

Sut y gall yr amgylchedd adeiledig a gofod cyhoeddus hwyluso byw iach
How the built environment and public space can facilitate healthy living

**DALEN WYBODAETH
INFORMATION SHEET**

FH09C

"Mae'r amgylchedd y mae pobl yn byw ynddo yn ddylanwad allweddol ar eu hiechyd a'u lles yn gyffredinol. Gall nodweddion arbennig o fewn yr amgylchedd adeiledig gynorthwyo pobl i gerdded a beicio yn lleol - megis llwybrau diogel a hygyrch i'r ysgol, y gwaith ac i siopau. Gall hyn gael effaith ddramatig ar iechyd unigolyn drwy roi cyfle ar gyfer gweithgaredd corfforol dyddiol."

Gallwn wneud cyfraniad gwirioneddol at wella iechyd yn ein cymunedau a chynorthwyo i fynd i'r afael â newid hinsawdd pe bai cynllunwyr trefol a thrafnidiaeth yn gweithio gyda'i gilydd i greu gwell cyfleoedd ar gyfer pobl i gerdded a beicio."

Jane Davidson AC, Gweinidog dros yr Amgylchedd, Cynaliadwyedd a Thai, Llywodraeth Cynulliad Cymru

"The environment within which people live is a key influence on their health and general well-being. Certain characteristics within the built environment can help people walk and cycle locally - such as safe and accessible routes to school, work and to the shops. This can have a dramatic influence on an individual's health by providing the opportunity for daily physical activity."

We can make a real contribution to improving health in our communities and help tackle climate change if town and transport planners work together to create better opportunities for people to walk and cycle."

Jane Davidson AM, Minister for Environment, Sustainability and Housing, Welsh Assembly Government

Introduction

Physical activity is now recognised as an important element of a healthy lifestyle, reducing the risks of ill-health and premature death. The Welsh Assembly Government recommends moderate intensity physical activity of at least 30 minutes, or an hour for children, on 'five or more days a week' as the minimum to maintain health⁽¹⁾. The trend, however, is for physical activity levels to decline, associated with labour saving devices and mechanisation, an increase in sedentary leisure activities, and increased use of private cars. This inactivity increases the risks to health from obesity, coronary heart disease, stroke, diabetes, osteoarthritis, some cancers, and mental health problems.



Cyflwyniad

Caiff gweithgaredd corfforol ei gydnabod erbyn hyn fel elfen bwysig mewn ffordd o fyw iach, gan leihau perygl afiechyd a marwolaeth gynnar. Mae Llywodraeth Cynulliad Cymru yn argymhell gweithgaredd corfforol o ddwyseidd cymedrol am o leiaf 30 munud, neu awr i blant, ar 'bump neu ragor o ddyddiau'r wythnos' fel yr isafswm i gynnal iechyd⁽¹⁾. Y duedd, fodd bynnag, yw i lefelau gweithgaredd corfforol leihau, yn gysylltiedig â dyfeisiau arbed gwaith a mecaneiddio, cynnydd mewn gweithgareddau hamdden eisteddog, a chynnydd yn y defnydd o geir preifat. Mae'r anweithgarwch hyn yn



Mae Teithio Byw yn gweithio gyda llunwyr polisi ac ymarferwyr i hyrwyddo cerdded a beicio fel gweithgaredd corfforol sy'n gwella iechyd. Sustrans yw elusen cludiant cynaliadwy flaenaf y DU ac mae'n gweithio ar brosiectau ymarferol i annog pobl i gerdded, beicio a defnyddio cludiant cyhoeddus er budd eu hiechyd ar amgylchedd.

Active Travel works with policy-makers and practitioners to promote walking and cycling as health-enhancing physical activity. Sustrans is the UK's leading sustainable transport charity and works on practical projects to encourage people to walk, cycle and use public transport to benefit health and the environment.

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Creating the environment for active travel

cynyddu'r perygl i iechyd gan ordewdra, clefydau coronaidd y galon, strôc, diabetes, osteoarthritis, rhai canserau a phroblemau iechyd meddwl.

Yr amgylchedd adeiledig

Yr amgylchedd adeiledig yw un o'r llawer o newidynnau y tybir eu bod yn effeithio ar lefelau gweithgaredd corfforol. Mae'r ffordd y mae wedi'i strwythuro yn gallu rhoi mwy, neu lai, o gyfleoedd i fod yn gorfforol egniol yn y cartref, yn yr ysgol, tra'n teithio, ac mewn gweithgareddau hamdden⁽²⁾. Mae llawer o weithwyr iechyd proffesiynol yn credu y gall rhaglenni i gynyddu teithio byw dyddiol - cerdded a beicio - drwy newidiadau yn yr amgylchedd y mae pobl yn gweithio a byw ynddo, fod yn fwy effeithiol mewn cynyddu lefelau gweithgaredd corfforol yn y tymor hir nag ymyriadau sydd wedi'u canoli ar weithgareddau strwythuredig megis aerobeg⁽³⁾.

Mae'r dystiolaeth yn tyfu

Mae llenyddiaeth ymchwil yn y maes hwn yn tyfu'n gyflym, gyda'r rhan fwyaf o'r astudiaethau hyd yn hyn yn dod o'r Unol Daleithiau ac Awstralia. Dangoswyd bod y nodweddion canlynol o ran ardaloedd trefol i gyd yn gysylltiedig â chynnydd mewn cerdded a beicio mewn ardaloedd trefol⁽³⁾:

- dwyseddau uchel
- cymysgedd uwch o ddefnydd tir
- cydbwysedd rhwng tai a swyddi
- cynllunio safle a strydoedd sy'n gerddwyr a beicwyr gyfeillgar
- rhwydweithiau strydoedd grid.

Cynllunio cymdogaeth

Mae cynllun ein cymdogaethau yn penderfynu argaeledd a diogelwch chwarae awyr agored diogel, ac a fydd ein plant yn gallu cerdded i'r ysgol, sut yr awn i'r gwaith neu i siopa, a hygyrchedd parciau, gofodau gwyrdd a chyrchfannau eraill⁽⁴⁾. Mae atyniad strydluniau yn ffactor bwysig mewn annog teithio byw. Po fwyaf atyniadol yw'r stryd i bobl, uchaf yw'r lefelau o gerdded⁽⁵⁾. Adroddir yn gyffredinol mai strydoedd lleol a pharciau cyhoeddus yw'r manau mwyaf diogel a chyfleus ar gyfer cerdded⁽⁶⁾⁽⁷⁾. Mae gofodau gwyrdd, eu maint, pa mor atyniadol dydynt a'u hagosrwydd hefyd yn cyfrannu at annog teithio byw⁽⁸⁾.

The built environment

The built environment is one of many variables thought to affect physical activity levels. The way it is structured can provide more or fewer opportunities to be physically active, at home, work, school, in travel, and in leisure⁽²⁾. Many public health professionals believe that programmes to increase daily active travel – walking and cycling – through changes in the environment within which people live and work, may be more effective in increasing physical activity levels in the long-term than interventions centred on structured activities such as aerobics⁽³⁾.

The evidence is growing

Research literature in this area is growing rapidly, with the majority of the studies to date from the US and Australia. The following characteristics of urban areas have all been shown to be associated with increased walking and cycling in urban areas⁽³⁾:

- high densities
- a greater mixture of land uses
- a balance between housing and jobs
- pedestrian and cycle friendly site and street design
- grid street networks.

Neighbourhood design

The design of our neighbourhoods determines the availability and safety of outdoor play and whether our children can walk to school, how we go to work or go shopping, and the accessibility of parks, green spaces and other destinations⁽⁴⁾. The attractiveness of streetscapes is an important factor in encouraging active travel. The more attractive the street is to people, the higher levels of walking are found⁽⁵⁾. Local streets and public parks are the most commonly reported safe and convenient places for walking⁽⁶⁾⁽⁷⁾. Green spaces, and their size, attractiveness and proximity are also instrumental in encouraging active travel⁽⁸⁾.

Transport

Recent reviews show consistent associations between neighbourhood design and active travel⁽⁹⁾⁽¹⁰⁾. People who live in neighbourhoods with 'traditional' or 'walkable' designs report about 30 minutes more travel by walking each week⁽¹⁰⁾ and



Trafnidiaeth

Dengys adolygiadau diweddar gysylltiadau cyson rhwng cynllunio cymdogaeth a theithio byw⁽⁸⁾⁽⁹⁾. Mae pobl sy'n byw mewn cymdogaethau sydd â chynlluniau 'traddodiadol' neu 'gerddadwy' yn adrodd tua 30 munud yn rhagor o deithio drwy gerdded bob wythnos⁽¹⁰⁾ a chyfanswm uwch o weithgaredd corfforol⁽¹¹⁾ yn cynnwys ymhlith trigolion hŷn⁽¹²⁾, o gymharu â rhai hynny sy'n byw mewn cymdogaethau llai cerddadwy.

Nid yw'n ymddangos bod y lefel gynyddol hon o weithgaredd corfforol mewn lleoliadau 'cerddadwy' yn ganlyniad bod pobl sydd eisoes yn weithgar yn gorfforol yn dewis byw mewn lleoliadau o'r fath: yn hytrach mae'n ymddangos bod amodau'r amgylchedd adeiledig yn cyflyru ymddygiad y trigolion drwy gynnig cyfleoedd cynyddol i fyw bywyd corfforol egniol⁽¹³⁾.

Diogelwch

Caiff cynllunio cymdogaeth ei gydnabod ymhlith oedolion hŷn fel nodwedd sy'n hyrwyddo (neu gyfyngu) gweithgaredd yn ddiweddarach mewn bywyd. Gall pryderon am ddiogelwch gyfyngu ar gerdded, yn fwy na phellter i gyrchfan, mewn oedolion hŷn⁽¹⁴⁾. Gall anrhefn gymdeithasol ac amodau ffisegol gwael cymdogaethau fod yn ffactor sy'n atal gweithgaredd corfforol i lawer o drigolion⁽¹⁵⁾. Cysylltwyd goleuo gwael, gormodedd sŵn, traffig trwm a diffyg trafndiaeth gyhoeddus i gyd gyda gwanhau gweithredoedd corfforol mewn oedolion dros 55 oed⁽¹⁶⁾.

Gordewdra

Mae Cymru ar hyn o bryd yn profi haint o ordewdra, gyda 18% o oedolion bellach yn ordew⁽¹⁷⁾. Ers 2000 adroddwyd cysylltiad rhwng yr amgylchedd adeiledig a gordewdra drwy nifer o astudiaethau yn yr Unol Daleithiau ac Awstralia⁽¹⁸⁾⁽¹⁹⁾. Mae'r amser a dreulir mewn ceir yn ymddangos i fod yn ffactor allweddol. Mae ymchwil yn yr Unol Daleithiau yn adrodd bod gan gymysgedd defnydd tir y cysylltiad cryfaf â gordewdra, gyda'r ardaloedd mwy cymysg yn cael eu cysylltu gyda thebygolrwydd is o ordewdra. Mae pobl yn fwy tebygol o fod dros bwysau neu yn ordew os ydynt yn byw mewn ardaloedd llai cerddadwy⁽²⁰⁾⁽²¹⁾. Mae pob cilomedr ychwanegol a gerddir bob dydd yn gysylltiedig â 4.8% o ostyngiad yn y tebygolrwydd o fynd yn

more total physical activity⁽¹¹⁾ including among older residents⁽¹²⁾, compared to those who live in less walkable neighbourhoods.

This raised level of physical activity in 'walkable' settings does not seem to be due to people who are already active choosing to live in such settings: rather, it seems that the built environment conditions the behaviour of residents by offering increased opportunities to live an active life⁽¹³⁾.

Safety

Neighbourhood design is recognised among older adults as promoting (or restricting) activity in later years. Concerns about safety can limit walking more than distance to a destination in older adults⁽¹⁴⁾. Social disorder and poor physical conditions of neighbourhoods can deter physical activity for many residents⁽¹⁵⁾. Poor lighting, excessive noise, heavy traffic, and lack of public transport have all been associated with loss of physical function in adults over 55 years of age⁽¹⁶⁾.

Obesity

Wales is currently experiencing an epidemic of obesity, with 18% of adults now obese⁽¹⁷⁾. Since 2000 an association between the built environment and obesity has been reported through a number of studies in both the US and Australia⁽¹⁸⁾⁽¹⁹⁾. The amount of time spent in cars appears to be a key factor. US research reports that land use mix has the strongest association with obesity, with more mixed localities being associated with lower likelihood of obesity. People are more likely to be overweight or obese if they live in less walkable areas⁽²⁰⁾⁽²¹⁾. Each additional kilometre walked per day is associated with a 4.8% reduction in the likelihood of obesity, and each additional hour spent in a car per day with a 6% increase in its likelihood⁽²²⁾.

Social capital

People living in walkable, mixed use neighbourhoods also have higher levels of social capital compared with those living in car-oriented suburbs. They are more likely to know their neighbours, participate politically, trust others, and to be socially engaged⁽²³⁾. In contrast, low density urban sprawl is associated with roughly 20% lower community involvement⁽²⁴⁾.



ordew, a phob awr ychwanegol a dreulir mewn car bob dydd yn gysylltiedig â 6% o gynnydd yn y tebygolrwydd o fynd yn ordew⁽²²⁾.

Cyfalaf cymdeithasol

Mae gan bobl sy'n byw mewn cymdogaethau cerddadwy, defnydd cymysg hefyd lefelau uwch o gyfalaf cymdeithasol o gymharu â'r rheini sy'n byw mewn maestrefi sy'n troi o amgylch y car. Maent yn fwy tebygol o adnabod eu cymdogion, cyfranogi'n wleidyddol, ymddiried mewn eraill ac i fod yn gymdeithasol⁽²³⁾. Mewn cyferbyniad, mae ymlediad trefol dwysedd isel yn cael ei gysylltu â thua 20% yn is o ymglymiad cymunedol⁽²⁴⁾.

Tawelu traffig

Gall cyflymder traffig fod yn benderfynnydd pwysig mewn gweithgaredd stryd, a gall ei leihau efallai ei gwneud yn haws i bobl ddewis ffyrdd egniol o deithio. Mae ymchwil yn y DU yn awgrymu y gall parthau 20mya mewn ardaloedd preswyl gynyddu defnydd gan blant ar strydoedd a bod rhai oedolion yn honni eu bod yn cerdded neu'n beicio mwy o ganlyniad⁽²⁵⁾⁽²⁶⁾. Adroddodd astudiaeth seiliedig ar Glasgow bod trigolion yn honni cerdded 20% yn rhagor ar ôl rhoi cynllun tawelu traffig ar waith⁽²⁷⁾.

Newid yr amgylchedd adeiledig

Mae'r Comisiwn Pensaerniaeth a'r Amgylchedd Adeiledig (CABE) yn nodi er mwyn annog pobl i gerdded a beicio o amgylch eu cymdogaethau yn hytrach na defnyddio eu ceir, bod yn rhaid i ni wneud i'n strydoedd fodloni anghenion beicwyr a cherddwyr yn gyntaf - a gyrwyr yn ail⁽²⁸⁾. Yn ddiweddar cyhoeddodd y Sefydliad Cenedlaethol dros Ragoriaeth Glinigol (NICE) yr arweiniad cenedlaethol, seiliedig ar dystiolaeth, cyntaf erioed ar sut i wella'r amgylchedd ffisegol er mwyn annog gweithgaredd corfforol. Mae *'Hybu a chreu amgylcheddau adeiledig neu naturiol sy'n annog a chefnogi gweithgaredd corfforol'* yn argymhell rhoi blaenoriaeth i gerddwyr a beicwyr wrth gynllunio ac adeiladu trefi a dinasoedd, yn cynnwys cyfyngu ar fynediad cerbydau modur, ail glustnodi gofod ffordd, codi tâl ar ddefnyddwyr ffyrdd a chreu rhwydweithiau cerdded a beicio cynhwysfawr.

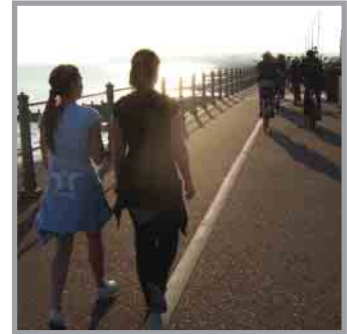
Traffic calming

Traffic speed may be an important determinant of street activity, and reducing it may make it easier for people to choose active ways of travelling. UK research suggests that 20mph zones in residential areas may increase children's use of streets and that some adults claim to walk or cycle more as a consequence⁽²⁵⁾⁽²⁶⁾. A Glasgow-based study reported that residents claimed to walk 20% more after implementation of a traffic calming scheme⁽²⁷⁾.



Changing the built environment

The Commission for Architecture and the Built Environment (CABE) notes that to encourage people to walk and cycle around their neighbourhoods rather than use their cars, we have to make our streets meet the needs of cyclists and pedestrians first – and drivers second⁽²⁸⁾. The National Institute for Health and Clinical Excellence (NICE) has recently published the first ever national, evidence-based guidance on how to improve the physical environment to encourage physical activity. *'Promoting and creating built or natural environments that encourage and support physical activity'* recommends giving pedestrians and cyclists priority in the planning and building of towns and cities, including restricting motor vehicle access, reallocating road space, road-user charging and creating comprehensive walking and cycling networks.



Examples of good policy and practice

Good policy paves the way

The Welsh Assembly Government Technical Advice Notes (12 and 18) provide good examples of published policy for the development of activity friendly environments. The guidance includes:

- To promote the reallocation of road space to pedestrians
- To ensure that [pedestrian and cycle] routes are coherent, legible, direct, attractive, safe, and unobstructed
- To promote housing development at locations with good access by walking and cycling to schools, local facilities and public transport stops

Rhai enghreifftiau o bolisi ac arfer da

Polisi da yn paratoi'r ffordd

Mae Nodiadau Cyngor Technegol Llywodraeth Cynulliad Cymru (12 ac 18) yn rhoi enghreifftiau da o bolisi cyhoeddedig ar gyfer datblygu amgylchoedd gweithgaredd gyfeillgar, Mae'r arweiniad yn cynnwys:

- Hybu ail-ddosbarthu gofod ffyrdd i gerddwyr
- Sicrhau bod llwybrau [cerddwyr a beicwyr] yn drefnus, clir, uniongyrchol, atyniadol diogel ac yn ddirwysr
- Hybu datblygiadau tai mewn lleoliadau sydd â mynediad da, drwy gerdded a beicio, i ysgolion, cyfleusterau lleol ac arosfannau trafniadaeth gyhoeddus
- Annog gosodiadau preswyl sy'n ymgorffori... parthau cartref, mesurau tawelu traffig a pharthau 20mya.

Strydoedd Hunan Gynllunio

Un o'r ffyrdd y gall cynllun stryd annog cerdded a beicio yw drwy ddefnyddio'r fformat 'Parth Cartref'. Mae parthau cartref llwyddiannus yn creu strydoedd lle mae cerddwyr, beicwyr a cherbydau yn rhannu'r gofod yn gyfartal, gyda chynllun stryd sy'n ei gwneud hi'n naturiol i yrwyr deithio ar ei hyd yn araf ac yn ofalus.

Mae Sustrans wedi datblygu cynllun peilot arloesol a elwir 'Strydoedd Hunan Gynllunio' gyda'r nod o gyflawni nifer o fanteision parth cartref drwy ddefnyddio deunyddiau cost is (ond eto yn uchel o ran safon) a chynllunio strategol creadigol. Mae ymyriadau nodweddiadol yn cynnwys dirlunio, plannu, defnyddio dodrefn stryd a chulhau'r ffordd i greu strydoedd mwy atyniadol. Mae Sustrans yn gweithio ar hyn o bryd gyda thrigolion lleol ar dri phrosiect Strydoedd Hunan Gynllunio yng Nghaerdydd, Port Talbot a Phen-y-bont ar Ogwr.

Casgliadau ac argymhellion

Dylai'r gofod adeiledig gael ei gynllunio, ei greu a'i reoli gydag annog ffyrdd o fyw iach yn amcan canolog. Mae teithio byw yn rhan graidd o'r ffordd o fyw iach hon.

Mae nifer o nodweddion amgylchedd adeiledig o safon uchel yn cyfrannu at yr amcan hwn.

- To encourage residential layouts that incorporate...home zones, calming measures and 20 mph zones.

DIY Streets

One of the ways in which street design can promote walking and cycling is by use of the 'Home Zone' format. Successful home zones create streets where pedestrians, cyclists and vehicles share the space on equal terms, with a street design that makes it natural for drivers to proceed slowly and carefully.

Sustrans has developed an innovative pilot project called 'DIY Streets', which aims to achieve many of the benefits of a home zone using lower-cost (but still high-quality) materials and creative strategic design. Typical interventions include using landscaping, planting, street furniture and narrowing the road space to create safer and more attractive streets. Sustrans is currently working with local residents on three DIY Streets projects in Cardiff, Port Talbot and Bridgend.



Conclusions and recommendations

The built environment should be designed, created and managed with the encouragement of healthy lifestyles as a central objective. Active travel is a core part of this healthy lifestyle.

A number of characteristics of a high-quality built environment contribute to this objective.

- policies, guidance and local strategies in the fields of planning, regeneration, development control and transport should explicitly identify objectives in terms of public health and physical activity
- planning guidance and development strategies should stress the importance of mixed land use in development or regeneration of urban areas
- walking and cycling routes to and from new developments should be direct, convenient and attractive, and should take priority over motor traffic in most situations
- road space should be reallocated from private motor transport to pedestrians and cyclists, with measures such as pavement widening, raised crossings, cycle lanes and advanced stop lines, and default two-way cycling on one-way streets

- dylai polisïau, arweiniadau a strategaethau lleol ym meysydd cynllunio, adfywio, rheoli datblygu a thrafnidiaeth ddynodi amcanion penodol o ran iechyd y cyhoedd a gweithgaredd corfforol
- dylai arweiniad cynllunio a strategaethau datblygu bwysleisio pwysigwydd defnydd tir cymysg mewn datblygu neu adfywio ardaloedd trefol
- dylai llwybrau cerdded a beicio i ac o ddatblygiadau newydd fod yn uniongyrchol, yn gyfleus ac yn atyniadol, a dylent gael blaenoriaeth dros draffig cerbydau yn y rhan fwyaf o sefyllfaoedd
- dylid ailddyrranu gofod ffyrdd o drafnidiaeth cerbydau preifat i gerddwyr a beicwyr, gyda mesurau megis lledu palmentydd, croesfannau wedi'u codi, lonydd beiciau a llinellau aros penodol i feicwyr, a beicio dwyffordd diodyn ar strydoedd unffordd
- dylid rhoi mesurau ar waith i leihau dominyddiad y car yn y gofod adeiledig, megis parthau 20mya ar draws ardal, parthau cartref, ac ail gyflwyno croesfannau rheoli gan oleuadau i ffafrio cerddwyr
- dylid rheoli'r amgylchedd trefol a'i gynnal a'i gadw fel ei fod yn teimlon ddiogel ac yn atyniadol i bob aelod o'r gymuned, gyda phlisma, glanhau strydoedd ac ati o'r safon uchaf
- bydd pob un o'r uchod yn cyfrannu hefyd tuag at leihau allyriadau newid hinsawdd; dylai'r cysylltiad gael ei gydnabod yn glir.

Un o'r ffyrdd mwyaf di-oded i annog teithio byw yn yr amgylchedd adeiledig yw darparu llwybrau cerdded a beicio diogel ac atyniadol. Mae rhaglenni Rhwydwaith Beicio Cenedlaethol a Llwybrau Diogel i'r Ysgol Sustrans yn gweithio'n agos gyda'r Awdurdodau Lleol a phartneriaid eraill i ddatblygu a gwella llwybrau ledled y DU. Fodd bynnag, mae angen gwneud llawer rhagor i ddod yn nes at y lefel o ddarpariaeth leol a geir yn y gwledydd mwy blaengar.

- measures should be put in place to reduce the dominance of the car in the built environment, such as area-wide 20mph zones, home zones, and re-phasing of light-controlled crossings in favour of pedestrians
- the urban environment should be managed and maintained so as to make it feel safe and attractive for all members of the community, with high quality policing, street cleaning etc
- all of the above will contribute also to climate change emissions reduction; the linkage should be clearly recognised.

One of the most immediate ways to encourage active travel in the built environment is to provide safe and attractive walking and cycling routes. Sustrans' National Cycle Network and Safe Routes to Schools programmes work closely with Local Authorities and other partners to develop and enhance routes across the UK. However, much more needs to be done to approach the level of local provision in more advanced countries.

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Hoffai Sustrans diolch i bawb sydd wedi cyfrannau ffotograffau gan gynnwys ei staff ei hun, Margaret Eagle-Clark, David Martin, Keith Brame, Skynetphotography a Jon Sawyer. / Sustrans would like to thank everyone who has contributed photography including its own staff, Margaret Eagle-Clark, David Martin, Keith Brame, Skynetphotography and Jon Sawyer.

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