LondonTravelWatch

The voice of London transport users

A London TravelWatch report

Cycling in London

December 2017

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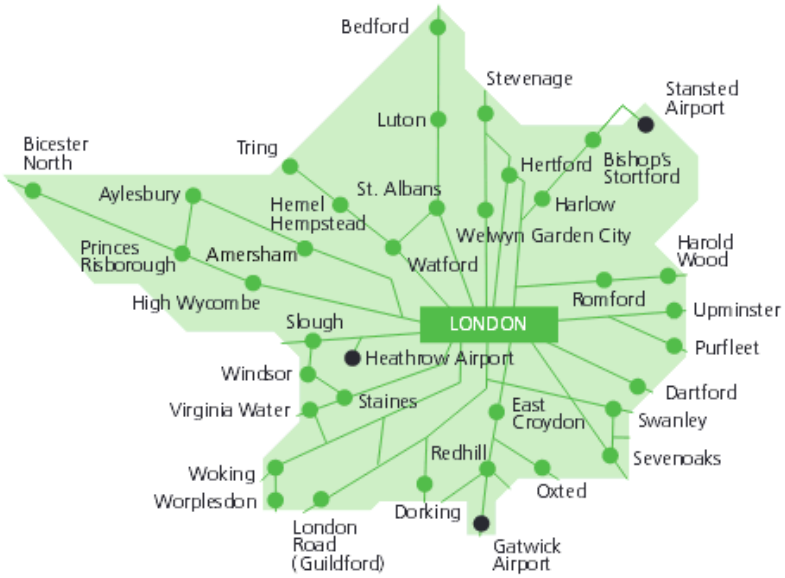
London TravelWatch is the independent, multi-modal body set up by Parliament to provide a voice for London's travelling public. This includes users of rail services in and around London, all Transport for London (TfL) services (bus, Tube, DLR, trams, taxis) and motorists, cyclists and pedestrians using London's strategic road network. We are funded by and accountable to the London Assembly.

Our approach

- We commission and carry out research, and evaluate and interpret the research carried out by others, to ensure that our work is based on the best possible evidence
- We investigate complaints that people have been unable to resolve with service providers – in 2016-17 we got more than 11,000 enquiries a year from transport users and took up 2,400 cases with the operator because the original response the complainant had received was unsatisfactory
- We monitor trends in service quality as part of our intelligence-led approach
- We regularly meet with and seek to influence the relevant parts of the transport industry on all issues which affect the travelling public
- We work with a wide range of public interest organisations, user groups and research bodies to ensure we keep up to date with passenger experiences and concerns
- We speak for the travelling public in discussions with opinion formers and decision makers at all levels, including the Mayor of London, the London Assembly, the Government, Parliament and local councils.

Our experience of using London's extensive public transport network and its streets, paying for our own travel, and seeing for ourselves what transport users go through, helps ensure we remain connected and up to date.

Our aim is to press in all that we do for a better travel experience for all those living, working or visiting London and its surrounding region.



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Foreword

It is an exciting time for transport in London. The new Mayor's Transport Strategy has put active travel centre stage. A big part of this will be getting many more of us to cycle in and around London.

This is welcome because there are both transport and societal benefits if more Londoners cycle, walk and use public transport.

This report presents London TravelWatch's views on the policies and programmes that it wants to see adopted to encourage and enable more cycling, alongside more walking and more public transport use.

This report builds on London TravelWatch's *Cycling in London* report published in 2009 and consideration of the recent initiatives, most importantly the former Mayor's *Vision for cycling in London* and the present Mayor's *Healthy Streets for London* report. London TravelWatch has ongoing discussion and debate with many different stakeholders: London local government, cycling, walking, public transport users, road safety campaigners, older and disabled peoples' representatives. Last year we hosted a lecture by Professor Ruth Oldenziel, author of the book, *Cycling Cities,* that brings to life the cycling history of 14 European cities and suggests the reasons some cities have much higher levels of cycling than others.

More cycling will mean a good number of different initiatives. There will be some carrot, some stick and some initiatives to address the perception and reality of danger on London's streets. Others programmes should help Londoners to get on their bikes. It will also mean balancing the needs of all the other users and uses of London's streets.

We are particularly keen to promote linked cycle and rail trips. Published in this report is mapping that demonstrates how much of outer London is just a short cycle ride from at least one zone 5 or 6 station. We hope this may prompt action to enable more of these linked trips.

I hope that you enjoy reading this report and that it contributes to the debate as to how best to provide for cycling in London.

John Stewart

Deputy Chair, London TravelWatch

Executive Summary

This report describes London TravelWatch's support for more and safer cycling in London, for both societal and transport reasons.

Twelve policies to promote and enable more and safer cycling are described.

1. A wider and more sophisticated system of roads pricing – charging for the use of the busiest roads at the busiest times;
2. Parking policies to restrain driving – reducing parking availability in areas and at times where non-car modes are good;
3. Car-free housing development – housing without on or off-street parking;
4. Closing minor roads and central areas to through motor traffic, thereby improving local streets for cycling and walking;
5. Slower speed initiatives using traffic calming, activating the street and introducing appropriate speed limits;
6. Cycle specific infrastructure – lanes, tracks, advanced stop lines (see Appendix D for some issues that should be considered when designing for cycling);
7. Clear space for cycling – wide inside lanes, 24/7 bus lanes, bus and cycle only streets and parking restrictions on main roads;
8. Highways and traffic management changes targeted at those locations most problematical for cycles;
9. Side road entry treatments and the removal of left slip lanes – re-engineering intersections to make them safer;
10. Training education and enforcement;
11. Cycle parking and storage at home;
12. Rail stations as cycle hubs – enabling more linked cycle and rail trips.

Appendices describing some of the key issues for London TravelWatch's stakeholders, the statistics of cycling and road safety, a summary of Professor Ruth Oldenziel's *Cycling Cities* report design, and other issues are included.

Introduction

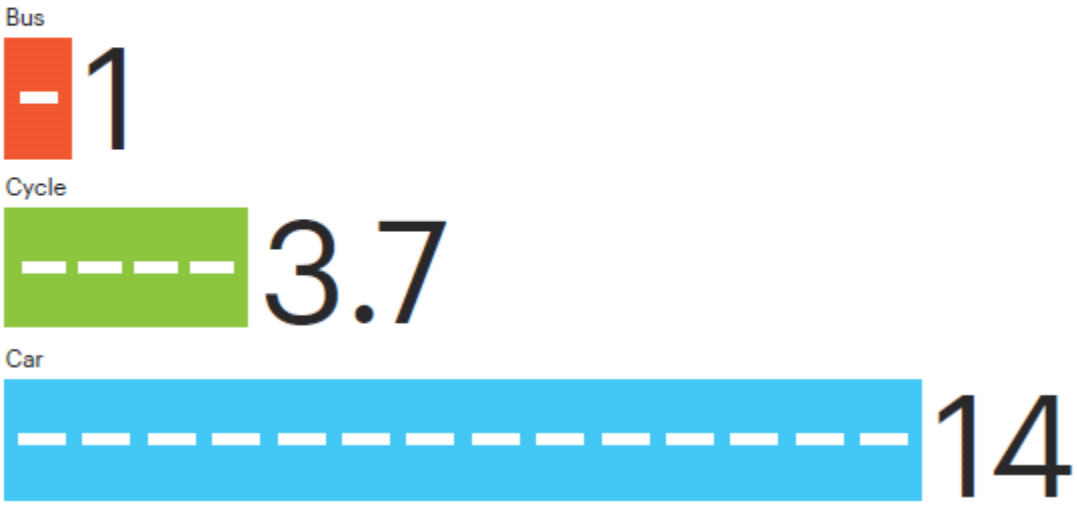
More and safer cycling has been a longstanding objective of public policy because cycling for transport has many transport and societal benefits.

Travelling actively, either by walking, cycling or as part of a linked public transport journey can have a profound effect on personal health. Unlike joining a gym, playing soccer or going to the pool, active travel can be incorporated into everybody's daily lives and so more people are likely to become active. The nations Chief Medical Officers say that:

> Regular physical activity can reduce the risk of many chronic conditions including coronary heart disease, stroke, type 2 diabetes, cancer, obesity, mental health problems and musculoskeletal conditions. Even relatively small increases in physical activity are associated with some protection against chronic diseases and an improved quality of life[1].

There are transport benefits that come with more cycling too. Switching car and public transport journeys to cycling will reduce travel demand on those modes. In the case of switching from car, there will be more efficient use of road space. The graphic below shows the potential benefit of a switch from car to cycle.

Figure 4: Indicative average amount of road capacity required per person
Based on 2011 morning peak period, inbound central London cordon count and national transport modelling assumptions



Graphic taken from the Mayor's Roads Taskforce report[2]

There are benefits to the public purse. The widespread and numerous health benefits accrued will reduce the financial burden on health services overall. Switching public transport journeys to cycling, especially at peak hours, will reduce the demand for public transport at the time of day public transport is most costly to provide.

[1] Start Active, Stay Active: A report on physical activity from the four home countries' Chief Medical Officers
[2] https://tfl.gov.uk/corporate/publications-and-reports/roads-task-force

London TravelWatch supports more and safer cycling and supports the extant Mayor's Transport Strategy target to increase the modal share of cycling to 5% by 2026. Cycling will have to play a significant role in the new Mayor's Transport Strategy if the aspiration that 80% of journeys are to be by foot, cycle and public transport.

London TravelWatch represents all the users of London's streets. It takes a balanced view of the needs of the different modes, whilst prioritising those that are most space efficient: walking, cycling and bus. These balances are not clear, because increased levels of cycling and the provision of cycle specific infrastructure, for example, has impacts on other users of London's streets.

In 2009, London TravelWatch published *Cycling in London*[3], its perspectives on cycling. In 2013 and 2014, members discussed the *Mayor's Vision for cycling in London* and the new cycle superhighway proposals. This consideration developed London TravelWatch's perspective on cycling further. This report represents its views now, on how best to promote and enable more and safer cycling in London.

We have drawn on our debate and discussions with stakeholders over many years. These views are discussed in appendix A.

We have considered the statistics of cycling in London, road safety statistics and some of the research, particularly that described in the peer reviewed Road Safety Observatory website[4], which is endorsed by the Department for Transport and authoritative road safety bodies. There is an appendix describing some of the issues that need consideration when designing London's streets for cycling. See appendices B, C & D.

London TravelWatch has hosted a lecture by Professor Ruth Oldenziel of Eindhoven University on her work looking at the history of 14 European *Cycling Cities.* This too informs our work and discussed in appendix E.

Appendix F is a summary of the development of London's cycling policies. Appendix G is a summary of two pieces of research looking at the interactions between cycles and bus passengers at bus stops conducted by the Arriva Denmark bus company and by TRL, the consultants, on behalf of TfL.

[3] http://www.londontravelwatch.org.uk/documents/get_lob?id=1816&field=file
[4] http://www.roadsafetyobservatory.com/

Policies for more cycling

Cycling is increasing across London, more so in central and inner than outer London. Although, it is in outer London where there is the greatest potential for cycling. This growth has been achieved by a mixture of policies addressing the barriers to cycling, from training and awareness raising, to the systematic road safety work and the building of cycle specific infrastructure by the highway authorities. We know cycling became more popular as an unexpected consequence of congestion charging. Other restraint on private mobility will have played its part, along with changing demographics, lifestyle choices, road congestion, crowding and perhaps the relatively poor performance of public transport.

The *Cycling Cities* research (summarised in Appendix E) suggests that encouraging behaviour change to cycling amongst cities with high levels of cycling in Europe has been achieved primarily by policies that restrain auto-mobility. For example, by closing central city areas to motor vehicles, reduced parking availability and slower speed initiatives.

Below is a summary of the policies that London TravelWatch supports to promote cycling. Some are general policies that will promote changes in travel behaviour; others are specifically targeted at 'barriers to cycling'.

Roads user charging

London's central area congestion charge has had a significant impact on cycling levels. There was an unexpected 30% rise reported in Transport for London's six month, post-implementation report.

London TravelWatch supports the development of a wider and more sophisticated system of roads pricing for motor vehicles, primarily because this would enable bus services to operate more effectively, but of course, road user charging would have beneficial affects on Londoners' travel behaviour. Many more Londoners would choose the more space efficient modes including cycling, particularly for short journeys at busy times and into congested areas. Motor traffic reduction is also a key measure to reduce road casualties.

Motor vehicle parking policies

In a similar manner to road user charging, motor vehicle parking policy can be used to reduce the attractiveness of busy centres to motorists, thereby making an area more attractive to the sustainable modes including cycling. The Mayor's Draft Transport Strategy is supportive of the principle of work place parking levies to change travel behaviour. This would also encourage modal switch to cycling. Controlled parking zones can reduce commuting and short trips, and thereby promote more sustainable modes such as cycling.

It is well known that the city of Copenhagen embraced a policy of incrementally, and consistently, removing motor vehicle parking from its central area to be replaced by better public spaces, walking and cycling facilities.

Car-free housing development

For a number of years London's development plans have encouraged car-free housing development, i.e. new housing development where there are no car parking facilities for

future residents (except those with a disability) either on-site or on-street. The latter being achieved by restricting the availability of on-street parking permits issued by the local authority. Again, this measure will encourage sustainable transport choices. Many London boroughs, particularly in inner London where access to public transport is readily available, are successfully applying this development plan policy. It is a key policy in the Draft London Plan.

Car-free development policies particularly recognise adjacency to high quality public transport modes as a requirement. The policy would be more effective if access to public transport and services by cycle were considered supportive of car-free development.

It should be noted that car-free development is only practical in areas where controlled parking zones are, or may soon to be implemented.

Closing minor roads and central areas to through traffic

Closing individual streets and even whole central areas to through motor traffic, whilst allowing access for public transit, cycling, residents' motor vehicles and deliveries, will have the effect of reducing motor traffic and provide a safer walking and cycling, area wide, environment. The consequent reduction of turning movements from main roads into minor streets will also reduce the likelihood of collisions at these junctions.

Pursuing a policy of closing minor roads should be accompanied by measures to ensure that motor vehicles are not displaced to other minor roads nearby, main roads are being efficiently used and buses protected from displaced traffic as far as possible. This will give an advantage to cycling and thereby become more attractive.

Many of the successful cities discussed in the *Cycling Cities* research have closed their central areas to through traffic and so changed how people travel to the central area.

Slower speeds

Slower speeds, as an area wide intervention, will mean fewer collisions and those collisions that do occur will result in less severe injury. In minor and residential streets, this is achieved by physical means (humps or tables). London TravelWatch supports such measures providing they meet TfL's guidelines for traffic calming on bus routes.

In other streets where physical measures are not appropriate, the most effective 'device' for slowing traffic is to change the look and feel of the street. An active street will mean drivers adapt to the circumstances and drive more slowly.

A 20mph limit will be most effective on roads where traffic speeds are already near 20mph and less effective where traffic speeds are higher. The implementation of near-blanket speed limits, say borough wide, will only bring down speeds by one or two mph. London's police are generally unwilling to enforce speed limits that do not meet their guidance for signed speed limits to be near the average actual speed. The police will generally only enforce against speeding where there are particular issues. Near to schools, for example.

Cycle specific infrastructure

Many cyclists favour the provision of cycle tracks, on busy roads, that physically separate cycles from motor vehicles and give them their own dedicated green time at junctions. Many of the dedicated cycle lanes introduced recently are working well, attracting a lot of cyclists and are playing an important role in calming traffic on the roads. However, where the cycling infrastructure has been less well designed – for example if it has led to confusing road layouts, it should be looked at again with a view to improving it.

Some, particularly disabled and older people, are concerned about new cycle infrastructure that brings cycling into conflict with pedestrians, especially if the cycle lanes need to be crossed to reach a bus stop. This is described more in Appendix A that records stakeholders views.

There is also concern about the impact on bus journey reliability and journey times.

London TravelWatch broadly supports the implementation of separated cycle facilities because it believes they encourage more cycling and provide real and perceived improvement of cycle safety.

London TravelWatch recognises the impacts on other users of introducing separate infrastructure for cyclists: cyclists can be brought into conflict with bus passengers and pedestrians and there can be negative impacts on bus services. London TravelWatch is keen that these impacts are minimised as best they can be.

There are other measures said to assist cycles on the road that are described in TfLs latest *London Cycling Design Standards*[5].

Proposals to provide cycle specific infrastructure are generally welcome, but given the impacts on other users, need to be judged on their own merits and a balance struck that favours the space efficient modes, walk, bus and cycle.

Some of the design considerations for cycle specific infrastructure are discussed in appendix D.

Clear space for cycling

Reducing vehicle parking on main roads and extending the operation of bus priority for longer hours will assist cycles and improve cycle safety. Wide inside lanes (4.5m), wide bus lanes and the provision of a wide lane adjacent to bus stops will provide a good level of service for cycles and improve cycle safety.

London TravelWatch supports Camden's proposals for Tottenham Court Road that prioritises pedestrians, cycles and bus services and restricts access to other traffic. It provides a wide (4.5m) inside lane so that cycles can pass large vehicles and large vehicles can pass cycles. London TravelWatch supported the experimental scheme at Bank junction that too prioritises pedestrians, cycles and bus services. This model, allowing privileged access for the space efficient modes, walk, cycle and bus, is a feature of those cities with high cycling levels in Europe.

[5] https://tfl.gov.uk/corporate/publications-and-reports/streets-toolkit#on-this-page-2

The Tottenham Court Road proposal will enable cycles to share more easily and safely with buses in a wide lane.

Road safety highways engineering

Cyclists are one of the three most vulnerable modes along with pedestrians and motorcyclists. It is likely that as cycling becomes more popular then cycling casualties will become a greater proportion of all casualties. Work must continue to reduce this toll by targeted highways engineering and traffic management changes. These can take many forms, for example, remodelling junctions or changing lane widths.

Cycle safety initiatives also respond to surveys that find fear of being involved in a collision comes high up as a barrier to cycling itself. TfL commissions such surveys – *Attitudes towards Cycling*[6]. Their surveys suggest 42% of cyclists are deterred from cycling more, because of fear of being involved in a collision. They also find that 54% of non-cyclists are deterred from taking up cycling by fear of being in a collision.

Campaigners make the point that cycle specific infrastructure can both improve actual road safety, i.e. reduce the number and severity of injury, and also reduce the perception of danger, thus encouraging more cycling. It is to be hoped that highways interventions will do both, though there is evidence that casualties 'migrate' from links to road intersections where cycle specific infrastructure is introduced[7]. This is because side-on, and collisions from behind reduce, but collisions at intersections tend to increase.

It is significant that most collisions (80% +) that cause the injury and death of cyclists occur at road intersections. It is therefore important that targeting problematic junctions, for road safety intervention, remains the primary casualty prevention focus of highway authorities.

Side road entry treatments and the removal of left turning slip roads

Reducing the radii of junctions and adding side road entry treatments (raising the carriageway to pavement level and tightening turning radii) can slow turning motor vehicles intending to cross the path of cyclists on their inside. Removing left hand slip roads and

[6] http://content.tfl.gov.uk/attitudes-to-cycling-2016.pdf
[7] http://www.roadsafetyobservatory.com/Review/10143

replacing them with conventional junctions will similarly slow motor vehicles turning across the path of straight-ahead cycles.

It should be noted that the borough 'side road entry treatments' are more successful than TfL's design. This could be because the borough designs have tighter radii and steeper ramps and is worthy of further investigation.

Training, education and enforcement

In its 2009 report, London TravelWatch supported cycle training, education and enforcement as a priority. We wanted to see more training, education and awareness raising and more roads policing.

Ealing Council has demonstrated the benefits of cycle training, finding that there had been sustained increases of cycling amongst those undergoing training courses. It is pleasing that many London boroughs offer cycle training. London TravelWatch encourages them to continue to do this.

Heavy goods vehicles are over represented as the 'other vehicle' in cyclist fatalities[8]. There has been some progress in seeking to address this within London by targeted roads policing and the implementation of traffic orders requiring improved lorry design.

However, the hope that a fundamental change in the design of lorry cabs to give drivers a direct view of more of the area around their cab, has not progressed as quickly as one might wish. There is therefore a need for ongoing campaigning work directed at both cyclists and drivers to raise awareness and minimise casualties. There is some excellent work being undertaken by the road haulage industry, cycling organisations, local highways authorities and the police. This must continue.

Operation FOIST was undertaken in 2007 by the Metropolitan Police Service (MPS) to target drivers of vehicles using London's roads without insurance, MOT etc. It was a very successful operation insofar as huge numbers of vehicles (1806 in three months), being used illegally in east London, were removed from the road, or their drivers otherwise sanctioned. Operation FOIST has developed into operation CUBO that now undertakes similar activity. There are many collisions that occur on London's roads where the driver leaves the scene[9]. This may be a result of the driver knowing that he, she or their vehicle shouldn't be on the road. London TravelWatch supports more CUBO type operations to address this.

London TravelWatch wants all the users of London's streets to follow the rules of the road. Therefore, it was pleased to support the City of London police's operation ATRIUM. Operation ATRIUM was first conducted in 2006. It targets drivers, riders and cyclists that break road traffic laws. A similar model was subsequently developed by the MPS under the banner of operation Safeway. Both should be continued and indeed enhanced with more activity to raise the standards of cycling, riding and driving, and consideration of others on London's streets.

[8] http://content.tfl.gov.uk/pedal-cyclist-fatalities-in-london.pdf
[9] http://questions.london.gov.uk/QuestionSearch/searchclient/questions/question_289422
http://content.tfl.gov.uk/attitudes-to-cycling-2016.pdf

The latest statistics for one year of operation CUBO show 2536 vehicles were seized.

The police, TfL and the local highway authorities undertake other initiatives. The MPS undertake targeted enforcement against HGV operators to improve their safety performance. They all take part in 'changing places' events to raise awareness, both by drivers and riders, of the lorry blind-spot issue. The London boroughs undertake activities that often have safety education associated with them which are useful and are supported.

Cycle parking and storage at home

The provision of cycle parking at home and at cyclists' destinations is a necessary part of providing for cycling. In TfL's annual *Attitude to cycling survey*[10], less than half of the respondents gave a good rating to the availability of cycle parking near their home. A little over half were happy with parking facilities at stations, at their work and on London's streets.

London TravelWatch advocates that the provision of high quality cycle parking should lead demand, particularly at stations. The provision of cycle parking will become an increasing issue, particularly near attractors of high numbers of cyclists such as town centres and stations. In European cities where cycling levels are high, the provision of cycle storage has become a challenge that authorities have responded to with significant multi-level storage facilities.

London TravelWatch supports travel planning for schools and workplaces, and promotes them as best practice for stations. Travel planning should be undertaken for town centres where cycle parking needs planning for, rather than being provided on an opportunistic basis as available locations are found.

Some London boroughs locate cycle stands on the carriageway in clusters, rather than stringing them out along the pavement, that should really be for pedestrians. This is welcome and is supported where demand is high. One London borough tests the demand using temporary cycle stands which also emphasises the space efficiency of cycling – one car parking space can provide cycle parking for ten.

Where possible cycling should be clustered on the carriageway, not strung along the pavement

Testing demand for cycle parking

[10] http://content.tfl.gov.uk/attitudes-to-cycling-2016.pdf

Major events in London can attract many cyclists, but require only temporary cycle parking. To facilitate this, London TravelWatch has supported calls from the London Cycling Campaign for TfL and the London boroughs to plan for cycling in the same way they plan the transport associated with major events, just as they would plan for bus services and their passengers.

Temporary event cycle parking

Cycle storage at home is a problem for many Londoners, particularly those living in flatted blocks. Lack of cycle storage will mean some potential cyclists do not cycle or cycle less often. The initiative of Lambeth council to provide on-carriage cycle storage of this kind is welcome and has been taken-up by others. However, demand for spaces in these facilities greatly overwhelms supply and there are long waiting lists.

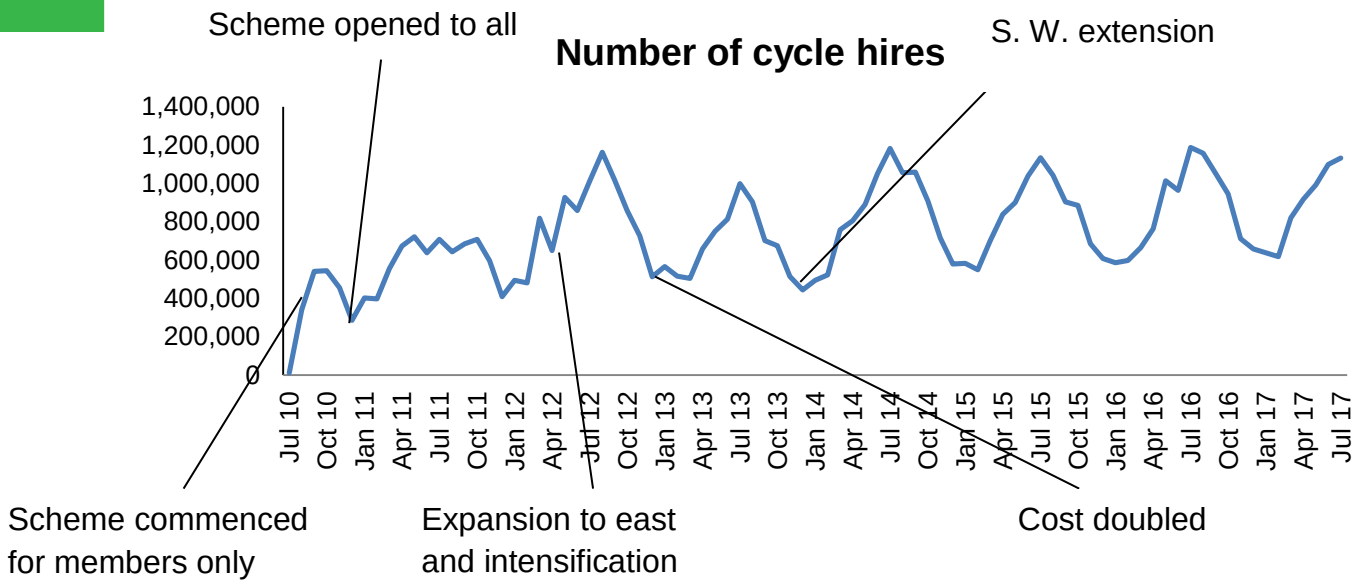
The Lambeth 'cycle hangar' is a welcome addition to London's streets for cyclists living in flats

The London Plan suggests high levels of cycle parking provision in new developments at a rate of one cycle for a one-bedroom flat and two cycles for larger apartments. This is supported.

Cycle Hire

The TfL cycle hire scheme has now been operating since July 2010. It has attracted between 20 and 40 thousand journeys a day. There has been some expansion since the service began to the east and southwest. The scheme is being consolidated at present, with gaps, where there are fewer bikes available, being filled in.

There are requests for extensions to new areas, but the cost of operating the scheme means this is unlikely.



The recent arrival in London of privately operated 'dock-less cycle hire' allows cycles to be hired and left almost anywhere. These systems offer the potential for further cycle hire beyond the central area. The success of these schemes will be dependent on how disciplined their users are about parking their cycles so as not to obstruct other users.

Rail stations as cycle hubs

London TravelWatch recently published a report, *Living on the edge*[11]. This examined travel poverty issues for those living in outer London. It found:

> Cycling is a cheap and very efficient mode of transport, though very few people will cycle from the outer London boroughs to zone 1 (for example, only 217 [1.25%] of the 17,385 Croydon to Westminster commuters cycle according to Census 2011). However, for some people, cycling could extend the area of job search and access considerably up to, say five miles, and is very reliable in terms of journey time.
>
> The majority of qualitative participants expressed the view that cycling was either not feasible for them over the whole length of their journey (they described

[11] http://www.londontravelwatch.org.uk/documents/get_lob?id=4100&field=file

themselves as ‘too lazy’ or were concerned they would be too sweaty by the time they got to work) or that they felt unsafe in current traffic conditions. However, cycling as a short part of a longer journey involving other modes might be a more realistic prospect, for example to a railway station in a different fare zone from where it would be cheaper to travel into central London. Cycling some of the way might reduce the number of zones travelled through by rail, or remove the need for a bus journey or car parking charges, helping to reduce travel costs overall.

Outer London boroughs and communities, and Transport for London, might like to consider what they could do to integrate cycling more fully into the commuting patterns of low paid workers and job seekers.

In Richmond, the outer London borough that TfL reports has the highest mode share for cycling in London[12], there is evidence that cycling plays an important role in the journey to work as part of a linked rail and cycle journey. There is a large cycle parking compound behind Richmond station and cycle parking spilling onto railings on the street.

Richmond station has a substantial cycle parking area, but this is overwhelmed and results in this informal cycle parking.

Cycling Cities identified cycling to and from the station as part of many linked trips to work that had contributed to the growth in cycling in some of the studied cities. TfL, the rail industry and the London boroughs could do more to facilitate cycling trips to outer London stations as part of linked trips.

London TravelWatch advocates that one focus for cycle initiatives in London should be the trip to the local station as part of the commute to work. This would extend the catchment area of many stations for those that would cycle, say, for 15 minutes.

The graphic below shows just how much greater the catchment area of all the 137 travel zone 5 and 6 stations could be if cycling for just 15 minutes were considered viable as part of a linked trip. It demonstrates that most households in travel zones 5 and 6 are within a short cycle trip of at least one station.

[12] https://tfl.gov.uk/corporate/publications-and-reports/london-travel-demand-survey

The pink area is within 15 minutes cycle of at least one zone 5 or 6 station. The blue area is a much smaller walking catchment

This suggests consideration should be given to area-wide interventions rather than just routes from A to B. For example, area wide traffic calming, slower speed initiatives, parking controls, road closures to through motor vehicles and targeted junction improvements.

Cycling in London's parks and along its waterways

There are some well-established cycling routes in London's parks and green spaces. The canal system's towpaths are often well used by cyclists, though there is conflict due to the narrow nature of many towpaths. Some of these routes are formalised and cycling is actively encouraged. In other locations, cycling is discouraged with by-laws, barriers and bans. Recently the Royal Parks have sought to slow cycles using some of their paths by the introduction of 'rumble strips'.

Whilst developing the 2009 report, members visited a variety of off-road locations to judge for themselves what criteria should be applied to cycle use. London TravelWatch concluded that cyclists should primarily use the road network, but recognised the importance of off-road provision and that parks and waterways will be used by cycles. When using these types of routes cyclists should recognise that they are guests and take particular care. Cycling speeds should be kept down. Pedestrians should have priority and this priority may need to be reinforced by appropriate signing and enforcement, though without all of the paraphernalia of a highway.

Physical measures to bar cycles and slow them down must be well designed because they can be ineffectual and disadvantage those using the route considerately or with unconventional cycles.. The surfacing of off-street facilities can usefully reduce the speed at which cycles are ridden without affecting the ride quality. For example, members found that crushed chalk was used along Parkland Walk in Haringey and that this provided a satisfactory cycling and walking path.

It is to be regretted that some of London's park roads are utilised as part of the public highway and are often busy roads. There is a proposal to close Regent's Park Outer Circle road to through traffic, which London TravelWatch has supported. This would provide an excellent cycling environment. Its closure would also have reduced the volume of motor traffic on roads approaching the park for cyclists too. Disappointingly, this proposal is presently stalled.

New off-road provision should be investigated. London TravelWatch has previously suggested several routes that could use redundant infrastructure for cycling:

- Bow Church to Hackney
- Finsbury Park to Muswell Hill
- Mill Hill East to Edgware
- Belmont to Harrow & Wealdstone
- Croydon to Canary Wharf cycle route using redundant railway alignments between Crystal Palace and Nunhead, and through public parks between Croydon and Crystal Palace

Conclusions and recommendations

There are multiple transport and societal reasons for supporting policies to enable modal switch by Londoners to the more space efficient modes: walk, cycle and public transport. Cycling is a great choice for up to five miles, which is the majority of journeys in London. It is also useful as part of a linked public transport trip.

There are numerous policies that can be adopted to promote and enable cycling. Some are general such as roads pricing for motor vehicles, some specifically targeted at the barriers to cycling, such as providing cycle parking or separated cycle tracks.

However, there is good research undertaken by Professor Oldenziel of Eindhoven university that suggests the attitude of city leaders to auto-mobility is a key to high cycling levels. Her work suggests policies to restrain motor vehicles will be the most significant in changing travel behaviour.

All of the policies in this report have a role to play and are recommended as part of a package. They do of course, need to be well considered and recognise that there will be impacts on other users.

London TravelWatch recommends London government implement the following policies to enable modal switch to cycling:

1. A wider and more sophisticated system of roads pricing – charging for the use of the busiest roads at the busiest times;
2. Parking policies to restrain driving – reducing parking availability in areas and at times where non-car modes are good;
3. Car-free housing development – housing without on or off-street parking;
4. Closing minor roads and central areas to through motor traffic, thereby improving local streets for cycling and walking;
5. Slower speed initiatives using traffic calming, activating the street and introducing appropriate speed limits;
6. Cycle specific infrastructure – lanes, tracks, advanced stop lines (see Appendix D for some issues that should be considered when designing for cycling);
7. Clear space for cycling – wide inside lanes, 24/7 bus lanes, bus and cycle only streets and parking restrictions on main roads;
8. Highways and traffic management changes targeted at those locations most problematical for cycles;
9. Side road entry treatments and the removal of left slip lanes – re-engineering intersections to make them safer;
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Appendix A - Stakeholders

London TravelWatch represents all transport users in London and has worked with many different stakeholder groups that represent them, over many years.

These stakeholders are diverse and we have different and multiple ways of working with each. London TravelWatch has attended TfL's Design Review Group along with walking and cycle stakeholders, reviewing cycle infrastructure proposals and cycle safety. We have attended working groups of the Metropolitan Police Service considering road safety and discussed roads policing with the City of London police. We consulted, via questionnaires, numerous stakeholders as part of our previous *Cycling in London* report.

London TravelWatch has met all three mini-Holland officer teams. We have sat on TfL's working party that is looking at bus stop bypasses. We have invited stakeholders to walk through some of the new cycle superhighway schemes with us. Living Streets and Cycle Training UK accompanied us.

The Chair of our Policy Committee and the Chief Executive Officer of London TravelWatch have met with the *Stop Killing Cyclists* group. This group organises street protests, 'die-ins', to highlight the deaths of cyclists following collisions with motor vehicles.

Members have heard from an officer of the London Cycling Campaign who attended a Board meeting to discuss the cycle superhighways.

London TravelWatch has also worked with those representing older people and disabled travellers. Particularly we have met the *RNIB, Guide Dogs, Transport for All* and *AgeUK London* both individually and as part of similar forums described above.

Officers have discussed the needs of motorcyclists with the *Motorcycle Action Group* and the concerns of bus passenger with Waltham Forest's *Save our Buses* campaign

Stakeholder's views

There are many perspectives on cycling in London, both from cycle campaigning groups and those that are affected by cycling specific proposals.

Cycle campaigning organisations have been effective in highlighting the benefits of cycling (societal and transport) and what they believe should be done to get more Londoners cycling. Some campaigners call for 'mass cycling' and streets where everyone from 8yrs to 80 can cycle in comfort and safety. The London Cycling Campaign (LCC) and other campaigning cycle organisations want to see:

- Significant reallocation of road space and the remodelling of London's main roads to provide wide, kerb separated cycle tracks. They suggest this for roads carrying over 2000 motor vehicles a day. This would be a considerable number of London's streets, though the scale of any network is undefined;
- the removal of through traffic in minor and residential roads to provide a much quieter 'back street' cycling environment;
- slower speeds;
- remodelled town centres with less or no vehicular traffic;

- safe routes to school;
- safe routes through parks and green spaces.

Cycle campaigners publish blogs' that have been influential in the cycling debate. They have particularly promoted the adoption of Dutch style street design. The then Deputy Mayor for Transport Isobel Dedring, was interviewed as part of the *City Lab* conference in 2015. She said:

> "So the cycling agenda in London is an example where we did get it right. So in 2011 there was huge political pressure about cycling. There were some very high profile fatalities in cycling and there was a huge uproar on twitter and across sort of a series of blogging platforms about why weren't we doing more about this. And we ended working very closely with a lot of the bloggers and sort of the influencers on twitter to craft the programme we are now putting in place. This billion, we've got a billion pound cycling programme that before that we had very, very little that we were actually doing on the network……"[13]

Not all cycle campaigners are enthusiasts for cycle specific measures, such as cycle tracks, for a number of reasons. They have concerns about road safety, the usefulness of cycle lanes and their impact on other sustainable modes, walking and bus. They cite Stevenage, as a town that was designed for cycling with off-road facilities, but has very low levels of cycling.

Cycle stakeholders also support the redesign of heavy goods vehicle cabs, lorry bans at peak hours, marketing, cycle training, secure cycle parking, more roads policing, stronger legal incentives to drive with more care and other initiatives to improve road safety and enable more cycling.

London TravelWatch meets regularly with various stakeholders that represent older and disabled people: *RNIB, Guide Dogs, Transport for All* and *Age UK London*. These groups do not accept that cycles should be routed onto and through the pavement, in front and behind of bus stops. Age UK London and the RNIB have told us that they are getting complaints from their clients.

The older people that attended our older people forum complained about pavement cycling. Presently the pavement is regarded as a sanctuary for them. There is concern that this is being eroded.

The charity representing guide dog users, *GuideDogs*, say:

> We understand that from a cycle safety point of view, this is a positive design, to segregate them from the traffic, and allow an easy approach to the bus stop for buses. However, Transport for London has a duty of care to pedestrians, especially, in this case blind and partially sighted pedestrians - in its current form; we do not believe that has happened.

The following issues are highlighted:

[13] Interview with the Deputy Mayor for Transport as part of the *City Lab* 2015 conference, 18 to 20 October : How to keep Cities moving: https://www.youtube.com/watch?v=KaNKJpIxcig 15 minutes in.

A vision-impaired person would not be able to find the crossing - there is no tactile paving to direct the person to the edge of the pavement/cycle lane.

- Cyclists are not encouraged well enough to slow down or give way, and as a result, do not. Our guide dog owners attempted to cross the cycle lane many times, and in one case, stepped into the lane. Not one cyclist stopped or warned the guide dog owner that they were there.
- Once the blind or partially sighted person has crossed the cycle lane, there is no tactile guidance to the bus stop.
- A vision-impaired person alighting from the bus at a floating bus stop receives no tactile guidance to the cycle lane crossing.

In summary, a blind or partially sighted person would avoid using this bus stop, reducing their mobility, and ultimately, their confidence.

Transport for All, the group that represents disabled and older people has called on TfL to stop introducing bus stop bypasses: **http://www.transportforall.org.uk/news/tfl-stop-building-floating-bus-stops-until-safety-concerns-are-dealt-with**

We know of one group *Wheels for Wellbeing*, a charity that represents disabled cyclists. They are generally supportive of cycle specific infrastructure and advocates that designers need to take account of what are sometimes larger cycles that have riders who cannot easily dismount.

Motorcyclists' concerns are firstly, the reduction in carriageway lane width that gives motorcyclists less opportunity to filter safely through traffic. Secondly, they are concerned regarding the introduction of rubber blocks into the carriageway to delineate cycle lanes. It is feared that these rubber blocks may unseat riders.

The *Save our Buses* group in Waltham Forest is concerned about the impact of the Lea Bridge Road cycle track proposal on bus service performance. It will reduce the priority accorded to buses by reallocating the eastbound bus lane on Lea Bridge Road to build cycle tracks. London TravelWatch has received infrequent correspondence from one bus passenger/activist, concerned about the impact of cycle campaigning and schemes on bus performance.

A number of local residents' groups have formed to oppose road closures that are part of 'Quietway' cycle proposals. Their concerns are about restricted access, displaced vehicular traffic and what they believe will be associated congestion and pollution impacts.

Members and officers have discussed cycling issues at their public meetings, with TfL, local government officers and cycle campaigners.

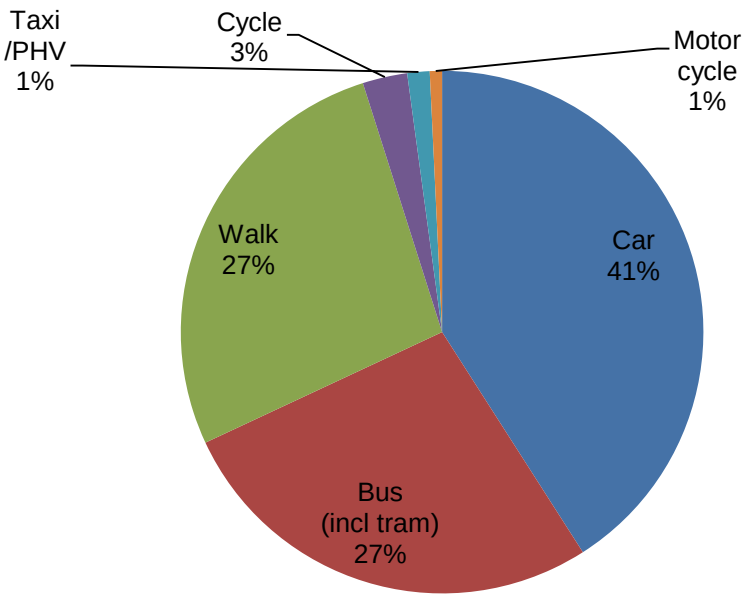
Members and officers have met with TfL officers, the previous Mayor's Cycling Commissioner and the present Cycling and Walking Commissioner.

London's boroughs are important stakeholders as they control most of London's streets. Each has a different perspective on cycling, but they are broadly supportive of more and safer cycling. The development of London's cycling policies over the last two decades has been a partnership. For some of that time it was the London boroughs which took the lead.

Appendix B - The statistics of cycling in London

How much cycling?

Cycling is growing in London, albeit from a small base. In 2015 it was 2.1% of all journey stages in London or 2.8% of the 'streets' modes.

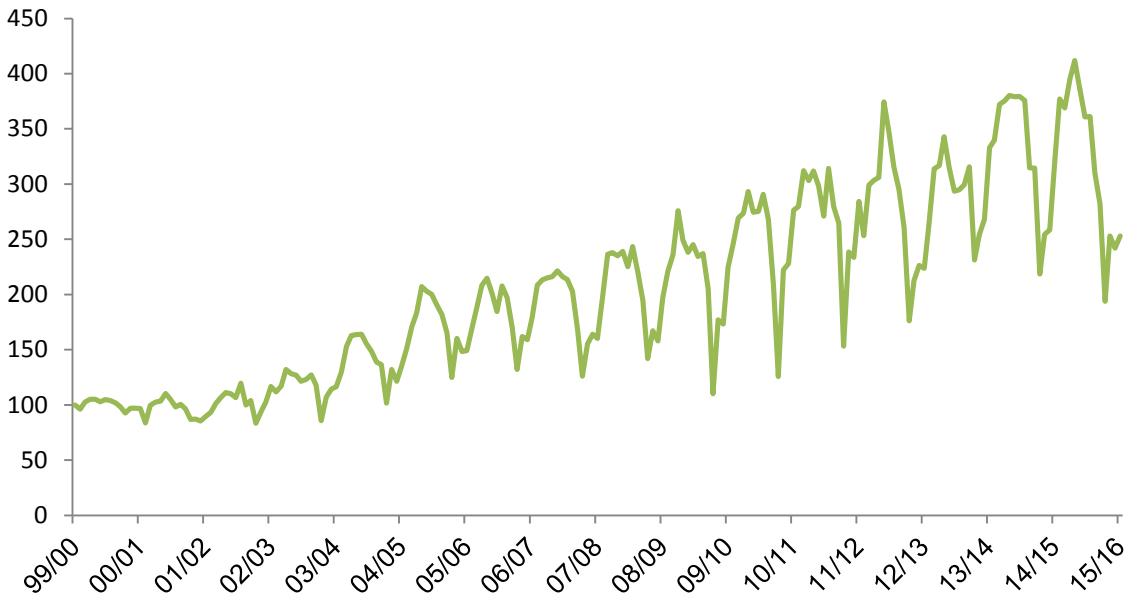


Derived from TfL's Travel in London Report 9. Road modal shares of daily journey stages in London, 2015.

Since the decline in cycling that occurred in the 1960's cycling levels were broadly constant up until 2003 when an upturn is observed in the statistics. The rise was unexpected by TfL and reported in their first report on congestion charging: *Congestion charging, 6 months on:*

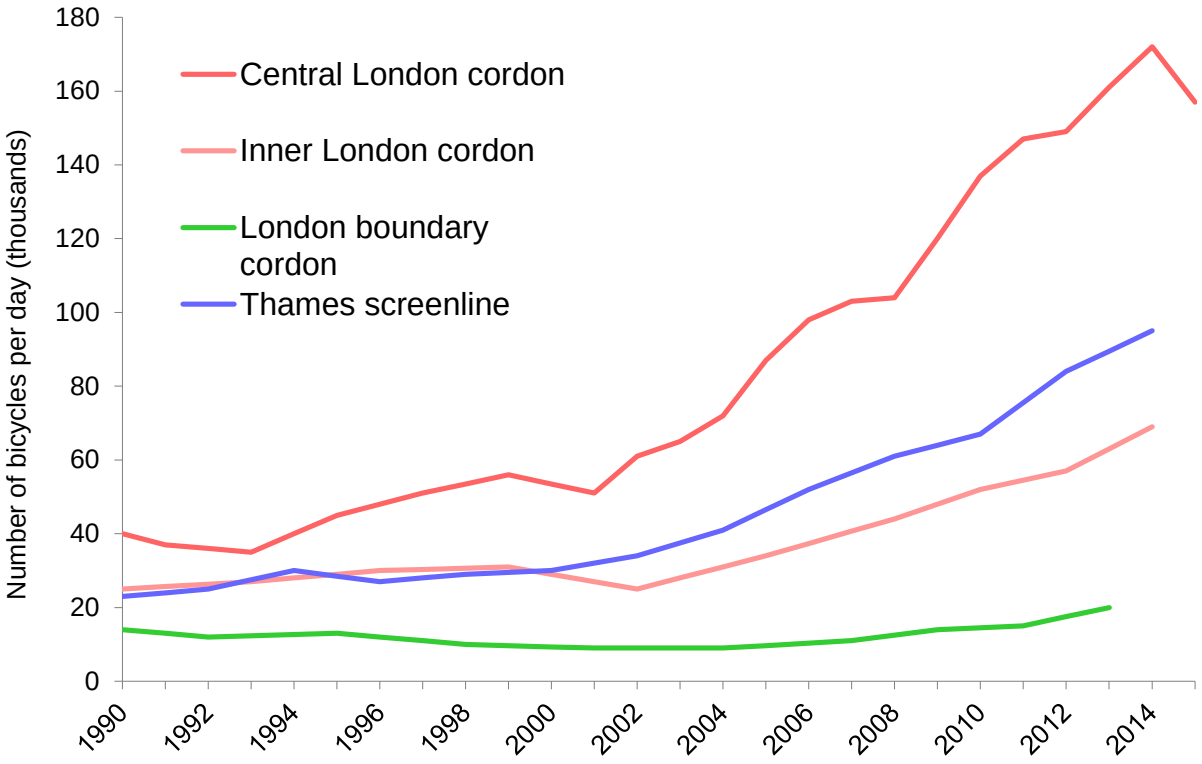
> Pedal cycle movements have increased by 30%, much higher than TfL had expected…

The trends are demonstrated in the four graphs below. Firstly, TfL's automatic counters on their road network. Though this is limited to cycling on the Transport for London Road Network (TLRN), it indicates growing levels of cycling. This statistic reports cycling flows and so could reflect more cycle journeys by more cyclists, but may also mean that those already cycling are cycling more often or for longer distances. From this graph it is clear that cycling volume varies by season – there is more cycling in the summer months.



Pedal cycle counts on the TLRN indexed to 100 in 2001[14]

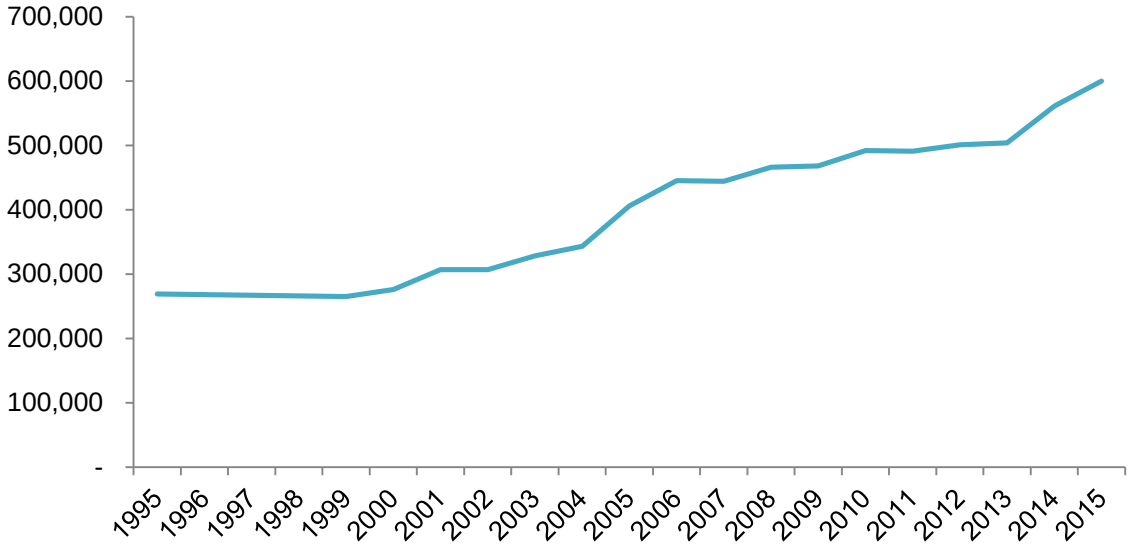
The graph below is of counts of cycles crossing various cordons including the Thames. It shows the pronounced rise associated with the central area congestion-charging scheme. It is taken from TfL's Travel in London Report 9



Cordon and screenlines in London, 24-hour weekdays, both directions.

[14] https://data.london.gov.uk/dataset/cycle-flows-tfl-road-network

The graph below is derived from the tables associated with TfL's annual statistical *Travel in London*, report 9[15]. It is an estimate of the number of cycle trips in London where cycling is the main mode.



Estimated daily average number of cycle trips as the main mode of travel, 1995 to 2015. Seven-day week.

The statistics described above give an estimate of the flow and numbers of trips travelled by cycle, but are less than satisfactory for a number of reasons.

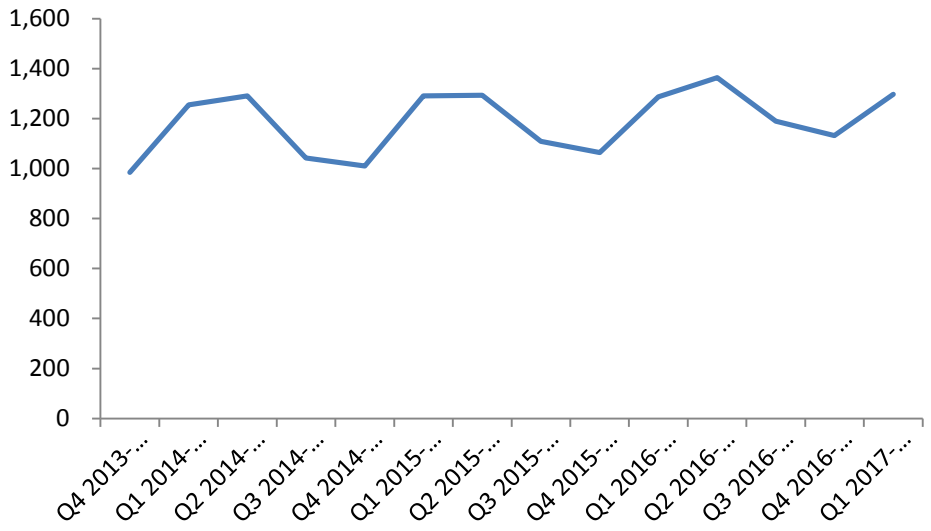
A better statistic would report the growth in distance cycled on all of London's streets and include off-road cycling, say along canal towpaths. This would reflect the changes in cycling volumes overall and be useful in calculating a casualty rate per mile cycled. TfL have recently initiated a much more intensive survey of cycling across London that they believe achieves this..

The central London results of this survey are published quarterly as part of the *TfL Streets Performance Report*[16]. The inner and outer London survey results will be published annually, but they are not yet available.

The graph below is derived from TfL's new survey. The vertical axis represents the volume of cycling in the central area: 'Average daily cycle km travelled per km'. It shows that the distance cycled grew in the latest quarter (Q1, 2017/18) by 0.9% within central London when compared to the same quarter in 2016/17.

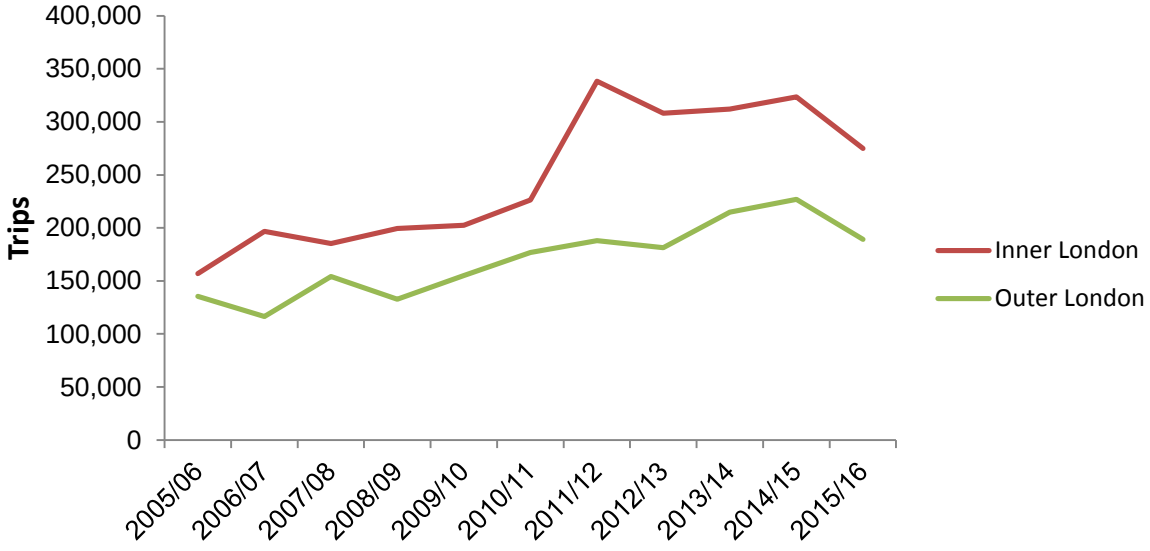
[15] https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports

[16] https://tfl.gov.uk/corporate/publications-and-reports/streets-performance



Central area average daily cycle kilometres travelled per kilometre

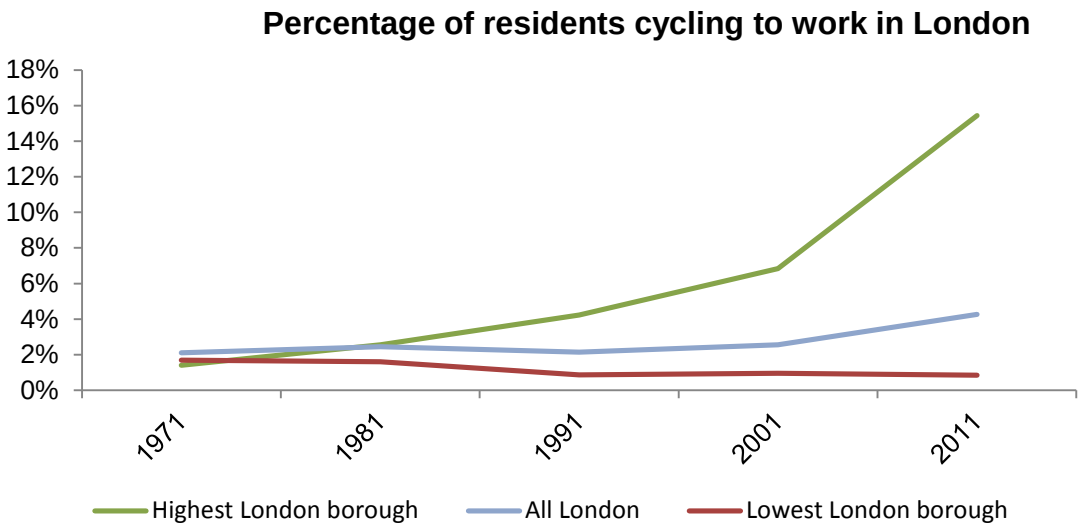
TfL also conducts an annual household survey, the *London Travel Demand Survey*[17] (LTDS) of 8000 households a year (London residents). The survey includes questions about the household and asks participants to complete a travel diary. The response rate is about 50%. The statistics from this again show the rise is cycling trips and demonstrates that this rise is greater in inner London than outer London.



Total trips per day in Greater London by main mode of travel (bicycle), 2005/06-2015/16 (average day, seven-day week)

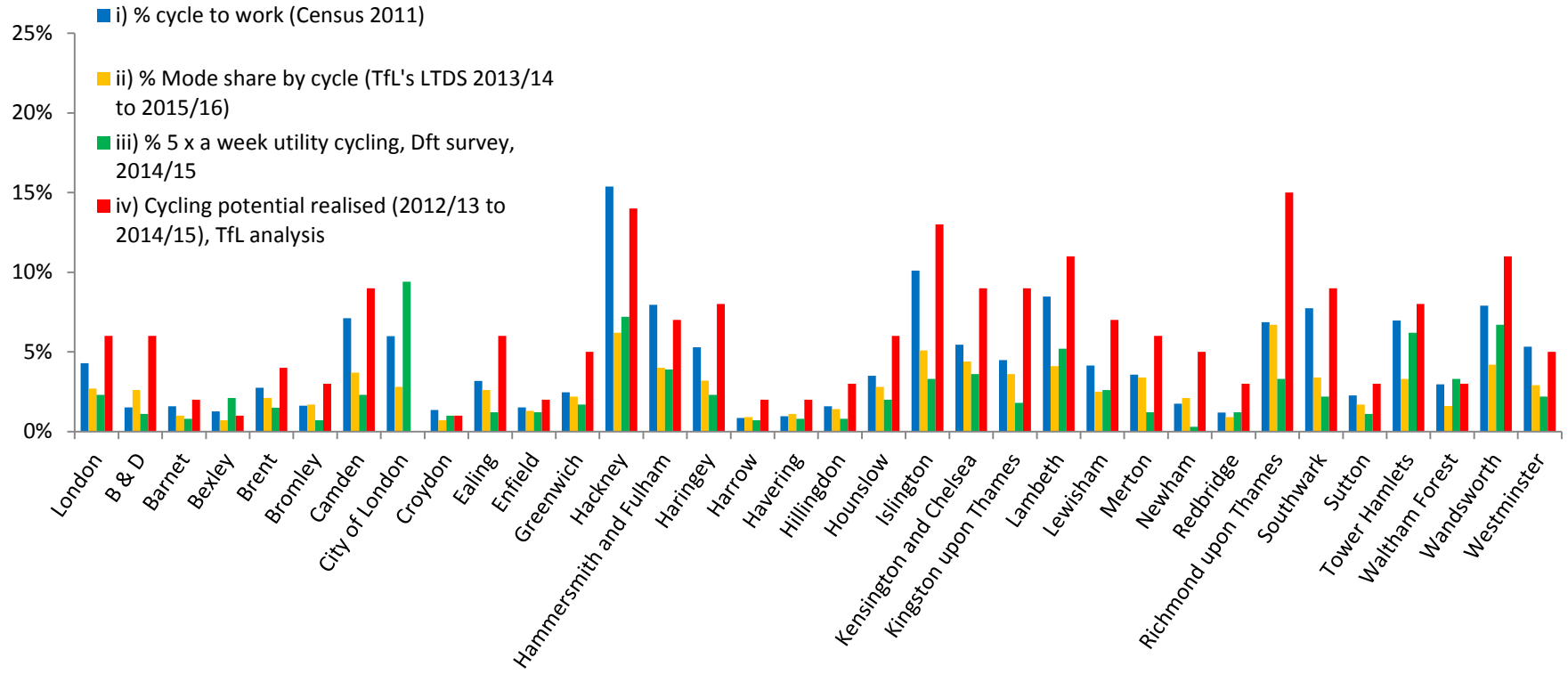
The Census commuting figures below show there is generally more cycling to work by the residents of the inner London boroughs than those in outer London. The graph below shows the census 'Method of travel to work' statistic of the lowest and highest borough and the London average between 1971 and 2011.

[17] https://tfl.gov.uk/corporate/publications-and-reports/london-travel-demand-survey



Percentage of residents cycling to work, Census 1971 to 2011

Other cycling statistics demonstrate variability across Greater London. Inner London borough residents generally cycle more than those from outer London boroughs do. However, Richmond upon Thames bucks this trend having high levels of cycling for an outer London borough, conversely Newham has low levels of cycling for a more central borough. These figures (except the Census) are based on small samples and so fluctuate year to year.



By borough: i) Census 2011 cycle to work figure; ii) TfL's survey of cycle share of all trips; iii) DfT's survey of cycling and iv) TfL's calculation of the proportion of 'cycleable' trips that are actually cycled

Who cycles in London?

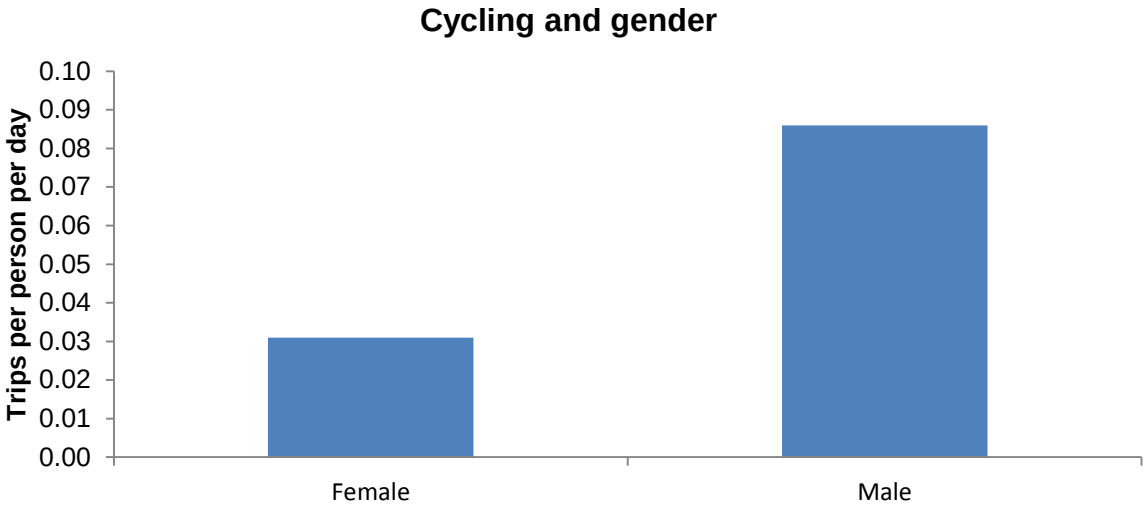
The statistics above demonstrate the volumes of cycling, where in London most cycling is happening and that cycling levels are increasing.

However, there are also demographic differences to be seen in the statistics of cycling. Mayor Johnson described this is the foreword to his cycling vision:

> I want cycling to be normal, a part of everyday life. I want it to be something you feel comfortable doing in your ordinary clothes, something you hardly think about. I want more women cycling, more older people cycling, more black and minority ethnic Londoners cycling, more cyclists of all social backgrounds – without which truly mass participation can never come.
>
> As well as the admirable Lycra-wearers, and the enviable east Londoners on their fixed-gear bikes, I want more of the kind of cyclists you see in Holland, going at a leisurely pace on often clunky steeds. I will do all this by creating a variety of routes for the variety of cyclists I seek.

Whilst there are no statistics for Lycra wearing, there is data about gender and the socio-economic make-up of those cycling in London. This can be gleaned from TfL's *London Travel demand Survey (LTDS)*[18].

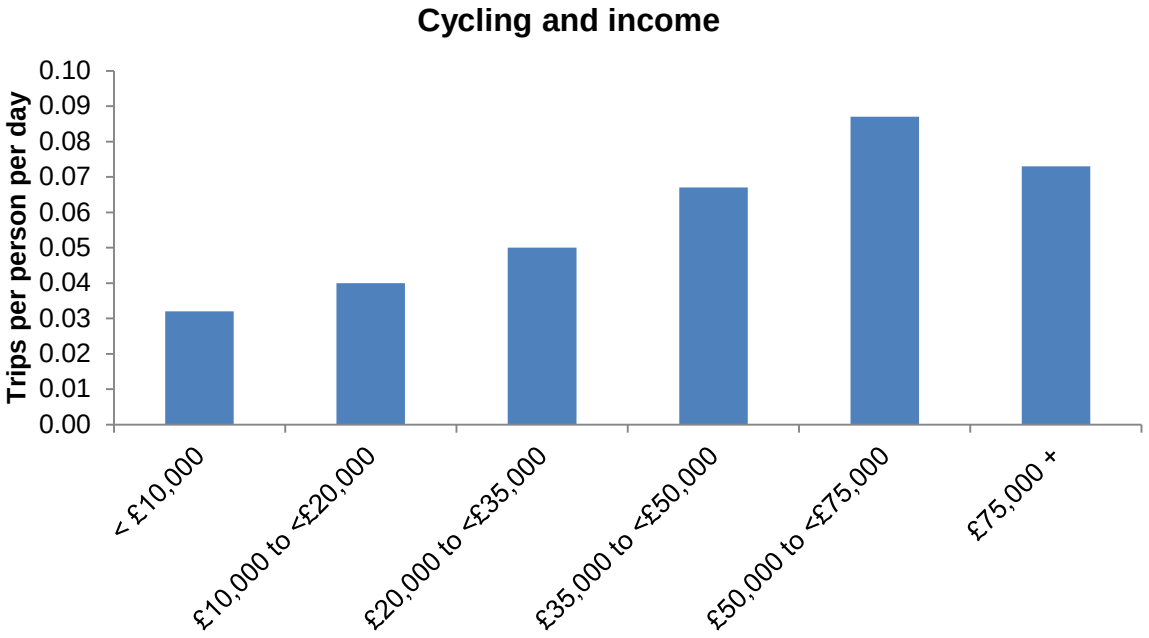
More cyclists are male than female by almost 3 to 1.



Cycle trips per person per day by gender, LTDS 2015/16

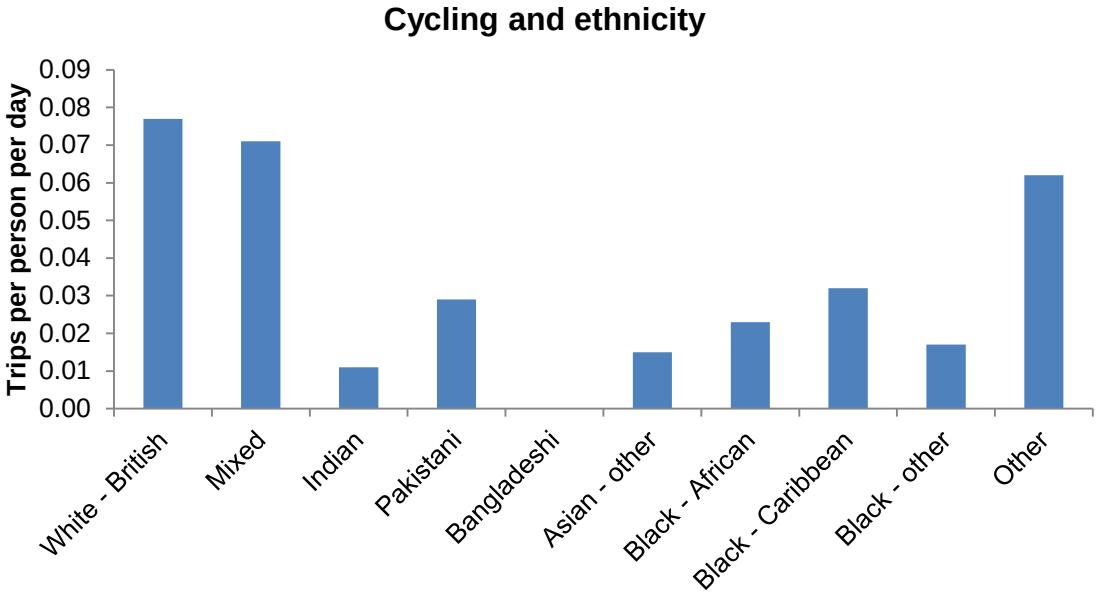
[18] https://tfl.gov.uk/corporate/publications-and-reports/london-travel-demand-survey

Those in higher income households cycle more.



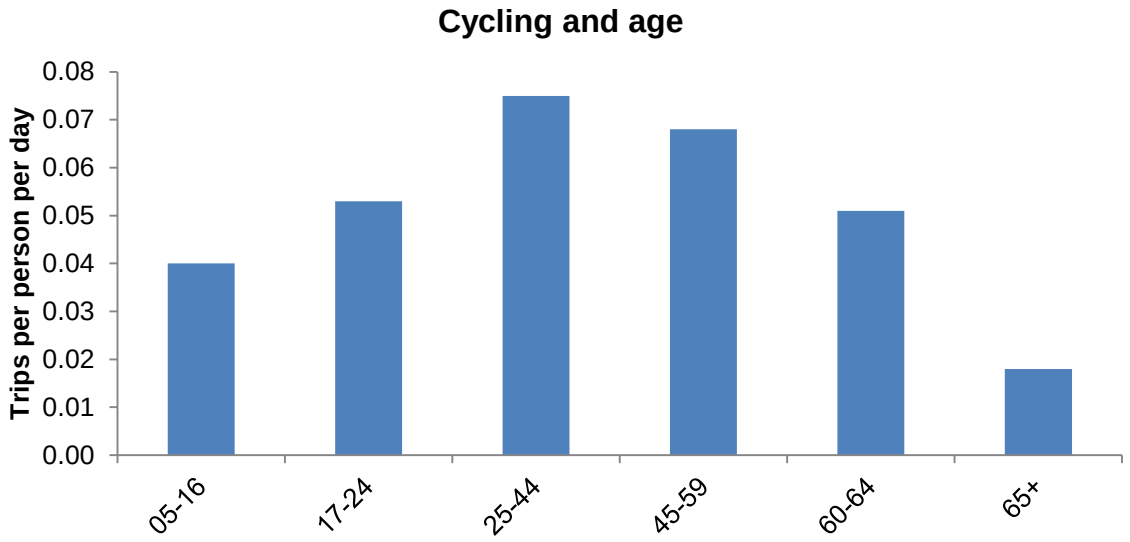
Cycle trips per person per day by household income, LTDS 2015/16

There are large differences in cycling by ethnicity.



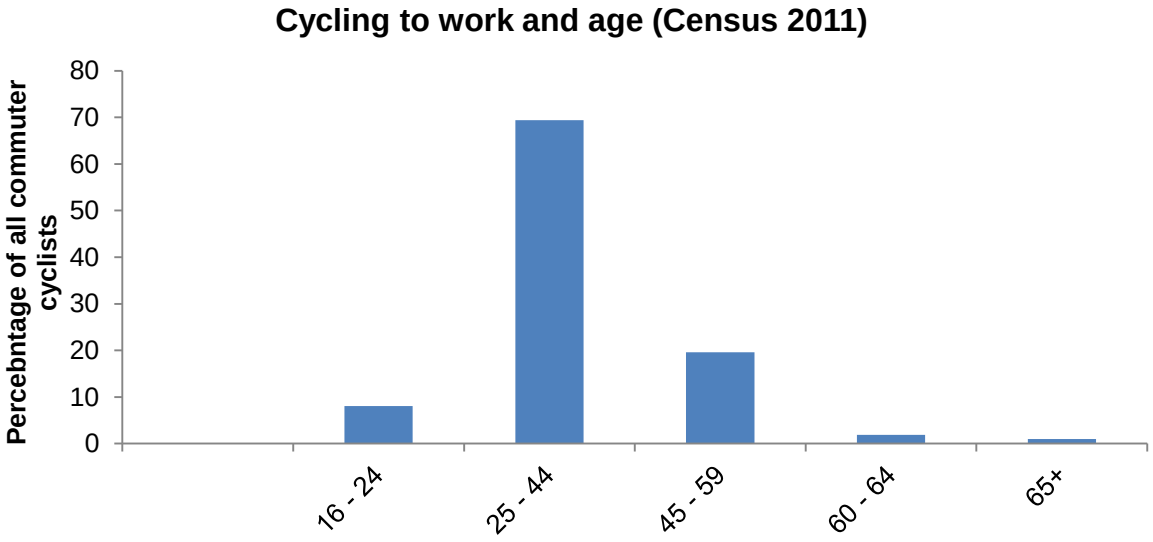
Cycle trips per person per day by ethnicity, LTDS 2015/16

Most cyclists are aged between 25 and 44.



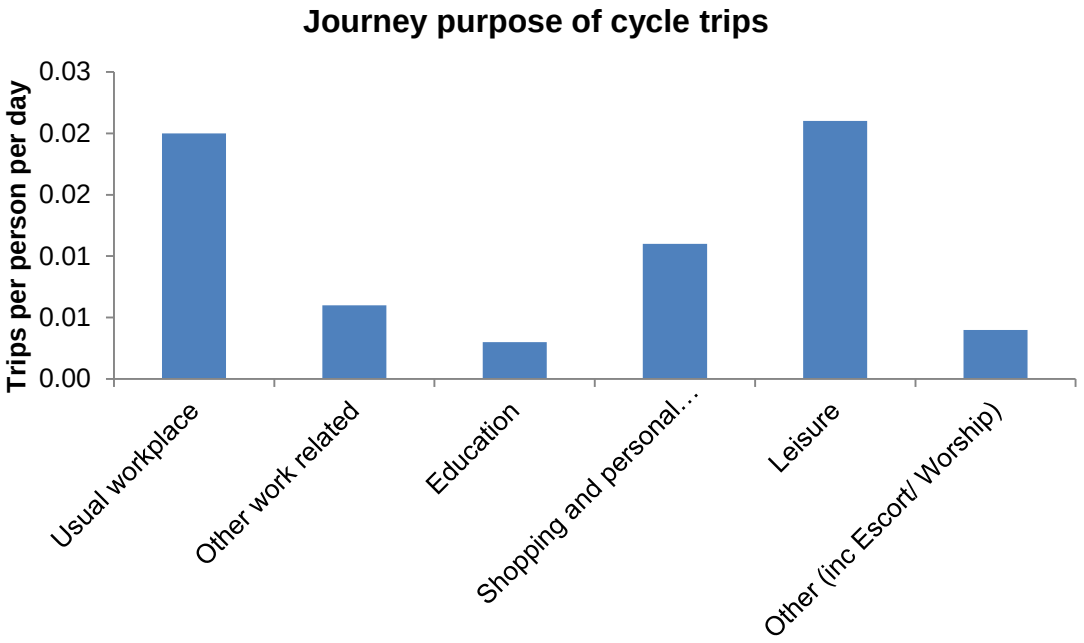
Cycle trips per person per day by age, LTDS 2015/16

But the household survey of all trips (above) looks very different to the Census 2011 'Method of travel to work' data, which does not include those less than 16 years old.



Percentage cycle commuting by age, Census 2011

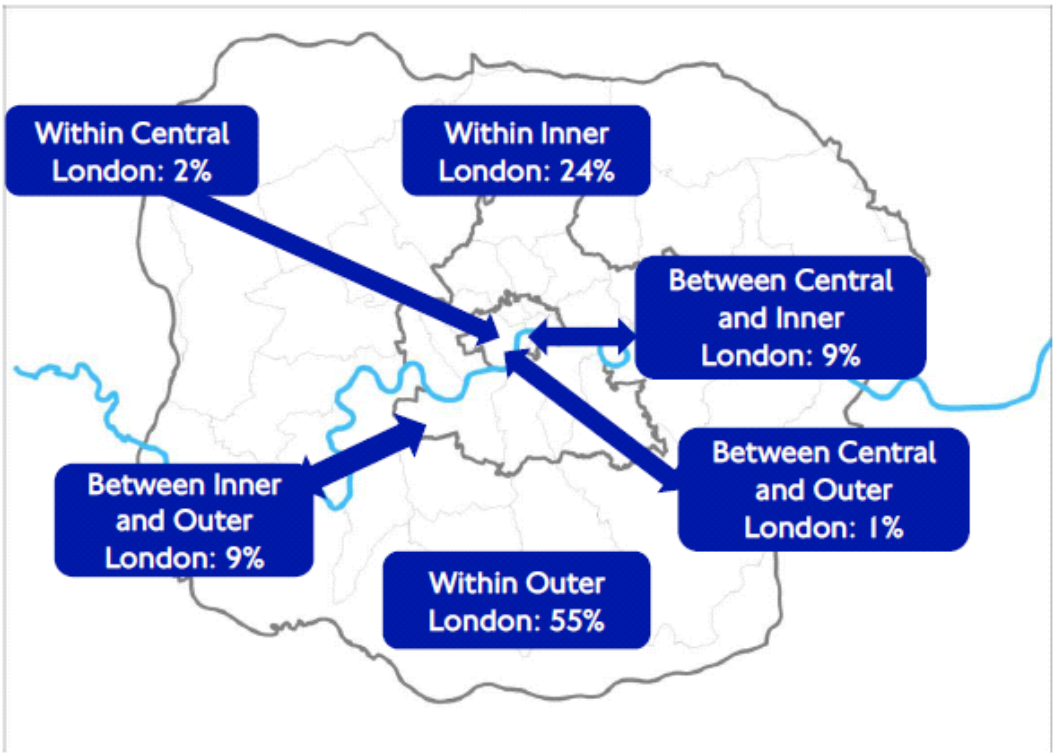
Most cycle trips are for either work of leisure purposes.



Cycle trips per person per day by journey purpose, LTDS 3 year average, 2013/14-2015/16

The potential for more cycling

TfL have undertaken work to estimate what the potential might be for cycling in London[19]. The report suggests that 41% of all trips could be cycled. This statistic includes those TfL also considers could also be walked.



Source: LTDS 2012/13 – 2014/15

Graphic showing where the potential for cycling is spatially. Taken from TfL's *Potential for cycling report*

The report highlights that much can and should be done to improve the local environment for cycling in outer London and chimes with our report *Living on the edge*[20]. Our report promoted cycling as a part of a linked journey to the station that could reduce the cost of travel for outer London residents:

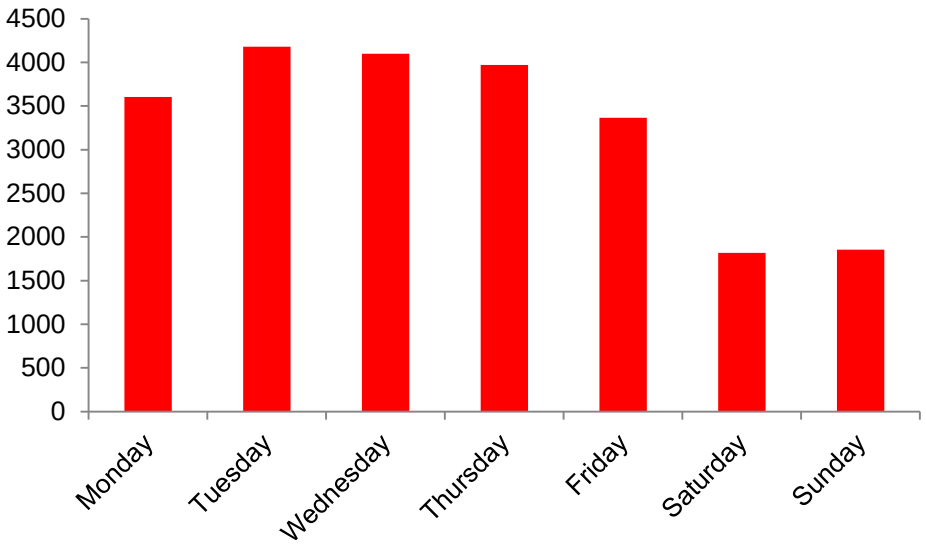
> ……cycling as a short part of a longer journey involving other modes might be a more realistic prospect, for example to a railway station in a different fare zone from where it would be cheaper to travel into central London. Cycling some of the way might reduce the number of zones travelled through by rail, or remove the need for a bus journey or car parking charges, helping to reduce travel costs overall. Outer London boroughs and communities, and Transport for London, might like to consider what they could do to integrate cycling more fully into the commuting patterns of low paid workers and job seekers.

[19] http://content.tfl.gov.uk/analysis-of-cycling-potential-2016.pdf
[20] http://www.londontravelwatch.org.uk/documents/get_lob?id=4100&field=file

Variability of cycling by day, hour and season

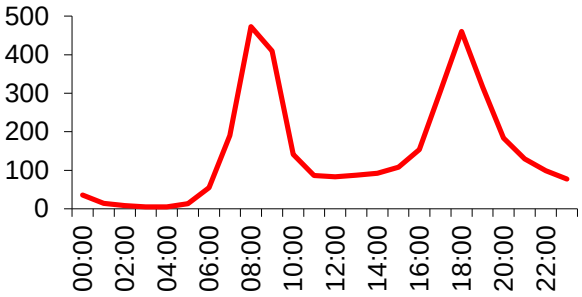
Cycling levels vary by day, hour and season. We are grateful to the London borough of Hackney that supplied us with data from their cycle counter on Goldsmiths Row that demonstrates this.

More cycling takes place during the week, particularly on a Tuesday when we know there is more daily travel generally. Day to day, the weather also affects cycling levels.

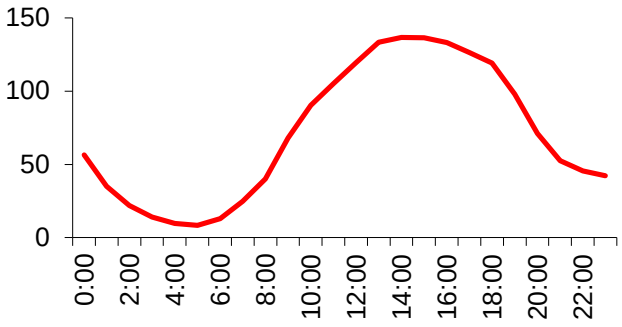


Cycling varies by day of the week. Tuesdays are often the busiest

Travel by cycle is polarised at the peak hours on weekdays, but more spread throughout the day at weekends.

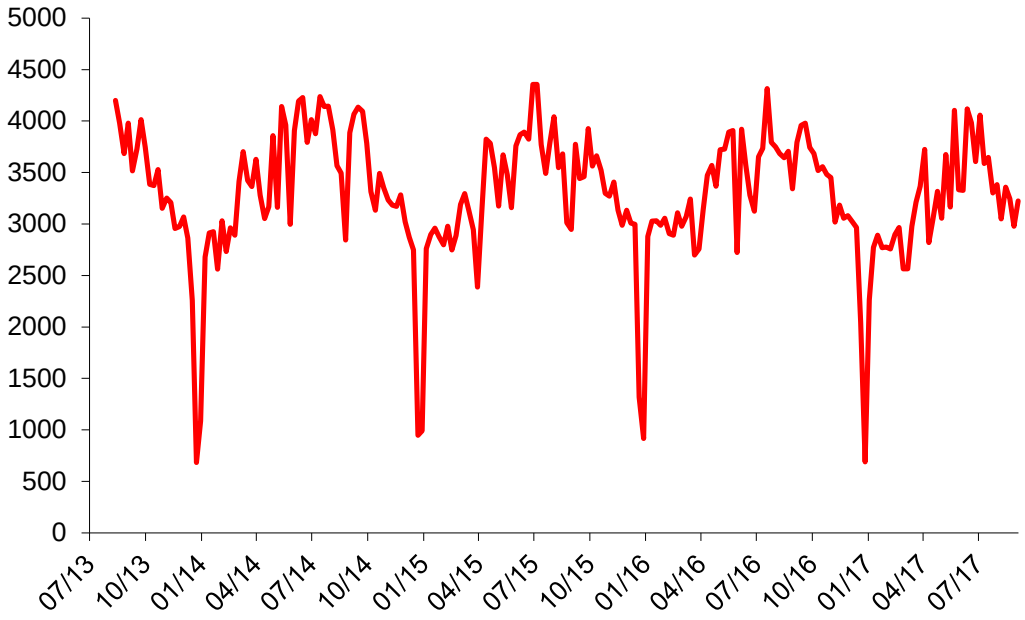


Weekday cycling by hour of day



Weekend cycling by hour of day

Cycling levels vary by season. The very low flows are over Christmas and the New Year. The highest are during the summer.



Cycling levels are seasonal

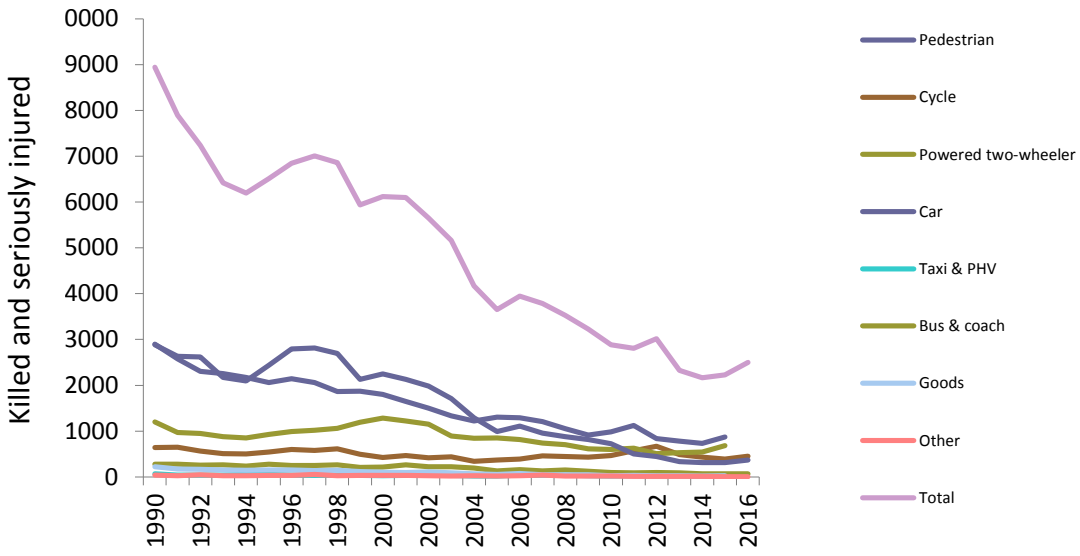
Appendix C – London's road and cycle safety statistics

The number and severity of casualties on London's streets is reported annually. They are collated by the DfT from police reports of collisions. The statistics are published by the DfT and reproduced on TfL's website[21], with an associated analysis. Below the table shows the 2016 statistics, reported in September 2017. It should be noted that the Metropolitan Police Service has revised the way in which it allocates severity. This has contributed to the reported rise in severe casualties this year. The DfT believes this has meant a 20% rise in casualties being described as serious in this year's figures.

	Fatalities	Seriously injuries	Slight injury
Pedestrians	61	815	4674
Cyclists	8	446	3970
Powered two wheeler	33	648	4574
Car occupants	10	358	11253
Bus or coach occupants	1	69	1523
Other vehicle occupants	3	50	1505

Over the last 25 years road safety interventions of all types have resulted in a fall in the numbers of those killed and seriously injured on London's roads. This is against a backdrop of a rise in population, and in the last decade, a rise in vulnerability as the number of walking and cycling trips increased.

The trend of number of killed and seriously injured on London's roads, is generally down.



Numbers of killed and seriously injured on London's roads

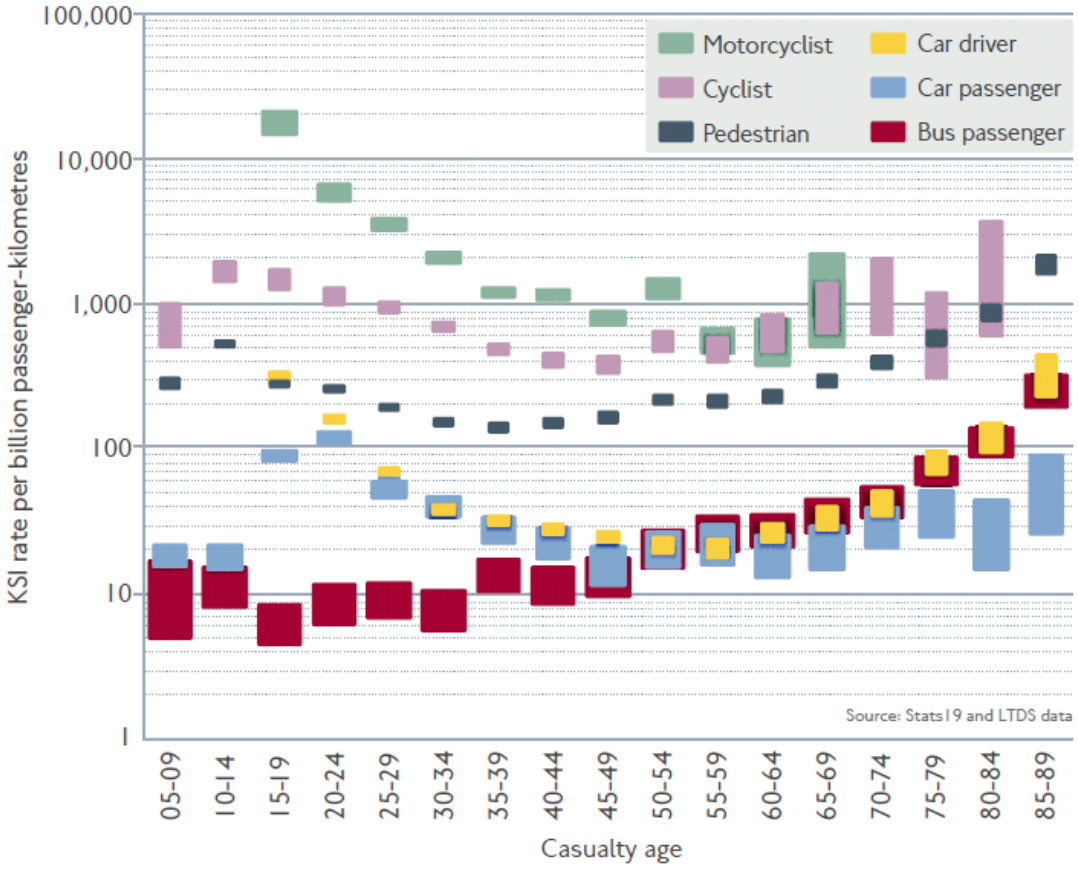
[21] https://tfl.gov.uk/corporate/publications-and-reports/road-saf

However, this general reduction in the absolute number of killed and seriously injured on London's roads only tells part of the story. The other aspect of these statistics is vulnerability per mile travelled. This is demonstrated in TfL's overarching road safety plan: *Safe streets for London*[22]. The graph below shows relative risk for different modes and age groups per mile travelled.

The graph shows that cyclists, along with pedestrians and motorcyclists are more vulnerable to becoming a casualty on London's roads than vehicle occupants, when distance travelled is taken into account. The rate of cycling collisions per mile is greater than that of walking, but much less than motorcycling.

[Note: The graph has a logarithmic vertical axis to allow motorcycling to be represented on the same graph, along with other modes.]

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

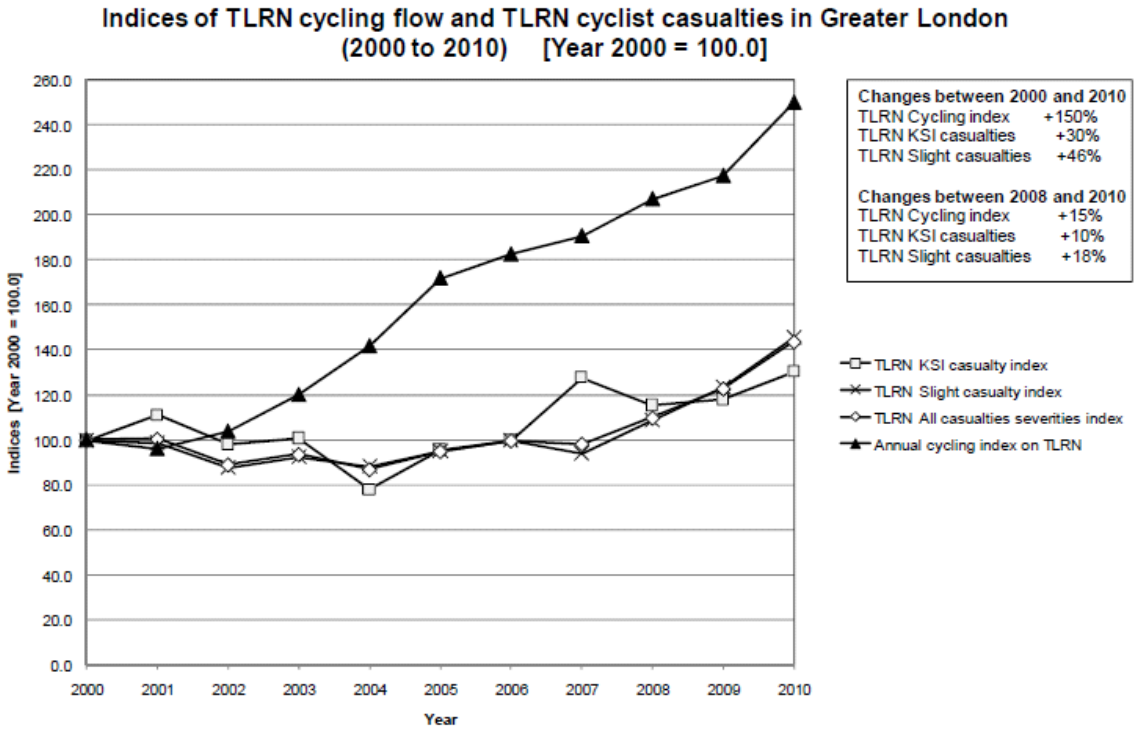


Casualty rate per billion kilometres by age for each mode. From TfL's *Safe streets for London*

Also of interest is whether or not cycling is becoming safer per mile cycled over the years. This is a difficult assessment to make because, as described in the discussion above there is no very good measure of the number of miles cycled in London over time. However, TfL can demonstrate that casualty rate per mile cycled has reduced

[22] https://tfl.gov.uk/corporate/safety-and-security/road-safety/safe-streets-for-london

over a number of years. The graph below[23] illustrates the increase in cycling, as measured by TfL's automatic counters on the TLRN, and the much smaller increase in casualties.



Miles cycled on the TLRN is growing at a faster rate than casualties.

[23] Taken from TfL's report: Pedal cyclist collisions and casualties in Greater London (2011)

Appendix D – Designing for cycling

General considerations

Designing cycle specific measures, lanes etc., is complicated, not least because cyclists have different needs. The Department for Transport commissioned study[24] looking at 'Cycling, safety and sharing the road' highlights the issue. The study concludes:

> Cyclists themselves have differing and potentially conflicting needs from infrastructure:
>
> - Cyclists opting for 'assertion' want infrastructure that helps to establish their right to be on the road and that clarifies how the road is to be shared; and,
> - Cyclists opting for 'avoidance' want infrastructure that gives them more opportunities to avoid traffic.

The same DfT report also highlights the issue of complex road layouts. This is echoed by road safety practitioners who advocate that the safest roads are simple and self-explaining, not complex. The report concludes:

> "Cycling facilities can also make the road-sharing problem worse if they create additional confusion about where cyclists and drivers are meant to go. The key issues are:
>
> - Infrastructure that is too complex and needs to be decoded by the user;
> - A failure to communicate to people how to use innovative infrastructure; and,
> - A lack of consistency from one place to the next.
>
> At the very least, infrastructure should be avoided that creates more confusion about whether, and where, bicycles should be."

Cycle specific infrastructure can be beneficial to cyclists insofar as it can offer some protection from motor vehicles and reduce the perception of danger of motor vehicles, one of the stated barriers to cycling. Cycle specific infrastructure may also be problematic for cyclists and other road users. There are particular impacts on pedestrians, motorcyclists, bus services and their passengers.

[24] http://www.cyclist.ie/wp-content/uploads/2010/11/Dept-of-Trans-London-RS-Cycling-ORU-Report-1110-2.pdf

TfL has published its updated design standards in the form of *The London Cycle Design Standards*[25] It has also developed new highways designs as part of its cycle superhighway programme.

The Department for Transport's cycling guidance for cycle specific infrastructure is set out in its *Local Transport Note 2/08*[26].

Actual and perceived safety

Reducing the perception of danger is important in the encouragement of cycling. This can be achieved by cycle specific infrastructure such as cycle lanes and tracks. But it may not always be the case that these measures actually reduce the number of casualties or the severity of injuries.

There is various research available, some of which is endorsed by the Road Safety Observatory[27] an organisation supported by the DfT, ROSPA, PACTS etc. It has produced a synopsis of the peer reviewed research.

One paper in particular, is a substantial piece of work and good general summary[28]. It suggests cycle collisions may reduce on the links between junctions if cycle lanes and tracks are introduced, but increase at junctions where separation from motor traffic is often lost and the risks greatest. This Danish academic study for the Copenhagen municipality sums up these issues:

> ….it can be deduced that the construction of cycle tracks has resulted in three important gains in road safety: fewer accidents in which cars hit or ran over cyclists from the rear, fewer accidents with cyclists turning left [right in the UK] and fewer accidents in which cyclists rode into a parked car. These gains were more than outweighed by new safety problems: more accidents in which cyclists rode into other cyclists often when overtaking, more accidents with cars turning right [left in the UK], more accidents in which cars turning left [right in the UK] drove into cyclists as well as more accidents between cyclists and pedestrians and exiting or entering bus passengers.

Some design considerations

Designers of cycle specific infrastructure should consider:

1) Slower speeds initiatives are one of the most important road safety interventions because both the number of collisions and their severity will be reduce for all the vulnerable modes. This is best achieved by the introduction of vertical projections (humps) in minor and residential streets. Where this is not possible 'activating the

[25] https://tfl.gov.uk/corporate/publications-and-reports/streets-toolkit
[26] https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-208
[27] http://www.roadsafetyobservatory.com/
[28] Road safety and perceived risk of cycle facilities in Copenhagen By Søren Underlien Jensen, TrafiTec: http://www.roadsafetyobservatory.com/Evidence/details/11592

street' by the introduction of street trees etc. 20mph speed limit signs alone will have a small speed reduction affect, say down by 1 to 2mph;

2) Reducing traffic volumes will also be an effective area wide intervention that will reduce the number of collisions. This can be effected by closing streets or central areas to through traffic to improve the pedestrian and cycling environment;
3) Controlled parking zones in congested areas can help reduce the dangers caused by inconsiderate and illegal parking.
4) Most casualties (80% +) occur at intersections. Improving the safety performance at intersections should be a focus for interventions to reduce collisions;
5) Complex and inconsistent layouts are confusing to users and should be avoided;
6) Cycle lanes or tracks encourage cyclists to keep left and help to separate them from motor traffic. This may mean fewer collisions from the side and behind, but will lead to a poor cycling position as cyclists cross an intersection. Cycle training suggests taking a more central position in the lane. Not doing so can lead to being struck by vehicles turning left across cyclists;
7) Cycle tracks on the pavement or set in from the pavement edge at an intersection will result in cyclists being in an unexpected location as they cross a junction and may not be seen by drivers focussed on the road and on motor vehicles. Mitigation for this can be provided with a steeply ramped side road entry treatment that will slow turning movements of motor vehicles;
8) Bi-directional cycle tracks should be avoided in urban areas, particularly where there are multiple side roads. This is because cycles will be travelling in an unexpected direction that will increase the risk of collisions with pedestrians. They will also be at more risk themselves at junctions for similar reasons. Cyclists will also find it is difficult to leave and join, to and from the other side of the street. Camden council, that has experience with such lanes, is seeking to remove them. TfL has utilised bi-directional tracks as part of its superhighway schemes for a number of reasons and has sought to reduce the risks at junctions by a variety of means.
9) Motorcyclists can legitimately filter through queuing traffic and so require lane widths of sufficient size to do this. Narrow lanes can be a safety risk for motorcycles.
10) There is a balance to be drawn between narrowing crossing widths to facilitate safer and more convenient pedestrian crossing and the problems of creating pinch points for cyclists. The introduction of cycle lanes and tracks is resulting in the loss of pedestrian refuges and informal crossing points.
11) Introducing cycles onto the pavement, particularly at junctions and around bus stops is problematic for pedestrians and bus passengers. Those representing disabled and older people object to this, and thus far, no acceptable solution has been found. Please also refer to appendix A and G. These discuss pedestrian and cycle interactions at bus stops.
12) Care needs to be taken with the introduction of multiple kerbs into the carriageway. These will variously frustrate and impede pedestrians and may lead to trips and falls. Wheelchair users will find difficulty crossing the road or boarding a taxi easily;
13) Care needs to taken with the introduction of rubber blocks into the carriageway to demark cycle lanes. Motorcyclists are concerned they may hit them. Pedestrians will occasionally trip on them.

14) Wide inside lanes and wide bus lanes, particularly adjacent to bus stops give a good level of service for cyclists. Buses can pass cycles, and cycles can pass buses safely;
15) Side road entry treatments are a useful highway engineering intervention to raise the carriageway to the level of the pavement and reduce the turning radius for motor vehicles. They can effectively reduce turning speeds and prioritise pedestrians.
16) Cyclists will filter through to the front of traffic at signalised junctions. This should be routinely accommodated with advanced stop lines (ASLs). If it is not, then cycles will encroach up to pedestrian crossing areas.
17) TfL have developed a 'two stage right turn' system to enable safer right turns. However, from observation these are not always utilised by cyclists (for example at Cambridge Heath). Where these are unlikely to be used designers should accommodate a conventional right turn.
18) Disabled cyclists can have cycles that are larger than standard cycles. These should be catered for. Dismounting a cycle will be difficult or impossible for some disabled riders.

Value for money

Road safety in London has improved over a number of years. In part, this is attributed to slower speed initiatives and the systematic targeting of funding at those locations where most casualty savings can be made. This will often be at intersections where most (80% +)[29] casualties occur and most casualty savings can be made. It is important that policy makers continue to focus on intersections because doing so provides good value for money and most casualty savings.

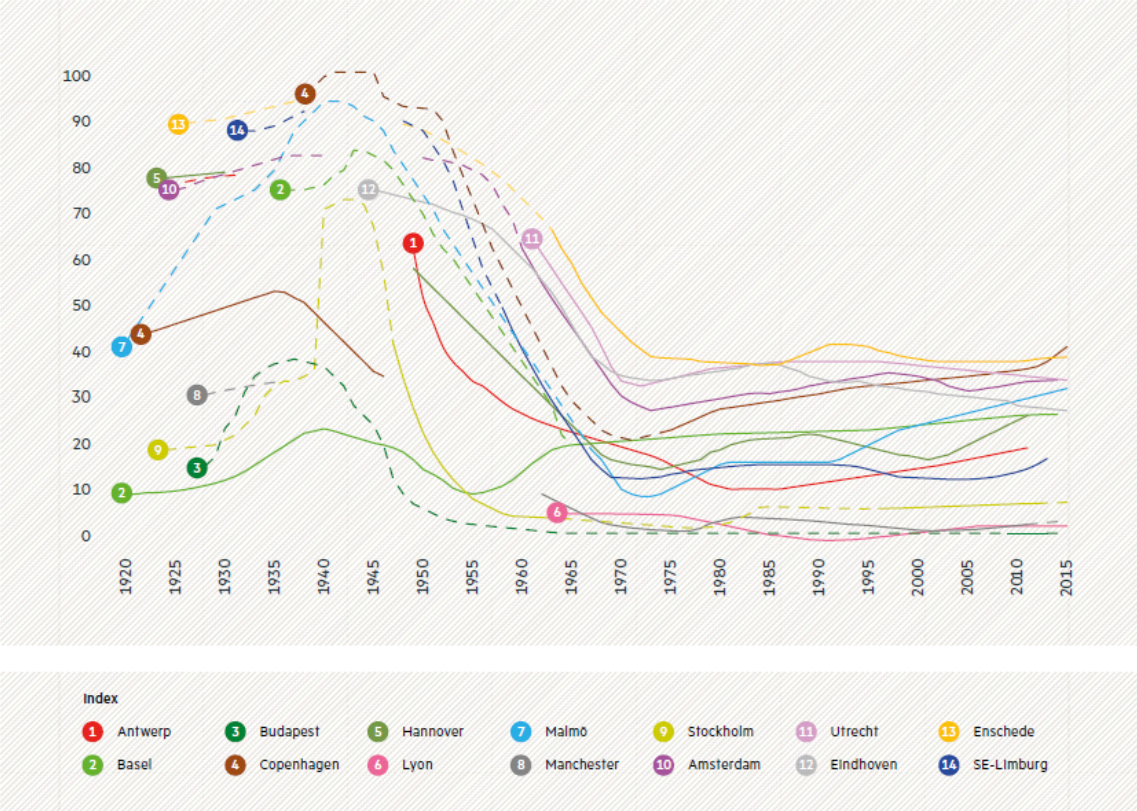
Infrastructure and cycling levels

Separating out the impacts of different interventions is problematic. The Danish research, referred to on page 38 also looked at the impact of the cycling infrastructure on cycling levels in Copenhagen. It found that there had been an increase in cycle traffic of between 8 and 20%. In the case of London's cycle superhighways TfL have reported a figure of 50% increase for the East to West cycle superhighway. No equivalent figure is available for the route between Aldgate and Stratford. These figures should be treated with some caution because there are many influences on changing travel behaviour.

The *Cycling Cities* report suggests that it is attitudes to auto-mobility that is a greater determinant of cycling levels. It sites examples of towns, such as Stevenage, that was designed from the outset with separated cycling facilities, but where cycling levels are low.

[29] http://content.tfl.gov.uk/cycle-safety-action-plan.pdf

Appendix E - Cycling Cities



Trend Line Europe
Cycling's share of traffic (counts – dotted lines) and trips (travel surveys – solid lines) excluding pedestrians

Sources: Ruth Oldenziel, Martin Emanuel, Adri Albert de la Bruhèze, and Frank Veraart (editors). *Cycling Cities: The European Experience. Hundred Years of Policy and Practice* (Eindhoven: Foundation for the History of Technology / LMU Rachel Carson Center for Environment and Society, 2016). For more information see: www.cyclingcities.info

The *Cycling Cities* chart shows the modal share of cycling in 14 European cities over the last century (excluding walking)

Cycling Cities[30] was published by Eindhoven University academics. The book's editor, Professor Ruth Oldenziel was hosted by London TravelWatch in November 2016 to lecture on her book. The book's publication is part of the 'Sustainable Urban Mobility, 1890-present' programme.

The book is a thorough study of the history of cycling in 14 different European cities. It recognises that each city is different in many ways. The urban forms are different, the history and culture is different and the 'competition' between modes: cycling, walking, private and public transport is different. It is an important piece of research because it looks at what people have actually done in terms of travel behaviour, rather than what people say, they might do. It looks at what have been the causes of the changes in travel behaviour in the sample cities.

Professor Oldenziel suggests that attitudes and policies about private mobility is the most significant factor in the level of cycling. Cities that restrain auto-mobility will see

[30] http://www.cyclingcities.info/

higher levels of cycling. Cycle specific infrastructure (lanes and tracks) is less important.

In summary *Cycling Cities* concludes that there are three groups of cities with differing overall cycling levels. The high-level cities are compact with a cycling culture that has been maintained since the 1920s, but had relatively neutral cycling policies. Despite a rapid decline in the 1960s, these cities recovered with policy makers and activists creating pro-cycling and car-curbing policies. Their central areas were often closed to through traffic and public transit did not compete with cycling. In all cases, progress was incremental.

The medium-level cities sprawled after the Second World War. Their centres were designed for auto-mobility. Eindhoven invested in cycle lanes to separate cycles, but this was to benefit the cars, Hannover and Antwerp invested in public transit to compete with cycling.

Low-level cycling cities had been redesigned for the car and public transport. Manchester falls into this group. Its post-war planning led to more sprawl and a negative image for cycling.

Professor Oldenzeil believed an incremental approach had proved best. In a post lecture, comment on the *Cycling Cities* website Professor Oldenziel wrote:

> Can the 8-million city of London learn from the middle-sized cities? At the London-based Travel Watch event (November 22), the independent watchdog for transport users, Ruth Oldenziel argued that the cycling culture's diversity in London's boroughs are indeed comparable to Dutch cities' variety in cycling. Building cycling lanes are not the only precondition for attracting cycling. The event and the Twitter feed drew planners, politicians, public-transit defenders, and cycling activists.

London was not studied as part of the *Cycling Cities* research. However, its policy makers would do well to learn from the cycling history of these cities. London, like all 14 cities has its own unique history, culture, urban form and transport mix, but some of the themes of *Cycling Cities* are discernible. There was certainly a post war fall in cycling levels and a rise in auto-mobility. The fall was to a much lower level than most of the cities studied which retained much higher levels of cycling.

London is more akin to those cities with low levels of cycling. It lost its pre-war cycling culture. Walking and public transport dominate the centre, whilst private motor vehicles dominate outer London. The main constraint on auto-mobility is congestion rather than public policy. It is therefore unsurprising that cycling levels are low and motor vehicles are dominant. It is consistent with the findings of *Cycling Cities* that the first upturn in cycling in London was the result of motor vehicle restraint, i.e. congestion charge in the central area, rather than cycle specific measures.

Appendix F - The development of London local government cycle policy

For many years, London local government has sought to increase cycling levels with a broad range of actions. In 1989, the London Planning Advisory Committee (LPAC), a consortium set up after the abolition of the Greater London Council, proposed a 1,000-mile strategic cycle route network for London. In 1997, the *Cycling Strategy for London* was launched with an ambition to complete a London Cycle Network (LCN). A target of a 10% modal share for cycling by 2012 was adopted.

In 2003, TfL established a 'Cycle Centre of Excellence' to deliver improvements for cycling. In 2004, TfL published its cycling action plan: *Creating a chain reaction*.

A broad range of initiatives included cycle training, additional secure parking and highways engineering. Highways engineering interventions were to be improved and standardised. The flagship scheme was to create a cycle network – the London Cycling Network+ (LCN+) which would be more limited in coverage, but of higher quality than its predecessor LCN.

London TravelWatch generally supported TfL's approach in the early 2000s, but expressed concern regarding the use of the pavement for cycling and the high cost of kerb separated cycle tracks. London TravelWatch asked for more focus on dangerous junctions, reverting gyratory systems to two-way and making the carriageway safer for cyclists.

The action plan had some successes. However, many of the routes promoted as part of the LCN+ were incomplete insofar as they stopped at many difficult locations. Those sections of route that were built sometimes introduced cyclists onto the pavement or included design features that were criticised – cycle lanes that were parked in, too narrow, provided no protection from motor vehicles (particularly at junctions), encouraged poor cycle position etc.

In 2010, the Mayor of London determined to turn the focus away from the LCN+ and address cycle safety on London's main arterial roads. London was to have a *Cycling Revolution*, a 'Year of Cycling' and become 'a cyclised city'. Cycle hire, cycling boroughs and the first two 'cycle superhighways' were proposed.

The cycle superhighways were to be substantially along the Transport for London road network (TLRN). They were to be continuous marked lanes (blue surfacing) along 12 of London's main radial routes for about 8 miles out from the centre. TfL claimed that following implementation of cycle superhighway 7 there had been a 70% increase in cycling. Not all of the cycle superhighways were introduced. The schemes received a mixed reaction from cycling groups.

London TravelWatch expressed its concerns about some aspects of the designs of the blue paint superhighways. Specifically London TravelWatch was concerned;

i) that the surfacing (the cycle lanes) would encourage cycles to be in the wrong position on the road particularly at junctions;
ii) that some of the cycle lanes were confusing as they were effectively half of a bus or general traffic lane; and
iii) that the most problematic junctions, where most collisions occur along these routes, were not to be remodelled as part of the process.

In 2013, the Mayor proposed to upgrade the cycle superhighway between Bow roundabout on the A13 and Stratford Town centre by introducing kerbs separating cycles from motor vehicles. This scheme routed cycles around the back of most bus stops. However, separation was only partial insofar as one section remains as a mandatory blue surfaced cycle lane and cyclists merge with motor vehicles at junctions.

At the same time, the Mayor published his *Vision for Cycling in London* and appointed a Cycling Commissioner. The vision included proposals for:

i) a number of 'quietways' (back street cycle routes;
ii) a central London grid (cycle routes in and around the central area);
iii) a competition for London boroughs for three £30m grants to be spent on cycling initiatives (the so-called Mini-Hollands programme);
iv) a programme of further (largely) segregated cycle superhighways, notably the east to west route along Thames Street and the Embankment and the north to west route from Elephant and Castle to Farringdon;
v) a programme of remodelling some of the most problematic junctions;
vi) 20mph limits, training, awareness and enforcement;
vii) work to improve the suitability of heavy goods vehicles on London's streets;
viii) a new cycle design standards manual (the third) was to be produced

The vision continued to support other road safety initiatives, cycle hire, roads policing, training, marketing and a schools initiative, although the schools initiative was later omitted and the budget redirected to fund infrastructure.

In March 2017, following on from the election of the present Mayor, a new approach was announced. Cycling was to be enabled and promoted alongside walking and public transport under the banner of *Healthy Streets*. There are ten 'healthy streets indicators'. These indicators seek to promote streets that are more conducive to active travel.

Appendix G - Research investigating the interactions between cycles and pedestrians at bus stops

One of the key concerns raised by those that represent disabled and older bus users is the use of 'bus stop bypasses' and 'bus stop boarders' that are associated with cycle tracks separated from motor traffic.

'Bus stop bypasses', also known as 'floating bus stops' have been used primarily by TfL. They create an island in the carriageway where the bus stops to pick up passengers. Cycles are routed around the back of the passenger alighting, boarding and waiting area. Passengers must cross the cycle track to get on and off the pavement. There is a designated crossing point, but this is utilised by only a small proportion of pedestrians and passengers, who tend to take the shortest route to their destination.

'Bus stop boarders' are being implemented by some London boroughs. Cycles are routed through the pavement area where passengers wait, alight and board to and from the bus. There is no specific design guidance for these bus stop boarders/ cycle lanes.

The choice is influenced by a variety of considerations including physical space and cost. 'Bus stop bypasses' are included in TfL's bus stop design guidance, 'bus boarders' are not.

It is suggested that cyclists will 'feel safer' using these arrangements, rather than passing the outside of the bus in a conventional manner at a bus stop. Both designs raise concerns for passenger and pedestrian safety and amenity.

We know of two substantive pieces of research looking at this issue. One undertaken by Arriva Denmark, the bus company. The second is by TRL on behalf of TfL. The latter has reported, but not published.

Arriva Denmark's research

In 2015 Arriva Denmark undertook a study of cycle / passenger interaction at bus stops. It is described by the company below. From this research it is clear that there are a substantial number of 'real collisions' between cycles and bus passengers at bus stops in Denmark.

We asked the 3 questions:

1) Have you within the last year experienced, that a passenger had a "**nearby**" accident with a cycklist, when entering og leaving the bus?
    a. YES (ja) / NO (nej)
    b. For the people answering *Yes* (ja), we asked how often he or she expeciences that: Dayly (Dagligt); Several times a week (Flere gange om ugen), A couple of times a month (Et par gange om måneden); A coulpe of times a year (Et par gange om året).

2) Have you within the last year experienced, that a passenger had a "**real collision**" with a cycklist, when entering og leaving the bus?
    a. YES (ja) / NO (nej)
    b. For the people answering *Yes* (ja), we asked how often he or she expeciences that: 1 time (1 gang), 2-5 times (2-5 gange); More than 5 times (Mere end 5 gange)

3) Du you ever experience dangerous situation, when passengers go from the sidewalk across the bike lane to enter the bus?
    a. YES (ja) / NO (nej)
    b. For the people answering *Yes* (ja), we asked how often he or she expeciences that: Dayly (Dagligt); Several times a week (Flere gange om ugen), A couple of times a month (Et par gange om måneden); A coulpe of times a year (Et par gange om året).

Samlet : 5 største byer i DK

	Ja	Nej	Dagligt	Flere gange om ugen	Et par gange om måneden	Et par gange om året
Har du inden for det seneste år oplevet, at passagerer i din bus har været tæt på at blive ramt af en cyklist, da han eller hun steg ud af bussen?	286	40	70	121	69	21

	Ja	Nej	1 gang	2-5 gange	Mere end 5 gange
Har du inden for det seneste år oplevet, at passagerer i din bus er blevet ramt af en cyklist, da han eller hun steg ud af bussen?	130	196	38	68	23

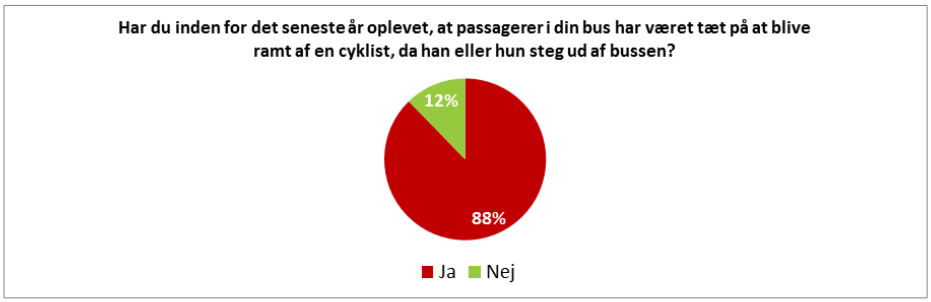
	Ja	Nej	Dagligt	Flere gange om ugen	Et par gange om måneden	Et par gange om året
Oplever du nogensinde, at der opstår farlige situationer når passagererne skal over cykelstien fra stoppestedet og ud til bussen?	288	37	80	102	78	23

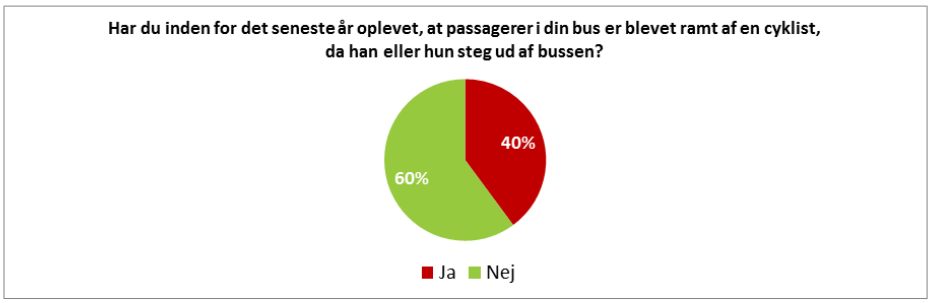
Samlet : 5 største byer i DK

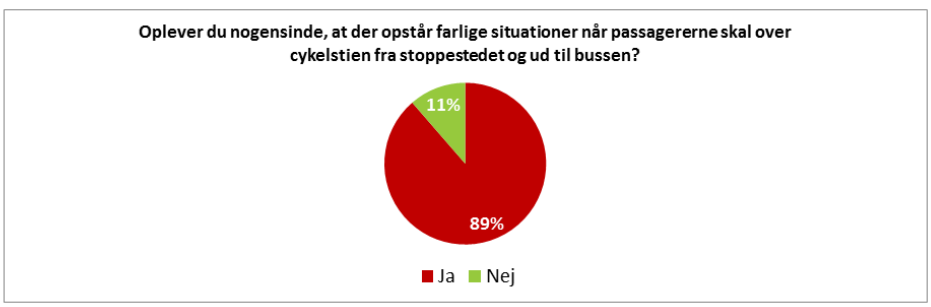
	Ja	Nej	Dagligt	Flere gange om ugen	Et par gange om måneden	Et par gange om året
Har du inden for det seneste år oplevet, at passagerer i din bus har været tæt på at blive ramt af en cyklist, da han eller hun steg ud af bussen?	88%	12%	25%	43%	25%	7%

	Ja	Nej	1 gang	2-5 gange	Mere end 5 gange
Har du inden for det seneste år oplevet, at passagerer i din bus er blevet ramt af en cyklist, da han eller hun steg ud af bussen?	40%	60%	29%	53%	18%

	Ja	Nej	Dagligt	Flere gange om ugen	Et par gange om måneden	Et par gange om året
Oplever du nogensinde, at der opstår farlige situationer når passagererne skal over cykelstien fra stoppestedet og ud til bussen?	89%	11%	28%	36%	28%	8%







TRL's research investigating bus stop bypasses on behalf of TfL

TfL has commissioned consultants, TRL to undertake research looking at 'bus stop bypasses' on its new cycle superhighway schemes. London TravelWatch was one of several stakeholders contributing to this study. The study has concluded, but has not been published (as of 19 December 2017).

The research was not designed to asses whether the bus stops were acceptable or not, but to determine if the introduction of a formal crossing (a variant of a zebra crossing) of the cycle track where there was previously none, would reduce interactions and the impact of interactions between cycles and pedestrians. However, it is a substantial study and gives some insight into the concerns of cyclists, bus passengers and pedestrians. The bus stops chosen to be studied were not the most heavily used, nor were they as limited in space as some locations where bus stop bypasses have been implemented by TfL.

There were three elements to the research. The first was with disabled passengers, who were accompanied around a sample of six bus stops and questioned on them. Secondly, a video survey of passengers and cyclists using the stops was conducted, before and after the introduction of more formal, zebra type crossings. Two locations that incorporated Belisha beacons were surveyed. The video survey also assessed the speeds of cyclists through the bus stop. Finally, there was an intercept survey of cyclists and bus passengers using the stops.