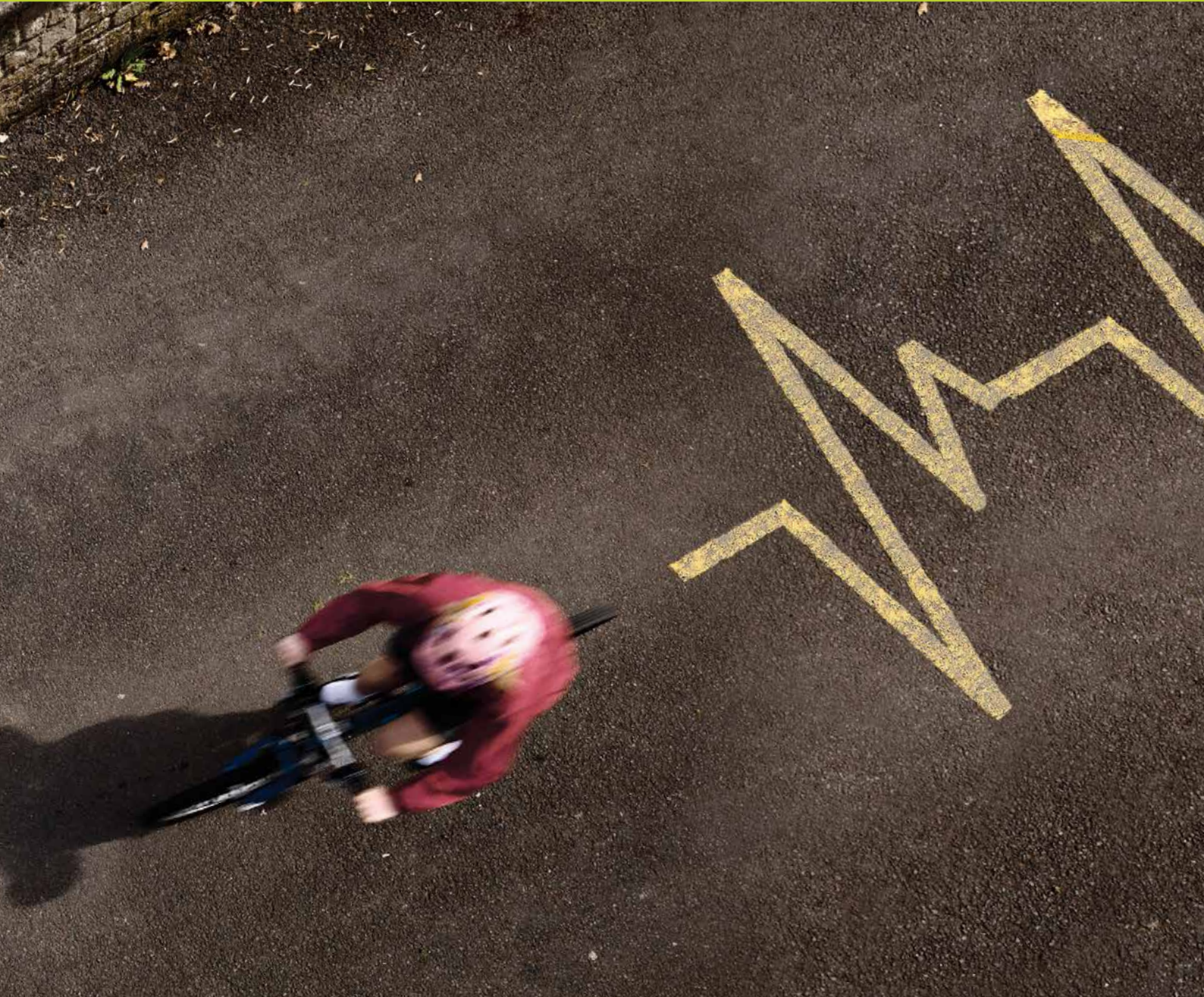


Fit for Life

Independent research into the public health benefits
of new walking and cycling routes



connect

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Introduction

Sustrans, supported by a grant from the Big Lottery Fund, completed many new high quality walking and cycling routes between 2009 and 2013. These routes were delivered with a range of partners and extended the National Cycle Network in more than 80 communities UK-wide.

Few high quality studies have shown how environmental changes like this lead to behaviour change in relation to physical activity. The wider impact on public health has therefore been difficult to estimate. To evidence the impact on people and their communities, leading experts formed the iConnect consortium, which was funded by the Engineering and Physical Science Research Council (EPSRC).

About iConnect

The iConnect study aimed to measure and evaluate the changes in travel, physical activity and carbon emissions related to schemes across the UK. The five-year study (2008-2013) involved a broad evaluation of the whole programme coupled with detailed investigations at five specific sites.

The study sought to determine whether the new routes have helped more people to switch from using their cars to walking or cycling, getting them more physically active and reducing their carbon footprint in the process. In particular, the study also explored why these interventions are (or are not) effective, in what ways, for whom and in what circumstances.

Networks for walking and cycling

Sustrans worked with a large number of partners to deliver 84 networks of walking and cycling routes that opened up links within communities. The networks included new crossings and bridges to cross barriers such as busy roads, rivers and railways. This gave people the opportunity to make healthy travel choices when accessing their local schools, shops, parks and countryside.

Together, this cohort of schemes was called the Connect2 programme. Funding for the programme of £50 million was secured from the Big Lottery Fund by public vote. This was used as the basis for securing

matched funding for the investment, making the total value of the investment in the schemes £176 million.

What this report represents

Sustrans has worked with scheme partners to conduct extensive monitoring and evaluation of the schemes. The headline outcomes of the programme are reported in Sustrans *Transforming Local Travel* report (available on the website [here](#)).

Research from the iConnect consortium is being published in peer-reviewed journals. These papers are beginning to shed further light on the effects of schemes that aim to make it easier for people to walk and cycle in their local area.

On the following pages we pick out the research headlines relating to physical activity and highlight some of the most significant findings of the papers published by iConnect to date. To give these findings some context, we set them alongside some specific examples of schemes from the programme where these results are best illustrated.

The purpose of this report

In making explicit the link between the research findings and the practical aspects of delivery, we are seeking to build awareness of the effectiveness of infrastructure that overcomes severance through walking and cycling in supporting engagement in physical activity.

The research findings have the level of rigour that would be expected of peer-reviewed material published by some of the UK's leading universities. The scheme case studies link these findings to the sorts of changes that can easily be made to local environments to improve connectivity. This report goes on to set out the learning from the research and from the process of delivering walking and cycling schemes.

Planning and design

In this section we highlight the major research findings on the subject of planning and design, and highlight schemes where these findings are captured in practice.

Main findings from the iConnect research include:

- **Proximity matters: people living nearby interventions increased their total levels of physical activity**, compared to those living further away. People living within 1km (0.6 miles) increased their time spent walking and cycling by an average of 45 minutes per week more than those living 4km (2.5 miles) away.¹
- **Changing the environment, rather than changing perceptions, appears to be key to changing people's physical activity through active travel**, making the case for continued investment in infrastructure to enable active travel.³
- **Different projects are likely to have different effects because of their context.** For example, usage of the new walking and cycling bridge and routes in Cardiff was greater after two years than some other schemes. Greater use in Cardiff may have been driven by greater visibility and superior design features of the intervention within an existing environment that was previously less supportive of walking or cycling.^{1,4}
- **The contrast that new schemes present may be important:** a large improvement on poor conditions is likely to be more effective than a small improvement on already satisfactory infrastructure.^{1,4}

Cheshunt (right)

A new bridge and path over the busy A10 created a vital connection for people walking and riding a bike between Bury Green and Waltham Cross. Now 23,000 people living within half a mile of the bridge and paths have easy access to work, schools and other every day destinations.



Cardiff (above)

We created a new circular route that completed the Cardiff Bay Trail and connected with walking and cycling routes in Cardiff and the Vale. A new bridge was installed crossing the River Ely between Penarth and the west of Cardiff Bay. The route was designed so that people living on the Bay would be able to reach a railway station and the city centre, enabling easy commuting on foot or by bike. On the Vale side, the route provided links into Penarth town centre and residential areas with scope for further development of routes. A recreational circuit was also completed using the Bay barrage.



Planning and design



Glasgow (left)

A pedestrian bridge built over the M8 in the late 1960's was designed to link a shopping complex to the city centre but was left unfinished. It became known locally as 'The Bridge to Nowhere'. The bridge has been completed and is a focal point for a network of new walking and cycling routes across Glasgow. This radically changes the context for movement in that part of the city. The new routes provide a key commuting link between the west of the city to the city centre and the train station.

Northampton (right)

A number of existing paths along the River Nene were upgraded and Northampton's canal towpath was resurfaced. A new bridge was installed and two existing bridges along the route were restored in order to create safe, easy links. The routes were designed to provide multifunctional corridors connecting residential areas with local amenities, the town centre and on to Upton County Park.



Belfast (left)

The Comber Greenway is one of Northern Ireland's most popular walking and cycling routes. However, it didn't connect to the newly developed Titanic Quarter and the city centre. A new walking and cycling route was developed to overcome the busy Sydenham Bypass and the rail line, and to extend the Comber Greenway to the Titanic Quarter. Good links were also made to the city centre. The scheme included installing toucan crossings and traffic-calming measures, reopening an old access road into the former docks, improving access to public transport, and linking to the existing riverside paths.

Planning and design



Bradford (photos above)

The busy Manchester Road carries thousands of vehicles a day into Bradford. This dual carriageway is difficult to cross and separated people living on either side. The only existing pedestrian footbridge was narrow, steep and falling into disrepair. We created a local network of safe routes for people walking and cycling, and built a new bridge over the main road with a gentle slope to ensure easy and safe access.

Haringey (below left)

Transformation of an intimidating and unsafe one-way road system into a new public space has provided a traffic free environment for residents, as well as pupils and parents at the three local schools. West Green was inaccessible, cut off by traffic using the green as a roundabout. Access to Downhills Park to the north of the green was also difficult and off-putting. We removed the one-way traffic system and converted the entire north side from a busy road to a calm traffic-free space dedicated to people getting around on foot or by bike.



What we learned

The research indicates that walking and cycling routes can have the most impact on physical activity when they run close to the places where people live. Routes that change the environment in a highly visible and dramatic way (e.g. changing the context of local areas, or including superior design features) also may enhance impact.

Usage

In this section we highlight the major research findings on the subject of usage, and highlight schemes where changes in usage patterns are observed.

Main findings from the iConnect research include:

- **Studies show that new, high-quality, traffic-free cycling and walking routes encouraged more people to get about by foot and by bike.¹**
- **Change can take time.** It took two years to see a significant effect on physical activity.¹
- **The routes are well used by the local population.** Two years after construction, 38% of all local residents had used the infrastructure, including 52% of those living less than 1km away.³
- **Quantitative and qualitative data reveals that walking and cycling routes had predominantly recreational use.** This may have reflected the specific local goals of some of the projects and that the infrastructure may not yet have been joined up with the rest of the transport network.^{1,4}

Haringey

Already well used by people walking and cycling, the route has seen a marked uplift in usage of 17% since opening. This is an extra 128,000 trips per year, or around 350 extra trips per day. This is on top of almost 2,500 trips per day prior to scheme implementation.

Bradford

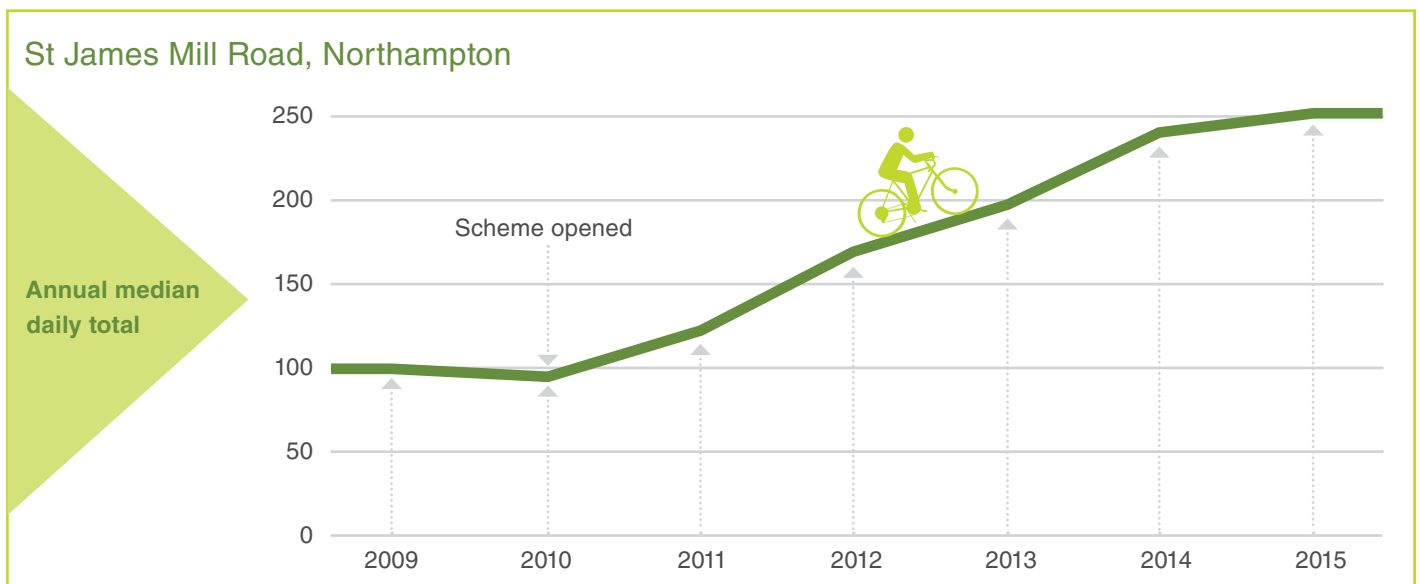
Usage levels on some already busy routes on the Bradford scheme increased dramatically once the network was improved and the bridge was in place. Usage levels average well over a thousand people walking or cycling on the route each day.

+500
more daily trips,
 up 58% on pre-scheme levels.
 That's 147,781 more trips per year.

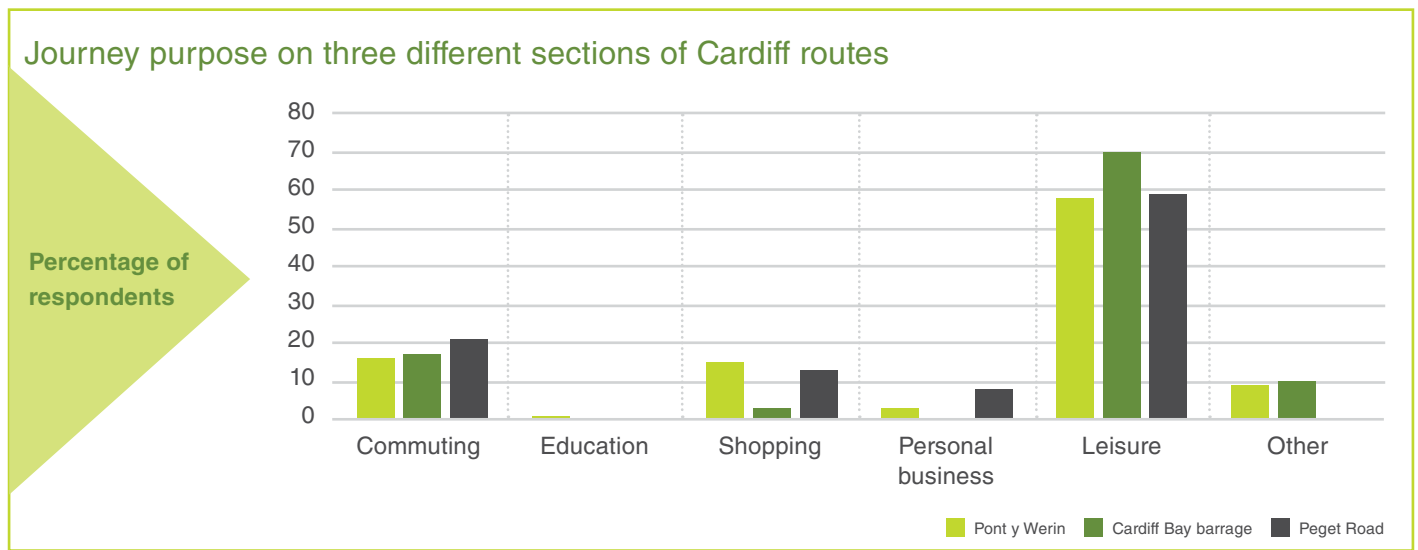
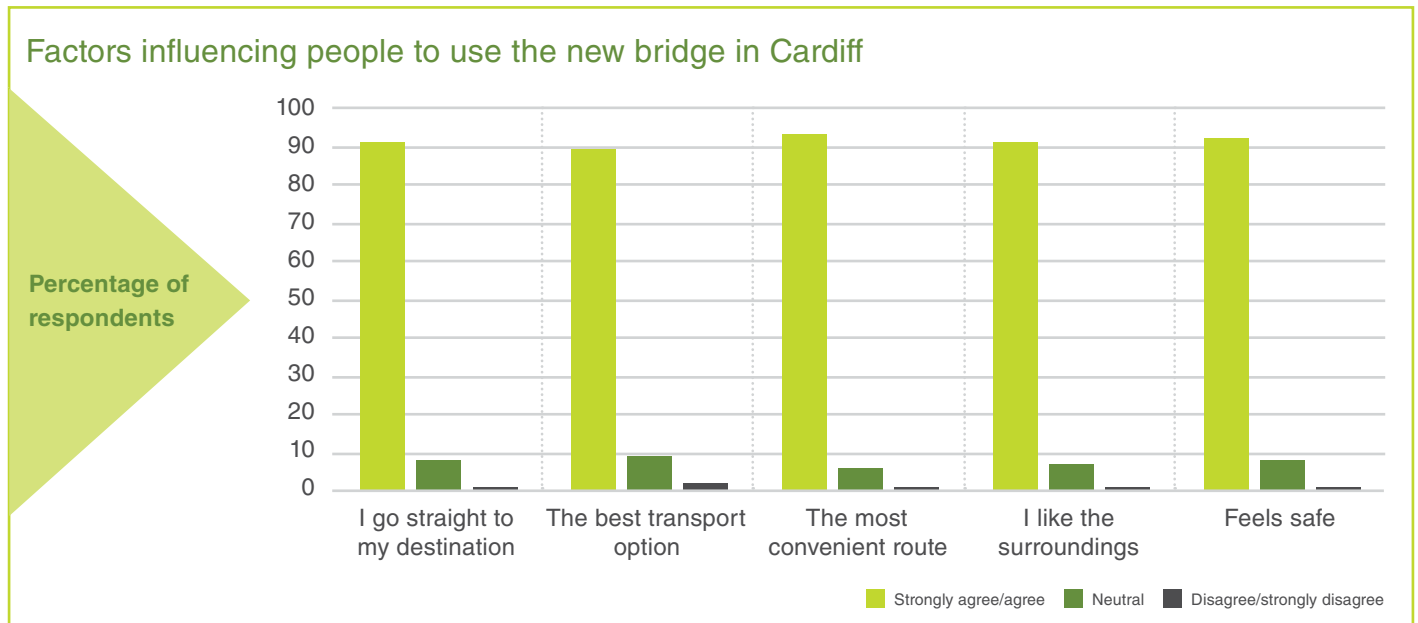
Bradford

Northampton

We frequently observe that usage accumulates over time. Northampton is just one example of a scheme where a bicycle counter shows continued growth in usage long after scheme opening. Our initial estimate for usage post-scheme-opening was for a 46% increase in cycling. These figures suggest that usage may well be considerably higher by now.



Usage



Cardiff

A specific local goal of the Cardiff project was to create a recreational circuit using the Bay barrage. The prominence of leisure trips among the trip types observed emphasises the success of this aspect of the scheme.

The value people place on being close to routes and using them can be measured as 'amenity' value. This is a good measure of the perceived supportiveness of the environment. In the case of Cardiff, this accounts for 42% of the benefit of the overall scheme. Using standard transport economic appraisal approaches, an amenity value of £4.3 million is estimated.

What we learned

We have concluded from the research that schemes of this nature increase cycling and walking, and that benefits build-up over time. Much of the focus of the development of the route is for functional trips. Recreational trips are a good starting point in respect of population level physical activity, but we need to understand better the transitions of users from trip-making for recreational purposes to functional purposes. Networks need to grow and to connect in order to optimise impact.

Impact

In this section we highlight the major research findings relating to the impact of schemes, and highlight schemes that help to illustrate these findings.

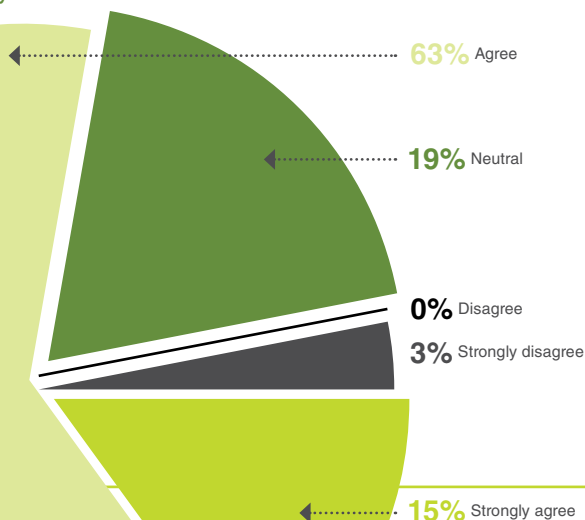
Main findings from the iConnect research include:

- **The increases in physical activity observed were equally spread between men and women and adults of different ages and social groups.**¹
- **Gains in walking and cycling were not offset by reductions in other forms of physical activity,** suggesting that new routes have encouraged people to become more active overall.^{1,2}
- **People who lived closer to and/or used the routes were more likely to report a more supportive environment** in terms of provision and safety. These changes in perception may have contributed to people taking up the opportunity to use the new infrastructure.³

Glasgow

The Glasgow Bridge to Nowhere scheme is encouraging large numbers of people to become more active overall. Of the people making over 900,000 walking or cycling trips on the route every year (2,500 trips per day), 78% stated that the route was either their only source of exercise, or a wholly additional source of exercise (i.e. not displacing any other forms of activity). The balance of gender of people using the route is relatively even, and all age categories are represented.

The Glasgow route is the only source of exercise, or a wholly additional source of exercise



Belfast

The types of trips made on routes varies enormously. The Titanic Quarter scheme is a good example of that variability. The route carries 1,250 people walking and cycling per day. Close to the city centre 41% of walking and cycling trips are for leisure purposes. Out towards the edge of the city 62% of walking and cycling trips are for leisure purposes. At the very rural end of the greenway 84% of walking and cycling trips are for leisure purposes. Wider travel patterns show high levels of leisure use across all modes. According to the UK National Travel Survey (2014) 47% of weekend trips (by all modes) and 25% of weekday trips are for leisure purposes. We shouldn't be surprised that Connect2 schemes carry large amounts of recreational use. Schemes also carry a lot of commuting use. 27% of walking and cycling trips on the scheme close to the city centre are for commuting purposes (compared with 19% of all trips by all modes for commuting according to the Travel Survey for Northern Ireland 2012-14).

100%
of route users

who classified themselves as 'looking after home or family' said that the route **increased their regular physical activity.**

Belfast

OVER 90%
of women

using the route said it **increased their regular physical activity,** and 80% of men said the same.

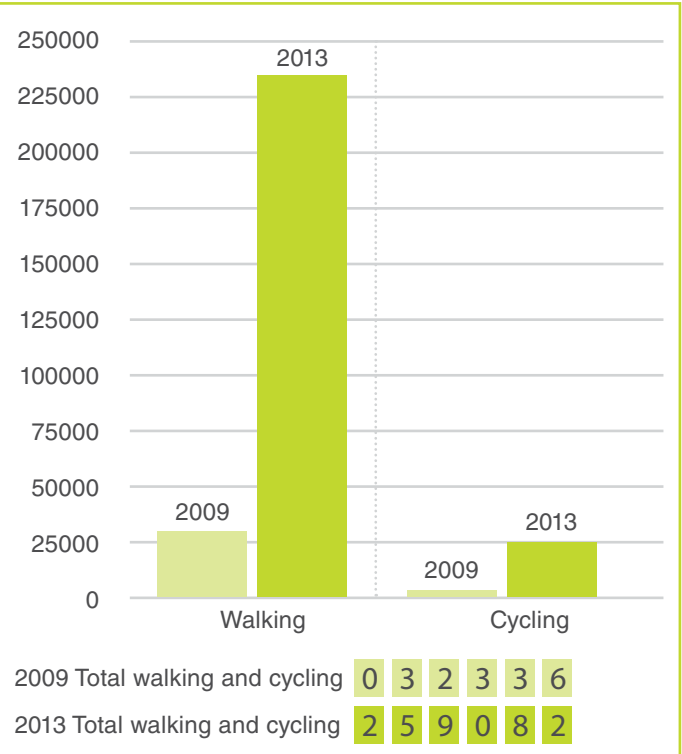
Belfast

Impact



Cheshunt

At Cheshunt, 84% of people walking and cycling on the route said that the route was either their only source of exercise, or a wholly additional source of exercise (i.e. not displacing any other forms of activity). People who use the route report that the route provides a supportive environment.



2009 figures relate to usage on existing local routes prior to construction of the bridge

94%
 of adults use the route because it is the most convenient, and 97% because it feels safe

71%
 of users achieved the recommended level of physical activity per week

Five x 30 mins per week, compared with 29% of people on nearby routes before the bridge was built

£9.8 million
 in benefits to children over 30 years: health benefits make up about 80% of these

What we learned

The research shows interventions that support walking and cycling enable people to become more active. Increases in physical activity are observed throughout the community. Scheme promoters should ensure that walking and cycling routes address the needs of the whole population. This includes recognising that the nearer people are to a route, and the more they use a route, the more likely they are to view the environment as 'supportive'. This perception encourages further use of the route by those individuals.

Learning

Sustrans and our partners learned a huge amount from the Connect2 programme, as have a wide range of stakeholders in the delivery of infrastructure schemes that aim to support walking and cycling. **In particular, we captured six key lessons from the delivery of the programme:**

1. A **focus on community engagement** during planning and delivery, and the involvement of community champions on steering groups, has ensured that what was delivered was useful to local people.
2. A **long delivery timescale** allowed an application process enabling the community and our partners to identify the problem and the solution, with the time to deliver long-desired and ambitious solutions to the most challenging barriers to walking and cycling.
3. **Secured funding over a five year period** enabled the leveraging of significant amounts of match-funding from an unusually wide range of stakeholders that was sufficient to support delivery of the best possible solution rather than the easiest solution.
4. **Co-ordination of partner activities across the portfolio** was mutually beneficial, bringing economies of scale and a shared knowledge of the diversity of solutions and funding possibilities, whilst ensuring a **consistent and high standard of design**.
5. Where we have also **worked directly in the community, schools, workplaces and other daily destinations** close to the schemes, we have seen more usage.
6. The **partnership with EPSRC** to fund a related, but independent, multi-disciplinary, scientific research programme was a major achievement and adds considerable insight.

The iConnect research into the physical activity benefits bolsters some of these lessons, but also further builds understanding in respect of optimising the public health benefits:

Safe routes that overcome barriers do increase cycling and walking, and enable people to become more physically active overall. The build-up of usage and impact can grow markedly over time. Recreational walking in particular is a good conduit for increasing levels of physical activity. Interventions should take into account the fact that the nature and extent

of route usage may evolve. This in turn may be a function of network growth and connection to wider mobility networks, and planning should reflect this.

Profound changes to the environment may impact more strongly. This may be in respect of the visibility of change or the context for change. How these are made manifest depends on the needs of the user (and would-be user) population. In particular interventions should focus on enhancing the perceived supportiveness of the environment for local travel.

These principles are transferable and scalable. The lessons learned from this programme, including findings still emerging from the iConnect research programme and from ongoing monitoring of the walking and cycling routes, are applicable at individual scheme level, at local area level, and at national level. The work of Sustrans and iConnect on Connect2, and on the wider National Cycle Network, serves as a knowledge base that helps to make the case for environmental interventions that support and promote walking and cycling. This learning can help to facilitate the effective delivery of capital investment. In particular, this evidence leaves us very well-placed to optimise public health benefits.

Implications

This study makes a strong case for the investment of health and transport budgets into local networks that support walking and cycling. Our urban landscapes are too frequently unsympathetic to local trips made by active modes. Investment in a supportive environment clearly brings health benefits, and can also bring mobility, environment and economic benefits.

Experience suggests that engagement with the communities within reach of the walking and cycling networks can amplify these benefits. Involving communities in the design stages, and then engaging them as the network is developed may help to lock in these benefits. This makes the case for supporting capital investment programmes with a revenue funding stream for engagement activities.

Sustrans will be happy to discuss with commissioners and partners developing, planning and delivering solutions that support walking and cycling.

References

- 1 Goodman, A., Sahlqvist, Ogilvie, on behalf of the iConnect Consortium. New Walking and Cycling Routes and Increased Physical Activity: One- and 2-Year Findings From the UK iConnect Study. *American Journal of Public Health*: September 2014, Vol. 104, No. 9, pp. e38-e46. See www.ncbi.nlm.nih.gov/pubmed/25033133
- 2 Sahlqvist, S., Goodman, Cooper, Ogilvie, on behalf of the iConnect consortium. Change in active travel and changes in recreational and total physical activity in adults: longitudinal findings from the iConnect study. *International Journal of Behavioral Nutrition and Physical Activity* 2013, pp10:28. See www.ncbi.nlm.nih.gov/pubmed/25033133
- 3 Panter, J., Ogilvie, on behalf of the iConnect consortium. Theorising and testing environmental pathways to behaviour change: natural experimental study of the perception and use of new infrastructure to promote walking and cycling in local communities. *BMJ Open* 2015; Vol. 5, No. 9. See www.ncbi.nlm.nih.gov/pubmed/26338837
- 4 Sahlqvist, S., Goodman, Jones, Powell, Song, Ogilvie, on behalf of the iConnect consortium. Mechanisms underpinning use of new walking and cycling infrastructure in different contexts: mixed-method analysis. *International Journal of Behavioral Nutrition and Physical Activity* 2015, 12:24. See www.ncbi.nlm.nih.gov/pubmed/25889383

iConnect case studies

The three case study sites for the iConnect research were Southampton, Cardiff and Kenilworth.

About Sustrans

Sustrans makes smarter travel choices possible, desirable and inevitable. We're a leading UK charity enabling people to travel by foot, bike or public transport for more of the journeys we make every day. We work with families, communities, policy-makers and partner organisations so that people are able to choose healthier, cleaner and cheaper journeys, with better places and spaces to move through and live in.

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Scheme partners

Cardiff: Cardiff Council, Vale of Glamorgan Council, Cardiff Harbour Authority and Welsh Government. **Cheshunt:** Hertfordshire County Council, Broxbourne Borough Council. **Glasgow:** Glasgow City Council, Transport Scotland. **Bradford:** Bradford Metropolitan District Council, Bradford Trident. **Belfast:** Belfast City Council, Belfast Harbour Commission, Translink, DRD Roads Service, Department for Social Development, East Belfast Partnership. **Northampton:** Northamptonshire County Council, Northampton District Council, Ramblers Association, Cyclists Touring Club, Wildlife Trust. **Haringey:** Haringey Council, Transport for London.

The schemes were developed and managed by Sustrans with a £50 million grant from the Big Lottery Fund.



iConnect was funded by:



iConnect partners:



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