

National Cycle Network Scotland

Impact report 2023/24



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1. Executive Summary

With nearly half of Scotland's population (44%) living within 1km of the NCN, it is an important piece of national infrastructure which provides an alternative to car travel for everyday trips. At the same time, it enables people to experience advantages of walking, wheeling and cycling, such as boosting physical and mental health.

The National Cycle Network programme focuses on including everyone, consistent with the Active Travel Framework and wider government policies. Our findings provide learning to help progress towards the goal of ensuring the benefits of active travel are shared equitably.

This report focuses on the delivery and impact of the National Cycle Network (NCN) programme in the financial year 2023/24 including projects delivered, project case studies and monitoring reports¹.

Increase the number of people choosing walking, cycling and wheeling in Scotland

The NCN continues to be used extensively for walking, wheeling and cycling, enabling leisure trips, running everyday errands and commuting journeys. Many of the trips made on the NCN replace car trips thereby reducing carbon emissions.



In 2023/24 the programme completed **20** infrastructure projects, growing and upgrading the NCN to increase the accessibility, quality and reach of this valuable active travel network. In total **25.8km** of new/improved NCN was completed.



An estimated **52 million** trips were taken in the NCN in Scotland in 2023. This saved **3,086 tonnes** of CO2 emissions from replaced car journeys.

¹ Monitoring of projects, particularly infrastructure projects, generally extends beyond the delivery completion date. Monitoring completed in 2023/24 which is included in this report is in reference to projects completed in 2022/23. Monitoring reports of the projects delivered in 2023/24 will be presented in future impacts reports from 2024/25 onwards. Further explanation of NCN monitoring methodology can be found in the appendix.

High quality walking, wheeling and cycling infrastructure is available to everyone

The NCN programme is dedicated to making the NCN accessible to everyone and an extensive audit of barriers on the NCN in 2022/23 resulted in a successful year of barrier removal in 2023/24 which far exceeded our initial target.



437 barriers were removed on the NCN this year, allowing for greater accessibility to the network for all, significantly exceeding the target of 150.

Walking, cycling and wheeling is safer for all

Work continues on the NCN to improve safety for people walking, wheeling and cycling. Our Greenways project in Bathgate installed crossing points and a toucan crossing across a busy road providing safer access to the NCN and key community services.



87% of users surveyed at Bathgate agreed the paths and crossings feel safe, compared to just 15% agreeing before the improvements.

Walking, cycling and wheeling is available to all

The NCN programme is committed to ensuring that walking, wheeling and cycling is available to all through our work on the network. Our Targeted Arts project engages with specific underrepresented groups. In 2023 the project worked with young artists from four locations across Scotland: Glasgow, Alloa, Inverness and Greenock.



68% of route user survey respondents said they feel more or much more welcome on the NCN after visiting the artwork.

92% of the young artists agreed that they knew more about their local walking, wheeling and cycling pathways and **75%** plan to use them more often.

Delivery of walking, cycling and wheeling is promoted and supported by a range of partners

In 2023 the NCN programme engaged with **all** local authorities in Scotland to co-ordinate our network planning with their local active travel infrastructure plans.

90 projects were in the process of being delivered by the end of 2023/24 including 37 in the tender/construction stage.



The programme also works closely with the communities that live around the NCN through community and volunteer engagement.

62 community groups were engaged in 2023/24 exceeding the target for engagement by 150%.

703 artworks were audited by volunteers in 2023, enabling future coordination with local authorities and volunteers to coordinate the future maintenance, safety and promotion of these artworks.



Celebrations during the opening of Gourock Station project, completed in 2023/24 to reroute and improve Route 75. The project has created a segregated, safe and direct walking wheeling and cycling link for onward journeys through the station, and improved access to onward rail travel. (Credit: Sustrans)

2. Introduction

The National Cycle Network (NCN) is the backbone of Scotland's network of walking, cycling and wheeling routes.

Despite its name the NCN is not just for cycling; walkers, cyclists, joggers, wheelchair users, horse riders and others use it. Sustrans' vision is for the NCN to be a network of traffic-free paths for everyone; connecting cities, towns and countryside, loved by the communities they serve.

With 44% of Scotland's population living within 1km of the NCN, it is a strategically important piece of national transport infrastructure. It supports everyday active travel trips as an alternative to car travel, which is important in tackling the climate crisis and meeting Scotland's target to reduce car kilometres by 20% by 2023. At the same time, it enables people to experience the joys and benefits of walking, wheeling and cycling, promoting physical and mental health. In many places it protects and preserves greenspace and biodiversity. It is therefore a strategically important asset in reducing transport inequalities, taking climate action, improving the health and wellbeing of the Scottish people and boosting the economy.

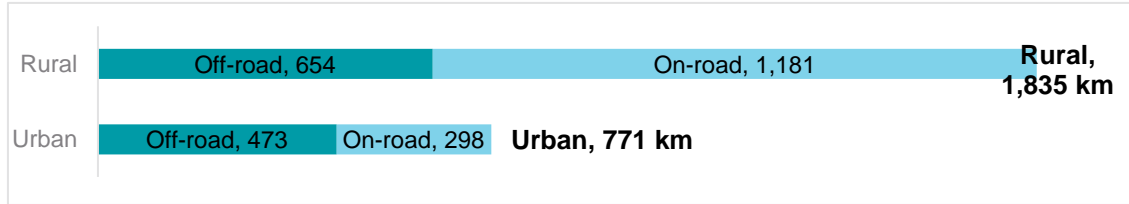
In Scotland the Network comprises around 2,606 km across urban, interurban, and rural areas. Approximately 30% of Scotland's NCN runs through urban areas with around 70% connecting rural areas.² Of its 2,606 km, 1,127 km are 'traffic-free'³ and 1,479 km are 'on-road'.⁴ Of its traffic-free routes, approximately 835 km are classed as 'greenways', which are traffic-free sections that are away from the highway (i.e. along canals, old railways, coastal paths, etc).

² For information on Urban/Rural classification see [Scottish Government Urban Rural Classification 2020](#) (2022). The classification is based on (i) population as defined by National Records of Scotland (NRS), and (ii) accessibility based on drive time analysis to differentiate between accessible and remote areas in Scotland.

³ Traffic-free describes any situation where active travel users are separate from motor vehicles

⁴ This describes a mixed traffic environment where active travel and motor vehicles share the same space.

Breakdown of route length (km) in rural and urban areas of the NCN in 2023



An estimated **52 million** trips were taken on the NCN in Scotland in 2023 comprising **18 million** cycle trips and **34 million** walking and wheeling trips⁵ which boost health and wellbeing as well as reducing car trips and supporting the economy.

Cycle trips are estimated to have replaced 3.2 million car trips saving **1,612 tonnes** of CO₂e. Walking and wheeling is estimated to have replaced 5.9 million car trips saving **1,474 tonnes** of CO₂e in 2023. This is a combined saving of **3,086 tonnes** of CO₂e in 2023.⁶

The total estimated economic benefit from usage on the NCN was **£34 million** in 2023, including health, emissions and reduction in road collisions.

20 thousand trips per km of the NCN were made in 2023. Urban traffic free routes were the most used areas of the NCN with **10 thousand** cycle trips and **13 thousand** walking and wheeling trips made per km in 2023.

Trips per km on the NCN in 2023 by mode and route type in thousands

	Urban traffic free	Urban on road	Rural traffic free	Rural on road
Cycling	16	9	6	4
Walking and wheeling	47		18	

⁵ The Whole Network User Estimate methodology can be found in the appendix.

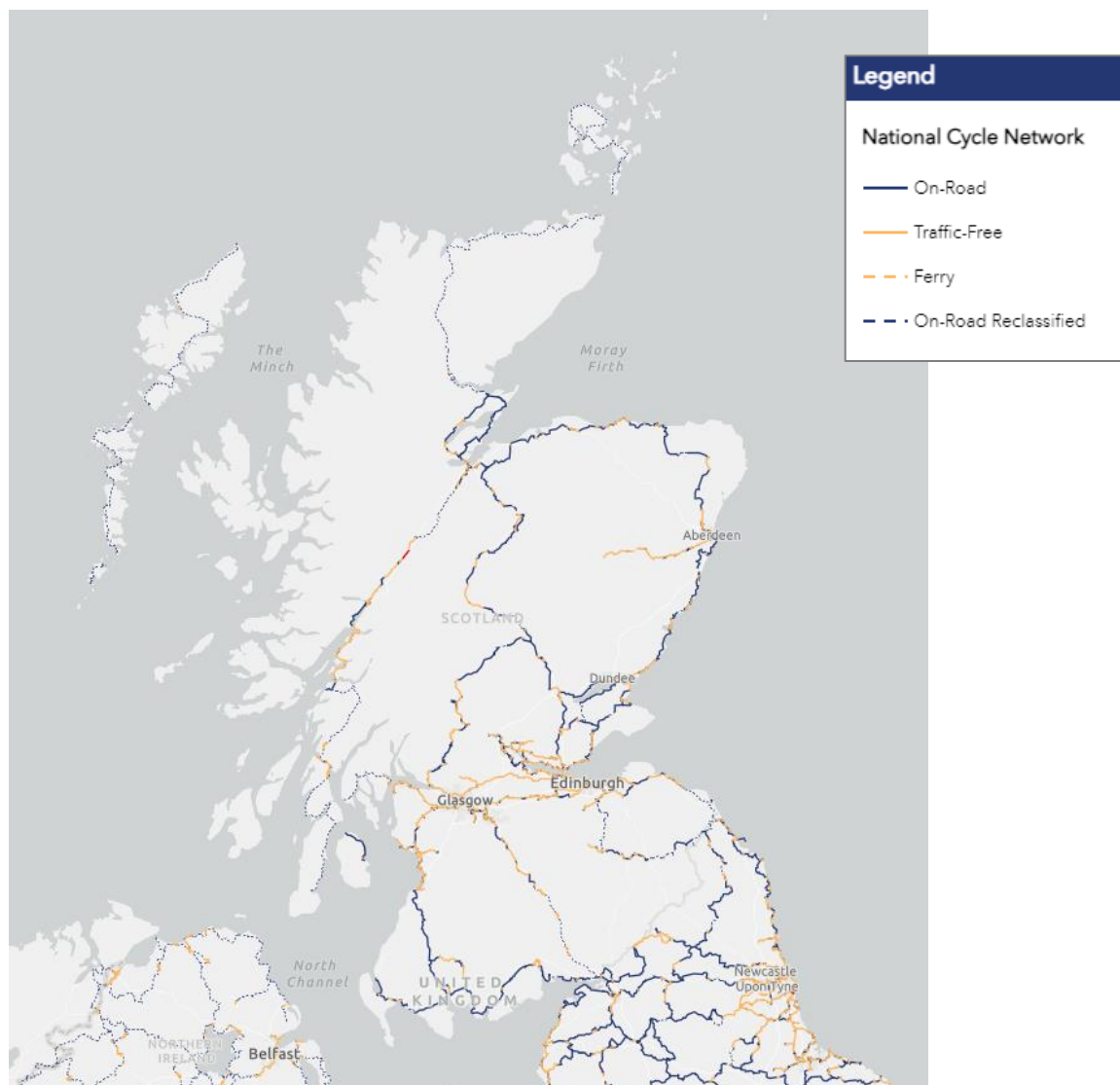
⁶ CO₂e savings and economic benefits are calculated using the whole network user estimate figures from 2023 and AMAT (Active Mode Appraisal Toolkit).

There is an increasing number of non-NCN active travel routes in Scotland providing a growing active travel network, particularly in highly populated areas. The NCN links up these developing active travel networks and acts as the golden thread (or trunk road equivalent) for active travel.

The NCN is widely recognised and celebrated and helps support and promote active travel across Scotland and the UK. **61%** of the Scottish public surveyed in our 2023 YouGov survey agreed the NCN is a valuable national asset.

Sustrans employs ArcGIS to plan and monitor our work on the NCN. This link shows the status of the NCN and information on projects happening across it - [Work in progress on the National Cycle Network \(arcgis.com\)](#)

Map of the NCN in Scotland showing on-road and traffic-free sections



How we work to improve and build the NCN.

In 2023 Sustrans undertook a strategy refresh for the NCN in Scotland which considered key Scottish policy areas including: tackling climate change, the nature crisis, health inequalities, transport poverty, and supporting low carbon economic resilience. The new strategy focuses on working in an agile way with partners to deliver a NCN for everyone.

Strategic priorities identified in the refreshed NCN Scotland strategy 2023-2026 were:

1. Deliver Sustrans' Paths for Everyone strategy to improve the safety and accessibility of the NCN in Scotland.
2. Scale up and speed up the delivery of high-quality, direct, walking, wheeling, and cycling NCN routes that offer value for money.
3. Ensure all our projects and programmes on the NCN are strategically planned to tackle climate change, transport poverty, health inequalities and the nature crisis, and support low-carbon economic resilience.
4. Increase the number and diversity of NCN users and groups engaging with it.

Sustrans hold the information on the shape and state of the network and work with partners to identify shared priorities and plan the NCN; we deliver interventions via partners or in house; we engage on the NCN via art, targeted projects, working with businesses, and through a strong volunteer network.

For 23/24, work on the NCN was primarily coordinated by the Network Development programme which is made up of three work streams: Planning, Delivery and Engagement.

Planning

The Planning team coordinate the strategic planning of Scotland's NCN. They hold a three-stage master plan which has information on every current and potential future section of NCN. They work with partners to align NCN plans with regional and local plans for walking, wheeling, and cycling wherever possible, and take a collaborative approach to project selection and shared ownership of the NCN.

Delivery

The Delivery team work to fix and grow the NCN in Scotland through a variety of different programmes including; work on over 60 projects per annum through the Network Development Fund, removal of barriers through the Accessibility Fund, the Quietways

programme which brings on-road sections of the NCN up to standard, and the Greenways programme which engages with communities to connect them to their local NCN.

Engagement

The Engagement team works with individuals, communities, businesses and partners to use, love and care for the NCN. Their engagement work supports and empowers individuals, communities and groups to use, be part of, and shape their local NCN. The team also works with businesses and delivery partners to raise the NCN's profile and increase its value.



Litter pick with Edinburgh & Lothians Regional Equality Council (ELREC) using Love Your Network funded equipment. (Credit: Sustrans)

Research and Monitoring

The Research and Monitoring unit work closely with the Network Delivery team to monitor impact on most⁷ projects and capture trends across the whole network using a variety of methods which are outlined in more detail in the appendix.

Monitoring and evaluation of projects most often happens after the project has been completed and allowed, in the case of infrastructure projects, a period to 'bed in' before post evaluation monitoring and reporting is undertaken. This means that final reporting on these projects can take place 6 months to a year after completion with reports being often being finalised in the financial year after the completion, or beyond, dependant on many factors including: if the project is multi-phase, what time of the year the project finishes and monitoring is possible, desire to monitor at the same time of the year as baseline monitoring etc. As a result, monitoring completed in 2023/24 and included in this report reflects projects delivered in the year 2022/23. Projects which have been completed in 2023/24 are likely to be presented in the 2024/25 impact report or beyond dependant on factors listed above.

A set of key measurable outcomes were revised in 2023 to evidence success and inform the progress and delivery of the NCN programme. These outcomes mirror and support the Transport Scotland Active Travel Framework, Programme for Government priorities and National Transport Strategy 2 priorities. These outcomes are relevant across the programme in the short, medium and long term, will be reviewed annually and refreshed as needed to serve emerging areas of strategic focus. Details of how these outcomes align with key Scottish government strategies, including PfG and NTS2, can be found in the appendix.

The NCN programme outcomes used in 2023/24 to monitor impact were:

- Increase number of users of the NCN
- Improve connectivity to the NCN
- Improve quality of the NCN
- Improve accessibility of the NCN
- Improve safety of the NCN
- Increase diversity of users of the NCN
- Increase awareness of the NCN
- Increase engagement with the NCN
- Reduction in car use
- Reduction in health inequalities through use of the NCN
- Improved natural environment along the NCN

⁷ Most larger scale projects delivered by the Network Development Programme are monitored. A handful of smaller projects such as small-scale resurfacing or isolated barrier removal are assessed based on scale against monitoring costs and occasionally discounted.

3. Delivery and Impact

The programme intensified its outreach and engagement efforts, strengthening partnerships with all local authorities and regional transport partnerships in Scotland. The NCN pipeline during 2023/24 had **90** projects progressing at various RIBA design stages, of which 37 are in tender/construction stages.

The programme completed **20** separate infrastructure projects, adding new NCN and upgrading many existing sections, increasing the accessibility, quality and reach of this valuable active travel network. In total **25.8km** of new/improved NCN has been completed.

Below are examples of the largest infrastructure projects delivered in 2023/24. Monitoring for these projects will be completed in 2024/25 – 2025/26 with one (St Fillans to Lochearnhead) anticipated later when all phases are complete.

- NCN75 Water of Leith path surfacing (£1.7m)
- NCN 1 Cullen (embankment) (£1.4m)
- NCN 1 Cullen to Portknockie path surfacing (£1.2m)
- NCN link Ruchill Bridge to Port Dundas towpath surface (£950K)
- NCN 754 Central Canals access work (23/24) (£420K)
- NCN 75 Lady Octavia - Dubbs Rd (Phase 2) (£363K)
- NCN 775 St Fillans to Lochearnhead (Section 5b - Glentarken) (£235K)
- NCN 7 Newton Shore Esplanade (£232K)
- NCN753 Gourrock Station (£196K)
- NCN 1 Carnoustie improvements (Section 1) (£145K)

Efforts to remove physical barriers at pace and scale along the NCN have been a resounding success, significantly improving accessibility for all users. The target of removing 150 barriers was exceeded, with a total of **437** barriers removed. To enhance the network's safety and usability, new and updated signage along **550km** of the NCN was installed.

The target for community group involvement was also surpassed following engagement with **62** community and voluntary groups along the NCN, 38 of which were new groups to the programme. Sustrans volunteers audited an impressive **703** artworks along the NCN, enabling future planning for repair and maintenance.

Case Studies

This section highlights delivery of impactful projects in 2023/24 including planning sessions with all 32 local authorities in Scotland, barrier removal at Leverndale Hospital and an audit of all artworks on the NCN completed by our dedicated volunteers.

Also in this section are summaries of three impact reports completed in 2023/24, the first focuses on the Targeted Arts programme delivered in 2023/24 and final two look at the impact of infrastructure projects delivered in 2022/23 – Bathgate Greenway and Kaimes Way access ramp. Full length versions of the evaluation reports are available on request.

Planning sessions with local councils

In 2023/24 the planning team engaged with all **32 local authorities** in Scotland to identify priority interventions for the NCN including realignment, route development, and pursual of feasibility studies to develop the NCN. The Network Development Plan (NDP) contains all plans for the entire NCN across Scotland, including aspirational new routes, realignments and solutions to improve current sections.

Increase engagement with the NCN

Many routes have been included in the Network Development programme as a result of the engagement activity with local authorities. Examples include:

Aberdeenshire: Maud – Peterhead NCN197 and Maud – Fraserburgh NCN194. An upgrade to the former railway line, the Formartine and Buchan Way. This is a new NCN route which would connect the communities to employment and amenities, including schools. This is currently in procurement, and due to be funded by Network Development in 2024/25.

East Lothian: Levenhall - Prestonpans. The Council highlighted this project which they had a brief prepared for but did not have the funding to complete feasibility at the time - this became a Sustrans Network Development funded project and is now entering Design Phase. Discussion around NCN76 highlighted many potential projects, and the section between West Barns and Dunbar is likely to be a project funded by Network Development in 2024/25.

Fife: Kirkcaldy realignment. Fife Council agreed that Kirkcaldy was poorly served by the NCN, and a feasibility study into realigning NCN766 in Kirkcaldy is now underway and being directly delivered by the Network Planning team in 2024/25.

North Ayrshire: Kilwinning - Dalry NCN7. The Council discussed route options for an active travel corridor in the Garnock Valley to connect the two towns using an old railway line.

“The Highland Council very much appreciates the resources brought in by the Sustrans NCN team, and their flexible and enthusiastic approach to partnership working with us. [Sustrans’ Network Delivery Manager] ... brings a wealth of experience and skills and has built positive relationships with Council staff, landowners, community groups and more.

This is enabling significant progress, in particular on route improvements between Inverness and Dores, and between Inverness and Nairn...We look forward to continued working together.”

(Quote: The Highland Council.)



High Wood, outside Balloch, Inverness. Currently a well-used core path and potentially part of the proposed realigned NCN1 between Nairn and Inverness (Credit: Sustrans)

Highland: Culloden – Nairn. This would be a realignment of NCN1 to connect small villages and settlements in West Nairnshire through to East Inverness. There is potential for trip generators to Culloden Battlefield, Cawdor Castle, Nairn Beaches and Clava Cairns. In 2023/24 we established a working group including members of the community, local council and Sustrans to take this work forward and started identifying a route. Work continues on the feasibility report for this project.

The engagement with local authorities is a key part of ensuring that NCN interventions are prioritised on the basis of both data and collaboration. This has led us to develop a Collaboration Tool which will launch in 2024/25. This tool will be an interactive GIS Map which local authorities and other partners can feed into on an ongoing basis to enable more efficient and wide-reaching collaboration on the Network Plan.

Leverndale Hospital – barrier removal

A record number of barriers were removed on the NCN in 2023/24. One site at Leverndale Hospital benefited from the Accessibility Fund to reconnect staff and patients to NCN7, enabling more people to access the physical and mental health benefits of travelling actively.

Many people face barriers to participation in walking, wheeling and cycling – whether that’s a result of physical obstructions to a route, health conditions or a lack of confidence.

Staff at Leverndale Hospital, a facility which provides in-patient mental health care to adults in the south side of Glasgow, set out to tackle this. With funding through Sustrans’ Accessibility Fund, bollards and chicanes which were preventing access to National Cycle Network Route 7 from the hospital site have been removed.

We heard from physiotherapists Angela and Hannah about the difference this has made to life at the hospital.



Angela and Hannah are physiotherapists at Leverndale Hospital, a facility which provides in-patient mental health care to adults in the south side of Glasgow. (Credit: Sustrans)

Leverndale Hospital promotes the benefits of active travel for health and leisure through its *Pedal 4 Progress* project. Patients can take part in cycle training and led rides which are held regularly on site, with some going on to achieve essential cycling skills certificates meaning they can travel independently to work placements and the gym, as well as for leisure. To ensure everyone can participate, there is a fleet of specialist cycles on the ward, including wheelchair tandems and trikes with e-assist.

“One of my patients was totally adamant he was never going to get on a bike, but after seeing me take other people out on led rides he came up and asked to have a shot at it - he is now trying to purchase his own cycle”.

“Getting off the ward is really, really important”, Hannah adds, “as soon as they [patients] see the cycles they want to go out on them – every week, no matter the weather”.

There is a fleet of specialist cycles, including wheelchair tandems and trikes with e-assist on the NHS site to ensure everyone is able to participate. (Credit: Sustrans)



As the number of patients and staff cycling on and off site increased, it became clear there were barriers preventing some from accessing NCN7, particularly when using the specialist bikes.

One patient from the Forensic Learning Disability service tells us it was “annoying” that the first time they went out on one of the sitting bikes they were unable to go the whole way along the route around the hospital. Another describes seeing someone getting “panicky and nervous going through a narrow space” on a led ride.

“We want to be as inclusive as possible and make sure everyone is involved”, Hannah says.

“With many of our patients there are mental obstacles to getting on the bike in the first place, so to then encounter an actual physical barrier could set them back”.

Improve accessibility of the NCN

The works included getting rid of several concrete and metal bollards which had been blocking the path, as well as widening chicanes which were too narrow for the specialist bikes and buggies to fit through. Bins were also moved and transitions onto the road improved.

Now all patients and staff at Leverndale Hospital can easily and safely walk, wheel, and cycle on the site as well as further afield on the National Cycle Network.

Before (L) and after (R):The works included getting rid of several concrete and metal bollards, as well as widening chicanes which were too narrow for the specialist bikes and buggies to fit through. (Credit: Sustrans)



Improve connectivity to the NCN

With the barriers removed, Leverndale Hospital is more connected than ever to a wider network of walking, wheeling and cycling routes.

Hannah tells us one of the biggest improvements is that they can reach so many more places without needing to go on-road.

“Once our patients start to get a bit fitter and more confident [on the cycles] they want to explore. Now we can take them all the way to Paisley and back”, Hannah says.

The number of staff cycling to and from the hospital has been growing steadily too, with space at the cycle shelters hard to come by in the summer months.

The benefits have also been felt throughout the wider community. Local cycling groups have been campaigning for the path to be opened up for a long time.

“It’s not just about making improvements around the hospital site, it’s about our place as part of the larger community of Pollock, Cardonald and the surrounding areas”, Angela concludes. “This is really important.”

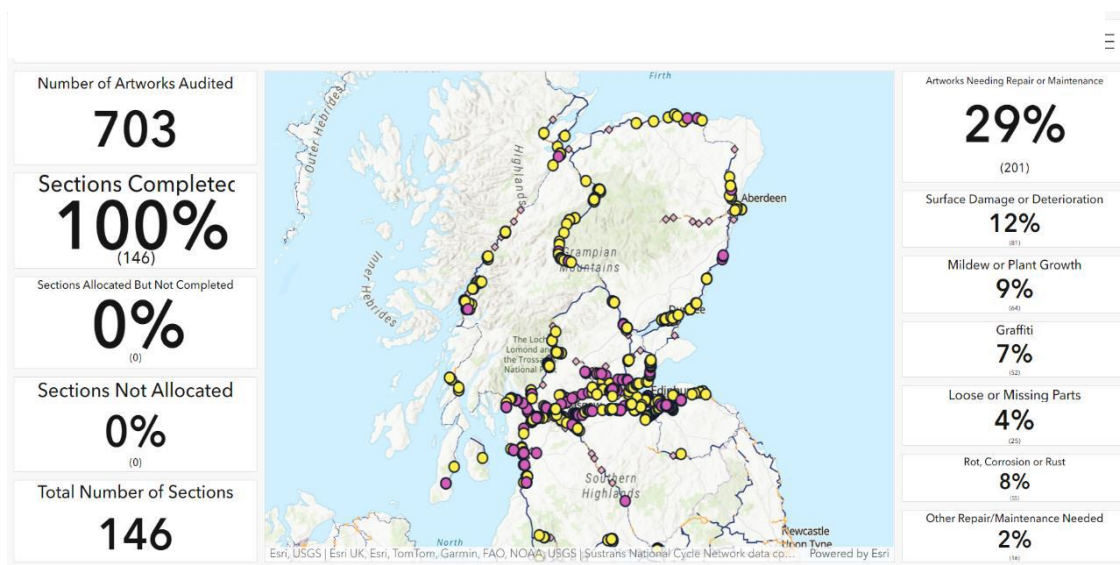
NCN Volunteer Artwork Audit

Increase engagement with the NCN

Volunteer engagement is an important part of NCN programme delivery. This comprehensive survey was diligently carried out by a team of **39** dedicated volunteers over several months, from July 2023 to March 2024 using a bespoke app created to accurately, and consistently, log the data required.

The completion of the artwork audit marks a significant milestone, encompassing an extensive survey of **146** sections of traffic-free National Cycle Network (NCN) routes, spanning a total distance of **1,128** km.

Dashboard created for the volunteers' use during the Artwork Audit



The audit revealed **703** artworks along the surveyed sections, providing valuable insights into the artistic landscape of these routes. Among these artworks, 29% were identified as requiring maintenance, highlighting the importance of ongoing care and preservation efforts to ensure these public spaces' continued aesthetic appeal, functionality and value as promoting enjoyment and use of the NCN.

Sustrans will now work with partners (landowners) and volunteers to maintain and fix the issues flagged and promote particular routes as art corridors. We have created a public-facing map for volunteers which will go out on the Action Team (Assemble) page so

volunteers can pick up basic tasks such as graffiti or mildew removal. The bigger tasks will be on the partner-facing map which will be for landowners to see what needs to be done to the artworks on their land. We'll work with them to ensure all major issues are dealt with (safety being the highest priority).

Targeted Arts – ‘ShapeChangers’ project

‘ShapeChangers’ funded by the Targeted Arts programme in 2023 was a Scotland-wide series of temporary outdoor artworks by young creators designed to transform active travel journeys. The project gave young people from low decile SIMD areas the agency to make walking, wheeling and cycling more enjoyable on their local National Cycle Network.

Sustrans partnered with four organisations: *Reachout With Arts In Mind* in Alloa, *Highland Print Studio* in Inverness, *Birds of Paradise Theatre Company* in Glasgow and *RIG Arts* in Greenock, to engage with young artists, supporting them to create a range of artworks reflecting the local history and community. Across all four partner organisations, 13 young artists were selected to create the outdoor artworks which were displayed on NCN routes from October to December 2023.

Greenock - Banner and sculpture project, reflecting on environmental sustainability (Credit: Sustrans) and the history of the local textile industry, on NCN Route 75 at East India Harbour. Displayed from 28 October to 19 November 2023.



Increase the number of users and increase awareness of the NCN

The project had a positive influence on local perceptions of the National Cycle Network. On-route survey results show that people who had seen the artwork felt encouraged to use the National Cycle Network more often.



55% of survey respondents said that because of visiting the artwork they were more likely or a lot more likely to use other routes on the NCN.

37% of survey respondents said that because of visiting the artwork they were more likely or a lot more likely to use the route they were on again.

68% of survey respondents said they feel more or much more welcome on the NCN due to visiting the artwork.

“It is fab for local community to see young people expressing views, learning skills from professional artists” (Alloa survey respondent)

Increase engagement with the NCN

Feedback from evaluation sessions with young artists who had taken part in the project was widely positive:



92% of the young artists either agreed or strongly agreed that they knew more about their local walking, wheeling and cycling pathways.

83% feel more comfortable using local paths and **75%** plan to use them more often.

“I now have a better understanding of the cycling network which will persuade me to be more involved with cycling.” (young artist)

All young artists involved in the ‘ShapeChangers’ project said that they had learnt how to create public artwork, with **75%** strongly agreeing.



83% now feel more confident in using their creativity for positive change in their local area.

Young artists enjoyed using new materials and learning new techniques, and felt that the project increased their confidence and improved their mental health.

“I still can't believe I made it to that point where I can shape the world through this project's artworks. It's hard to put into words how strongly this project has affected me.” (young artist)



Glasgow – Video work, inspired by a legacy of disability-led activism, which was screened on 21 November 2023 under the Kirklee Bridge on NCN route 756. The film was made available online after the screening. [People are Hope: A Shapechangers Film](#) [YouTube](#) (Credit: YouTube)

Partner organisations highlighted the broad range of skills that participants had developed through the project. The opportunity to offer paid work experience was felt by both participants and partners to be another key benefit and was a new way of working for most of the partner organisations.

“I was able to see them grow in confidence working with this material and also grow in confidence coming into the studio, attending a community art studio which is out in the community and it's quite different from school.” (partner organisation)

Bathgate Greenway

The Bathgate Greenway project, funded through the Greenways programme, aimed to improve safety, accessibility and connection to the NCN75 near Whitburn Road. Construction was completed between January and April 2023. The NCN75 is a high-quality greenway connecting housing, supermarkets and other key local trip generators. Active travel and access to the NCN75 via the access paths on Whitburn Road was difficult due to narrow pavements and no safe crossings. Petitions from St Mary's Primary School Parent Teachers Association and the wider community asked for improved crossings and connections.

These issues were addressed through improvements including the relocation of an existing pelican crossing and installation of a new toucan crossing on the south side of Boghead Bridge. Additionally, new sections of footpaths and two new uncontrolled crossing point islands on the carriageway were created.



The new toucan crossing at Bathgate improving safety and access to NCN75. (Credit: Sustrans)

Increase number of users of the NCN

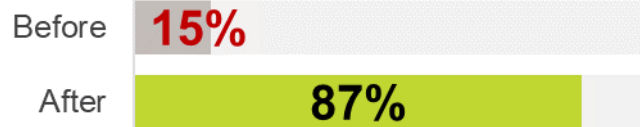
The number of trips at the new crossing points adjacent to the NCN access paths increased overall by **31%** with the most notable increase, **58%**, at the northern access point where a crossing island has been installed (from an estimated 130 trips per day to 210 trips per day). At the southern access point where a new toucan crossing was installed the usage increased by **21%** (from an estimated 400 trips per day to 490 trips per day). In addition, the area where the pavement was widened saw a **20%** increase in usage (from 460 trips per day to 550 trips per day)

Improve safety of the NCN

There were large increases in the proportion of survey respondents agreeing that:

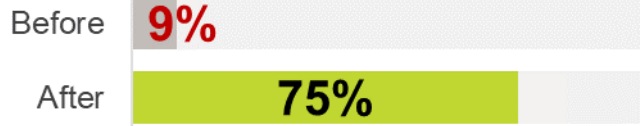


Paths and crossings feel **safe**

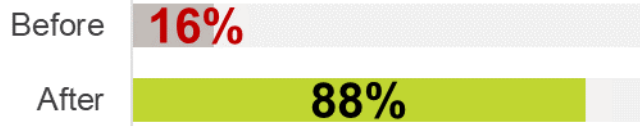




Paths and crossings feel **safe for children**



Users can **cross busy roads safely**

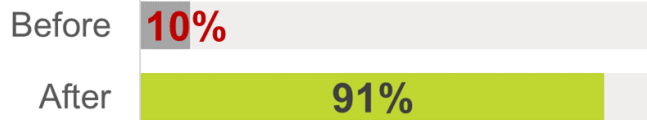


Improve quality of the NCN

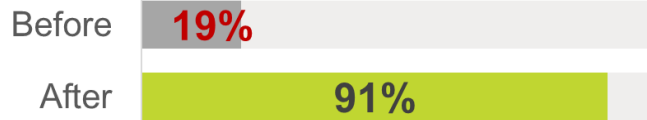
Survey results showed a very high increase in the proportion of respondents agreeing that:



There is **enough space for all users**



Paths and crossings have a **high quality surface**

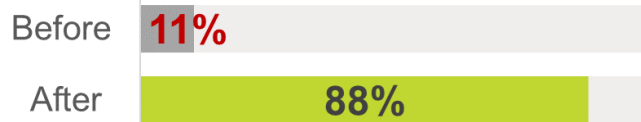


Improve connectivity to the NCN

89% of respondents reported that the changes to the area had helped them access amenities, including: retail **70%**, green space **41%**, health services **32%**, family and friends **20%**.

Improve accessibility of the NCN and increase diversity of users of the NCN

The proportion of survey respondents agreeing that paths and crossings **can be accessed by people of all abilities** increased by 77 percentage points



Counts showed increases in daily estimated trips across the Whitburn Road area by people using pushchairs and by users walking with an aid or using a wheelchair.

89% of survey respondents were familiar with the NCN75 path along Bog Burn. Of these:



38% use the NCN path more often since the toucan crossing was installed



84% now **feel safer** crossing Whitburn Road to reach the NCN

Kaimes Way - access improvements

Through NCN Infrastructure Delivery programme, the Kaimes Way access ramp opened in May 2022. It connects the people of Danderhall to the Gilmerton to Shawfair path (opened in 2018) via an off-road link. The ramp enables people from the adjacent housing area to access the main path and provides a safer alternative to the older access ramp at Old Dalkeith Road, which emerges on to a 60mph road with advisory cycle lanes and a narrow pavement:

Existing ramp joining Old Dalkeith Rd



New ramp to Kaimes View cul-de-sac



Kaimes Way and Old Dalkeith Road access ramps on the Gilmerton-Shawfair path

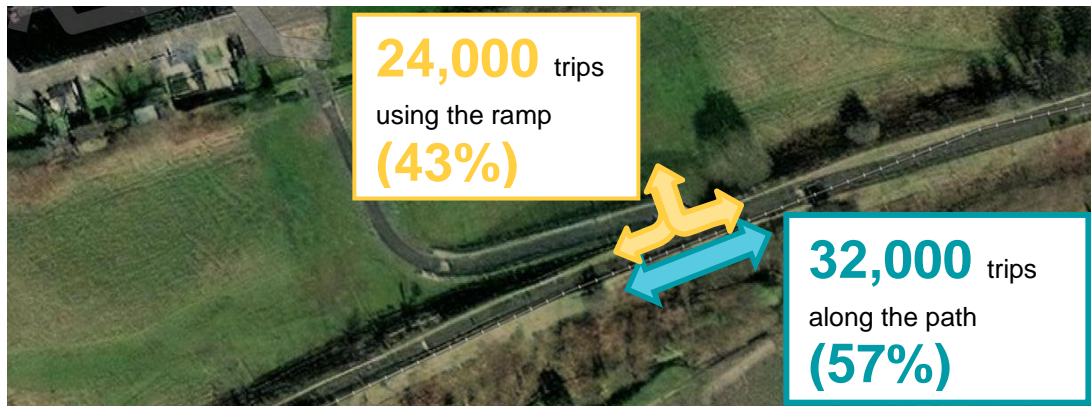
The Gilmerton to Shawfair path is planned to be connected to the NCN in the near future, so works to increase user numbers and improve user experience will improve NCN use once this is complete.

Increase number of users of the NCN

Results show an increase in the number of trips on the Gilmerton to Shawfair path by at least **47%**, from an estimated 38,000 in 2018 to **56,000** in 2023⁸.

We estimate that **24,000** trips were made on the access ramp in 2023. That's **43% of all trips** on this part of the path:

Annual usage estimates for people passing the access point at the top of ramp (blue), and for people using the ramp to join or leave the path (yellow)



Improve connectivity to the NCN

Local Access to the Gilmerton to Shawfair path improved -

74% of users surveyed on the ramp live locally, and **90%** use the ramp at least once a week.

In a postal survey of local residents, **86%** reported using the ramp, and **87%** of these agree that the ramp encourages them to walk, cycle or wheel more.

⁸ The 2018 count included users joining the path at the nearby Old Dalkeith Road ramp to travel west, who would not be recorded at the 2023 count location, so the increase in usage is even larger than this estimate. The Old Dalkeith Road count was not repeated at follow up, so the size of any displacement effect of users switching to the new ramp is not known.

Use of the NCN to access key destinations and services



26% of on-ramp survey respondents use the ramp to access their **workplace**



24% of on-ramp survey respondents use the ramp to see **family or friends**.



24% of on-ramp survey respondents use the ramp to access **green space**



20% of on-ramp survey respondents use the ramp to access **retail**

Improve safety of the NCN

78% of postal survey respondents with experience of the access ramp agree that the route is safe for children.

0% of users surveyed on the new ramp said that their route included unsafe roads.⁹

Improve accessibility of the NCN and increase diversity of users of the NCN

60% of users surveyed on the ramp agree that the route and ramp can be accessed and used by people of all abilities.

An estimated **900 pushchair trips** and **200 wheelchair trips** were made on the ramp in 2023.

Reduction in health inequalities

52% of users surveyed on the ramp live in areas that fall within quintile 2 of the Scottish Index of Multiple Deprivation, the second most deprived quintile.

80% users surveyed on the ramp said that this route has helped them to increase the amount of **physical activity** they regularly take. **50%** said that using this route has helped improve their **wellbeing**.

⁹ 14% of respondents agreed that any on-road sections were on safe roads, while 50% of respondents selected *N/A / Don't know* for this question, and 36% were neutral. This may reflect uncertainty about road safety, or be due to the majority of respondents not using roads in their journeys. Overall, the responses suggest that the users of the new ramp did not have concerns about road safety.

4. Lessons learned

Monitoring and evaluation

Our impact evaluation has demonstrated that whilst infrastructure delivery makes a rapid difference to people's lives – getting more people walking, wheeling and cycling – inequalities persist in the demographic profile of users. We need to address the underlying reasons for this, to boost usage still further and ensure the benefits of active travel are shared more fairly.

Our monitoring and evaluation also highlights the limitations of Route User Intercept Surveys (RUIS), which are largely unable to capture the views of people who can't or don't often access the NCN. The Research and Monitoring Unit are continually reviewing our methods and considering ways to reach lesser heard voices and those not using our routes.

Looking at population groups who are captured in RUIS, the majority of users surveyed on the NCN were of White ethnicity with other ethnic groups being underrepresented by population. RUIS also do not capture the views of the under 18 age group which limits the insight into the impact of network improvements on this group and bespoke survey methods may be required for projects which are hoping to capture impact on this age group. Again, these are issues which we are keen to address through our For Everyone strategy and NCN delivery by making the NCN accessible to all. We are always seeking new ways to capture the views of underrepresented members of society to inform our delivery. Read more about our For Everyone work- [Paths for Everyone - Sustrans.org.uk](https://www.sustrans.org.uk/paths-for-everyone)

Throughout our impact evaluation, we have continued to develop new approaches that will strengthen our ability to demonstrate impact in future. Establishing robust trend data is a particularly important theme. Looking ahead, the Research and Monitoring Unit will continue to develop these approaches to help understand the network as a whole.

In the future we anticipate presenting more impact reports on individual projects based on baseline and follow-up monitoring; evidencing and reporting the impact the project has had on the key programme outcomes addressed as per the project aims i.e. increased usage, increased diversity of users, and/or improved safety. These individual reports will highlight key impact areas, and any lessons learned on individual projects.

Overall, our impact evaluation demonstrates progress towards achieving the goals set out in the Active Travel Framework, and it provides data and evidence to strengthen and accelerate that progress in future.

5. Appendix

Outcomes and indicators

To monitor and evaluate the Scottish NCN, a set of key outcomes has been identified which align with the strategic objectives of the Network Delivery programme, the National Transport Strategy 2 priorities, and Transport Scotland's Active Travel Framework outcomes.

The outcomes are relevant across the programme in the short, medium and long term, will be reviewed annually and refreshed as needed to serve emerging areas of strategic focus.

NCN Scotland outcomes:

- Increase number of users of the NCN
- Improve connectivity to the NCN
- Improve quality of the NCN
- Improve accessibility of the NCN
- Improve safety of the NCN
- Increase diversity of users of the NCN
- Increase awareness of the NCN
- Increase engagement with the NCN
- Reduction in car use
- Reduction in health inequalities through use of the NCN
- Improved natural environment along the NCN

The table below illustrates how these outcomes align with key Scottish Transport strategies. In reality, our programme outcomes cut across these key strategic outcomes and priorities in a much more intrinsic way than this table can fully illustrate.

NCN Outcomes strategic alignment

Outcomes for NCN Scotland:	National Transport Strategy 2 priorities	Active Travel Framework outcomes
Increase number of users of the NCN	Improves our health and wellbeing	1. Increase the number of people choosing walking, cycling and wheeling in Scotland
Reduction in health inequalities through use of the NCN	Improves our health and wellbeing	Objective: Better health and safer travel for all
Improve safety of the NCN	Improves our health and wellbeing	3. Walking, cycling and wheeling is safer for everyone
Improve connectivity to the NCN	Reduces inequalities	2. High quality walking, wheeling and cycling infrastructure is available to everyone
Improve quality of the NCN	Reduces inequalities	
Improve accessibility of the NCN	Reduces inequalities	
Increase diversity of users of the NCN	Reduces inequalities	4. Walking, cycling and wheeling is available to all
Increase awareness of the NCN	Helps deliver inclusive economic growth	5. Delivery of walking, cycling and wheeling is supported by a range of partners
Increase engagement with the NCN	Helps deliver inclusive economic growth	
Reduction in car use	Takes climate action	Objective: Cut carbon emissions and other pollution
Improved natural environment along the NCN	Takes climate action	

Specific indicators were then applied to each outcome and appropriate monitoring tools used to gauge the impact of each project.

NCN Outcomes and indicators

NCN Outcomes	Outcome indicators
Increase number of users of the NCN	Number of trips on the NCN
Improve quality of the NCN	User perceptions of quality
Improve safety of the NCN	User perceptions of safety
	Speed of motorised traffic (if on road)
	Volume of motorised traffic (if on road)
Improve connectivity to the NCN	Use of the NCN to access key destinations and services
	Number of people using their local NCN
Improve accessibility of the NCN	User perceptions of access barriers
Increase diversity of users of the NCN	Demographic diversity of NCN users
	Community perceptions of design consultation outcomes
Increase engagement with the NCN	Community perceptions of involvement/volunteering on NCN projects
	Users indicating they would recommend the route
Increase awareness of the NCN	Proportion of public aware of NCN routes
	Proportion of users aware of NCN routes
Reduction in health inequalities through use of the NCN	Physical activity level of NCN users
	Wellbeing of NCN users

Reduction in car use	Estimated level of CO2 and other pollutants (from mode shift)
	Mode shift towards active travel
Improved natural environment along the NCN	User perceptions of greenspace on the NCN
	Community group perceptions of environmental projects on the NCN
	Increase in biodiversity along the NCN

Monitoring summary

The Research and Monitoring Unit (RMU) monitor the Network Delivery programme in two specific ways – project monitoring and whole network monitoring:

Project monitoring:

The RMU work closely with the Network Development team to consider which projects to monitor on the NCN. Decisions are based on the size, scale, cost and expected impact of the intervention in question. Large scale infrastructure or accessibility projects are likely to be monitored, while smaller scale resurfacing or isolated barrier removals are less likely to be monitored. We also monitor the impact of large-scale engagement projects such as the Targeted Arts project which this year focused on young people in areas of high deprivation (SIMD).

Project monitoring methods are various, tailored for each project and may include tools such as Route User Intercept Surveys (RUIS), counters, interviews, focus groups, postal surveys, etc. A full list of methods is available further on in the appendix.

The nature of infrastructure project monitoring means that follow up monitoring is usually carried out in the financial year following the completion of works, to allow appropriate bedding in periods, and avoid on-site monitoring in the wintertime. Although 25 projects progressed to completion in the 2023/24 year it may be a number of years before the impact of these projects is felt and measured. In some cases, these projects may be phases of a larger route improvement and monitored in combination with other phases when all completed.

Engagement arts projects are more often monitored during or immediately after delivery, so impact evaluation can be reported in the same financial year as the project.

Whole network monitoring

Sustrans' NCN Whole Network Usage Estimate (WNUE) methodology is used to estimate usage across the entire extent of the UK NCN annually by calendar year. This methodology uses data from monitored sections of the UK-wide NCN to make an estimate of usage on the unmonitored sections. It is based on the premise that any sections of a network which share the same characteristics (which are known to affect walking and cycling levels) will see the same level of usage. 311 traffic-free counters (133 including pedestrians) and 156 on-road manual counts were used to calculate the NCN usage in Scotland for 2023.

Note on the Whole Network User Estimate figures: The Whole Network User Estimate for 2023 suggests 52 million walkers, wheelers and cyclists used the Scottish NCN, which illustrates the importance of the NCN as an active travel and recreational resource for Scottish people. There does appear to have been a drop in usage of the NCN from 2022 when the reported WNUE was 63 million, particularly in rural areas across the wider UK NCN. However, due to the broad error margins in this calculation method, we would suggest that these figures should be treated as indicative of usage and not directly comparable. Various contributing factors affecting the counts used will be amplified by the method used in calculating the WNUE – factors could include: poorer weather in 2023 relative to 2022, variations in the counter dataset used each year, as well as continued shifts in travel behaviour post-Covid.

YouGov Survey

To understand how the Scottish public feel about the NCN, a representative online public survey was commissioned through YouGov in 2023 (1,001 respondents). It has been used to gauge Scottish public awareness and attitudes to the NCN. Figures were weighted and representative of adults (18+) in Scotland.

Tools used to monitor outcomes:

Route User Intercept Survey

Route User Intercept Surveys (RUIS) are conducted over four days, covering a weekday and a weekend day. The survey comprises a manual count or video manual count of all route users alongside interviews of a convenience sample of the users over a 12-hour period, from 07:00 to 19:00. The manual count identifies mode of users as well as age and gender of route users. The directions of travel are also counted.

Manual Count

Manual Counts (MC) are conducted alongside a RUIS over four days, covering a weekday and a weekend day. A manual count allows us to count cyclists, pedestrians, wheelers and joggers. Unlike a video manual count, it allows us to identify age group and gender, as well as types of cycle (electric, non-electric or other (e.g. cargo, adapted)), people using walking aids, and other legitimate users (e.g. horse riders). A MC also identifies directions of travel. Like the RUIS the MC takes place over a 12-hour period, from 07:00 to 19:00.

In 2023/24, a total of 43 RUIS with Manual Counts were conducted. 12 of these were conducted for project monitoring, and 31 for network monitoring.

Video Manual Count

Video Manual Counts (VMC) are conducted by installing a video camera at the site and recording the usage from the footage. As much footage as required can be collected, usually between four to seven days. The count can take place over a period of up to 24 hours. Similarly to a MC, a VMC counts mode of users, covering different types of cycle (electric, non-electric or other, e.g. cargo, adapted), walking, walking with aid, jogging, wheelchair, other wheeled and other legitimate users (e.g. horse riders). A VMC also identifies age and gender of route users, and directions of travel.

18 VMCs were conducted in 2023/24.

Postal survey

A postal or residential survey is posted out to all addresses or a sample of addresses within a certain catchment area. The survey can ask a variety of questions on travel behaviour, perceptions of active travel and infrastructure, demographic information, and levels of physical activity. It allows us to obtain the views of people who are living in an area, but don't necessarily use active travel or pass via a point for a RUIS.

Permanent automatic counters

Automatic counters continuously record cycle (and/or pedestrian) user numbers on an hourly basis. They are installed on routes that are used by active travel users.

Sustrans has installed 47 permanent automatic counters across the NCN in Scotland, and collaborates with local authorities and Scottish Canals to share data for a further 129 counters on the NCN.

Counters are installed for two purposes:

- To develop a representative network of counters across the NCN, which will allow us to understand the way the NCN is used across its diverse locations

- To monitor the long-term impacts of specific projects

Project monitoring also uses permanent counters that have been previously installed in appropriate locations, by Sustrans or our partners.

In 2023/24, we installed 15 network counters to fill gaps in our monitoring in rural areas. A further 12 network counters are forecast to be installed by the end of 24/25, alongside 9 counters for project monitoring.

Temporary automatic counters

Temporary automatic counters continuously record cycle (and/or pedestrian) user numbers on an hourly basis. In contrast to permanent automatic counters, temporary automatic counters are installed for a set period of time at a location. They can provide user data before or after an intervention but do not provide long-term usage data.

Qualitative, semi-structured interviews

Qualitative, semi structured interviews are based on a topic guide of open questions. The guide provides consistency between interviews and ensures all of the topics needed for the project are covered. When facilitating a semi-structured interview, the interviewer can tailor the question wording to suit the language used by the interviewee and contribute extra questions to probe further into the interviewee's responses.

Evaluation Sessions

An evaluation session consists of a group of individuals coming together to complete a survey capturing their experiences and views of a project. An evaluation session may be an appropriate method to use for a group of project participants who are meeting regularly or if there is an organised end of project event. Using an evaluation session may also increase response rate to the survey as participants are given a dedicate time to complete the survey.

Monitoring stages whole programme

RMU monitors most of the projects being delivered by the Network programme with only a handful of small, lower cost projects not considered. While some projects are delivered in phases across multiple years the monitoring is likely to consider the whole project once completed and not each individual project phase. For this reason the number of monitoring plans in place may not match the number of project phases. The table below shows the number of projects monitored in each financial year from 2022/23, with forecast numbers for 2024/25 onwards.

For infrastructure projects, follow up monitoring is usually conducted in the financial year following the completion of construction, to allow appropriate bedding in time and seasonal matching between the baseline and follow up monitoring. In some cases this will require later monitoring, e.g. one project completed in March 2024 was baselined in April 2023, so the follow up monitoring is planned for April 2025. Projects involving multiple phases of work usually receive follow up monitoring after the final phase of the work is completed, so will be monitored even later relative to the initial investment and construction.

The number and scale of project impact reporting is therefore expected to increase from 2023/24 to 2026/27 as a result of the increased investment between 2022 and 2024. The table below indicates the increased volume of expected monitoring over the next few years. The figures are included on the assumption that funding will be sufficient to complete delivery and monitor the planned projects and may go up or down depending on investment.

Engagement projects (also included in the table) are often monitored more immediately, e.g. through surveys carried out while a temporary art installation is in place, or interviews with participants shortly after a project is completed. Longer term monitoring is also carried out for some projects (e.g. Colinton Tunnel) to understand the legacy impacts of the work.

Project monitoring by financial year. Forecast follow up monitoring numbers are shown in italics. New projects to be baselined in 25/26 and later will be added when Network Development plans are made.

	Baseline Monitoring (number of projects)	Follow up monitoring (number of projects)
22/23	6	3
23/24	11	3
24/25	12	9 (including 1 multi-phase)
25/26	<i>Not yet planned</i>	<i>16 (including 3 multi-phase)</i>
26/27 or later	<i>Not yet planned</i>	<i>22 (including 8 multi-phase)</i>

Strategic alignment

The NCN programme works to ensure that delivery and monitoring align with key strategic priorities in Scottish government. The table below shows how our programme outcomes align with those of other key strategies.

NCN Outcomes alignment with key Scottish Government Strategy Outcomes

	NCN Outcomes										
	Increase number of users of the NCN	Improve connectivity to the NCN	Improve quality of the NCN	Improve accessibility of the NCN	Improve safety of the NCN	Increase diversity of users of the NCN	Increase awareness of the NCN	Increase engagement with the NCN	Reduction in car use	Reduction in health inequalities through use of the NCN	Improved natural environment along the NCN
ATF Outcome 1: Increase the Number of People Choosing Walking, Cycling and Wheeling in Scotland	x										
ATF Outcome 2: High quality walking, cycling and wheeling infrastructure is available to everyone.		x	x	x							
ATF Outcome 3: Walking, cycling and wheeling is safer for everyone.						x					

	NCN Outcomes										
	Increase number of users of the NCN	Improve connectivity to the NCN	Improve quality of the NCN	Improve accessibility of the NCN	Improve safety of the NCN	Increase diversity of users of the NCN	Increase awareness of the NCN	Increase engagement with the NCN	Reduction in car use	Reduction in health inequalities through use of the NCN	Improved natural environment along the NCN
ATF Outcome 4: Walking cycling and wheeling is available to all.						X					
ATF Outcome 5: The delivery of walking, cycling and wheeling is supported by a range of partners							X	X			
ATF Strategic Objective: Cut carbon emissions and other pollution									X		X
ATF Strategic Objective: Delivering liveable, more pleasant communities								X			X
ATF Strategic Objective: Better health and safer travel for all					X	X				X	
ATF Strategic Objective: Reducing inequalities - jobs, services, leisure		X		X		X					
ATF Strategic Objective: Supporting delivery of sustainable economic growth		X					X				
NTS2 Delivery Plan 2022-23: reduces inequalities		X	X	X		X					
NTS2 Delivery Plan 2022-23: takes climate action									X		X

	NCN Outcomes										
	Increase number of users of the NCN	Improve connectivity to the NCN	Improve quality of the NCN	Improve accessibility of the NCN	Improve safety of the NCN	Increase diversity of users of the NCN	Increase awareness of the NCN	Increase engagement with the NCN	Reduction in car use	Reduction in health inequalities through use of the NCN	Improved natural environment along the NCN
NTS2 Delivery Plan 2022-23: improves our health and wellbeing	X				X				X	X	
NTS2 Delivery Plan 2022-23: helps deliver inclusive economic growth							X	X			
PfG 24-25: Eradicating Child Poverty		X		X			X			X	
PfG 24-25: Growing the Economy		X		X		X			X		
PfG 24-25: Tackling the Climate Emergency	X	X							X		X
PfG 24-25: Ensuring High Quality and Sustainable Public Services		X	X							X	
NPF Children and Young People: We grow up loved, safe and respected so that we realise our full potential						X				X	

	NCN Outcomes										
	Increase number of users of the NCN	Improve connectivity to the NCN	Improve quality of the NCN	Improve accessibility of the NCN	Improve safety of the NCN	Increase diversity of users of the NCN	Increase awareness of the NCN	Increase engagement with the NCN	Reduction in car use	Reduction in health inequalities through use of the NCN	Improved natural environment along the NCN
NPF Communities: We live in communities that are inclusive, empowered, resilient and safe				X	X	X		X			
NPF Culture: We are creative and our vibrant and diverse cultures are expressed and enjoyed widely						X		X			
NPF Economy: We have a globally competitive, entrepreneurial, inclusive and sustainable economy		X				X			X		
NPF Education: We are well educated, skilled and able to contribute to society								X			
NPF Environment: We value, enjoy, protect and enhance our environment								X			X
NPF Fair Work and Business: We have thriving and innovative businesses, with quality jobs and fair work for everyone		X									
NPF Health: We are healthy and active	X								X	X	
NPF Human Rights: We respect, protect and fulfil human rights and live free from discrimination				X	X	X					