THE PEDESTRIAN POUND

3RD EDITION

transport for quality of life

paths for all
FOR A HAPPIER, HEALTHIER SCOTLAND

LIVING STREETS

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Photo credit: Ivon Bartholomew for Living Streets

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FOREWORD

It is with pleasure that I provide this foreword to the Pedestrian Pound report.

I am pleased that the latest edition updates the evidence and has also broadened its coverage to study how the quality of public spaces affects health and wellbeing, communities, equality of access and environmental resilience. These areas add even greater support to the importance of walking and wheeling in quality public spaces.

As an economist and long-time volunteer at various charities, I am delighted to see this holistic approach to public realm improvements. It is a subject that many people inherently feel is important. So, having this detailed report, which acknowledges the research limitations but reviews the latest studies and presents case studies from around the world, helps to inform our thinking about how our public spaces can be best used for commerce as well as for wellbeing, equality and the environment, among much else.

One of the many fascinating facts in the report is that residential addresses made up more than half of the high street in Great Britain. We typically associate retail with the high street, but retailers account for only a third of addresses. Another one is that businesses based in the town centre earn 20% more profit when there's a bank and post office on the high street. In short, having public realm improvements can provide multi-dimensional benefits.

Dr Linda Yueh CBE

Fellow in Economics,
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As those of you reading this will know, walking is hugely beneficial to our health and happiness – but it's also vital for the economy. Now, more than ever, we need to support our local high streets and make them safe and welcoming places where people want to spend time – and money. This revised Pedestrian Pound report considers the positive impact of designing public spaces that make it easy for people to leave the car at home and instead walk, wheel, cycle or use public transport. I hope you enjoy reading it.

Catherine Woodhead
Chief Executive, Living Streets

Walking, the foundation of liveable and lower carbon places, is essential for creating sustainable, inclusive, and healthy communities. This study shows that the path towards more vibrant, accessible, and economically thriving neighbourhoods lies in places designed for walking.

In an era where technology often minimises physical activity, we must design movement back into our daily lives and make places comfortable and safe for walking. The evidence in the study demonstrates that people and businesses benefit from good walking environments.

Walking is one of the cheapest ways to deliver a sustainable future, addressing our biggest and most expensive challenges: decarbonization, health and wellbeing. This study is a call to action for more investment in walking.

Kevin Lafferty,
Chief Executive, Paths for All

01

INTRODUCTION

Photo credit: Ivon Bartholomew for Living Streets

This report updates the evidence on the economic contribution of walking and wheeling to local high streets.

Making our outdoor public spaces more accessible, attractive, comfortable and safe for people walking or wheeling can help to increase pedestrian footfall and revitalise high streets, district, town and city centres. This report updates the evidence from the previous Pedestrian Pound report (Living Streets, 2018) on the benefits of investing in the public realm and the positive impacts that more people walking and wheeling can have on their local high streets (see Box 1 for definitions).

BOX 01

Definition of public realm and our typology

For the purposes of this report, **public realm** has been taken to mean: "urban outdoor space that is not home, school, work or private property. This includes streets, laneways, public spaces, parks and footpaths. It also encompasses the physical characteristics of place, such as walkability, land use, built form, neighbourhood quality, and services and facilities" (Fleckney and Bentley, 2021).

High street is used collectively to refer to streets in city centres, town centres and local centres, as well as in more remote areas, like village and island centres.

Improvements to public realm may be physical improvements to the 'hardware' of the built environment (e.g., repaving, pedestrianisation, new or improved open space) as well as 'software' changes which alter the user experience (e.g., events, new services, marketing, policy changes). In other words, improvements include both capital and revenue schemes.

A **typology of high street improvements** benefitting walking and wheeling has been developed as part of the report (See typology here). This outlines 15 broad categories of improvements, which are typically combined within any given project to meet the specific needs of that locality. 'Design menus' underpin each typology category, to illustrate the types of interventions which can deliver these outcomes.

01

The quality of public spaces can also improve health and wellbeing, a sense of community, equality of access and environmental resilience.

As well as having economic benefits, improvements to the quality of public spaces can also have benefits for physical and mental health. District, town and city centres provide social and cultural opportunities, giving people destinations to walk to and places to meet and socialise, which help to strengthen community ties. Good design of public spaces can also help reduce inequalities by providing access regardless of disability, age or income. Through greening and careful design, good public spaces can provide habitats for other species, places to engage with nature and they can increase the resilience of urban areas to extreme weather events.

This report looks at the social, cultural and community value of a place.

Planning for pedestrians in high streets and public spaces can contribute to healthy, vibrant and thriving places. While much of this report is focused on improvements to the built environment, particularly for walking and wheeling, it also recognises the role of social, cultural and community factors in contributing to the value of a place. Essentially, this report looks at the multiple benefits of creating streets for people.

The challenges facing high streets and local centres

Major challenges to high streets still exist, including a growth in online sales, changes in shopping routines and loss of services, leading to lower footfall.

The previous Pedestrian Pound report outlined some of the major challenges to high streets, including the shift in retail to out of town centres, the growth in online sales, and reductions in shopping trips (which were occurring even before COVID-19). These were leading to lower footfall, higher retail vacancy rates, and a decline in private sector investment. Added to this, there has also been a progressive loss of essential services from high streets over many years, including banks, post offices and public services. These trends all have knock-on effects for town centre businesses and service providers. For example, research suggests that town centre businesses have 20% greater profit when there are a bank and post office present (Audit Wales, 2021).

COVID-19 and the cost-of-living crisis have accelerated these trends.

These challenges were already affecting high streets before 2020, but the COVID-19 pandemic, inflation and the cost-of-living crisis have all accelerated these trends:

- In November 2023, around 30% of all shopping (by value) took place online (following a peak of nearly 40% in January 2021) (Office for National Statistics, 2024).
- The average annual number of shopping trips in England fell from 181 in 2019 to 151 in 2022 (Department for Transport, 2023a).
- By early 2023, customer retail footfall in the UK was 10% lower than in 2019, with even greater reductions in major cities (Centre for Retail Research, 2024).
- There was a record number of retail failures in Britain in 2022, with 17,145 store closures, though this fell to 10,494 in 2023 (Centre for Retail Research, 2024).
- At the end of 2023, British high streets had vacancy rates of nearly one in seven (14%), below that of purpose-built shopping centres (18%) but above that of retail parks (8%) (Local Data Company, 2024).

There are local and regional variations in terms of recovery, with some towns and cities hit harder than others.

The figures given above mask local and regional variations and the extent to which towns and cities have been able to recover from the pandemic and have been affected by the cost-of-living crisis. This has partly been determined by their different pre-existing strengths and weaknesses before COVID-19 (Centre for Cities, 2021). The rise in home working has also had an impact, particularly in big cities like London and Birmingham (ibid.).

01

More frequent extreme weather events have a commercial impact too.

On top of this, high streets are facing more frequent extreme weather events due to the changing climate. While these events risk lives and clearly impact on health and wellbeing, they are also a commercial risk to town centre businesses. For example, footfall fell during the 2022 heatwaves when it was “too hot to shop” (Feeley, 2022) and surveys have shown that 40% of small businesses close if they experience catastrophic flooding (Hume, 2022).

The importance of placemaking

Decline is not inevitable and there has been some recovery, in part due to the community value of the high street.

Despite these trends and a common narrative around the ‘death’ of the high street, there are reasons for cautious optimism. Many town centres continue to provide valuable community functions and the pandemic has perhaps “paved the way for a post-retail landscape to emerge” with a broader focus on “health, education, culture, housing, leisure, art and crafts, along with some shops” (Grimsey et al., 2020). Some high streets have proved resilient, with a gradual recovery in retail footfall across the UK in 2023 compared to 2022 (PFM, 2024). Studies in other parts of the world suggest that, even during COVID-19, the attractiveness of streets, parks and squares still affected where people chose to walk (Angel et al., 2023).

> **Placemaking promotes walking, cycling, public transport, mixed use developments, public space, community infrastructure and identity, which can have a positive effect for people and the planet, as well as the monetary value of a development or local area.**
>
> **PLACEMAKING WALES PARTNERSHIP, 2020**

COVID-19 has prompted renewed interest in placemaking and creating spaces with multiple benefits.

Since COVID-19, there has been more focus on the creation of spaces which provide high quality and locally distinctive public realm as well as opportunities for people to meet and develop a sense of community (Placemaking Wales Partnership, 2020). There is increasing recognition that we need to shift away from viewing town centres and high streets simply as centres for shopping, and instead see them as public spaces for socialising and connecting people, which would imply a need for more walkable as well as greener spaces (All Party Parliamentary Group on the Future of Retail, 2021; House of Commons Housing, Community and Local Government Committee, 2019; Audit Wales, 2021; Scottish Government, 2021).

Many people also live in town centres and this trend is likely to increase in future.

Although we think of the high street as retail dominated, they are also places where people live. In 2020, retail accounted for only a third of addresses on high streets in Great Britain, while residential addresses made up more than half (58%, including 60% in Scotland and 54% in Wales) (Office for National Statistics, 2020). This trend for town centre living is likely to increase in future (see Section 7) and is another opportunity to revitalise town centres.

> **Towns and town centres offer a social, cultural and economic heart to a community.**
>
> **(SCOTTISH GOVERNMENT, 2021)**

01

The role of walking and wheeling

Most people still live within walking distance of their town centres.

Most towns and cities in the UK were originally built around walking, and even with growing car-dependence most people still live within walking distance of their town or district centres. In Wales, roughly half of people live within a mile of their town centre (44%) and 86% within five miles (Audit Wales, 2021). A Scottish survey found that local shops that sell everyday necessities are the most common walking destinations, with 44% of people surveyed walking to these daily or several times a week (Paths for All, 2023).

Car access should not be at the expense of others, particularly more vulnerable groups or those who are less likely to drive.

Car access to town centres should not be at the expense of access for others, particularly more vulnerable groups, though exemptions may be needed for some users, such as those with mobility issues. Nor should car access undermine the quality of urban centres. Making town centres more accessible by walking, wheeling, cycling and public transport is particularly important for groups such as young people, older people or recent immigrants who are less likely to drive and more likely to rely on the high street for social interaction, shops or job opportunities (House of Commons Housing, Communities and Local Government Committee, 2019).

“Pedestrian activity on city streets constitutes a powerful indicator of the social, environmental, and economic health of a community.

(SEVTSUK, 2021)

Walking is the only mode of travel that has increased over the last five years, and after COVID-19.

Walking is the only mode of travel in England that has increased in terms of trip numbers over the last five years (from 262 trips per person in 2018 to 267 trips in 2022) (Department for Transport, 2023b). In 2022, walking was the main mode of travel for nearly a third of all journeys (31%, up from 27% in 2018) (ibid.)[1]. And in the vast majority of cases, walking forms part of longer public transport journeys (i.e. the walk to or from a bus stop or rail station). A study which surveyed travel patterns across city regions in England and Scotland during and after COVID-19 found that, in June 2022, more than half (58%) of people surveyed were walking as a mode of travel at least three days a week compared with two-fifths (36%) pre-pandemic (Brown et al., 2022).

This report assumes that encouraging walking to, and around, our high streets is likely to lead to a range of wider benefits.

For many of the benefits examined in this report, public realm improvements that attract more pedestrians or encourage walking and wheeling are expected to increase footfall, physical activity and social interactions. These changes can then lead to a variety of economic and wider benefits that are shown in the logic maps in Figures 1 and 3 (see Sections 3 and 4).

The following sections cover the methodology, economic benefits, health and wellbeing, community, the environment, future trends and conclusions. There are separate detailed case studies, annexes and an Evaluation Briefing.

The following sections present the methodology and issues with the evidence (Section 2), the economic benefits of public realm improvements associated with business (Section 3), health and wellbeing (Section 4), community (Section 5) and the environment (Section 6), future trends (Section 7) and conclusions (Section 8). There are separate detailed case studies, annexes which look at the differing contexts in England, Scotland and Wales for enabling more pedestrians to use their high street or local centre. A separate Evaluation Briefing looks at the issues with evaluating public realm schemes and provides examples and recommendations for best practice.

1 In Scotland, the Scottish Household Survey suggests walking was the main mode of travel for 22.6% of journeys in 2022, compared with 19.8% in 2018, although trip rates per person may have declined slightly, from 0.37 to 0.34 journeys per adult per day (Transport Scotland, 2024). Comparable figures are not available for Wales, though the annex provides some insight into walking trends.

02

METHODOLOGY AND ISSUES WITH THE EVIDENCE

Photo credit: Ivon Bartholomew for Living Streets

Methodology

This study follows a similar methodology to previous reports and is focused on four research questions.

This study follows a similar methodology to previous Pedestrian Pound reports. A review of the literature[2] (both peer reviewed and grey literature), was carried out using search terms tailored to the following research questions:

What evidence is there that public realm improvements (relative to what would have happened without any improvements):

- Retain the commercial, civic and cultural importance of local centres and result in a more productive economy?[3]
- Result in happier and healthier people?[4]
- Result in a stronger local community?[5]
- Result in a more resilient local environment?[6]

For the first research question, which aims to update the evidence in the previous Pedestrian Pound report, the focus was on studies published since 2018 only (i.e. after publication of the previous edition). For the remaining research questions, which widen the scope of benefits considered, studies published since 2013 (i.e., within the last 10 years) were reviewed. For these three themes (health, community, environment), studies which robustly synthesise the evidence from a large number of studies (e.g., systematic reviews and meta-analyses) were prioritised, though some of the more relevant individual studies are also included. Where possible, the review has included studies which monetise the values of these wider benefits.

02

The literature review is as comprehensive and objective as possible within the constraints of the project.

This initial search process was supplemented by (a) inclusion of some of the most relevant secondary references; (b) studies known to team members; (c) incidental studies found during a search for case studies or research for the country annexes; (d) a search for contextual background information and (e) other reviews of the value of walking (Kariuki-Cobbett et al., 2023; Litman, 2023; Create Streets, 2024 and Davis, 2018-2024). Although this literature review is not a fully systematic one in accordance with robust academic protocols, it is as comprehensive as possible over the time periods listed above and within the resource constraints of the project and aims to evaluate the quality and nature of the evidence as objectively as possible.

2 Databases searched included Academic Search Complete; Business Source Complete; Econlit; Google Scholar; JSTOR; Science Direct; SCOPUS and Web of Science.

3 Search terms: economic / 'commercial value' / return AND 'walking investment' / pedestrianisation / 'public realm' / 'street improvements' AND business / retail / 'economic development' / regeneration / 'high street' AND 'business performance' / income / footfall / 'business survival' / investment / rent / employment / productivity. Papers published since 2018 to avoid duplication with previous report.

4 Additional search terms: 'physical health' / 'mental health' / loneliness / 'well-being' / safety / 'air quality' / pollutant / noise / climate / carbon / AND meta analysis / 'systematic review'.

5 Additional search terms: 'distributional impacts' / 'social capital' / diversity / equality / inclusion / accessibility / disabled / dementia/ 'older people' AND meta analysis / 'systematic review'.

6 Additional search terms: biodiversity / flooding / SuDS / 'heat island' / resilience AND meta analysis / 'systematic review'.

Issues with the evidence from the literature

Robust studies use before-and-after data, have comparison areas and control for external effects.

The most robust studies are longitudinal studies which use before-and-after data (and preferably repeated 'after' measurements) to measure any changes in outcome and compare an intervention site with a similar control area where there were no interventions (to control for other factors). The different types of research studies typically used to measure the effect of the built environment or public realm improvements on walking and other outcomes are shown in Box 2 below:

BOX 02

Typical types of research studies used to measure the effect of the built environment or public realm improvements

- **Cross-sectional studies** which compare built environment characteristics and walking/physical activity/health outcomes across different locations to find out if there are any positive or negative associations. These studies are unable to prove cause and effect.
- **Longitudinal studies** where the behaviour or attitudes of a group of people are observed over a period of time in response to a built environment intervention. Public realm interventions can be treated as natural experiments with comparisons made between outcomes in intervention and control areas (quasi-experimental design) or more simply by comparing outcomes before and after the intervention (non-experimental). Outcomes can be measured through population surveys, business and user surveys and/or observational data.
- Beyond individual studies evidence can be synthesised from multiple studies via **meta-analyses** (where the evidence can be statistically combined) or **systematic reviews**.

There are issues with some of the evidence, particularly cross-sectional studies which don't provide a causal link.

There are issues with some of the evidence in the published literature on the benefits of public realm schemes. Many of the published academic studies, particularly those on the health and community impacts of the built environment, are cross-sectional studies. For example, a study may examine the walkability of different neighbourhoods and compare with the travel behaviour of local residents to assess whether there is any correlation. However, such studies do not provide evidence of causality. For example, a study that finds more people walking in areas that have wider pavements does not necessarily mean that widening pavements will lead to more people w alking. Sometimes, there may be reverse causality. For example, it may be that people who like walking tend to move to areas which are more walkable. There are also possible confounding factors (e.g., socioeconomic status) which can lead to spurious associations (e.g., people on low incomes tend to live in areas that are less walkable but may not be less predisposed to walk). Another issue is the inconsistency in how walkability is measured, with many published studies neither comparable nor replicable.

Systematic reviews and meta-analyses may help to address some of these issues.

Systematic reviews and meta-analyses (see Box 2) which assess relevant studies for robustness and draw conclusions accordingly, may help to address some of these issues. Overall, while there is a growing body of strong evidence on the benefits of walking infrastructure and public realm improvements, there appears to be room for additional and better quality studies.

02

Most public realm interventions are too small to justify extensive evaluation, but some evaluation is better than none.

Given that most public realm interventions are not evaluated, decisions about whether interventions are worthwhile are generally based more on perception and politics than evidence. Given this, and the fact that few interventions are of sufficient scale to warrant or resource extensive and robust evaluation, the value of different evaluation methods is proportional not absolute. Weaker evaluation methods are likely to be better than no evaluation at all.

Issues with evaluation of public realm schemes

The issues and challenges in evaluating public realm schemes are addressed in a separate Evaluation Briefing.

Previous Pedestrian Pound reports have highlighted issues with the evaluation of public realm schemes and the difficulties of identifying a fully attributable, causal link between investment in the public realm and any related benefits (i.e. to what extent was any benefit seen due to the improvements made, all other things being equal?).

For this edition, a separate Evaluation Briefing has been produced which considers:

- **Appraisal methods** typically used in developing a business case for schemes before they are implemented (i.e. ex-ante).
- **Evaluation** methods typically used to quantify the impacts of schemes after they have been implemented (i.e. ex-post).

The aims of this briefing are to help local authorities and others gather better evidence, with signposting to relevant tools and methods, and identify opportunities to improve evaluation of public realm schemes. It provides examples of good practice and recommendations.

It should, perhaps, be noted that all transport evaluations suffer from providing the types of robust control studies common in fields like health, because, by definition, no place is exactly the same. Therefore, some of the challenges described above are not unique to walking, but represent a challenge within the transport discipline generally, particularly when aiming for cross-sector working with, for example, health organisations.

03

IMPACTS ON THE LOCAL ECONOMY

Photo credit: Shrewsbury Business Improvement District

03

This section presents updated evidence on the benefits of public realm improvements to the local economy.

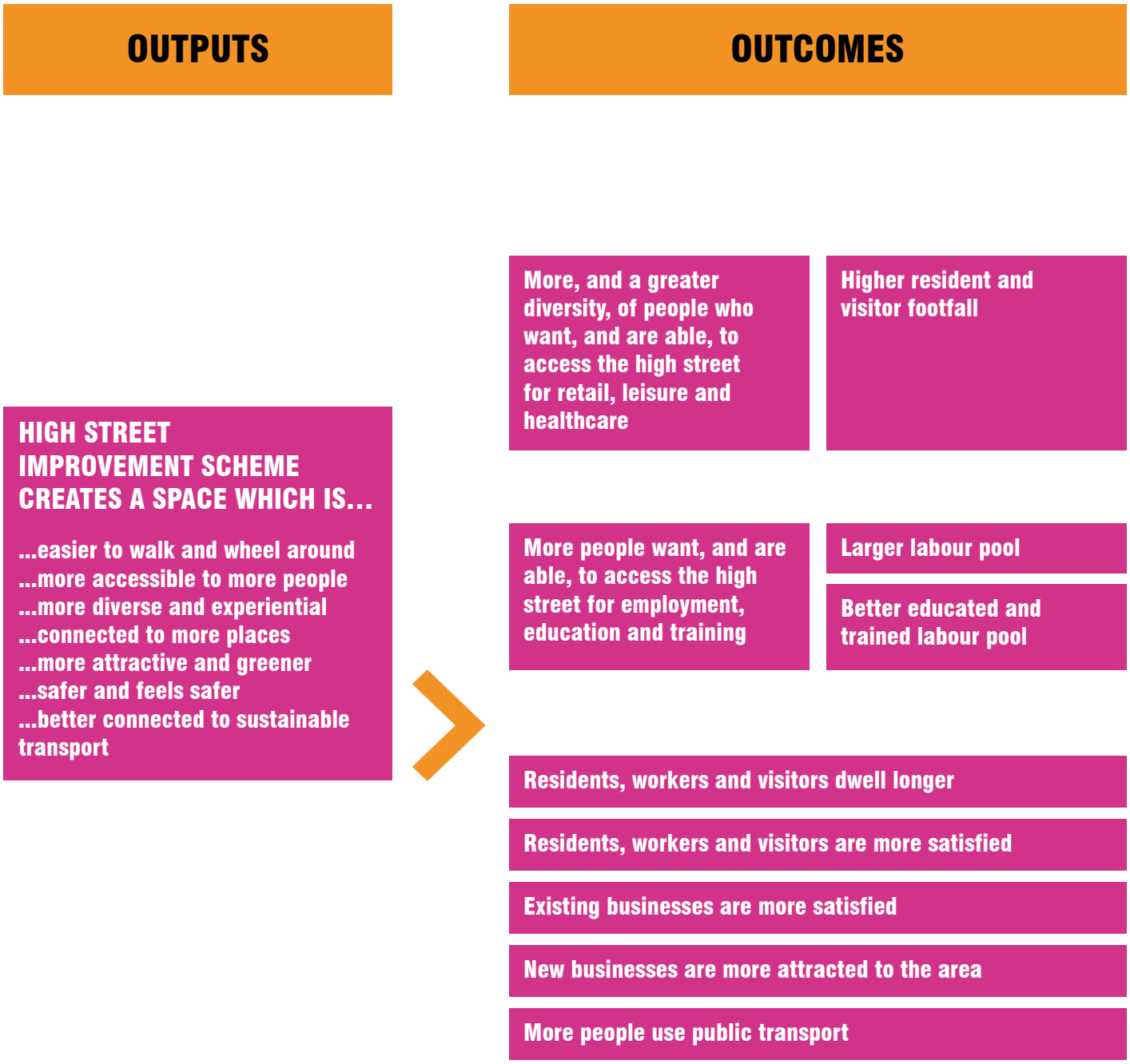
The logic map suggests that public realm improvements contribute to higher footfall, which overall supports a more productive local economy.

Previous editions of The Pedestrian Pound (Lawlor, 2013; Living Streets, 2018) have presented robust evidence stretching back more than 30 years that investment in more walkable high streets and places delivers quantifiable commercial returns which can benefit businesses, residents, developers and visitors. This section updates this work, to answer the question: 'what recent evidence is there that public realm improvements retain the commercial, civic and cultural importance of local centres and result in a more productive economy?'

As shown in Figure 1, a key outcome of public realm improvements is expected to be an increase in the number of people who want, and are able, to access the high street – leading to higher footfall. This in turn is expected to lead to a wide range of commercial and economic impacts which, in aggregate, support a more productive local economy. The evidence for this is discussed below.

Photo credit: Roberts Limbrick

FIGURE 1
Better Streets Economic Logic Map



IMPACTS

Increased customer spending*

Fewer vacant commercial properties

Higher land values/rental yields

Local people priced out of market

Greater capital investment

External decision-making

Higher new business start-up rates

Gentrified services don't meet local needs

Higher business survival rates

Consistent business rate yields*

Greater retained community wealth

Higher quality jobs

More optimal jobs density

Lower unemployment

Fewer benefit claimants*

Fewer missed healthcare appointments*

Lower absenteeism

Increased public transport revenue

Greater commercial viability*

MORE PRODUCTIVE LOCAL ECONOMY

03

Increased footfall

This sub-section examines the evidence on whether investment in the public realm results in more footfall and dwell time.

People and footfall are the lifeblood of high streets and town centres. By creating a more pleasant environment, people may come more often and spend more time in a space. Adding in new pedestrian links (often as simple as a new crossing or removing a barrier) might change walking patterns as well as increase connectivity, leading to higher footfall overall. The same applies if amenities are added in accessible, walkable locations. In both cases, there is a quantifiable increase in the number of places people can reach in a given walking distance/time. But such measures are not always universally welcomed, particularly by local businesses, who often fear that it may discourage customers if measures restrict car parking or access. This sub-section examines the most recent evidence (i.e., post 2018) on whether improvements to the public realm, particularly for walking and wheeling, result in more footfall and dwell time.

Studies demonstrate evidence of an increase in walking or pedestrian volumes in areas after improvements, compared to areas which have not received any upgrades.

There are a number of recent individual studies which demonstrate significant increases in pedestrian volumes or levels of walking in areas that have received public realm improvements. The most robust of these studies measure the increase relative to comparator areas without upgrades or conduct surveys, suggesting that the increase is attributable to the intervention. For example, public realm improvements (including removal of traffic lanes and parking spaces and the addition of new crossings, benches, lighting, greenery and trees) in Lisbon, Portugal, led to a statistically significant 18% increase in pedestrian volumes across two streets and a public square relative to streets without improvements where there was no change (Cambra and Moura, 2020).

Levels of walking almost doubled on five improved London high streets, compared to similar unimproved high streets.

There is evidence for London which shows a near doubling (94%) of walking and static activities (e.g., sitting on a bench or in a café) in five mixed-use high streets in inner and outer London following public realm improvements relative to similar streets which had not had any improvements (Carmona et al., 2018). The difference was highly significant and strongly associated with the street improvements. Similarly, people living near the 'mini-Holland' schemes in three outer London boroughs walked an average additional 40 minutes per week following implementation, compared to a control group (Aldred et al., 2024). Note that this was a measure of total weekly walking, but it is reasonable to assume that a high proportion of the additional walking occurred in the participants' local area. Traffic management following the closure of a residential street to through traffic in Hounslow, London, led to a 39% increase in people walking (Aldred and Croft, 2019). It was estimated around 30% of the additional trips were new trips rather than people diverting from other routes. Further details on the studies described in this paragraph are provided in Section 4.

BOX 03

Use of evaluation tools to estimate footfall and dwell time

Walking activity data can be collected through manual counts or automatic counts, with the combination of camera and AI technology now offering better options to monitor walking activity at fixed locations. Some of the international studies have used phone data to track citywide pedestrian movements (see Basu and Sevtsuk, 2022).

Where data is wanted not only on walking movement but other street activity such as standing and sitting, then street life observations can be carried out as per the example of street activity beat surveys carried out at ten streets in London by UCL researchers (Carmona et al., 2018). For more details see the Evaluation Briefing.

03

Features that have the most impact on walking are not consistent across all groups or types of neighbourhood.

There are a number of recent (mainly cross-sectional) studies that assess the specific features of the built environment that have the most impact on levels of walking. It is important to note that the relationships between built environment features and levels of walking are not necessarily consistent across all types of trips, socioeconomic groups, demographics or neighbourhood types (Curl et al., 2018; Elldér et al., 2022).

The availability of shops and amenities close to home, as well as street lighting and public transport, encourage more walking.

The availability of shops and amenities (e.g., pubs, cafes, health centres, banks) within walking distance, together with factors such as streetlighting and public transport, have been shown to be an important factor in encouraging walking in various studies. For example, one Swedish study estimated that 30-40% of residents chose to walk or cycle when there were 6-60 amenities in the neighbourhood, whilst the majority of residents walked or cycled instead of driving when there were more than 150 amenities in the neighbourhood. Findings were based on data from a national travel survey and a workplace database (Elldér et al., 2022). Although perceptions of the quantity and quality of amenities on offer are subjective, a large survey in an East Belfast neighbourhood also found that those who rated their area as having ‘good’ availability of shops and facilities in their neighbourhood walked more. They travelled on foot half an hour per week more, on average, than residents who rated their neighbourhood shop availability as poor or fair (Longo et al., 2015). These individual studies are backed up by a systematic review of the factors affecting transport-related physical activity in adults. This showed that more amenities within walking distance of home or on the way to work, more streetlighting, and a comprehensive public transport network can all help to encourage walking (or cycling) to work (Evans et al., 2022).

Other features which encourage more walking include street trees and greenery, wide pavements, clear signage, the amount of sky on view, street connectivity, and areas with good public transport.

Areas are also likely to be perceived as more attractive, comfortable or safer for walking if they include street trees and greenery. A large (broadly) representative survey of adults in Sydney, Australia, showed that people increase the ratings of actual and hypothetical walking routes when there are lots of trees, seats, wide pavements and clear signage (Douglas Economics, 2022). Several studies demonstrate that the amount of greenery people can see at street level is positively associated with an increase in walking and levels of satisfaction with walking (Lemieux et al., 2023). A systematic review of the impact of street trees on transport users in studies from 15 countries found the same positive association between the presence of trees and increased levels of walking (Eisenman et al., 2021).

US studies show that the relative importance of particular factors may vary between areas.

Analysis of pedestrian routes using phone tracking data from Boston, US, revealed that ground floor amenities, pavement width, the amount of sky on view alongside the presence of greenery had a statistically significant association with the distance people were willing to walk (Basu and Sevtsuk, 2022). Comparison with a previous similar study in San Francisco (Sevtsuk et al., 2021) found differences between the two cities, attributed to local climatic and cultural factors. For example, an increase in pavement width by around 3m (10ft) increased the distance people were willing to walk in San Francisco by almost 84m, but a more modest 13m in Boston. Traffic volumes and speeds in San Francisco were found to reduce the distance people were willing to walk by about 60m each (see Figure 2 below), though were not considered in Boston.

03

FIGURE 2

How various route characteristics affected the distance people were willing to walk in Boston and San Francisco (Basu and Sevtsuk, 2022)

However, international literature does identify consistent positive relationships between particular features of the built environment and levels of walking.

Although every place is different (e.g., by virtue of demographics, neighbourhood types, wealth, geographies and climate), international literature does appear to identify consistent relationships between built environment features and levels of walking. For example, a systematic review of the impacts of the built environment among adults with low socio-economic status in Canada found that street connectivity, greenness, destination density and walkability are all positively associated with physical activity (Christie et al., 2021). Similarly, analysis of city-wide pedestrian volume surveys in Seoul, Korea, showed that areas with high public transport ridership levels, wider streets and streets with pedestrian-only pavements are more likely to attract more pedestrians (Chung et al., 2023).

People are less willing to walk in areas with uneven pavements, busy traffic, crowded areas, litter and graffiti.

A study in Northern Ireland has shown that the more objectively 'walkable' an area is, the more time people spend walking, and that improvements in infrastructure lead to walking increases (Longo et al., 2015). Conversely, people are less willing to walk in less walkable areas. Survey evidence indicates that people reduce the ratings given to potential walking routes if they include uneven pavements, busy traffic, crowded areas, litter and graffiti (Douglas Economics, 2022).

Investing in more walkable areas may create a shift in transport modes more effectively than investing in better cycling infrastructure.

A study of commuters in Ireland found that they would be more willing to walk a short distance (2-4km) following improvements to pedestrian infrastructure than they would be to cycle or drive in response to changes to cycle or car infrastructure (Carroll et al., 2019). The study surveyed several hundred commuters in the Greater Dublin Area and found a statistically significant association between the walking infrastructure improvements (e.g., evenly surfaced widened footpaths separated from traffic) and the increase in walking utility, particularly for women and older people.

Overall, this evidence confirms that public realm improvements can increase footfall.

This sub-section has shown that high quality walking infrastructure and public realm can have a positive effect on footfall. The following sub-sections examine the evidence that this creates a range of quantifiable benefits for the local economy, such as better business performance and survival, consumer spending, business start-up rates, employment and productivity of an area.

03

Increased consumer spending and impacts on business

Does increased footfall lead to more consumer spending?

Investments in public realm that improve the walkability and attractiveness of an area make it more likely that people will wander around, linger and meet friends, thus transforming a utilitarian shopping trip into more of an experience. This sub-section examines the recent evidence that this leads to increased consumer spending and benefits existing businesses.

Studies from the US and Spain suggest a link between improvements to the built environment and improved business performance, such as higher sales, increases in new businesses and higher survival rates.

There are a number of robust individual studies. For example, the City of New York (US) examined the impacts of closing five city streets to traffic during the pandemic and found that sales for restaurants and bars on the pedestrianised 'Open Streets' corridors were 19% higher than pre-pandemic levels, compared to 29% below on nearby control corridors (New York City, 2022). The number of restaurants and bars on the Open Streets also grew by over 10%, while those on non-pedestrianised streets saw more than a 20% decrease. The programme was estimated to have saved over 100,000 jobs across the city. Retail sales can benefit from pedestrianisation too. Shops in pedestrianised areas in 14 cities across Spain were shown to have generated higher sales volumes compared to those in non-pedestrianised areas; differences were more pronounced in small and medium cities than in larger cities (Yoshimura et al., 2022).

Studies from Korea also suggest that attractive surroundings and increased accessibility draw in visitors and increase spending.

In Korea, the opening of the 6.3km long Gyeongui Line Forest Park in 2015 (previously an underused railway) in Seoul increased the attractiveness of the surrounding neighbourhoods. The total sales of adjacent local businesses increased as well, by a statistically significant 10-12% relative to businesses further away (Park and Kim, 2019). Businesses in the more disadvantaged neighbourhoods to the east of the park, which had been cut off prior to the park opening, benefitted more, with higher growth in sales than the already commercialised neighbourhoods to the west. In another study of a retail area in Seoul (Hahm et al., 2019) GPS data and surveys of shoppers revealed that areas with improved street design, safe from traffic, with more seating, information signs and other street amenities were more successful in attracting footfall. Shops on streets with large volumes of pedestrians had a higher chance of being visited, and a statistically significant increase in the total number of consumers who purchased products or services (when taking account of the wide variation in prices of different goods at different shops) (Hahm et al., 2019).

A UK study shows similar evidence of a strong positive relationship between footfall and retail sales for restaurants.

Phone data analysis replicates similar findings in the UK. One study, using mobile phone and sales data across a diverse range of urban centres in the UK, found a strong positive relationship between footfall and retail sales at 9 out of 11 fast food restaurants and 17 out of 23 family restaurants (Trasberg et al., 2021). However, the authors also suggested that other factors, such as the socioeconomic profile of an area, may be just as important as footfall for some retail types at some localities. Case studies developed for this report demonstrate how weekend pedestrianisation of town centre roads in Shrewsbury and reclaiming space for a pop-up market in Swansea attracted visitors and boosted trade (see Case Studies 1 and 2).

01 CASE STUDY

Pedestrianisation in Shrewsbury boosts retail sales

Weekend pedestrianisation of key town centre roads in Shrewsbury started during COVID-19 for social distancing but has carried on ever since, proving popular with local businesses and shoppers. A café culture and outdoor seating now add vibrancy to the town and disabled parking has been provided nearby. The Shrewsbury BID (Business Improvement District) and other partners provide complementary initiatives such as events and live music, town rangers who patrol the streets to discourage crime, town ambassadors who provide information to visitors, a painted town trail and street totems for wayfinding. Sales data from town centre businesses from before COVID-19 (2018-2019) and after the pedestrianisation (2022-2023) found that sales growth in the pedestrianised area was 25% higher than in the non-pedestrianised area. There has been sales growth in all retail sectors in the pedestrianised area, with the strongest growth in food and drink sales and on Sundays.

READ THE FULL CASE STUDY

03

02 CASE STUDY

Pop-up market in Swansea boosts trade and supports the community

Transforming a car-dominated side road into space for a monthly pop-up market in Uplands, Swansea, has provided a massive boost to trade for local producers, with up to 3,000 visitors on a good day. Started in 2013, the market is now financially self-sufficient, and the organisers have started a second and taken over a third market in Swansea. The market deliberately doesn't have a refreshment stand and some adjacent local businesses offer special market day deals, both of which support the vitality of local cafes and shops. As well as local produce, the market provides live music and poetry, and a meeting point for the community, with many local groups and charities having stalls when they want to engage local people, including the local Living Streets group. At least four local market traders have now set up their own shops or become suppliers to local businesses. Surveys found that 67% of visitors were specifically attracted by the markets, and a fifth of people also spent money in surrounding businesses. A large majority (77%) thought the market had given them a more positive view of the Uplands area. Anecdotally, many people originally attracted by the market now also shop in Uplands on non-market days.

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Findings from individual studies are corroborated by a systematic review of North American studies, which found that improving pedestrian infrastructure has a positive economic impact on adjacent retail and food businesses.

A systematic review of 23 high-quality studies (including pre: 2018 papers) from North America has quantified the impacts on local businesses of active travel infrastructure (Volker and Handy, 2021). It found that adding or improving pedestrian and cycling facilities, even when road capacity or parking is removed, generally has a statistically positive or non-significant economic impact on adjacent retail and food service businesses. This same review includes a study (indirectly cited in The Pedestrian Pound, 2018) which showed that pedestrians (and cyclists and people using public transport) surveyed in an area of Toronto were spending more per month in restaurants, bars and convenience stores than people who were arriving by car (Forkes and Smith, 2010). Another study in the Volker and Handy review, based on large surveys of customers in Portland, US, found that those on foot were spending more per month at bars than those driving (Clifton et al., 2013).

Business start-up rates and vacancy rates (or survival rates)

Public realm improvements can also attract new businesses and reduce vacancy rates.

Public realm improvements that increase footfall have, in some cases, been shown to attract new businesses and help reduce vacancy rates in high streets and town centres. A comprehensive review of the links between the quality of the built environment and economic benefits found 'remarkable confluence' in the data (Carmona, 2019). Collectively, the evidence showed that increased walkability and 'place quality' contributed to property uplift in the residential, retail and office sectors; reduced vacancies in the retail/office sectors; higher rates of return on investment; reduced public expenditure (e.g., building/maintenance costs for roads and maintenance/management of public realm); higher local tax take (due to new development); lower cost of living (through reduced car use and public transport costs) and higher productivity.

A pairwise comparison of five improved and unimproved streets in London showed a 17% drop in retail vacancies on improved streets.

A pairwise comparison of five improved and five unimproved streets across London (comparators chosen for high levels of similarity based on indicators such as median household income and employment rates) found a reduction in retail vacancies of 17% across five streets which had received improvements focused on improving pedestrian accessibility, relative to the five streets which had not had any improvements (Carmona et al., 2018). The analysis also showed an uplift in office and retail rental values equivalent to 4% and 7.5% respectively, per annum, but there was a negligible impact on residential values, countering concerns over gentrification (as explored further in a later sub-section and in Section 5). Outside London, Case Study 3 shows how improvements to the retail heart of Bognor Regis reduced the vacancy rate to below the national average.

03

03 CASE STUDY

Improvements to Bognor Regis retail area reduces vacancy rates

There is clear evidence that improvements to the core retail area of Bognor Regis, completed in 2016 at a total cost of around £2.3 million, resulted in a reduction in previously high retail vacancy rates to below the national average (from 13% to 7.5%), and an increase in footfall, visitor numbers and visitor spend on food and drink. The retail centre was largely pedestrianised, with more seating and space for outdoor dining. Events were put on including markets and live music, with some events attracting up to 20,000 visitors. New walking routes were provided to the seafront and the rail station, including widened and resurfaced pathways, new crossings, tree planting and the removal of street clutter. The rail station forecourt was transformed into a gateway to the town, which led to separate projects to refurbish the neglected station building and introduce new cafes and workspaces. Over 60% of the town centre properties made significant improvements to their frontages. Before-and-after surveys of traders and the public found strong satisfaction with the improvements. Seventy five percent of businesses agreed it looked and felt better and 77% that it made the town more pedestrian friendly; while 65% of residents and 88% of visitors agreed that the centre looked and felt better.

READ THE FULL CASE STUDY

Improving walkability is positively associated with restaurant survival rates in Korea.

A detailed Korean study found that certain street features, including proximity to subway stations, increased greenery and street openness (i.e., sky views) were positively associated with survival rates of restaurants in commercial areas in Seoul, Korea (Kim and Woo, 2023). The study focused on restaurants as they are one of the most common industries for start-ups but also have one of the highest closure rates.

Employment and productivity

Better walking connectivity can lead to more jobs and productivity through higher footfall, increased accessibility to jobs and agglomeration.

Most empirical evidence supports a positive association between productivity and transport infrastructure improvements (Zhou et al., 2022). For example, a Hong Kong study found that a 1% improvement in pedestrian connectivity was associated with increases in productivity of the four key service sectors (financial services; trading and logistics; tourism; and professional and producer services) which were four times higher than those resulting from road improvements, specifically an increase of 0.44% compared with increases in productivity of 0.41% for rail improvements and 0.11% for road improvements respectively (Zhou et al., 2022). There is evidence from international literature to show that better walking connectivity and pedestrian accessibility in town and city centres may to lead to new jobs and higher productivity because:

- Increased consumer footfall and business performance lead to a need for more staff in existing or new businesses and their supply chains.
- Freedom for people to find jobs or go to work without needing a car increases the pool of potential employees.
- More personal and business networking and sharing of ideas and knowledge can increase productivity through 'agglomeration', i.e., the clustering of businesses within close proximity.

'Complete Streets' projects in the US demonstrate increased employment and new businesses.

A US study which evaluated projects designed to enhance road safety and promote mobility for all users including walking and wheeling (so called 'Complete Streets' projects) found that the 11 projects which had economic data available reported higher employment after the project compared to similar areas which hadn't been improved (Smart Growth America, 2015). In six of the cases, there was an increase in new businesses. Four had higher retail sales and several had experienced an increase in inward investment.

03

Walkable cities in the US are positively associated with economic mobility.

American cities are famously designed around cars. However, income and travel data from nearly 9 million Americans were used to provide evidence of a statistically significant positive relationship between walkability of residential location and economic mobility (Oishi et al., 2019). The authors looked at the different mechanisms associating walkability with upward mobility, including increased access to jobs, improved physical health, academic achievement (with evidence that walking is associated with better achievement) and an improved sense of belonging (due to greater access to their towns and cities). They found the association between car ownership, employment and wages is significantly smaller in walkable cities than in less walkable cities. This suggests that, in walkable cities, economic success is less dependent on car ownership, which may be particularly important for low-income workers who cannot, or do not, drive.

In New Zealand, pedestrian connectivity has been shown to be positively and significantly associated with economic productivity of Auckland city centre.

Auckland Council's research and evaluation unit tested the relationship between pedestrian connectivity and business productivity in order to understand the value of walking to Auckland city centre's economy (Rohani and Lawrence, 2017). They found statistically significant positive associations between locations that are more walkable (measured by walking distance and travel time between jobs) and productivity. The analysis suggested that a 1% increase in the concentration of jobs within walking distance ('walking effective job density') was associated with a 0.53% increase in productivity, which, for the city centre study area, would be equivalent to increasing the value of Auckland's economy by NZ$42 million (around £20 million). By controlling for types of industry, the study found this relationship was still significant, suggesting a causal link and did not simply reflect that higher productivity industries choose to locate in more walkable areas.

Effect on retail, commercial and residential rents

Public realm improvements can increase both commercial and residential rents, estimates of which are often included as part of the business case.

By making a district, town or city centre more attractive for residents, visitors and local businesses, public realm improvements can result in increased property values and rent (which, in turn, potentially provide an indicator of the area's desirability). The Pedestrian Pound (2013, 2018) has previously presented a variety of evidence that improvements to the public realm and walkability can increase both commercial and residential rents, leading to higher returns for developers and investors. Estimates for these gains are regularly included in the business case for public realm projects, as part of the wider economic benefits of the scheme.

Rent and property price increases are proxies for other values.

It is important to note that rent and property price increases are not economic benefits in a traditional social welfare sense but are used as (inevitably imperfect) proxies for other values which are harder to measure or obtain, for example the value people place on certain attributes of a residential area, or retail sales data.

Retail rents are generally higher where stores have more exposure to pedestrians, are near to public transport, in attractive settings, or of high quality design. Office and retail rents are higher in areas that are more walkable.

While retail rents vary by location within a district, or even within the same building, there is evidence stretching back many years that the shops with more exposure to pedestrians (e.g., on street corners), on streets with good connections to other streets or public transport, in more pleasant settings, or with high quality design, tend to have higher rents (Hahm et al., 2019).

A scoping review found that studies consistently report that residential, office and retail properties are associated with higher property values when located in areas defined as walkable, compared to areas defined as not walkable (Kornas et al., 2017). A number of individual studies also demonstrate an increase in property values following public realm improvements. For example, the pairwise comparison of five improved and five unimproved streets in London discussed previously found an additional 4% uplift in office rental values and an additional 7.5% uplift in retail rental values following public realm improvements (Carmona et al., 2018). Another study showed that the uplift in property values resulting from successful public realm improvements in London is significant and generally exceeds the capital costs of the projects (Momentum Transport Consultancy, 2022). See Table 1 and Case Study 5 on Baker Street (in Section 4) for more information. Note the Bromley North Village Scheme is included in both the Carmona and Momentum studies.

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TABLE 1

Summary of economic costs and benefits of five public realm schemes in London (Momentum Transport Consultancy, 2022)

CASE (a)	CAPITAL COSTS (£m) (a)	ECONOMIC COSTS (£m) (a,b)	PROPERTY UPLIFT (£m)	BENEFITS (£m)	BENEFIT COST RATIO
Baker Street (2019 costs)	15.38	25.2	68-272	88.7-293 (c)	3.8-12.5
Jubilee Gardens (2012 costs)	5.5	9.67	11.9-47.5	12.2-47.8	1.3-4.9
Bromley North Village (2014 costs)	5.28	6.47	4.92-19.7	5.47-20.2	0.9-3.1
Pavilion Road (2019 costs)	Not known	Not known	12.8-51.1	7.2-55.5	-
Wealdstone Town Centre (2022 costs)	2.25	3.0	2.79-11.2	2.98-11.4	1.0-3.9

(a) Costs are not directly comparable due to different cost years

(b) Capital costs and maintenance costs over 10 years

(c) Included active travel and health benefits

Conversely, too much on-street parking within 100m walking distance reduces retail rents.

While public realm improvements that increase walkability can increase retail rents, there is also evidence that the reverse is true. A study which analysed the impacts of parking on retail performance in the city of Aachen in Germany before and after COVID-19 found that high levels of on-street parking within a 100m walking distance reduces retail rents, though parking within 100-500m increases it (Merten and Kuhnimhof, 2023). The study's authors suggest that on-street parking reduces the space for measures, such as outdoor dining, seating and greening, that encourage people to spend more time in an area. They recommend reducing on-street parking in city centres to make streets more attractive while concentrating stationary car traffic in multi-storey car parks within a reasonable walking distance.

Homes in walkable areas of the US sell for up to 45% more than similar properties in car-dependent areas.

The Pedestrian Pound reports (2013, 2018) reviewed a number of studies which indicated a positive impact of walkability on property values. A more recent study suggests that homes and commercial space in the most walkable neighbourhoods in the 35 largest US metropolitan regions sell for around 35-45% more than those in more car-dependent suburban locations (Rodriguez and Leinberger, 2023). These walkable urban areas account for 19% of all US real GDP despite accounting for only 1.2% of US land area. Another study, based on analysis of nearly 1 million homes sold in North America in 2019, found that homes within walking distance of schools, shopping, parks and other urban amenities sell for an average of 23.5% more than comparable properties that are car-dependent (Katz, 2020).

Proximity to urban parks resulted in a 4-6% uplift in property values in Brisbane, Australia.

Other overseas studies have identified specific street improvements which can affect property values. For example, an Australian study found that proximity to small or large urban parks in Brisbane resulted in a 4-6% uplift in property values (Bottero et al., 2022). A Korean study analysed the impacts of walkability (e.g., density and diversity) including more micro-scale features (e.g., trees, pavements, buildings) on the value of housing in Seoul (Woo et al., 2024). This found that pavements on streets were associated with higher housing prices in disadvantaged neighbourhoods, while street greenery and a sense of enclosure were positively associated with house prices in more advantaged areas.

Footpath tree cover near to people's homes can add a premium to property prices.

Another Australian study found that footpath tree cover within 100m of homes sold in Brisbane in 2010 added a premium to property prices, valued at a total of around US$15-16 million (around £12-13 million), controlling for other variables (Plant et al., 2017). This value was 13-15 times higher than the estimated costs of managing those street trees and the property taxes levied on the house sales. The authors found that houses with 50% or more footpath tree cover within 100m sold for 3.7% more than other houses, controlling for other variables. (The importance of shade and shelter in Brisbane partly reflects its year-round warm to hot weather).

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Gentrification from increasing rents and property values is examined in Section 5.

While increasing rents and property values from regeneration or improvements to the public realm undoubtedly provide economic benefits, there is the risk that this can lead to gentrification and displacement of existing businesses or residents who cannot afford the higher rents. The issue of gentrification is examined in Section 5 (community).

Consumer and business satisfaction

Attitude surveys show increased consumer and business satisfaction.

The way that consumers and local businesses perceive an area also play an important part in the value of public spaces (and their improvements), which can be quantified through surveys and other methods. Attitude surveys show that improvements to the public realm can increase the satisfaction rates reported by customers and local businesses.

95% of London BIDs agreed that a safe, attractive walking environment is good for business.

A survey of London's Business Improvement Districts (BIDs)[7] prior to COVID-19 found overwhelming agreement that walking, cycling and an appealing environment for spending time were all good for business performance (Transport for London, 2018). Specifically, the vast majority (95%) of BIDs surveyed identified a good walking environment as important to business performance, while nearly all (97.5%) rated areas that people want to spend time in as being important. The 'healthy street' indicators rated most highly by the BIDS as important for business performance included: safety (89%), ease of crossing the street (71%), things to see and do (61%), clean air (59%), places to stop (50%), people feel relaxed (50%) and people choose to walk, cycle and use public transport (50%) (ibid.). Case study 4 demonstrates how events that animate places (things to see and do) increases visitor satisfaction, alongside physical improvements.

7 partnership between the local authority and local businesses, funded by a levy on business ratepayers in the BID area, with the money raised ring-fenced for use in the area, including improvements to the public realm.

04 CASE STUDY

Local BID creates more vibrant town centre in Nairn, Scotland

Nairn Connects, a local BID in the market town of Nairn, Scotland, delivers events, shop-local initiatives and physical improvements to the public realm to create a more vibrant town centre. The events, including a three-day food and drink festival and classic car rally, attract thousands of people, a significant proportion of them new visitors. For one event, the majority (over 80%) of people surveyed said they would return to the town, even without a special event. The BID has helped create a more pleasant streetscape, providing increased signage; installing and maintaining planters and hanging baskets; deep cleaning pavements; fixing gates and painting passageways and shopfronts. They have worked closely with other stakeholders and secured an additional £200,000 in grants to fund specific projects such as an electricity supply to the high street for lights, stalls and music, as well as improved seating and pedestrian access.

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Street users and businesses surveyed after improvements to five streets in London regard the changes very positively.

Street users and businesses surveyed in the pairwise comparison of five London streets agreed that the street improvements significantly enhanced street character, walkability, ease of crossing, opportunities for sitting and general street vibrancy (Carmona et al., 2018). Respondents who could remember the street before the improvement 'overwhelmingly' perceived the streets as better and more walkable. Interestingly, it was the degree of change rather than the absolute level of street quality that seemed more important in terms of people's positive perceptions.

Businesses, particularly restaurants and entertainment venues, can value improved public spaces even when they don't affect their bottom line.

A study which looked at the impact of pedestrianising streets in cities across the US during COVID-19, found that businesses near to pedestrian streets were more supportive of them than other businesses (Andersen et al 2023). Of the small sample of businesses interviewed, 58%, were in favour of more permanent or frequent street closures (in particular, restaurants and entertainment venues). This is despite the fact that pedestrianisation at this time had a negligible effect on their business revenue. The researchers suggested that business owners supported the interventions because they appreciated the improved public space.

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Around 70% of passers-by were satisfied with the pedestrianisation of two areas of Madrid. Nearly half of the pedestrians reported walking more often as a result.

A large survey of passers-by in two recently pedestrianised areas of Madrid, Spain, found very high satisfaction rates amongst those surveyed, with around 70% stating they were quite or very satisfied with the schemes (Brownrigg-Gleeson et al., 2023). Nearly half (46%) of respondents in both areas combined stated that they were walking more often than before (and using their car less often), with only 5% reporting that they were walking less often. While structured interviews with a small sample of businesses showed that businesses were less positive than pedestrians, more businesses in both districts reported the schemes were positive rather than negative and that they would increase the volume of business rather than decrease it. The surveys and interviews were conducted during the construction phase, when opposition was likely to be highest.

As previous editions of The Pedestrian Pound reports have shown, business owners often overestimate the proportion of customers who come by car.

The Pedestrian Pound reports (2013, 2018) have previously highlighted how there is often a mismatch between business owners' perceptions of how customers travel to their businesses and the reported mode of travel by customers. For example, surveys of business owners, customers and local residents within walking distance of a Los Angeles commercial district found that business owners underestimate the proportion of customers using active travel by a factor of three (Toker and Palasani-Minassians, 2018). Of the 100 customers surveyed, 40% reported coming on foot or bike. By contrast, 99 business owners (randomly selected out of 165) perceived that only 13% of their customers walked or cycled. The majority (78%) of business owners surveyed identified a lack of vehicle parking as a priority, in contrast to their customers who identified a need for bike parking (29%), wider pavements (15%) and bike lanes (24%).

These findings are also supported by recent evidence from France and Germany.

A survey of local businesses in Nancy, a small city in France, revealed their assumption that 11% of customers came on foot and 77% by car, when actually 39% came on foot and 35% by car (SCALEN, 2021). In a large survey of business owners and shoppers on two shopping streets in Berlin, Germany, retailers assumed that 46% of people came on foot and 22% people came by car, whereas, in reality, 54% of shoppers arrived on foot and only 7% by car (von Schneidemesser, and Betzien, 2021). Potential customers also lived closer to their shopping destinations than business owners thought.

Value for money of public realm and active travel schemes

Public realm improvements are generally good value for money, with four schemes in London having benefit cost ratios (BCRs) ranging from 0.9 to 12.5.

The decision to invest in public realm improvements often depends on the estimated value for money of the scheme and the balance between the (monetised) benefits and costs, known as the benefit cost ratio (BCR). Public realm schemes generally represent good value for money, though the benefits may accrue to different groups (e.g., the real estate sector) or wider society (e.g., in the case of health benefits). Where a scheme results in an increase in active travel, the health outcomes often represent the largest benefits. For example, Table 1 (given previously) shows that the BCR for four public realm improvements schemes ranged from 0.9 to 12.5, with the higher value being for the scheme which included an estimated value for the active travel and health benefits.

Walking and cycling interventions also show good value for money, with positive ratios of benefits to costs in the majority of studies.

Investment in walking (and cycling) interventions generally show very good value for money, largely due to the positive health benefits. For example, an analysis of data from walking and cycling routes in 84 locations across the UK (the Connect2 programme) found that the median BCR was 3.7 (range 0.3-44) for 77 schemes which represents high value for money (Le Gouais et al., 2021). The schemes with the higher BCRs (at least 4) were those with a higher baseline of users, lower scheme costs or with a public transport interchange within 0.5 miles (ibid.). A 2016 systematic review of walking and cycling infrastructure interventions reported BCRs ranging between −39 to 59, with positive ratios reported by 26 of the 32 studies included (Brown et al., 2016). However, the review found issues with the quality of the evaluations and noted that, because transport interventions are highly context specific, the results may not necessarily be generalised to other schemes.

Whilst cost-benefit analyses of walking schemes generally show positive returns, there may also be additional benefits that aren't captured.

A subsequent systematic review of large-scale active travel infrastructure implementations found that, despite a lot of variances, all studies showed a positive return on investment (Bland et al., 2024). The health benefits accounted for the majority (77% on average) of total benefits, although comparability was limited by the inconsistencies in whether, and how, some of the different costs and benefits were accounted for. This led the authors to question the ability of cost benefit analysis to fully reflect the complexity of active travel scheme benefits (e.g., amenity value) and to recommend that, although a useful tool, it should not be used in isolation, since many schemes have wider benefits that are not captured by the BCRs used.

04

HEALTH AND WELLBEING

This section examines the evidence that making streets more walkable leads to healthier and happier people.

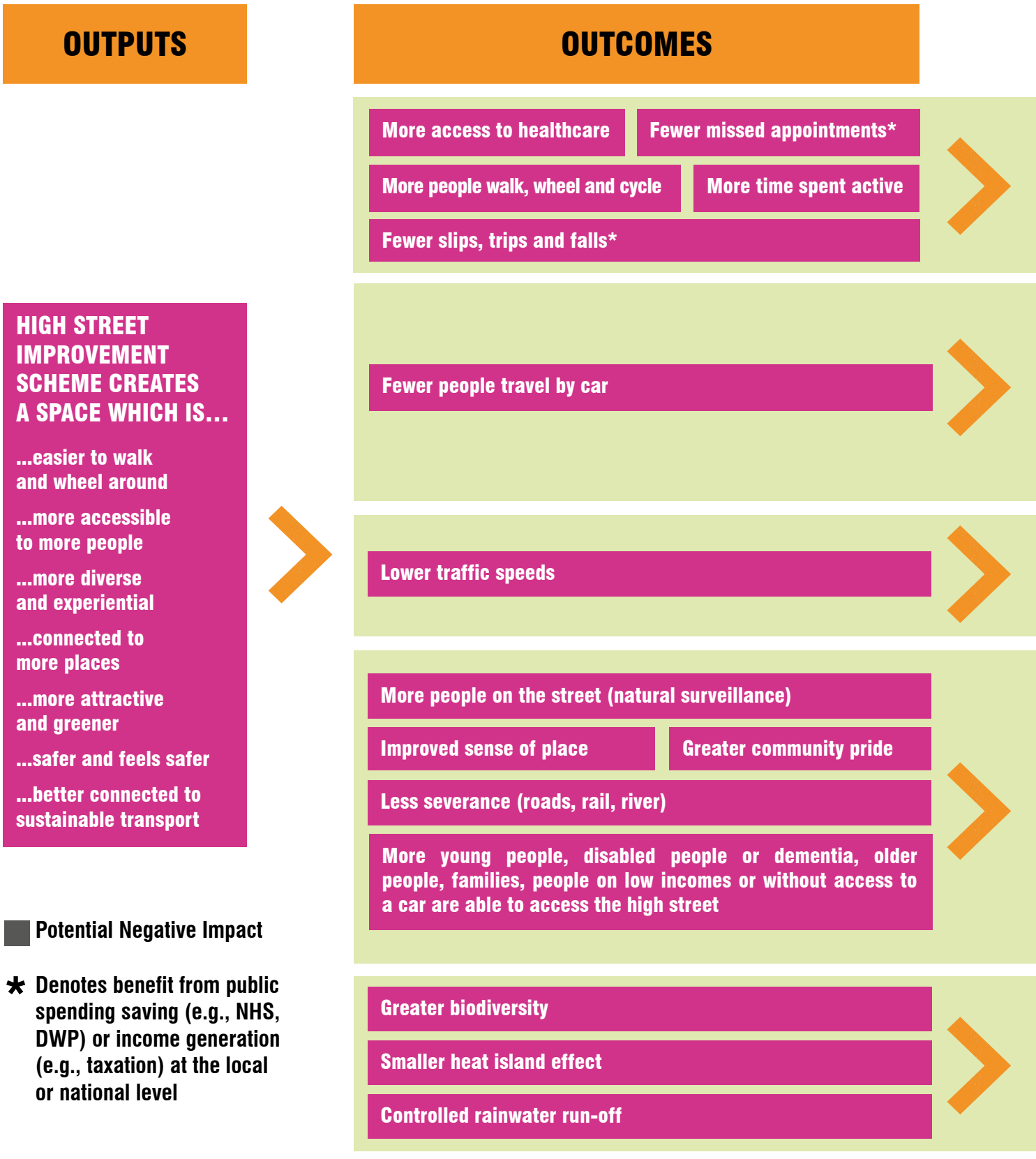
This section explores the links between public realm improvements and the built environment with physical activity and health benefits. It presents evidence to answer the research question: 'What recent evidence is there that public realm improvements result in healthier and happier people?'

Designing streets to make a healthy environment for everyone is not only effective but also an equitable way for people to stay physically active - because walking (and wheeling) is free, open to everyone, requires minimal fitness and is easy to build into a daily routine. The evidence to support the health benefits of regular physical activity for all groups is compelling (UK Chief Medical Officers, 2019).

The logic map in Figure 3 suggests that a key outcome of a high street improvement scheme is that more people walk or wheel (and fewer people travel by car). This in turn leads to better physical and mental health, better air quality, less noise, and fewer collisions with traffic, which, in aggregate, support healthier and happier people. The evidence for these outcomes and impacts is discussed below.

04

FIGURE 3
Better Streets Wider Benefits Logic Map



IMPACTS

- Improved physical health (especially obesity, CHD, diabetes, cancer, dementia)
- Improved mental health*

- Better air quality*
- Less noise pollution
- Fewer CO_2 emissions*
- Less congestion
- Induced traffic

- Fewer road collisions*
- Better perceptions of public safety

- Less antisocial behaviour, vandalism, graffiti*
- Lower crime rates*
- Better perceptions of public safety
- More social interaction
- Less isolation and loneliness
- Greater equality
- Improved community cohesion
- Greater community empowerment and participation

- Lower impact weather events*

→ HAPPIER AND HEALTHIER PEOPLE

→ STRONGER LOCAL COMMUNITY

→ MORE RESILIENT LOCAL ENVIRONMENT

04

Physical health and wellbeing

Nearly a quarter of UK adults and over half of children should be more physically active.

The UK has a health and inactivity crisis. Nearly a quarter of adults and over half of children and young people are doing less than the recommended amount of physical activity, with those from the least affluent areas and families least likely to be active (Sport England, 2023 and 2024). This lack of physical activity has numerous health consequences, for example increasing the risk of obesity, and related diseases such as diabetes or coronary heart disease. Around a quarter of adults (26%) and children aged 10-11 (23%) in Britain are obese (Baker 2023).

There is strong evidence that creating streets to support walking and wheeling can increase people's physical activity.

Walking and wheeling are ideal ways to reach the recommended levels of physical activity to stay healthy. There is growing evidence from a number of systematic reviews that designing streets to support walking and wheeling can result in more physical activity. Findings include clear associations between the walkability of built environments and physical activity in children and adults (Smith et al., 2017). Interventions to increase physical activity, such as providing physical space or programmes in streets, parks, neighbourhoods or cities, increase physical activity (Hernandez et al., 2023). A review of which transport policies increase physical activity found that pedestrian infrastructure and pedestrian friendly urban design can have a statistically significant effect on increasing physical activity (Zukowska et al., 2022). However, reviews note that there are some methodological limitations with studies, as few control for confounding factors (Smith et al., 2017), there is a lack of longitudinal studies (Evans et al., 2022) and also a risk of bias in some of the studies (Hernandez et al., 2023).

People with the highest levels of perceived community severance are more likely to report poor health.

Community severance or the 'separation of people from goods, services, and each other by busy roads or other transport infrastructure' is not just limited to people living on busy roads but can impact surrounding areas (Higgsmith et al., 2022). It discourages walking, particularly by older people, children and those with limited mobility. One large UK survey found that people who had the highest levels of perceived community severance had a higher chance of reporting poor health, after controlling for confounding factors (ibid.).

> **If physical activity were a drug, we would refer to it as a miracle cure, due to the great many illnesses it can prevent and help treat.**
>
> **(UK CHIEF MEDICAL OFFICERS, 2019)**

04

Although evidence on the health benefits of walking is robust, there are some issues with the evidence linking changes in the built environment directly to health outcomes.

There is robust evidence that walking is associated with a range of health benefits ranging from reduced risk of all-cause mortality, heart disease, certain cancers and diabetes (Laird et al., 2018). Systematic reviews are more tentative in saying that improving the public realm can increase people's physical activity and benefit public health (McGowan et al., 2021). However, there is evidence from health impact assessments that elements of the urban built environment that facilitate more walking result in beneficial health impacts (Westenhofer et al., 2023); and that walking-related mobility is associated with significantly lower health care costs (Wohlrab et al., 2022).

Walkability is positively associated with children's health, while busy roads are associated with negative impacts on children's health.

There is evidence to show that children's health can benefit from improvements to the public realm. Walkability, pedestrian infrastructure, availability of open space and safety from traffic and crime are all positively associated with children's health (Ortegon-Sanchez et al., 2021). Conversely motorised traffic and busy roads were most frequently associated with negative impacts on children's health (ibid.). One large scale population study in Canada found a statistically robust longitudinal association between low neighbourhood walkability and an increased risk of incident and ongoing asthma in children (Simons et al., 2018).

Public realm interventions can potentially reduce health inequalities.

Relatively few studies consider the health impacts of interventions on different groups or populations, which makes it difficult to evaluate the effect on inequalities (Smith et al., 2017; McGowan et al., 2021; Westenhofer et al., 2023). While one umbrella review found that some public realm interventions can disproportionately affect people living close by, there is also evidence that by impacting whole populations and requiring minimal individual lifestyle change, public realm improvements can be effective in reducing health inequalities (McGowan et al., 2021).

The physical activity benefits of walking have been estimated to be worth over £16 billion a year for 18 UK cities, and over £600 million for walking to work in Scotland.

The significant economic benefits of active travel on health have been quantified in numerous studies. Sustrans' Walking and Cycling Index showed that, in 2023, across 18 UK cities, the physical activity benefits of walking prevented 4,444 early deaths annually, which was valued at £16.1 billion per year, and over 17,000 serious long term health conditions, saving the NHS £213.6 million per year (Sustrans, 2024). Another study estimated that in Scotland, the number of deaths averted by walking to work was worth over 700 million Euros (around £600 million) a year, even before the value of reduced illness was included (Baker et al., 2021).

The monetised health benefits from public realm improvements can be significant - up to 50 times the costs of the scheme.

The monetised health benefits of new walking (and cycling) trips resulting from streetscape interventions can be significant and often exceed the costs of the scheme. For example, the health economic benefit from increased walking and cycling trips following closure of a residential street to through traffic in Hounslow, London, was estimated at approximately £500,000 over 20 years, fifty times higher than the cost of the scheme (around £10,000) (Aldred and Croft, 2019). The study used before and after count data to estimate a 39% uplift in people walking, with 30% of the additional trips estimated to be new trips. The Active Modes Appraisal Toolkit (AMAT) was used to estimate over £20m a year in health benefits from reducing traffic dominance and speeds on Baker Street, London, see Case Study 5 below and Box 4 later in this section.

Extra walking and cycling trips from pedestrian and cycling infrastructure and traffic calming in three London boroughs has been valued at over £1 billion over 20 years.

Although there is a lack of longitudinal studies, one such study investigated the impacts of a comprehensive package of active travel infrastructure and traffic calming in three outer London boroughs. It estimated that the additional walking and cycling trips will generate health economic benefits of £821 million from physical activity and £235 million from reduced sickness absence over a 20-year period (2017-2037) (Aldred et al., 2024). These benefits are more than ten times the original £100 million cost of the programme based on additional walking of nearly 40 minutes a week for people living near to the schemes in the three boroughs.

04

05 CASE STUDY

Reducing traffic dominance and traffic speeds in Baker Street, London, makes a more pleasant and healthy space for pedestrians

A traffic management and public realm scheme has improved over 2km of Marylebone's streetscape – creating 1,600m2 of new pedestrian space. The focus has been to provide slower two-way traffic on the parallel streets of Baker Street and Gloucester Place, which reduces traffic on the connecting streets and vehicle turning movements. Pavements along Baker Street and Gloucester Place have been widened and 50 pedestrian crossings have been added or upgraded, along with new trees, improved street lighting and the removal of street clutter. Provision for disabled users has been made throughout, with dropped kerbs and tactile paving. Before and after traffic surveys showed that there has been a 25-30% average drop in vehicle speeds. As a result of the improvements, it is estimated that there are about 5,870 additional pedestrian trips in the area each day, as well as about 53 extra cycling trips – which equate to £20.2m per year in active travel and health impacts (using the Active Mode Appraisal Toolkit – see Box 4). There was also an estimated uplift in property values (see Section 3). Overall, the scheme has generated an estimated BCR of 3.8 (very good value for money).

READ THE FULL CASE STUDY

Studies have estimated significant monetised health benefits resulting from new urban parks.

Other studies have sought to estimate the monetised health benefits of new urban parks and found significant benefits. For example, a new riverside park and greenway in East Belfast, which improved the area's walkability and people's perception of the availability of shops and facilities, increased walking by residents by more than half an hour (36 minutes) per week on average, which was valued at £13.65/person/week (Longo et al., 2015). However, this largely benefitted people who were already active, and the authors concluded that additional interventions are needed for the 13% of the population who are inactive. Another study estimated that regeneration of an inaccessible industrial area into an urban riverside park in Barcelona led to an annual reduction in death and illness equivalent to an annual health impact of around 23.4 million Euros (around £20 million) (Vert et al., 2019).

BOX 04

Use of evaluation tools to estimate the financial value of health

Tools such as HEAT (Health Economic Assessment Tool) and AMAT (Active Mode Appraisal Toolkit) are user-friendly, standardised metrics to estimate the financial value of health benefits of active travel. HEAT uses a value of a statistical life to monetise the number of deaths per year prevented by active travel participation. AMAT has a physical activity component which is recommended for use in the UK and includes UK-specific age and gender profiles for calculation of the health benefits. For more details see the Evaluation Briefing.

There is strong evidence that increasing the access and availability of green and blue spaces can have positive benefits for a wide range of health outcomes – with promotion making them much more effective.

There is strong evidence that increasing the access and availability of green and blue spaces can have positive benefits for health. One systematic review of community infrastructure to boost social relations and community wellbeing found strong evidence of improvements in social networks and individual wellbeing, particularly physical activity, from access to green and blue spaces as well as empowerment, skills and knowledge (Bagnall et al., 2023). A systematic review and meta-analysis of the health impacts of green spaces found evidence that exposure to green space is associated with a wide range of positive health outcomes (Twohigg-Bennett and Jones, 2018). These included reduced blood pressure, heart rate, incidence of stroke and diabetes, cardiovascular and all-cause mortality, cholesterol and improved pregnancy outcomes. An evidence synthesis found strong evidence that combining physical improvements to urban green space with promotion/marketing has positive impacts on health, compared with interventions without any promotion which show much less, or no significant effect (Hunter et al., 2019).

Temporary public realm improvements can also be positive for health for the duration of the intervention.

There is evidence that temporary public realm interventions can also be positive for health. A systematic review of street level-built environment interventions on children's health found that temporary interventions (e.g., closure of streets to traffic) can result in increases in play, physical activity and social connections for children for the duration of the intervention, though some studies are limited by the lack of robust study design (Ortegon-Sanchez et al., 2022). A study of improvements to a public space in central Manchester used thousands of observations to show that temporary, low cost, community-led interventions (e.g., exhibitions, artwork, additional greening, free wifi, seating and general cleaning) substantially increased the odds of people engaging with or remaining in the renewed space, and increased the number of wellbeing activities (e.g., talking, being active or watching wildlife) compared to a very similar control space (Anderson et al., 2017).

The evidence on health benefits from reducing the impacts of extreme heat events are discussed in Section 6.

04

Mental health and wellbeing

A growing number of UK adults and children have mental health conditions, a situation which was exacerbated by COVID-19.

The nation's mental health has deteriorated over time. An estimated 1 in 6 adults in Britain experienced a 'common mental disorder' like depression or anxiety in the previous week in 2022, while around 18% of children aged seven to 16 had a probable mental health condition, up from 12% in 2017, not least due to COVID-19 (Baker and Kirk-Wade, 2023). More worrying still, almost a third of children aged ten to 17 surveyed in Britain in 2023 were unhappy with their lives and 10% had low wellbeing (The Children's Society, 2023).

Public realm improvements can benefit mental health directly, or indirectly.

Improvements to the built environment and urban green space are postulated to result in positive impacts to mental health and wellbeing through:

- Synergistic effects of an increase in physical activity as well as increases in social activity and interaction (Wood et al., 2017; Callaghan et al., 2021; Chen et al., 2021).
- Direct restorative effects of being in urban green spaces through connection to nature and reduced noise and visual stimulation (Chen et al., 2021). Urban green space may also benefit physical health through exposure to sunlight and beneficial microorganisms (Twohigg-Bennett and Jones, 2018).

There is robust evidence that physical activity and walking can benefit mental health.

There is robust evidence stretching back many years linking physical activity with better mental health (Singh et al., 2023). A scoping review found consistent evidence that walking can help to prevent depression and anxiety, and there are added benefits from walking outdoors in a natural environment (Kelly et al., 2018). While there is more evidence on the reduction in negative outcomes (such as depression) rather than the positive outcomes from walking, one longitudinal study reviewed showed a positive relationship between walking and psychological wellbeing (ibid.). There is also evidence that walking, for commuting can also benefit health and wellbeing. A longitudinal study, based on a large sample of commuters in England, found evidence that walking to work is associated with higher levels of satisfaction with leisure time availability and lower levels of strain, compared to those who drove to work (Clark et al., 2020).

Independent mobility has multiple benefits for children's health and wellbeing.

The multiple benefits of independent and active travel on children's health, wellbeing, and cognitive development are also well evidenced. A systematic review of the benefits of children's independent mobility (i.e., independent time outdoors) found that this is crucial for child and adolescent development (Ferreira et al., 2024). There is strong evidence of an association between children's independent mobility and their cognitive development, specifically spatial knowledge of their neighbourhoods and the ability to think and learn about their surroundings (ibid.). Having the freedom to walk to friend's houses, to the park, to school or to the shops also creates opportunities for physical activity and children with higher independent mobility are typically more physically active (Pearce et al., 2014). It also helps children and adolescents build relationships with others beyond their immediate family and develop a sense of community and place attachment (Prezza et al., 2001; Prezza and Pacilli, 2007). Children's independent mobility is consistently associated with the promotion of social interactions, supporting the development of social skills and networks (Ferreira et al., 2024). Proximity to schools, parks or friends' homes, good quality green spaces, the existence of walking infrastructure and traffic calming can all facilitate independent mobility in children and adolescents (ibid.).

There is evidence that improving walkability can increase happiness.

There is evidence from several countries that improving walkability can increase happiness. For example, a large survey across five European countries found that people who live in neighbourhoods which are perceived to be safer, easier to walk in (e.g., slower traffic) and with more green space, are likely to be happier (Hart et al., 2018). However, the study found negative associations between objective measures of traffic safety and ease of walking and happiness. The authors suggested this may be because objective safety measures, such as pedestrian crossings, may be required due to heavy traffic. While they make it easier to walk or cross the road, they don't remove the heavy traffic itself. Another study found that the walkability of neighbourhoods in Dublin and its suburbs is directly linked to the happiness of adults aged 36-45, and, to a lesser extent, of younger adults aged 18-35 (Leyden et al., 2023). For older adults (aged 46+) there was no direct link with happiness, but there were indirect effects through better health and trust in others. The study controlled for other aspects of the environment (e.g., access to parks), perceptions of crime and social connections, as well as individual factors that affect happiness (e.g., income and relationships).

04

Green space is associated with positive mental health and wellbeing in adolescents.

It is difficult to extrapolate findings of associations from studies on children or older adults to young people because the impacts of the physical and social environment on health varies across ages (Shareck et al., 2023). Studies specifically on young people have found that green space (but not blue space) was significantly associated with positive mental health and wellbeing in 15–30-year-olds (Fleckney and Bentley 2021); and a positive but not always significant association between green space and wellbeing in 10–19-year-olds (Zhang et al., 2020).

Urban green space is also positively associated with mental health in adults.

Systematic reviews consistently find associations between mental health and the amount of urban green space (van den Berg et al., 2015, Gong et al. 2016, Callaghan et al., 2021, Fleckney and Bentley, 2021). Numerous studies also show the benefits to mental health of spending time in green and blue spaces (Wood et al., 2017, Callaghan et al., 2021, Chen et al., 2021, White et al., 2021). For example, one study used surveys from 18 countries to examine associations between green and blue spaces and mental health (White et al., 2021). It found that the frequency of visits was positively associated with improved wellbeing (measured by a World Health Organization index) and negatively associated with the likelihood of mental distress.

The frequency of visits to green spaces was also negatively associated with the use of medication for depression and anxiety. Social activities alongside proximity to natural places boost mental health too. Organised walks in a new riverside park and greenway in East Belfast were found to be positively associated with the mental wellbeing of local residents (Wang et al., 2023). The authors suggested that the mental health benefits might be partly due to a direct restorative effect on residents and partly due to the indirect effects of an increase in physical activity.

The quantity of green space matters; the more the better.

A large longitudinal study examined the impacts of green space on mental health of the residents of Sydney, Wollongong and Newcastle, Australia (Astell-Burt and Feng, 2019). The authors found that 30% or more green space within 1.6km from home was associated with a lower risk of psychological distress, and 30% or more tree canopy was associated with better self-reported general health relative to areas with less than 10% of green space or tree canopy. The study controlled for age, sex, income, economic status, couple status and educational level. Another longitudinal Australian study found that the size and number of parks within 1.6km of new housing developments were positively associated with residents' mental health (Wood et al., 2017). There was a greater effect for regional and district parks rather than pocket parks, showing that the quantity of green space matters. There was also evidence that just passing through a park has restorative effects.

However, some of the studies linking mental health to green space or the built environment suffer from limitations.

A weakness of the evidence base is that it often relies on associations (e.g., people with better mental health may spend more time in urban green spaces) rather than establishing a causal link (i.e. the green spaces directly contribute to better mental health) (Callaghan et al., 2021; Moore et al., 2021, Fleckney and Bentley, 2021). A systematic review, of changes to the built environment on the mental health and well-being of adults, which focused on randomised controlled trials and controlled before-and-after studies only, found little or no evidence of an effect on mental health from studies on urban regeneration and improving green infrastructure (Moore et al., 2021).

The authors suggested that this lack of evidence may be because "the contextual backgrounds against which the outcomes are measured are too nuanced and complex". They also noted that achieving mental health outcomes is not the primary focus of most interventions and that measurable changes may take time. One systematic review of the relationship between active commuting and depression among adults found that, while some studies showed that there was a negative association between the two (i.e., walking can reduce the likelihood of depression), in other studies there was no association. The authors suggested further studies were needed (Marques et al., 2020). Another recent review has also highlighted the many methodological challenges with assessing the link between mental health and green space but did conclude that the availability, security and access to urban green space is important, and there is a particular need to take account of special groups such as disabled and older people, and children. (Chen et al., 2021).

Monetising mental health benefits is rare, but one estimate for Barcelona suggests health savings of over £38 million a year from greening its streets.

Few studies have attempted to monetise the mental health benefits of public realm improvements. In a rare example, a health impact assessment of plans to green one-third of residential streets across Barcelona estimated mental health cost savings equivalent to 45 million Euros a year (around £38 million/y) (Vidal Yañez et al., 2023). The study estimated that the increase in urban green space would prevent over 30,000 cases of self-reported poor mental health; nearly 7,000 visits to mental health specialists; over 13,000 cases of antidepressant use; and over 9,000 cases of tranquilliser use per year.

04

Safety

People walking and wheeling are at serious risk from traffic.

People walking and wheeling are among the most vulnerable road users and are at serious risk from traffic. In Britain, between 2004 and 2022, an average of eight pedestrians a week died and 109 were seriously injured in reported road collisions (Department for Transport, 2023c). Pedestrians represented over a fifth of all road deaths in Britain in 2022, and nearly 6,300 pedestrians were killed or seriously injured (ibid.).

Children, who live in more economically deprived areas are at much greater risk from road traffic than those in more affluent areas.

Groups who live in disadvantaged communities of the UK are disproportionately impacted by poor quality and unsafe built environments. For example, pedestrians with a household income of less than £25,000 have over twice the risk of being injured by a car than higher income pedestrians, with an even bigger gap for disabled pedestrians (Aldred, 2018). In the five years to 2022, over 6,600 children (16 or under) were killed or seriously injured as pedestrians (Department for Transport, 2024). Children aged 5 to 9 who live in the 20% most deprived areas were six times at greater risk than those in the 20% least deprived areas, and the increased risk of injury is a gradient which increases with deprivation (Public Health England and RoSPA, 2018).

Public realm improvements can improve people's safety and perceptions of safety.

People want to feel safe and secure when they walk in public spaces. Many public realm improvements are therefore designed to improve road users' safety and perceptions of safety. For example, measures can include reducing potential conflicts between traffic and pedestrians, lowering traffic speeds, removing trip hazards, and improving lighting and the ease of crossing roads. These solutions do not just apply to urban areas, as many rural areas have poor or non-existent pavements, higher traffic speeds and poor lighting. They are also relevant to district centres as well, as shown by Case Study 6 below, where improvements that prioritise people rather than vehicles were introduced in a local centre in Leicester.

06 CASE STUDY

Creating a local centre that works for people rather than vehicles in Braunstone Gate, Leicester

Braunstone Gate, a high street in a popular neighbourhood of Leicester, was re-engineered in 2022 to reduce traffic flow, keep buses moving and make it safer for pedestrians. A Healthy Streets audit was used to develop design concepts which were re-tested against the Healthy Streets indicators. Options were shared with local residents and businesses. Improvements included redesigning a junction to prevent rat-running and prioritise buses and cycles, repurposing a slip road to create a new paved area with trees and space for outdoor dining, widening and resurfacing pavements, removing some parking and providing new seating and more informal pedestrian crossing points. Planters and tree pits were used to prevent the roots of newly planted trees raising the pavement in future. Bus passengers have already seen the average journey times through the area reduce by 1-4 minutes during peak times. Based on the success of the scheme, the local council is now hoping to roll out similar schemes in other neighbourhoods.

READ THE FULL CASE STUDY

Public realm improvements can reduce the risk of road collisions.

Various studies show the safety benefits that can result from improving conditions for pedestrians. For example, a study of public realm improvements to five high streets in London (which involved multiple measures including pavement widening, improved pedestrian crossings, new street furniture and better lighting) found that there was a reduction in serious or fatal crashes on two of the streets with higher pre-existing levels of collisions, equivalent to a reduction of about two collisions per year each (Carmona et al., 2018). The results were inconclusive on the other three streets either due to very low levels of serious collisions or poor/inconsistent data (ibid.). Interestingly, street trees have been associated with lowering the risk of vehicle collisions with pedestrians (including older pedestrians), a decrease in severe crashes and a decrease in older pedestrian fall incidents (Lemieux et al., 2023). The study found that, although trees can reduce drivers' field of vision, they also encourage driving at slower speed, which has been tested and demonstrated in driving simulation experiments. While tree roots can be a trip hazard unless well managed, one study included in the review by Lemieux found that tree canopy over streets is associated with a decrease in older pedestrian fall incidents, controlling for socioeconomic status, with a stronger association in lower income areas (Lee et al., 2022).

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Studies which monetise the benefits of road safety schemes show that there can be substantial cost savings.

In some cases, the safety benefits of road schemes are monetised to show the savings that can be made. An evaluation of projects designed to enable safe use and support mobility for all users (so called 'Complete Streets' projects) in the US found the majority of projects which reported safety data saw fewer collisions and injuries after redesign and made cost savings from this reduction (Smart Growth America, 2015). For example, the value of reduced injuries (US$5.8 million, around £4.5 million) in one year after pavements were widened and bike lanes added to a street in Reno, Nevada, was greater than the entire project cost (US$4.5 million, around £3.5 million). Similarly, in West Jefferson, North Carolina, in the first year alone, the value of the reduced injuries saved by the safer streets scheme (US$2.7 million, around £2.1 million) was nine times its cost (US$300,000, around £234,000). In a case study of a streetscape improvement in Missouri, improvements in accessibility at road junctions for the visually and hearing impaired, coupled with a reduction in traffic speeds from 42 to 25mph, were estimated to decrease traffic collisions by 85% – resulting in US$3 million (around £2.3 million) medical cost savings for the city over 25 years (Yang et al., 2014).

Speed reductions can deliver road safety benefits that reduce insurance claims and save health service costs.

Various studies show the potential benefits of 20mph limits to people's safety. For example, a systematic review, of changes to the urban environment and health impacts for children and young people, found that the introduction of 20mph zones is associated with a reduction in child casualties (Audrey and Batista-Ferrer, 2015). Another study found that a city-wide reduction in speeds to 20mph in Edinburgh led to a 40% reduction in collisions and a 39% reduction in casualties over the period 2000 to 2018 (Jepson et al., 2022). Over the same period, there was a much lower (2%) reduction in casualties in Belfast, which had only introduced 20mph in the city centre where speeds were already low. The introduction of 20mph default speed limits across Wales in September 2023 is also thought to have contributed to a fall in the number of people injured on 20 and 30mph roads in Wales in the final quarter of last year (Welsh Government, 2024). An insurance company reported in June 2024 that vehicle damage claims have reduced by 20% since the nationwide 20mph speed limit was introduced in Wales, while the company did not see a similar drop in claims in England (20's Plenty for Us, 2024). A study by Public Health Wales and Edinburgh Napier University estimates the savings to the Welsh health service from the introduction of default 20mph limits to be just over £92 million in the first year alone; nearly three times higher than the implementation costs (Davis and Jones, 2022). This figure does not include the wider health benefits which are likely to far exceed the casualty savings (ibid.).

Improvements to street design to give pedestrians priority can also achieve effective speed reductions as shown by Case Study 7 below in Caldicot, Wales.

07 CASE STUDY

Investing in public realm at The Cross, Caldicot, Wales, to improve pedestrian priority, comfort and safety

Improvements to the public realm in the area of 'The Cross' near the centre of the small market town of Caldicot in South Wales have provided a much-needed facelift and improved pedestrian comfort, safety and access, making the area a destination in its own right. Monmouthshire Council has created an attractive area of car-free spaces for outdoor events, markets and dining; reduced street clutter; and added trees, planting and rain gardens, new seating and more accessible bus stops. Intuitive links for pedestrians and cyclists connect the square to local and national active travel routes. Pedestrians are given priority across an adjacent main road by a zebra crossing across a raised table. Kerbs which can be detected by guide dogs, tactile paving and high contrast surfaces all help people with visual impairments to move safely through the space. A subsequent scheme has created a safe pedestrian route all the way to a country park and Norman castle, including wider pavements, slowing traffic with buildouts and creating some of the first continuous footways in Wales across three side streets. This will encourage visitors to the park and castle to walk down and spend time in the town. Since 'The Cross' reopened, traffic speeds along the adjacent main road have reduced, with a mean speed through the junction of less than 20mph. The public realm improvements have motivated surrounding businesses to renovate their buildings and improve frontages, using a design toolkit to create a unified appearance for the town centre.

READ THE FULL CASE STUDY

Evidence on the financial benefits of schemes improving safety is limited.

Case studies 6 and 7 show how investing in streets to improve pedestrian priority and safety has increased the quality of people's experiences in Leicester and Caldicot in Wales. However, despite best efforts it has not been possible to find evidence of the economic value of these and similar safety improvements. Much of the evidence associated with public realm schemes is qualitative. For example, interviews with a small group of older adults in Glasgow and other parts of Central Scotland found that poorly designed and maintained streets make walking stressful and dangerous due to high levels and speeds of traffic and inconsiderate or dangerous parking – with these negative perceptions increasing at night and for those with mobility issues (Gow et al., 2023). A main priority for the people interviewed was making walking safer, particularly increasing the number of pedestrian crossings and the time to cross.

04

Living Streets' own research has shown that poor footway maintenance could save up to £0.5 billion in health and social care costs.

Older people are disproportionately affected by trips and falls, many caused by poor quality pavements, street clutter and the discontinuity of footpaths. It is estimated that there are nearly a million outdoor falls among older adults (those aged 65+) in England each year, with pedestrian falls costing English taxpayers as much as £0.5 billion a year (Living Streets, 2023). Their report highlighted the need to improve the availability of data on the scale and cost of falls, which together could reprioritise the importance of investing in the maintenance (as well as the improvement) of walking infrastructure. Introducing, widening and resurfacing pavements, removing clutter, stopping pavement parking and installing dropped kerbs should all reduce the risk of falls.

Traffic, noise and air quality

Traffic congestion, noise and air pollution deter people walking and wheeling; a 1% increase in particulate (PM10) concentrations in Seoul is associated with a 0.1% decrease in daily pedestrian volumes.

Large volumes of traffic congestion, noise and poor air quality have adverse effects on people's health and may deter them from walking and wheeling. For example, road traffic noise is associated with an increased risk of heart disease, stroke, obesity and diabetes, as well as sleep disturbance and annoyance, with nighttime noise a particular risk for cardiovascular disease (Münzel et al., 2020). A meta-analysis estimated that there is an 8% increase in risk of heart disease for every 10dB(A) increase in daytime traffic noise (between the range of 52-72dB(A)) (Babisch, 2014). Poor air quality is recognised as a problem worldwide. A survey of users' perceptions of two adjacent streets in Tehran, Iran, found that in the car-dominated street, pollution had a strong negative effect on mental health, while walking in the pedestrian street had a positive effect on mental health (Hematian and Ranjbar, 2022). Large scale counts and measurements of pedestrian movements in Seoul, Korea, have led to estimates that an increase of 1% in particulate (PM10) concentrations is associated with a 0.1% decrease in daily pedestrian volumes (Chung et al., 2023).

Interventions that reduce road traffic and air pollution can have a significantly positive effect on health as they impact the whole population.

A study which modelled the impact of a range of traffic calming interventions which would reduce exposure to air pollution in Waltham Forest, London, estimated these would result in a gain of around 41,000 life years over a lifetime for the population of Waltham Forest (Dajnak et al., 2018). The interventions, which included residential road closures and segregated cycle lanes, would mean that people walking or cycling in the borough would be exposed to 15-25% less nitrogen dioxide (NO_2) and 6-13% less fine particulate matter (PM2.5). These improvements in life years from better air quality in Waltham Forest would be similar in size to those from increased walking and cycling, even though physical activity is generally regarded as a more significant factor for health. The authors note in a related study that this is because reduced air pollution benefits the whole residential population and not just those who are physically active (Dajnak and Walton, 2018). Although the evaluation of Waltham Forest did not assign a financial value to life years gained, tools such as AMAT and HEAT (see Box 4 earlier) can be used to estimate these.

Pedestrianisation is most effective at cutting air pollution when combined with reducing traffic. Road closures can reduce traffic overall rather than simply displacing it.

Modelling studies suggest that pedestrianisation is likely to be most effective at cutting pollution when it is combined with traffic reduction measures (Sanchez et al., 2021). While there is some concern that road closures simply displace traffic rather than reduce it, UK evidence showed that closure of a strategic bridge in Bristol reduced traffic volumes in both the immediate and a wider area (Melia and Calvert, 2023). There is evidence of falling car ownership and total driving levels among Low Traffic Neighbourhood (LTN) residents, which suggests that LTNs reduce traffic overall. (Goodman et al., 2023; Aldred et al., 2024). Further evidence from 46 LTNs in 11 London Boroughs found substantial reductions in traffic on internal roads, with mean decreases ten times greater than the modest rise on boundary roads, suggesting that LTNs are reducing traffic overall (Thomas and Aldred, 2024).

04

Large scale pedestrianisation in Barcelona could prevent hundreds of premature deaths each year.

A health impact assessment has estimated that 667 premature deaths a year could be prevented by increasing green space and reducing heat, noise and air pollution, if all of the proposed 503 ‘Superblocks’ (pedestrianisation of large residential blocks) in Barcelona were implemented (Mueller et al., 2020). Overall, it is estimated the Superblock programme would increase the life expectancy of the adult population in Barcelona by almost 200 days and provide an annual economic benefit of 1.7 billion Euros (roughly £1.5 billion).

Trees can also be beneficial for air pollution, provided there is space between them.

A systematic review of the links between street trees, human health, and safety for pedestrians, bicyclists, and vehicle drivers, showed that street trees and vegetation can be beneficial for reducing air pollution, though there needs to be space between trees to avoid creating a canyon effect that traps and concentrates pollutants (Eisenman et al., 2021).

05

IMPACTS ON THE COMMUNITY

Photo credit: Shrewsbury Business Improvement District

05

This section investigates how public realm improvements can help to build up communities and strengthen 'social capital'.

This section investigates the role of high streets and district, town and city centres as places where people from different communities and cultures come together for conversations, to eat and drink, to pursue leisure activities or to live. It addresses the research question 'what recent evidence is there that public realm improvements result in a stronger local community?' Improving the public realm can help to provide places for people to connect and interact, strengthening the web of relationships which form the 'social capital' of a place. In this report, the term 'social capital' and 'social cohesion' are used interchangeably to mean 'features of social organisation such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit' (Putnam 1995). It is assumed that building a sense of community is not just about improving the 'hardware' or physical infrastructure of a public space, but also about the 'software' facilitating opportunities for people to come together through different social activities and events.

Improving the public realm for walking and wheeling is more inclusive.

Improving the public realm for walking and wheeling usually makes an area more welcoming for everyone. Every journey begins and ends with a walk (or wheel). People who drive are pedestrians too, as they step out of their front doors towards their cars and disembark from their cars on reaching their destinations. Walking is the most inclusive mode of transport because almost everyone can walk or wheel, it is free and usually requires no equipment or licence.

More people on the streets and more social interactions, together support a stronger community.

The logic map in Figure 3 suggests that a key outcome of public realm improvements should be that more people from all backgrounds and abilities are able to access the high street. This, in turn, should lead to more social interaction, greater community cohesion and an improved sense of place, which, in aggregate, should support a stronger community. The evidence for this is discussed below.

Social interactions and social capital

Walkability 'hardware' and social capital

There is evidence stretching back 60 years that the built environment can have a significant impact on community relations.

The importance of streets as a place for human interactions was highlighted by the urban activist Jane Jacobs over 60 years ago (Jacobs, 1961). Since then, evidence has confirmed that the built environment can have a significant impact on the development and maintenance of social relations (Bagnall et al., 2023). Walkability fosters more frequent and longer chance interactions between people. Conversely, run down and neglected high streets and public spaces and a perception of anti-social behaviour and crime can undermine a sense of community (Shaw et al.,2022).

A number of reviews find strong associations between walkability and a sense of community.

A number of reviews of studies from different countries find strong and statistically significant associations between walkability and a sense of community or social capital (Hassen and Kaufman, 2016; Mazumdar et al. 2018; Morales-Flores and Marmolejo-Duarte, 2021; Ramos-Vidal and Domínguez de la Ossa, 2023; Rashidfarokhi and Danivska, 2023).

Living in walkable neighbourhoods increases the opportunities to interact with neighbours.

A systematic review, of the impact of public spaces and urban design on residents' sense of community, found that the availability of walkable routes to public spaces has a positive and statistically significant effect on the sense of community, with several studies showing that being able to travel without a car increases the opportunities to interact with neighbours (Ramos-Vidal and Domínguez de la Ossa, 2023). Another literature review found that the walkability of a neighbourhood (based on crossings, connectivity and pavements) had a stronger association with community engagement than other street design features (such as aesthetics, green space, or security and safety) (Hassen and Kaufman, 2016). The authors recommended enhancing walkability through better pavements, street connectivity, crossings, lighting and seating (ibid.).

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The availability of walkable areas can enhance social resilience and social capital.

The built environment has been shown to enhance social resilience by facilitating access to spaces and services for everyone, and by enhancing a neighbourhood's attractiveness and liveliness through increased social connections (Rashidfarokhi and Danivska, 2023). The authors concluded that by increasing social interactions and helping to create a sense of place, walkable, mixed-use neighbourhoods can thus encourage the development of social capital. Recreational walking is also strongly associated with social interactions within neighbourhoods (Morales-Flores and Marmolejo-Duarte, 2021). Compact and diverse neighbourhoods and the provision of benches and green spaces are found to be important factors to promote social capital (ibid.).

Improving social relations for community wellbeing means promoting those conditions that bring people together, enable them to participate in community life and feel part of a network of shared meanings.

(BAGNALL ET AL., 2023)

Urban density is not enough. The quality of social interactions, which build trust, is key to increasing social cohesion.

The quality rather than the quantity of social interactions is what matters. Evidence from large, detailed surveys of residents across 45 neighbourhoods in Oslo, Norway, shows that there can be less social cohesion in areas of high urban density and vitality compared to lower density areas. This is despite higher levels of social interaction in the former (Mouratadis and Poortinga, 2020). The authors suggest that this may be because residents in the lower density neighbourhoods they studied tended to have lived there longer and their on-street interactions were more likely to be with people they knew or recognised, which helps to develop trust. Nevertheless, for neighbourhoods of similar densities and characteristics, the study found that urban vitality is positively associated with social cohesion – concluding that interventions that increase walkability can help to strengthen social cohesion. Other studies find that problems arising from excess density (e.g., fear of crime) which inhibit social capital can be reduced through the provision of high-quality public spaces that allow people to meet and create trust (Morales-Flores and Marmolejo-Duarte, 2021).

Access to public transport also increases social cohesion through increased social interactions.

A few studies also find social cohesion or social capital is positively associated with public transport accessibility. Reasons for this include the increased walking associated with public transport and the greater access to services and increased social contact between people of different ages resulting from better public transport (Hassen and Kaufman, 2016; Mouratadis and Poortinga, 2020; Rashidfarokhi and Danivska, 2023). Case study 8 shows how the design of Cardiff's new bus station has aimed to increase access and inclusion – and social capital – for all. Although there is no post evaluation, as the station has only just opened, the design provides examples of the sort of features that might be considered for schemes to improve access to public transport.

05

08 CASE STUDY

A new Cardiff bus station designed to be inclusive and accessible to all

Central Square and Westgate Street link Cardiff Central train station and the main bus station to the city centre. Redevelopment of this area has included a new Cardiff Bus Interchange, designed to be as inclusive and accessible as possible, particularly for disabled people. Pedestrians are able to walk or wheel comfortably, independently and safely through the bus station or continue their journey to the city centre. Inclusive features of the Interchange include:

- Bus services always stop at the same bay, to give passengers certainty.
- High contrast grey flooring and tactile paving, as well as clear information signs.
- Digital displays with bus and connecting train services in real-time.
- Tactile pictograms of the building and its facilities, with associated QR codes.
- Fully accessible, large, unisex toilets with space for carers and baby change facilities.
- A Changing Places toilet for passengers with complex needs.
- Ergonomically designed full seats with side tables, charging points and free WIFI.
- Maximum natural light, to help those with dementia or visual disabilities.
- Hydration stations dispensing free water.

READ THE FULL CASE STUDY

Public realm 'software' and social capital

Community events and improvements to blue and green spaces boost social relations, but it's difficult to say what works best.

A systematic 'what works' review of community infrastructure to boost social relations and community wellbeing found strong evidence that organised events boost social relations and have a positive impact on community wellbeing (Bagnall et al., 2023). The same study found moderate evidence that placemaking interventions (e.g., collaborative urban design projects utilising arts, culture and heritage) can improve social relations and community wellbeing. There was also strong evidence that interventions to improve green and blue spaces can boost social cohesion and a sense of belonging and pride. However, despite the broad range of positive community outcomes, the authors found that the wide variety of interventions and study designs made it difficult for them to draw conclusions on "what works best, for whom and in what circumstances".

Community ownership models can help to regenerate high streets; it has been estimated that 56p of every £1 community businesses spend stays in the local economy.

Supportive social infrastructure is also important, such as community ownership models that bring high street assets into community use and retain wealth in the community (Dobson, 2022). Such models can also be good for local economies. For example, community businesses (run by local people for the benefit of the local community), can provide new destinations for people and help to regenerate high streets. It has been estimated that 56p of every £1 community businesses spend stays in the local economy compared to 40p for large private businesses (Harries and Miller, 2021). Nearly three quarters (73%) of community businesses report buying locally for some of their supplies, and over a third (34%) report buying locally for the majority of their supplies (Percy et al., 2016). Case study 9, about investment in the centre of Campbeltown in Scotland, shows how community involvement in improving the public realm can deliver positive economic and social outcomes.

09 CASE STUDY

Investing in town centre buildings for the benefit of residents and visitors in Campbeltown, Scotland

Campbeltown, a small town on the west coast of Scotland, has been transformed by a series of investments which have enhanced the town's appeal for residents and visitors. Over 230 grants were awarded to repair commercial and residential buildings and upgrade shop frontages. A number of derelict listed buildings were brought back into use, with the old town hall now a community hub. Events were held to teach nearly 300 participants the skills to repair and maintain traditional building features, and nearly 2,000 participants from community groups essential skills (e.g., fundraising and marketing) to deliver local projects. Small scale public realm schemes have improved pedestrian navigation and access, and a cross-town active travel route is now in development which will link across the 20-minute neighbourhood. A key outcome has been the empowerment of the local community to deliver several follow-up projects. Vacancy rates have reduced from 20 in 2010 to three in 2021 and 20 new businesses opened between 2018-2022. The small grant scheme alone enabled 15 units to be brought back into use. One local business has reported a doubling of annual turnover since 2019. The building improvements are estimated to have created 51 new jobs and over 100 temporary construction jobs. The vast majority (90%) of businesses surveyed agreed that the regeneration has been transformative for their business and 90% of local people surveyed agreed the works have improved the town.

READ THE FULL CASE STUDY

Arts and culture are also essential for placemaking.

Research for the Arts Council England has found that arts and culture support personal wellbeing, help people feel part of their communities, help attract and retain workers and support economic growth and inward investment (Wavehill, 2019). Arts and culture are an essential part of the placemaking process, with many examples from towns and cities across the UK who have developed a strong arts and culture offer to enhance the attractiveness of the high street and provide unique experiences such as festivals, parades, outdoor performances and events. For example, the BIDs in Shrewsbury (see full Case Study 1) and Nairn (see full Case Study 4) support and coordinate cultural events (e.g., live music, food festivals, markets) and activities (e.g., painting murals and removing graffiti). The Arts Council research suggests that, for many places, a strong arts and culture offer is integral to attracting young people, especially young professionals, to live in town and city centres (ibid.).

Temporary interventions and social capital

Closing streets to traffic, parklets or community gardens, can enhance social capital, at least for the duration of the activity.

Temporary city street experiments, creating streets for people instead of traffic, have been found to enhance social interaction and social capital as well as to promote physical activity, modal shift from cars and improved safety (Bertolini, 2020). This study cites evidence from a parklets programme in San Francisco and interventions that temporarily close streets to traffic. Evidence from a temporary low-cost parklet in central London found that people using the parklet reported a 41% increase in wellbeing after the parklet had been installed (Gibbs, 2021).

Crime and social capital

Poor lighting, graffiti and litter can increase the fear of crime, which can deter people from walking, particularly women, older people and disabled people.

A systematic review of qualitative evidence from the UK on fear of crime and the environment, found that built environment factors such as lighting levels, visibility and openness, graffiti, litter and decay, as well as a lack of people around, are associated with the fear of crime (Lorenc et al., 2013). This impacts women, older people and disabled people more (although not exclusively), leading the authors to suggest that fear of crime may generate health inequalities. According to research by The Children's Society, a third (33%) of children aged 10-17 are very or quite worried about crime and previous studies have shown that nearly half of children aged 10-15 feel unsafe walking alone in their area after dark (The Children's Society, 2023). Improving the lighting, visibility and cleanliness of a public space should reduce the fear of crime, particularly for more vulnerable groups.

05

Increased incidence of serious violent crime can deter walking, particularly for women.

One Australian study suggests that higher 'perceived' crime is associated with reduced odds of walking while high 'objective' crime is associated with increased odds, with no difference between advantaged or disadvantaged communities (Foster et al., 2021). This is thought to be because there is generally a higher rate of crime in areas of higher residential density, where there are also increased levels of walking. Conversely, analysis of data from over 300 areas in England has shown that increases in recorded serious violent crime in a local area can act as a real deterrent to walking and overall physical activity, particularly for women (Janke et al., 2016).

Traffic and social capital

It's been estimated that loss of social capital from road traffic in Britain costs £236 per person per year.

It has been estimated that the negative effects of road traffic on wellbeing and community interactions (reducing a neighbourhood's social capital) are equivalent to a monetised average cost of £236 per adult per year in Britain (Ancieas et al., 2022). The total costs of traffic on local communities in Britain, including reduced wellbeing and other externalities was estimated at £31.9 billion per year.

Loneliness and social capital

The economic cost of loneliness in the UK is estimated at around £9,900 per lonely person per year.

The impacts of social isolation and loneliness, exacerbated by poor pedestrian access, can have significant implications for health, wellbeing and productivity. A study which put a monetary value on the impacts of moderate to severe loneliness in the UK estimated that, for a cohort of lonely people (aged 16+) it was equivalent to around £9,900 per person a year – £9,500 of which was the impact on wellbeing (Peytrignet et al., 2020).

A good quality built environment, combined with measures to promote social contact, can reduce loneliness.

A report by the Campaign to End Loneliness has collated evidence of research which shows how a good quality built environment and having a range of shared places to meet or bump into people can reduce loneliness (MacIntyre and Hewings, 2022). The authors suggest that reducing the risk of loneliness through changes to the built environment and measures to promote social contact is best done by involving local people and ensuring the needs of people with experience of loneliness or who are at risk of loneliness, are represented. One of the studies included in their report is a systematic review of green space and loneliness which found evidence that more urban green space is associated with less loneliness (at a statistically significant level for a third of the associations reported) (Astell-Burt et al., 2022). However, this review is based on a limited number of studies, most of which are cross-sectional, and the authors note that evidence is also lacking on the specific pathways by which loneliness is reduced.

BOX 05

Use of evaluation tools to measure public realm quality

There are a wide range of audits tools for measuring and scoring different aspects of public realm quality. Audits are frequently carried out as part of the design process for public realm improvements, and a follow-up audit can be undertaken as part of scheme evaluation using the following tools.

- Living Streets Community Street Audits.
- Place Standard Tool - community audit tool used in Scotland.
- Pedestrian Environment Review System (PERS).
- Healthy Streets Assessments.
- For more details see the Evaluation Briefing

05

Equality, diversity and belonging

Public spaces need to be walkable and accessible to all to reduce inequalities.

It is important that public spaces are welcoming and accessible to all and designed to reduce or eliminate barriers to walking and wheeling. Socioeconomic status, gender, age and disability have all been shown to influence walking levels (Maciejewska et al., 2023). For example, women and younger people (16 and under) made more trips and women walked a longer distance on average than the average person in England in 2022 (Department for Transport, 2023d). Poor design of public spaces can act as a barrier for wheelchair users and people with mobility difficulties, vision or hearing impairments, chronic fatigue and people who are neurodiverse or have conditions such as dementia (Jones and Lightly, 2023). And people from an ethnic minority (excluding white minorities) are 29% more likely to be a casualty than white pedestrians, when focusing on the 25% most deprived communities (Agilysis, 2021).

Thinking about inclusion needs to consider multiple dimensions that may affect people.

However, while it is useful from a research perspective to create categories in order to make sense of observations, in reality people are not easily compartmentalised. For example, a pedestrian who is also a car driver, a woman, disabled, young and British Asian may experience discrimination that is unique or common to one or more of these characteristics used to describe her lived experience. This is why, ideally, public spaces should be considered with a lens that looks across all communities, groups and individuals and goes beyond access and mobility issues to consider many dimensions, not least the needs of those with protected characteristics under the 2010 Equality Act (Azzouz and Catterall, 2021).

There are many inequalities in transport access in the UK, particularly among certain groups and geographies, which impact on people's life opportunities and wellbeing.

A review for the Government Office for Science found that many people in the UK are unable to reach vital jobs, shops and services due to a lack of adequate transport, which can contribute to social isolation and reduced quality of life (Lucas et al., 2019). Transport for the North estimates that over 9.8 million people in England alone are at risk of transport-related social exclusion, one third of these in the North of England (Jarvis and Mace, 2024). Another study for the Department for Transport found that a lack of personal car access, which contributes to these inequalities, is more common among young adults, people from ethnic, religious and linguistic minority backgrounds, people with mobility impairments, those experiencing unemployment and those on low incomes (Chatterjee et al., 2019). Not having access to a car makes it half (0.58 times) as likely that someone will go out socially. Those without car access are also more likely to rely on walking for at least part of their journey to reach education, jobs, essential services and amenities. A lack of public transport or closure of local shops and services can result in a phenomenon of 'forced car access' for many low income households, which leads to extra financial pressures and economic stress (Lucas et al., 2019).

Deprived communities and people from an ethnic, religious or linguistic minority background are likely to have less green space.

There are also inequalities in people's access to green spaces. In a 2020 survey of a representative sample of British adults, only 57% of those surveyed said that they lived within a 5-minute walk of green space (Ramblers, 2020). This fell to just 39% for people from an ethnic, religious or linguistic minority background. Local authorities in priority areas for levelling up (i.e. with high levels of deprivation) have been found to have, on average, 10% less green space compared to benchmarks (Fields in Trust, 2022).

Certain groups experience multiple barriers to walking and wheeling which can ultimately impact their health.

Certain groups, particularly older people and disabled people, experience multiple barriers to walking and wheeling, such as narrow or uneven pavements, trip hazards, pavement parking, lack of safe crossings, confusing spaces and poor signage. Neurodiverse people can experience a 'sensory overload' from excessive noise, glare, light, clutter etc. (The British Standards Institution, 2022). These barriers may cause people to simply give up going out, which, in turn, can adversely affect their physical and mental health. Surprisingly, even in London ten years ago, one of the most connected cities in the UK, around one in seven people made no trips during the week and almost a quarter did not travel on a weekend (Transport for London, 2011). Those figures are likely to be even higher in other parts of the UK.

05

Making public spaces more inclusive benefits everyone.

Designing public spaces to be more inclusive does not just benefit older people or people with mobility problems or disabilities. Features such as wide, smooth, clutter-free pavements, clear signage, toilets, ample seating and good lighting, make spaces welcoming for all, regardless of abilities. For example, step-free routes are helpful for those with children in pushchairs (Jones and Lightly, 2023), while safer road crossings are helpful for children and adults with neurodevelopmental disorders (e.g., autism or ADHD) (Wilmut and Purcell, 2021). Towns and cities can benefit generally from more inclusive pedestrian accessibility.

Impacts of the built environment on different groups

Studies rarely distinguish between different groups.

The published literature on the impacts of the built environment rarely distinguishes between different communities and groups, but the following sub-sections provide evidence from studies that focus on women and girls, people from an ethnic, religious or linguistic minority background, LGBTQ+ people, older people and disabled people.

Women and girls

More compact urban areas can promote gender equality.

Based on a relatively small survey, a Spanish study found that young men and women (aged 18-35) living in the core urban area of Barcelona spent nearly twice as much time (53 mins) walking compared to young adults in surrounding small towns or suburbs (28 mins), and the difference was particularly marked for women. This demonstrates how more compact urban areas can promote gender equality for people walking (Maciejewska et al., 2023).

People from an ethnic, religious or linguistic minority background

High quality public spaces can support meaningful intercultural interactions in ethnically diverse areas.

Another study focusing on Bradford, one of the most ethnically diverse cities in the UK, found that high quality public spaces, in particular play spaces, can support opportunities for chance, meaningful intercultural interactions and a sense of belonging (Ganji and Rishbeth, 2020). Based on mapping, observations and interviews, the authors found that particular play spaces, such as the City Park's mirror pool, attract the most diverse populations, providing benefits for all ages (including older adults). 'Passing-through' spaces such as street intersections or entrances to shopping centres are also important. For example, a pedestrian bridge linking two economically deprived neighbourhoods became a point of connection. The authors recommend maximising the opportunities for gathering and people-watching, for example through high quality seating in sheltered areas, and locating play areas between neighbourhoods to bring people from different communities together.

The LGBTQ+ community

Designing public spaces for diversity can benefit everyone too.

For some groups, including the LGBTQ+ community (and also disabled people and those from religious and ethnic minorities), public space can feel hostile. People who identify as trans might avoid public space altogether to avoid being targeted (Azzouz and Catterall, 2021). A report which looked at how to make public space more inclusive and welcoming for LGBTQ+ communities made a number of recommendations to design in diversity. These included preserving the character of queer heritage by commemorating sites and people (e.g., Leeds Civic Trust developed a rainbow plaque trail to celebrate LGBTQ+ history, events and people in the city). The authors acknowledge that many of the design recommendations, which include designing on a human scale, providing diverse spaces, lighting for the benefit of pedestrians rather than motorists, providing seats which face each other, and encouraging more footfall, are features that benefit everyone and they say "That, surely, is the point." (ibid.).

Older people

High streets need to meet the needs of an aging population.

In England, around one in five people are over 65 and that proportion is set to increase in future (Centre for Ageing Better, 2023). Improvements to our high streets and town centres therefore need to take account of the needs of older people, particularly those with mobility issues and dementia.

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Older people could help to revitalise high streets.

More positively, it is argued that older people can be part of the solution to the problems facing high streets – helping to increase daytime footfall while benefitting from the services and opportunities for social interaction (Phillips et al., 2021). Shopping trips comprised over a quarter (29%) of all trips by people aged over 60 in 2022 (Department for Transport, 2023d). For many older people, visiting their high street is an important social activity.

There is strong evidence that walkability, green spaces, traffic safety and access to services and destinations all promote healthy ageing.

There is an extensive literature on the impacts of the built environment on older people and healthy ageing, including a large number of systematic reviews or meta-analyses. One umbrella review sought to understand the impact of the built environment on healthy ageing (Bonaccorsi et al., 2020). It found that walkability of neighbourhoods, pedestrian-friendly infrastructure, overall access to facilities, destinations and services (including public transport), and green spaces such as parks were all positively associated with the promotion of physical activity in older people. These findings were corroborated by a meta-analysis investigating the relationship between eight built environment factors and walking, which found that traffic safety and destination accessibility have the highest association with physical activity of older adults (You et al., 2022).

An urban environment which allows older adults to use active transport, especially walking, safely will both improve their current independence and their future health.

CHRIS WHITTY
(CHIEF MEDICAL OFFICER FOR ENGLAND, 2023)

Walkability is strongly correlated with physical activity for older people.

Similarly another review of built environment factors and walking found that safe, walkable and attractive neighbourhoods with access to services or destinations all positively affect the physical activity of older adults (Barnett et al., 2017). Out of six built environment factors assessed, walkability had the strongest correlation with physical activity and total walking in older people, regardless of measurement method. The authors stressed the importance of having local destinations and shops for older adults to walk to, not only for physical health benefits, but also to potentially reduce the risk of social isolation and loneliness.

There are synergies between walking infrastructure and public transport.

The interactions between different transport modes can also influence older people's mobility. For example, the availability of seating at a bus shelter can influence walking as well as bus use, while poor quality footpaths can act as a barrier to both walking and public transport use (Ma et al., 2022).

Poor quality pedestrian access, traffic, noise and crime are negatively associated with physical activity in older people.

Poor quality pedestrian access to shopping centres, footpaths and pavements and the presence of traffic, pollution noise and crime are found to be negatively associated with physical activity in older people (Bonaccorsi et al., 2020). The authors stress the importance of proximity to amenities and recreational facilities, due to the slower mobility of older people, as well as specific elements such as seating and footpath quality. Obstacles on paths, major roads, availability of footpaths and lack of shade, seating and public toilets have all been identified as barriers to older people's walking (Ma et al., 2022; Chief Medical Officer for England, 2023).

The closure of town centre toilets is a deterrent to many people, including older people.

One very important facility for many people, including older people, is the availability of accessible public toilets. In one survey (of Welsh citizens), two-thirds of people reported that the closure of facilities such as toilets was a deterrent to visiting their local town centre (Audit Wales, 2021). In Great Britain, local authorities are not required by law to provide public toilets, and many public toilets have closed in recent years as a result of cuts to council funding. Nevertheless, Case Study 10 shows how a public convenience in Alloa, Scotland, was transformed from a liability into a community asset and hub of activities on a new pedestrian route into the town centre.

05

10 CASE STUDY

Inclusive consultation with local people creates a shared vision for town centre regeneration in Alloa, Scotland

Clackmannanshire Council used the Place Standard Tool (see Scotland Annex and Evaluation Briefing) to consult with local residents on the development of a housing complex for older and disabled people in Alloa, a small town in Scotland. The concerns of residents were fed into the design of the complex and also informed a range of small schemes to improve the inclusivity and navigability of the town centre to ensure the complex's residents could integrate into the town. This resulted in the refurbishment and reopening of a closed public toilet as a vibrant community hub. As well as providing toilets, this now provides a range of community information and activities, sells books and local crafts and promotes the creativity and history of the town. It is linked by a new pedestrian route into the town centre which has been decorated by local artists. To ensure that residents weren't cut off from their local park, supermarket and health centre by King Street, informal crossing points have been created using raised tables, and dropped kerbs have been provided and a more appealing and safer feeling pedestrian route has been created from the town to the local community college.

READ THE FULL CASE STUDY

Good pedestrian infrastructure and easy access to amenities and services can support wellbeing.

There is evidence to show that built environment factors have an impact on the physical activity and wellbeing of older people. One study, based on interviews with a small sample of older people in Edinburgh, found that the streetscape (pavements, crossings, diverse frontages), the accessibility of amenities and services (e.g., the availability of bus routes connecting home and the location of bus stops in relation to specific amenities or services) can all support the wellbeing of older adults (Brunellia et al., 2024).

Public toilets should be considered as essential as streetlights, roads and waste collection, and equally well enforced by legislation and regulations.

(ROYAL SOCIETY FOR PUBLIC HEALTH, 2019).

BOX 06

The social model of disability

Disability can be defined medically or socially. From a medical perspective, impairments create differences in mental, physical, and sensory functions, such as seeing, hearing, communication, walking, or using stairs (Inclusion London, undated). Functional walking categories are used by medical professionals to classify patients' ability to walk at home and outside in the built environment, for example, following a stroke (Perry et al., 1995). The social model of disability says that disability should be seen as resulting from barriers that exist within society and the way society is organised (Inclusion London, undated). These barriers can include physical, attitudinal, communication and institutional barriers which discriminate against people with impairments and exclude them from involvement and participation in daily activities (Welsh Government, 2023a). Physical barriers include inaccessible footways and crossings, street clutter, parked cars, steps and kerbs. Barriers created through people's attitudes include discrimination and low expectation. Communication barriers include placing signage at a level too high for wheelchair users. Institutional barriers include inflexible policies, practices and procedures.

Disabled people

Street design needs to cater for people with different capabilities.

Disabled people are more likely to live in a household without access to a car; over two-fifths of disabled people report that they consider UK streets inaccessible.

Disability is often defined medically, based on individual characteristics. However, it is argued it should be seen as a result of barriers in society – as set out in the social model of disability (see Box 6 below). Either model highlights the importance of ensuring the built environment caters for people with different capabilities.

The design of the public realm can facilitate (or hinder) walkability for different groups. For example, disabled people tend to walk far less than non-disabled people because of problems with street accessibility. They are more likely to be in a household without access to a car, and where they are in a household with access to a car, they are less likely to be a driver (Department for Transport, 2021). A detailed inquiry 'to give disabled people a voice in making walking and wheeling more inclusive' found that over two-fifths (41%) of disabled pedestrians consider the UK's streets to be inaccessible, which rises to over half (55%) for people with mobility problems or learning difficulties, nearly three-fifths (58%) for deaf or hard of hearing people and over three-fifths (64%) for blind or visually impaired people (Sustrans and Transport for All, 2023).

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Narrow, rough, uneven or sloped pavements are a key barrier for people using mobility assistive devices.

A systematic review of how the design of public spaces affects the accessibility and social participation of people using mobility assistive devices (e.g., wheelchairs, scooters, canes, crutches and walkers) found that the key barriers to outdoor accessibility are narrow, rough, uneven or sloped pavements (Kapsalis et al., 2022). The use of tactile paving, used for blind pedestrians, is also a barrier to navigation for those with mobility problems, which presents a conflict in provision between two special interest groups. The authors note that poorly designed public spaces not only prevent access to healthy lifestyles for people with mobility issues but also limit their opportunities for social interaction.

It is estimated that UK high streets lose around £242 million a month by not being more accessible for disabled people.

While there is a legal and moral duty to provide good access for disabled people, it also makes economic sense to make spaces more inclusive. There are an estimated 16 million disabled people and around 4.9 million carers in the UK (Jones and Lightly 2023). Spending by disabled people in the UK, the so-called “purple pound”, was estimated to be worth £274 billion in 2015 (We are Purple, 2015). Surveys also suggest that almost three-quarters (70%) of disabled people have left a high street shop due to a lack of disability awareness, which represents an estimated loss of £242 million a month to high street businesses (Business Disability Forum, 2015).

A national ban on pavement parking could help nearly three-quarters of disabled people to walk or wheel more.

Some of the issues for disabled people could be relatively simple to remedy. Nearly three-quarters (73%) of disabled people say that a ban on pavement parking would help them walk or wheel more (Sustrans and Transport for All, 2023). A survey of people with vision impairments found that 95% had a problem with vehicles parked on pavements, and 32% were less willing to go out on their own as a result (Guide Dogs, 2020). Scotland is the first of the four nations to make pavement parking illegal nationwide, which came into effect in November 2019 (Transport Scotland, 2023). Edinburgh started enforcing the ban in January 2024, and, so far, has seen good compliance from drivers (Edinburgh City Council, 2024). The Welsh Government has delayed its intended ban (Welsh Government, 2023b). As of July 2024, there had been no announcement of a ban in England, outside of London, despite a consultation in 2020 (Local Government Association, 2024), although pavement parking is discouraged by the highway code. Instead, local authorities use Traffic Regulation Orders to control pavement parking in their areas. If a national ban were implemented, exemptions to pavement parking bans could be provided by the local authority where it is safe (providing a minimum clearance width for walking) or necessary to do so (e.g., on narrow streets).

Risks of gentrification

Struggling areas are rightly targeted for improvements or regeneration, but this comes with a risk of displacement of lower income residents or business owners.

Economically deprived communities are more likely to live in areas with poor quality-built environments (Public Health England and Institute of Health Equity, 2018). It is therefore understandable that struggling areas are targeted for regeneration or public realm improvements. However, as mentioned in Section 3, there is clearly a tension between wanting to improve or revitalise areas, and a risk of displacing their existing lower income residents or business owners due to rising rents. This is coupled with a common perception that urban regeneration schemes have an overly narrow commercial focus and fail to involve the community in decision making (Shaw et al., 2022).

There is strong historic evidence that urban regeneration and investment in green spaces can lead to gentrification.

There is strong evidence that urban regeneration can lead to gentrification and the displacement of low-income residents (Bagnall et al., 2023). Improvements to new or existing urban green spaces which attract wealthier residents and increase property values can also lead to what has been called ‘green gentrification’ where ‘spending in urban green spaces including parks has fostered gentrification’ (Reibel et al., 2023). Clearly, regeneration schemes or public realm improvements that do not consider local needs or which are focused mainly on commercial returns can have adverse impacts on the community.

But there are examples of public realm improvements that didn’t result in increases in residential property prices”

The study of five street improvements in London, cited in Section 3, found a negligible impact on residential values in the improved streets which the authors suggest counter concerns that street improvements by themselves encourage gentrification (Carmona et al., 2018). Fifteen years after an urban riverside regeneration park opened in Barcelona, Spain, there was also no evidence of any increase rents in surrounding residential areas compared to other parts of the metropolitan area (Vert et al., 2019).

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Secure housing tenure, engagement with local people and community ownership can be used to prevent displacement in struggling areas.

Given the many health and community benefits of improving the public realm, the response should not be to avoid upgrading streets or provide more green spaces in disadvantaged or struggling areas, but to ensure that there are mechanisms in place to prevent the displacement of lower income residents and business owners. These include making sure there is secure housing tenure for existing residents, engaging local people in developing plans, and providing a larger role for community-owned assets (Council of Europe, 2020; Earley, 2023).

Collaborative approaches to placemaking often result in less gentrification.

A systematic review which looked at the value of placemaking as a social process found that the most positive results come from collaborative approaches involving the community, which often result in less gentrifying effects (Akbar and Edelenbos, 2021). These types of placemaking activities are found to enhance social ties, reinforce a sense of place and empower local people.

06

IMPACTS ON THE ENVIRONMENT

Photo credit: Ivon Bartholomew for Living Streets

06

This section examines how increasing the walkability of public realm can improve environmental resilience.

This section addresses the research question 'what recent evidence is there that public realm improvements result in a more resilient local environment?' Towns and cities throughout the UK have experienced repeated episodes of flash flooding, caused by extreme weather. Climate change will increase the number of properties at risk of flooding from all sources including those in areas that have not previously been at risk of floods (UK Health Security Agency, 2023). Extreme weather events are not limited to flooding. In the summer of 2022, the UK had three heatwaves with record temperatures in England (40.3˚C), Scotland (34.8˚C) and Wales (37.1˚C) and the Met Office issued its first ever red extreme heat weather warning for parts of England, meaning a threat of illness and death among fit and healthy people (Met Office, 2022). The UK's biodiversity is also severely depleted. It has been estimated that one in six species in the UK is at risk of extinction (State of Nature Partnership, 2023).

The logic map suggests that public realm improvements protect against extreme weather events, reduce carbon dioxide emissions and increase biodiversity.

The logic map in Figure 3 suggests that public realm improvements lead to greener, cleaner spaces and control of surface water runoff, which in turn result in lower impact weather events and greater biodiversity. Fewer people travelling by car also results in lower carbon dioxide emissions. Overall, this results in a more resilient local environment. A 2019 review of the literature on the impacts of the built environment on environmental outcomes found numerous potential benefits from public realm improvements, including reduced heat stress through greater planting and shading, an increase in biodiversity through greening, reduced flood risk, and reduced energy use and carbon dioxide emissions by reducing the need for car travel (Carmona, 2019). Further evidence for these benefits is discussed in more detail below.

Rising urban temperatures

The Urban Heat Island effect, coupled with rising temperatures, means that urban residents are increasingly at risk of heat stress, which disproportionately impacts the most vulnerable and least fit.

Urban areas are generally warmer than surrounding rural areas, a phenomenon known as an Urban Heat Island (UHI) effect. This UHI effect and rising average temperatures due to climate change mean that urban areas and their residents are increasingly at risk of heat stress. The record hot summer of 2022 in Europe resulted in over 61,000 heat-related deaths (Ballester et al., 2023). Most heat-related health issues are due to the exacerbation of pre-existing medical conditions (Elliot et al., 2020), so rising urban temperatures will disproportionately impact the most vulnerable and least fit, including greater numbers of older people due to our ageing population. In the UK, deaths from extreme heat are expected to increase to 10,000 a year by the 2050s, at a cost of £15 billion (O'Dowd, 2023).

Rising temperatures also have a direct economic impact on businesses, particularly hospitality and tourism; removing traffic can have a cooling effect.

Rising temperatures also have a direct economic impact, since thermal comfort is also important for many businesses, especially those in the hospitality and tourism sectors, and for labour productivity (Elliott et al., 2020). Pedestrians are doubly exposed to severe UHI effects during a heatwave due to additional localised sources of heat such as vehicles and hot asphalt, the surface temperature of which can reach more than 50˚C (Sylliris et al., 2023). The temperature of air masses above major arterial roads in Oregon, US, were found to be up to 2˚C warmer on weekdays compared to the weekends when traffic density was much lower (Elliott et al., ibid.). Removing traffic can have a cooling effect. A health impact assessment estimated that 117 premature deaths a year could be prevented by reduced heat from the UHI effect if all of the proposed 503 'Superblocks' (pedestrianisation of large residential blocks) in Barcelona, Spain, were implemented (Mueller et al., 2020).

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Green and blue infrastructure can provide a 'park cooling island' effect which improves the thermal comfort of pedestrians and reduces heat stress for plants and animals.

Green spaces are typically cooler than built up areas and can provide a so-called 'Park Cooling Island' effect (de Quadros and Mizgier, 2023). There is a growing body of evidence which shows the benefits of green and blue infrastructure for improving thermal comfort for pedestrians (and reducing heat stress for plants and animals) (Kumar et al., 2024). Trees and vegetation can regulate heat through evaporation, transpiration, shading and thermal insulation, while blue infrastructure absorbs heat and cools the surrounding area through evaporation (Kumar et al., 2024). Even a single tree or urban lawn in a local urban area can reduce the surrounding temperatures (de Quadros and Mizgier, 2023).

Both large and small green spaces can have significant cooling effects.

There are a number of systematic reviews and individual studies exploring which types of green, blue and grey infrastructure (the latter includes green walls and roofs) and other measures such as types of paving surface, are likely to be most effective at cooling. For example, according to one recent review, the most efficient air cooling is provided by botanical gardens, wetlands, green walls, street trees and vegetated balconies (Kumar et al., 2024). While the bigger the park, the bigger the cooling effect found, the review notes that smaller parks and areas of street trees can offer cost-effective, immediate, localised benefits in built-up areas (ibid.). The influence of green roofs on cooling at street level has been found to be low (Norton et al., 2015).

The right trees in the right place have the best ability to reduce air and radiant temperatures.

Trees and shading emerge as key issues. According to a systematic review of urban green infrastructure to improve pedestrian thermal comfort, street trees, green spaces and green walls have the greatest cooling potential (De Quadros and Mizgier, 2023). Trees can generate an air temperature cooling effect of up to 3˚C through evapotranspiration and a surface temperature cooling effect of up to 23˚C through shading (Rahman et al., 2021). However, while trees have the best ability to reduce air and radiant temperatures in all climate conditions, their performance depends on the species and local conditions and the authors stress the importance of the "right tree in the right place". It has been suggested that the cooling effect of parks is strongly linked to trees (Elliot et al., 2020). While park size influences the amount of cooling, efficiency does not increase with park size so there is still a benefit from small parks. Providing many small, distributed, green open spaces is likely to be more feasible and beneficial to a larger number of neighbourhoods, although green facades can be useful where space at ground level is limited or obstructions limit tree growth (Norton et al., ibid.).

Fountains, misting and irrigation can provide effective cooling outdoors; people unable to go outdoors are disadvantaged.

Evaporative cooling can also be an effective strategy outdoors in urban areas using fountains, misting systems and irrigation (Elliot et al., ibid.). The authors, who reviewed how green infrastructure and design solutions can be used for urban cooling and to improve city vitality, noted that ambient temperatures and the intensity of the heat island can affect indoor temperatures. This has equality implications for people less able to leave their homes (e.g., from age related sickness or mobility impairment), especially if they live in sub-standard accommodation.

Trees and light-coloured paving can be combined to provide cooling benefits.

Research attention has focused on how trees, plants and paving materials can be used together to provide cooling benefits. For example, modelling different paving and planting options (based on a summer air temperature of 32˚C) for a public square in Rome, Italy, suggested that light concrete pavers, rows of 15m high trees and a 1m surrounding hedge would provide the greatest cooling benefits and reduce the mean radiant temperature (the average surface temperature surrounding a person) by nearly 50% compared to the existing asphalt pavement temperature of around 62˚C (Del Serrone et al., 2020). A case study of Oxford Street in London modelled the impacts of different types of greening (trees and living facades) and cool pavements (white concrete) on the UHI in current and future climate scenarios (Taher et al., 2019). It found the benefits of trees depend on the orientation of the streets. Trees are more beneficial in east-west oriented streets whereas north-south oriented streets require less vegetation due to building shading.

However, the glare from white paving materials can increase thermal discomfort.

A review of studies on measures to reduce heat in urban areas concluded that reducing radiant temperature (i.e., shading, particularly from trees) is the most effective way of improving the thermal comfort of pedestrians (Nasrollahi et al., 2020). However, the authors warned that although highly reflective materials (e.g., white paving) can reduce air temperatures, they may also reflect solar radiation back onto pedestrians, reducing thermal comfort. Such materials are therefore not recommended, particularly on the floor of urban canyons, but can be useful on the roofs of buildings.

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Tall buildings may provide more shade than trees, but sky views make walking more attractive.

Researchers who modelled cooling scenarios in Melbourne, Australia, found that increasing building height and reducing sky views (i.e., street canyons) had a more significant effect on reducing effective temperatures through shadowing compared to increasing tree canopy and the number of green roofs (Jamei and Rajagopolan, 2017). However, several studies quoted in Section 3 of this report highlight the importance of sky views for making walking more attractive.

In extreme heat conditions, removing traffic can make a big difference.

Vehicles generate heat too. A modelling approach was used to assess the best cooling strategies to address the extreme heat conditions (41˚C) experienced on the main road running through the shopping district in Thessaloniki, Greece. It found that excluding car traffic – together with increasing the number of trees, unsealing soil and replacing asphalt on the roads and pavements with porous cool materials – could significantly reduce the heat island effect and reduce air pollution (Sylliris et al., 2023). This scenario reduced the perceived air temperature by up to 15˚C in well shaded locations and reduced nitrogen oxides by up to 87%.

Flooding and urban drainage

Flooding severity and frequency is likely to increase in the UK in the future, placing one in three commercial properties at risk from flooding.

Approximately 6.1 million people in the UK are in areas at risk from flooding, and the frequency and magnitude of flooding events is projected to increase due to climate change and sea-level rise (UK Health Security Agency, 2023). Businesses are also impacted. It is estimated that nearly one in three commercial properties in the UK are in areas at risk from flooding (Aviva, 2021). More than half (57%) of small and medium sized enterprises (SMEs) believe climate change will impact their business within the next decade, with extreme heat and flooding the biggest concerns (YouGov, 2021).

Sustainable Drainage Systems, which mimic natural systems, can improve resilience to flooding while reducing UHI effects and improving air quality.

Sustainable Drainage Systems (SuDS) are a type of green infrastructure designed to capture and retain surface water runoff by mimicking natural systems, rather than channelling it into drains and sewers (BGS Research, undated). A systematic review of the performance of SuDs interventions, such as rain gardens, bioswales, tree pits, permeable pavements, green walls or grass with trees, shows that, as well as improving resilience to flooding, they can reduce UHI effects and improve air quality (Lemieux et al., 2023). Measures like rain gardens also provide more rooting space for urban trees to grow and reach a higher canopy density (ibid.).

SuDs can support walking routes by making them safer and more attractive.

Several studies reviewed by Lemieux et al. (2023) found that, if implemented in the right way, SuDS can help to promote active travel by improving safety, increasing the connectivity of walking networks and developing new active travel routes. For example, an innovative green street project in Portland, US, narrowed the street and reduced traffic speeds to prioritise walking and cycling, while incorporating planting and swales to absorb stormwater (Cabanek et al., 2020).

Retrofitting SuDS in urban areas is popular with the public, increases drainage capacity and can open new areas for regeneration.

All new developments above a certain size in Scotland and Wales require SuDS (Scottish Environmental Protection Agency, 2024; Welsh Government, 2019) and England is likely to follow suit (Defra, 2023). While this is not yet required for managing the public realm, some cities are retrofitting SuDS in existing urban areas too. A good example of a retrofit scheme is the redevelopment of a formerly underused green space in the Cardonald neighbourhood in Glasgow. It has been transformed with a series of rain gardens, grassed channels and a shallow basin to store and treat rainwater before it enters the existing drainage network (Murphy, 2024). The space, located next to high-rise flats at Queensland Court and Gardens, provides opportunities for outdoor socialising space and children's play, as well as supporting local wildlife (ibid.). Surveys of residents in Glasgow found that there is strong public support for implementing green infrastructure in the public realm (Donaldson and João, 2020). Experts suggest that by reducing flood risk, green infrastructure adds drainage capacity to areas which need it and open up new sites for regeneration (ibid.). Case study 11, summarised below, provides a more detailed example of retrofitting SuDs in a local centre of Dundee, Scotland.

06

11 CASE STUDY

New pocket parks in Stobswell, Dundee help with flood prevention

Improvements to the streetscape of side roads off the main high street in Stobswell Dundee, Scotland, including planting, murals, seats, continuous footways, dropped kerbs, buildouts and raised tables, have created pedestrian-friendly spaces. The area has a high percentage of ethnic minorities and older people living in high density tenements without their own outside space. Five side streets benefitted from permanent streetscape changes with space reclaimed from parked or moving vehicles. Each location includes rain garden features, which channel rainwater run-off directly into planted areas. The new Craigie Street pocket park is Dundee's first large-scale rain garden. A 30,000-litre storage tank beneath the park collects surface run-off which empties slowly back into the city's drainage system. It provides flood defences sufficient for a '1 in 1,000-year storm' and will help to protect the city centre downhill from extreme weather events brought on by climate change. The rain gardens have functioned as planned during the four named storms the city has experienced since the project was completed. The scheme has won and been shortlisted for several national awards. The local community has since installed four more murals and is working to create another pocket park nearby. A recently launched residents action group is campaigning for pedestrian improvements to the high street itself.

READ THE FULL CASE STUDY

Protecting and enhancing biodiversity

Greening urban areas can also protect and enhance biodiversity.

Greening urban areas is not just helpful for urban cooling and drainage, but it can help to provide natural habitat to protect and enhance biodiversity. Streets, towns and cities planted with trees and vegetation provide opportunities for people to engage with nature (Ede and Morley, 2023). For example, old tramlines in Berlin, Rotterdam and Amsterdam have been converted from concrete or tarmac into green corridors of grass or sedum and lined with trees (Ede and Morley, 2023). More ambitious still, a former eight-lane urban highway in Vitoria-Gasteiz, Spain, was redesigned to include a naturalised stream, tree planting, a grassed tramline, two cycle tracks and wide pavements (Cabanek et al., 2020). The stream, which was previously channelled under the road, now runs along the pavement, bordered by a reinforced embankment, and provides important habitat for native plants, animals and insects including over 70 species of butterfly.

A community-led programme to green urban streets in Australia has attracted more people and benefitted local businesses.

A 'Green Your Laneway' programme in Melbourne, Australia, delivered in 2017 and led by the City Council, trialled different methods for adding greenery to urban streets in a collaborative and largely community-led process (City of Melbourne, 2023). Four pilot urban city lanes were chosen through a public voting system and the ownership and maintenance arrangements were set up to be shared across the council, local residents and retailers. The impacts were evaluated in 2023 and, although there was no assessment of the biodiversity impacts, the evaluation recommended that planting a range of plant species creates a more resilient ecosystem. The programme has resulted in a range of economic, health and community benefits, such as increased foot traffic that brings more business to retailers, restaurants and cafes, better visual aesthetics, greater social interaction, and improved health and wellbeing for the local community. A good example from England is the Grey to Green project (see the summary of case study 12 below).

12 CASE STUDY

'Grey to Green' in Sheffield increases biodiversity and reduces runoff

Transformation of two former traffic lanes into a three-hectare linear park and wildlife corridor in Sheffield city centre has created a sense of place, with green and blue infrastructure alongside provision for bus, pedestrian and cyclist movements. The largely pedestrianised area includes attractive wide pavements, with lots of seating, bug-hotel totems and artwork which celebrate Sheffield's history. The diverse, multi-layered planting creates year-round interest – for both people and birds, bats and insects. One part of the scheme alone has seen an increase of over 500% in biodiversity. The majority of the planting areas act as rain gardens absorbing runoff into the soil. The rain gardens run in sequence, with more intense rain retained by check dams which control the waterflow before discharging it slowly into the river. The scheme has already diverted 24,000 bathtubs of water annually from sewage treatment. The park also helps to absorb air pollution, carbon dioxide and provide urban cooling. Since Phase 1 of Grey to Green was completed in 2016, a number of businesses have relocated to previously vacant office buildings and warehouses in the area. It has created at least 540 jobs and is projected to create more than 1,600 in total. These include nearly 200 in Castle House, an empty listed building re-developed to accommodate start-up and scale-up businesses.

READ THE FULL CASE STUDY

06

Reducing greenhouse gas emissions

Transport is the UK's single biggest source of greenhouse gas emissions.

In 2022, transport was responsible for over a third (34%) of the UK's domestic greenhouse gas emissions (Department for Energy Security and Net Zero, 2024). The majority of this (90%) is from road-based transport, mainly cars. The transport sector is also responsible for 70% of the predicted shortfall in meeting the UK's 2030 climate target (Green Alliance, 2024).

Walking can replace shorter car trips, which can have significant effects on carbon dioxide emissions.

Walking is a key part of replacing car journeys with more sustainable travel options. Walking can directly replace some shorter car trips and is also an important part of many longer public transport trips. By ensuring that there are more public services and amenities in districts and town centres, it also becomes possible for people to change destinations and substitute longer car trips with shorter walking trips.

Switching car trips to walking and cycling can significantly reduce carbon dioxide emissions.

A study followed a small cohort of residents from Cardiff using travel diaries and GPS data. It found that around two-fifths (41%) of short car trips of less than 3 miles can be feasibly substituted by walking or cycling (i.e. excluding trips that involved trip chaining, escort trips or large retail shopping trips) (Neves and Brand, 2019). Short car trips are estimated to produce 2.8kg CO_{2e} per person per week, equivalent to around 11% of all CO_{2e} emissions from car travel. Therefore, switching 41% of these short trips to walking and cycling would save around 4.5% of carbon dioxide emissions from all car travel. A large longitudinal study in seven European cities also found that swapping the car for walking (or cycling) one day a week can have significant effects on carbon dioxide emissions (Brand et al., 2021). Given that a typical petrol/diesel car emits over 160 gCO_{2e}/km in lifecycle greenhouse gases, while even a fully electric car emits around 125 gCO_{2e}/km (ITF, 2020), walking 5 km a week instead of taking short car trips avoids around 0.5-0.8 kg of greenhouse gas emissions. Box 7 below outlines how to evaluate whole lifecycle carbon dioxide impacts of a public realm scheme.

BOX 06

Use of evaluation tools to measure carbon impacts

Analysing the whole life carbon (WLC) impact (also known as lifecycle emissions) of a public realm intervention includes three elements:

- Embodied emissions (materials, construction, disposal).
- Changes in operational emissions (lighting, maintenance).
- Changes in user emissions through mode shift impacts.

Responsible designers should produce an estimate of embodied emissions and changes to operational emissions as an integral part of the public realm design process. User emissions from mode shift impacts can be assessed using methods set out in Transport Analysis Guidance. For more details see the Evaluation Briefing

Walking can also replace longer car trips, as part of a public transport journey, which provides additional health and social benefits.

Walking can also replace longer car trips, as part of a public transport journey. There are many studies which show that use of public transport is associated with greater physical activity, with users walking an estimated additional 8-33 minutes a day more than people who use only private transport (Rissel et al., 2012). In one longitudinal Australian study, half of bus users are prepared to walk further if bus frequency were improved (ibid.). This public transport related physical activity can provide additional health benefits. For example, a systematic review and meta-analysis, of the associations between public transportation and cardiometabolic health, found that initiating the use of public transport is associated with a BMI reduction of 0.3 units in adults (Patterson et al., 2019). There are also many social benefits associated with public transport. For example, a 10% improvement in local bus service connectivity is associated with a 3.6% reduction in deprivation (KPMG, 2016).

06

Modelling shows that prioritising walking and cycling in Aberdeen and reducing traffic by 10% or 30% could produce net benefits worth around £3 million or £10 million respectively.

A study which looked at the cost benefit analysis of a range of low cost scenarios for reducing traffic and prioritising walking and cycling in Aberdeen city centre forecast that scenarios which reduce traffic by 10% or 30% would provide a net present value (discounted net benefits) over 30 years (2020-2050) of around four million Euros (around £3 million) and twelve million Euros (around £10 million) in social and environmental benefits respectively (Ferretto et al., 2021). In contrast, a business-as-usual scenario was forecast to provide a reduction in net present value of around 225 million Euros (£190 million) over 30 years due to the continued increase in car collisions, air and noise pollution, climate change and congestion caused by the increased traffic.

07

FUTURE TRENDS

Photo credit: Ivon Bartholomew for Living Streets

07

Economic trends which could influence walkability

Town centres will be less retail focused and more community based in future.

There seems to be a growing consensus that town centres in the future will be less retail focused and more community based. The vision for town centres in 2030 from a cross-party group of MPs is for "activity-based community gathering places where retail is a smaller part of a wider range of uses and activities and where green space, leisure, arts and culture and health and social care services combine with housing to create a space based on social and community interactions." (House of Commons Housing Communities and Local Government Committee, 2019). Another group of MPs has also concluded that UK high streets need to become more focused on culture, community, health and wellbeing (All Party Parliamentary Group on the Future of Retail, 2021).

E-commerce is a growing trend, but it will complement rather than replace physical retail.

While COVID-19 accelerated the trend towards online sales, this does not mean an inevitable end to bricks-and-mortar retail. It is suggested that, in future, physical premises will remain but as a shopfront with the bulk of the storage in warehouses that can ship directly to customers (Kickert, 2021). Thus, e-commerce will not entirely replace physical retail but complement it, with the shopfront used for experiential marketing and branding. Even with grocery stores, there is increasing blending of bricks-and-mortar and online sales, with Amazon opening physical supermarkets, and many bricks and mortar retailers offering online shopping options. Beyond retail, there are also still many personal services, such as hair and beauty, which cannot be done online, suggesting a continuing role for these on the high street (ibid.).

"

Prediction is very difficult, especially if it's about the future.

NIELS BOHR

There is a growing trend towards the 'experience economy' and the 'maker economy'.

There is likely to be increasing future focus on the 'experience economy' to generate passing footfall for retail and hospitality, as well as more temporary use of space and events to generate footfall. This has been a growing trend in the US, together with a desire for authenticity and a rise in the 'maker economy', such as small batch manufacturing (Kickert, 2021). Kickert also suggests there has been a growing division of markets between low-end retailers (e.g., pound stores and charity shops) and high-end retailers serving younger and higher income consumers.

Business Improvement Districts are likely to continue growing, though preferably more community-focused.

Business Improvement Districts (BIDs) (see footnote 7 in section 3) are likely to continue growing. However, retail expert Bill Grimsey, Chair of the Grimsey Review, has suggested that these should be replaced by "community improvement districts" which look at the long term and wider development of an area rather than just what is good for business (House of Commons Housing, Communities and Local Government Committee, 2019). Scotland is leading the way on this, with new, more inclusive models of improvement districts that partner with local communities (Scotland's Improvement Districts, undated).

Social trends which could influence walkability

An increasingly ageing population means that high streets will need to be planned for people with limited mobility and include more seating and toilets.

The proportion of people aged 85 years and over is projected to increase from 2.5% of the total UK population (1.6 million) in 2021 to 3.5% (2.6 million) by 2036 (Office for National Statistics, 2021). This demographic change will mean an increasing number of people with accessibility needs, and an increasing proportion of people who do not want to drive or who are unable to do so, and who may not want to shop online. Increasingly, high streets will need to be planned for people with limited mobility as well as people with dementia and their carers. Shops and services will need to be within easy reach and accessible, with more seating, clear signage and accessible toilets.

07

Trends in obesity and poor health also means that high streets should be designed to promote physical activity and healthy lifestyles.

Trends in obesity and poor health also means it is essential that the future design of urban centres facilitates walking, wheeling, cycling and public transport, to help maintain physical activity and promote healthy lifestyles. Increasing the health and fitness of the general population should be a priority for any future government, not least because poor health increases the vulnerability to external threats like another pandemic. Outside places are needed for fresh air and exercise and to counteract the mental health crisis.

It is not clear whether trends in digital substitution for trips will continue or reverse.

Over the last thirty years, there has been a gradual decline in the number of trips that people in England take (Department for Transport, 2023b) The biggest reductions have been in business trips and social trips (visiting people at home) which may partly be due to digital substitution and people using phones and videos to replace personal meetings. It is not clear whether this trend towards digital substitution for actual trips will continue, if it will shift to other types of activity (e.g., education) or if there will be a reversal.

There is likely to be more residential development in town and city centres in future.

An oversupply of retail space, and reduced need for office space due to changes in working patterns, coupled with a need for sustainably located housing means that there is likely to be a move towards more residential development in town and city centres. The UK government has already relaxed planning laws in England to allow shops and offices to be converted into housing through ‘permitted development rights’, without the need for planning permission (Department for Levelling Up, Housing and Communities and Ministry for Housing, Communities and Local Government, 2020; Rankl, 2024).

Town centre residential development can be good for town centres and reduce energy use.

An increase in town centre residential development can be good for footfall, pedestrian accessibility and reduced energy use (by converting existing buildings and reducing the need for car travel), providing it is not at the expense of reduced public amenities. Evidence from many studies across the world shows that concentrating developments in urban areas, and planning compact, dense, diverse settlements suitable for all ages (e.g., families with young children) with good access by walking, cycling and public transport are the key to reducing the distance travelled by car (Hopkinson and Sloman, 2019).

But town centre housing needs to be properly planned and regulated.

Town centre housing needs to be properly planned and regulated, and experts have warned of the dangers of creating 'future slums', through poor conversions, exacerbating problems rather than revitalising high streets and town centres (Clifford and Madeddu, 2022). A case study of over 500 'permitted development' schemes in five authorities found numerous problems, including lower housing quality, and dwellings created in unsuitable neighbourhoods such as business parks and industrial estates (ibid.). A cross-party group of MPs have warned that permitted development rights "risk undermining the strategic vision that a community has developed for its high street or town centre" (House of Commons Housing, Communities and Local Government Committee, 2019).

Technological trends which could influence walkability

New technologies can reduce car use but can also create conflict with people walking and wheeling.

The development and adoption of new technologies, ranging from e-scooters to robot delivery drones, can help to reduce car use but can also create conflict with people walking and wheeling, especially disabled people. A pilot project in Cambridge, which started in 2022, uses battery powered robot delivery drones to deliver groceries which travel along the pavements at a speed of 4mph using sensors, AI and computer vision-based navigation (Cambridgeshire County Council, 2022). They are designed to stop at a safe distance and give way when they see a wheelchair user. However, if these drones become ubiquitous, they will take space away from people walking, may pose a trip hazard for some people and could undermine the need or desire to walk for daily necessities.

Micromobility is welcomed by some and feared by others, with safety concerns higher amongst older and disabled pedestrians.

Similarly, the growing use of e-scooters is an opportunity to reduce car use but also a potential threat to pedestrians. An evaluation of a rental e-scooter trial in the West of England conducted a survey of the public and found that, as pedestrians, nearly a third of respondents felt unsafe (30%) or uncomfortable (28%) around people riding e-scooters (which may be ridden on pavements as well as roads even though this is illegal) and a small percentage (13%) were uncomfortable around parked e-scooters (Chatterjee et al., 2023). Older people (60+) felt unsafe or uncomfortable though nearly a fifth of younger people (18-29) also reported not feeling safe, while disabled people were less likely to feel safe than non-disabled people.

Gamification is another technological trend which could increase walking.

Another technological trend is gamification. Although people may need to walk less to fulfil daily needs that can be done online, they can be incentivised to walk through digital incentives and gamification. For example, the popularity of the 'Pokemon Go' trend encouraged very inactive population groups to walk significant distances, while 'Beat the Street', aimed at school children, has been very successful in getting large groups of people to walk, wheel, run, scoot and cycle (Beat the Street, undated).

A rise in on-street EV charging points can also create clutter and obstacles for pedestrians.

Other potential conflicts may emerge between pedestrians and homeowners wishing to install cables across or under the pavement to home electric vehicle (EV) charging points. As of September 2023, less than 3% of all cars on the road were battery EVs (Department for Transport and Driver and Vehicle Licensing Agency, 2023). Replacement of the UK fleet of around 35 million cars with EVs would significantly increase the demand for home charging and occupation of footway space. Councils are already installing more on-street EV charging points, leading to more street clutter and obstacles for pedestrians (Laker, 2018).

New technologies which can monitor every aspect of potential customer behaviour in shops and shopping areas have serious implications for privacy.

Other technological trends include 'smart high streets', where digital technologies are used to manage everything from pre-purchase to after sales, and 'sentient high streets', where there is sensing and awareness of the activities and intentions of potential customers (Torrens, 2022). New technologies can monitor pedestrian volumes, locations, poses and actions, often without the customer being aware of it: so-called 'surveillance capitalism' (ibid.). Retail systems now have the ability to identify and target certain demographics and provide detailed information on people's shopping habits but has serious implications for privacy for pedestrians in public spaces (ibid.). The real time use of this data can be used to steer shopping habits. Unlike online shopping, which is governed by data protection laws and gives, in theory, shoppers some rights, most pedestrians in urban public spaces have few rights or entitlements to privacy (ibid.).

The EU is planning measures to ban facial recognition in public places but the UK lacks safeguards against surveillance.

The EU is planning to ban facial recognition software in public spaces, through its proposed Artificial Intelligence Act (Townsend, 2023) and some cities, like Amsterdam, have developed manifestos on digital data use which set out principles including openness and transparency (Tada, undated). By contrast, there is a 'a worrying vacuum' in the UK's safeguards against biometrics and surveillance with proposals in the UK's data protection and information bill to abolish the role of the government-appointed surveillance camera commissioner and the requirement for a surveillance camera code of practice (Biometrics and Surveillance Camera Commissioner, 2023). The Alan Turing Institute is developing governance approaches for artificial intelligence (The Alan Turing Institute, undated) but there seems to be a large gap between the pace at which the technology is developing and the UK's regulatory response to it.

Environmental and planning trends which could influence walkability

Climate change will impact the walkability of public spaces in future and could either undermine or promote more walking.

Climate change will undoubtedly impact the walkability of public spaces in future. On the one hand, more severe weather events could potentially undermine walking (or going out), while on the other, climate change could result in more walking if car trips become too difficult or uncomfortable, or when ageing transport infrastructure (roads, bridges, rail lines) are damaged by extreme weather. Measures such as SuDS or tree planting are increasingly likely to be retrofitted into existing urban areas to mitigate against flooding and extreme heat. Periods of hot summer weather may also increase the desire for green space, pavement cafes and street trees to facilitate spending time outside.

07

The 15-minute city or 20-minute neighbourhood would encourage walking and improve quality of life for residents.

The concept of the 15-minute city or the 20-minute neighbourhood is a planning principle that residents should be able to access basic facilities within a 15 or 20-minute walking or cycling radius (Moreno et al., 2021; Scottish Government, 2023, 2024). Reducing people's need to travel should free up more time and contribute to a higher quality of life. A US study showed that, even in car-dependent cities and suburban districts, 15-minute neighbourhoods can work well as a walkable core area with attractions and amenities which cater for many local needs and wants (Milder and Ryan, 2022). Wider services, amenities and employment opportunities can still be reached by other travel modes.

Listening to community viewpoints is essential to the successful implementation of walkable neighbourhoods.

Living Streets' work with established neighbourhoods in North Lanarkshire, Stirling and Dunblane, Scotland, showed that most people report that their main reasons for driving are convenience, lack of time to make another choice, or necessity because the walking route is unattractive, challenging or simply non-existent (Edwards et al., 2023). While they like the idea of living locally and walking more, they still choose to drive. For 20-minute neighbourhoods to work, walking needs to become the easiest choice.

We will need to reduce car mileage significantly by 2030, by reducing the need to travel, switching to shorter trips and switching to walking, cycling and public transport.

Public realm improvements are part of an overall strategy to reduce transport emissions. While electric cars can significantly reduce emissions, the evidence shows it's not feasible to electrify the fleet quickly enough to keep pace with climate targets (Hopkinson et al., 2021). The Scottish Government already has a target to reduce car travel by 20% by 2030 relative to 2019, though is still a long way from reaching this (Transform Scotland, 2022). With the right support, reducing the need for car travel can provide people greater access and choice, by reducing the need to travel using technology and other means (digital connectivity), switching to shorter trips through better planning/location of services (spatial proximity), and switching some car journeys to walking, cycling and public transport (physical mobility): so-called 'triple access planning' (Lyons et al., 2024). Public realm improvements can assist by enabling a switch to shorter trips and a shift to walking and other sustainable forms of travel. Both the Welsh Government's and Scottish Government's transport appraisal guidance (WelTAG and ScotTAG respectively) already advise practitioners to consider non transport solutions (see Welsh and Scottish annexes). High quality, walkable local places are an essential ingredient of a holistic approach to transport and spatial planning for the economy, environment and society.

08

CONCLUSIONS AND RECOMMENDATIONS

Photo credit: Ivon Bartholomew for Living Streets

Despite COVID-19, a cost-of-living crisis and other adverse trends affecting retail, the UK high street is far from dead.

Although many urban centres in the UK are still struggling, there are also thriving high streets which act as the social, cultural and economic heart of a community. The evidence from an extensive literature review, and the case studies produced for this report, show that public realm improvements that attract more pedestrians, or encourage walking and wheeling, can lead to a variety of significant and often under-valued economic and wider health, community and environmental benefits. These benefits are shown in the logic maps in Figures 1 and 2 and summarised below.

Economy

There is robust evidence that public realm improvements can contribute to increases in pedestrian footfall or dwell time in high streets. Factors found to encourage walking include increased access to shops and amenities within walking distance, street trees, seating, wide pavements, sky views, clear signage and good public transport facilities. Conversely, uneven pavements, busy traffic, crowded areas, litter and graffiti can all discourage walking.

There is evidence that adding or improving pedestrian facilities, even when road capacity or parking is removed, generally has a positive economic impact on businesses nearby. And there is evidence that pedestrians sometimes spend more per month in businesses than visitors who come by car.

There is also evidence that public realm improvements can help to reduce high street vacancy rates and restaurant survival rates. Improvements to high streets can also create jobs and attract new businesses and there is evidence that improving pedestrian connectivity in city centres increases productivity.

This update corroborates evidence from previous Pedestrian Pound reports that improvements to the public realm can increase both commercial and residential rents. There is further evidence that proximity to urban parks and street greenery is associated with higher house prices, while too much on-street parking is associated with lower retail rents.

Although rising rents and house prices can displace lower income residents or businesses, this is not inevitable and there are mechanisms such as secure housing tenure, engagement with local people and community ownership which can lessen the impacts of gentrification.

Surveys of business owners and consumers have demonstrated that improvements to street character and appearance are generally viewed very favourably. But studies show that business owners generally underestimate how many customers walk and overestimate how many travel by car, by up to a factor of three.

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Action for better local economies

- Support and plan for mixed use neighbourhoods, including providing a minimum number of amenities within walking distance.
- Plant more street trees, widen pavements, provide more seating, good signage and better public transport facilities in urban centres.
- Pedestrianise or restrict traffic access and reduce on-street parking.
- Survey businesses and customers on how people travel to high streets pre and post intervention.

Health

There is robust evidence of the links between physical activity and health. This report provides further evidence that creating streets to support walking and wheeling can result in more walking and physical activity, with health benefits for children and adults. Walking has been shown to prevent depression and anxiety, and there is evidence that improving walkability can increase happiness.

Interventions that reduce road traffic to facilitate active travel and improve air quality have been shown to have significant health benefits for residents in the local area. The monetised health benefits from even small-scale interventions can be significant and can exceed the costs of the schemes by up to fifty times.

Increasing the access and availability of blue and green spaces can also have positive benefits for health, and the promotion of any improvements to urban green spaces makes them much more effective than the physical improvements alone. Green space and parks within a short walking distance from home are positively associated with residents' mental health.

Public realm improvements can improve safety, by reducing conflicts between people and traffic, reducing traffic speeds, providing pedestrian crossings, reducing trip hazards and improving lighting. Improving the quality of pavements and reducing street clutter can also prevent trips and falls, which are estimated to cost taxpayers in the UK around £0.5 billion a year.

Action for better health

- Reduce traffic danger and reduce exposure to noise and air pollution, for example by:
  - Reducing traffic speeds.
  - Providing more pedestrian crossings.
  - Deprioritising traffic in urban areas and encouraging walking (and cycling).
- Increase the access to, and availability of, blue and green spaces and promote any improvements, to ensure maximum awareness and use.
- Ensure that pavements are good quality, well maintained and clear of clutter.

Community

Walking increases the opportunities for engaging with other people and there is evidence of a strong association between the walkability of an area and its sense of community. Walkable, compact and diverse neighbourhoods, the provision of seating and green spaces have all been found to promote social capital. There is also strong evidence that community events can boost social relations.

On the negative side, poor lighting, graffiti and litter can increase the fear of crime which can deter people from walking, particularly women, older people and disabled people.

Well-designed public spaces with features that benefit everyone, such as wide, smooth, clutter-free pavements, clear signage, toilets, ample seating and good lighting, will make spaces welcoming for all, regardless of abilities or impairments. Better pedestrian access can also reduce the risk of social isolation and loneliness, which can have significant implications for health and wellbeing, especially for older people and disabled people.

Removing physical barriers, such as uneven surfaces, parked cars and street clutter, in the public realm enables people with impairments to access spaces and move around independently. Narrow, rough, uneven or sloped pavements are a key barrier for people with mobility problems. A national ban on pavement parking (with appropriate exemptions) could help the majority of disabled people to walk or wheel more.

Action for stronger communities

- Provide seating, green spaces, play areas and public toilets.
- Improve lighting and remove graffiti and litter.
- Remove physical barriers, by widening pavements, installing dropped kerbs and resurfacing rough or uneven pavements.
- Implement a national ban on pavement parking (with appropriate exemptions) and until then encourage local authorities to use Traffic Regulation Orders to control pavement parking in their areas.
- Facilitate opportunities (through events etc) for people to gather and meet.

08

Environment

Public realm improvements which incorporate green and blue spaces can provide natural habitats and help with adaptation to severe weather events. Green and blue infrastructure can provide a 'park cooling island' effect which reduces heat stress for people, plants and animals. Green and blue spaces, green walls and street trees have the greatest cooling potential, while light coloured roofs, tall buildings, reduced car traffic, and fountains can also help. Sustainable Drainage Systems (SuDS) can improve resilience to flooding and can be integrated into active travel routes and public realm schemes. Greening urban areas can also protect and enhance biodiversity.

Lastly, walking can replace car trips and reduce the associated carbon dioxide emissions. Around two-fifths of short car trips could be feasibly substituted by walking or cycling, while walking can also replace longer car trips, as part of a public transport journey, which provides additional health benefits to public transport users.

Action for a more resilient environment

- Plant more trees on streets (without compromising clearance widths for walking and wheeling) and in public parks, and provide more green and blue spaces, alongside other measures to support urban cooling.
- Set targets for SuDS for public realm schemes and active travel routes to reduce flooding.
- Implement planting programmes that increase biodiversity in urban areas.
- Encourage walking to replace short car trips to improve local air quality and reduce carbon dioxide emissions.

Future

There is increasing recognition that we need to shift away from viewing high streets simply as centres for shopping, and instead see them as public spaces for socialising and connecting people. Currently, there is evidence that e-commerce is complementing rather than just replacing physical retail, and there is a growing trend towards the 'experience economy'.

An increasingly ageing population means that high streets will need to be planned for people with limited mobility, including more seating and toilets. Increased levels of obesity and poor health also mean that high streets should be designed to promote physical activity and healthy lifestyles, with enough open space for fresh air and exercise.

More housing in town centres can be a good thing but it needs to be properly planned. There needs to be effective regulation of new technologies which can create conflict with people walking and wheeling, including e-scooters or robot drones, on-street EV charging points, and the use of 'surveillance capitalism' in public spaces.

Public realm improvements can help to meet climate targets and reduce car mileage and transport emissions, by enabling a switch to shorter trips and a shift to walking, cycling and public transport.

England, Scotland and Wales

This updated report has separate annexes on England, Wales and Scotland as well as a variety of case studies spread across different geographies, typologies, scales and impacts. The annexes discuss the various geographical, social, policy, funding and delivery contexts for public realm and walking improvements in the three nations. They incorporate discussions from three workshops held in the nations.

The workshop discussions highlighted the similarities between the nations – the generally poor levels of physical activity and health outcomes, the regional income and health inequalities, the confusing funding landscape, the lack of long-term funding for active travel and public realm improvements, the lack of capacity within local authorities, and a lack of good evaluation of public realm schemes.

The workshop discussions and analysis of published policy documents also identified the differences between the nations, such as England's lack of a single integrated transport strategy document, and potential inconsistencies between the scale of its roads investment programme and its investment in active travel compared with more coherent and joined-up policies in the other nations. The establishment of Active Travel England should provide a more coherent focus on walking and cycling going forward. Scotland and Wales also have an explicit focus on health and wellbeing within their transport strategies, as well as inclusion, which was felt to contrast with a more singular focus on growth and productivity for the UK overall. This has led to a different focus and aims for different funding pots, some of which are nation-specific but some of which cover the whole of the UK.

Actions for the three nations

- All to ensure more joined up decision-making and funding across policy departments, particularly between transport and health and across projects.
- All to provide political leadership and consistency on transport policies (at government and local authority level).
- All to provide multi-year stable funding for active travel and public realm schemes (both capital and revenue).
- All to build capacity in local authorities to help them deliver public realm schemes.
- All to ensure that procurement is quality-led rather than least-cost and that the whole life costs and benefits of schemes are taken into account.
- All to ringfence a proportion of a scheme's funding for evaluation and develop better academic research links to help with evaluation.
- UK Government to produce a single integrated transport strategy based on a transport hierarchy, with overarching objectives of health and wellbeing, reducing climate emissions, fairness and sustainable economic development.
- UK Government to revise the National Planning Policy Framework (NPPF) and planning policy in England to ensure there is a vision-led approach to planning, to ensure better placemaking.

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CASE STUDIES

Photo credit: Ivon Bartholomew for Living Streets

SHREWSBURY

Taking the opportunity to trial pedestrianisation during the pandemic – building public support and an evidence base for permanent change

SCHEME NAME
Tactical Pedestrianisation

LOCATION
Shrewsbury, England

COST
£20k

PARTNERS
Shrewsbury Business Improvement District, Shrewsbury Town Council, Shropshire Council

OTHER FUNDERS
Department for Business, Energy & Industrial Strategy, Ministry of Housing, Communities & Local Government

DATE
2021 to date

SCALE
Town (pop. 76,782)

IMPACTS
Economy

LOCAL ECONOMY
Mixed

INTERVENTION TYPE
Deprioritisation of vehicles

Photo credit: Shrewsbury Business Improvement District

AS ITS COUNTY TOWN, SHREWSBURY IS A KEY ECONOMIC CENTRE FOR THE LARGELY RURAL COUNTY OF SHROPSHIRE. HISTORICALLY, PLACEMAKING AND ECONOMIC DEVELOPMENT ACTIVITIES IN THE TOWN WERE LED BY SHROPSHIRE COUNCIL.

In 2018, the Council began working with Shrewsbury Town Council and Shrewsbury Business Improvement District (BID) to co-develop the 'Shrewsbury Big Town Plan' – a new collaborative way of working with a holistic vision for developing the town up to 2036. This Big Town Plan Partnership then co-authored a 'Masterplan Vision' in 2020. Although the town's economy has remained largely buoyant, the partners realise that it will increasingly be affected by the wider social trends affecting high streets. They want to take proactive steps to futureproof the town centre and keep it thriving.

During the pandemic, the partnership quickly mobilised a COVID-19 Task Force, which decided to close key town centre streets to traffic in order to facilitate government mandated social distancing. These closures also provided the opportunity to trial the Big Town Plan's vision for a new approach to movement in the town centre. Evidence from this trial would inform plans for longer-term, permanent changes.

Intervention

During an initial three-month trial in summer 2020, High Street, The Square and Shoplatch, Shrewsbury's busiest pedestrian streets, were closed to traffic every day from 10am to 4pm, using just a temporary traffic regulation order, moveable planters and signage.

Feedback from the public and local businesses (collected via Commonplace) showed widespread support for continuing the closures even after social distancing restrictions were lifted – as a café culture had begun to flourish, with its outdoor seating, music and public art bringing a new vibrancy to the town.

During a second trial period, restrictions were tweaked based on local feedback. For example, five additional disabled parking bays were provided in neighbouring streets, and access created to the loading bay outside The Lion Hotel on Wyle Cop. To enable public transport to access the town centre on weekdays, the planters were removed and the restriction relied on self-enforcement with signage and a traffic camera. When numerous car drivers used this as an opportunity to flout the restrictions and drive in to the closed streets, it became clear it was necessary to keep using the moveable planters as a physical barrier.

From November 2021, Shropshire Council decided that Shrewsbury's trial road closures would continue but would only apply on weekends. In early 2023, they made these closures semi-permanent. For the time being, while the partnership progresses plans for long-term changes to the town centre's road network, Shrewsbury's 'rangers' move the planters at the start and end of each closure period. During these times, through traffic is able to circumvent the town centre using the ring road. However, town centre traffic continues to be displaced to Town Walls, a narrow, historic street, a situation which it is widely agreed needs to be addressed as part of any permanent change.

Complementary initiatives

The Shrewsbury BID facilitates, often in conjunction with a range of partners such as the local tourism association and police, a range of other placemaking initiatives which also help to make Shrewsbury town centre safer, more engaging and more pleasant for people walking and wheeling around it. For example:

- Town 'rangers' patrol during the daytime and weekend evenings to discourage anti-social behaviour and crime.
- Volunteer town 'ambassadors' provide information to visitors at key arrival points on weekends.
- The high street is dressed with bunting and lamp post flags, displays are put in empty shop windows, and mini murals have been painted to create a town trail.
- Events are held, such as an Easter egg trail, jubilee weekend, live music, and screenings of major cultural and sporting events.
- A paper-based town map is made widely available and on-street totems have been put in.

Outcome

Aside from the predominantly positive feedback from the community received as part of on-going consultation throughout the trial, there is clear evidence that Shrewsbury's timed pedestrianisation has helped to boost town centre business. Data analysts Beauclair were commissioned by Shrewsbury BID to compare weekly sales data from before the pandemic with the data from 2022 to 2023, for both the pedestrianised and non-pedestrianised areas of the town.

As a whole, sales in the town rose on average by 14%. However, growth in the pedestrianised areas was 25 percentage points higher than in the non-pedestrianised areas (37% compared to 12%). The most significant growth in the pedestrianised areas was in the 'grocery', 'general retail' and 'food and drink' sectors (which respectively grew 30%, 45% and 66% more than in non-pedestrianised areas). The high growth of the latter suggests that the road closures have helped to create a more experiential high street which encourages people to spend more time and money relaxing in the space.

Compared to the non-pedestrianised areas, sales growth in the pedestrianised areas has been significantly higher among customers from outside the town. (Growth from 'neighbours' was 40% higher, from 'region' was 44% higher and from 'rest of GB' was 32% higher; compared to '15-minute towns' and 'doughnuts' being 7% and 20% higher respectively.) This highlights the importance of ensuring that pedestrianised areas are part of a legible, wider walking network which connects key arrival points for out-of-town visitors, such as train stations, bus interchanges and car parks.

Next steps

The Big Town Plan Partnership is now consulting the local community on a 'Movement and Public Space Strategy', which will be a blueprint for a 10-year plan to evolve the town's transport network. With the success of the timed road closures, this is likely to advocate for the permanent pedestrianisation of a large part of the town centre, as well as for complementary measures to remove through traffic and create a bus corridor through the town centre, which will improve both accessibility and journey times.

The positive impact of the trial road closures has also helped to galvanise support for the partnership's wider plans for the town, such as redeveloping the riverside area to create a link between the town centre and the River Severn using high quality public realm and green space.

Tips for success

- Focusing on the benefits for the hospitality sector (in creating a more experiential high street), and on the experimental nature of the trial, was key to generating initial support for road closures from the community.
- Using signs, planters and traffic regulation orders was an agile and cost-effective approach to pedestrianisation.

Further information

www.shrewsburybid.co.uk
www.shrewsburybigtownplan.org
www.shrewsburymoves.com

UPLANDS

Using a temporary street market to improve the local economy and encourage more walking in the neighbourhood

SCHEME NAME
Uplands Market

LOCATION
Swansea, South Wales

COST
£5k-£10k (initial set-up)

PARTNERS
Urban Foundry, Swansea Bay Street Markets

DATE
2013 – to date

SCALE
Neighbourhood centre (pop. 14,099)

IMPACTS
Community / Economy

LOCAL ECONOMY
Mixed

INTERVENTION TYPE
Cultural, community and local business engagement / Tactical urbanism

Photo credit: Swansea Bay Street Markets Limited

CREATIVE REGENERATION AGENCY URBAN FOUNDRY SAW THE POTENTIAL FOR A FRENCH-STYLE STREET MARKET TO HELP CREATE A SENSE OF PLACE IN ITS HOME SUBURB OF UPLANDS, SWANSEA.

It is a largely 'walkable' neighbourhood and densely populated with a broad spectrum of residents from students and those on low incomes to more affluent households. The local high street had good footfall and used to have a range of independent shops, but these had dwindled over time in favour of more cost-conscious national retailers.

Gwydr Square, a car-dominated side road just off the main street, was seen as an ideal location for a market. Urban Foundry believed it could easily be made traffic-free, becoming a space for people, by temporarily removing a handful of parking spaces for a few hours each month.

After trying, unsuccessfully, to persuade other local stakeholders to trial a market, Urban Foundry decided to set it up themselves – to test the benefits of fast, light and cheap 'pop-up urbanism'. If successful, the plan was to hand over the running of the market to local volunteers.

Supportive local politicians helped to dispel initial resistance to road closures and parking disruption from some council officers and local businesses. Flyers were delivered to every house in affected streets to warn them of the potential for short-lived disruption. The temporary nature of the market was helpful for advocating an approach of "it's just one morning, once a month, so let's just try it".

Intervention

The first Uplands Market was held in July 2013. Apart from the pandemic, the market has been held on every last Saturday of the month ever since (or in December, on the last weekend before Christmas), providing retail space for small, independent artisan producers of high-quality, locally made food, drink and craft items.

Making fresh produce available to the local community, lowering food miles and supporting producers from the Swansea Bay area are key aims of the market. Some traders sell larger and more expensive items, such as garden furniture. Customers can spend anywhere from a few pounds to well over £100.

The market intentionally doesn't have a refreshment stand and some adjacent local businesses offer special market day deals, both of which help to support the commercial vitality of local cafes and shops by bringing increased trade on market day. According to one local restaurant owner: "The Uplands Market has been a massive boost to trade and to the Uplands in general. Market days are lively and vibrant, there is always a really good atmosphere and the huge increase in footfall is good for everyone."

Alongside local produce, the market provides a regular neighbourhood meet-up point. Community groups, local councillors and charities take stalls to promote local initiatives or consult with local people and it is also common to see people handing out flyers, collecting signatures for petitions or holding informal protests.

For example, the local Living Streets group has spent time at the market asking people for their views on the walking-related issues they are campaigning on, and have found it an incredibly useful sounding board, with people keen to engage with them. The market also provides space for local musicians to busk, and for open-mic performances by the local Poets' Collective – building on the area's cultural heritage as the birthplace of Dylan Thomas.

The first market attracted 30 stallholders and was so successful that there was a waiting list of 200 traders for future markets. It was immediately clear that running the market would be too large a job for volunteers, so a company limited by guarantee was set up (now Swansea Bay Street Markets) with an employee managing the market's operations and marketing and the local volunteers acting as stewards on market days. At its peak, the market averaged 65 stalls but has settled at about 45, in part due to many producers ceasing to trade during the pandemic.

Despite a handful of objections from local businesses to the annual application for the road closure licence, local residents are overwhelmingly positive and supportive of the market.

Outcome

Footfall at Uplands Market is weather dependent but there can be over 3,000 people on warm sunny days – far more than in the area on a usual Saturday morning. It has been ranked as one of the top ten street markets in the UK by The Daily Telegraph and has twice been runner-up in The Observer Food Monthly awards. Even in the wet winter months, traders still find it profitable to keep attending.

The market also operates as an incubator space for local traders – as a cost-effective place to trial new products and services. At least four have outgrown the market and set up their own shops or become suppliers to local businesses.

Swansea Bay Street Markets don't have the resources to conduct regular formal evaluations of the market's success, but they regularly get good feedback from traders and customers. With the market financially self-sufficient, and traders and customers continuing to come each month, its success is self-evident.

In 2018, local university students conducted surveys with about 300 visitors at Uplands Market and its sister market in the marina. 67% of people had specifically been attracted by the markets. A fifth of people also spent money in surrounding local businesses, typically spending in the region of £10 to £25. Additionally, 77% thought the market had given them a more positive view of the Uplands area. Anecdotally, many people originally attracted by the market now also shop in Uplands on non-market days.

Uplands has experienced some gentrification in the last decade and the market, along with the refurbishment of a local pub and the opening of a high-end café bar, has undoubtedly contributed to this change. Swansea Bay Street Markets also believe that the market has helped to shift perceptions towards Uplands as a walkable place – with more people now walking around the area on non-market days.

To underpin commercial viability, Swansea Bay Street Markets set up a second monthly market at Swansea Marina, then took over the ailing 'Mumbles Market'. Swansea Bay Street Markets has created one full-time-equivalent role, works with teams of local volunteers, and offers internships to university students.

Tips for success

- See all the learnings from setting up and running the Swansea Bay markets which are captured in the Welsh Government's Street Market: In-depth Guide.

Further information

- www.swanseabaystreetmarkets.co.uk

BOGNOR REGIS

Enhancing the public realm to boost the town centre economy

SCHEME NAME
Town Centre Public Realm

LOCATION
Bognor Regis

COST
£2.8m

PARTNERS
Arun District Council, Bognor Regis Town Council, West Sussex County Council

OTHER FUNDERS
Coastal Communities Fund, Portas Pilots, Section 106

DATE
2013 – 2017

SCALE
Town (pop. 25,021)

IMPACTS
Economy

LOCAL ECONOMY
Less affluent

INTERVENTION TYPE
Creation of walking networks linking key trip attractors / Improved connectivity to other sustainable transport modes / Improvements to pedestrian comfort, convenience and personal safety / Deprioritisation of vehicles

TO ADDRESS HIGH RETAIL VACANCY RATES OF 13% AND A STRUGGLING RETAIL CORE, A STAKEHOLDER FORUM LED BY ARUN DISTRICT COUNCIL DEVELOPED PLANS TO IMPROVE THE TOWN CENTRE PUBLIC REALM AND CREATE STRONGER LINKAGES BETWEEN THE SEAFRONT AND TOWN.

These aimed to attract more visitors and new businesses to the town centre, and to encourage existing businesses to improve their frontages. Overall, there was a desire to make Bognor Regis town centre a nicer place to live, work and visit, and to build a greater sense of civic pride. There was extensive engagement with local community and stakeholders throughout the design process, as cooperative working was seen as vital to maintaining the public realm once it was improved.

Intervention

The public realm improvements were funded and delivered in three phases over the period 2013-2017, using the same high-quality materials throughout (e.g., wayfinding monoliths), to create consistency:

1. The retail core of London Road precinct was largely pedestrianised, with more seating, dwelling spaces and outdoor spaces for café tables, and new walking routes to link to the seafront and railway station. Events were put on, including themed markets, children's fun days and live music, with large scale events attracting up to 20,000 visitors.
2. Station Square, the rail station forecourt, was transformed into a gateway to the town, with walking links leading visitors towards the precinct and seafront. This kickstarted separate projects to refurbish the neglected Grade II listed station building and introduce new cafes and a shared workspace into derelict spaces.
3. A safer, pedestrian-friendly route was created to link Station Square to the London Road precinct. Traffic was slowed with narrower carriageways, raised tables and coloured surfaces at junctions. Pedestrians were made to feel safer with widened and resurfaced pathways, new and realigned pedestrian crossings, new seating and tree planting. Railings and street clutter were taken away. The High Street was also enhanced with new pavements, road surfaces and street furniture to attract people to this key east-west axis of shops and food and drink outlets.

Alongside these physical improvements, a Business Improvement District was formed and a small grants fund for shopfront improvements was created from business rates income.

Outcome

The enhanced public realm, in combination with the town centre management initiatives, enabled Bognor Regis to remain economically stable at a time of decline for many town centres. A number of good quality independent food and drink outlets and mid-range stores have since opened in the town centre. Vacancy rates halved between 2012 and 2018, and in 2019 were below the national average (7.5% compared with 10.3%).

Over 60% of town centre properties made significant improvements to their outward appearance with some also investing in internal shop-fitting and their upper storeys. Some converted this from storage into residential accommodation, bringing new permanent footfall into the town centre. Overall, the value of privately funded improvements to these premises is conservatively estimated to have been £5m.

Before-and-after surveys of local traders (in 2014 and 2018) showed that 75% agreed that the town looked and felt better than before, and 25% thought the improvements had had a positive effect on their business. Despite an overall downturn for town centres nationally, there was an increase (+9 percentage points) in the proportion thinking that Bognor Regis is a good place to do business, and business confidence (expressed in the likelihood of employing more staff) remained consistent.

Resident and visitor surveys overwhelmingly showed that people thought the town centre looked and felt better than before the improvements (88%). Although they reported spending less on household goods in the town, their spend on food and drink rose significantly – indicating a shift to a more experience-based town centre.

Further information

Bognor Regis Town Centre Public Realm Scheme – Final Evaluation Report

NAIRN

SCHEME NAME
Nairn Connects

LOCATION
Nairn, Scotland

COST
£100k annually

PARTNERS
Nairn Connects, local businesses

OTHER FUNDERS
Historic Environment Scotland, National Lottery Heritage Fund, Paths for All, The Highland Council and others

DATE
2018 to date

SCALE
Town (pop. 9,773)

IMPACTS
Economy

LOCAL ECONOMY
Mixed

INTERVENTION TYPE
Improvements to pedestrian comfort, convenience and personal safety / Improvements to route appearance / Improvements to wayfinding / Cultural, community and local business engagement

A business improvement district working to create a more vibrant town centre through both physical improvements and soft initiatives

Photo credit: Alexander Williamson Photography

CASE STUDIES

NAIRN, A SMALL MARKET TOWN ON THE MORAY FIRTH, IS THE SECOND LARGEST SETTLEMENT IN THE HIGHLANDS. FORMERLY RELIANT ON FISHING, IT NOW HAS A MORE MIXED, TOURISM-LED ECONOMY. IT IS BISECTED BY A TRUNK ROAD CONNECTING ABERDEEN AND EDINBURGH, SO ALTHOUGH THE TOWN IS IN ITSELF A 20-MINUTE NEIGHBOURHOOD, IT IS DOMINATED BY HEAVY ROAD TRAFFIC.

In the early noughties, The Highland Council made the high street one way and installed traffic calming and dedicated disabled parking. However, the local view is that the positive benefits of such improvements will always be limited until such time as the town gets a bypass and the parallel main road of King Street can be detrunked. The town centre has also been undermined by out-of-town retail developments and the wider trend towards online shopping.

In 2015, The Highland Council consulted on a Community Town Centre Plan to identify the best ways to increase footfall in Nairn and deliver town centre regeneration. Although developed with the best of intentions, there has, to date, been little progress implementing the priority actions identified.

In 2018, local businesses voted to create a business improvement district (BID) – which is funded by a levy (minimum £125) on all local businesses based on their rateable value. This funds 1.5 FTE members of staff so that the town itself can take proactive steps towards improving Nairn's reputation and making it a more attractive place to shop, visit and do business.

Intervention

Alongside wider marketing, tourism promotion and business support activities, Nairn Connects (the BID) delivers initiatives to attract people to the town and improve the public realm.

Events

The BID coordinates several annual events. For the last five years, they have put up the Christmas lights and made an event of their switch on, with 'Countdown to Christmas' offering a market, pipe band and festive refreshments. 'Taste of Nairn' (a three-day food and drink festival with market, cookery demonstrations and events such as The World Tattie Scone Championships) and 'Wheels of Nairn' (a classic car rally) have been run for the last four years, and summer-time street markets are held once or twice a year.

Shop local incentives

To highlight the importance of keeping spend local to Nairn, local businesses are encouraged to take part in national 'shop local' campaigns, such as Fiver Fest (when local businesses each set a special offer for £5). The BID distributes the free marketing materials around the town and coordinates overall marketing locally.

As having a town-specific gift card was too expensive, there was widespread take-up of the Highlands gift card by Nairn's shops until it was discontinued due to external factors.

Physical improvements

The BID has helped to create a more pleasant streetscape. Example measures include increasing signage, installing and maintaining 70+ planters and hanging baskets, deep cleaning pavements, fixing gates and painting passageways and shopfronts, and deterring seagulls where they present a health and safety risk.

The BID has secured an additional £200k in grants to fund specific projects, such as installing a permanent electricity supply to the high street, to power lights, stalls and music. Working with other local stakeholders on such projects is critical to Nairn Connects' success. For example, working with Nairn PLAY and the Community Payback Team, it installed or renovated 30 benches at locations around the town. It also helped the Nairn Access Panel secure funding from Paths for All for an accessible pathway around the harbour.

To support the implementation of The Highland Council's recent Active Travel Masterplan for the town, the BID is currently leading the town's efforts to secure Places for Everyone funding for a traffic control scheme on The Brae (which links to High Street).

Outcome

Nairn Connects is planning to monitor on-going town-wide footfall trends using mobile phone data from a specialist data provider.

Counts of visitors to recent events show that these attract significant numbers of people to the town. 'Taste of Nairn' and the street markets average around 8,000 people. Of the 7,800 people at the 2022 Countdown to Christmas, 600 were new visitors who had never been before. More than 10,000 people were attracted by the 2023 car show, with more than 80% of those surveyed saying they would return to Nairn even without the lure of a special event.

The biggest indicator of Nairn Connects' success is that its mandate was renewed in 2023 – with businesses that collectively represent 85% of rateable value in the town voting to continue paying the levy and funding the BID's activities for another five years.

Further information

www.nairnconnects.com

LONDON

Removing a one-way system to reduce traffic dominance and speeds, and better balance the needs of pedestrians and cyclists

SCHEME NAME
Baker Street Two-Way

LOCATION
London, England

COST
£16.2m

PARTNERS
Westminster City Council, Transport for London

OTHER FUNDERS
Baker Street Quarter Partnership, The Portman Estate

DATE
2019

SCALE
City (pop. 8.8m)

IMPACTS
Economy / Environment / Health & Wellbeing

LOCAL ECONOMY
Mixed

INTERVENTION TYPE
Creation of walking networks / Improved connectivity to other sustainable transport modes / Improvements to route appearance / Reduction of traffic speeds / Deprioritisation of vehicles / Healthy Streets and placemaking

Photo credit: Westminster City Council

THE AREA AROUND BAKER STREET AND GLOUCESTER PLACE IN LONDON IS A RETAIL, LEISURE AND COMMERCIAL DISTRICT IN ITS OWN RIGHT. IT DRAWS IN VISITORS TO WORLD-RENOWNED ATTRACTIONS SUCH AS MADAME TUSSAUDS AND THE SHERLOCK HOLMES MUSEUM, AS WELL AS SERVING THE LOCAL COMMUNITY.

It is also a major public transport interchange and part of a major traffic corridor, used on a daily basis by tens of thousands of pedestrians, cyclists, bus passengers and commercial and private drivers travelling to other parts of the capital.
In the 1960s, a contraflow system was created along Baker Street and Gloucester Place in a bid to move road users swiftly through the area and ease congestion. With the growing volume of traffic, this system had become counterproductive. At peak times, single file traffic was sitting bumper to bumper, acting as an impermeable barrier to pedestrians and cyclists. In quieter periods, vehicles were using the one-way routes at high speed, making the space dangerous for more vulnerable road users.

Westminster City Council and Transport for London worked with the Baker Street Quarter Partnership (a business improvement district) and The Portman Estate (a significant local landowner) to develop a scheme to revert the area back to a two-way system. The aim was to provide simpler and easier to navigate routes around and through the Marylebone area for all road users, while reducing both vehicle speeds and the dominance of traffic. The scheme also aimed to provide the opportunity to improve the local public realm and access to public transport – while reducing air and noise pollution.

Intervention

The completed traffic management and public realm scheme has improved over 2km of Marylebone's streetscape – creating 1,600m^2 of new pedestrian space.

The scheme has used re-engineering to provide slower, two-way traffic flow on the parallel streets of Baker Street and Gloucester Place. This reduces vehicles on the connecting residential streets and reduces the volume of vehicle turning movements at junctions, lessening the potential for conflict with pedestrians.

Pavements have been widened and resurfaced, and pedestrians can safely cross the carriageway at 50 new or upgraded signalised crossings in the area. Some of these have 'all-green' crossing phases (i.e. traffic on all arms is stopped at the same time) or replace convoluted staggered crossings with straight-ahead crossings. A central reservation provides a refuge for those choosing to cross in other places. Provision for disabled users has been made throughout, with dropped kerbs and tactile paving. Along with new trees, improved street lighting and the removal of street clutter, these new pedestrian spaces help to create a sense of place where people can relax and spend time.

To enable interchange between sustainable transport modes, the bus route network has been simplified, with north and southbound services on the same routes now accessible to more people in the core Baker Street district. Cycle parking is available at frequent intervals. Cycle lanes and advance stop lines along the quieter Gloucester Place route clearly segregate bikes from pedestrians and increase cyclists' safety and priority.

Outcome

The Baker Street two-way project was monitored with before-and-after traffic surveys, as well as video surveys and site visits. Pedestrian activity on Baker Street increased by an average of 28% between 2017 and 2019 – with increases as high as 84% outside of peak times. During the same period, there was a 25-30% average drop in vehicle speeds and a 15%-20% uplift in cycling volumes on Gloucester Place and Baker Street.

Traffic volumes and air pollution also decreased in this period, but London's Ultra Low Emissions Zone was introduced across this area at the same time – so it isn't possible to say what, if any, proportion of this decrease was due to the Baker Street scheme alone.

Since the scheme was introduced, it is estimated that there are about 5,870 additional pedestrian trips in the area each day, as well as about 53 extra cycling trips, which equates to £20.2m in active travel and health impacts (using the Active Mode Appraisal Toolkit). This uplift in active travel and the introduction of new pedestrian crossings has been achieved with only a negligible impact on vehicle journey times.

When the scheme was completed, it was estimated that the land value within the intervention boundary totalled £7.28bn. If the scheme made the area more desirable and led to Wider Land Value Uplift (WLVU) of 1% to 4% (in line with similar schemes), this would be a £68m-£272m increase in land value. Overall, compared to its cost and 10 years of maintenance – even in a conservative scenario of a 1% increase in WLVU – along with its projected active travel, health and crime reduction benefits, the scheme has generated a Benefit Cost Ratio of 3.8 (which represents very good value for money).

Tips for success

- Using the Healthy Streets approach during the design process so that the partners knew, and the local community were reassured, that the scheme would not only result in benefits for drivers but lead to the area becoming a more pleasant and healthier space.
- Private partners, namely Baker Street Quarter Partnership and The Portman Estate, were crucial investors in the early design and championing the scheme. They secured buy-in from local residents and businesses, ensuring that the scheme was ready for delivery once funding became available.
- Ongoing local communications during the construction phase, and using traffic marshals when the scheme opened, to help road users get used to the new layout.

Further information

Healthy Streets Assets: Guidance for Effective Public Private Partnerships in Delivering Healthy Streets Projects (report by Momentum Transport Consultancy and Volterra for the Cross River Partnership)

LEICESTER

Removing through traffic and parking to create a local centre that works for people rather than vehicles

SCHEME NAME
Braunstone Gate

LOCATION
Leicester, England

COST
£1.75m

PARTNERS
Leicester City Council

OTHER FUNDERS
Department for Transport

DATE
2022

SCALE
Neighbourhood centre (pop. 15,795)

IMPACTS
Community / Economy / Environment / Health & Wellbeing

LOCAL ECONOMY
Less affluent

INTERVENTION TYPE
Creation of walking networks / Improved connectivity with other sustainable transport modes / Improvements to pedestrian comfort, convenience and personal safety / Improvements to route appearance / Deprioritisation of vehicles / Healthy Streets and placemaking

Photo credit: Leicester City Council

BRAUNSTONE GATE IS WEST OF LEICESTER CITY CENTRE AND SERVES AS THE HIGH STREET FOR THE LOCAL COMMUNITY. IT IS IN A POPULAR RESIDENTIAL NEIGHBOURHOOD, WITH A MIX OF PERMANENT RESIDENTS AND STUDENTS.

Historically, Braunstone Gate was part of the transport corridor from Hinkley into Leicester. Since the area last had major highway improvements in the 1970s, much of the through traffic has diverted onto new ring roads. However, some remains, mainly heading for the nearby De Montfort University campus. The area has also traditionally been a key part of Leicester's night-time economy – with several restaurants, bars, nightclubs and takeaways drawing in large numbers of people and traffic from the evening until the early hours.

In 2020, as part of its Transforming Cities Fund programme, Leicester City Council began to look at how it might re-engineer Braunstone Gate. Its aim was to reduce traffic flow, keep buses moving through the area, and to make it more accommodating and safer for pedestrians, both during the day and in the evening.

A Healthy Streets audit was completed and several design concepts developed, which were then re-tested against the Healthy Streets indicators to ensure that they would result in improvements. These options were shared with local residents and businesses through mailings and drop-in consultation events. Delivery of the project was delayed by the pandemic, but social distancing requirements meant that wooden planters were temporarily put along Braunstone Gate to widen pedestrian space into the carriageway. This helped to bolster support for the scheme, as it demonstrated that parking demand wasn't as high as some local businesses thought, and that people were fine with parking on side streets.

Intervention

At the south end of Braunstone Gate, the left turn slip road onto the A5460 was removed and turned into a large, paved area, with trees and plenty of space for adjacent businesses, with street café licences to put out tables and chairs. At the north end, the southbound carriageway was closed to traffic except buses, taxis and cycles, and the northbound exit made left turn only. These changes have discouraged university-bound traffic from cutting through the area (keeping this on the A5460 and New Park Street/Western Boulevard) and slowed down turning traffic.

The pavements have been widened and resurfaced. Rather than bollards or railings, cycle racks are utilised to provide functional barriers between pedestrians and vehicles at key points. Pedestrians have been made to feel more welcome, with a variety of seating and the hoardings that shield the Old Great Central Railway Viaduct (a future development site) decorated with images of old Leicester.

The existing pedestrian crossing was removed in favour of frequent informal crossing points along the street, which enable pedestrians to cross the road wherever they need to. These crossings are demarcated with tactile paving and the carriageway edge with a reduced kerb profile, which creates the feel of a more shared space while providing a physical cue for the visually impaired and guide dogs. A red road surface and large cycle symbols on the carriageway reinforce the perception that vehicles should proceed with care for other road users.

Most of the parking along the carriageway has been permanently moved to side streets to allow for the wider pavements. To satisfy the minority of businesses which were opposed to this, a small number of parking spaces and a loading bay were kept adjacent to the launderette and flower shop – where loading and unloading is most frequent.

Outcome

The pandemic was disastrous for the UK night-time economy and Braunstone Gate was no exception. The local pubs and restaurants are now faring better, but most of the nightclubs have remained closed. Consequently, night-time footfall is not as high as it once was and there has been no reason to completely close the road to traffic in the evenings – as was originally planned. However, the daytime economy in Braunstone Gate is thriving.

An unintended consequence of the scheme is that, as traffic volumes have decreased, traffic speeds along Braunstone Gate are perceived to have increased. The Council is now considering adding in a buildout and traffic priority signs to create a pinch-point giving precedence to southbound traffic (which is predominantly buses and cycles). This will further benefit bus passengers, who have already seen average journey times through the area reduce by between 1 and 4 minutes during peak times. This is a good example of why new schemes should be monitored after implementation and, where necessary, adapted to local circumstances and concerns. This is more cost effective than abandoning them wholesale.

The Council had previously focused on improving the public realm in the city centre. Braunstone Gate was its first foray into applying learning from that in a local centre. The well-received improvements to both the appearance and operation of Braunstone Gate mean that now, funding permitting, the Council will begin to roll out similar schemes in other neighbourhoods.

Tips for success

- A well-respected local businessman, who was prepared to vocally champion the project, was helpful in building support to counter-balance initial opposition from some parts of the local business community.
- Several existing trees were removed due to invasive root systems, so planters and tree pits were used for new trees and planting – to ensure that, in the future, roots don't create trip hazards by raising or cracking the pavement.
- Designing using a standard palette of materials and colours across the city is cost-effective and makes maintenance cheaper and easier.

Further information

www.leicester.gov.uk/your-council/policies-plans-and-strategies/transport-and-streets/transport-bids/transforming-cities-fund-bid/fund-projects

CALDICOT

Investing in the public realm to help kick-start improvements to the quality of a town's offer, so it thrives in the next phase of its history

SCHEME NAME
The Cross

LOCATION
Caldicot, Wales

COST
£1.6m

PARTNERS
Monmouthshire County Council (design and construction by Chris Jones Regeneration, Roberts Limbrick, Capita)

OTHER FUNDERS
Welsh Government

DATE
2021

SCALE
Town (pop. 9,815)

IMPACTS
Community / Economy / Environment / Health & Well-being

LOCAL ECONOMY
Mixed

INTERVENTION TYPE
Creation of walking networks linking key trip attractors / New or refurbished open or green space / Reduction of traffic speeds / Deprioritisation of vehicles / Development of commercial, retail, leisure, residential, civic or historic buildings

Photo credit: Roberts Limbrick

THE VILLAGE OF CALDICOT, IN SOUTH WALES, ORIGINALLY GREW AROUND ITS NORMAN CASTLE, WHICH SITS IN A COUNTRY PARK AND REMAINS A KEY FEATURE OF THE TOWN TODAY. IN THE 1960S, CALDICOT RAPIDLY EXPANDED INTO A TOWN ON THE BACK OF THE GROWTH OF THE LOCAL STEELWORKS.

Today, it is an expanding commuter settlement, well placed alongside the South Wales Mainline (which links it to Cardiff, Newport, Gloucester, Bristol and London) and the M4/M48.

The commuter population is expected to continue to grow, with two sites in the town earmarked for housing in Monmouthshire's Local Development Plan. Caldicot's local centre needs to meet the needs of both this expanding population and its existing community. It needs to encourage new arrivals to spend money on retail and food and drink in the local community, rather than in the urban centres where they work. However, the town centre is relatively small, and the building stock rather tired, with the aesthetics of the 1960s to 1980s still very evident in the urban design. Combined with vacant units and a lower-end retail offer, its draw has been limited compared to competing centres nearby.

With many people commuting by rail, and the castle and country park becoming a greater part of the town's 'offer' and hosting an increasing number of events, Caldicot's streetscape also needs to facilitate quick and easy active travel connections between the town centre, country park, train station and outlying residential areas. Otherwise, there is a danger that growing traffic levels will lead to periods of congestion and parking issues.

Enhancing quality

With most of the town centre's building stock in private ownership, the Council's options for enhancing the quality of the urban fabric are limited. But it has seen an opportunity to potentially stimulate private investment by improving the quality of the public realm and transport network – as landowners may then be more confident and motivated to match this uplift in quality.

The Cross, an open area at the eastern end of the pedestrianised high street, was identified as a prime location to begin these improvements. Although home to key elements of the town's historic identity (such as The Cross Inn, war memorial and village sign), it was a dated and unloved public space with badly located street clutter that didn't encourage people to stop and relax. Traffic on the adjacent Sandy Lane/Chepstow Road dominated the area and cut it off from Church Road, which leads up to the castle and country park.

Intervention

The Cross is now an inviting destination in its own right. The central area is an attractive, level square, ideal for holding outdoor events and markets. Around the edge, there is space for café style seating outside neighbouring businesses. Updated and better positioned seating encourages pedestrians to not pass straight through but to stop and appreciate their surroundings. Trees and planting soften the space and provide a habitat for wildlife. Trees are planted in tree pits, which will accommodate their root systems and absorb rainwater run-off (from which pollutants will be naturally filtered by the soil).

To help pedestrians with their onward journeys, the space has been re-engineered to better facilitate interchange with other sustainable transport. The bus stops have been relocated to be less visually intrusive and now meet current accessibility standards. Intuitive links for pedestrians and cyclists connect the square to local and national active travel routes – in particular, Church Road.

A moratorium on shared spaces put in place by the UK Government during the design process meant that the design team had to think creatively about how to overcome the severance effect of Sandy Lane/Chepstow Road. Signage and a high contrast block paved raised table decrease vehicle speeds and heighten drivers' awareness of other road users. A zebra crossing across the raised table gives pedestrians priority, while low profile, 60mm chamfered kerbs (which can be detected by guide dogs), tactile paving and the high contrast carriageway surface help people with visual impairments to move safely through the space. Design elements from the square are mirrored in the public realm space on the opposite side of the road, such as in the paving, seating and planting. The overall effect is of a single cohesive space, where pedestrians have priority.

A subsequent scheme has created a safe pedestrian route all the way along Church Road, past the primary school, to the castle and country park. Three side roads have their Give Way line set back from their junctions, with the pavements on either side connected by raised tables, creating some of the first continuous footways in Wales. Church Road's pavements have been widened, in places creating informal crossing points. Build-outs force drivers to slow down and yield to oncoming traffic. Planting strips and buildouts have provided space for rain gardens. These have made the street more attractive while providing natural drainage and enhancing biodiversity. This new pedestrian route brings residents and school children up from the town centre and encourages visitors to the castle and country park to walk down and spend time and money in the town.

Outcome

Since The Cross re-opened, traffic speeds along Sandy Lane/Chepstow Road have reduced, with the 85th percentile speed dropping from the top of the 30-40mph bracket to the middle of the 20-30mph bracket. The mean speed through the Church Street junction is now just 18mph. These reductions are greater than speed reductions recorded in other parts of Caldicot since Wales introduced a default 20mph speed limit on restricted roads.

Stimulating an uplift in Caldicot town centre's offer and motivating private landowners to invest in their own properties is a long-term process. However, the enhanced look and feel of The Cross has already influenced surrounding businesses. The owners of The Cross Inn renovated the outside of this historic building, while the sandwich shop, opticians and two restaurants have all taken advantage of an ongoing council grant scheme (funded by the Welsh Government's Transforming Towns programme). This has helped the owners of these commercial buildings in the town centre to improve their frontages and feel part of the enhanced public realm experience.

The design standards used for The Cross have been integrated into a 'design toolkit' for Caldicot's town centre buildings. This encourages landowners to use higher quality materials and design standards, and to ensure that the changes they make contribute to creating a unified look and feel for Caldicot town centre. This will help to make it as desirable and buoyant as other towns in this southeast corner of Wales.

Tips for success

- The council fostered a collaborative approach to design and delivery, involving local groups and organisations with a long-term interest in the area. The design team embraced a holistic and cross-professional approach that helped when facing unexpected issues during construction and the need to change the design.
- Keeping the bigger picture aims in mind was important when balancing progressive design ideas and new best practice (such as the Active Travel Act Guidance) with traditional design tools (such as road safety audits and the Design Manual for Roads and Bridges), which are inherently risk averse.

Further information

www.monmouthshire.gov.uk/caldicot-regen/the-cross/

CARDIFF

Designing an accessible new bus station so that all passengers can travel through it independently, comfortably and safely

SCHEME NAME
Cardiff Bus Interchange

LOCATION
Cardiff, Wales

COST
£11m (fit out only)

PARTNERS
Cardiff Council, Rightacres Property, Transport for Wales

OTHER FUNDERS
Network Rail, Welsh Government

DATE
2024

SCALE
City (pop. 362,400)

IMPACTS
Community / Health & Wellbeing

LOCAL ECONOMY
Mixed

INTERVENTION TYPE:
Improved connectivity to other sustainable transport modes / Improvements to pedestrian comfort, convenience and personal safety

Photo credit: Transport for Wales

CENTRAL SQUARE AND WESTGATE STREET ARE IN THE HEART OF CARDIFF, LINKING BOTH CARDIFF CENTRAL TRAIN STATION AND THE CITY'S MAIN BUS STATION TO THE CITY CENTRE. AT THE START OF THE CENTURY, THE AREA WAS RUN DOWN AND OVERSHADOWED BY THE PRINCIPALITY STADIUM.

In 2010, Cardiff Council and Rightacres Property began developing a new masterplan for the area. This aimed to create a welcoming gateway into the city for bus and rail passengers, in keeping with the urban design principles being used elsewhere in the city centre.

As part of this redevelopment, plans were made to replace the existing open-air bus station. This was no longer fit for purpose, unable to cope with the volume of bus traffic and lacking in modern technology which would help both its operation and its passengers. The 'Interchange' building was designed into the Central Square redevelopment. This would be built on the site of a former multi-story car park to house a new bus interchange and retail concessions on the ground floor and commercial and residential space above.

The existing bus station was demolished in 2015, and a temporary on-street bus interchange was set up nearby. Although the new bus interchange was initially due to open in 2017, the Central Square masterplan wasn't agreed until 2018, and then construction was delayed by the pandemic. Nearly a decade after its predecessor's demolition, Cardiff Bus Interchange finally opened on its new site in 2024.

Designing in accessibility

Transport for Wales, which operates the bus interchange, was keen to make the new facility accessible to as many different types of people as possible, and to ensure they would be able to seamlessly continue their journey into the city centre by foot or on wheels – thereby supporting the fifth of Welsh people who are disabled (21%, 670,000 people).

In addition to wider public consultation about the development, Cardiff Council's Access Focus Group was asked to feed into a Diversity Impact Assessment and the interchange's initial design process. An 'engagement group' of about 65 people, including representatives of disability and older people's charities, the LGBTQ+ community and walking groups, was consulted regularly throughout the design process.

Intervention

The new Cardiff Bus Interchange welcomes passengers living with dementia and other long-term illnesses, physical disabilities, learning disabilities and neurodiversity, as well as able-bodied passengers. Pedestrians are able to walk or wheel comfortably, independently and safely through the bus station – as they either arrive to visit the city centre, or interchange with connecting rail services at the adjacent station.

The bus interchange is open 22 hours a day and is staffed at all times by 'Interchange Ambassadors' (specially trained in disability equality) who can help people with onward travel. A central Passenger Assist meeting point is easily accessible to anyone needing help, and a Passenger Assist service is available on request for passengers needing to transfer to/from the railway station.

The 14 bus bays are static (i.e. services always stop at the same bay), to give passengers certainty about where they will find their bus. High contrast grey flooring and tactile paving, as well as clear customer information signs, help people with visual or learning disabilities, dementia or neurodiversity to navigate independently through the space. Digital displays show real-time bus arrival and departure information, as well as times for connecting train services. Pictograms of the building and its facilities are displayed at each end of the bus interchange. These are tactile so they can be deciphered by braille users. They also include QR codes so that passengers can use their smartphones (which will be set up to suit their specific audio-visual needs) to link to further information or specific services.

The main toilets are a bank of large, unisex cubicles so that disabled people or children may be accompanied by their carers. Fully accessible toilets and baby change facilities are included. For ease of access, a separate Changing Places toilet is centrally located. This is specifically designed to meet the needs of people with multiple, complex disabilities. In line with best practice guidance, it is large enough for a disabled person and up to two assistants, and is fitted with a height adjustable, adult-sized changing bench, a centrally located toilet with space both sides for assistants, a privacy screen, a height adjustable sink, a wide paper roll, and a large waste disposal bin.

Seating is spread throughout the bus interchange and includes both perch benches and ergonomically designed full seats. The latter have side tables and electric points for charging mobile phones and laptops, which can connect to free Wi-Fi. There are also three hydration stations spread throughout the building, dispensing free water.

The whole space has been designed to maximise natural light, which is helpful to those with dementia or visual disabilities and can discourage antisocial behaviour. The main pedestrian entrance leads to Central Square's new piazza, where barriers and level changes have been minimised, so that pedestrians can easily walk or wheel into the rail station, or head into the city centre. The piazza benefits from natural surveillance because it is overlooked by the neighbouring BBC Cymru Wales building as well as a hotel, offices and student accommodation, which occupy the upper storeys of the Interchange building. As a result, pedestrians can feel safe stopping to spend time in the square, visiting one of the food and drink concessions, or waiting in the fresh air for friends or their connecting bus or train.

Outcome

At the time of writing, the Cardiff Bus Interchange was so new that there hadn't been time for usage or impact data to accumulate. Transport for Wales plans to monitor how it operates and to continue to develop the facilities to meet even more passenger needs. It also wants to replicate, and improve upon, its accessible facilities in other Welsh public transport hubs, like the new Cardiff Crossrail tram stops (funded by the Levelling Up Fund) which will open in 2028. These will link Central Station with Cardiff Bay, giving passengers even more choices for their onward travel from Cardiff Bus Interchange.

Tips for success

- Early and ongoing engagement with as many different types of people as possible, with varying disabilities or other needs, meant that a wide variety of voices were able to ask for the facilities and support they need when travelling.
- Colleagues from across the partner organisations remained open minded and willing to try to meet as many needs from different user communities as possible. They were bold and proactive when they could meet these needs, and honest and transparent when they couldn't.

Further information

www.tfw.wales/projects/metro/south-wales-metro/metro-central/cardiff-bus-interchange

CAMPBELTOWN

Investing in town centre buildings and increasing the breadth of the town's offer for the benefit of residents and visitors

SCHEME NAME
Campbeltown Town Centre Regeneration Project

LOCATION
Campbeltown, Scotland

COST
£3.4m (+ £9.5m match)

PARTNERS
Argyll & Bute Council and a range of private, community and third sector partners

OTHER FUNDERS
European Commission, Heritage Lottery Fund, Highlands & Islands Enterprise, Historic Environment Scotland, Scottish Government

DATE
2007-2024

SCALE
Town (pop. 4,852)

IMPACTS
Community / Economy

LOCAL ECONOMY
Less affluent

INTERVENTION TYPE:
Development of commercial, retail, leisure, residential, civic and/or historic buildings

Photo credit: Argyll & Bute Council

CASE STUDIES

CAMPBELTOWN IS A SMALL RURAL TOWN, LOCATED ON THE WEST COAST OF SCOTLAND. BY THE 1990S, CHANGES TO THE TOURISM INDUSTRY AND THE CLOSURES OF THE RAF BASE, SHIPYARD AND CLOTHING FACTORY HAD ALL LED TO A SHORTAGE OF HIGH VALUE JOBS AND UNEMPLOYMENT.

Along with depopulation and a lack of inward investment, the local economy was increasingly fragile. Consequently, the town had fallen into disrepair, with a growing number of deteriorating and derelict buildings. These reinforced the community's feeling that their town was tired, in need of investment and had been forgotten.

In 2005, a public-sector consortium, led by Argyll and Bute Council, came together to consult the community and develop a regeneration strategy for Campbeltown and the surrounding peninsular. This helped to kickstart a series of investments in the town, such as the redevelopment of the leisure centre, health centre and police station and create a new dental surgery and an affordable housing development.

With maritime transport key to the local area, the quay was extended to better serve a range of industries, and an enhanced berthing facility was opened to provide facilities for 54 yachts and cruisers to encourage people to disembark, restock and spend time in Campbeltown. These improvements boosted the town's morale and built momentum for other initiatives relying on community involvement and investment.

Intervention

Since 2007, Argyll and Bute Council has obtained a series of grants which have enabled it to seed-fund improvements to rejuvenate the building stock in Campbeltown town centre. Funding totalling £3.4m was leveraged mainly from the Conservation Area Regeneration Scheme (CARS), Townscape Heritage Initiative (THI), Town Centre Fund and the Council's CHORD project (to aid regeneration and economic development in its five major waterside towns). This core funding was complemented by £9.5m match funding from the private, public and third sectors, enabling a £13m programme of investments in town centre premises.

Over 230 grants were awarded via a 'small grants scheme' for owners repairing residential and commercial properties, and a 'shopfront improvement scheme' helping businesses upgrade their frontages. Grants were typically in the range of £1k-£5k, although some were notably more (£25k+). Jointly, these grants benefitted about 30 commercial and 60 residential premises and were used for more than 75 shopfront improvements.

A key outcome is the investment in 11 prominent tenement buildings (i.e., ground floor commercial space with flats above) that were repaired using CARS and THI grant funding, with match funding from private sector housing grants and the private owners' contributions. Thirty new owners' associations were set up to enable these renovations and to facilitate ongoing maintenance works to keep the buildings in good repair.

Some building improvements were relatively small-scale, such as painting and repairing traditional timber frontages, while others were more extensive. Derelict buildings were assessed with detailed feasibility studies to identify how they might be repurposed to best serve the needs of the town. In particular, a number of significant but derelict listed buildings in the town centre and harbour were brought back into community use:

- The former town hall was converted into a community hub, with office space for rent, conference and meeting facilities. The main hall is now hired out for events such as concerts and weddings (by South Kintyre Development Trust).
- The old schoolhouse was converted into a backpackers' hostel (providing an income for Kintyre Amenity Trust).
- The Picture House cinema was reopened after a 12-year, £3m renovation (by Campbeltown Community Business).
- New owners invested £3m in the Royal Hotel, reopening it as a four-star, 23 room hotel with pub and restaurant.

A series of 21 community training events were held in parallel to the building renovations. These taught nearly 300 participants from local trades, contractors and housing agencies the skills to repair and maintain traditional building features such as stonework, leadwork and sash windows. More than 2,000 participants took part in another 22 community events, which included training on fundraising, marketing, archaeology and genealogy, to help community groups deliver local projects.

Complementary initiatives

A part-time handyman is employed during the summer months to keep the town centre looking its best during the visitor season. They litter-pick, remove flyposting, weed green space and water hanging baskets, clean the windows and paint the railings of public buildings.

Small-scale public realm improvements, such as fingerpost signs and dropped kerbs, have improved navigation and accessibility. A cross-town active travel route is in development, which will support the town's 20-minute neighbourhood, from the hospital and secondary school in the south through the town centre to the supermarket and primary school in the north. The 'Discover Campbeltown' app (approximately 500 downloads per year) features walking and cycling routes around the town, including a whisky-themed trail and scavenger hunt. Free guided walks (self-led or with volunteers) showcase the town's architecture and heritage.

CASE STUDIES

Outcome

Thanks to these works, the fabric of much of the town centre's building stock has been safeguarded for the long term. Campbeltown is now a more desirable place to live and work, with a more vibrant retail and leisure offer, enhanced visual appeal and a café culture.

The number of vacant units decreased from 20 in 2010 to 3 in 2021. The small grant scheme alone enabled 15 units and over 3,700 m^2 of vacant floorspace to be brought back into use. Due to their success in Campbeltown (and Rothesay), Argyll and Bute Council began similar grant schemes in other towns.

Twenty new businesses opened in the town between 2018 and 2022, 13 of which are still trading in 2024. Informal feedback from one local business, which relocated to newly renovated premises in 2019, is that it has expanded from two employees to a team of nine, and annual turnover has more than doubled. Two other local businesses report increases in turnover of 10%-15% in the last two years.

In 2020, consultants Stantec carried out an evaluation of the economic impact of building improvement works in Campbeltown to date. They estimated that:

- The re-opened floorspace would have created 51 new jobs, generating the equivalent of £2.4m of gross GVA per annum.
- The equivalent of 114 temporary construction jobs were created, generating over £4m in gross construction GVA.

In the results of a survey of more than 400 local people:

- 90% said regeneration works had led to Campbeltown being an improved place, with 62% more likely to visit the town centre and 64% likely to spend more money there.
- 90% of businesses said the regeneration works had been transformative to their business.
- 70% of beneficiaries said they wouldn't have been able to fund works without the grant they received. On average, they spent nearly 85% of their renovation budget with other businesses in Campbeltown.
- 88% of participating contractors said grant funded renovations had generated follow-on work, based on their improved profile and experience.

According to Stantec's research, another key outcome of the scheme has been the empowerment of the Campbeltown community. It has reinforced a sense of local pride and community spirit and given local people the confidence and ability to achieve their own change. For example, South Kintyre Development Trust is now running a community gardening project, which brings older and young people together to care for the town's public green space.

While the area still suffers from a lack of high-quality jobs and a shortage of construction contractors, the local housing market remains buoyant and, in 2020, SURF named Campbeltown 'Scotland's Most Improved Place' (in its awards for best practice in community regeneration). The town's regeneration continues, with the three whisky distilleries beginning to invest in themselves as visitor destinations, and plans for more distilleries and a golf course and leisure complex in the pipeline. It is once again seen as a place worth investing in.

Tips for success

- Ensuring that all building improvements were done to conservation area standards has preserved the town's heritage and unique character.
- To avoid uniformity, no design standards were set for shopfronts, but the use of pastel colours was encouraged to create visual harmony.
- The project's public, private and third sector partners were adaptable in leveraging funding from new sources. Initial quick wins helped to build trust and get the local community on board with a shared vision of what needed to be done.
- The same Project Officer provided continuity throughout the project. For more than ten years, the council team worked from a town centre office building shared with local community groups. This provided an informal 'regeneration HQ' where information was shared and networks were built.

Further information

www.argyll-bute.gov.uk/planning-and-building/growth-and-development/campbeltown-regeneration

CASE STUDIES

ALLOA

Using the Place Standard Tool to turn a conversation about a town centre living development into a shared vision for regeneration

SCHEME NAME
Living Alloa

LOCATION
Alloa, Scotland

COST
£1.1m (plus £9m for Primrose Place)

PARTNERS
Alloa First, Clackmannanshire Council, Clackmannanshire Third Sector Interface, Kingdom Housing Association

OTHER FUNDERS
Architecture & Design Scotland, Scottish Government

DATE
2019

SCALE
Town (pop. 20,417)

IMPACTS
Community / Economy / Health & Wellbeing

LOCAL ECONOMY
Less affluent

INTERVENTION TYPE:
Creation of walking networks linking key trip attractors / Improvements to route appearance / Development of commercial, retail, leisure, residential, civic and/or historic buildings / Policy development and awareness raising / Healthy Streets and placemaking

Photo credit: Alloa First

WHEN CLACKMANNANSHIRE COUNCIL ACQUIRED THE SITE OF A FORMER DEPARTMENT STORE IN ALLOA, IT WAS WARY OF SIMPLY REDEVELOPING THE COMMERCIAL SPACE – AS THERE WERE ALREADY A NUMBER OF VACANT RETAIL UNITS IN SURROUNDING STREETS.

As an alternative, discussions began with Kingdom Housing Association about re-purposing the site as a multi-generational housing complex for older, physically disabled and learning-disabled people.

Design workshop

With the support of Architecture & Design Scotland, the council held an initial design workshop, involving professionals from the planning, health and social care, dementia care, housing and transport sectors, as well as stakeholders representing local businesses. Using the Place Standard Tool, this workshop helped to identify simple but effective design measures for the complex which would benefit older residents and those with dementia. It also led to the realisation that local services and infrastructure would need to be improved to meet the wider needs of these residents.

Community consultation

The Council and Clackmannanshire Third Sector Interface (with support from the Place Standard Conversations Fund) then conducted a consultation with residents, local businesses and third sector stakeholders – to gather views on the town centre and priorities for change in the vicinity of the development.

The consultation included a three-day drop-in event in a vacant town centre shop and an online survey, as well as focus group workshops and one-to-one sessions in local venues such as libraries, community centres and even a pub. The Place Standard Tool was used as the framework for all of these.

Demographic information was collected with responses, which allowed for targeted outreach to key under-represented groups such as older people, mental health groups, disability groups, ethnic minorities and younger people. In total, around 300 people took part.

Community concerns

The process highlighted the community's concerns, including the need for communal and green space for residents to enjoy, perceptions of public safety at nighttime, and a car-centric culture making it unsafe for vulnerable pedestrians. Local businesses were also concerned about loss of trade if new residents weren't able to use the town's facilities, and because the cleared site was currently used as informal parking by their customers. These concerns and the community's shared vision for improvement were fed into development of Living Alloa.

The five priorities for action were all relatively small-scale but would enable residents to get about safely and would bring active travel benefits for the whole community.

CASE STUDIES

They were:

1. To refurbish the recently closed public toilet next to the bus station (the closure of which had discouraged older people from coming into town) to create a community hub, the 'Alloa Hub', where residents could integrate with local people.
2. To remove a labyrinth of tall brick walls and dog legs which were preventing residents from easily and safely navigating their way into High Street.
3. To re-model the poorly functioning and disconnected public space at Bank Street.
4. To ensure that residents weren't cut off from their local park, supermarket and health centre by King Street, the inner ring road.
5. To re-model the public realm along Shillinghill, to provide a more appealing and safer feeling pedestrian route to Forth Valley College.

Intervention

Primrose Place provides 60 purpose-built flats specifically designed for people with dementia and disabilities. Generous corridors provide space for people with sticks, frames or mobility scooters, while leaving plenty of space for people to personalise their front doors and make them easily recognisable. There are two lifts and, to help navigation, each floor is differentiated by a colour and symbol. Every flat includes a large cupboard for charging a mobility scooter or storing other mobility aids.

The complex has a communal sensory garden but doesn't have any formal internal shared spaces – so residents are encouraged to get out into the community. To help with this, as part of their welcome pack, new residents are given a booklet on shops and services available in the town. Some shops have taken part in training to learn how to make their spaces and customer service more dementia friendly. For example, by removing dark coloured doormats, which people with dementia can mistake for holes.

Townscape adaptions

Using Town Centre Fund Capital Grant funding, the Council was able to swiftly mobilise designs and approvals to deliver all the community's priorities before the complex opened:

1. The Alloa Hub is now much more than just a public 'lavvie'. It is an orientation point for people arriving in the town by public transport or bicycle. It offers community and travel information and sells a range of books and merchandise related to the local area and active travel. It hosts 'Made in Clacks' (a retail space for local crafters) and the Clackmannanshire Tapestry (part of the Great Tapestry of Scotland) – promoting the creativity and history of the community. At particular times of the year, it becomes a centre for festive activities, such as pancake tossing and Santa's Grotto.

2. A legible pedestrian route, with single line of sight, leads from Primrose Place to the town centre. It is decorated with an iconic mural created by two local artists.
3. Bank Street square has been revitalised and is now more accessible due to buildouts and a raised table providing a safe crossing point, as well as additional dropped kerbs.
4. On King Street, informal crossing points have been created using raised tables and narrowed sections of carriageway, to ensure pedestrians can safely follow desire lines.
5. Walls and railings have been removed along Shillinghill, and replaced with steps, a ramp and green space. It is less intimidating now that seating, which was a honeypot for antisocial behaviour, has been relocated.

Outcome

An impact study of the social and health benefits of Primrose Place for its residents is planned for the future. Anecdotally, the Living Alloa project has been very well received by the local community. One Primrose Place resident thanked those who worked on the project for "giving him his life back", now he can go out unassisted. The mural remaining vandalism-free for more than two years is one small indicator of the sense of community pride the town's residents have in the changes they brought about.

The visitor book at the Hub is full of effusive comments. Primrose Place residents regularly attend its lively 'Thursday Club' for socially isolated older people.

When Primrose Place opened, the local electrical shop sold out of TVs and fridges. Residents, their visitors and carers all continue to shop in the town and make use of its food and drink outlets. Only one retail unit on Primrose Street remains empty.

There is still plenty to deliver – with next steps being shopfront improvements and repurposing vacant units, and development of a longer-term masterplan for the town centre.

The Council's experience with Primrose Place has shown that expanding town centre living could be key to the future of its towns. It has been using the Place Standard Tool with other communities, to understand their priorities too.

Further information

www.ourplace.scot/resource/place-standard-and-its-use-alloa-clackmannanshire-council

CASE STUDIES

STOBSWELL

Creating pocket places helped to empower a neighbourhood and stimulate on-going community participation in regeneration projects

SCHEME NAME
Pocket Places for People, Stobswell

LOCATION
Dundee, Scotland

COST
£350,000

PARTNERS
Dundee City Council, Stobswell Forum

OTHER FUNDERS
Scottish Water, Sustrans, Transport Scotland

DATE
2023

SCALE
Neighbourhood centre (pop. 2,458)

IMPACTS
Community / Environment

LOCAL ECONOMY
Less affluent

INTERVENTION TYPE:
New or refurbished open and/or green space / Improvements to pedestrian comfort, convenience and personal safety / Improvements to route appearance/ Reduction of traffic speeds / Deprioritisation of vehicles

Photo credit: Dundee City Council

ALBERT STREET IS THE LOCAL CENTRE FOR DUNDEE'S STOBSWELL NEIGHBOURHOOD. IT IS HOME TO A NUMBER OF INDEPENDENT AND LONG-STANDING RETAILERS WHO SERVE THE LOCAL COMMUNITY, WHERE A HIGH PROPORTION OF ETHNIC MINORITIES AND OLDER PEOPLE LIVE IN HIGH DENSITY TENEMENTS IN THE STREETS ADJACENT TO ALBERT STREET.

The road is a major transport corridor into the city – so it experiences heavy traffic and high parking demand. Several of these side streets had previously been closed to traffic at their Albert Street end, creating a continuous footway along the main road and preventing rat running. Some limited planting and seating had been provided alongside these modal filters but the redundant road space they created was mainly taken up by parked cars.

Dundee City Council started to think about how it could use its District Centre Fund to make these spaces, and other junctions in the vicinity, work better for the local residents, not least since many of the tenements don't have their own outside space.

Intervention

In partnership with Stobswell Forum, a local community charity, a consultation period began. During this, temporary planters (made of durable and easy to procure concrete piping, painted by a local artist) were placed at the closed end of Craigie Street – to get residents thinking about the road space which could be converted and how it might be altered to revitalise areas around dull, grey tenement buildings.

Ultimately, five neighbourhood locations benefitted from permanent streetscape changes: Arthurstone Terrace, Balmore Street, Craigie Street, Langlands Street and Park Avenue. At each location, space has been reclaimed from parked or moving vehicles, in the process improving road safety and creating pockets of pedestrian-friendly spaces for people to move through or spend time in. The changes have included:

- Injecting colour with trees and planting, murals, painted pavements and light projectors.
- Providing seats, bins and cycle parking – to make more useable spaces for pedestrians and cyclists transferring to foot.
- Putting in raised tables, build-outs and/or advance stop lines at three side roads – to slow turning traffic and improve the visibility of vulnerable road users, while also creating space for planting and seating.
- Creating continuous footways along Albert Street across these three side roads and installing dropped kerbs and tactile paving throughout – to give pedestrians priority and improve accessibility.
- Designing all planted areas as rain gardens (where rainwater run-off is channelled directly into the soil) – for ease of maintenance and to help prevent flooding.

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At Craigie Street, the dead end created by the existing modal filter has been turned into a pocket park, which is Dundee's first large-scale rain garden. A 30,000-litre storage tank beneath is fed by run-off and downpipes from the surrounding buildings. The tank is emptied slowly back into the city's drainage system. It provides flood defences sufficient for a '1 in 1,000 year storm' and will help to protect the city centre downhill from extreme weather events brought on by climate change.

Above-ground improvements at Craigie Street include trees and planting, high quality seating and tables suitable for wheelchair users, a mural and community notice board, and resurfacing to provide a continuous walkway across what was the old road surface. This surface is made of loose blockwork, which provides gaps for drainage, and has been laid to create patterns which tie into a pre-existing mural on the gable end of an adjacent building.

Outcome

A Town Centre Health Check was completed for Albert Street before the pandemic. A follow-up will be completed when time and resources allow. For the time being, the Council is reliant on upcoming student projects and internships to monitor the impact of the scheme. In the meantime, it is reassured that the rain gardens functioned as planned during the four named storms the city has experienced since the project was completed.

Locally, it is clear that the most significant impact of the Albert Street improvements has been on community empowerment and participation, engendering a belief that change is achievable. This has been reinforced by the prestige of the scheme, which has won, and been shortlisted for, several national awards.

The absence of graffiti and vandalism in any of the new spaces suggests that the community is proud of its new assets, and it is certainly making use of them. For example, pupils from the secondary school at the top of Albert Street now spend money in the takeaways at the bottom of the street, and then use the newly created spaces to socialise.

The local community has since led projects to install four more murals in the Stobswell area, using street art to create vibrancy and a greater sense of place. It is working with the Council to create another pocket park in nearby Eliza Street, where the Stobswell Forum (supported by the local housing association) has opened a previously vacant shop. This space serves as a much-needed community hub, where residents can drop in, and get support and advice.

The recently launched Stobswell Albert Street Action Group is now campaigning for improvements on Albert Street itself. It wants to make further progress towards community regeneration by reducing the dominance of traffic and HGVs, drawing in a wider range of shops and making the street somewhere pedestrians feel safer and want to spend more time.

Tips for success

- Online and face-to-face conversations with residents and local businesses helped build a belief that change was possible and worth the impact of construction works and further road closures.
- Renovating overgrown planting around a nearby car park was a low-cost solution to improve natural surveillance, make it more useable, and placate residents concerned about the loss of on-street parking spaces.

Further information

www.showcase-sustrans.org.uk/news/dundee-community-at-heart-of-neighbourhood-transformation

SHEFFIELD

Creating a sense of place using green and blue infrastructure

SCHEME NAME
Grey to Green

LOCATION
Sheffield, England

COST
£9.9m

PARTNERS
Sheffield City Council, South Yorkshire Mayoral Combined Authority

OTHER FUNDERS
European Regional Development Fund, Canal and Rivers Trust, Yorkshire Water

DATE
2016 – 2022

SCALE
City centre (pop. 555,000)

IMPACTS
Economy / Environment

LOCAL ECONOMY
Less affluent

INTERVENTION TYPE:
Creation of walking networks linking key trip attractors / Improved connectivity to other sustainable transport modes / New or refurbished open and/or green space / Deprioritisation of vehicles

Photo credit: Sheffield City Council

CASE STUDIES

CASTLEGATE WAS HISTORICALLY THE HEART OF SHEFFIELD BUT FEWER SHOPS AND BUSINESSES, INDUSTRIAL DECAY AND THE RELOCATION OF CIVIC FUNCTIONS LED THE AREA INTO ACCELERATED DECLINE. VACANT BUILDINGS, AN INCREASINGLY CAREWORN CHARACTER AND ANTISOCIAL BEHAVIOUR ALL UNDERMINED THE REMAINING BUSINESSES AND DISCOURAGED NEW INVESTMENT.

With the opening of a new inner relief road in 2008, traffic on the dual carriageway, which cut through the area, was reduced dramatically. This presented the opportunity to reclaim two traffic lanes and reverse severance, to reconnect Castlegate with the riverside business district, and Victoria Quays canal basin.

Grey to Green was conceived as a transformative environmental project to create a linear park along the redundant carriageways, forming a safe and accessible route through the area and creating a more appealing environment which would attract new footfall, investment and jobs. Critically, the park would be designed with a focus on its function as a Sustainable Drainage System (SuDS), more naturally routing cleaned rainwater slowly back into the River Don. It was created in two phases of works, which took place between 2016 and 2022.

Intervention

The resulting linear greenspace stretches over 1.3km – giving Castlegate a unique sense of place. Covering 3 hectares, it is a wildlife corridor which is home to 40 semi-mature trees and swathes of low maintenance, high impact perennials and bulbs. The diverse, multi-layered planting is designed to protect pedestrians from air pollution, absorb carbon, cool ambient temperatures and create year-round interest – for both people and wildlife. It provides a habitat for birds, bats and insects, who are encouraged to nest and hibernate using sculptural totems, which include ‘bug hotel’ design features for the likes of ladybirds, lacewings and bees.

Rainwater runs off from the adjacent highway and the walking and cycling paths, flowing over flush kerbs into the planting – diverting it away from the sewer so it can be used within the landscape. The majority of planting areas act as rain gardens, absorbing run-off into the soil. This benefits the plants and allows water to return to the air naturally through plant evapotranspiration. The rain gardens run in sequence, with more intense rain retained on the surface by check dams, which control the water flow. This is passed from one check dam to the next before finally being discharged slowly into the river.

Pollutants such as oils, heavy metals and microplastics are naturally filtered from the rainwater by a layer of sandstone, aggregate mulch and soil, where they are broken down by natural processes.

The green and blue functions of the space have been designed alongside provision for bus, pedestrian and cyclist movements. For example, a wide pavement with regular resting places makes traversing the park more amenable for pedestrians. The totems and elements of the engineering deliberately left on display provide focal points and celebrate Sheffield’s history as a city of makers.

Outcome

Since Phase 1 of Grey to Green was completed in 2016, a number of businesses have relocated to previously vacant office buildings and warehouses in the area. The improvement to the area has created at least 540 jobs and is projected to create more than 1,600 in total. These include nearly 200 in Castle House, an empty listed building re-developed to accommodate start-up and scale-up businesses and the National Videogame Museum. It is also home to the Kommune food hall, which is part of the area's expanding food and drink offer, serving workers and people from newly opened residential developments.

The environmental benefits of the scheme are the subject of long-term monitoring by the University of Sheffield. Early indicators of success are heartening:

- 24,000 bathtubs worth of water diverted from sewage treatment annually.
- 561% increase in biodiversity in just one part of the scheme.
- Positive reductions in ambient temperatures potentially already reducing the urban heat island effect.

Locally, it has also made the case for more investment in transforming tarmacked areas into green public spaces that encourage walking and cycling, with one local survey showing that 98% of people want to see more green streets in the city.

Further information

www.greytogreen.org.uk