

Cycling action plan 2 reference list

This document lists the references for figures used in the [Cycling action plan 2](#).

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Contributing to London's Success (pages 7-11)

- Sustainable mode share in 2015: Travel in London Report 15, <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>

Decarbonisation (page 8)

- Exceeding 1.5 degree Celsius global warming despite the electrification of vehicles: Lisa Hopkinson and Lynn Sloman, December 2018, Briefing: More than electric cars; Why we need to reduce traffic to reach carbon targets. Transport for Quality of Life
- 1.2 million journeys cycled every day on average: calculated from approximately 1,400 weekday cycle count sites chosen to be representative of London's streets, with adjustments for weekend travel derived from our London Travel Demand Survey (LTDS). Counts data available at <https://cycling.data.tfl.gov.uk/>.
- 27 per cent reduction in car vehicle kilometre needed to meet net zero carbon ambition by 2030: Analysis of a Net Zero 2030 Target for Greater London, GLA, 2022; <https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/climate-change/zero-carbon-london/pathways-net-zero-carbon-2030>

Air Quality (page 9)

- Cost to the NHS and social care system by 2050 if no action is taken to reduce air pollution in London: Modelling the long-term health impacts of air pollution in London, GLA, 2020.
- Premature deaths caused by air pollution: London health Burden of Current Air Pollution and Future Health Benefits of Mayoral Air Quality Policies; Imperial College London, 2019; http://erg.ic.ac.uk/research/home/resources/ERG_ImperialCollegeLondon_HIA_AQ_LDN_11012021.pdf
- Number of people with asthma in London: 2021 analysis from Asthma UK and the British Lung Foundation; https://www.london.gov.uk/press-releases/mayoral/londons-toxic-air-is-triggering-asthma-attacks#:~:text=**%20According%20to%20Public%20Health,under%2019%2Dyear%2Dolds.
- Impact of Ultra Low Emission Zone on reducing nitrogen dioxide concentrations: Expanded Ultra Low Emission Zone – six month report, GLA, July 2022; <https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/environment-publications/expanded-ultra-low-emission-zone-six-month-report>

Health (page 9)

- Savings to the NHS in treatment costs over 25 years if all Londoners did 20 minutes of physical activity each day: UK Chief Medical Officers' Physical Activity Guidelines, Department for Health and Social Care, September 2019

- Chief Medical Officer's guidelines: UK Chief Medical Officers' Physical Activity Guidelines, Department for Health and Social Care, September 2019.
- Proportion of Londoners doing 20 minutes of active travel per day: Travel In London Report 15; <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>
- Long term impact of Low Traffic Neighbourhoods in Waltham Forest: Aldred, R., Woodcock, J. and Goodman, A., 2021. Major investment in active travel in Outer London: Impacts on travel behaviour, physical activity, and health. Journal of Transport & Health, 20.

Sustainable home building (page 10)

- Employment growth between 2007 and 2019: Centre for Cities, based on data from the Office of National Statistics; <https://www.centreforcities.org/blog/is-londons-growth-model-broken/>
- Expected population growth by 2041: Greater London Authority population projections, February 2023; <https://data.london.gov.uk/blog/new-population-projections-for-london-building-on-the-2021-census/>
- Average home building per year since 2016: Analysis undertaken by the Greater London Authority based on data from the Department for Levelling Up, Housing and Communities and Ministry of housing, Communities & Local Government; <https://www.london.gov.uk/more-new-homes-completed-year-under-sadiq-khan-under-any-previous-mayor-london>.
- Number of homes needed in London each year for 20 years: The London Plan, Greater London Authority, 2021; <https://www.london.gov.uk/programmes-strategies/planning/london-plan>.

Economy (page 11)

- Potential of cycle freight in replacing van kilometres: TfL Cargo bike action plan, March 2023; <https://content.tfl.gov.uk/tfl-cargo-bike-action-plan-2023-acc.pdf>
- Cost of traffic congestion to London's economy: INRIX 2021 Global Traffic Scorecard, 2021; <https://inrix.com/press-releases/2021-traffic-scorecard-uk/>.
- All other statistics on this page: Walking and cycling economic benefits summary pack, TfL; <https://tfl.gov.uk/corporate/publications-and-reports/economic-benefits-of-walking-and-cycling>.

Reviewing the evidence (pages 12 to 16)

- Increase in cycle flows on Cycleways launched before the pandemic: estimates based on cycle counts data available at <https://cycling.data.tfl.gov.uk/>.
- Changes in the number of cycling journeys: Estimates based on annual cycle counts available at <https://cycling.data.tfl.gov.uk/>
- Changes in the number of car and public transport journeys: Travel In London Report 15; <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>.

- Change in cycling kilometres: Travel In London Report 15; <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>.

Improving the way we monitor cycling levels (page 15)

- Number of daily cycling journeys: calculated from approximately 1,400 weekday cycle count sites chosen to be representative of London's streets, with adjustments for weekend travel derived from our London Travel Demand Survey (LTDS). Counts data available at <https://cycling.data.tfl.gov.uk/>.

Cycling during the pandemic (page 16):

- London comes top of a survey of global and capital cities for kilometres of cycle routes delivered since 2020: Buehler, R.; Pucher, J. Cycling through the COVID-19 Pandemic to a More Sustainable Transport Future: Evidence from Case Studies of 14 Large Bicycle-Friendly Cities in Europe and North America. Sustainability 2022, 14, 7293.
- Change in cycling mode share during the pandemic: Travel In London Report 14; <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>.
- Demographic characteristics of people cycling in 2020: Cycling potential in London's diverse communities, TfL, 2021, <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>

Diversifying cycling (Pages 17-20)

- Total number of potentially cyclable trips: Analysis of cycling potential, TfL, 2017
- Number and proportion of car trips that are potentially cyclable: Travel in London report 11, <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>.
- Demographic characteristics of people cycling between 2010 and 2019: Travel in London Report 15: <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>
- Commuting distance and frequency for men and women: London Travel Demand Survey, 2019.
- Percentage of journeys to schools that are cycled: London Travel Demand Survey, TfL, 2019.
- Percentage of disabled Londoners able to ride a standard cycle: Attitude to cycling survey, TfL, 2017.
- International evidence on pattern of under-representation in cycling: Goel, R., Goodman, A., Aldred, R., Nakamura, R., Tatak, L., Garcia, L.M.T., Zapata-Diomed, B., de Sa, T.H., Tiwari, G., de Nazelle, A. and Tainio, M., 2022. Cycling behaviour in 17 countries across 6 continents: levels of cycling, who cycles, for what purpose, and how far?. Transport reviews, 42(1), pp.58-81.
- Change in cycling participation during the pandemic: Cycling potential in London's diverse communities, TfL, 2021, <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>

Potential for diversification (page 20):

- Share of Londoners actively considering taking up cycling: Cycling potential in London's diverse communities, TfL, 2021, <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>

Reducing road danger (pages 21 to 24)

Prioritising road danger reduction (page 21):

- Percentage of non-cyclists deterred by concerns over road danger and fear of collisions: Cycling potential in London's diverse communities, TfL, 2021, <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>
- Absolute numbers of people cycling killed or seriously injured: Casualties in Greater London during 2022, annual factsheet, TfL, <https://tfl.gov.uk/corporate/publications-and-reports/road-safety>.
- Risk of being killed or injured while cycling in London, 2000-2022: based on the number of slight, serious and fatal injuries sustained while cycling (<https://tfl.gov.uk/corporate/publications-and-reports/road-safety>) and the number of daily cycle journeys (<https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>).

Cycleways are effective in reducing risk to people cycling (page 22)

- Relationship between expansion of the Cycleway network at borough level and change in cycling risk. The indicative change in cycling risk is based on the change in the number of slight, serious and fatal injuries (<https://tfl.gov.uk/corporate/publications-and-reports/road-safety>) and change in cycling levels at borough level. The indicative change in cycling levels is based on annual cycle counts within each borough (<https://cycling.data.tfl.gov.uk/>). The change in cycling levels is indicative only as the count sites in each boroughs are not necessarily representative of the borough's street network (count sites were selected to be representative of central, inner and outer London's streets but not at borough level).

Causes of road danger (page 23)

- Collision statistics from STATS19 (<https://www.data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>)
- Vehicle risk calculated based on STATS19 collision data and vehicle kilometre.
- Impact of speed limit on likelihood of severity of the outcome of collision: <https://pubmed.ncbi.nlm.nih.gov/19393804/>
- Involvement of people driving for work in serious and fatal injuries: Vision Zero Action Plan Progress Report (<https://content.tfl.gov.uk/vision-zero-action-plan-progress-report-2021.pdf>)

- Likelihood of cycling collisions occurring in areas of higher deprivation: STATS19 data (<https://www.data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>)

Vehicle danger for people cycling – cycling fatalities and serious injuries by vehicle type, 2017-2022 (page 24)

- Number of serious and fatal injuries by vehicle involved: STATS19 data (<https://www.data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>)
- Vehicle kilometre: Travel in London reports (<https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>)

Other barriers to cycling (pages 25 to 28)

Barriers to cycling among people not currently cycling and those considering taking up cycling (page 26)

- Cycling potential in London's diverse communities, TfL, 2021: <https://tfl.gov.uk/corporate/publications-and-reports/cycling-and-walking>

Five types of barrier deterring under-represented groups (page 27)

- Cycling potential in London's diverse communities, TfL, 2021: <https://tfl.gov.uk/corporate/publications-and-reports/cycling-and-walking>

Expanding the Cycleway network (Pages 30-37)

Planning for all sustainable modes (page 35)

- Interim evaluation report for Bishopsgate's bus and cycle only corridor: <https://haveyoursay.tfl.gov.uk/11513/widgets/33052/documents/31828>

Local measures (Pages 37-41)

Low-traffic streets and neighbourhoods (page 38)

- Increase in cycling by residents living in areas with a high number of roads in Low Traffic Neighbourhoods: People and Places: final quantitative report: <https://content.tfl.gov.uk/people-and-places-final-report.docx>

The benefits of Low Traffic Neighbourhoods (page 39)

- Increase in walking and cycling in Waltham Forest low traffic neighbourhoods: Aldred R, Goodman A. Low traffic neighbourhoods, car use, and active travel: evidence from the people and places survey of outer London Active Travel Interventions. Findings 2020, <https://findingspress.org/article/17128-low-traffic-neighbourhoods-car-use-and-active-travel-evidence-from-the-people-and-places-survey-of-outer-london-active-travel-interventions>.
- Increase in walking and cycling in Railton Road Low Traffic Neighbourhood: Railton Low Traffic Neighbourhood Stage 1 Monitoring Report: <https://www.lambeth.gov.uk/streets-roads-transport/railton-low-traffic-neighbourhood-stage-one-monitoring-report/methodology>
- Cycling diversity: The value of measuring cycling diversity as well as cycling volume – Transport for Quality of Life: <http://transportforqualityoflife.com/projects/>
- Reduction in road danger: The impact of introducing LTNs on road traffic injuries (<https://findingspress.org/article/18330-the-impact-of-introducing-low-traffic-neighbourhoods-on-road-traffic-injuries>) and Impacts of 2020 Low Traffic Neighbourhoods in London on Road Traffic Injuries (<https://findingspress.org/article/25633-impacts-of-2020-low-traffic-neighbourhoods-in-london-on-road-traffic-injuries>).
- Reduction in road traffic injury in Waltham Forest: Laverty, A. A., Aldred, R., & Goodman, A. (2021). The Impact of Introducing Low Traffic Neighbourhoods on Road Traffic Injuries.
- Better air quality: 'Evaluation of low traffic neighbourhood (LTN) impacts on NO2 and traffic' by Xiuleng Yang, Emma McCoy, Katherine Hough and Audrey de Nazelle is published in Transportation Research Part D.
- Reducing crime in Waltham Forest: The Impact of Introducing a Low Traffic Neighbourhood on Street Crime, in Waltham Forest, London: <https://findingspress.org/article/19414-the-impact-of-introducing-a-low-traffic-neighbourhood-on-street-crime-in-waltham-forest-london>

School Streets (page 40)

- Reduction in motorised traffic on School Streets: Getting to know School Streets (<https://content.tfl.gov.uk/getting-to-know-school-streets-case-studies-2022.pdf>)

Reducing traffic and improving air quality (page 40)

- Concerns over road danger and air pollution among people cycling: Cycling potential in London's diverse communities, TfL, 2021 (<https://tfl.gov.uk/corporate/publications-and-reports/cycling-and-walking>)

Case study: Bessemer Grange Primary School (page 41)

- Getting to know School Streets (<https://content.tfl.gov.uk/getting-to-know-school-streets-case-studies-2022.pdf>)

Tackling the sources of road danger (page 42-48)

Junctions and intersections (page 42)

- Impact of Safer Junction Programme on collisions: Safer Junction Traffic Accident Diary System monitoring programme, TfL, using STATS 19 data (<https://www.data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>)

Lower speed limits (page 43):

- Impact of lowering speed limits on collisions: The collision data and methodology used to calculate the impact on lowering speed limit is available at <https://tfl.gov.uk/corporate/safety-and-security/road-safety/safe-speeds>

Safer vehicles and Bus safety (page 44):

- Change in number of collisions involving goods vehicles: STATS19 (<https://www.data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>)
- Bus Safety Strategy: <https://content.tfl.gov.uk/bus-safety-strategy.pdf>

Promoting safe behaviours (page 45):

- Behaviours contributing to 90 per cent of collisions: STATS19 (<https://www.data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>)

Supporting women cycling through design (page 48)

- Proportion of women concerned over harassment and intimidation: Cycling potential in London's diverse communities, TfL, 2021: <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>

Breaking down the barriers to cycling (pages 53-65)

Residential cycle parking (page 54)

- Ability to store a cycle at home among people actively considering taking up cycling: Cycling potential in London's diverse communities, TfL, 2021: <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>

Combatting cycle theft (page 55)

- Proportion of non-cyclists put off cycling by the fear of their cycle being stolen: Cycling potential in London's diverse communities, TfL, 2021: <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>

Santander Cycles (page 56)

- Proportion of Londoners without access to a cycle at home: Cycling potential in London's diverse communities, TfL, 2021: <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>
- Demographic profile of Santander Cycle Users: Annual cycle hire customer surveys, TfL.

Access to cycles (page 59)

- Proportion of non-cycling Londoners not able to afford to buy and maintain a cycle: Cycling potential in London's diverse communities, TfL, 2021: <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>
- Proportion of people living on low income saying they cannot afford to buy or maintain a cycle: Cycling potential in London's diverse communities, TfL, 2021: <https://content.tfl.gov.uk/cycling-potential-in-londons-diverse-communities-2021.pdf>

Unlocking the potential of cycle freight (page 60)

- Potential for mode shift from van to cargo bikes: <https://content.tfl.gov.uk/tfl-cargo-bike-action-plan-2023-acc.pdf>

Cycle training and STARS (page 61)

- Impact of the STARS programme on travel behaviour: hands-up survey of school pupils.
- Participation in cycle training and evaluation: Cycle training evaluation, Cycle Confident, financial year 2020/21.

Connecting with Londoners (page 64)

- Impact of RideLondon FreeCycle event: RideLondon FreeCycle post-event survey.