
Secretariat memorandum

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Improving cycle safety in London

1 Purpose of report

- 1.1. To take a comprehensive look at cycle safety in London and re-consider our future approach to cycle safety work.
- 1.2. The appendix sets out in more detail aspects of Transport for London's current approach which the Board might wish to scrutinise further.

2 Background

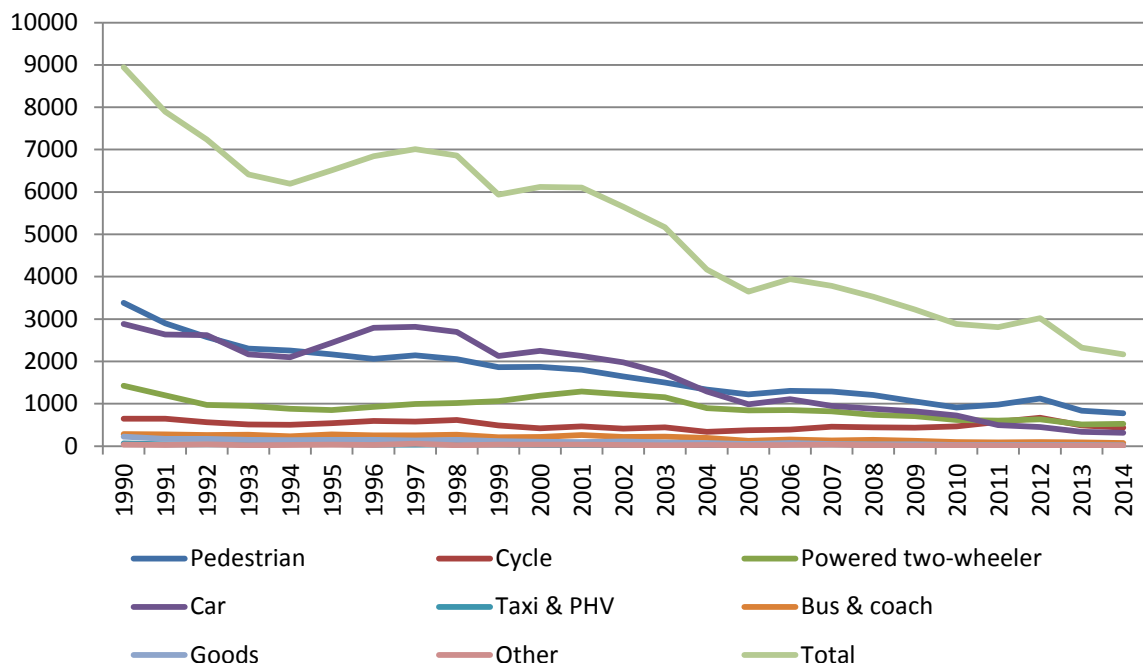
- 2.1. The Mayor has set out in his cycling vision an ambition to double the share of trips being undertaken by cycle from the present mode share of 2% to 5%. This will mean considerably more cyclists and cycling than presently takes place. Amongst the interventions to achieve this, it is proposed to develop the following:
 - i) Quietways: routes for cyclists along streets that are lightly trafficked;
 - ii) A central London grid: a denser set of streets that form a network within central London comprised of both quiet streets and busier roads that have cycle tracks separated from other general traffic;
 - iii) Cycle superhighways: comprising cycle tracks separated from general traffic and signals that separate cycles from general traffic; and
 - iv) Remodelling of junctions with high casualty histories where there is not an associated cycle superhighway.
- 2.2. London TravelWatch has contributed to road safety initiatives and, particularly, cycle safety over many years in a number of ways, from promoting the City Police's operation ATRIUM (which became the Metropolitan Police Force's Operation SAFEWAY) to commenting on highways schemes, particularly on the TfL Road Network (TLRN). London TravelWatch has participated in various road safety forums including TfL's Cycle Safety Working Group and its Design Review Group. London TravelWatch is a member of the Parliamentary Advisory Committee on Transport Safety (PACTS).
- 2.3. This report discusses the statistics of cycle safety in London, London TravelWatch's approach to road safety interventions, particularly engineering interventions, and TfL's recently developed approach to cycle superhighways

and major junctions. Finally it consider what more London TravelWatch might do to keep scrutinising the effectiveness of TfL activities in improving safety for cyclists.

3 The statistics of road casualty reduction in London

3.1. Over the last 25 years, there has been a fall in the total number of people killed and seriously injured on London’s roads. This is against the backdrop of a rise in population and an increase in vulnerable road users¹. The numbers of killed and seriously injured road users in London by mode of travel is shown in the graph below. This reduction has been achieved by a variety of measures under the banner road safety practitioners use of Education, Enforcement and Engineering.

Absolute number of killed and seriously injured by mode since 1990



3.2. The number of killed and seriously injured on London’s roads in 2014 was the lowest since records began, as reported by the police².

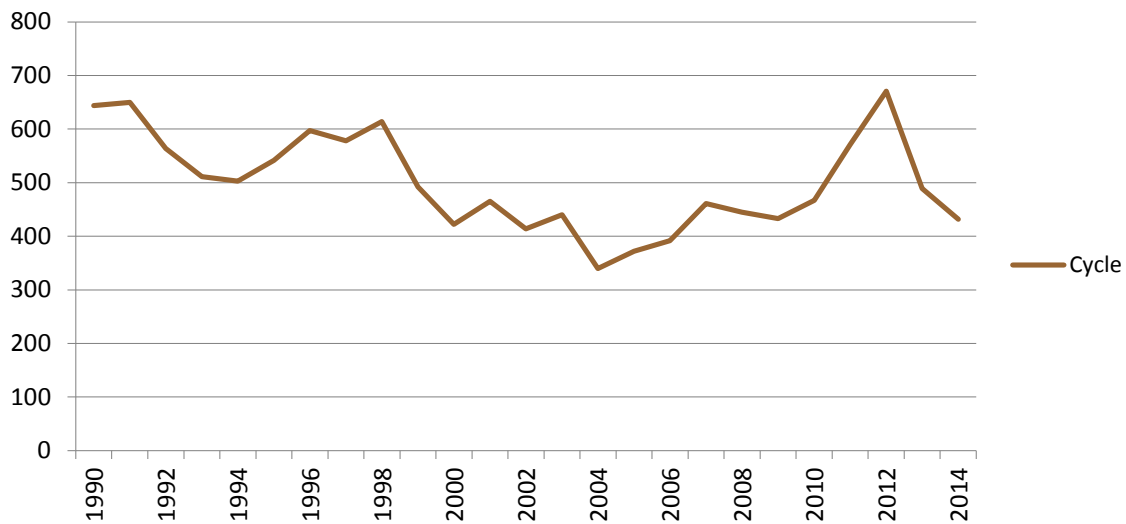
	Killed	Seriously injured	Total KSIs
Pedestrians	64	715	779
Powered two-wheeler	27	499	526
Cyclists	13	419	432
Car occupants	19	297	316
Bus or coach occupants	0	71	71
Other vehicle occupants	4	39	43

¹ Pedestrians, cyclists and powered two-wheeler drivers are regarded as vulnerable road users.

² The statistics of road collisions and casualties is compiled by the Department for Transport from police reports made at the scene. These reports are known as ‘Stats 19’ reports and are the only authoritative record.

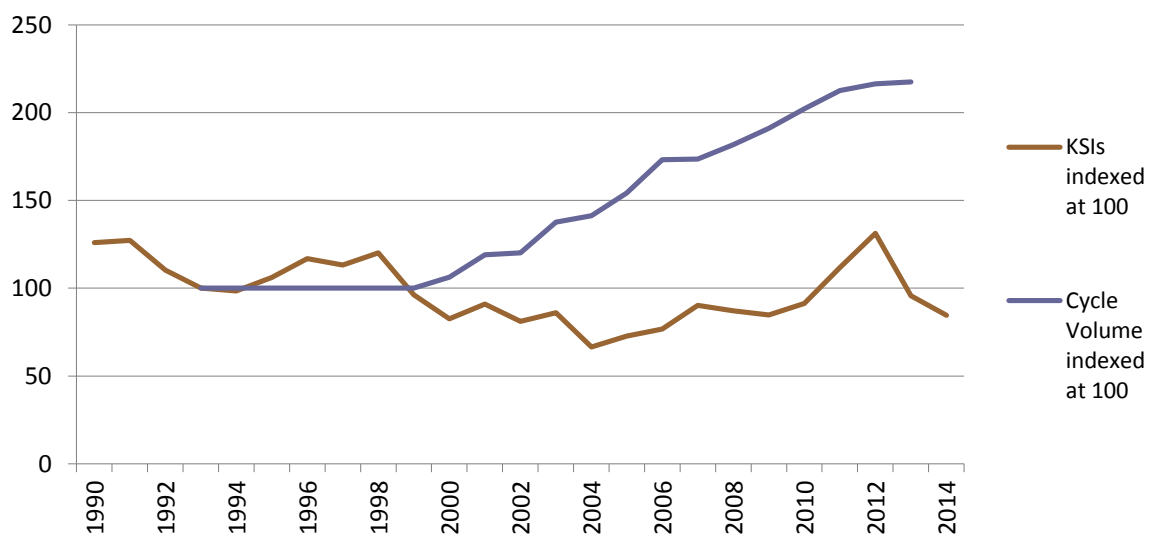
- 3.3. Over those 25 years, cycle casualties in absolute terms have dropped a little, but recently may be increasing (although this judgement is influenced by the 2012 figures which were particularly high). The two following years, 2013 and 2014, are closer to trend, but it will be important to scrutinise future statistics to see if this proves to be the case.
- 3.4. The numbers of killed and seriously injured cyclists in London is shown on the graph below (using a different scale to the previous graph).

Absolute number of cyclists killed and seriously injured since 1990



- 3.5. However, if account is taken of the rise in cycling volumes, then it seems that the rate of casualties has declined. The volume of cycling is taken from TfL's Travel in London Report 7. See graph below

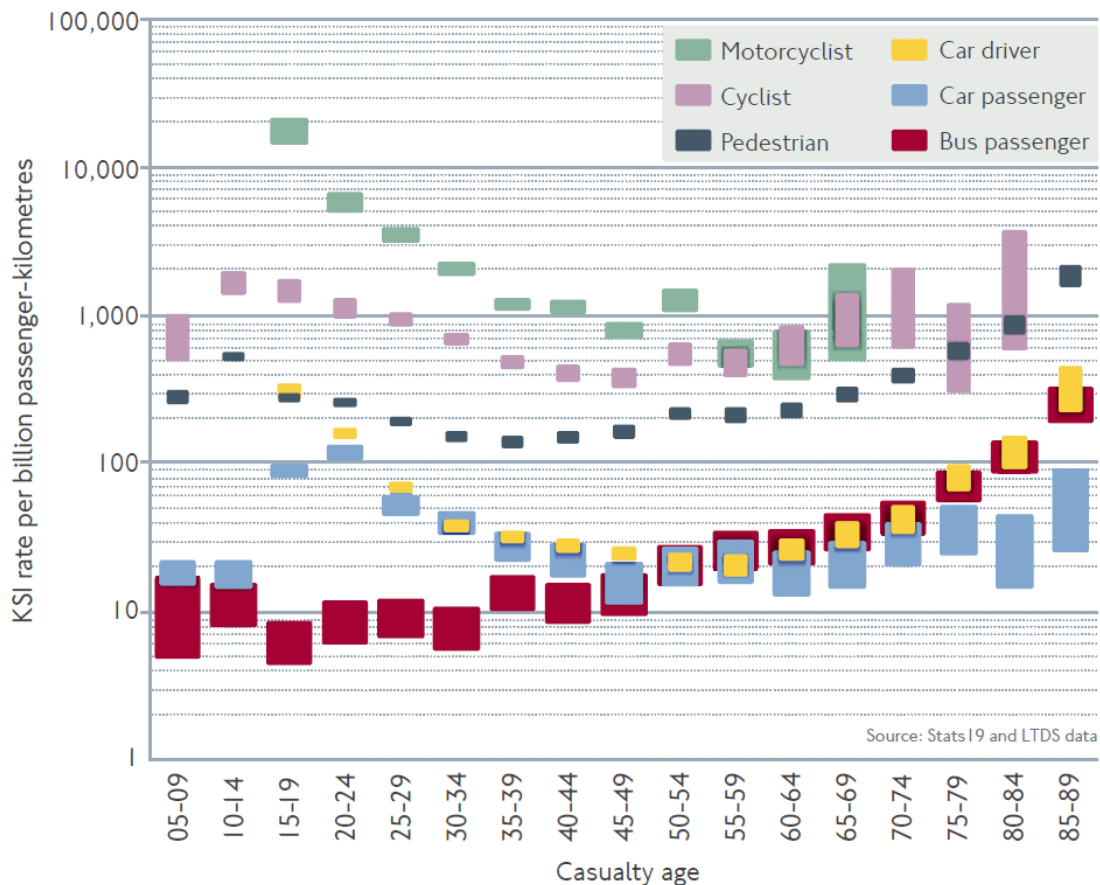
Number of cyclists killed and seriously injured since 1990 and estimated daily average number of journey stages³, both indexed to 100 in 1993



³ <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>

- 3.6. This reduction in the rate of cycling casualties has been achieved through many different interventions, for example slower speed initiatives, the redesign of road junctions and provision of pedestrian crossings. This has been undertaken by the local highway authorities and TfL, both of which have a duty to investigate collisions and have programmes to address them.
- 3.7. Another way of considering the relative vulnerability of road users is to compare the likelihood of the users of the various modes becoming a casualty. TfL have recently done this and an interesting graph is reproduced below. This shows that there are more pedestrian casualties than cyclists in absolute terms, but that the casualty rate per kilometre travelled by cyclists is higher. It also shows that the chance of becoming a motorcycling casualty is an order of magnitude higher. Please note the graph is logarithmic in order to show the very high motorcycling rate sensibly on a graph.

Figure 1: Casualty rate per billion kilometres by age for each mode



4 Principles of London TravelWatch’s approach to road safety

- 4.1. Traditionally London TravelWatch has supported education, enforcement and engineering interventions to improve road safety and reduce casualties on London’s roads. It supports evidence based and ‘data-led’ engineering interventions that seek to maximise casualty savings per pound spent. To put it

another way: engineering interventions are very expensive and so London TravelWatch wants to see finite resources spent in a manner that might do most to prevent casualties. When responding to road safety-related consultations, we take account of all modes and prioritise the interests of users who are most at risk.

- 4.2. In practice, this data-led approach will mean focussing on the redesign of road junctions on heavily trafficked roads with a history of multiple collisions, because it is at these busy intersections where the overwhelming proportion (80%) of collisions and casualties occur. London TravelWatch supports area-wide speed management schemes (traffic calming), which are known to be effective in terms of casualty saving and also create a safer cycling and pedestrian environment. However, we ask that traffic calming does not impede bus services or make the ride too uncomfortable. There are also safety benefits in reducing traffic volumes locally and generally which London TravelWatch supports. This evidence is best summarised by the Road Safety Observatory⁴ synthesis of cycle infrastructure research: <http://www.roadsafetyobservatory.com/Review/10143>
- 4.3. The following are some of the main observations London TravelWatch makes when consulted regarding highways proposals, particularly on the TLRN. These observations are based on the scheme of delegation approved by members in December 2014:
- London TravelWatch supports the reversion of heavily trafficked gyratory systems to two-way operation because one-way streets encourage speeding and are difficult to negotiate as a cyclist (and as a pedestrian);
 - London TravelWatch asks for left-hand slip roads to be removed because they can be difficult for cyclists to negotiate and result in motor vehicles crossing the path of straight-ahead cycles;
 - At side roads we ask for 'entry treatments', i.e. the raising of the carriageway to pavement level and a tight junction radius to slow vehicles turning off the main carriageway;
 - London TravelWatch wants to see wide inside lanes and bus lanes and wider lane widths at junctions;
 - London TravelWatch asks for advanced cycle stop lines to assist cyclist get ahead of traffic and allow them to stop in a visible location relative to other vehicles;
 - London TravelWatch expresses concern about the introduction of cycle lanes (particularly those that continue up to an intersection) where they encourage cyclists to position themselves too close to the kerb, contrary to cycle training advice. Poorly designed cycle lanes can also encourage cyclists to cycle too close to parked vehicles⁵. London TravelWatch explicitly wrote to TfL of our concern during the consultation on the original 'blue-paint' cycle superhighways (See Board papers 23.3.10);

⁴ The Road Safety Observatory is a web based resource supported by the DfT, PACTS, ROSPA, the Association of Chief Police Officers, amongst others.

⁵ 10% of killed and serious injuries are caused when a cycle hits an open door or swerves to avoid the open door of a vehicle.

- London TravelWatch is supportive of what road safety practitioners describe as ‘understandable, self-explaining’ roads. This means simple layouts that don’t confuse users and which necessitate a minimum of signage.

5 Transport for London’s approach to cycle safety

- 5.1. Following two high profile fatalities in 2011 and subsequent campaigning, particularly on social media, TfL moved away from its ‘blue paint’ cycle superhighways on the TLRN and started to develop the latest generation of cycle superhighways.
- 5.2. TfL’s recent approach to cycle safety is different to London TravelWatch’s, in part because TfL are seeking to do two things. Firstly, they want to reduce the number and impact of collisions and casualties on London’s roads (as we do). However, TfL also want to explicitly address the perception of safety – TfL want cyclists to ‘feel’ safe so as to encourage more cycling. While we agree that cycling should not be perceived to be less safe than it really is, we are concerned that encouraging a perception of safety without actually making cycling safer might not only put cyclists at greater risk but could be counter-productive in the long run.
- 5.3. To help deliver the Mayor’s vision for cycling, TfL has been tasked to introduce separated cycling facilities on the TLRN. Several novel innovations (in a UK context) are being implemented as part of this. Some have been trialled under off-road conditions with volunteers. There has also been an international best practice study, although the designs being used in London are somewhat different to those found in other countries. And there are different cycling behaviours and regulations in different countries, some of which mandate the use of cycle specific facilities.
- 5.4. The cycle superhighways and Better Junction Schemes novel interventions include⁶:
 - i. Remodelled junctions and provision of cycle facilities physically separated from general traffic or signalised cycle-only movements;
 - ii. An early start, cycle-only, green traffic signal;
 - iii. Traffic signals that hold left turning motor vehicles and thus separate cycles from turning vehicles;
 - iv. Various measures being used to increase the separation of cycles from other traffic: white lines, ‘wands’, cycle tracks between pavement and carriageway height and kerb-separated cycle tracks. The lane widths vary from 1.5 to 2.5m;
 - v. Bi-directional cycle tracks between 3 and 4m wide on one side of a carriageway. Various mitigation measures are being used on these to minimise the risks entailed by cycles travelling in the opposite direction to which one would expect, particularly at junctions and pedestrian crossings;
 - vi. At bus stops, TfL are introducing ‘bus stop bypasses’, routeing cycles through the pavement, around the back of bus stops. At present cyclists

⁶ Please note that all of the highways schemes will have been subject to a road safety audit, pre and post-implementation.

- have priority, but options to include zebra crossings that would give priority to the pedestrian are to be trialled;
 - vii. At some locations, cyclists share the pavement with pedestrians or are routed through the pavement;
 - viii. Some turns are being banned to reduce conflict with cyclists and;
 - ix. Cyclists are encouraged / mandated to take right turns in two stages.
- 5.5. As these initiatives are relatively recent, there is little data to confirm their effectiveness. Stratford High Street is the first scheme where there is emerging evidence under real-life conditions. We understand from TfL that there has been a doubling of cycling along this route since 2011. However, the Times newspaper has identified on this route what it describes as the country's worst road junction in 2014 for cyclist injuries. Eight cyclists were slightly injured near to the junction of Warton Road and Stratford High Street in the first year since the separated cycle tracks were installed (in November 2013). Collision statistics for 2014 for the length of Stratford High Street, provided by TfL, confirm that there were 28 collisions (26 slight and two serious), the highest figure since 2005. We have asked TfL to investigate this and report back.
- 5.6. Although it is very early days there is worrying evidence emerging that other road users do not recognise segregated cycle routes. It appears that signage is not sufficient and we will be raising this matter with TfL.

6 Discussion

- 6.1. London government's evidence-based approach to road safety has been successful in greatly reducing the numbers of killed and seriously injured on its roads while enabling an increase in the number of cyclists. It is therefore important that, whilst developing other initiatives, there remains a focus on addressing issues at the locations where most casualties occur, lowering speeds and reducing the volumes of traffic, and that this is done to deliver the highest casualty savings per pound.
- 6.2. There is evidence (The Road Safety Observatory Synthesis of cycle infrastructure⁷) that introducing cycle specific infrastructure may well encourage cycling by reducing the perception of danger, but that the road safety benefits will be mixed. This is because the danger to cyclists is overwhelmingly at intersections where separation from other vehicles can be lost.
- 6.3. There are clearly a number of interacting factors that have to be balanced and it cannot yet be known what the net benefits of TfL's new approach is and if refinements can be made to the design of the superhighways. For these reasons, it is important that the innovations to improve cycle safety are scrutinised. As such London TravelWatch welcomes TfL's programme to investigate if a zebra crossing, or similar intervention, will mitigate the issues these cause for pedestrians at bus stop bypasses.

⁷ <http://www.roadsafetyobservatory.com/Review/10143>

7 Recommendations

- 7.1. It is recommended that London TravelWatch maintains its focus on evidenced road safety interventions in order to improve conditions for cyclists and reduce cycling casualties, but notes that it is also important to improve the perception of safety to encourage cycling.
- 7.2. In addition, it is recommended that London TravelWatch's workplan should include regular scrutiny of the road safety innovations associated with TfL's cycle superhighway and Better Junctions Programme and consider what more could be done to improve cycle safety.
- 7.3. One of London TravelWatch's priorities for transport users for the next Mayoral term calls for an assessment of the cycle superhighways. It is proposed that London TravelWatch investigates the cycle and pedestrian safety issues associated with the soon to be completed superhighways as part of its future workplan.
- 7.4. It is hoped that part of this scrutiny work will be externally funded, which will enable us to commission a more wide-ranging review from an independent source. If we are successful in securing funding for external research we will ensure that the research seeks the views of cyclists and the cycling community, as appropriate, to help with scoping the research. It is recommended that London TravelWatch submit a bid to the Road Safety Trust in order to undertake this work.
- 7.5. However, if this is not possible, London TravelWatch should nevertheless review TfL's monitoring of these projects. Some of the issues for monitoring and investigation are discussed in the Appendix.

8 Equality impacts

- 8.1. Cycle safety and the perception of safety affect both cyclists and non-cyclists in different ways. Some of TfL's novel proposals may have a detrimental impact on some groups, particularly older and visually impaired people.

9 London TravelWatch priority

- 9.1. Members have asked that the Board reviews its approach to cycle safety. Members are advised that the primary (legal) responsibility for investigating collisions lies with the local highway authorities and the Metropolitan Police Service whom are both funded to undertake this work. However, this work is a good fit with one of our Transport Users' Priorities:

"A comprehensive assessment of the positive and negative impacts of the new cycle superhighways should be carried out."

10 Legal powers

- 10.1. Section 248 of the Greater London Authority Act 1999 places upon London TravelWatch (as the London Transport Users Committee) a duty to consider -

and where it appears to the Committee to be desirable, to make recommendations with respect to - any matter affecting the functions of the Greater London Authority or Transport for London which relate to transport (other than of freight).

11 Resource implications

- 11.1. It is proposed that London TravelWatch seeks external funding for some of this scrutiny work, as that would allow us to commission expert assistance. If this is not possible, we will accommodate it in the overall budget by giving greater priority and allocating additional staff time to this in the 2016-17 workplan.
- 11.2. Recent discussions with the London Assembly Transport Committee have confirmed that they would welcome London TravelWatch switching more resources to this topic.

Appendix

Cycle superhighway innovations, areas for scrutiny

Below are some of the novel innovations associated with TfL's new cycle superhighways and Better Junction Schemes that should be the subject of scrutiny.

1 Complexity

Good practice suggests that road layouts should be understandable and self-explaining. TfL's recent major cycle-related road scheme proposals have resulted in some complex layouts.

Some will need signs to describe to cyclists how they should use them. At Cambridge Heath, for example, cyclists are advised to turn right in two stages and a sign is provided to explain this movement. From observation, no cyclists do this as it is complex and introduces a journey time delay waiting for two phases of the traffic signals.

Members will recall discussing the complexity of the design proposals for Elephant and Castle at their 15.09.14 Policy Committee meeting. At Elephant and Castle, there are a whole mix of cycle specific measures and a right turn is banned for all traffic including cycles. Some cycles will almost certainly exit the carriageway onto the public square and re-enter the carriageway to turn left from New Kent Road to Elephant and Castle.



The proposal for Elephant and Castle. The final design varies from this along the south side of E & C where cycles are routed through the pavement, between the bus stop and buildings.

2 Separation from motor vehicles along the links between junctions

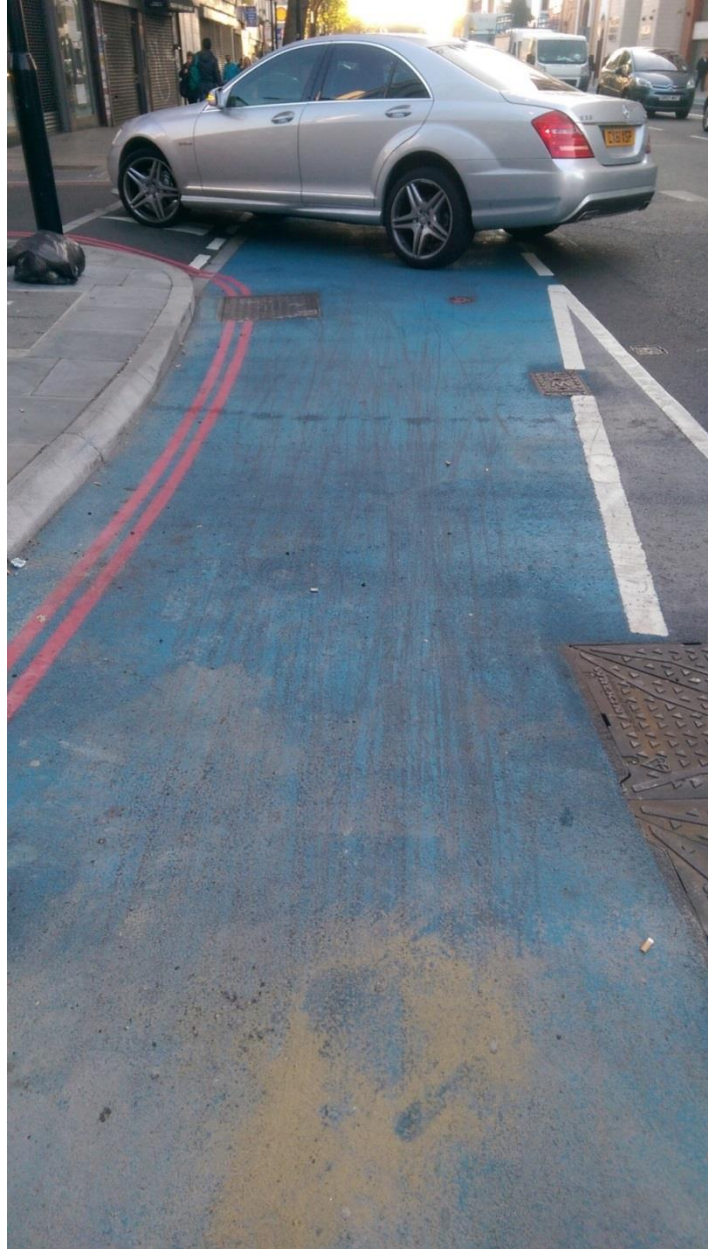
Where there is separation from general traffic by a kerb or similar along the links between junctions there will clearly be benefits insofar as collisions with motor vehicles from behind or from the side will be substantially reduced. Other forms of separation may be less beneficial.

At Whitechapel Market, in order to maintain access for loading etc, only a mandatory cycle lane [white line] inside a bus lane is provided. The width of this is such that cycles within it may be too close to parked vehicles and be vulnerable to opening doors, one of the substantial risks to cyclists. The marked cycle lane may also encourage motor vehicle speeding on the assumption, by the driver, that the cycle will stay within the lane. A better arrangement may be to omit the cycle lane completely leaving a wide inside lane where large vehicles can pass buses and cycles can pass large vehicles safely.



3 Fast cycles on the inside of left turning vehicles

A significant risk for cyclists is from left turning motor vehicles crossing their path into side roads and occasionally colliding with them. This is illustrated at Greatorex Street on Whitechapel High Street where cycle skid marks can clearly be seen that stop just short of the junction. This risk could be reduced by raising the cycle lane to the level of the pavement, inseting the lane and introducing a more significant side road entry treatment to slow turning vehicles, but that will take space from the carriageway or footway. Faster cyclists will be more vulnerable.



The junction of Whitechapel High Street with Greatorex Street shows cycle skid marks that stop just short of the intersection

Another location where this issue is observed is at the signalised junction of Stratford High Street and Rick Roberts Way (opposite Warton Road). TfL have sought to mitigate this risk at controlled junctions along its newest cycle superhighways by holding left turning vehicles at a signal and allowing straight-ahead cycles to proceed on a green signal. This configuration takes pavement space and is not used by all cyclists because of the additional delays for cycles using the cycle specific lane.

4 Bi-directional cycle tracks

Bi-directional cycle tracks are being widely used in TfL's schemes. Whilst these have the benefit of reducing the impact of cycle-specific infrastructure on traffic capacity, loading, side streets and bus stops, there is a greater risk of collision because both pedestrians and drivers crossing the lane may not be aware of cycles coming from the 'wrong' direction. Camden council is removing its bi-directional cycle lanes where it can for this reason. The risks can be reduced by closing side streets or reducing the volume of traffic entering and leaving the side street. TfL are trialling zebra crossings of the cycle track which will have the effect of prioritising the pedestrian. Where a bi-directional lane ends and there is a transition to a conventional arrangement, there will be further complications, risks and inconvenience.

The partial opening by TfL of bi-directional cycle lanes has resulted in reports of motor vehicles entering them and indeed driving along them. This may well be only because drivers are unaware of the lanes. However, TfL will have to ensure this does not continue.

5 A safer feeling for cyclists may lead to pedestrians feeling less safe

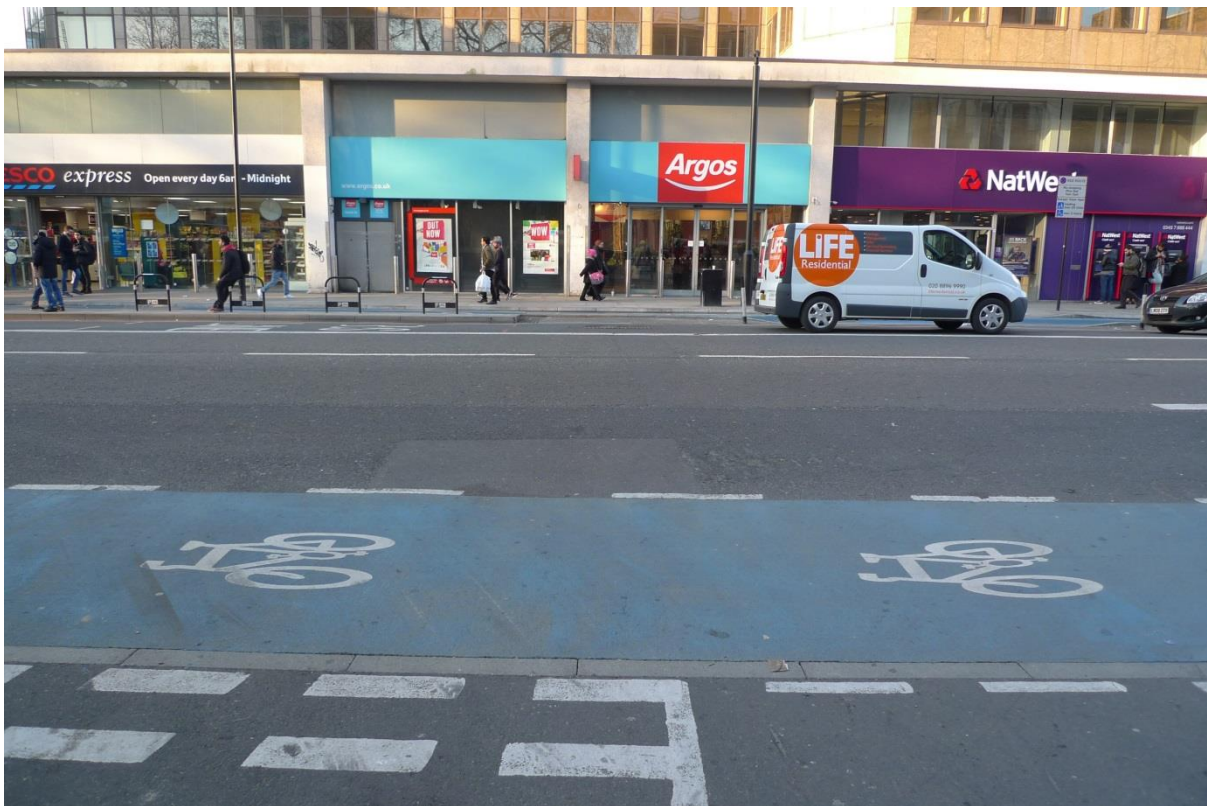
The introduction of bus stop bypasses (whereby cycles are routed around the back of bus stops) is designed to make cyclists feel safe, but this may well generate concern amongst pedestrians for their safety. Observation suggests able bodied pedestrians and passengers manage to avoid the cycles, many of which travel at relatively high speed. There are occasional near-misses and, of course, there will inevitably be some collisions. Cycle skid marks can clearly be seen at the bus stop bypass near Aldgate East Underground station. At this stop, the residual pavement width is too narrow and pedestrians routinely enter the cycle track. TfL are proposing to trial zebra crossings for cycle lanes that pass behind the bus stop, which will effectively reverse the priority at the crossing place to favour pedestrians. At the workshops to discuss this trial, representatives of visually impaired people have said that their clients are absenting themselves from bus services because these stops are unusable for them.



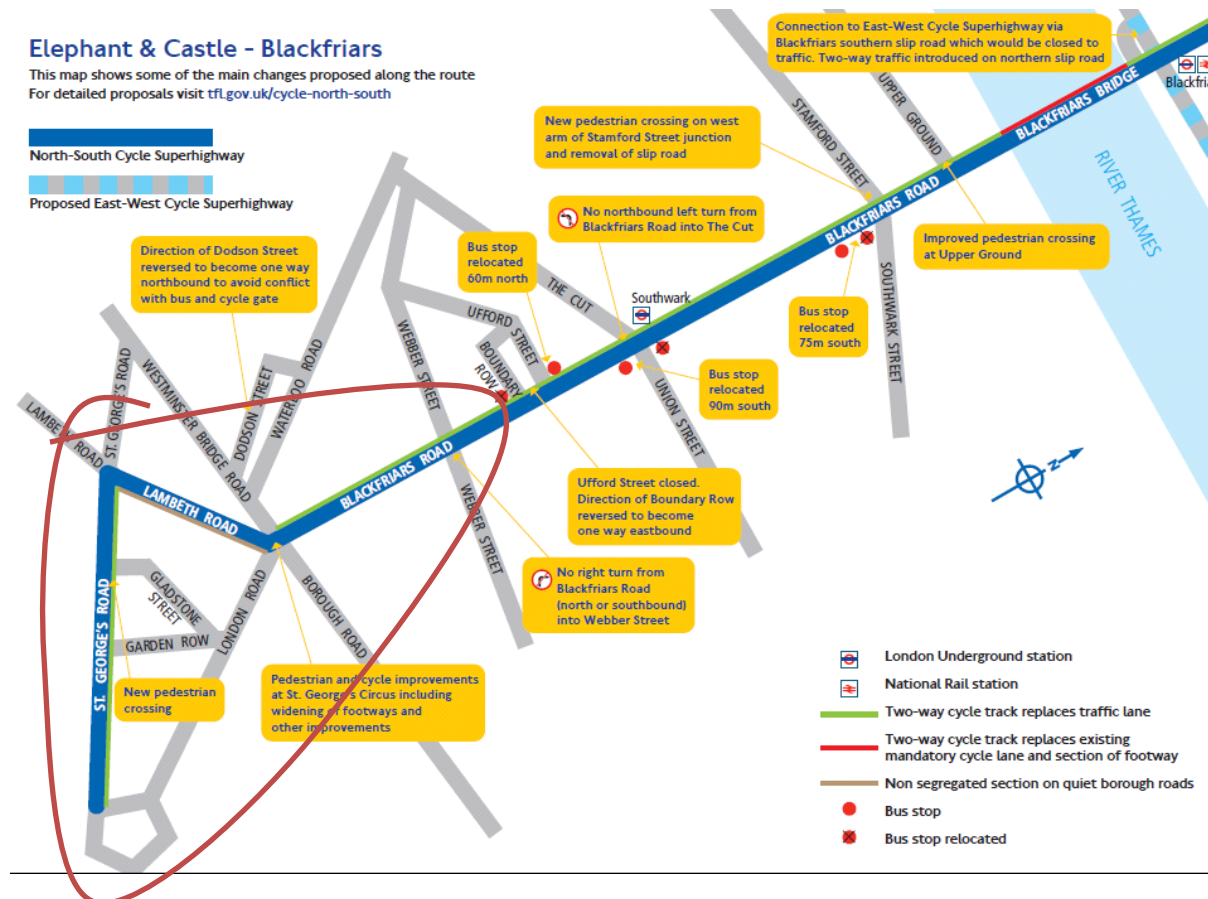
Bus stop bypass near Aldgate east station.
Cycle skid marks can clearly be seen.

6 Some cyclists may not use the facilities

Cyclists will tend to take the least course of resistance and are most likely to use the facilities provided where it gives them an advantage. Whilst the designs may look to be satisfactory, in practice they may be inconvenient and extend journey time. This will mean some cyclists will not always use the cycle specific facilities provided and cycle with general traffic. Some cyclists may not want to mix with pedestrians at a bus stop, particularly if they have had an unfortunate previous experience or the main carriageway is clear. Others will regard the additional wait for separate signals as a deterrent to use. If there is not enough width (2.5 metres+) then some cyclists will stay out of the facility as they cannot easily overtake, others won't like being overtaken by faster cycles. Leaving or entering the cycle track, if there are no breaks in the kerb, will be a problem that might lead to or force non-use. This can be seen on Whitechapel High Street for cyclists emerging from Fieldgate Street and turning right.



The issue of non-use can be observed at Vauxhall Bridge where using the cycle track to travel southeast is convenient and so is well used, but travelling north-west from the Nine Elms direction is less convenient and so some cyclists from this direction use the bus lane in preference. Southwark council are reported as responding to the North / South consultation that the St Georges Road cycle superhighway alignment may prove to be less popular than the more direct London Road.



However, it is suggested that the design of London's streets should be such that those not now cycling (for fear of their safety) will take up cycling if safer facilities are provided. And so these novice cyclists will trade off journey time and directness for safety and will use the facilities provided. This will not generally be a problem as long as consideration is given for the safety of those choosing not to use the cycle-specific facilities as well as those that do.

7 Shared pavements and cycles routed through pavements

Shared pavements seem to be an inevitable consequence of introducing cycle tracks. This will be problematic for pedestrians, particularly vulnerable ones. This can be observed at Elephant and Castle.



The cycle lane has been routed through the pavement and around the back of the bus stops at Elephant and Castle.

8 Powered two wheelers

Powered two wheeler riders have two main concerns. Their first is the narrowing of general traffic lane widths. Generally motorcyclists will look to filter past slow moving traffic. They are also concerned about the potential use of rubber blocks or similar bolted onto the carriageway. These are designed to act as a physical deterrent to motor vehicles encroaching into the cycle lane. However they could unseat a motorcycle driver. To date TfL have not used these blocks on their own network, but they are being funded by TfL to be utilised by some London boroughs.