# "I really need to get out more": the inclusive (universal) design of streets with older people in mind

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**Abstract**
This presentation for Walk21 reports on the findings from a major UK government funded research project which investigated the extent to which the detailed design of neighbourhoods are supportive of older people in getting out and about. The research was part of a consortium project which was funded by the UK Engineering and Physical Sciences Research Council looking at aspects of inclusive (universal) design for getting outdoors (I'DGO).

Using a research sample of 200 people aged 65+ living in a range of settlement types and housing settings within the UK, in-depth interviews were undertaken to determine their preferences for different environmental design features at the scale of detailed design (for example, a participants preferred walking surface, preferred style of public seating) within a neighbourhood environment, and the reasons for these preferences. A physical audit was then undertaken of the street in which they lived, and of their wider neighbourhood environment using the Street Walkability Audit Tool which was developed with older people in mind using principles and practices of inclusive design.

Findings are presented from 3 attributes of detailed design which focus specifically on footways, namely width, materials, and adjacent and shared use (cyclists and pedestrians). Findings from other attributes are available on the I'DGO Consortium website at www.idgo.ac.uk. The overall indicate that our research participants live in neighbourhoods which do not support the undertaking of daily activities. Typical barriers are poorly maintained footways, uneven surface finishes, insufficient seating along routes to activities, inadequate provision of controlled crossing points and the like. The implications of these barriers suggest that older people are prevented in getting out and about; and when they do go out, they experience the direct effects of poor design and maintenance, thereby compromising their enjoyment and quality of life.

Keywords: environmental checklist, inclusive design, neighbourhoods, older people, streets, universal design, walkability audit.

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**Professor Elizabeth Burton** is founder and co-director of the WISE (Wellbeing in Sustainable Urban Environments) research unit in Oxford Institute for Sustainable Development at Oxford Brookes University, UK. **Lynne Mitchell** is co-founder of WISE. This unit, formed in 2004, builds on over ten years' research looking at the relationship between the built environment and human well-being, mental health and quality of life. WISE has established an international reputation in research on urban design for older people particularly those with dementia.

Both SURFACE and WISE work closely with the OPENSpace research centre at Edinburgh College of Art / Heriot Watt University, and the Centre for Rehabilitation and Human Performance Research at the University of Salford, who together form a virtual centre of excellence in the inclusive design of external environments, www.idgo.ac.uk. The aim of I'DGO is to identify the most effective ways of ensuring that the outdoor environment is designed inclusively, to improve the quality of life for older people and disabled people. I'DGO is supported by funding from the UK Engineering and Physical Sciences Research Council.

# "I really need to get out more": the inclusive (universal) design of streets with older people in mind

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## Introduction

How important is it for older people's well-being such that they are able to get outdoors, and how could the quality of their neighbourhood environment make a difference? These are key questions being addressed by the I'DGO Consortium which was established in 2003 to identify the most effective ways of ensuring the outdoor environment is designed inclusively to improve the quality of life of older people.

Getting outdoors has the potential to benefit older people in a number of ways. Not only do inclusive neighbourhoods make it easy to undertake necessary tasks, such as going to the shops or the post office, they also make it possible to engage in a range of meaningful social and physical activities. Our surveys to date of over 770 people aged 65+, using a wide range of innovative research concepts and methods show the importance of the outdoor environment in older people's lives. Further information on the findings is available at www.idgo.ac.uk/older_people_outdoors

## Approach to the research on neighbourhood environments

This paper reports on the preferences of research participants aged 65+ for different environmental design features at the scale of detailed design within a neighbourhood environment, and the reasons for these preferences, and the extent to which the design and maintenance of a UK neighbourhood street responds to the preferences. The methodology for this was two-fold. Firstly, we undertook in-depth interviews with 200 people aged 65+ living in a range of settlement types (for example city centre, suburban edge) and housing settings (for example own home, sheltered, both private and public housing) within Greater Manchester, Oxfordshire and Gloucestershire, UK. Semi-structured conversational interviews were used to encourage the participants to talk freely about their opinions and experiences on a range of issues including their preferences for different environmental design features. Secondly, for the same 200 participants described above, we undertook a physical audit of the street in which they live, and the wider neighbourhood environment, again at the scale of detailed design (for example, amount of pedestrians, general level of accessibility). The basis of the audit tool was a checklist previously developed by OISD:WISE which was adapted to include findings from the literature review and focus groups, and experience of the SURFACE team in undertaking audit work. The audit tool was piloted for inter-rater reliability, and to ensure that attributes being measured were assessed in an appropriate manner. Details of the audit tool are provided in Annex 1.

In presenting the findings, due to space constraints in this paper, we have chosen to report on the preferences and audit findings for footways and footpaths, specifically width, materials, and adjacent and shared use (cyclists and pedestrians).

**Width of footways**

Context

Footways and footpaths should be designed so that they provide safety for pedestrians from traffic. Inclusive Mobility (2002) advises that ideally the width of the footway should be 2000mm to facilitate two people in wheelchairs to pass each other comfortably. Where this width is not possible, a clear width of 1500mm should be provided, with an absolute clear minimum width of 1000mm in exceptional cases. The phrase 'clear' refers to the effective width taking into account permanent obstacles on the footway such as street lamp standards, trees, telegraph poles, bus shelters for example.

What older people tell us they prefer and why

Very few participants (16%) feel comfortable with using narrow footways. Typical reasons for this are:

> "You have to go on the roadway to get passed people on narrow pavements"
> "You can't stop and talk to anyone because people can't get by, especially those with buggies"
> "I have to take it steady and hope that people are polite enough to walk around me"

Participants find temporary obstacles to be both a nuisance and hazard:

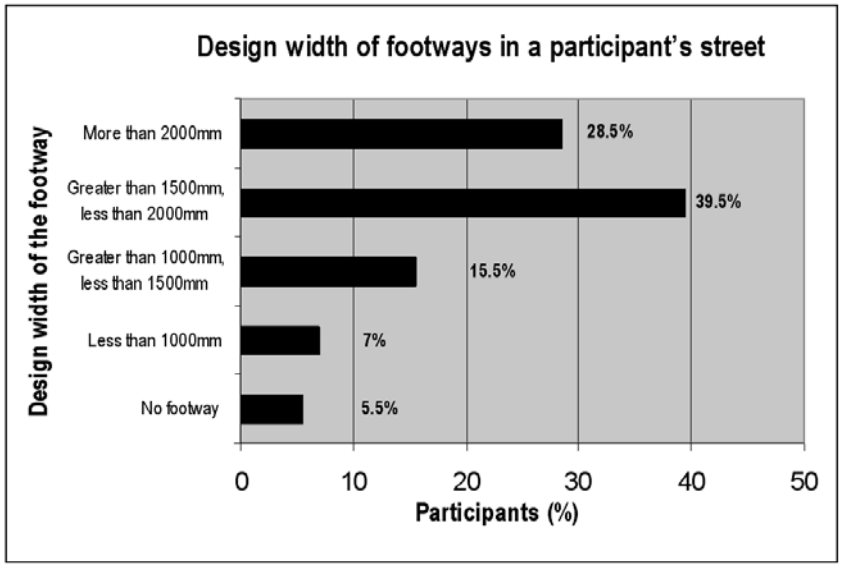
> "Parking on pavements is a problem. Sometimes you have to walk on the road to pass parked cars"
> "I have to drive my mobility scooter on the road because pavements are blocked by parked cars. Riding a scooter on the road is unsafe"
> "…It can be a marathon for frail people and those with walking sticks to get around them [temporary building works]"
> "Many people park their cars on the pavement, they even drive on the pavement"

Most participants (79%) prefer wider uncluttered footways. Typical reasons for this are:

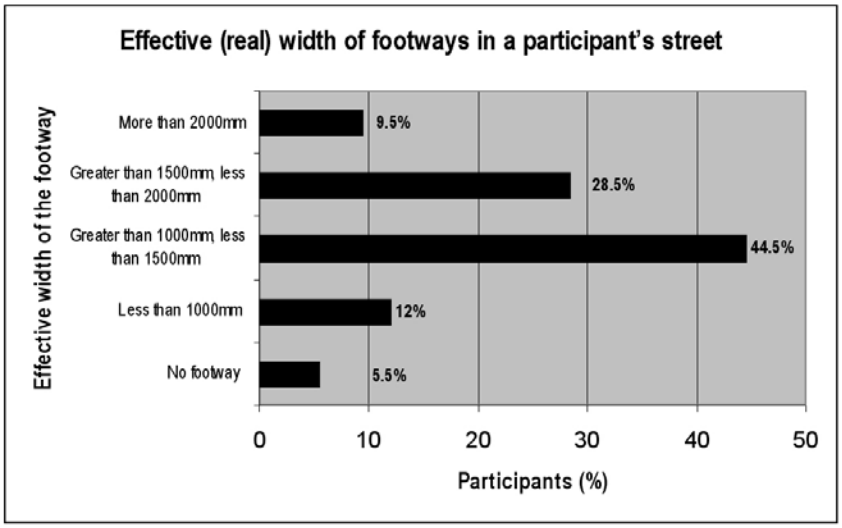
> "I feel safer from cars on wider pavements"
> "I'm less likely to bag into people or things with my walker on wider pavements"
> "I need room for my scooter and so that other people can get past me safely"

Findings from the physical audit survey

Whilst most footways are designed to meet good design standards (68% of footways in our survey exceeded 1500mm), the effective width of the footway is compromised by the positioning of permanent obstacles which cause an obstruction such that a significant number of footways (62%) have a clear width of less than 1500mm. This means that pedestrians are using narrower footways than design guidance recommends which may compromise personal safety.




**Bar chart 1 Design width of footways in a participant's street**




**Bar chart 2 Effective (real) width of footways in a participant's street**

Additionally the audit showed that a person living in an urban environment is more likely to have a wider footway, with suburban footways typically being quite narrow, and some rural villages having no footway at all.

Recommendations

Whilst most footways in the UK were originally designed to provide minimum requirements, the subsequent poor positioning of permanent features has meant a significant reduction in the effective width of the footway. Designers and engineers should:

- Ensure that footways in new developments are designed to minimum width standards;

- Provide clear design information on the positioning of permanent obstacles such that minimum widths of footways are maintained;
- Ensure that permanent obstacles are built into the width of the footway;
- Prioritize personal safety of pedestrians such that temporary obstacles on footways are discouraged, and where possible are avoided through the use of good design.

**Adjacent and shared use (cyclists and pedestrians) of Footways and Footpaths**

Context

There is comprehensive guidance on the siting, design, implementation and maintenance of adjacent and shared use footways in the UK. However, it is worth noting that Local Transport Note 2/04 section 10.1.2 defines an adjacent use facility as a footway which is segregated such that only part of the width is a cycle track, the remainder being a footway. It is illegal for the cyclist to ride on the pedestrian side, but the cycle track will normally retain a right of way for people on foot; by contrast, a shared use facility is un-segregated and the full width of the route will have been converted to a cycle track on which there is a continued right of way on foot.

What older people tell us they prefer and why

Most participants (3/4) feel safe from motorised traffic when walking around their local neighbourhood. Examples of what makes people feel less safe are:

> "There's a nasty bit between the main road and the post box. It's a narrow pavement and a bus lane and the buses wiz by and make me feel unsteady"

Only half of participants (56%) feel safe from cyclists, skateboaders and rollerbladers. Cyclists riding on footways are seen as the main concern:

> "They [cyclists] always ride on pavements, and don't have bells"
> "If they [cyclists] are on the pavement, I feel unsafe because I can't hear them"
> "Cyclists forget people are old and can't move out of the way quickly"

Additionally, mobility scooter users riding along the footway are a concern:

> "…I'm worried about electric scooters because I don't hear them coming"
> "Mobility scooters [on the footway] are positively dangerous, they go so fast"

2/3rd's participants prefer not to use an adjacent use footway with cyclists:

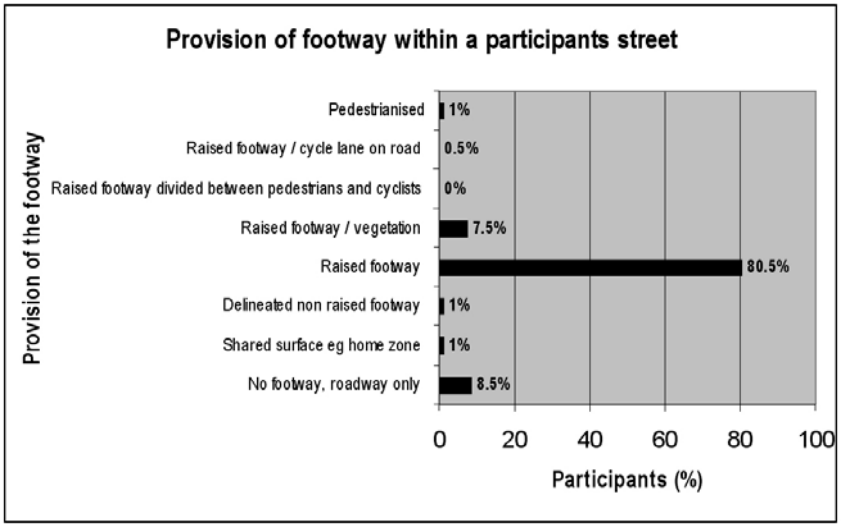
> "I don't like cycle tracks. They suddenly stop and cyclists may come around where you are walking"
> "I don't like them because the pedestrians are in the middle between the traffic and the bikes"
> "It's good for cyclists, but dodgy for pedestrians"
> "If cyclists don't stay on their side, it can be hazardous"
> "This is absolutely unsatisfactory because nobody knows where they are, it's confusing, and it encourages cyclists to go on the pavement where there are no cycle tracks"
> "In general they are okay but people never know which side to be on"

However, some participants did refer to the advantages of having an adjacent use footway:

"It facilitates walking and cycling"
"I can scooter along the bike lane"
"When I'm on my scooter, I ride on the part meant for pedestrians"
"It gives you a bit of security as you walk along"

Findings from the physical audit survey

The audit survey showed that most participants (90%) live in a street which has a raised footway for pedestrian only use, and there is limited provision for cyclists to use the footway.




**Bar chart 3 Provision of footway within a participant's street**

At the neighbourhood scale, there is an increase in cyclists use of footways with up to 1/3rd of neighbourhoods having some combined use (either adjacent or shared). Additionally, in some neighbourhoods (12%), there is a lack of clear delineation from cyclists on footways. This suggests that whilst our participants typically have pedestrian only footways in their own street, 1/3rd of participants will use some footways with cyclists in accessing their local neighbourhood environment, the delineation for which may not always be clear.

Recommendations

In designing and installing adjacent and shared use footways, there is a need to address the following issues:

- Mobility scooter users using different lanes of the adjacent use footway – are they a pedestrian or a cyclist?

  Manual / electric wheelchairs and scooters are categorized as invalid carriages under LTN 2/04. An invalid carriage can be used on a cycle track providing that it cannot exceed 4mph. Scooters that can exceed 4mph have to be fitted with a converter such that they cannot exceed 4mph otherwise they would be classed as a motor vehicle. It is recommended that information similar to the *Code of Conduct Notice for Cyclists* (Annex D LTN 2/04) should be published at regular intervals along

adjacent and shared use footways such that scooter users in particular are aware of their responsibilities. This would also help scooter users to realize that the designation of 'cycle track' includes them, and that they are not a pedestrian whilst using the scooter.

- Unclear delineation and confusion for pedestrians over which lane to use.

  Whilst there are comprehensive guidelines on demarcation, our research would suggest that these are not clearly understood by all users. It is recommended that particular attention is paid at both the risk assessment and design phases of implementing an adjacent use footway to ensure that signage is clear to all users. Additionally, the evaluation of in-use survey / consultation / observation studies will assess the extent to which the footway designation is understood by users, and subsequent modifications should be made if the footway proves unacceptable in use.

- Incorrectly laid paths such that the pedestrian is in the middle – between the carriageway and the cycle lane.

  It is recommended that rigorous checks are made during the design and construction phase to ensure that a footway is implemented in accordance with the guidelines.

- Lack of provision for cyclists and pedestrians when a cycle track ceases.

  There is comprehensive guidance on the design and management of this, but both shared use and adjacent use lanes are not always designed in accordance with the guidance. It is recommended that rigorous checks are made during the design and construction phase to ensure that a footway is implemented in accordance with the guidelines.

- How do we stop cyclists swapping lanes?

  The DtT LTN 1/04 Annex D provides a Code of Conduct Notice for Cyclists, and suggests that this code could be placed at points of entry and intervals along the route'. It is recommended that this code is actively displayed on footways. Additionally, the installation of an upstand or kerb would contribute towards solving this problem.

**Materials of Footways and Footpaths**

Context

General principles of footway surface are that they should be firm and remain firm during use; the surface should not move unpredictably when the footway is in use; the surface should not be slippery either in dry and wet conditions; paving flags should be laid with firm joints; there should be very little or no loose material on the surface; and new cobbled surfaces are unlikely to be appropriate. (DfT 2002, Fieldfare Trust / Countryside for All 2005). More recently Manual of Streets (DfT 2007) suggests that all materials should be 'easy to maintain, safe for purpose, durable, sustainable and appropriate to the local character'.

What older people tell us they prefer and why

We chose 4 contrasting types of footway material (tarmac, paving slabs, gravel, cobbles) and asked participants their preference as a walking material. They were allowed to select none or up to all 4 types.

Tarmac is the preferred walking material for reasons of smoothness, safety and physical flex. The only problems identified by participants were potential for the surface to be slippery in winter if icy (lack of grip compared to gravel for example) and it can be uneven if it is dug up and not re-laid properly. Typical comments are:

> "The easiest for riding a scooter"
> "Because it's even, it's nice to be able to look around you instead of having to look where to put your foot"
> "You can't slip or trip on tarmac"
> "It's safe but not pretty"
> "Tarmac has more give in it [flex] than slabs, which is good for my bad foot"

Paving slabs are viewed as being aesthetically pleasing and possibly a good walking surface if they are properly laid. However, participants experience would suggest that maintenance is a critical issue since 66.5% of participants did not select this material, the main reason being personal safety. Typical comments are:

> "Paved pavement is more interesting to walk on than tarmac, but slabs can easily become wobbly and thus dangerous for older people"
> "Paving slabs look nicer, but they get uneven and you have to look down"
> "I feel vulnerable on uneven slabs because I trip easily"
> "If the paving surface is uneven, the scooter vibrates and that causes a huge pain in my neck"
> "They can be a dangerous menace"

Gravel was not selected by 81.5% of participants. Whilst they felt it possibly had its place in open areas or nature places, it was described as being a very difficult surface to use particularly with mobility aids, and as an unsafe material because of risk of falling. Typical comments are:

> "I have trouble with gravel especially the very fine stuff because my crutches slip on it"
> "Gravel is impossible with my walker"
> "It's a horrible surface to fall on"
> "If it's loose it makes you feel unsteady"
> "It's alright if properly maintained"

Cobbles were seen as being aesthetically pleasing, but inherently difficult to walk on with one participant reminding us that they were designed to take steel rim cart wheels and not pedestrians! Typical comments are:

> "Cobbles are nice to look at in their place"
> "They look lovely, but they are a hazard"
> "They are too bumpy for my scooter"
> "They are awful for wheelchair users"
> "They are difficult to walk on, you have to pick up your feet"

Findings from the physical audit survey

Typically our participant's street is made of tarmac (84%) or similar smooth material. Paving slabs are used on 14% of streets, with cobbles and gravel each on 1% of streets. At the neighbourhood scale, this changes significantly with 48% of footways being made from non smooth materials such as paving slabs or similar, or a combination of smooth / non smooth materials.

In terms of the general condition of the footway in a participant's street, we found that 28% of footways could be determined as poor or dangerous because of pot holes, broken flags, uneven surfaces and broken kerbs for example. Additionally, if the footway was surfaced with paving slabs, it was twice as likely to be in a poor state of repair compared to tarmac. Where poor tarmac paving was identified, this was typically because the adjoining edging kerb of concrete or similar was in a state of disrepair, rather than the tarmac surface.

At the neighbourhood scale, 76.5% of neighbourhoods had poorly maintained paving and 48% of neighbourhoods had some areas of non smooth paving material [photo].

This would suggest that pedestrian safety is being compromised by the quality of paving material particularly where the material is paving slabs.

Recommendations

Most footways in neighbourhoods are designed and laid in accordance with the general principles of being firm and not slippery thus creating a safe surface upon which to travel as a pedestrian. However, there is clearly a difference between the expectations of designers and engineers in providing a surface which is easily navigable for everyone versus the experience of our participants in using footways in their neighbourhood environment. In selecting a footway material, consideration should be given to the following issues:

- The need for minimal maintenance of the material such that the inherent design features of firmness and safety are evident within the footway for as long as possible;
- The use of assistive devices and mobility aids such as walking sticks, outdoor walkers, and the ease with which these aids interact with a surface material;
- The different types of pedestrian, and the increasing use of mobility scooters;
- The need for a pedestrian - particularly an older person, to feel confident is using a footway, and although location and width of the footway are important, so too is the material and mitigating the fear of falling.

Additionally, BS8300 suggests general design criteria for footway and footpath surface around buildings, and these criteria would form the basis of good design for neighbourhood footways in general.

> 'Access routes should have a firm, slip resistant and reasonably smooth surface. Cobbles, bear earth, sand, and loose gravel should not be used. With the exception of recognized tactile paving, undulations in the surface of paving, whether paving slabs, blocks, bricks or formless materials such as concrete and asphalt, should not exceed 5mm under a 3m straight edge. The difference in level between adjacent paving units or utility access covers and paving nits should be no greater than 5mm. If feasible, the joints between paving nits should

be flush. Otherwise, the joints should be no wider than 10mm and no deeper than 5mm. (BS8300:2001 p12)

**Summary**

We know from our analysis that our participants go out into their neighbourhood very frequently, regardless of season, and that walking is the predominant form of transport. The three main reasons for going out are socialising, getting physical exercise and fresh air, and contact with nature. Findings from the physical audit of 200 neighbourhood environments identified many barriers within a typical street and we have sought to expand on some of these within this paper. A survey of designers revealed that they have limited knowledge of how to consider the requirements of older people in the design of streets and neighbourhoods. Recently published guidance in the UK *Manual for Streets* (Department for Transport 2007) goes some way towards this but there remains patchy understanding and limited guidance on requirements of different user groups, particularly people aged 65+.

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I'DGO Inclusive Design for Getting Outdoors www.idgo.ac.uk

**Annex 1**

## Street Walkability Audit Tool

***Developed with older people in mind using principles and practices of inclusive design***

(Shortened version excluding details of sub categories due to space constraints)

| **Attributes within a street** | **No. of sub categories under each attribute** |
|---|---|
| Street type | 10 |
| Street topography | 6 |
| Pedestrian / traffic segregation (range of footway types) | 8 |
| Width of footway – predominant versus effective | 2 |
| Footway shared use with cyclists – provision, width, delineation | 3 |
| Ease of movement on footway – permanent, semi permanent, temporary obstacles | 3 |
| Footway material | 6 |
| Kerbs – provision, type, whether correctly laid | 9 |
| Condition of footway | 5 |
| Level of motorised traffic | 1 |
| Pedestrian crossings – controlled, uncontrolled | 11 |
| Signage | 3 |
| Bus stops / shelter | 8 |
| Seating | 27 |
| Incivilities and dereliction | 8 |
| Public art | 6 |
| Public street greenery | 8 |
| **Attributes within a wider neighbourhood** | **No. of sub categories under each attribute** |
| Connectedness of streets + no of junctions | 5 |
| Level of legibility | 6 |
| Amount of traffic | 3 |
| Amount of pedestrians | 3 |
| Overall provision, and condition, of outside environmental features (eg seating, toilets) | 11 |
| Safety and perceived safety of footways (eg narrow pavements, hazardous obstacles) | 9 |
| Evidence of incivilities and dereliction | 4 |
| Types of planting | 6 |
| General level of accessibility eg wide footways, ease of movement) | 11 |