



Research Article

Resident experience of new Low Traffic Neighbourhoods in London: qualitative insights from a mixed methods study

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Abstract

Background: Reducing private car use and increasing active travel is essential for transport decarbonisation and addressing public health crises of road traffic injuries, physical inactivity and air pollution. Low Traffic Neighbourhoods have emerged as a key intervention, particularly in London, United Kingdom, to create better environments for walking, wheeling and cycling by restricting through traffic on residential streets. While evidence suggests that Low Traffic Neighbourhoods reduce car use, increase walking and cycling, and improve road safety, their implementation has been politically contentious and has elicited a wide range of public reactions.

Methods: This paper presents findings from the qualitative strand of a wider 3.5-year mixed-methods study of Low Traffic Neighbourhoods in London. Qualitative data were collected to explore the lived experiences of Low Traffic Neighbourhood residents, with a focus on how residents – including disabled residents – perceive and navigate the schemes. Participants were selected from among those living in or on the road adjacent to four selected Low Traffic Neighbourhoods, to ensure a diversity of views on the schemes, and diverse demographic characteristics were represented. Using 61 go-along interviews and 7 focus groups, we explore how Low Traffic Neighbourhoods influence residents' experiences and perceptions of travel.

Results: Our findings show that residents' attitudes towards Low Traffic Neighbourhoods often shape their reported experiences: those who are initially supportive tend to notice and highlight positive impacts, while opponents are more likely to report no change or negative impacts.

Overall, participants observed increased walking and cycling, improved perceptions of road safety, and reduced noise and air pollution within Low Traffic Neighbourhoods. However, concerns were raised by some disabled residents about longer journey times and accessibility problems. Notably, many residents living on boundary roads perceived an increase in traffic and pollution, although quantitative data on the impacts of Low Traffic Neighbourhoods on boundary roads remain mixed.

Conclusions: Our findings highlight the importance of considering residents' lived experiences in scheme evaluations. While Low Traffic Neighbourhoods contribute to climate and health objectives, their implementation should be guided by a just transition framework to ensure benefits are equitably distributed.

Limitations and future work: Our study's main limitation is that it contributes to an evidence body of research on Low Traffic Neighbourhoods being predominantly from London. Future research should extend beyond London, explore a wider range of schemes and attend to experiences of further marginalised population groups.

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Background

Reducing car use and increasing levels of active travel are essential for decarbonising transport¹ and for addressing the public health epidemics of road deaths and serious injuries, physical inactivity and air pollution, all enabled by the hypermobility afforded by private car ownership.²⁻⁴ Cities around the world have introduced a range of measures to reduce car use. One of these is Low Traffic Neighbourhoods (LTNs), implemented in some urban areas of the UK since 2020. LTNs use 'modal filters' to restrict motorised through traffic on residential streets. While all addresses within a LTN are still accessible by vehicle, motorised access may become more circuitous. Modal filters involve either physical barriers on roads, such as bollards or planters (Figure 1), or Automatic Number Plate Recognition (ANPR) cameras with signage and enforced through fines (Figure 2). The latter form of filter enables continued use of the route by emergency vehicles. LTNs in the UK have largely been implemented in inner London,⁵ while similar interventions feature in urban areas around the world.⁶⁻⁸

Low Traffic Neighbourhoods are implemented to reduce car use by making motor vehicle journeys more circuitous and thus less desirable, and to increase levels of walking, wheeling and cycling, by creating a less car-dominated environment that is safer and more desirable for active travel.⁹ The largely quantitative data collected on LTNs so far have demonstrated increased levels of walking and cycling,¹⁰ reduced road injuries¹¹⁻¹³ reduced car

ownership¹⁴ and reduced levels of driving by LTN residents,¹⁵ as well as overall reductions in traffic volumes within LTNs^{16,17} and little average change in traffic volumes on boundary roads.¹⁶

Despite evidence on their effectiveness, LTNs in the UK are controversial, with the media playing a key role in constructing anti-LTN discourses.^{5,18} LTNs have also been highly politicised. Supported under Boris Johnson's Conservative government, with many LTNs receiving initial funding during COVID-19 lockdowns,¹⁹ Rishi Sunak's Conservative government then distanced itself from and criticised LTNs.^{20,21} More recently, former Labour Transport Secretary Louise Haigh announced that local authorities have her full support to roll out such schemes where appropriate.²²

The limited qualitative research on LTNs in the UK provides insight into the complexity of residents' views on such interventions. Analysing free-text responses of a public consultation for two new LTNs in Birmingham, Pritchett *et al.*²³ found that while there were a wide range of anticipated and reported benefits and disadvantages, residents living just outside of LTNs and on boundary roads, as well as disabled car users and commuters who used vehicles, had more negative perceptions. In research with 78 disabled participants, Transport for All²⁴ similarly found that while there were positive impacts in terms of more pleasant journeys and increased safety, there were also negative impacts, including longer journey times for vehicle users, carers and visitors, as well as a greater mental load for taxi users when organising journeys.

Existing evidence around disabled people echoes the work of Macniven *et al.*²⁵ with older adults, many of whom similarly did not see the value of low traffic interventions; either because they relied on motor vehicles and were concerned about mobility or because interventions did not improve the material pedestrian infrastructures, such as footways and crossings. Larrington-Spencer *et al.*,²⁶ in their study of planned and implemented LTNs in Greater Manchester, had similar findings, extending beyond only disabled people and older people, observing that while people who cycled saw benefits in LTNs, people who predominantly walked did not necessarily perceive any potential benefits to their walking practices from such interventions.

Aims and objectives

Micro-level streetscape projects of road space reallocation, such as LTNs, result in oppositional views at least



FIGURE 1 Modal filters using physical barriers to enforce.



FIGURE 2 Modal filters using ANPR cameras and signage to enforce.

partly because they challenge decades of motonormativity, where the private vehicle has been constructed as the 'natural' and 'desirable' form of transport.^{18,27} It is, therefore, important to uncover nuance within experiences of LTNs. In the wider context of primarily quantitative evidence around LTNs,²³ this paper analyses the qualitative data collected as part of our broader mixed-methods study. The aim is to understand the lived experiences of residents living inside or on the boundary roads of new LTN schemes, what elements elicit positive and negative reactions, whether and if those experiences and perceptions evolve over time, and what can be learnt for the future development of LTNs and other similar policies.

This paper outlines the methods of recruitment, data collection and analysis in this research, followed by an overview of residents' (including disabled residents') experiences and perceptions in relation to LTNs. We focus largely upon impacts upon resident transport practices, and consequences of transport practices, such as air and noise pollution and road safety, recognising that LTNs are a transport intervention that may also have impacts in terms of use and experiences of public space. The paper finishes with a discussion of the implications of the findings for LTN interventions, limitations of the research and proposals for future research.

Methods

To respond to our aims and objectives, we conducted go-along interviews with 61 participants in 2022, and follow-up interviews with 54 of these participants across 2023 and 2024, in 3 new LTNs in inner London (LTNs 1–3). Follow-up interviews were conducted to understand whether resident perceptions change over time. In addition, we undertook disabled people's focus groups, both in person and online, in LTNs 1–3 and in a fourth LTN (LTN 4) between 2023 and 2024. LTN 4 was not implemented in time to undertake go-along interviews. The study was granted ethics approval by the University of Westminster Research and Knowledge Exchange Ethics Committee.

Case study selection and description

As detailed in our study protocol,²⁸ this research was situated in four case study LTNs in London – three in inner London (LTNs 1–3) and one in outer London (LTN 4). These four qualitative case studies were a subset of the 6 LTNs used for quantitative monitoring as part of the wider 'LTNs in London' project, purposively selected through discussions with local officers on confidence of implementation between autumn 2021 and spring 2022. The four qualitative case study LTNs (*Figure 3*) were selected

based upon diversity of demographic characteristics in the scheme area and variety of LTN types. For example, LTN 1 features a destination high street with a bus gate, LTN 2 is a smaller scheme, while LTNs 3 and 4 cover a larger area made up of several smaller 'cells' or smaller LTNs.

The initial research plan was to undertake go-along interviews shortly after LTN implementation, with follow-up interviews after 12 months, to understand how perceptions and experiences of LTNs change over time. These were undertaken in LTNs 1 and 2. However, scheme delays meant that go-along interviews were conducted pre and post implementation in LTN 3. LTN 4 was not implemented within the time frame to complete go-along interviews, but along with LTNs 1–3, we were able to conduct disabled people's focus groups between 2023 and 2024. *Table 1* shows the date of implementation of the four case study LTNs, as well as the timing of initial and follow-up go-along interviews, and disabled people's focus group discussions. All four LTNs were initially implemented under Experimental Traffic Orders (ETOs). ETOs can stay in force for up to 18 months, while the effects of changes are monitored and evaluated. Following the end of their trial periods, all these LTNs have now been made permanent. A short description of each of the LTN is provided below.

Low Traffic Neighbourhood 1: Stoke Newington, Hackney

LTN 1 was implemented as a trial in September 2021. The scheme consisted of five traffic filters that were monitored using ANPR cameras. A destination high street to the south of the scheme, Church Street, featured a new 7 a.m.–7 p.m. bus gate, allowing buses and emergency vehicles to pass between these hours. Blue Badge holders are exempt able to cross the bus gate (The Blue Badge scheme provides parking concessions for disabled people across the UK. More information is available at: <https://www.gov.uk/government/publications/the-blue-badge-scheme-rights-and-responsibilities-in-england/the-blue-badge-scheme-rights-and-responsibilities-in-england>). The scheme covered an area of around 0.3 square miles (0.8 km²). In addition to the features of the LTN, additional upgrades were made to the built environment, including footway widening and tree planting on the destination high street, and the implementation of parklets, which provide public seating and cycle parking. In 2023, the decision was made to retain LTN 1 by the local authority.²⁹

Low Traffic Neighbourhood 2: Camden Square, Camden

LTN 2 is a small scheme covering 0.11 square miles (0.3 km²) that was implemented in 2021. The LTN was

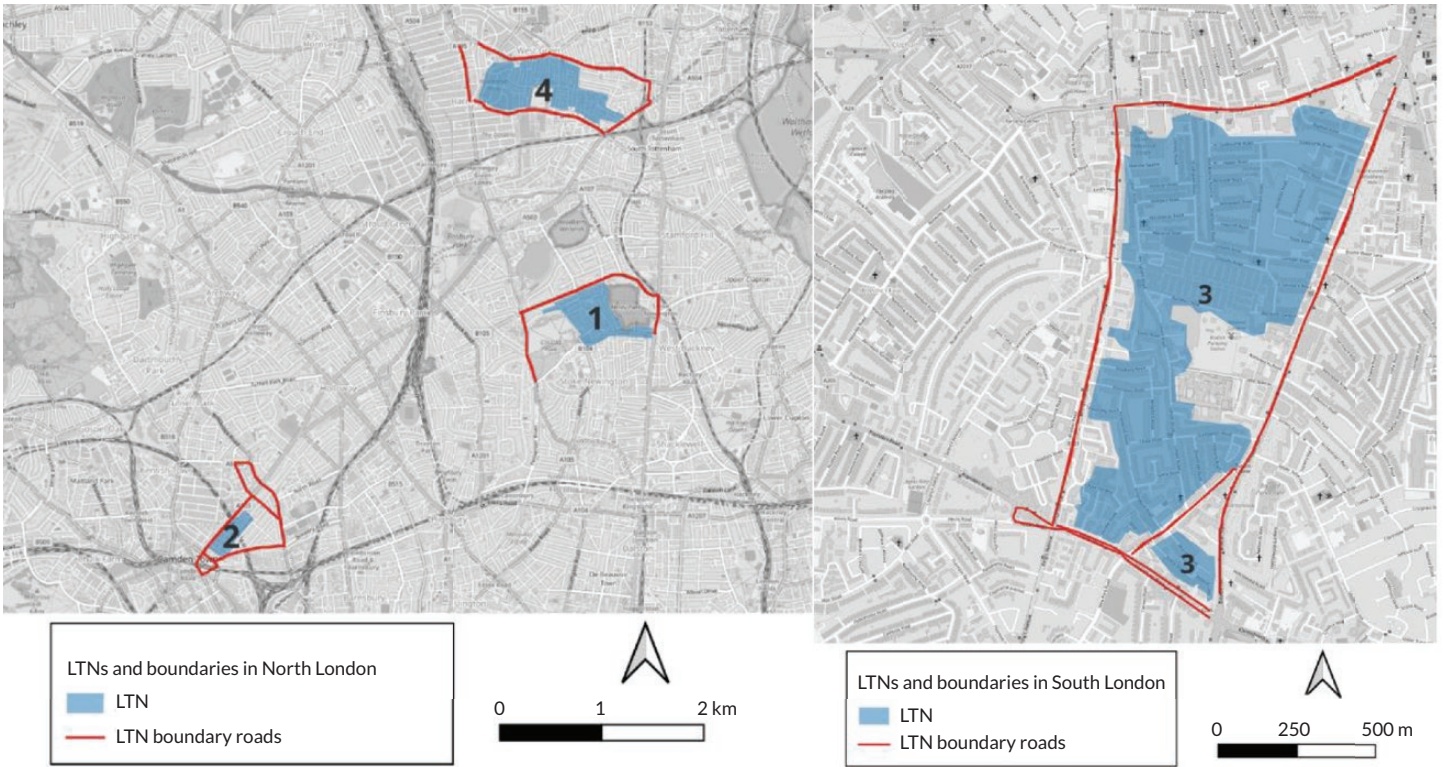


FIGURE 3 Left: LTNs 1, 2 and 4 in North London. Right: LTN 3 in South London.

TABLE 1 Date of implementation of case study LTNs, timeline of initial and follow-up go-along interviews, and timing of disabled people’s focus group discussions

	Date of implementation	Initial interviews		Follow-up interviews		Focus groups	
		Dates	Participants	Dates	Participants	Dates	Participants
LTN 1	September 2021	Summer 2022	20	Summer 2023	19	Summer 2023	11 (6 online, 5 in-person)
LTN 2	December 2021	Summer 2022	20	Summer 2023	18	Summer 2023	4 (all in-person)
LTN 3	September 2023	Summer 2022	21	Summer 2024	14	Summer 2024	11 (6 online, 5 in-person)
LTN 4	August 2022					Summer 2024	15 (4 online, 11 in-person)

created by two new ANPR-enforced modal filters preventing east-to-west through cutting in a small and largely residential area. In 2023, the local authority approved the scheme to become permanent, with some changes to the filters and additional improvements to the public realm, such as footway buildouts and continuous footways at junctions planned.³⁰

Low Traffic Neighbourhood 3: Brixton Hill, Lambeth

The trial implementation of LTN 3 began in September 2023. The scheme covers a largely residential areas, with

a number of small shops, of 0.4 square miles (1 km²). LTN 3 involves eight new modal filters (five ANPR enforced and three with a physical closure) and a splitting of the area of the LTN into three smaller ‘cells’. Blue Badge holders can apply for exemption from one modal filter, for example, the filter that is close to their home. In 2025 the decision was taken to make LTN 3 permanent.³¹

Low Traffic Neighbourhood 4: St Ann’s, Haringey

LTN 4 was implemented under a trial ETO in August 2022 and made permanent in December 2024. The LTN has

seven traffic ANPR-enforced filters, creating a low traffic network of largely residential streets, made up of six smaller cells, covering an area of 0.4 square miles (1 km²). LTN 4 has additional interventions to support active travel locally, including 3 new School Streets and 6 cycle hangers, allowing up to 36 cycles to be stored securely.³² Within Haringey, all residents who hold a Blue Badge can register a single motor vehicle for exemption from most of the camera-enforced LTN filters in the borough.³³ In December 2024 Haringey Council made the decision to make St Ann's LTN permanent.

Participant selection

Our participant recruitment and selection strategy were discussed with our patient and public involvement (PPI) partner, a pan-disability disabled-led research organisation called Transport for All, and implemented as follows. To recruit participants for go-along interviews, all addresses both within and on the boundary roads of LTNs 1, 2 and 3 were flyered with a double-sided leaflet introducing the study and outlining how local residents could participate (for example, the leaflet used in LTN 3 is available in [Report Supplementary Material 1](#)). The flyer directed to an online survey through which prospective participants could provide demographic information, such as age, gender, ethnicity and disability, and position towards the scheme (see [Report Supplementary Material 2](#)). [Table 1](#) shows the number of prospective participants per LTN as well as their position on their local proposed or implemented LTN.

For each case study area, 20 go-along participants, as well as several backup participants were selected. Selection was based upon ensuring that participants represented a diversity of demographic features and positions established in the survey. In 2022, 61 go-along interviews were undertaken across the three case study areas (see [Table 1](#)). [Appendix 1](#), [Table 2](#) provides more details on the demographics of participants.

Disabled people were recruited for six focus group discussions (see [Table 1](#)), again by flyering all homes within and on the boundary road of case study LTNs with a leaflet (see [Report Supplementary Material 3](#)) introducing the study and asking participants to fill in a short survey (see [Report Supplementary Material 4](#)). Prospective participants were also recruited by our PPI co-applicants and qualitative co-leads at Transport for All through their database of local members, as well as through contacting local disabled people's organisations and groups. Like go-along participants, disabled participants were selected to represent an intersection of demographics (see [Appendix 2](#), [Tables 3–9](#)).

Before taking part in the interviews or focus groups, participants were required to read our participant information sheet and sign a consent form.

Go-along interviews

To understand the lived experiences of LTNs for those living inside or on boundary roads of new schemes, we utilised go-along interviews, where the researcher accompanies participants on their everyday activities to understand their socio-spatial environment.³⁴ Literature on go-alongs is developed in [Appendix 3](#), including details on how we adapted go-alongs for participants for whom the accessibility of the built environment was a barrier to participation.³⁵ Adaptation tended to involve a stationary go-along – for example, sitting at a bench in the scheme or, in one case, utilising Microsoft Teams (Microsoft Corporation, Redmond, WA, USA) and Google Maps (Google Inc., Mountain View, CA, USA). While they were a productive method for understanding residents' experiences of LTNs, we also found them emotionally, cognitively and physically demanding, requiring high levels of attention to practices of care for both the participant and the researcher. We discuss this more elsewhere.³⁶ The interviews were conducted by Ersilia Verlinghieri, Harriet Myfanwy Larrington-Spencer, or Emma Lawlor and lasted between 45 and 90 minutes. The semi-structured interview protocol, which included direct questions and several place-based prompts, was refined after two pilot interviews (see [Appendix 5](#)). After each interview, the interviewee filled in a form summarising emerging themes and noting the context in which the interview took place (including weather conditions and how busy the roads were), as well as any challenges encountered during the interview. These notes informed coding and the design of tailored follow-up interviews. In some cases, they also informed mitigation strategies, where interviewees found the interview particularly challenging.³⁶ Follow-up interviews sought to understand whether participants' views and experiences of their local LTN changed, recognising that it often takes time for people to adapt their behaviour in response to reconfigurations of streets.¹⁰ In follow-ups across all three LTNs, we saw participant attrition, largely due to participants moving out of the area. Nineteen of the original participants in LTN 1, and 18 of the original participants in LTN 2, participated in follow-up interviews. LTN 3 saw greater attrition, attributable to the greater length of time between go-alongs, with only 14 of the original 21 participants taking part in follow-ups. An additional three participants were recruited for the second round of go-alongs from the database of residents who had registered their interest in participating in 2022, as well as from more recent recruitment of disabled residents

for focus group discussions. Participants received a £40 thank-you voucher for taking part in each go-along.

Focus group discussions

Focus groups were chosen as a suitable method to elicit interaction and discussion among people with diverse access needs.³⁷ Bringing together residents from a diverse range of backgrounds and disabilities, these groups generated rich information around disabled people's shared or divergent experiences and enabled participants themselves to suggest how they think LTN-type interventions might work better, or problems be mitigated.

To help meet the access needs of disabled participants, focus groups were offered both online and in person at an accessible venue, and both in the afternoon and in the evening. The focus group were facilitated by a member of our PPI partner organisation, with the support of one of our two qualitative researchers. Questions were designed by the PPI partners, adapting our interview schedule to a group discussion context. In total, 41 participants attended (LTN 1, 6 online and 5 in person; LTN 2, zero online and 4 in person; LTN 3, 6 online and 5 in person; LTN 4, 4 online and 11 in person) (see [Table 1](#)). Focus group discussions were 90 minutes long, with a 10-minute break, and participants received a £50 bank transfer or e-voucher to thank them for participating.

Data analysis

Go-along interviews and focus groups were audio-recorded. Recordings were transcribed post interview. Participants in the interview were given the option of receiving and revising the transcript, but no revision was made. Anonymised go-along interviews and follow-up go-along interview transcriptions were uploaded to NVivo (QSR International, Warrington, UK) to allow analysis by one of the four members of the qualitative research team (Ersilia Verlinghieri, Harriet Myfanwy Larrington-Spencer, Emma Lawlor, Rachel Aldred). A blended deductive-inductive coding framework was developed thematically by the research team based upon knowledge of previous literature, interview content, as well as knowledge of the interview aims and research questions. The coding framework was then refined and tested by co-coding a sample of the interviews by all researchers. For go-along interviews, this was to understand resident experiences of their local LTN and how these experiences change over time, and for disabled people's focus groups, the aim was similar, with a particular focus upon accessibility and inclusion. The coding framework is presented in [Appendix 4, Table 10](#). Data were coded according to themes for each participant, and then a report was developed for each LTN that discussed the findings from each cohort of participants.

NVivo data were also combined with Global Positioning System (GPS) tracking of the interviews – recorded using Strava (Strava Inc., San Francisco) – to create spatial transcripts, which allowed us to analyse participants' views on specific spatial features related to the LTN.^{36,39} Data analysis of the focus groups was led by our PPI partner, who produced reports based on the transcripts as a basis for further integration with the other datasets and analysis. Our PPI partner was also involved in several discussions and meetings about data analysis, which helped reframing our analysis. Research findings were presented to and discussed with disabled research participants in a final event. No amendments to the analysis were required after the discussion.

Results

Experiences of participants will be discussed with regard to perceptions of impacts within the LTN and upon the boundary roads, and perceptions of LTN governance processes and thought on alternatives or adaptations to LTNs. We also reflect upon whether go-along participants' views changed over time after a LTN had been in place. Due to space limitations and the richness of our data set, direct quotes from participants were paraphrased.

Motor vehicle journeys

Low Traffic Neighbourhoods are designed to make vehicle journeys more circuitous so that driving is disincentivised. As would be expected, driver-participants living within all three case study LTNs reported that the LTN had increased vehicle journey length and time. The increase in journey time tended to be estimated as between a few minutes and up to 10 minutes. This is generally a little higher than the average first-year post-implementation increase of around 1–2 minutes per trip for journeys starting within LTNs to access key services, observed in parallel quantitative analyses conducted as part of the same project. Those who were more positive about their local LTN scheme tended to be both less concerned about time penalties and had lower estimates of what these were. It was not only driver-participants who used a vehicle for commuting that were concerned about time penalties of LTNs but also those who drove for more infrequent journeys, such as family holidays. Within go-alongs and focus groups, we had several disabled participants who relied upon private vehicles as mobility aids. For these participants, longer journey times for everyday activities were having a detrimental impact upon quality of life, and additional time spent sitting in vehicles was exacerbating pain levels. While the frustration of some participant-drivers reduced over time, particularly if they valued the benefits the LTN provided in

terms of active travel and environment, many participant drivers did not change their view over time. For disabled drivers, the implementation of Blue Badge exemptions to LTN filters often had a positive mitigating impact.

In addition to driver-participants considering more circuitous routes to be extending journey time, perceived increases in traffic volume and congestion on boundary roads attributed to LTNs was also considered to be slowing journey times. This aligns with patterns emerging from parallel quantitative analyses of congestion within the same research programme, which indicate a substantial increase in congestion on boundary roads in the first year following LTN implementation, with effects largely dissipating by the second and third years. Increased traffic volumes and congestion was considered the result of the displacement of vehicles that pre-implementation would have travelled directly through the LTN area. While concerns regarding traffic displacement were more strongly held by those that oppose their local LTN, it was also a common perception among those that support the LTN. While participants initially would identify the LTN as causing congestion on boundary roads, throughout go-alongs they would often identify additional factors, such as road works and road layout changes, as further contributory factors.

Several participants, in initial go-alongs LTNs 1 and 2, noted trouble with accessing taxis and private hire vehicles (often Uber) from within and to their local LTN. For non-disabled participants, this was generally considered to cause limited problems. However, disabled participants noted greater problems. These included difficulties with booking and feeling they had a greater rate of cancellation by drivers than before LTNs, which they attributed to difficulties for drivers in navigating schemes. Similarly, participants reported drivers dropping them at modal filters, rather than at their address, to avoid taking a more circuitous route or because drivers feared fines. While this can often be absorbed by non-disabled people, it posed a problem for disabled participants who had mobility impairments and fatigue conditions that made walking difficult. Disabled participants also discussed the stress and mental load of trying to organise taxis and private hire since the implementation of the LTN for everyday journeys they need to live their lives. This experience had generally not changed over time for disabled participants.

Participants who were drivers discussed the difficulties of finding out how to navigate the LTN, especially in the initial period after the introduction of the scheme for both residents and non-residents. In follow-up interviews, driver-participants had become more used to the scheme and did not discuss themselves having difficulties navigating their

local LTN, although they did occasionally discuss the difficulties visitors had in navigating the LTN. Participants in LTNs 1 and 2 also reported observing fewer drivers being 'lost' or 'stuck' within LTNs after the schemes existed for a length of time. Reduction in drivers getting lost or stuck in schemes was considered positive because initially participants had been concerned about dangerous driving and manoeuvres when drivers were frustrated.

Active travel journeys

Across the three case study LTNs, many participants, but mainly those who supported the interventions, identified observing increases in levels of active travel, and particularly levels of cycling after implementation within LTN areas. No participants identified changes (either positive or negative) in levels of active travel on boundary roads of the case study LTNs. A small number of participants in LTN 1 did report changing their mode of transport to active travel because of the LTN, in combination with additional factors. For example, SN11 reported cycling more and driving less because of their local LTN, in combination with rising fuel prices and wider policies to deprioritise driving across London. Similarly, SN4 started cycling instead of motorcycling because of their local LTN and wider policies. SN15 reported walking and using public transport more, again due to the LTN but also due to School Streets and a new controlled parking zone. While SN4 supported the LTN, and SN11 and SN15 were unsupportive, all reflected that changing their transport mode had health benefits.

While most participants did not report a change in transport mode because of the LTN, primarily those who both supported the LTN and who walked and cycled did report an improved experience when walking and cycling within the LTN. This was because fewer vehicles on the roads created a more relaxed environment. Similarly, many disabled participants reported safer conditions for crossing the road and that reduced traffic enabled them to use the road if the footways were unsuitable. However, a common disappointment among disabled participants was the lack of improvement to pedestrian infrastructure, such as footway width, quality and kerb drops. We have discussed these experiences more in detail in other published work.⁴⁷ Local authorities are increasingly looking at improving the pedestrian environment, although, as interviews with officers conducted for a separate aspect of this project revealed, they face challenges in funding this.⁴⁸ For example, in LTN 1, the destination high street (Church Street) has had footways widened and raised crossings installed on side roads,²⁹ which we observed positively affecting disabled people's journeys, and in LTN 2, plans are underway for footway improvements within the LTN area.³⁰ Reflecting improved experiences of

travelling actively within LTNs, several participants across LTN case studies reported changing their active travel journey routes to take advantage of this.

Participants who believed the LTN had shifted traffic onto boundary roads did not feel that walking and cycling conditions had improved there, with many saying the walking environment had worsened. While LTN supporters who were concerned about boundary road conditions often wanted dedicated cycle lanes, many opponents of LTNs also opposed such infrastructure, fearing it would create more congestion.

In LTNs 1 and 3, several participants noted an increase in the number of children walking and cycling to school after the implementation of the local LTN. This was not observed for LTN 2, likely due to its smaller size as well as having fewer participants with young children. In LTN 1, parent-participants who walked with their children within the LTN tended to observe there being more children walking and cycling and less driving at school pick-up and drop-off. SN9, said they thought children looked more relaxed when travelling to school. There were also indications by parent-participants of increasing confidence in children travelling actively to school and nursery and having less to worry about in terms of children's interactions with drivers.

Road safety

Generally, road safety was considered to have improved within all LTN areas with the reduction in levels of motor vehicles on the roads. Improvements were for both walking and cycling. Our quantitative findings strongly confirm this perception, with statistically significant reductions in injuries (as well as specifically 'Killed or Seriously Injured' casualties) inside LTNs for all road users.¹² While in initial interviews in LTNs 1 and 2 there had been concerns about driver behaviour when lost or stuck within a LTN reducing road safety, this concern had reduced in follow-up interviews when this happened less frequently. For those that opposed LTNs, there was often recognition that a reduction in motor vehicles would improve road safety; however, this was often countered with there never being a concern regarding road safety within LTNs in the first place. This perspective is perhaps not surprising considering that our quantitative work found that baseline injuries were seven times more likely on LTN boundary than LTN internal roads.¹²

Concerns related to road safety were raised, particularly by older and disabled participants, with regard to interactions with people cycling and people using e-scooters within LTNs. Such participants felt that reduced motor vehicle

levels within LTNs meant that cyclists and e-scooter users were more confident and less concerned about motor vehicles, which in turn resulted in speeds and behaviour by some that put pedestrians at risk. Disabled and older pedestrians were often considered at greater risk for reasons including being slower when crossing roads and less able to quickly react to danger. This concern felt more established towards the end of the data collection period, perhaps as LTNs had become more established and use by non-drivers had increased.

With regard to the boundary roads, there were more general concerns around road safety. However, the LTNs were not considered to have had any impact on this, either positively or negatively. In general, this matches our quantitative data, which have showed little significant impact on injury counts for pedestrians.¹² The same research, however, found a reduction in cyclist and motorcyclist collisions on boundary roads, which follow-on analysis suggested was due to fewer motor vehicles turning into or out of modally filtered residential streets.^{12,13} Within disabled people's focus group discussions, disabled participants commonly noted difficulties with using pedestrian crossings on boundary roads because road users, drivers as well as cyclists, would not respect the rules of the road.

Personal safety

Women participants often expressed concerns regarding personal safety in relation to their local area. In LTN 2, no participants raised concerns in personal safety directly with regard to the LTN. In LTN 1, one participant raised concerns of the LTN having a detrimental impact on personal safety, as they felt that having people driving on residential streets improved personal safety at night because of headlights and having people to help if anything happened. A similar perspective was held in LTN 3 by another participant. Other female participants felt that streets were safer with the removal of vehicles, which meant they experienced less harassment by drivers and their passengers. When personal safety was raised, women identified the need for good lighting on residential streets to increase their confidence. Several male participants, and specifically those who opposed LTNs, highlighted negative impacts upon women's personal safety. This reflected a narrative often used by the media to oppose the schemes.³⁸ For those who raised concerns over personal safety, such concern did not increase or reduce over time.

Air and noise pollution

Air and noise pollution were discussed by participants both in terms of boundary roads and of interior LTN roads. Across LTNs, many participants, particularly those living within the LTN, noted what they considered to be reduced

levels of air pollution because of decreasing levels of vehicles on the internal LTN roads. Reduced air pollution, particularly in LTN 3, was a key reason for strongly supporting such interventions. Perceived improvements in air quality within the LTN were often connected to positive health improvements, such as a reduction in asthma symptoms. Reduced noise on roads within LTNs was observed by participants and was particularly appreciated by neurodivergent participants, for whom constant noise could cause sensory overwhelm.

For participants who perceived traffic displacement onto boundary roads to have occurred post-implementation of LTNs, there were perceived increase in air and noise pollution on boundary roads. Air pollution was not only identified by smell and feeling but also by physicalities, such as increasing levels of dust in homes, having to clean windows more often or paintwork becoming discoloured. Many participants, who both supported and opposed their local LTN, were concerned about inequalities relating to air quality on boundary roads, and potential negative health consequences. For those concerned about air pollution and noise from boundary roads, concern did not reduce between initial and follow-up interviews.

Residents' views of Low Traffic Neighbourhood governance, communication and engagement

Across the three case study LTNs, a small number of participants, and only those who supported the intervention, were satisfied with the level of information, communication and engagement provided by councils on their respective LTN. Many participants, however, felt that the communication about the scheme was not comprehensive enough, or even that there was not any consultation regarding respective LTNs.

Most participants reported having received information about the scheme via leaflets delivered to their doors. Those who did not recall receiving information tended to live in blocks of flats, with the assumption that postal communications ended up in a communal area and were not necessarily seen. Participants also felt while they received information prior to schemes, they would have liked more ongoing information about how the scheme is faring and whether it is effective. In terms of the legibility of information provided, many participants noted that it was difficult to understand the meaning of initial communications from local authorities, and they only fully understood the new navigability of areas once the schemes had been implemented. Interviews with members of local authorities seeking to implement LTNs revealed that officers

were aware of the limitations of their approaches to engagement, which were linked to their inability to secure adequate resources to plan and implement schemes in a hollowed-out local government and tight funding timeline.⁴⁸ That said, most schemes underwent minor design amendments following engagement with residents.

Criticism of consultation processes regarding LTNs largely came from those that opposed their implementation. In general, those residents felt that consultations were already a foregone conclusion, as councils had a duty to consult, but not a duty to listen to the feedback from the consultation. Additionally, others felt that the process of consultation under an ETO sought to achieve consultation lethargy so those that opposed to the scheme would eventually limit their criticisms.

Resident alternatives or improvements to Low Traffic Neighbourhood

Opponents of their local LTN suggested alternative ways to reduce car use and encourage active travel. These included subsidies for electric vehicles, subsidies for purchasing cycles, more storage for cycles and lowering the cost and improving the provision of public transport. While LTN supporters also highlighted these measures, they saw them as complementary rather than replacements for LTNs. Many opponents also felt that if LTNs remained, they should be less restrictive for residents, such as allowing exemptions. While these are important measures to support modal shift, without more transformative structural changes to road hierarchies, such as LTNs, they are unlikely to be sufficient along for modal shift. We discussed these themes more in detail in another publication.¹⁸

Discussion and conclusion

This paper presents the qualitative results of a 3.5-year mixed-methods study evaluating the impacts associated with the implementation of Low Traffic Neighbourhoods (LTNs) in London. LTNs seek to improve conditions for walking, wheeling and cycling by making car journeys slightly less convenient, but little research exists that analyses in-depth residents' views and experiences of those schemes. Our study used two waves of go-along interviews with residents in three LTNs schemes and focus groups with disabled residents from four schemes to understand experiences of living within or on the boundary roads of new LTN schemes, what elements elicited positive and negative reactions, and what lessons can be learnt for the development of similar road space reallocation policies in the future.

Equality, diversity and inclusion

Our aim was to serve residents of London neighbourhoods where LTN schemes had been implemented. We interviewed 61 participants and ran 7 focus groups. Our PPI co-applicant, Transport for All, a pan-impairment, disabled-led group striving to increase access to all modes of transport and streetspace across the UK, was directly involved in recruitment, informing our strategy in terms of inclusivity and accessibility. This was key to ensure appropriate research design reflecting with equality, diversity and inclusion at its core, including designing the recruitment leaflet and survey. Transport for All also helped us to recruit disabled participants, complementing our leaflet distribution by making direct contact with local groups. This ensured that an adequate number of disabled people with different impairments were included in the research. The recruited participants represented a varied demographic sample and covered all views on the scheme, thus satisfying our recruitment goals. We believe that our recruitment strategy, which included distributing research leaflets to all addresses, paying participants, conducting interviews at a location chosen by participants and holding focus groups with different time options, helped us maximise engagement and retention. As a result, the retention rate of participants at the second wave of interviews and at the final event, where the research findings were presented, was very high, demonstrating appropriate engagement.

Main findings

Participants reflected on several outcomes of schemes that were also studied quantitatively as part of the same project, with accounts of their experiences and perceptions often, but not always, consistent with our measurements.³⁹ A key finding, explored in more detail elsewhere,³⁹ is that people's views on the impact of LTNs – and what they notice about them – are largely shaped by their initial opinion of the scheme. This initial view is often influenced by media coverage, opinion groups and council communications about what LTNs are and how they work. We found that, in general, those who supported LTNs tended to see positive changes because of implementation, while those who opposed tended to report LTNs having no positive impact or change, and only negative impact. We propose that dialogue between people with divergent views might be helpful in supporting people to notice benefits and disbenefits of schemes by appreciating the viewpoints of others.

Some participants noted somewhat higher increases in vehicle journey times associated with scheme implementation than found in our quantitative analysis. Others reported concerns about potential increases in congestion on scheme boundary roads, with those who opposed

the schemes being more concerned about such changes. Disabled participants who were car-dependent also expressed concerns about these changes. However, those who were more positive about their local LTN tended to be both less concerned about time penalties and to have lower estimates of these.

Many participants, particularly those who were supportive of the interventions, reported increases in walking and cycling in the area, with more children observed, particularly in LTN 1, which was linked to a more relaxed environment created by fewer vehicles on the road. Disabled participants also reported better experiences of moving around the area but expressed disappointment at the lack of improvement to footways and the walking and wheeling environment in general.⁴⁷ The reduction in motor traffic also meant that people perceived improvements in road safety, although concerns were expressed by older and disabled pedestrians about interactions with people cycling and using e-scooters. Some female participants felt that the scheme had helped with personal safety, reducing the likelihood of being harassed by drivers. However, other women shared concerns about walking alone at night in the area. Perceived improvements in air and noise pollution in the area were welcomed by residents in the LTNs, while those living on boundary roads, who felt that the scheme had increased the number of vehicles there, expressed concerns about the deterioration in air and noise quality.

Concerns were commonly expressed by participants about the inconsistency of communication from their local councils regarding schemes, with criticisms largely made by those who were generally opposed to the implementation of the scheme. Additionally, there was a prevailing lack of trust in council consultation processes, with a perception that decisions had been made prior to any public involvement.

Conclusions

These findings, combined with our broader project findings, reveal how schemes bring certain key health and well-being benefits for most residents, but can also negatively affect some minoritised groups. For example, diverse needs among disabled residents mean that some felt the scheme dramatically improved their life quality, while others, particularly those who relied upon private vehicles or taxis and private hire vehicles for mobility, reported increasing challenges in getting around. However, mitigation measures for disabled residents, such as Blue Badge exemptions in several schemes, did improve access experiences for many people. Further efforts, such as effective communication of changes to non-residents that serve the area, and support disabled people, for example, taxis and

deliveries, can also help mitigate more disproportionate impacts upon disabled people. Future publications by the study team will cover these matters in more detail.

Through this research, we draw attention to how the impacts for schemes, such as LTNs, are measured. For example, although an aggregated understanding of health impact is an important tool to support decision-making when approaching area-wide schemes, careful consideration of impacts for people who are already lacking accessibility and/or who are overexposed to externalities of motorised traffic should be central to scheme design and evaluation and mitigated appropriately. This is key to implementing interventions which align with a just transition framework and that do not replicate endemic health and social inequalities related to existing transport systems.^{40,41} Additionally, our findings highlight the importance of considering 'improved experiences', including, for example, improved perceptions of area safety, liveability, noise levels for residents and non-residents travelling in the area, as a key outcome of schemes. These aspects tend not to be considered in scheme evaluation metrics, which focus on whether schemes are effective in increasing levels of active travel, without necessarily considering the experiences or safety of those who already travel actively, potentially missing important effects of street-scape changes. Furthermore, how impacts are perceived and narrated is complex, and often, what people notice is filtered by their initial views on the scheme or, even more broadly, their value systems. This means that careful attention should be given to how a scheme's objectives, role and design are communicated. This includes, for example, ensuring that communication material is accessible and legible, and is delivered to all addresses, including to those living in blocks of flats. However, this is often beyond the capacity and responsibility of local government alone, meaning that work should be done by central government and other actors, such as media, to appropriately communicate and discuss the importance of health in transport schemes and policies.

Future research

Building from our work, future research should consider whether resident experiences of LTNs differ across geographical contexts, addressing our study's main limitation, which is that it contributes to an evidence body of research on LTNs being predominantly from London.²³ Such research could broaden the scope of assessment and include a variety of schemes, such as those that combine a focus on filtering roads with greening and public realm improvement interventions. Additionally, applying a just transition framework necessitates understanding

the impact of road space reallocation projects on further marginalised groups, for example, by income and ethnicity.

Additional information

CRedit contribution statement

Harriet Myfanwy Larrington-Spencer (<https://orcid.org/0000-0003-0609-4231>): Conceptualisation (equal), Data curation (lead), Formal analysis (equal), Investigation (equal), Methodology (equal), Project administration (supporting), Validation (equal), Visualisation (lead), Writing – original draft (lead), Writing – reviewing and editing (equal).

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Data-sharing statement

All data requests should be submitted to the corresponding author for consideration. Access to available data may be granted following review. Exclusive use will be retained until the publication of major outputs. Anonymised data will be deposited here: https://zenodo.org/communities/ltns_in_london

Ethics statement

This project received ethics approval in January 2022 by the University Research and Knowledge Exchange Ethics Committee at the University of Westminster. Ethics application ETH2122-0926.

Information governance statement

University of Westminster is committed to handling all personal information in line with the UK Data Protection Act (2018) and the General Data Protection Regulation (EU GDPR) 2016/679.

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Disclosure of interests

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Ersilia Verlinghieri – NIHR167654 Health, wellbeing and new cycling infrastructure: a mixed methods study of health, wellbeing, and health economic impacts of large-scale new cycling infrastructure in three English regions outside London.

Rachel Aldred – NIHR167654 Health, wellbeing and new cycling infrastructure: a mixed methods study of health, wellbeing, and health economic impacts of large-scale new cycling infrastructure in three English regions outside London.

Jamie Furlong – NIHR167654 Health, wellbeing and new cycling infrastructure: a mixed methods study of health, wellbeing, and health economic impacts of large-scale new cycling infrastructure in three English regions outside London.

Emma Lawlor – none declared.

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List of supplementary material

Report Supplementary Material 1 [LTN3 recruitment leaflet](#)

Report Supplementary Material 2
[Go-along interview resident recruitment survey from LTN 2](#)

Report Supplementary Material 3 [Are you a disabled person in Stoke Newington leaflet](#)

Report Supplementary Material 4
[Recruitment survey for disabled people's focus groups](#)

Supplementary material can be found on the NIHR Journals Library article page (<https://doi.org/10.3310/GJEV0805>).

Supplementary material has been provided by the authors to support the article, and any files provided at submission will have been seen by peer reviewers, but not extensively reviewed. Any supplementary material provided at a later stage in the process may not have been peer reviewed.

The supplementary materials (which include but are not limited to related publications, patient information leaflets and questionnaires) are provided to support and contextualise the publication. Every effort has been made to obtain the necessary permissions for reproduction, to credit original sources appropriately, and to respect copyright requirements. However, despite our diligence, we acknowledge the possibility of unintentional omissions or errors, and we welcome notifications of any concerns regarding copyright or permissions.

List of abbreviations

ANPR	Automatic Number Plate Recognition
ETO	Experimental Traffic Order
GPS	Global Positioning System
LTN	Low Traffic Neighbourhood
PPI	patient and public involvement

References

- 1 Department of Transport. *Decarbonising Transport – A Better, Greener Britain*. London, Department for Transport; 2021.
- 2 Ding D, Luo M, Infante MFP, Gunn L, Salvo D, Zapata-Diomed B, *et al*. The co-benefits of active travel interventions beyond physical activity: a systematic review. *Lancet Planet Health* 2024;**8**:e790–803. [https://doi.org/10.1016/S2542-5196\(24\)00201-8](https://doi.org/10.1016/S2542-5196(24)00201-8)
- 3 Miner P, Smith BM, Jani A, McNeill G, Gathorne-Hardy A. Car harm: a global review of automobility's harm to people and the environment. *J Transp Geogr* 2024;**115**:103817. <https://doi.org/10.1016/j.jtrangeo.2024.103817>
- 4 Walker I, Tapp A, Davis A. Motornomativity: how social norms hide a major public health hazard. *Int J Environ Health* 2022;**11**:21–33. <https://doi.org/10.31234/osf.io/egnmj>
- 5 Mason L. Low-traffic neighbourhoods – what's not to like? *Perspect Public Health* 2021;**141**:70–1. <https://doi.org/10.1177/1757913920985998>
- 6 Honey-Rosés J, Anguelovski I, Chireh VK, Daher C, Konijnendijk van den Bosch C, Litt JS, *et al*. The impact of COVID-19 on public space: an early review of the emerging questions – design, perceptions and inequities. *Cities Health* 2021;**5**:S263–79. <https://doi.org/10.1080/23748834.2020.1780074>
- 7 Nieuwenhuijsen MJ. Urban and transport planning pathways to carbon neutral, liveable and healthy cities; A review of the current evidence. *Environ Int* 2020;**140**:105661. <https://doi.org/10.1016/j.envint.2020.105661>
- 8 Yoshimura Y, Kumakoshi Y, Fan Y, Milardo S, Koizumi H, Santi P, *et al*. Street pedestrianization in urban districts: economic impacts in Spanish cities. *Cities* 2022;**120**:103468. <https://doi.org/10.1016/j.cities.2021.103468>
- 9 Lavery AA, Goodman A, Aldred R. Low traffic neighbourhoods and population health evidence shows powerful local improvements. *BMJ* 2021;**372**:n443. <https://doi.org/10.1136/bmj.n443>
- 10 Aldred R, Goodman A, Woodcock J. Impacts of active travel interventions on travel behaviour and health: results from a five-year longitudinal travel survey in Outer London. *J Transp Health* 2024;**35**:101771. <https://doi.org/10.1016/j.jth.2024.101771>
11. Lavery AA, Aldred R, Goodman A. The impact of introducing low traffic neighbourhoods on road traffic injuries. *Transport Findings* 2021 January. <https://doi.org/10.32866/001c.18330>

12. Furlong J, Fevyer D, Armstrong B, Edwards P, Aldred R, Goodman A. Low Traffic Neighbourhoods in London reduce road traffic injuries: a controlled before-and-after analysis (2012–2024). *Inj Prev* 2025. <https://doi.org/10.1136/ip-2024-045571>
13. Furlong J, Fevyer D, Casement B, Aldred R, Lavery A, Armstrong B, et al. Removing Through-traffic on Minor Roads Reduces Road Danger at Junctions with Surrounding Major Roads. *Findings* 2025;2025. <https://doi.org/10.32866/001c.143455>
14. Goodman A, Urban S, Aldred R. The impact of low traffic neighbourhoods and other active travel interventions on vehicle ownership: findings from the Outer London Mini-Holland Programme. *Transport Findings* 2020 December. <https://doi.org/10.32866/001c.18200>
15. Goodman A, Lavery AA, Furlong J, Aldred R. The impact of 2020 low traffic neighbourhoods on levels of car/van driving among residents: findings from Lambeth, London, UK. *Findings* 2023 June. <https://doi.org/10.32866/001c.75470>
16. Thomas A, Aldred R. Changes in motor traffic in London's low traffic neighbourhoods and boundary roads. *Case Stud Transp Policy* 2024;15:101124. <https://doi.org/10.1016/j.cstp.2023.101124>
17. Yang X, McCoy E, Hough K, de Nazelle A. Evaluation of low traffic neighbourhood (LTN) impacts on NO2 and traffic. *Transp Res D Transp Environ* 2022;113:103536. <https://doi.org/10.1016/j.trd.2022.103536>
18. Larrington-Spencer H, Verlinghieri E, Aldred R, Lawlor E, Fevyer D. Everyday discourses of climate delay in opposition to Low Traffic Neighbourhood. *Active Travel Studies* 2025;2025. <https://doi.org/10.16997/ats.1811>
19. Department for Transport. *Active Travel Fund: local transport authority allocations*; 2020. URL: www.gov.uk/government/publications/emergency-active-travel-fund-local-transport-authority-allocations (accessed 10 November 2021).
20. Department for Transport. *Millions of people to benefit from £200 million to improve walking and cycling routes*; 2023. URL: www.gov.uk/government/news/millions-of-people-to-benefit-from-200-million-to-improve-walking-and-cycling-routes (accessed 12 September 2023).
21. Walker P. Rishi Sunak orders review of low-traffic neighbourhood schemes. *Guardian* 2023. URL: www.theguardian.com/uk-news/2023/jul/30/rishi-sunak-orders-review-of-low-traffic-neighbourhood-schemes (accessed 23 September 2024).
22. Wheeler R. Haigh: low-traffic neighbourhoods are decisions for communities not Whitehall. *Independent* 2024. URL: www.independent.co.uk/news/uk/louise-haigh-transport-secretary-secretary-of-state-whitehall-government-b2599848.html (accessed 24 November 2025).
23. Pritchett R, Bartington S, Neil Thomas G. Exploring expectations and lived experiences of low traffic neighbourhoods in Birmingham, UK. *Travel Behav Soc* 2024;36:100800. <https://doi.org/10.1016/j.tbs.2024.100800>
24. Transport for All. *Pave the Way: The Impact of Low Traffic Neighbourhoods on Disabled People, and the Future of Accessible Active Travel*. London: Transport for All; 2021.
25. Macniven L, Dickson A, Gow AJ. Ageing in low traffic neighbourhoods: the potential of low traffic measures for healthy active ageing. *Urban Plan Transp Res* 2023. <https://doi.org/10.31234/osf.io/4savj>
26. Larrington-Spencer H, Sherriff A, Price A. *Active Neighbourhoods in Greater Manchester: Qualitative Insights into Resident Experiences Across Four Case Study Interventions (Full report)*. Manchester: University of Salford; 2021.
27. Hickman R, Afonin A. Transport Carbon Dioxide Mitigation and the Production of Low Traffic Neighbourhoods: Lessons from London. In Azhgaliyeva D, Rahut D, editors. *Climate Change Mitigation: Policies and Lessons for Asia*. Tokyo, Japan: Asian Development Bank; 2022. pp. 103–32.
28. *The Low Traffic Neighbourhoods in London: A Mixed-methods Study of Benefits, Harms, and Experiences - NIHR Funding and Awards*. n.d. URL: <https://fundingawards.nihr.ac.uk/award/NIHR135020> (accessed 28 July 2025).
29. Hackney Council. *Stoke Newington Low Traffic Neighbourhood*. Stoke Newington Low Traffic Neighbourhood. 2023. URL: <https://hackney.gov.uk/stoke-newington-ltn> (accessed 27 September 2024).
30. Camden Council. *Decision - Camden Square Healthy and Safe Streets Scheme: Decision on Experimental Traffic Order and Additional Improvements*. Camden Council; 2023. URL: <https://camden.moderngov.co.uk/ieDecisionDetails.aspx?Id=3994> (accessed 27 September 2024).
31. London Borough of Lambeth, 2025, Brixton Hill LTN Permanent Traffic Order, available at <https://haveyoursay.lambeth.gov.uk/en-GB/projects/brixton-hill-timeline> (accessed 24th November 2025).
32. Haringey Council. *St Ann's LTN*. 2024. URL: <https://new.haringey.gov.uk/streets-roads-travel/haringey-streets-people/st-anns-ltn> (accessed 10 October 2024).
33. Haringey Council. *LTN Exemptions: Blue Badge Holders Living in Haringey*. 2024. URL: <https://new.haringey.gov.uk/>

[streets-roads-travel/haringey-streets-people/exemptions-low-traffic-neighbourhoods/ltn-exemptions-blue-badge-holders-living-haringey](#) (accessed 10 October 2024).

34. Carpiano RM. Come take a walk with me: the ‘Go-Along’ interview as a novel method for studying the implications of place for health and well-being. *Health Place* 2009;**15**:263–72. <https://doi.org/10.1016/j.healthplace.2008.05.003>

35. Parent L. The wheeling interview: mobile methods and disability. *Mobilities* 2016;**11**:521–32. <https://doi.org/10.1080/17450101.2016.1211820>

36. Larrington-Spencer H, Verlinghieri E, Lawlor E, Aldred R. Troubling go-alongs through the lens of care. *Qual Res* 2025;**25**:690–710. <https://doi.org/10.1177/14687941241277747>

37. Nind M, Kaley A, Hall E. Focus Group Method. In Liamputtong P, editor. *Handbook of Social Inclusion: Research and Practices in Health and Social Sciences*. Cham: Springer International Publishing; 2020. pp. 1–21.

38. Kelly R. Women are afraid to walk in these quiet streets after dark. *Islington Tribune* 2022. URL: www.islingtontribune.co.uk/article/women-are-afraid-to-walk-in-these-quiet-streets-after-dark (accessed 21 November 2025).

39. Verlinghieri E, Larrington-Spencer H, Furlong J, Aldred R, Goodman A. Can mixed-methods help us better understand congestion on Low Traffic Neighbourhood boundary roads? *J Transp Geogr* 2025;**128**:104360. <https://doi.org/10.1016/j.jtrangeo.2025.104360>

40. Mullen C, Marsden G. Mobility justice in low carbon energy transitions. *Energy Res Soc Sci* 2016;**18**:109–17. <https://doi.org/10.1016/j.erss.2016.03.026>

41. Schwanen T. Low-carbon mobility in London: a just transition? *One Earth* 2020;**2**:132–4. <https://doi.org/10.1016/j.oneear.2020.01.013>

42. Kusenbach M. Street phenomenology: the go-along as ethnographic research tool. *Ethnography* 2003;**4**:455–85. <https://doi.org/10.1177/146613810343007>

43. Van Cauwenberg J, Van Holle V, De Bourdeaudhuij I, Clarys P, Nasar J, Salmon J, et al. Physical environmental factors that invite older adults to walk for transportation. *J Environ Psychol* 2014;**38**:94–103. <https://doi.org/10.1016/j.jenvp.2013.12.012>

44. Porta CM, Corliss HL, Wolowic JM, Johnson AZ, Fogel KF, Gower AL, et al. Go-along interviewing with LGBTQ youth in Canada and the United States. *J LGBT Youth* 2017;**14**:1–15. <https://doi.org/10.1080/19361653.2016.1256245>

45. Carroll S, Jespersen AP, Troelsen J. Going along with older people: exploring age-friendly neighbourhood design through their lens. *J Hous Built Environ* 2020;**35**:555–72. <https://doi.org/10.1007/s10901-019-09700-z>

46. Evans J, Jones P. The walking interview: methodology, mobility and place. *Appl Geogr* 2011;**31**:849–58. <https://doi.org/10.1016/j.apgeog.2010.09.005>

47. Verlinghieri E, Larrington-Spencer H, Pathania A, Furlong J, Goodman A, Aldred R. Walking and wheeling in Low Traffic Neighbourhoods. A mixed methods study of mobility aid users’ interactions with changing public spaces. *Cities & Health* 2025;**1**–20. <https://doi.org/10.1080/23748834.2025.2571279>

48. Verlinghieri E, Aldred R, Larrington-Spencer H, Goodman A, Lawlor ER, Navarro L, et al. Street space reallocation under austerity: The case of low traffic neighbourhoods in the UK. *Transport Policy* 2026;**179**:104013. <https://doi.org/10.1016/j.tranpol.2026.104013>

Appendix 1 Go-along interview participant demographics

TABLE 2 Go-along interview participant demographics

ID	Gender	Age	Ethnic group	Transport modes	Disability
SN1	Male	60–69	Mixed or multiple ethnic groups	Walking	No
				Cycling	
				Taxi/private hire	
				Car or van	
				Public transport	
SN2	Female	30–39	Not disclosed	Walking	Yes, arthritis among other issues
				Public transport	

continued

TABLE 2 Go-along interview participant demographics (*continued*)

ID	Gender	Age	Ethnic group	Transport modes	Disability
SN3	Female	40–49	Mixed or multiple ethnic groups	Walking Public transport	No
SN4	Female	30–39	Another ethnic group, Turkish	Walking Public transport	No
SN5	Male	60–69	White	Walking Cycling Public transport	No
SN6	Male	30–39	White	Walking Cycling Public transport Running	No
SN7	Female	50–59	White	Walking Cycling Taxi/private hire Car or van Public transport	No
SN8	Female	60–69	Black, African, Caribbean or Black British	Walking Cycling Public transport	Yes, mobility issues
SN9	Female	70+	White	Cycling Public transport	Yes, severe arthritis
SN10	Male	40–49	White	Walking Cycling Car or van Public transport	No
SN11	Male	70+	Not disclosed	Walking Cycling Car or van Public transport	No
SN12	Non-binary	18–29	White	Walking Cycling Public transport	No
SN13	Female	40–49	Not disclosed	Walking Cycling	No
SN14	Female	50–59	White	Walking Cycling Car or van Public transport	No

TABLE 2 Go-along interview participant demographics (*continued*)

ID	Gender	Age	Ethnic group	Transport modes	Disability
SN15	Male	40–49	Jewish	Walking Public transport	No
SN16	Female	60–69	Not disclosed	Walking Public transport	No
SN17	Male	50–59	White	Walking Cycling Motorcycle/moped Car or van Public transport	No
SN18	Male	50–59	Not disclosed	Motorcycle/moped Car or van	No
SN19	Female	30–39	White	Walking Public transport	No
SN20	Female	18–29	Not disclosed	Walking Public transport	No
CS1	Male	70+	White	Walking Public transport	No
CS2	Male	60–69	White	Walking Car or van Public transport	No
CS3	Female	50–59	White	Walking Car or van Public transport	No
CS4	Male	40–49	Another ethnic group, Chinese	Walking Cycling Public transport	No
CS5	Male	70+	Another ethnic group, Anglo-Caribbean	Walking Cycling Car or van Public transport	No
CS6	Female	60–69	White	Walking Public transport	Yes, mental health issues
CS7	Male	60–69	White	Walking Cycling Taxi/private hire Car or van Public transport	Prefer not to say

continued

TABLE 2 Go-along interview participant demographics (*continued*)

ID	Gender	Age	Ethnic group	Transport modes	Disability
CS8	Male	70+	Asian or Asian British	Walking Car or van Public transport	No
CS9	Male	40–49	White	Walking Cycling Car or van Public transport	No
CS10	Female	50–59	White	Walking Cycling Public transport	No
CS11	Female	30–39	Asian or Asian British	Walking Taxi/private hire Car or van Public transport	No
CS12	Female	60–69	White	Walking Public transport	No
CS13	Female	30–39	White	Walking Cycling Taxi/private hire Car or van Public transport	No
CS14	Male	70+	White	Walking Taxi/private hire Car or van Public transport	Yes, ankylosing spondylitis, pacemaker
CS15	Female	70+	White	Walking Car or van Public transport	No
CS16	Male	30–39	White	Walking Car or van Public transport	Yes, learning disability, autism, scoliosis
CS17	Female	40–49	White	Walking Car or van	Yes, stroke, asthma. mobility issues
CS18	Female	60–69	White	Walking Car or van Public transport	No
CS19	Female	60–69	White	Walking Public transport	Yes, ADHD and cognitive disability

TABLE 2 Go-along interview participant demographics (*continued*)

ID	Gender	Age	Ethnic group	Transport modes	Disability
CS20	Male	18–29	White	Walking Cycling Taxi/private hire Public transport	No
BH1	Male	70+	White	Walking Car or van Public transport	No
BH2	Male	30–39	White	Walking Cycling Public transport	Yes, multiple illnesses
BH3	Male	60–69	White	Walking Cycling Public transport	No
BH4	Male	18–29	White	Cycling Motorcycle/moped Public transport	No
BH5	Non-binary	18–29	White	Walking Public transport	No
BH6	Female	18–29	White	Walking Cycling Public transport	No
BH7	Male	18–29	Mixed or multiple ethnic groups	Walking Cycling	No
BH8	Female	50–59	White	Walking Taxi/private hire Car or van Public transport	Yes, arthritis, fibromyalgia, diabetes, asthma
BH9	Female	70+	Another ethnic group, please state	Walking Public transport	Yes
BH10	Male	30–39	White	Walking Cycling Car or van Public transport	No
BH11	Female	40–49	Black, African, Caribbean or Black British	Walking Car or van Public transport	No

continued

TABLE 2 Go-along interview participant demographics (continued)

ID	Gender	Age	Ethnic group	Transport modes	Disability
BH12	Male	50–59	White	Walking Cycling Public transport	No
BH13	Female	30–39	Black, African, Caribbean or Black British	Walking Car or van Public transport	No
BH14	Female	30–39	Mixed or multiple ethnic groups	Walking Car or van Public transport	Yes, mobility impaired
BH15	Female	30–39	Asian or Asian British	Walking Car or van Public transport	No
BH16	Male	30–39	White	Walking Taxi/private hire Car or van Public transport	No
BH17	Male	40–49	White	Cycling Car or van Public transport	No
BH18	Female	18–29	White	Walking Cycling Car or van Public transport	No
BH19	Male	50–59	White	Walking Cycling	No
BH20	Female	30–39	White	Walking Public transport	No
BH21	Female	30–39	White	Walking Car or van Public transport	No
BH22	Female	59–59	White	Walking Cycling Car or van	No
BH23	Female		White	Walking Taxi/private hire Public Transport	Yes, mobility and sensory difficulties
BH24	Female	40–49	White	Walking Cycling Public Transport	No

Appendix 2 Disabled people's focus groups participant demographics

TABLE 3 Focus group participants. Stoke Newington, online

ID	Gender	Age	Ethnic group	Impairment type	Mobility aids
SNFG1	Female	46–65	Black, African, Caribbean or Black British	Learning disability Neurodivergent	
SNFG2	Male	26–45	Mixed or multiple ethnic groups	Blind or partially sighted Learning disability	Cane or guide dog
SNFG3	Female	16–15	Black, African, Caribbean or Black British	Blind or partially sighted	Cane or guide dog
SNFG4	Male	46–65	Asian or Asian British	Deaf or hearing loss Mental health condition(s) Neurodivergent	Cane or guide dog Prosthetics or orthotics
SNFG5	Male	46–65	White	Mobility impairment Long-term health condition(s) or chronic illness	Wheelchair Mobility Scooter
SNFG6	Female	16–25	White	Long-term health condition(s) or chronic illness	Prosthetics or orthotics

TABLE 4 Focus group participants. Stoke Newington, in person

ID	Gender	Age	Ethnic group	Impairment type	Mobility aids
SNFG7	Female	46–65		Mobility impairment	Wheelchair A walking stick or frame
SNFG8	Female	46–65	White	Mobility impairment Long-term health condition(s) or chronic illness	
SNFG9	Female	26–25	White	Mobility impairment Long-term health condition(s) or chronic illness	A walking stick or frame Adapted car
SNFG10	Female	66+	White	Mobility impairment Long-term health condition(s) or chronic illness	
SNFG11	Male	46–65	White	Mobility impairment	Rollator

TABLE 5 Focus group participants. Camden Square, in person

ID	Gender	Age	Ethnic group	Impairment type	Mobility aids
CSFG1	Male	66+	White	Long-term health condition(s) or chronic illness	
CSFG2	Male	26–45	White	Learning disability	A walking stick or frame
CSFG3	Female	46–65	White	Mental health condition(s) Long-term health condition(s) or chronic illness	
CSFG4	Female	16–25	White	Neurodivergent	

TABLE 6 Focus group participants. Brixton Hill, online

ID	Gender	Age	Ethnic group	Impairment type	Mobility aids
BHFG1	Female	16–25	White	Deaf or hearing loss	
BHFG2	Female	46–65	Black, African, Caribbean or Black British	Mental health condition(s)	Arm and shoulder aid
BHFG3	Male	26–45	Asian or Asian British	Blind or partially sighted	Cane or guide dog
BHFG4	Female	26–45	Mixed or multiple ethnic groups	Deaf or hearing loss Mental health condition(s) Long-term health condition(s) or chronic illness	
BHFG5	Female	26–45	White	Learning disability Neurodivergent	
BHFG6	Female	46–65	White	Neurodivergent Long-term health condition(s) or chronic illness	A walking stick or frame

TABLE 7 Focus group participants. Brixton Hill, in person

ID	Gender	Age	Ethnic group	Impairment type	Mobility aids
BHFG7	Male	46–65	White	Mobility impairment Long-term health condition(s) or chronic illness	Wheelchair
BHFG8	Male	66+	White	Mobility impairment Mental health condition(s) Neurodivergent	
BHFG9	Female	46–65	Asian Caribbean	Mobility impairment Neurodivergent Long-term health condition(s) or chronic illness	An adapted cycle, e-assist mobility tricycle
BHFG10	Female	46–65	Other White	Mobility impairment Mental health condition(s) Neurodivergent Long-term health condition(s) or chronic illness	
BHFG11	Female	46–65	White	Mobility impairment Mental health condition(s) Neurodivergent Long-term health condition(s) or chronic illness	

TABLE 8 Focus group participants. St Ann's, online

ID	Gender	Age	Ethnic group	Impairment type	Mobility aids
SAFG1	Female	16–25	White	Long-term health condition(s) or chronic illness Physical impairment	
SAFG2	Male	16–25	White	Mobility impairment Mental health condition(s), Neurodivergent Long-term health condition(s) or chronic illness	Wheelchair A walking stick or frame Walking poles
SAFG3	Female	26–45	White	Mobility impairment Mental health condition(s), Neurodivergent Long-term health condition(s) or chronic illness	Crutches Wheelchair
SAFG4	Male	46–65	White	Mobility impairment Long-term health condition(s) or chronic illness	A walking stick or frame

St Ann's, in person

TABLE 9 Focus group participants. St Ann's, in person

ID	Gender	Age	Ethnic group	Impairment type	Mobility aids
SAFG5	Female	16–25	White	Neurodivergent Long-term health condition(s) or chronic illness	
SAFG6	Female	16–25	White	Mental health condition(s) Neurodivergent Long-term health condition(s) or chronic illness	
SAFG7	Male	26–45	White	Mental health condition(s) Long-term health condition(s) or chronic illness	
SAFG8	Female	46–65	Black, African, Caribbean or Black British	Mobility impairment	A walking stick or frame
SAFG9	Female	26–45	Asian or Asian British	Mental health condition(s) Long-term health condition(s) or chronic illness	
SAFG10	Female	26–45	White	Long-term health condition(s) or chronic illness	
SAFG11	Female	26–45	White	Mental health condition(s) Long-term health condition(s) or chronic illness	
SAFG12	Male	46–65	White	Mobility impairment Long-term health condition(s) or chronic illness	A walking stick or frame
SAFG13		46–65			
SAFG14	Female	66+	Latino, Indian and British	Mobility impairment	A walking stick or frame
SAFG15	Male	66+	Asian or Asian British	Deaf or hearing loss	

Appendix 3 Expansion of go-alongs as an appropriate research method for understanding resident experiences of Low Traffic Neighbourhoods

To understand the lived experiences of LTNs for those living inside or on boundary roads of new schemes, we utilised go-along interviews, where the researcher accompanying participants on their everyday activities:³⁴ 'actively explore[ing] their subjects' stream of experiences and practices as they move through, and interact with, their physical and social environment'.⁴² While our go-alongs were by walking, other forms of go-along include by cycling,⁴³ by motor vehicle,⁴⁴ and by wheeling.³⁵ We used go-along interviews expressly to study experiences of LTNs as they are a powerful method for exploring participants' experiences of and meanings of place.^{42,45,46} Sight⁴⁶ as well as the physical experience of being in place,³⁵ means participants often talking about their relation to place with

fewer prompts from the interviewer. Recognising that the accessibility of the built environment can be a barrier for some people to participate in go-alongs,³⁵ we adapted the method when necessary. Adaptation tended to be having a stationary go-along if participants felt they could not comfortably move around the LTN. We would still situate this within the LTN at a bench, so we could benefit from the sociospatial environment of the LTN around us prompting discussion. We also undertook two online go-alongs utilising Teams and Google Maps with participants who did not feel they could comfortably participate, for example in a follow-up go-along one of our participants was heavily pregnant. While we found go-along interviews a productive method for understanding residents' experiences of LTNs, we also consider them an emotionally, cognitively, and physically demanding method that requires more attention to practices of care for both the participant and the researcher. We discuss this more elsewhere.³⁶

Appendix 4 Interviews coding framework

TABLE 10 Interview coding framework

Name	Description
1. Personal information	Double code with other nodes when speaking about it in relation to a particular topic/issue
Bike ownership and storage	Reference to the participant owning (or not) a bicycle and how/where they store it
Car ownership (or non-ownership) and storage	Reference to the participant owning (or not owning) a car and parking (i.e. where, challenges). Includes if able or not to drive
Living in the area	Reference to the person living in the area, separated into more detail below – code here if does not fit into subcategories, but try to avoid
Length of time living in the area	
Location of home in relation to roads or LTN	
Previous areas lived in	
Reason for living in the area	
Who they live with	
Travel purpose of 'usual travel mode'	Reference to reason why or where they are going when they travel using their usual mode (e.g. commute by car to work)
Commuting	Travelling to/from work
Connecting with public transport	Example: drive or cycle to tube, bus stop or train station
Leisure or exercise	Example: drive to visit Hampstead Heath for a walk, cycle to gym
Other	Examples could include visiting friends, related to their business

TABLE 10 Interviews coding framework (*continued*)

Name	Description
Shopping or other utility activities	
Travelling with	Reference to travelling somewhere or around area with someone else. Can be coded with other nodes such as travel purpose or usual travel mode
Children	
Dog	
Other	
Partner	
Usual journeys	Talk about journeys doing and then double code with travel mode. Usual journey route
Usual travel mode	Reference to their usual mode of travel. Can be double coded, such as with purpose of travel mode
Car passenger	
Cycling	
Driving	
Car club and so on	Hire car
Private	Car they (or relative and so on) own, and they have access to
E-scooter or moped	
Mobility aid	
Public transport	
Taxi	
Walking	
What influences route choice and why	Reference to why they decide to take a certain street for example don't take most direct route as don't like how busy it is
2. Context	
Climate change	Reference to climate, such as comes into decision making regarding how they travel or thoughts in general about the topic
Cost of living crisis	Reference to increasing costs, such as rising fuel prices, having less money to spend on travel (i.e. bus, running car), or how it comes into decision making (e.g. walking cheaper)
COVID	Reference to COVID-19 pandemic, such as social distancing on transport, how their travel mode has changed, including travelling less for work or trying out new modes or routes of travel
Gentrification	Reference to area having extra investment, such as new fancier shops, rising rents, new expensive flats/being outpriced and new types of people living in area. Can be positive and negative
'Inevitability of London'	Reference to London specific way of things
National political changes	Reference to how politicians or policies impact what happens in area for example MPs agendas. This could be in reference to certain parties supporting (or not) LTNs (and other non-transport projects)
Roadworks	How roadworks in area impacts travelling around the area or traffic levels
3. When	When talking about a specific time period or time of LTN development. Double code with other codes

continued

TABLE 10 Interviews coding framework (*continued*)

Name	Description
After LTN implementation	
Before LTN	
Expected from LTN implementation	
In the future or hopes for future	
4. Where (in relation to LTN)	Making reference to a certain area when discussing topic. Also code if they are standing in the area and talking about what they see around them. Double code
Boundary road	Reference to the roads on the outskirts of the LTN. May include topics such as displaced traffic or having to change route to here
LTN area	Reference to streets within LTN area
Other areas in London	Discussing travelling in other areas of London or how it compares.
Other LTN	Reference to LTNs in other areas of London (Or other traffic calming schemes)
Outside schools	If traffic calming schemes or infrastructure outside the surround areas of schools
No School Streets	
School Streets	
Outside the LTN	When make reference to the area outside the LTN (not the boundary road)
Outside the UK	When make reference to what other cities or countries have implemented or comparison of other non-UK contexts
5. How or sentiments	When the participant seems to express an opinion, feeling about a topic. Double code with other codes
Concerned	
Nuanced	
Desiring change	
Desiring things to stay the same	
Negative	
Positive	
Unsure or speculating	
6. Who	When the participant makes reference to a particular group of people, such as if they feel they have been impacted. This will also be in response to some specific questions directed to the participant
Minority ethnic	
Boundary road residents	
Businesses	
Carers	
Children (and parents and children)	
Commuters	This is specifically about those travelling to/from work
Cyclist	
Delivery vehicles	
Disabled people	
Drivers	

TABLE 10 Interviews coding framework (*continued*)

Name	Description
Londoners	When speaking generally about people living in London. Could be double coded with other groups if the participant becomes more specific
LTN opposers	
LTN residents	
LTN supporters	
Non car owners	
Pedestrians	
Public transport users	
Taxi	
Women	
7. What	
Behaviour of other road users	This is if women are particularly impacted and so on rather than just reference to someone female (unless it is very specific about their gender)
Bike storage	
Enforcement of road regulation	
In addition to LTN or as interim steps	
Instead of LTN	
Interactions with neighbours or community feeling	
Levels of traffic	
Location of area in relation to wider London	
Notable events	
Collisions	
Community events	Reference to stand out events that have happened in the area that are not the usual or occasionally happen (e.g. once a year)
Other	
Related to active travel	
Parking	
Perceived current levels of walking and cycling	
Pre-existing changes in road layout	
Boundary roads	
Inside LTN	
Quality of cycling provision	
Quality of greenspace	
	continued

TABLE 10 Interviews coding framework (*continued*)

Name	Description
Quality of local services	Reference to amount of (and quality, such as amount of food in shop), ease of access to services such as shops, businesses, primary schools, hospitals (or lack of). Double code with location
Quality of pavements or walking environments	Reference to pavements and paths, such as if in good/bad order, maintenance, broken or narrow/wide. Both positive and negative. Double code with location
Quality of place or street space	
Quality of public transport provision	Reference to provision, access to public transport (e.g. bus, tube, bike hire stations), timetables. Can be positive or negative. Double code with location
Quality of road infrastructure	Quality of road surfaces, maintenance, broken, markings, potholes. Can be positive or negative. Double code with location
Through cutting	Reference to cars or bikes cutting through the area, such as using as a short cut.
8. LTN perceived impacts	
Comments on design	Reference to specific aspects that was implemented as part of the LTN scheme. Try to code within subnodes below
Cameras	
Intersections	
Other	Code here if not fit into other subnodes (although try to avoid)
Pavements	
Planters or bollards	
Signage	
Speculation on what will be implemented	Reference to what could be implemented in future (e.g. not based on fact, imagined)
Impacts on others or areas	Reference to how the LTN could impact other people living in the area or areas beyond the LTN. Double code with the specific group mentioned above
Air pollution or quality	
Ambulance services	
Car ownership	
Deliveries and other domestic services	
Experience of travelling through or being in area	
Gentrification	
Journey route	
Journey time	
Levels of crime	If about personal safety (e.g. feeling unsafe with no people around), code below. Code here if about changes in general levels of crime in the area
Local economy	Reference to perceived impact on business income, livelihoods, if bringing (or not) money into area. Can be positive or negative
Other changes in non-travel habits	
Other changes in travel habits	
Other emergency services	
Personal safety	Do not code here if about general levels of crime in the area, code above. Only code here if about feelings of safety or any incidents that have happened such as mugging

TABLE 10 Interviews coding framework (*continued*)

Name	Description
Public space quality	
Road safety	
Street use (e.g. play, meeting)	Reference to if there has been a change in how people use the streets after LTN, such as more children playing
Traffic	Reference to how the LTN has impacted traffic – has to be specifically in reference to the LTN rather than other reasons or in general
Noise	
Speed	
Through cutting	
Volume	
Travel behaviour	Reference to how those travelling through area (e.g. drivers) act, especially since LTN has been implemented
Abiding road rules	
Getting stuck within LTN	
Interactions	Interactions with other modes
Numbers	References to numbers of people travelling on a specific mode
Other	
Parking	
Road crossing	
Speed	
Impacts on self or household	Reference to how the LTN specifically impacts them (or their decision-making considerations) or people within their household (e.g. living in the house near/in the LTN)
Car ownership	
Deliveries and other domestic services	
Experience of travelling through or being in area	
Journey mode	
Journey route	
Journey time	
Location of home	
Other changes in non-travel habits	
Other changes in travel habits	
Personal safety	
Road safety	
Utility activities	
9. Governance (of LTN and other changes)	Reference to the process of planning and implementing the LTN, such as related to actions of the council and those in charge
Enforcement	Reference to how the LTN is enforced, such as fines

continued

TABLE 10 Interviews coding framework (*continued*)

Name	Description
Engagement processes or consultations	Reference to how (or thoughts about) the residents/communities were consulted, engaged, or listened to. Could also refer to if any changes made in response. Both positive and negative
Information on interventions	Reference to how the communities found out about the LTN and their thoughts about how it was done, quality of information or any improvements
Monitoring	Reference to Council monitoring and evaluation
Perception of who has influence	Reference to who the participants feel has influence over if or how the LTN is planned and implemented (or those who don't)
Perceptions of costs	Reference to what they think the LTN costs and spending
Rationale for interventions	Reference to what the council provided as a rationale for implementing the LTN in the area for example providing figures for number of cars on a street
Relationship with local government	Reference to if the participants think they have a good/bad relationship with local government, or their general feeling towards them. Could include derogatory comments about their work or if they listen
Sources of information	Reference to how participants found out about the LTN, such as looking up online, the information on provided by the council

Appendix 5 Interview schedule

Introduce research aim

- Experiences of LTN.
- Aspects positive/negative.

Pre-starting

- Audio-recording, GPS tracked. Where to start GPS.
- Patient information sheet read and consent signed.
- Will ask questions but point out places you like/don't like/changed/haven't changed and so on.
- Any questions.

Place-based prompts

- What was this like before?
- What has changed in this area?
- Have you changed how you use this area?
- Can you tell me a little bit about your experiences of travelling through this area?
- How do you feel about what you can see around you?

- How do you feel when ... (insert notable infrastructure that can be seen e.g. crossing this road, using traffic lights, passing bus stop)?
- How does it compare to the rest of your journey and when you travel further?
- What do you enjoy about travelling through this area, and why?
- Is there anything about travelling through this area that you don't enjoy, and why?
- Have you had any difficulties travelling through this area?
- Have you experienced any notable events in the past travelling through this area?
- What has facilitated/supported you in travelling through this area, and why?
- Do you like this (use environment)?
- Did COVID-19 impact how you use this space, and how?
- Do you think other residents have similar experiences/feelings about the LTN?

Go along topics

- Route choice.
- Built environment changes in terms of LTN.

- Transport mode around the area and more widely – who with, where to, why.
- Changes in transport mode/experience of transport mode since LTN.
- Any changes to use of the area since LTN – spending time, socialising, with children.
- Feelings about changes and experiences of changes.
- Impacts (positive/negative) specific to illness/disability, potential mitigation if relevant.
- First impression of LTN, source of info, involvement in consultation/engagement and so on.
- Further changes that might support more walking/cycling/public transport use.
- Impact of LTN (positive/negative) on to community feeling and community activities.
- Consideration of experiences of others living in the LTN/on boundary roads.

