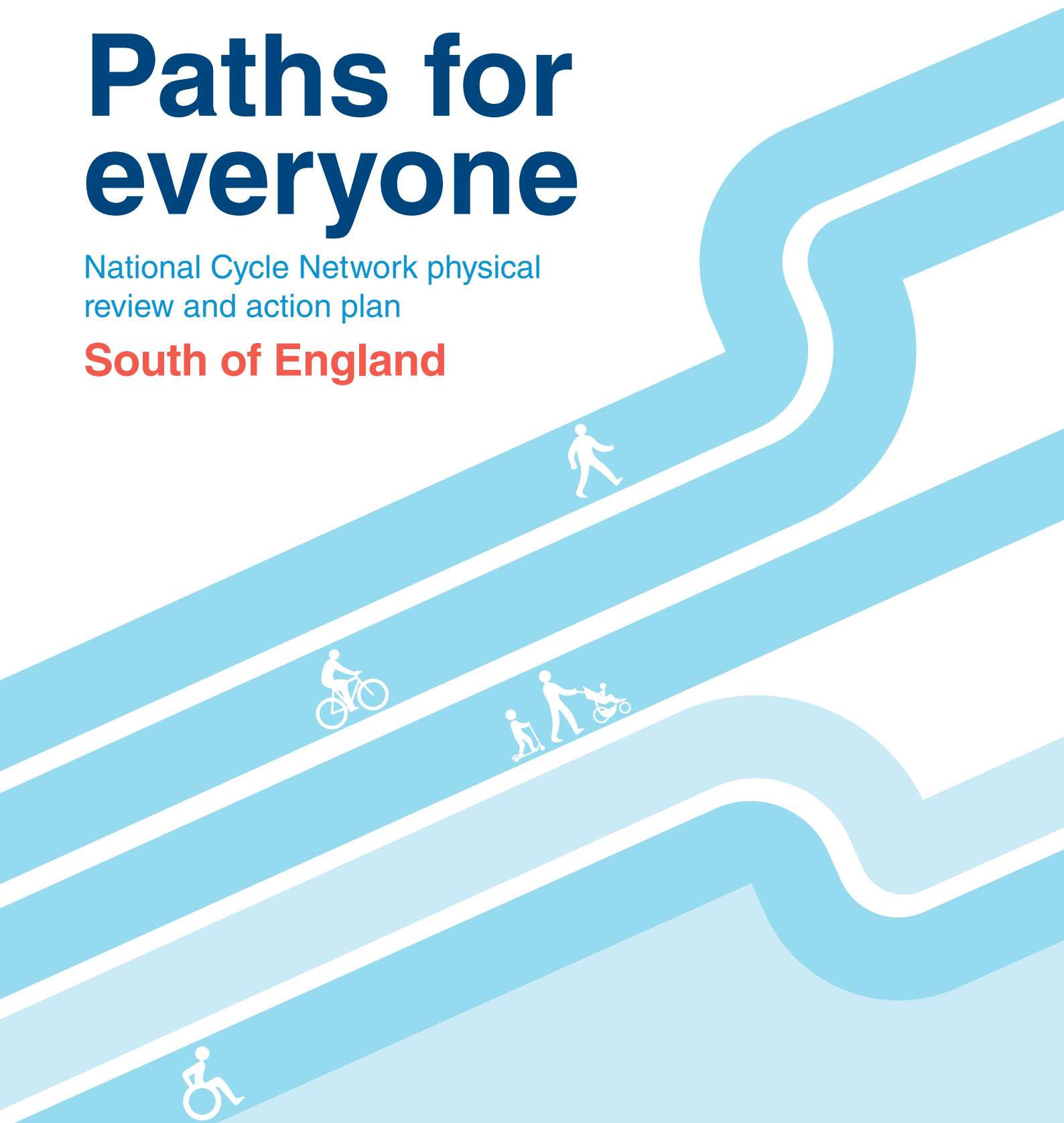
Paths for everyone

National Cycle Network physical review and action plan

South of England



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Contents

Sustrans is the charity making it easier for people to walk and cycle.

We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute. Join us on our journey. **www.sustrans.org.uk**

1. Introduction to the National Cycle Network

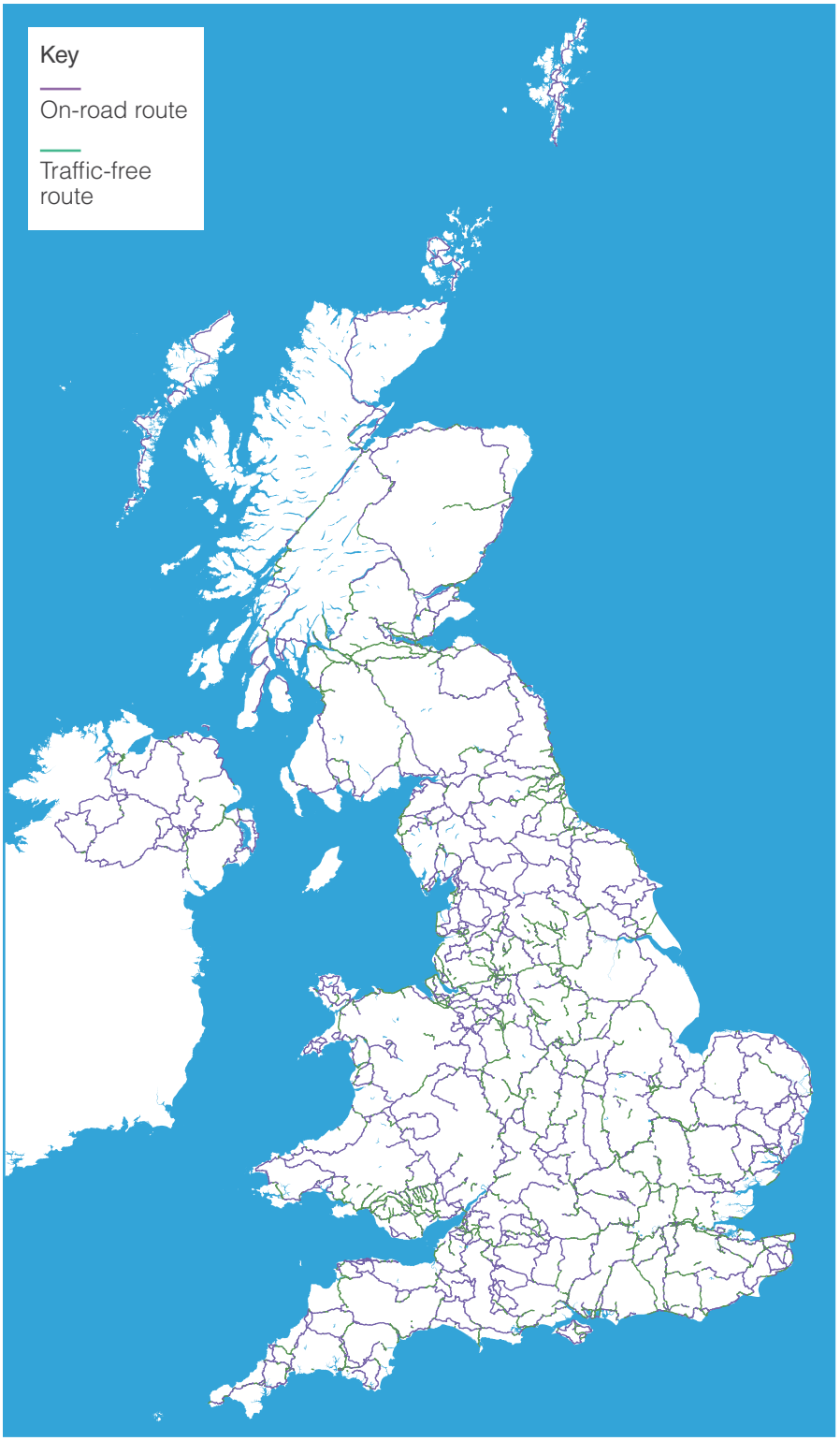
The National Cycle Network is a 23-year-old network of 16,575 miles of signed routes spanning the UK. It is used by walkers, joggers, wheelchair users and horse riders, as well as people on bikes.

It began with a National Lottery Grant (via the Millennium Commission) in 1995 and a pioneering vision to create high-quality, convenient routes for walking and cycling. Since then, we have worked with hundreds of partners to grow the Network into every corner of the UK.

Sustrans has worked with partners, stakeholders, staff and volunteers to conduct a comprehensive review of the entire Network.

A new shared vision has been agreed that will define the revitalised National Cycle Network:

A UK-wide network of traffic-free paths for everyone, connecting cities, towns and countryside and loved by the communities they serve.



The physical audit of the Network

All 16,575 miles of the National Cycle Network were surveyed by a team of independent assessors during 2015 and 2016 and all key characteristics recorded, including surface type, width, lighting, barriers and signage, as well as road classification for on-road sections.

The data was captured in the field on hand-held devices, then uploaded to our online geographic information system (GIS) for analysis.

The audit data has created a snapshot of the condition of the Network and provides a level of understanding and overview for the Network that has never been available before.

In order to compare different sections of route, Sustrans has developed a Level of Service Measure scoring system based on four route quality indicators:

- Surface quality
- Way-finding and signage
- Flow
- Traffic-related safety

Surface quality

Is the surface smooth enough for all types of cycle to be used here?

All on-road sections are scored relatively high as they generally have a smooth surface. Traffic-free sections do have poor surfaces in some locations and this is reflected in the score for this measure.

Way-finding and signage

Can this route be followed without a map?

The score reflects whether a section is signed in both directions, one direction or not at all.

Flow

Can a relaxed speed (typically around 8 mph) be continually and safely maintained here?

Path width, pinch points and restrictive barriers are the main constraints under this measure. (A relaxed speed may be lower than 8 mph in some circumstances.)

Traffic-related safety

The question our surveyors had to answer was:

Would most people allow an unaccompanied 12-year-old to cycle here?

This is the most subjective measure as it is based on the surveyor's assessment of whether a section of road is suitable. Due to inconsistencies between surveyors, Sustrans has acquired INRIX traffic data, which gives an objective measure of traffic volume and speed, based on information from commercial fleets, GPS, cell towers, mobile devices and cameras.

This means that we can set threshold criteria for on-road sections and define what would be acceptable for a quiet-way section. The INRIX data was validated using actual traffic count data for all roads in Cornwall, with thanks to Cornwall Council.

Weighting is applied to the safety measure in order to recognise that a traffic-free route should have a higher traffic-related safety score than an on-road route.

- Traffic-free route +6
- On-road section meeting quiet-way traffic criteria +4
- Other roads -4

Urban Rural Classification	Section Average Speed[1]	INRIX Volume Index[2]	Equivalent AADT[3] traffic volume
Urban	<=15 mph	<=11	2,500
Rural	<=25 mph	<=9	1,000

Scoring

Each measure has a four level scoring system either Yes, Perhaps, Probably Not or No, with a score of 3, 2, 1 or 0 assigned.

Score	3	2	1	0
Level	Yes	Perhaps	Probably Not	No

Classifications

The highest possible score for a high quality traffic-free section is 15 points and this is considered to meet the Very Good standard. Lower scores are classified as Good, Poor or Very Poor as below:

Score	15	10-14	6-9	0-5
Classification	Very Good	Good	Poor	Very Poor

1. It is recognised that the use of average speeds only provides an approximate indication of the speed characteristics of a road. As part of the improvement of sections of National Cycle Network designated as quiet-way it will be a requirement for there to be a speed limit of 40mph in rural areas (or 20mph in built-up areas).

2. INRIX Traffic Volume Index - measured on a scale 1-16 with 1 being very low traffic volume and16 very high traffic volume

3. AADT - Annual Average Daily Traffic is a measure of traffic flow and is the total volume of vehicle traffic of a highway or road for a year divided by 365 days.

Physical review and action plans

Seven physical review and action plans have been developed, one for each of the Sustrans geographical regions and nations of the UK, as a key element of the 'Fix it' strand of the review.

Each action plan defines the state of the Network for its area, outlines the strategic priorities identified for the region or nation and shows the number of miles that need to be improved in order to get the Network in the area to Good and Very Good.

A number of activation projects are identified in each of the plans, chosen to reflect a range of project types (upgrading existing on-road sections, improving traffic-free routes, dealing with dangerous crossings and junctions, creating new route corridors) as well as geographical diversity and deliverability within a tight timescale.

The implementation of the activation projects will build the momentum of the revitalisation of the Network resulting from the review.

Network development plans

The action plans will be backed up with full Network development plans that set out long-term, detailed plans for the entire regional/national network.

These plans will be developed by the Sustrans Network development teams in each area, in consultation with the advisory panels, volunteers and other stakeholders, and will be live documents that are continually updated, becoming the blueprint for the development of the Network.

Design principles for the National Cycle Network

A key objective for each physical review and action plan is to detail what is required to achieve a Very Good standard for the whole of the Network – that is a standard that offers users a consistent, safe, and fully accessible experience. This will require the essential elements of a route – good signage, a smooth surface, sufficient width, no barriers to interrupt continual movement and safe interfaces with motorised traffic – to be upgraded where this is not currently the case.

The preference for on-road sections will be to create alternative traffic-free routes. These sections will be either off-road (away from the road) or on fully separated infrastructure within the road corridor, with all routes being suitable for an unaccompanied 12-year-old to use.

Where the creation of traffic-free routes is not viable, it may be possible to change the road character to create quiet-way sections. Quiet-way sections will have a speed limit of 40mph or less and a traffic flow below 1,000 AADT in rural areas (20mph and 2,500 AADT in built-up areas). In addition, they will include traffic signs and road markings to highlight the speed limit and to inform people driving a vehicle that they should expect to encounter people walking, cycling or riding a horse in the road and they should provide good visibility to enable all users to see each other.

Where traffic-free routes cross roads, or other busier roads in the case of quiet-way sections, these crossings or junctions will need to allow safe movement for people using the Network.

To achieve the Very Good standard a set of design principles has been created to guide the design of all new and improved sections. These design principles are set out in the National Cycle Network: Paths for Everyone report.

Where it is not possible to improve an existing section of Network it may be necessary to consider de-designation. This process will involve engagement with key stakeholders and reasonable steps would need to be taken to ensure route continuity for the Network as a whole.

2. Overview of the Network in the South of England

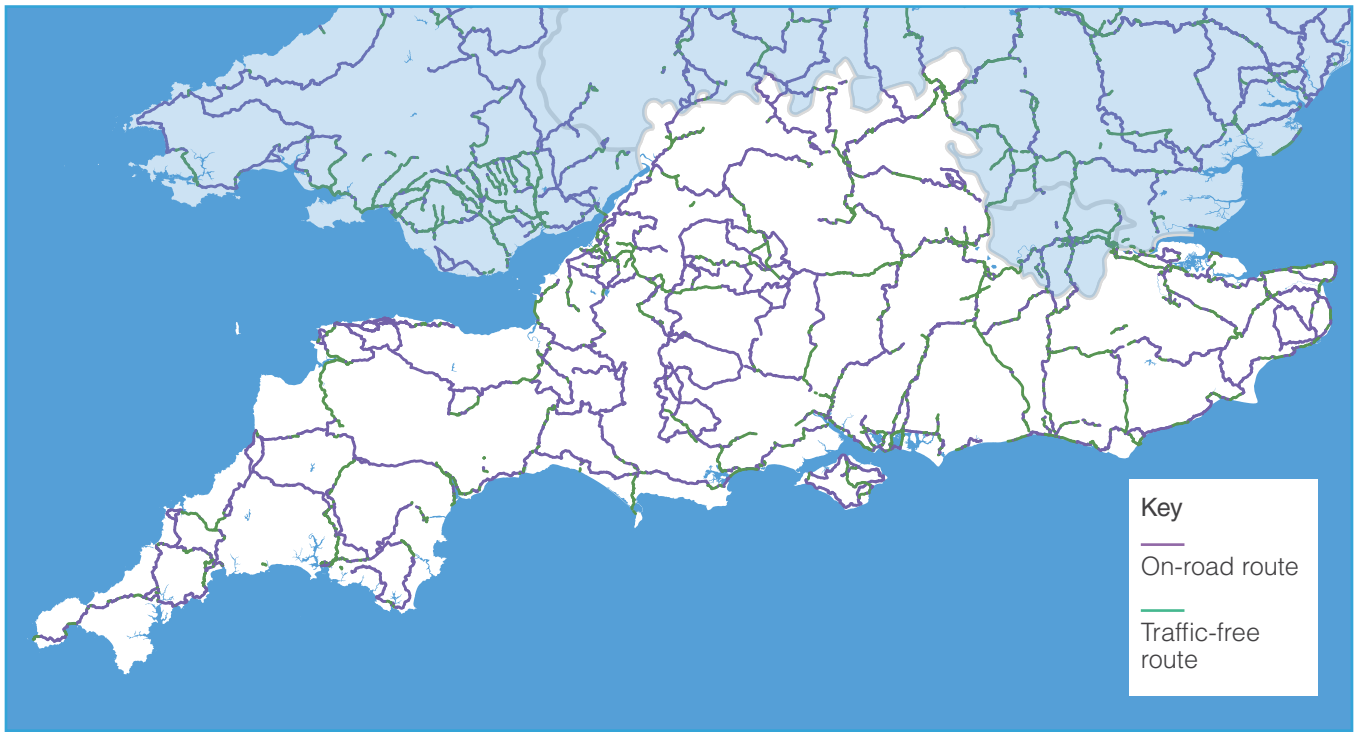
The South of England has the second longest Network of all the UK regions and nations with a total of **3,798 miles** of routes and paths covering a very extensive area that stretches from Lands' End in the West, to the Isle of Wight in the South, the Isle of Thanet in the East and Banbury in the North.

Of the total Network in the South of England **2,591 miles** (68%) is on-road and, of this 233 miles are on A or B roads.

The remaining 32% of the Network, a total of **1,207 miles**, is on traffic-free paths.

The National Cycle Network in the South of England includes several high-profile long-distance routes including the internationally renowned Bristol and Bath Railway Path that sees over 2.5 million users per year, the Camel Trail in Cornwall, the Viking Coastal Trail in North Kent, and 170 miles of Eurovelo 2, a long-distance route that links European capitals from Dublin to Moscow.

The Network runs through four National Parks and connects with the major towns and cities of Plymouth, Bristol, Swindon, Bournemouth, Poole, Southampton, Portsmouth, Oxford, Reading, Aldershot, Brighton & Hove and the Medway towns.

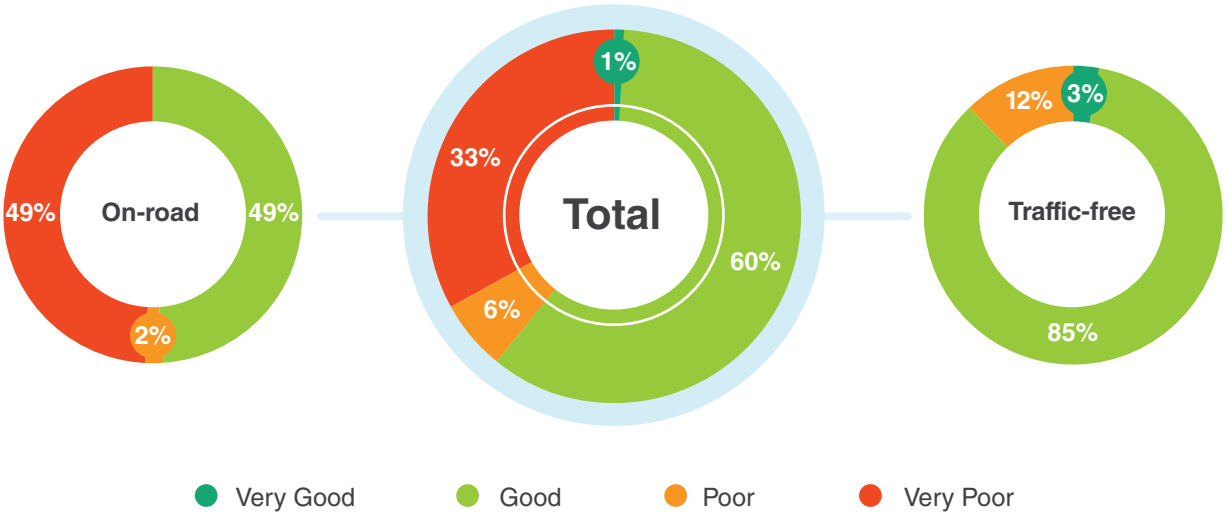


Condition of the Network

The audit has provided a snapshot of the condition of the Network in the South of England, with all sections of the Network rated as Very Good, Good, Poor or Very Poor. Using the audit data the condition of the on-road and traffic-free sections can also be viewed independently as shown below.

In the South of England the National Cycle Network audit ratings are as follows:

Very Good	Good	Poor	Very Poor
38 miles	2,294 miles	207 miles	1,259 miles

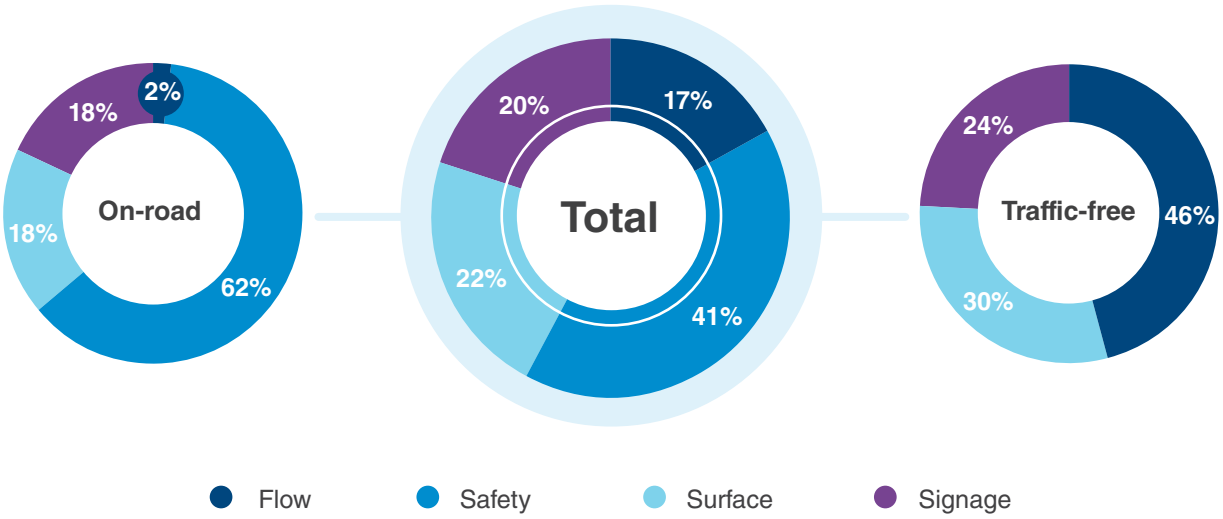


Identifying the issues

It is possible to run reports that show which of the main issues – traffic safety, surface, signage, flow – are causing the routes and paths to under-perform.

Almost half (41%) of the issues on the Network are due to traffic safety concerns, followed by 22% surface issues, 20% signage issues and 17% flow issues.

These reports can also be run for the on-road and traffic-free sections of the Network independently as shown below:



3. Strategic priorities for the South of England

These are in addition to the UK-wide strategic priorities of increasing accessibility and improving signage that are outlined in section 5.

Improving the existing routes

Safety first

The first priority will be to deal with sections of the Network that are a safety concern and that includes very busy and fast roads, including all A and B roads, and improving dangerous junctions and crossings.

Consistent user experience

The second priority is to ensure a consistent standard of experience for users of the Network. Initially focus will be on improving the traffic-free sections that receive the most complaints and impact on the reputation of the entire Network. Emphasis will be placed on improving the surface, repairing missing or damaged signage and removing restrictive barriers and pinch points.

Creating new routes

Filling the missing links and gaps in routes

The review of the audit data is helping to identify priority missing links. All new sections will meet the Network quality standard and will be focused on completing key routes or critical sections, providing strategic coherence for the region and in some cases enhancing intra-regional connections.

Creation of new routes to improve connectivity

In some cases new routes or corridors will be required to ensure that there is efficient connectivity.

De-designation of routes

Route assessment and de-designation

Of the Network in the South of England 1,259 miles (33%) is classified as Very Poor. These sections are all on-road and most are on busy roads with high traffic volumes and speed.

Some of these Very Poor sections of on-road routes, particularly where the usage is low and other routes exist, will be considered for de-designation from the National Cycle Network. Reasonable steps need to be taken to ensure route continuity for the Network as a whole and some on-road improvements may also help mitigate this situation.

Of the Network in the South of England 145 miles (12%) of the traffic-free Network is classified as Poor, mainly due to surfacing issues.

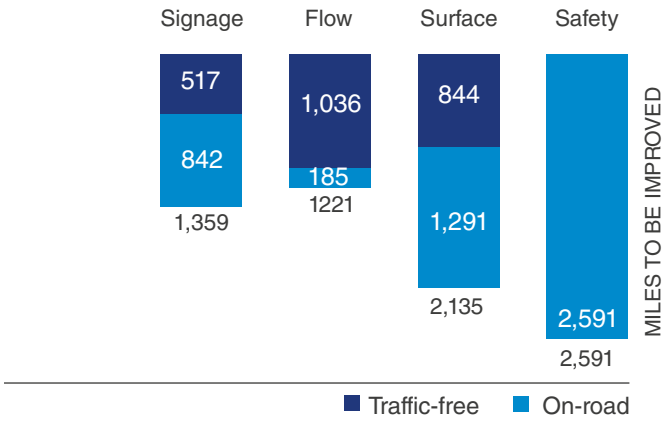
4. Quantifying the ambition for the South of England

Closing the gap to Very Good

The focus of the action plan is to bring all of the Network in the South of England up to a consistent Very Good standard.

The graph (right) shows the minimum number of miles, in each category, and for on-road and traffic-free sections that must be improved for the entire South of England Network to qualify as Very Good:

The gap to Very Good



On-road improvements required to be classed as Very Good

2,591 miles
of on-road Network need to be re-routed onto alternative traffic-free routes or have the characteristics of the road changed to create quiet-way sections.

842 miles
need signage improvements.

185 miles
have barriers or pinch points that need to be addressed (such as cattle grids).

1,291 miles
need surface improvements.

Traffic-free improvements required to be classed as Very Good

517 miles
need signage improvements.

844 miles
need surface improvements.

1,036 miles
need flow improvements.

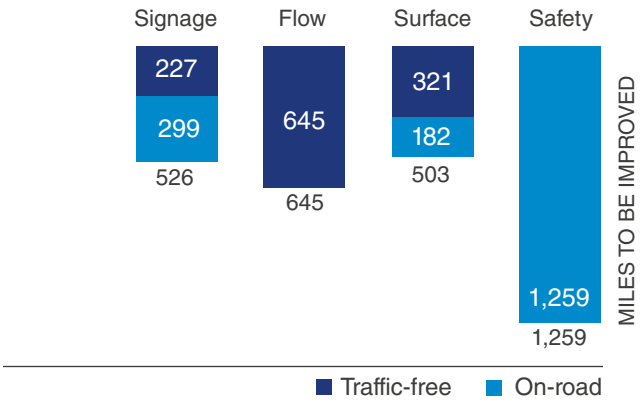
Junctions and crossings

101 crossings
identified in the South of England as requiring attention to make safe, based on a comprehensive dangerous crossings/junctions assessment carried out in 2017.

Closing the gap to Good

The focus for the first stage of improvements will be to get the Network to a Good standard.

The gap to Good



On-road improvements required to be classed as Good

1,259 miles
need to be re-routed onto alternative traffic-free routes or have the characteristics of the road changed to create quiet-way sections.

299 miles
need signage improvements.

182 miles
need surface improvements.

Traffic-free improvements required to be classed as Good

227 miles
need signage improvements.

321 miles
need surface improvements.

645 miles
need flow improvements.

5. UK-wide priorities

Accessibility

Equality of access for all users of the Network is very important and forms a key element of the vision. We want the entire Network to be suitable for everyone and cater for all types of cycles including trikes, cargo bikes, hand-bikes, trailer bikes and tandems, as well as being accessible for those on foot and users with pushchairs, wheelchairs, buggies and mobility scooters.

Restrictive barriers, steep ramps, high curbs and width issues on the Network itself are recorded in the physical audit under the service level measure 'Flow':

- **1,036 miles** of traffic-free routes and paths in the South of England have barriers and/or width issues that impede flow and in many cases prevent access for all.

As a first step to addressing this it is recommended that an accessibility working group is established to focus on accessibility issues across the Network. This will involve experts in the field as well as local volunteers and community groups.

Signage

Signage issues are common to the whole Network and can be split into three main areas:

- Signage issues on the Network itself that need fixing or amending including missing, obstructed or damaged signing or unclear, confusing or misaligned signage.
- Signage that promotes the Network including educational information, local maps, distances to attractions, local services and other user information.
- Signage that directs users towards the Network – from town centres, train stations, linking routes and other places of interest.

1,359 miles (36%) of the Network in the South of England require signage improvements:

- **842 miles** of this is on-road and will need the permission of the relevant Highway Authority.
- **517 miles** of this is on traffic-free sections and will need the permission of the landowner.

6. Activation projects

Identification process

It is important that the results of the National Cycle Network review are backed up by immediate and visible action.

The results of the physical audit have enabled Sustrans teams to identify a number of activation projects that can be delivered by 2023.

These activation projects will become the focus of attention following the publication of the action plans and will be central to the push for the further resources and time that is required to deliver the improvements to the Network.

In addition the projects will allow for testing of new governance systems, the marketing strategy, funding mechanisms, community and volunteer involvement, maintenance and monitoring developed as part of the National Cycle Network review.

The activation projects have a good geographical spread across the UK and will cover the full range of strategic priority categories as shown in the diagram below.

It is expected that where the activation projects successfully resolve key issues within each category they can be used as a blueprint for improvements that will be rolled out across the Network.

The selection process for the activation projects has included consultation with the regional and national advisory panels, local highway authorities, Sustrans volunteer groups and Sustrans staff working on and using the Network.

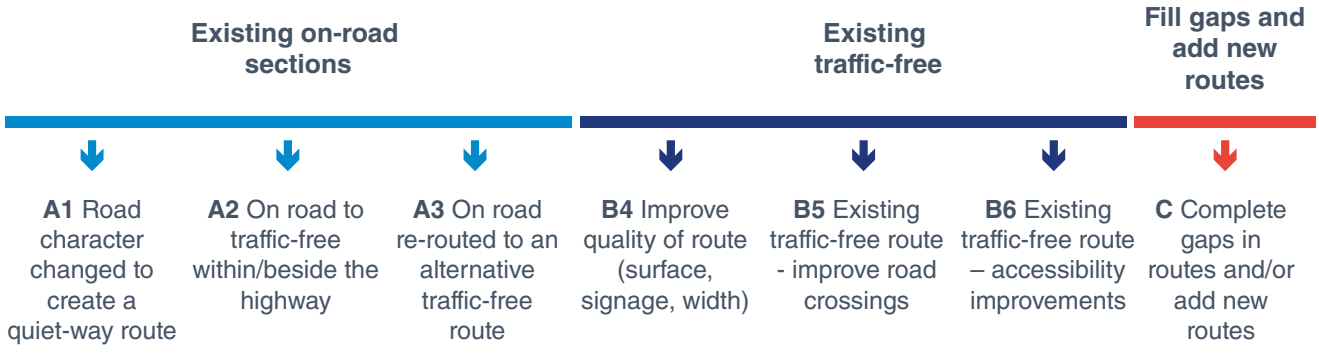
We will progress schemes linked to Highways England investments and the Department for Transport's Local Cycling and Walking Infrastructure Plans (LCWIP) wherever possible and funding has been provided by those organisations to develop a number of the activation projects in England.

More LCWIP initiatives are anticipated in the next few years and will provide excellent opportunities for prioritising local investment on improvements and connections on the Network and local walking and cycling infrastructure in built-up areas.

A prioritisation checklist has been used to help with the identification and prioritisation of the projects:

- Is the project **deliverable** by 2023?
- Does the project support the **strategic aims** of the National Cycle Network in the region?
- Does the improvement support **access for all**?
- Does the project support the delivery of a **traffic free network**?
- Does the project improve the **safety** of the section of National Cycle Network it deals with?
- Does the project improve a section of National Cycle Network that has **high current usage**?
- Is there **good potential for increased usage** in the future?
- Is there land **funding available** for this project?
- Is there **land owner support** for this project?
- Is there **community support** for this project?

Strategic priority categories



Activation projects for the South of England

Category A1: Road character changed to create a quiet-way route

National Route 544 – Chilton Road, Upton, Oxfordshire

WHY Short on-road section of approx. 0.6 mile linking two traffic-free sections between Didcot and Wantage, serving a large employment site at Harwell Campus.

PROBLEM Traffic volume and speed deters many people from walking, cycling and horse riding. The road is used as a short-cut between the A417 and the A34 and is especially busy at peak times. It is also a barrier to access the extensive Rights of Way network in the area for leisure trips.

SOLUTION Engage with local residents and businesses to determine whether traffic restrictions can be introduced to limit through traffic, since alternative routes are available. The aim is to reduce traffic volume and speed to meet the quiet-way standard. This would enable local people to safely walk, cycle and ride horses on this rural road.

Category A2: On-road to traffic-free within/beside the highway

National Route 256 – Leigh Road, Wimborne, Dorset

WHY An on-road section of approx. 1 mile linking two parts of the traffic-free Castleman Trailway between Poole and Ringwood, in an area with several development sites. The road is important locally as a key corridor linking schools and businesses with residential areas.

PROBLEM Traffic volume and speed on the B3073 Leigh Road exceed the quiet-way standard and deters many people from cycling. There is limited width available for an on-road facility and it is the main east-west route through the town.

SOLUTION A new shared path adjacent to the road to provide physical separation from traffic and a safe route for walking and cycling. Additional crossings of the road may be needed and attention to detail at side road crossings will be important.

Category A3: On-road re-routed to an alternative traffic-free route

National Route 223 – Christ's Hospital, West Sussex

WHY A short on-road section of approx. 1 mile linking several miles of the traffic-free Downs Link between Guildford and Shoreham, one of the longest greenways in the UK. It is also a route to the station for nearby villages such as Slinfold and Rudgwick.

PROBLEM Traffic volume and speed deters many people from walking, cycling and horse riding on these moderately busy roads with the national speed limit of 60mph. There is no footway and limited highway width for a new facility.

SOLUTION The on-road section can be moved to the disused railway line with a direct link to Christ's Hospital station and a subway passing under the main line. There will be a new on-road section within the built-up area and additional traffic management may be needed.

Key

Condition of the Network
- Very Poor
- Poor
- Very Good
- Good

- Proposed route realignment
- Crossing/barrier for improvement
- Scope for improvement measures

Category B4: Improve quality of traffic-free route (surface, signage, flow)

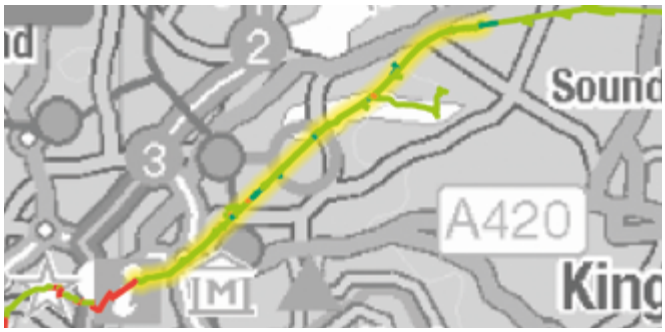
National Route 4 – Kennet & Avon Canal

WHY An attractive 12-mile section of canal towpath that links together several towns and villages in West Berkshire, between Thatcham and Southcote Lock. It forms part of the long-distance EuroVelo 2 Capitals Route.

PROBLEM The towpath has a poor surface and inadequate width in places and all stakeholders agree that improvements are needed. The Canal and River Trust does not have sufficient funds to maintain and improve the towpath as a cycle route.

SOLUTION Improved surfacing and increase width for the towpath, which may require some bank protection works. This will enable people on foot and bike to safely enjoy the towpath and its beautiful surroundings.

Category B4: Improve quality of traffic-free route (surface, signage, flow)



National Route 4 – Bristol and Bath Railway Path

WHY This was the very first Sustrans project (first phase was completed in 1979) and is now one of the busiest traffic-free paths in the UK. It links communities, schools and businesses with Bristol city centre and Temple Meads railway station.

PROBLEM The section between Fishponds and Bristol city centre is very busy with conflicts between users at peak times and a number of accidents. Many people are deterred from using the path due to the speed and behaviours of people on bikes.

SOLUTION Community-led redesign of the disused railway corridor, potentially leading to increased width for the railway path. The One Path Initiative is an alternative to physical change, focusing on people and behaviour with the key message of 'Share, Respect and Enjoy'.

Category B5: Existing traffic-free route – improve road crossings

National Route 33 – B3128 Ashton Court, Bristol

WHY This is a popular leisure and commuting route, linking Bristol with the Festival Way to Long Ashton and Nailsea. Ashton Court is a major leisure destination and Ashton Park School is nearby with 1,200 students.

PROBLEM There is only a narrow refuge crossing on this busy road with fast moving traffic, which is difficult for groups to cross. It has been identified as one of the most difficult Network road crossing in the South and is the most significant barrier on National Route 33.

SOLUTION Investigate moving the crossing location to the nearby existing traffic signals, with a new path to connect with the Ashton Court entrance. This will provide a safer signalised crossing for leisure, school, commuting and shopping trips.

Key

Condition of the Network
- Very Poor
- Poor
- Very Good
- Good

- Proposed route realignment
- Crossing/barrier for improvement
- Scope for improvement measures

Category B6: Existing traffic-free route – accessibility improvements

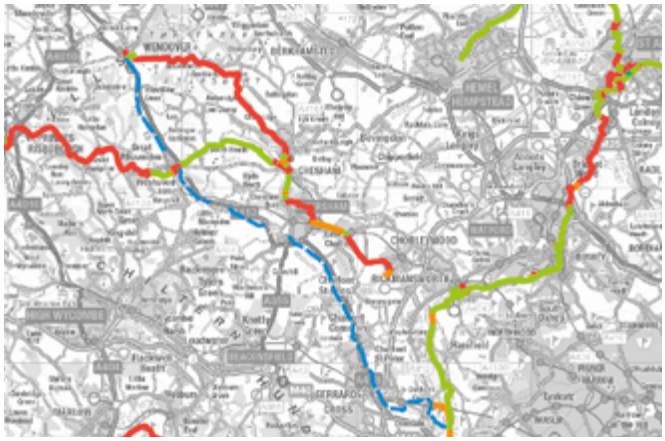
National Route 4 – Reading barriers

WHY This is a popular route with good potential to increase use, and is part of the EuroVelo 2 Capitals Route. The traffic-free path links schools, businesses and leisure destinations and is the gateway to the Kennet and Avon Canal towpath.

PROBLEM There are five restrictive barriers within two miles, making access difficult with a standard bike and almost impossible for tandems, trailers and people with limited mobility. The barriers were installed several years ago, primarily to control motorbikes.

SOLUTION Engage with local residents, landowners and police to determine whether the restrictive barriers can be modified to allow access for all, with a multi-agency approach to controlling the nuisance of motorbikes.

Category C: Complete gaps in routes and/or add new routes



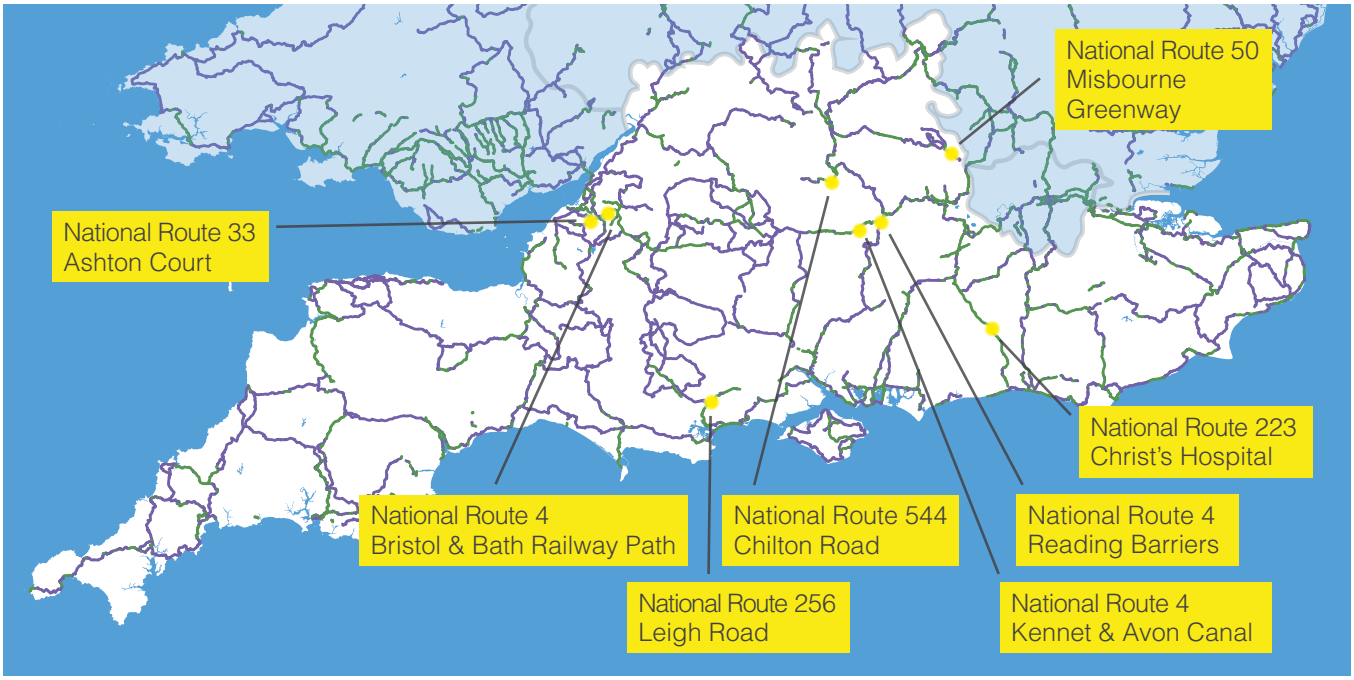
National Route 50 – Misbourne Greenway, Buckinghamshire

WHY A major new 20-mile greenway linking several towns and villages between Aylesbury and Uxbridge, following the Misbourne Valley. The High Speed 2 railway line passes through this area and may be able to provide funding for the new route.

PROBLEM The busy A413 dominates the Misbourne Valley through the Chiltern Hills, with limited space for walking and cycling. Even if it were possible, a path beside the road would be noisy, polluted and unattractive.

SOLUTION A new greenway running parallel with the A413 and HS2 railway, using existing Rights of Way, some private land and quiet roads. In addition to providing a major new tourism resource, the route will link local communities with schools, businesses and railway stations.

Activation project map



7. Conclusion

It is clear that whilst many parts of the Network in the South of England meet a good standard and only require minor interventions to achieve a Very Good standard, significant sections are Poor or Very Poor and will need substantial investment to achieve Good or Very Good standard.

The biggest issue is the speed and volume of traffic along on-road sections, particularly on busy A or B roads and difficult crossing points. The priority will be to address these busy on-road sections and reduce the traffic speed and volume or develop a traffic-free alternative route.

The eight activation projects are planned to be delivered by 2023 and will be managed in collaboration with Local Authorities in the South of England and other partners. Wherever possible, they will complement local delivery plans, including existing and planned funding streams such as the Local Growth Fund and developer contributions.

The Network development plans will provide a long list of potential projects to be developed as funding opportunities arise. These plans will be produced in collaboration with Sustrans volunteers, local user groups, local authorities and other stakeholders.

Acknowledgements

The regional advisory panel has met three times to advise the Sustrans England South Network Development team on their approach to the National Cycle Network review and to decide on the activation projects for the region. We anticipate that the panel will continue to play an important role in the next phase, representing the views of local authorities and other key stakeholders across the region.

The panel is made up of representatives from:

- Wiltshire Council
- Southampton City Council
- Kent County Council
- Bristol City Council
- South Downs National Park Authority
- Canal and River Trust
- National Trust
- Wheels for All
- Sustrans volunteers