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A mixed-methods study of benefits, harms, and experiences of low traffic neighbourhoods in London

Submission date
29/01/2022

Recruitment status
No longer recruiting

Registration date
02/02/2022

Overall study status
Completed

Last Edited
11/06/2025

Condition category
Other

[X] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
In recent years, levels of motor traffic have started increasing after a period of decline. This is worrying for many reasons. Every year in the UK two thousand people die in road crashes, with tens of thousands seriously injured. Tens of thousands more die early each year because of air pollution, much of which comes from motor vehicles. If people walk or cycle more, and drive less, they are also much more likely to get the exercise they need to stay healthy.
The way we travel is not just a matter of personal choice. Our streets are often busy with cars, even smaller side streets. Streets are difficult to cross on foot, particularly for older people. They are scary to cycle on, particularly for children. This can mean that the easiest and most comfortable way to travel is by car. For these reasons, local authorities have been implementing schemes that restrict motor traffic and make more space for walking or cycling.
'Low Traffic Neighbourhoods' (LTNs) are a type of traffic scheme that stop people in motor vehicles cutting through side streets. The aim is to make walking and cycling safer and more comfortable (as there are fewer cars), and make driving less convenient, encouraging people to walk or cycle instead. Around 90% of people in cities live on side streets, so if these schemes are found to work, many more could be built. LTNs are novel in the UK but are being rolled out fast - already 4% of Londoners live in an LTN built Mar-Sep 2020.

Who can participate?
We will be recruiting specific groups, e.g. individuals living in a sub-set of four specific LTNs.

What does the study involve?
LTNs have the potential to bring large benefits but also harms. We need to know whether the goals – to increase walking and cycling and reduce road injury risk – are being met. We also need to know about any negative impacts, e.g. for residents on surrounding boundary roads where there might be increased congestion, or for those disabled people who need a car to get around. Finally, because LTNs are often controversial, we are keen to hear the voices of the people directly affected.
Our project will examine positive and negative impacts of 7 new LTNs that will shortly be built in London. We are already collecting baseline quantitative data on volumes of walking and cycling;

walking and cycling diversity; congestion on the boundary roads; and local car journey times. We will keep collecting this data for three years of follow-up, providing evidence on both short- and long-term impacts. Changes in these 7 new LTNs will be compared to changes in 7 matched control areas, to take account of background changes in travel patterns as we move out of the Covid-19 pandemic. Based on these data, we will model health impacts in terms of changes in physical activity, road traffic injuries, and air pollution.
As well as measuring effects of LTNs, we want to study how people experience them. We will speak to 80 residents in depth about how the scheme affects their lives, one and two years after schemes go in, ensuring a diverse mix of participants. We will conduct focus groups with local disabled people about their experiences of these LTNs, and organise community events to gather further information about how people experience their local streets. We will interview local authority officers to find out how implementation worked and if improvements could be made.

What are the possible benefits and risks of participating?
Benefits include contributing to knowledge about a novel and important policy area. The interviews and focus groups are not considered to hold risks outside the normal course of everyday life.

Where is the study run from?
It is led by Westminster University, with the London School of Hygiene and Tropical Medicine, University of Cambridge, Imperial College, and Transport for All (UK).

When is the study starting and how long is it expected to run for?
January 2021 to June 2025.

Who is funding the study?
National Institute for Health Research (NIHR) (UK).

Who is the main contact?
transportresearch@westminster.ac.uk

Contact information

Type(s)
Principal investigator

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Study information

Scientific Title
The low traffic neighbourhoods (LTNs) in London: a mixed-methods study of benefits, harms, and experiences

Study objectives
Research Questions to be answered through quantitative research, building on already collected baseline primary data:
In London, what is the impact of introducing LTNs on the following outcomes, as compared to matched control streets or areas:
RQ1. Volume of active travel (walking and cycling) inside LTNs. We will also estimate how motor vehicle volumes change, and how much of any increase in active travel seen inside LTNs is mode shift from cars.
RQ2. Diversity of active travel users inside LTNs, including by age group, gender, and use of mobility aids.
RQ3. Congestion on LTN boundaries. What is the impact soon after scheme implementation, and how does this change over time as the LTN 'beds in'?
RQ4. Journey times to a range of destinations by car, and relative speed of car versus active travel trips, for people living in or near to LTNs.
RQ5. Health and health economic impact of LTNs. Our primary data will be used to model health pathways via physical activity, and hence reduced mortality and absenteeism. For change in injury risk we will use secondary data (Stats19). We will model change in air pollution exposure using both our own data and local authority monitoring data on changes in motor traffic volumes and speeds.
Research Questions to be answered through new qualitative research
RQ6. What is the lived experience of LTNs for those living inside or on the boundary of new schemes? What general or specific scheme elements elicit positive and negative reactions?
RQ7. How can we make LTNs more inclusive, including for disabled people?
RQ8. What do local policymakers perceive as the barriers and enablers to successfully and equitably implementing LTNs?

This project is a mixed-methods evaluation of Low Traffic Neighbourhoods (LTNs) built in London in 2021-22, incorporating a controlled before-and-after study of potential positive and negative impacts and the health and health economic impacts of these, alongside in-depth qualitative research.
Levels of active travel are one key focus of data collection. The study will also assess diversity in active travel, particularly cycling which in the UK has sharp demographic inequalities not found in high-cycling contexts. This will include examining changes in the proportion of children among pedestrians and cyclists, and changes in types of bicycles, e.g., cargo bikes. An 'intercept survey' will allow the researchers to estimate the proportion of any observed increase in walking and/or cycling that is likely to be due to new uptake (change from other travel modes or completely new trips), as opposed to existing pedestrians or cyclists changing the routes they walk or cycle. The study will examine changes in motor vehicle volumes and congestion, including potential negative impacts on boundary roads that may see traffic displacement. It will also examine

impacts on congestion and local car journey times, using Google API data to measure typical car journey times along boundary road segments and for car journeys to key local destinations. This strand will assess unintended outcomes and provide evidence on the balance between traffic 'evaporation' (e.g., people walking instead of driving) and displacement (e.g., drivers changing route).
Crucially, the study will provide timeframes for shifting from disruption to a new stability. This is important because directly after LTN implementation some traffic 'chaos' is typical as drivers get to grips with the new layout. This reduces as the scheme 'beds in' but policy-makers lack evidence on how quickly this happens and whether boundary road traffic typically ends up higher, lower or unchanged from pre-LTN levels.
The study will incorporate a health and health economic impact assessment of the interventions. The primary data (on changes in walking and cycling in intervention areas compared to control areas, and the proportion of any change that is likely to represent increased usage) will be used to model health pathways via physical activity, and hence reduced mortality and absenteeism. For change in injury risk, secondary data (Stats19 police injury data) will be used. The study will model change in air pollution exposure using both primary data and local authority monitoring data on changes in motor traffic volumes and speeds.
LTNs generate controversy and public scrutiny. It is therefore also crucial to improve our understanding of how and why local communities experience different scheme aspects positively and negatively, including how and why perceptions vary across population groups and schemes. New qualitative research will explore experiences and views of LTNs in London, through interviewing both local residents and the policymakers implementing these schemes. This will contribute to a better understanding of what shapes scheme success and impact, and help determine the elements that can facilitate transferability and scalability whilst minimising controversy and unintended consequences. It will use a portfolio of qualitative methods including go-along interviews with residents, focus groups conducting accessibility audits, action research, and stakeholder interviews.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 14/04/2022, University of Westminster Research and Knowledge Exchange Ethics Committee (Research Ethics and Integrity Officer, University of Westminster, 309 Regent Street, London W1B 2HW; no telephone contact available; h.kelly01@westminster.ac.uk), ref: ETH2122-0926

Primary study design
Observational

Study design
Mixed-methods study including before-and-after controlled comparisons using quantitatitve data and qualitative data to explore lived experiences and policy processes

Study type(s)
Other

Health condition(s) or problem(s) studied
This study examines various health impacts of built environment interventions; including related to physical activity, road injuries, and air pollution.

Interventions
Residents participating in the qualitative research component will take part in two ‘go-along’ interviews, one in Summer-Autumn 2022 and one in Summer-Autumn 2023. These ‘go-along’ interviews will entail walking or wheeling along a route local to the participant, while describing their experience of living in the neighbourhood before and after the intervention took place. Each interview will last up to 60-90 minutes. Local authority officers and councillors participating in research will participate in two online interviews, one in Summer-Autumn 2022 and one in Summer-Autumn 2023, each lasting up to 60-90 minutes. The project will also recruit disabled people to participate in one of two focus groups (in-situ or online) to discuss the interventions, with each focus group lasting 60-90 minutes.

Intervention Type
Other

Primary outcome(s)
Number of pedestrians and cyclists, measured using machine learning 'Vivacity' sensors, installed in intervention and control sites, collecting data continuously 'pre' and 'post' intervention (2021-2024).

Key secondary outcome(s)
1. Estimated new pedestrian and cycle trips generated, and trips switched from motor vehicle, using Vivacity sensors & one-off route user intercept surveys in 2023 to gather information on how trips were previously made.
2. Active travel diversity 1: % pedestrians using wheelchairs or mobility scooters, measured annually using Vivacity sensor data in intervention and control areas.
3. Active travel diversity 2: % female cyclists, measured annually (2021, 2022, 2023, 2024) using video data collected in intervention and control areas.
4. Active travel diversity 3: % (i) pedestrians and (ii) cyclists who are children, measured annually (2021, 2022, 2023, 2024) using video data collected in intervention and control areas.
5. Active travel diversity 4: % children (i) walking or (ii) cycling without an adult, measured annually (2021, 2022, 2023, 2024) using video data collected in intervention and control areas.
6. Motor vehicle congestion defined through live-traffic journey times, measured using Google API calls, collected continuously (2021-2024) in intervention and control areas.
7. Journey time by car to a range of local and more distant services and relative speed of cars versus active travel for local trips, measured using Google API calls, collected annually (2021, 2022, 2023, 2024) in intervention and control areas.
8. Change in a) number of road injuries and b) risk per trip (using data from LTNs across London to increase power). based on Stats19 police injury data [secondary data], collected continuously (2021-2024), using pan-London data as a control.
9. Change in motor vehicle volumes in and around LTNs (London-wide background data from similar roads as control group). Collected using Vivacity sensors + local authority monitoring data [secondary data] One-off (2022/23) data collection using pan-London data as a control.
10. The resident ‘go-along’ interviews (in Summer-Autumn 2022 and in Summer-Autumn 2023) are primarily intended to explore how a diverse group of people living in or near the interventions experience travelling around their local area, and to identify any changes that they attribute to the interventions, positive or negative. The stakeholder (local authority officer and councillor) interviews are primarily intended to examine experiences of implementing such interventions, identifying any lessons that they have learnt, and any benefits or problems that they attribute to the interventions. The focus groups with disabled people are primarily intended to identify specific problems or benefits for people from a range of impairment groups, and mitigations or other changes that disabled people feel are needed.

Completion date
30/06/2025

Eligibility

Key inclusion criteria
The study is not actively recruiting from the general public but will recruit:
1. Local residents living in or near a sub-set of the interventions to participate in interviews
2. Disabled people (on a pan-impairment basis) to participate in focus groups discussing interventions, and
3. Local stakeholders/policy-makers involved in intervention planning to participate in interviews.

Participant type(s)
Other

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Total final enrolment
132

Key exclusion criteria
For local resident interviews: individuals not living in or near one of our four selected LTNs

Date of first enrolment
23/05/2022

Date of final enrolment
30/06/2024

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
The University of Westminster
309 Regent Street

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Sponsor information

Organisation
University of Westminster

ROR
https://ror.org/04ycpbx82

Funder(s)

Funder type
Government

Funder Name
National Institute for Health Research

Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The anonymised datasets generated during and/or analysed during the current study will be stored in a publicly available repository, and participants are being asked for permission to deposit data in a repository.

IPD sharing plan summary
Stored in publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		13/09/2024	11/06/2025	Yes	No
Other publications	Are low-traffic neighbourhoods greenwashing? Here's what the evidence says	23/06/2023	11/06/2025	Yes	No
Other publications	What does the evidence on Low Traffic Neighbourhoods really show? Public Sector Focus July/August 2023	31/08/2023	11/06/2025	Yes	No
Protocol file	version 1.2	14/01/2022	02/02/2022	No	No
Protocol file	version 1.3	20/07/2023	01/11/2023	No	No
Protocol file	version 1.5	22/04/2024	11/06/2025	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes