected route by addressing delays and giving priority to buses at certain pinch-points
- Road users can expect more comprehensive and specific travel advice to help them to make informed journey choices to avoid busy times and locations
- We will continue our work with freight and servicing companies to support them to plan their activity to avoid the busiest times and locations, evaluate quieter technology to enable more deliveries to take place out of hours and investigate the benefits of consolidation centres
- Through the creation of the new Roads and Transport Policing Command, we will target enforcement at the busiest locations and known hot spots to reduce hold-ups and delays and keep traffic moving

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East-West Cycle Superhighway - Modelling Results

Correct as at 23 September 2014	(A) Base Model - current situation on street		(B) Future base model - Expected situation on-street Dec 2016 without scheme		(C) Future Journey times Dec 2016 with scheme		(D) Difference between Future with scheme (C) and base (A)		(E) Difference between future with scheme (C) and future base (B)						
	Current journeys	AM	PM	Journeys modelled	AM	PM	AM	PM	AM	PM					
Traffic Average journey times (minutes:seconds)	Limehouse Link tunnel to Hyde Park Corner	Westbound	34:34	30:51	Westbound	32:39	26:55	Westbound	50:28	44:20	15:54	13:29	17:49	17:25	
	East Smithfield to St Margaret Street (Parliament Square exit)	Eastbound	27:51	30:38	Eastbound	26:06	31:49	Eastbound	35:29	35:06	7:38	4:28	9:23	3:17	
	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Westbound	18:15	17:06	Westbound	16:30	13:18	Westbound	18:34	23:14	0:19	6:08	2:04	9:56	
	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Eastbound	14:50	16:37	Eastbound	12:25	15:54	Eastbound	11:51	12:45	-2:59	-3:52	-0:34	-3:09	
	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Westbound	8:03	8:01	Westbound	7:51	7:42	Westbound	8:03	8:35	0:00	0:34	0:12	0:53	
	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Eastbound	7:02	7:37	Eastbound	6:37	7:07	Eastbound	6:00	13:59	8:58	6:22	9:23	6:52	
	Lancaster Gate to A40 Westway	Northbound	4:36	5:04	Northbound	4:41	5:10	Northbound	4:20	4:53	-0:16	-0:11	-0:21	-0:17	
	Lancaster Gate to A40 Westway	Southbound	4:36	4:51	Southbound	4:30	4:16	Southbound	6:16	5:18	1:40	0:27	1:46	1:02	
	Buses A sample of journey times on four routes through the scheme area (minutes:seconds) Difference against base (A), expressed as a range in column D	Route 15 (between Tower Hill and Byward Street)	Westbound	10:00	9:54	Westbound	10:00	9:54	Westbound	10:00	9:54	0:00	-2:5m	0:00	-2:5m
		Route 453 (between Westminster Bridge and Trafalgar Square, via Parliament Square)	Eastbound	5:06	7:18	Eastbound	5:06	7:18	Eastbound	5:06	7:18	0:00	-0:1m	0:00	-0:1m
Route 16 (between Park Lane and Grosvenor Place)		Northbound	8:18	8:06	Northbound	8:18	8:06	Northbound	8:18	8:06	0:00	1:2m	0:00	1:2m	
Route 16 (between Park Lane and Grosvenor Place)		Southbound	8:24	10:48	Southbound	8:24	10:48	Southbound	8:24	10:48	0:00	1:2m	0:00	1:2m	
Route 94 (between Lancaster Gate and Westbourne Terrace)		Northbound	2:24	2:42	Northbound	2:24	2:42	Northbound	2:24	2:42	0:00	0:1m	0:00	0:1m	
Route 94 (between Lancaster Gate and Westbourne Terrace)		Southbound	2:06	2:12	Southbound	2:06	2:12	Southbound	2:06	2:12	0:00	0:1m	0:00	0:1m	
Route 94 (between Lancaster Gate and Westbourne Terrace)		Westbound	3:18	3:30	Westbound	3:18	3:30	Westbound	3:18	3:30	0:00	1:2m	0:00	1:2m	
Route 94 (between Lancaster Gate and Westbourne Terrace)		Eastbound	8:48	5:48	Eastbound	8:48	5:48	Eastbound	8:48	5:48	0:00	2:5m	0:00	2:5m	
Royal Mint Street to Hyde Park Corner		Westbound	32	32	Westbound	32	32	Westbound	30	29	-2	-3	-2	-3	
Royal Mint Street to St Margaret Street (Parliament Square exit)		Eastbound	31	31	Eastbound	31	31	Eastbound	31	29	0	-2	0	-2	
Cycling Average journey times (minutes)	Parliament Square to Hyde Park Corner	Westbound	20	20	Westbound	20	20	Westbound	19	17	-1	-3	-1	-3	
	Parliament Square to Hyde Park Corner	Eastbound	21	21	Eastbound	21	21	Eastbound	17	16	-4	-5	-4	-5	
	Parliament Square to Hyde Park Corner	Westbound	11	12	Westbound	11	12	Westbound	11	11	0	-1	0	-1	
	Parliament Square to Hyde Park Corner	Eastbound	10	10	Eastbound	10	10	Eastbound	15	13	5	3	5	3	
	Lancaster Gate to A40 Westway	Northbound	7	7	Northbound	7	7	Northbound	5	4	-2	-3	-2	-3	
	Lancaster Gate to A40 Westway	Southbound	7	7	Southbound	7	7	Southbound	5	5	-2	-2	-2	-2	
	Tower Hill - Minories - Shorter Street	Max. cycle time	88	88	Max. cycle time	88	88	Max. cycle time	96	96	8	8	8	8	
	Tower Hill - Minories - Shorter Street	Max. wait time	82	82	Max. wait time	82	82	Max. wait time	90	90	8	8	8	8	
	Upper Thames Street - Queen Street - Queen Street Place	Max. cycle time	104	104	Max. cycle time	104	104	Max. cycle time	104	104	0	0	0	0	
	Upper Thames Street - Queen Street - Queen Street Place	Max. wait time	98	98	Max. wait time	98	98	Max. wait time	98	98	0	0	0	0	
Pedestrians Traffic signal cycle times and associated wait times (seconds) NOTE: Future base would be same as current base without scheme	Parliament Square - Bridge Street	Max. cycle time	112	112	Max. cycle time	112	112	Max. cycle time	120	112	8	0	8	0	
	Parliament Square - Bridge Street	Max. wait time	105	105	Max. wait time	105	105	Max. wait time	114	106	9	1	9	1	
	Knightsbridge - Hyde Park Corner - Grosvenor Place	Max. cycle time	96	96	Max. cycle time	96	96	Max. cycle time	96	104	0	8	0	8	
	Knightsbridge - Hyde Park Corner - Grosvenor Place	Max. wait time	90	90	Max. wait time	90	90	Max. wait time	90	98	0	8	0	8	
	Tower Hill - Minories - Shorter Street	Max. cycle time	88	88	Max. cycle time	88	88	Max. cycle time	96	96	8	8	8	8	
	Tower Hill - Minories - Shorter Street	Max. wait time	82	82	Max. wait time	82	82	Max. wait time	90	90	8	8	8	8	
	Upper Thames Street - Queen Street - Queen Street Place	Max. cycle time	104	104	Max. cycle time	104	104	Max. cycle time	104	104	0	0	0	0	
	Upper Thames Street - Queen Street - Queen Street Place	Max. wait time	98	98	Max. wait time	98	98	Max. wait time	98	98	0	0	0	0	
	Parliament Square - Bridge Street	Max. cycle time	112	112	Max. cycle time	112	112	Max. cycle time	120	112	8	0	8	0	
	Parliament Square - Bridge Street	Max. wait time	105	105	Max. wait time	105	105	Max. wait time	114	106	9	1	9	1	

Future base data available for general traffic journeys only

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