

BRIEFING PAPER

PROMOTING ACTIVE ENVIRONMENTS: WHAT WORKS WELL?

KEY MESSAGES

- Physical activity can help to prevent non-communicable diseases and can promote positive physical and mental health outcomes, as well as increase overall quality of life across the life course.
- However, there are a number of barriers to being physically active, in particular for those who live in disadvantaged areas and live on low incomes, including poor access to green spaces, well-lit and safe walking and cycling paths and more.
- Active environments hold the potential to provide more opportunities for local communities to use active modes of transport and increase their levels of physical activity across their day-to-day activities.
- There are a wide range of policies, schemes and campaigns happening across the UK that aim to make our environments more active to live, work and play. This briefing paper aims to summarise some of the evidence available on the impact of these schemes, followed by a range of recommendations for local and national government, and ongoing research.

OVERVIEW

What are active environments?

Active environments refer to spaces and settings designed to promote physical activity and active lifestyles. This approach considers how design of our neighbourhoods and how we use them can play a significant role in being more physically active and promote positive public health outcomes for population level [1]. These environments are characterised by features such as accessible green spaces, pedestrian-friendly infrastructure, and recreational facilities. Environments should be created that support and promote physical activities equitably across all ages, gender, ethnicities and abilities [2].

Recommended guidelines for levels of physical activity and movement

Being physically active plays a significant role in our health and wellbeing and can prevent non-communicable diseases such as cardiovascular diseases, cancer and diabetes, reduce symptoms of depression and anxiety, whilst contributing to the healthy growth and development of young people [3]. As outlined by the UK Chief Medical Officer's (CMO) guidance, it is recommended that adults complete 150 minutes of moderate intensity or 75 minutes of vigorous intensity activity a week, children and young people aged between 5-18 years old should aim for 60 minutes of moderate or vigorous intensity physical activity each week, and children between 1-5 years of age should aim for 180 minutes of physical activity daily [4].

Current levels of activity and barriers

Latest data from the Active Lives Adult Survey shows that 63.4% of adults in England are physically active (meeting the CMO's recommended guidance). 10.9% were regarded as fairly active (average of 30-149 minutes of physical activity per week) and the remaining 25.7% regarded as inactive (less than 30 minutes of physical activity per week). Men (66% or 14.9m) are more likely to be active than women (61% or 14.4m) and activity levels generally decrease with age, with the sharpest decrease coming at age 75+ (to 43%) [5]. Compared to adults, just 47% children and young people (CYP) are deemed to be physically active [6].

The drivers of physical inactivity are wide ranging, including using sedentary modes of transport such as cars to commute, in the workplace sitting at desks for long periods of time and in CYP, online gaming as opposed to playing out in local neighbourhoods which all contribute to an environment that encourages sedentary behaviours. In some communities, typically more deprived areas, this is further compounded by a lack of access to safe and maintained green spaces, parks and walking and cycling paths.

Health inequalities

Communities living in areas of higher deprivation often have lower levels of physical activity compared to those in more affluent areas; the Active Lives Adult Survey found that those from lower social groups are less likely to be active (53% compared to 73% in higher socio-economic groups) [5]. The equivalent survey for children found that those from the least affluence families are the least likely to be active (high affluence, 55%; medium affluence, 47% and low affluence, 44%) [6].

One study found that people who live closest to parks and green spaces were less likely to live with obesity and more likely to reach the recommended levels of physical activity [7] and have a higher life expectancy to those who don't [8]. However, it's been highlighted that more than 6.1 million people in Britain lack access to a park or green space that is within ten minutes of their homes, and by 2033, there will likely be a significant decrease in the overall amount of green space available [9].

How we design our environments to tackle these barriers is key to ensuring everyone has equal access to opportunities to be physically active and movement, and therefore promoting better physical and mental health outcomes across the population [2]. Good design can promote active travel such as cycling and walking, which can raise levels of activity [10].

By ensuring there are accessible opportunities to walk or cycle across the system, including schools, workplaces, hospitals, housing estates and other key settings, this can play a key role in increasing the number of children and adults who are meeting the CMO guidance.

About this briefing

This briefing paper is aimed at a range of stakeholders including local authority public health, planning, regeneration and transport practitioners, commissioned services and charities involved in promoting physical activity and movement across the population. The purpose of paper is to present a range of options, initiatives and schemes that promote active environments through a range of settings, including schools, workplaces and transport networks, including examples of local practice (where applicable) and relevant evidence to highlight its effectiveness and/or impact.

National policy context

The list below provides a summary of national policy, strategy and guidance documents promoting active environments. Please note this list is not exhaustive.

- **Everybody active, every day - Public Health England (2014):** National evidence-based framework to support all sectors in integrating physical activity into daily life and making it an easy, affordable, and normal choice in every community across England: https://assets.publishing.service.gov.uk/media/5a7d8109ed915d2d2ac09597/Framework_13.pdf
- **Uniting the Movement – Sport England (2021):** A 10-year strategy to transform lives and communities through the use of sport and physical activity; with active environments highlighted as one area for action. <https://www.sportengland.org/about-us/uniting-movement>
- **Get Active: a strategy for the future of sport and physical activity – Department for Culture, Media and Sport (2023):** This strategy sets out how the government will work with the sport and physical activity sector to address the high levels of inactivity: https://assets.publishing.service.gov.uk/media/64ef008f13ae15000d6e302c/11187-DCMS-Sports_Strategy_Report_CM_ACCESSIBLE-02.pdf
- **Environmental Improvement Plan 2023 - Department for Environment, Food and Rural Affairs (2023):** This plan outlines a commitment to promoting sport and physical activity in green and blue spaces in order to support health and wellbeing: <https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64fffa/environmental-improvement-plan-2023.pdf>



- **NHS Healthy Towns Programme – NHS England (2018):** A three-year programme which aimed to show highlight the need to design environments that give people more options and opportunities for a better lifestyle. <https://www.england.nhs.uk/wp-content/uploads/2018/09/putting-health-into-place-v4.pdf>
- **Gear Change: A bold vision for cycling and walking - Department for Transport and Active Travel England (2020):** This policy paper outlines strategies to promote cycling and walking as sustainable modes of transportation. <https://assets.publishing.service.gov.uk/media/5f1f59458fa8f53d39c0def9/gear-change-a-bold-vision-for-cycling-and-walking.pdf>

Regional policy context

The list below summarises some of the sub-regional approaches to promoting active environments across the North West. Please note this list is not exhaustive, furthermore many local authorities also have their own physical activity strategies to increase opportunities to be active across their boroughs.

- **Greater Manchester Moving in Action – GM Moving (2021):** This strategy sets out how it will engage members of their community in moving more by designing ‘moving into everyday life’. It aims to aid residents of Manchester move more by making it easier to be active and a natural part of how to live, travel, work and play. <https://www.gmmoving.co.uk/media/4365/gmmia-strategy-with-links-compressed-1.pdf>
- **All Together Active – MSP and Active Cheshire (2019):** This is a system-wide strategy approach for physical activity based within Cheshire & Merseyside (C&M). Commissioned by the Integrated Care System (ICS) Population Health Board and developed by Active Cheshire and Merseyside Sport (MSP), ATA works with place-based partners across the subregion to build physical activity into health and social care and wider settings. <https://alltogetheractive.champspublichealth.com/>
- **A Decade of Movement - Active Lancashire (2021):** This strategy’s ambition is for everyone in Lancashire to have access to and benefit from a physical active lifestyle: <https://www.activelancashire.org.uk/assets/uploads/downloads/AL-digital%20only.pdf>
- **Improving lives through physical activity – Active Cumbria (2021):** This 5-year action plan aims to prioritise resources and support to those parts of Cumbria where the highest levels of inequality exist and work in partnerships with organisations across the county. https://www.activecumbria.org/files/2516/8234/4509/0_AC_Active_Cumbria_5_Year_Plan_Booklet_A4_low_res.pdf

Promoting active environments: what works well?

In the table on the following pages, we present examples of different interventions and schemes that demonstrate the positive impact active environments can have on people’s health and wellbeing within local communities.

Name of intervention, policy or initiative	Details	Areas delivered in	Available evidence
SCHOOLS			
Walk to school schemes	<p>Walk to school schemes aim to encourage families to use active modes of transport for the school run, including walking, cycling and scooting. Such schemes involve a range of tools and methods which are used in conjunction with local schools to encourage children (both primary and secondary) to walk to school as part of their normal routine.</p> <p>The most recognisable scheme in the UK is Walk to School from Living Streets. https://www.livingstreets.org.uk/walk-to-school/</p>	Delivered in multiple areas across the UK.	<p>Evidence from walk to school projects suggests these schemes can have a positive impact on the number of journeys made by foot, bike or scooter.</p> <ul style="list-style-type: none"> • The Walk To School Outreach (WTSO) project is delivered by Living Streets shows that walking rates increased by 38% among new WTSO project schools and increased walking rates were sustained in existing schools in 2018 to 2019. This represents around 4 million new walking trips and 1.3 million fewer school run car journeys in that year with total vehicle miles reducing by around half a million [12]. • An earlier evaluation suggests primary schools particularly benefitted from Walk to School schemes, yet secondary school pupils were harder to influence due to larger catchment areas [13]. • A similar scheme ‘Beat the Street’ found a positive association between moderate-to-vigorous physical activity during school commute times. At 20-week follow-up there was a 10% increase in active school travel reported [14,15]. • Such schemes are also run on a time-limited scale, including Walk to School Week. One study in Liverpool found that following Walk to School Week, participating schools saw an increase in walking rates by 23% [16]. Similar increases have been reported elsewhere, including sustained increases [17, 18]. • One study reported that active travel to school can lower children’s BMI [19].
The Daily Mile	The Daily Mile is an inclusive, free and significant scheme where children are encouraged to run, wheel, walk or jog for 15 minutes...	Delivered in multiple areas nationally.	<ul style="list-style-type: none"> • A study conducting 332 schools from the UK showed pupils that participated in The Daily Mile improved their cognition and wellbeing [20]. • In a pilot study based in Scotland, The Daily Mile is reported to have increase children’s fitness levels by 9% [20].

The Daily Mile (continued)	<p>...during their scheduled curriculum time. Currently, 8950 schools are registered to The Daily Mile within the UK. https://thedailymile.co.uk/</p>		<ul style="list-style-type: none"> • The Daily Mile is reported to help pupils become more active, less sedentary and increases their fitness levels [21]. • It is also reported that children who participate feel more happier, more awake and calmer [22], increase a child’s alertness and verbal memory [23], as well as help children with their attention, focus and concentration in class [24].
School Streets	<p>The School Streets initiative places a temporary restriction on motorised traffic at school drop-off points and pick-up times. The restrictions imposed apply to school traffic and through traffic. The initiative encourages a healthier lifestyle and active travel to school for pupils and families [25], resulting in a safer, healthier and pleasant environment. https://schoolstreets.org.uk/</p>	<p>Delivered in multiple areas across the UK.</p>	<ul style="list-style-type: none"> • One review suggests street closures are associated with increased levels of school active travel [26]. • One case study in London found that the scheme had led to a significant reduction in traffic and an increase in cycling [27]. • Following the implementation of School Streets, one study found an improvement in perceptions of safety on school roads and the surrounded streets [28]. • One report stated that due to School Streets, 21% of children changed the way they travel to or from school [29].

WORKPLACES AND OTHER INSTITUTIONS

Cycle to work schemes	<p>Cycle to work schemes were set up by the UK government in 1999, enabling employers to ‘hire’ bikes and safety equipment to employees through salary sacrifice [30], in a bid to increase active travel to work.</p>	<p>Delivered in multiple areas across the UK.</p>	<ul style="list-style-type: none"> • Employees who cycle regularly to work are less frequently ill, with on average more than one day per annum less absenteeism than colleagues who do not cycle to work [31]. • Across the country, the scheme has involved over 40,000 employers, and has contributed to help more than 2 million commuters’ cycle to work. • Over 70% of scheme users confirmed that cycling had led to an improvement in their physical health, with 65% of users stating that the scheme had contributed to the improvement in their mental health and wellbeing [32]. • It is thought that by cycling 30 minutes per day, on average, could reduce sickness absence by 6% in accordance with the average UK sickness rates [33].
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Improvements to workplace facilities, including cycle parking, access to showers and changing facilities	<p>To promote active travel as a means of transport to the workplace, it is recommended that high quality facilities including secure cycling parking, showers and changing rooms are provided for employees [34].</p>	<p>Delivered in multiple areas across the UK.</p>	<ul style="list-style-type: none"> • 38% of participants in a survey claimed that increased provision and better-quality facilities in a workplace would encourage them to cycle to work [35]. There is, however, a lack of research when demonstrating the direct impact of access to showers and changing facilities with active travel. • Having higher quality of parking facilities is associated with higher bicycle use [36]. Data from one secure bike parking scheme suggests over 50% of users are cycling more as a result of the secure parking [37].
Walking meetings	<p>Walking meetings replace the standard meeting which is held in a conference room or via video call, they take place on the move.</p>	<p>Delivered in multiple areas across the UK.</p>	<ul style="list-style-type: none"> • One pilot study associated walking meetings with improvements to physical and psychological health [37]. Other research also suggests walking meetings can increase creativity [38, 39]. • Another pilot study from the US highlighted that walking meetings increased the physical activity levels of workers [40].
Signage encourage the use of stairs	<p>One of the most common approaches in encouraging people to utilise stairs is by providing direct prompts. These can be motivational signs, located near, or at the staircases, where immediate decisions can be made between using the stairs, or getting a lift.</p>	<p>Delivered in multiple areas internationally</p>	<ul style="list-style-type: none"> • A sequential meta-analysis found positive effects when using stair climbing signage [41]. • One evaluation demonstrated a positive correlation between placement of stair prompts and people choosing to use stairs [42]. • Inexpensive prompts like signs or posters have regularly shown effectiveness in raising stair usage [43, 44].
Height adjustable desks	<p>Height-adjustable desks are used within workplaces to reduce sedentary time.</p>	<p>Delivered in multiple areas internationally</p>	<ul style="list-style-type: none"> • One study associated standing desks with a decrease in the amount of work time spent sitting down [45]. • A study discovered that height-adjustable standing desks are associated with higher productivity, enhanced focus, and better general health over a 12-month period [46]. • One study reported 65% of participants agreed that height-adjusted desks impacted positively on their health outside of the workplace [34].

TRANSPORT SCHEMES AND INITIATIVES

<p>Low traffic neighbourhoods</p>	<p>Low Traffic Neighbourhood (LTN) schemes can include the segregation of cycle lanes, closure of roads to motor traffic, and the creation of wider pavements. The key aims of LTN is to reduce the levels of air and noise pollution and decrease traffic incidents.</p> <p>https://www.sustrans.org.uk/for-professionals/infrastructure/an-introductory-guide-to-low-traffic-neighbourhood-design</p>	<p>Various locations within the UK.</p>	<ul style="list-style-type: none"> • Evidence has indicated that LTNs can create better conditions for residents to walk and cycle, as well consistent trends towards reducing the usage on cars [47]. • LTNs implemented in Waltham Forest Borough and Newham reported increased levels of cycling amongst residents and reduced car ownership on roads in LTNs. The number of journeys made by bike increased by 172% in one area, and by 125% in another [47]. • Evidence shows that residents living in LTNs have cycled or walked on average, 41 minutes more, and are more likely to meet the recommended physical activity guidelines [48]. • Research reviewing all LTN schemes in England (implemented since 2020) indicated 44% of respondents reported more walking, 19% were running more and an increase of 36% in cycling [49]. • Three LTNs were studied in Islington Borough between 2019 and 2021. It found a significant decrease of 58.2% in traffic, compared with controlled sites [50].
<p>20's plenty</p>	<p>The 20's plenty scheme aims to make 20mph the 'norm' in residential areas, towns and villages, replacing 30mph. To date, nearly 30 million people in the UK live in places which have a 20mph [51].</p> <p>In 2023, the Welsh Government reduced all 30mph speed limits to 20mph in a bid to make their streets safer and reduce the number of injuries and casualties in road accidents: https://www.gov.wales/safer-20mph-lets-look-out-each-other#:~:text=On%202017%20September%202023%20most,emergency%20services%20and%20the%20NHS</p>	<p>Delivered in multiple areas across the UK.</p>	<ul style="list-style-type: none"> • An evaluation of 12 20mph schemes in England found a small but significant increase in modes of active travel. 5% of respondents are walking more and that 2% are cycling more due to the implementation on 20mph limits. Furthermore, 59% of cyclists believed keeping traffic below 20mph means that they are more likely to cycle to local places [51]. • A pilot in Edinburgh saw children walking to school increase by 2%, and an increase of cycling by 19% in primary school children with the introduction of 20mph limits [52]. • In Wales, evidence from 43 locations with 20mph zones reported an increase of 51% in active journeys to school [51]. Schools in 20mph areas have seen a greater increase in active travel journeys (49% to 74%), compared to schools predominantly in 30mph areas (49% to 67%) [53].

Improving local infrastructure including pedestrianised streets and cycle lanes	<p>Changes to our local infrastructure can have the potential to positively impact on travel behaviour, away from reliance on cars and towards active modes of transport. This could include improvements to pavements (such as widening paths), clutter-free pavements [54], pedestrian priority at junctions, creating pedestrianised zones and building cycle lanes.</p>	<p>Delivered in multiple areas across the UK.</p>	<ul style="list-style-type: none"> • One study found that improving the quality and quantity of walking and cycling paths can increase active travel and the number of people meeting physical activity guidelines [55]. • Other studies have also reported that new walking routes have encouraged less active people to take up walking [56], reduced health inequalities, and provided value for money [57]. • Another study highlighted that the safety of such routes plays a key role in the use of walking and cycling routes [58, 59].
Park and Ride	<p>Park and Ride is a type of integrated transportation that enables users of private vehicles to leave their cars in a large car parks and take public transportation into the city centre. The key drivers of Park and Ride are usually to decrease urban congestion and vehicle-related pollution, but they also have the potential to increase opportunities for walking and cycling when designed well</p>	<p>Delivered in multiple areas across the UK.</p>	<p>Evidence on the impact Park and Ride schemes have on public health is limited. However, a case study of a shared use path from Winchester city centre to South Winchester Park and Ride has been reported to carry 50,000 cycle trips per year compared to 4,000 previously [60].</p>
End pavement parking	<p>One of the biggest obstructions people face when walking, wheeling or cycling in their local areas is pavement parking [61]. Restricting pavement parking could help to create a safe environment for communities to walk in, as well as making it more accessible for those using a wheelchair or pram. https://www.livingstreets.org.uk/get-involved/end-pavement-parking-in-england/</p>	<p>Delivered in multiple areas across the UK.</p>	<ul style="list-style-type: none"> • Results from one report shows that placing a ban on pavement parking would help 70% of residents to walk and wheel more often [31]. • In one survey, 80% of parents would be more willing to walk their child to school if vehicles parked on pavements were removed [33]. • In 2023, Scotland implemented a nationwide ban on pavement parking. No data on the impact of the ban of pavement parking has been captured as of yet (correct at time of publication).

Play streets	<p>Originally developed as a pilot in Bristol in 2009, Play Streets are neighbourhood led short road closures, providing a safe space for children to play freely outside. The scheme is a resident led, with support from local councils (at low cost). It is achieved by the temporary closure of a street/road to vehicles, allowing children to participate in active play, and bringing the community together [62]. https://playingout.net/play-streets/what-are-play-streets/</p>	<p>Delivered in multiple areas across the UK.</p>	<ul style="list-style-type: none"> • One study found that children are three to five times more active during a play street than they would be on an average day after school [63]. • One report found that during Play Streets, children were outdoors for over 70% of the time and spent on average 16 minutes per hour in moderate to vigorous physical activity [23]. • 72% of residents from one survey believed that children involved with Play Streets are more physically active and 78% of residents felt that Play Streets have impacted positively on children’s physical health [64]. • One study reported an increase of 32% of children walking/cycling to school and noted that there has been a 21% reduction of traffic speed/volume on their streets [25].
Green Streets	<p>Green Streets is an urban street planting programme created by The Mersey Forest. Commencing in 2007, Green Streets collaborates with partners to plant thousands street trees, aiming to reduce air pollution, boosting health and building communities.</p>	<p>North Cheshire and Merseyside</p>	<p>There is limited evidence to demonstrate an impact on active travel and physical activity. However, one case study in Kirkby has acknowledged the programme has improved cycling and walking routes, whilst also creating new opportunities for leisure and recreation [65].</p>

Summary

This briefing paper summarises some of the key evidence supporting a range of different policies, initiatives and campaigns that are designed to increase active modes of travel and levels of physical activity across a variety of settings, including schools, workplaces and transport networks. Some of the interventions listed have a greater level of evidence to support positive impacts on active travel and levels of physical activity. This includes: walk to school and cycle to work schemes; LTNs; improvements to walking and cycling infrastructure; workplace facilities; and streets that allow children to play out in.

The areas that need further research to understand the impact are workplace initiatives including walking meetings, standing desks, park and ride schemes and pavement parking.



There is, however, a question regarding the sustained impact of such schemes, and whether these new habits of walking and cycling are continued in the longer-term. Further longitudinal research is required to strengthen the evidence base and provide a greater understanding on how to influence a long-term increase in levels of physical activity.

There are converging agendas with regards to many of the schemes listed in this briefing; whilst some may have a core aim of reducing traffic and improving air quality, they may also be indirectly increasing physical activity levels too. This can be a useful asset when making the case for introducing such schemes, and important to consider within any evaluations that are conducted to evidence impact.

It is important to recognise that there is no single solution to tackling physical inactivity, and a whole systems approach is needed to address the wide range of factors that influence levels of physical activity. Local policy makers should consider a wide range of interventions that cover the life course, and a range of different settings.

Recommendations

National government

- Ensure there is sufficient funding for local authorities to implement schemes to promote active travel and increase levels of physical activity.
- Increase funding and capacity for Active Travel England and widen Active Travel England's role as a statutory consultee and provider of guidance for planning applications.

Local government

- Taking a whole systems approach, working collaboratively across council departments and key partners across the system, to explore the current options available to make local environments more active and accessible across all communities.
- Planning departments can play a key role in creating active neighbourhoods, in particular through the local plan process, design codes and planning permissions for major developments and infrastructures locally. Public health teams should explore opportunities to work collaboratively with planning departments, to maximise the opportunities for promoting walking and cycling across the borough.
- Consult with local communities to understand what would make it easier for residents to walk and cycle in their day-to-day activities. Ensuring engagement is representative and inclusive of all members of the community as their views is key to securing strong local support [66].



- Work with relevant partners such as Living Streets and Sustrans (and any local charities) and schools to promote schemes that encourage active modes of travel on the school run, such as Walk to School.
- When setting up a scheme/initiative, carry out a number of engagement activities, ensuring all key stakeholders and partners have been consulted. Failure to do so can lead to friction between those delivering the scheme and the public, creating errors in the delivery [67].

Research

- Conduct further research to understand the longer-term impacts of schemes to promote active environments.

Useful organisations, tools and resources

- Living Streets: a charity providing walking resources and information: <https://www.livingstreets.org.uk/>
- Sustrans: a charity aiming to make a UK-wide network of traffic-free paths: <https://www.sustrans.org.uk/>
- Active Travel England: the government’s executive agency responsible for making walking, wheeling and cycling the preferred choice for everyone to get around in England: <https://www.gov.uk/government/organisations/active-travel-england>
- Sport England- New Active Design guidance: supported by ATE and OHID, this guidance has been designed to help create ‘active environments’: <https://www.sportengland.org/guidance-and-support/facilities-and-planning/design-and-cost-guidance/active-design>
- Food Active- Planning for Active Travel Briefing Paper: provides an overview of how active travel can contribute to recommended guidelines of physical activity, highlights the need for the right infrastructure to be put in place, and cover national policy relating to active travel: <https://foodactive.org.uk/food-active-briefing-paper-planning-for-active-travel/>
- Cycling UK: a charity campaigning to make cycling safe and accessible for everyone: <https://www.cyclinguk.org/>
- Active Travel: a briefing for local authorities: This guide suggests a range of practical action for local authorities, from overall policy to practical implementation. It highlights the importance of community involvement and sets out steps for transport and public health practitioners: <https://www.gov.uk/government/publications/active-travel-a-briefing-for-local-authorities>



References

1. Active Norfolk, Active Environments [online] Available at: <https://www.activenorfolk.org/organisations/active-environments/>
2. Sport England (accessed Feb 24) Active Design [online] Available at: <https://www.sportengland.org/guidance-and-support/facilities-and-planning/design-and-cost-guidance/active-design>
3. WHO (2022) Physical activity [online] Available at: <https://www.who.int/news-room/fact-sheets/detail/physical-activity>
4. Department of Health and Social Care (2019) UK Chief Medical Officers' Physical Activity Guidelines [online] Available at: <https://assets.publishing.service.gov.uk/media/5d839543ed915d52428dc134/uk-chief-medical-officers-physical-activity-guidelines.pdf>
5. Sport England (2024) Active Lives Adult Survey November 2022-23 Report [online] Available at: https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/2024-04/Active%20Lives%20Adult%20Survey%20November%202022-23%20Report.pdf?VersionId=veYJTP_2n55UdOmX3PAXH7dJr1GA24vs
6. Sport England (2023) Children's activity levels hold firm but significant challenges remain [online] Available at: <https://www.sportengland.org/news-and-inspiration/childrens-activity-levels-hold-firm-significant-challenges-remain>
7. Institute of Health Equity (2014) Natural Solutions to Tackling Health Inequalities [online] available at: <https://www.instituteofhealthequity.org/resources-reports/natural-solutions-to-tackling-health-inequalities/natural-solutions-to-tackling-health-inequalities.pdf>
8. Coombes E, Jones AP, Hillsdon M (2010) The relationship of physical activity and overweight to objectively measured green space accessibility and use. *Social Science & Medicine* 70: 816-822.
9. Fields in Trust (2023) Green Space Index [online] Available at: <https://www.fieldsintrust.org/green-space-index>
10. Sport England, Uniting the Movement [online] Available at: <https://www.sportengland.org/about-us/uniting-movement/what-well-do/active-environments>
11. Department for Transport (2020) Gear Change: A bold vision for cycling and walking [online] Available at: <https://assets.publishing.service.gov.uk/media/5f1f59458fa8f53d39c0def9/gear-change-a-bold-vision-for-cycling-and-walking.pdf>
12. Department for Transport (2020) Promoting walking in primary schools [online] Available at: <https://www.gov.uk/government/case-studies/promoting-walking-in-primary-schools>
13. CLES Findings (2016) The impacts of walk to school [online] Available at: <https://cles.org.uk/wp-content/uploads/2016/10/CLES-Findings-6-The-impacts-of-Walk-to-School.pdf>
14. Burnley Together (N/D) Beat the Streets [online] Available at: <https://burnleytogether.org.uk/beat-the-street/>
15. Coombes E, Jones A. Gamification of active travel to school: A pilot evaluation of the Beat the Street physical activity intervention. *Health Place*. 2016 May;39:62-9. doi: 10.1016/j.healthplace.2016.03.001. Epub 2016 Mar 11. PMID: 26974232; PMCID: PMC5405045.
16. Liverpool City region Combined Authority (2022) Liverpool City Region Mayor encourages parents and pupils to get active on the school run [online] Available at: <https://www.liverpoolcityregion-ca.gov.uk/news/liverpool-city-region-mayor-encourages-parents-and-pupils-to-get-active-on-the-school-run>
17. Scottish Government (2017) Tackling the school run: research study [online] Available at: <https://www.gov.scot/publications/tackling-school-run-research-study/pages/5/>
18. Atkins (2010) An Evaluation of the 'Travelling to School Initiative' Programme [online] Available at: https://assets.publishing.service.gov.uk/media/5a7ab2cc40f0b66a2fc022c1/TTSI_Final_Report-Appendices.pdf
19. Laverty AA, Hone T, Goodman A, Kelly Y, Millett C. Associations of active travel with adiposity among children and socioeconomic differentials: a longitudinal study. *BMJ Open*. 2021 Jan 1;11(1):e036041.
20. Universities of Stirling and Edinburgh: Chesham RA, Booth JN, Sweeney EL, et al. The Daily Mile makes primary school children more active, less sedentary and improves their fitness and body composition: A quasi-experimental pilot study. *BMC Med*. 2018;16. doi:10.1186/s12916-019-1336-3
21. R. A. Chesham et al., "The Daily Mile makes primary school children more active, less sedentary and improves their fitness and body composition: A quasi-experimental pilot study," *BMC Med.*, vol. 16, May 2018, doi: 10.1186/s12916-019-1336-3.
22. E. Marchant, C. Todd, G. Stratton, and S. Brophy, "The Daily Mile: Whole-school recommendations for implementation and sustainability. A mixed-methods study," *PLoS One*, vol. 15, no. 2, p. e0228149, Feb. 2020, doi: 10.1371/journal.pone.0228149.
23. J. N. Booth, R. A. Chesham, N. E. Brooks, T. Gorely, and C. N. Moran, "A citizen science study of short physical activity breaks at school : improvements in cognition and wellbeing with self-paced activity," pp. 1–11, 2020.

24. B. Hanckel, D. Ruta, G. Scott, J. L. Peacock, and J. Green, "The Daily Mile as a public health intervention: a rapid ethnographic assessment of uptake and implementation in South London, UK," *BMC Public Health*, vol. 19, no. 1, p. 1167, Dec. 2019, doi: 10.1186/s12889019-7511-9.
25. School Streets Initiative (accessed Jan 24) Available at: <https://schoolstreets.org.uk/>
26. Edinburgh Napier University (2020) School Street Closures and Traffic Displacement Project: A Literature Review with semi-structured interviews [online] Available at: <https://www.napier.ac.uk/~media/images/news/school-street-closures/school-streets-closure-traffic-displacement-literature-review-final2.pdf>
27. Healthy Streets Everyday (2022) MAKING SCHOOL STREETS HEALTHIER: Learning from temporary and emergency closures [online] Available at: https://crossriverpartnership.org/wp-content/uploads/2022/03/UoW-Report_V5.pdf
28. Sustrans (2022) Monitoring the impact of School Streets: safety and traffic displacement [online] Available at: <https://www.sustrans.org.uk/our-blog/research/all-themes/all/monitoring-the-impact-of-school-streets-safety-and-traffic-displacement>
29. Portsmouth City Council (2022) Impact of scheme on travel behaviour [online] Available at: <https://yourcityyoursay.portsmouth.gov.uk/school-streets-and-stomp-to-school-wave-2/impact-of-scheme-on-travel-behaviour/>
30. Department for Transport (2019) Cycle to Work Scheme Guidance for Employers [online] Available at: <https://assets.publishing.service.gov.uk/media/5dc9475440f0b64251080457/cycle-to-work-guidance.pdf>
31. Hendriksen, I. J., Simons, M., Garre, F. G., & Hildebrandt, V. H. (2010). The association between commuter cycling and sickness absence. *Preventive medicine*, 51(2), 132-135
32. Cycle to work alliance (accessed Jan 24) Growing the cycle to work culture [online] Available at: <https://cycletoworkalliance.org.uk/about-us/the-scheme/>
33. IES Report (2016) Impact of the Cycle to Work Scheme Evidence Report [online] Available at: <https://www.employment-studies.co.uk/system/files/resources/files/509.pdf>
34. Active Travel England (2023) Active Travel England Standing Advice Note: Active travel and sustainable development [online] Available at: <https://assets.publishing.service.gov.uk/media/652e5d136972600014ccf984/active-travel-england-standing-advice-note-active-travel-and-sustainable-development.pdf>
35. Sustrans (2022) 5 strategies to encourage your employees to cycle to work [online] Available at: <https://www.sustrans.org.uk/our-blog/get-active/2022/everyday-walking-and-cycling/5-strategies-to-encourage-your-employees-to-cycle-to-work>
36. Transport for Quality of Life (2019) CWIS Active Travel Investment Models: Model structure and evidence base. Technical appendix 4: Overview of evidence on increasing active travel [online] Available at: https://assets.publishing.service.gov.uk/media/5dcc1d73ed915d4e80a49a9c/appendix_4_Overview_of_evidence_on_increasing_active_travel.pdf
37. Anna Bornioli (2023) The walking meeting: opportunities for better health and sustainability in post-COVID-19 cities, *Cities & Health*, 7:4, 556-562, DOI: 10.1080/23748834.2022.2050103
38. Oppezzo, Marily A and Daniel L. Schwartz. "Give your ideas some legs: the positive effect of walking on creative thinking." *Journal of experimental psychology. Learning, memory, and cognition* 40 4 (2014): 1142-52 .
39. Walking Meetings: The Future of Safely Collaborating (2021) How to increase your creativity, productivity, and wellbeing at work. [online] Available at: <https://www.psychologytoday.com/gb/blog/how-healing-works/202103/walking-meetings-the-future-safely-collaborating>
40. Kling HE, Yang X, Messiah SE, Arheart KL, Brannan D, Caban-Martinez AJ. Opportunities for Increased Physical Activity in the Workplace: the Walking Meeting (WaM) Pilot Study, Miami, 2015. *Prev Chronic Dis*. 2016 Jun 23;13:E83. doi: 10.5888/pcd13.160111. PMID: 27337560; PMCID: PMC4927270.
41. Puig-Ribera A, Señé-Mir AM, Taylor-Covill GAH, De Lara N, Carroll D, Daley A, Holder R, Thomas E, Milà R, Eves FF. Signage Interventions for Stair Climbing at Work: More than 700,000 Reasons for Caution. *Int J Environ Res Public Health*. 2019 Oct 8;16(19):3782. doi: 10.3390/ijerph16193782. PMID: 31597383; PMCID: PMC6801962.
42. Lee KK, Loh L, Adamic J, Perry A, Sacks R, Lam K, Tong S, Wolf S. Lessons learned from the development and implementation of a citywide stair prompt initiative. *Prev Med Rep*. 2018 Dec 29;13:218-223. doi: 10.1016/j.pmedr.2018.12.015. PMID: 30705809; PMCID: PMC6349558.
43. Soler RE Leeks KD Buchanan LR Brownson RC Heath GW Hopkins DH 2010 Point-of-decision prompts to increase stair use. A systematic review update. *Am J Prev Med* 38 2 S292 300 10.1016/j.amepre.2009.10.028
44. Bellicha A Kjeusseian A Fontvieille A-M Tataranni A Charreire H Oppert J-M 2015 Stair-use interventions in worksites and public settings – a systematic review of effectiveness and external validity. *Prev Med* 70 3 13 10.1016/j.ympmed.2014.11.001
45. Ma J, Ma D, Li Z, Kim H. Effects of a Workplace Sit-Stand Desk Intervention on Health and Productivity. *Int J Environ Res Public Health*. 2021 Nov 4;18(21):11604. doi: 10.3390/ijerph182111604. PMID: 34770116; PMCID: PMC8582919.



46. Standing Desk Research Reinforces Benefits of Standing The new 'Stand Up to Work' study finds height-adjustable workstations help productivity, concentration and improve overall health [online] Available at: <https://www.steelcase.com/research/articles/topics/wellbeing/year-long-study-reinforces-benefits-standing-desks/?pdf=1>
47. London Borough of Waltham Forest (2022) LOW TRAFFIC NEIGHBOURHOODS IN SOUTH LEYTONSTONE, MARYLAND AND FOREST GATE [online] Available at: <https://enjoywalthamforest.co.uk/work-in-your-area/ltns/>
48. Aldred, R., Woodcock, J., & Goodman, A. (2021). Major investment in active travel in Outer London: Impacts on travel behaviour, physical activity, and health. *Journal of Transport & Health*, 20, 100958. Retrieved from: <https://www.sciencedirect.com/science/article/pii/S2214140520301626#:~:text=The%20previously%20published%20one%2Dyear,participation%20in%20past%2Dweek%20cycling>
49. IPSOS (2024) Low Traffic Neighbourhoods Research Report [online] Available at: <https://assets.publishing.service.gov.uk/media/65f400adfa18510011011787/low-traffic-neighbourhoods-research-report.pdf>
50. Yang, Xiuleng & McCoy, Emma & Hough, Katherine & Nazelle, Audrey. (2022). Evaluation of Low Traffic Neighbourhood (LTN) Impacts on NO2 and Traffic. *SSRN Electronic Journal*. 10.2139/ssrn.4133090
51. 20's Plenty for Us (accessed Jan 24) Available at: <https://www.20splenty.org/#:~:text=Welcome%20to%2020's%20Plenty%2C%20the,centres%2C%20with%20exceptions%20where%20appropriate>
52. Transport for Wales (2024) Default 20mph speed limit on restricted roads [online] Available at: https://tfw.wales/sites/default/files/2024-02/Phase-1-20mph-final-monitoring-report-summary_2024.pdf
53. Living Streets (2023) Walk to School Outreach programme [online] Available at: <https://media.service.gov.wales/news/new-data-shows-benefits-of-driving-at-20mph-as-wales-prepares-to-lower-default-speed-limit#:~:text=Evidence%20shows%20reducing%20the%20default,improvements%20to%20health%20and%20wellbeing> [Accessed: 16th April 2024]
54. Living Streets (N/D) Clutter Free Pavements [online] available at: <https://www.livingstreets.org.uk/get-involved/cut-the-clutter/>
55. Panter J, Ogilvie D. Can environmental improvement change the population distribution of walking? *J Epidemiol Community Health*. 2017 Jun 1;71(6):528–35.
56. Panter J, Ogilvie D. Can environmental improvement change the population distribution of walking? *J Epidemiol Community Health*. 2017 Jun 1;71(6):528–35.
57. Le Gouais A, Panter JR, Cope A, Powell JE, Bird EL, Woodcock J, et al. A natural experimental study of new walking and cycling infrastructure across the United Kingdom: The Connect2 programme. *J Transp Health*. 2021 Mar 1;20:100968.
58. Panter J, Guell C, Humphreys D, Ogilvie D. Can changing the physical environment promote walking and cycling? A systematic review of what works and how. *Health Place*. 2019 Jul 1;58:102161.
59. Le Gouais A, Panter JR, Cope A, Powell JE, Bird EL, Woodcock J, et al. A natural experimental study of new walking and cycling infrastructure across the United Kingdom: The Connect2 programme. *J Transp Health*. 2021 Mar 1;20:100968.
60. Sustrans (2017) Active Travel and Economic Performance [online] Available at: <https://www.sustrans.org.uk/media/4472/4472.pdf>
61. Sustrans (2022) Ban on pavement parking would encourage more people to walk and wheel [online] Available at: <https://www.sustrans.org.uk/our-blog/news/2022/may/ban-on-pavement-parking-would-encourage-more-people-to-walk-and-wheel/>
62. Playing Out (access Feb 2024) What are play streets? [online] Available at: <https://playingout.net/play-streets/what-are-play-streets/>
63. University of Bristol (2017) Why temporary street closures for play makes sense for public health [online] Available at: <https://playingout.net/wp-content/uploads/2014/04/street-play-public-health.pdf>
64. Playing Out (2023) Resident survey report 2023 [online] Available at: <https://playingout.net/wp-content/uploads/2023/12/2023-Resident-Survey-Report.pdf>
65. The Mersey Forest (2012) Green Streets case study: Kirkby [online] Available at: https://www.merseyforest.org.uk/files/documents/1206/kirkby_LSTF.pdf
66. Department for Transport (2024) Implementing low traffic neighbourhoods [online] Available at: <https://www.gov.uk/government/publications/implementing-low-traffic-neighbourhoods/implementing-low-traffic-neighbourhoods>