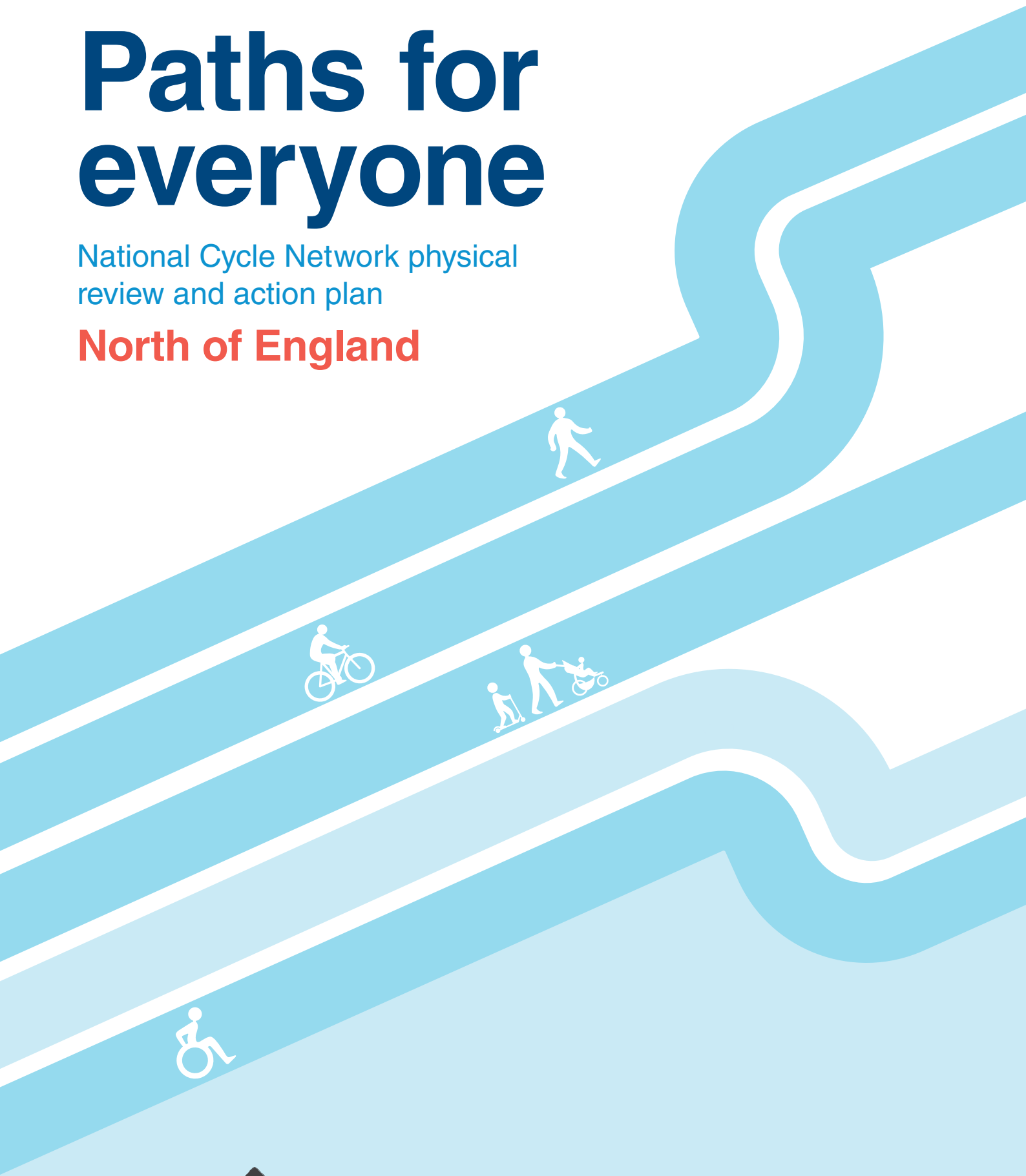


Paths for everyone

National Cycle Network physical review and action plan

North of England



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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.

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1. Introduction to the National Cycle Network

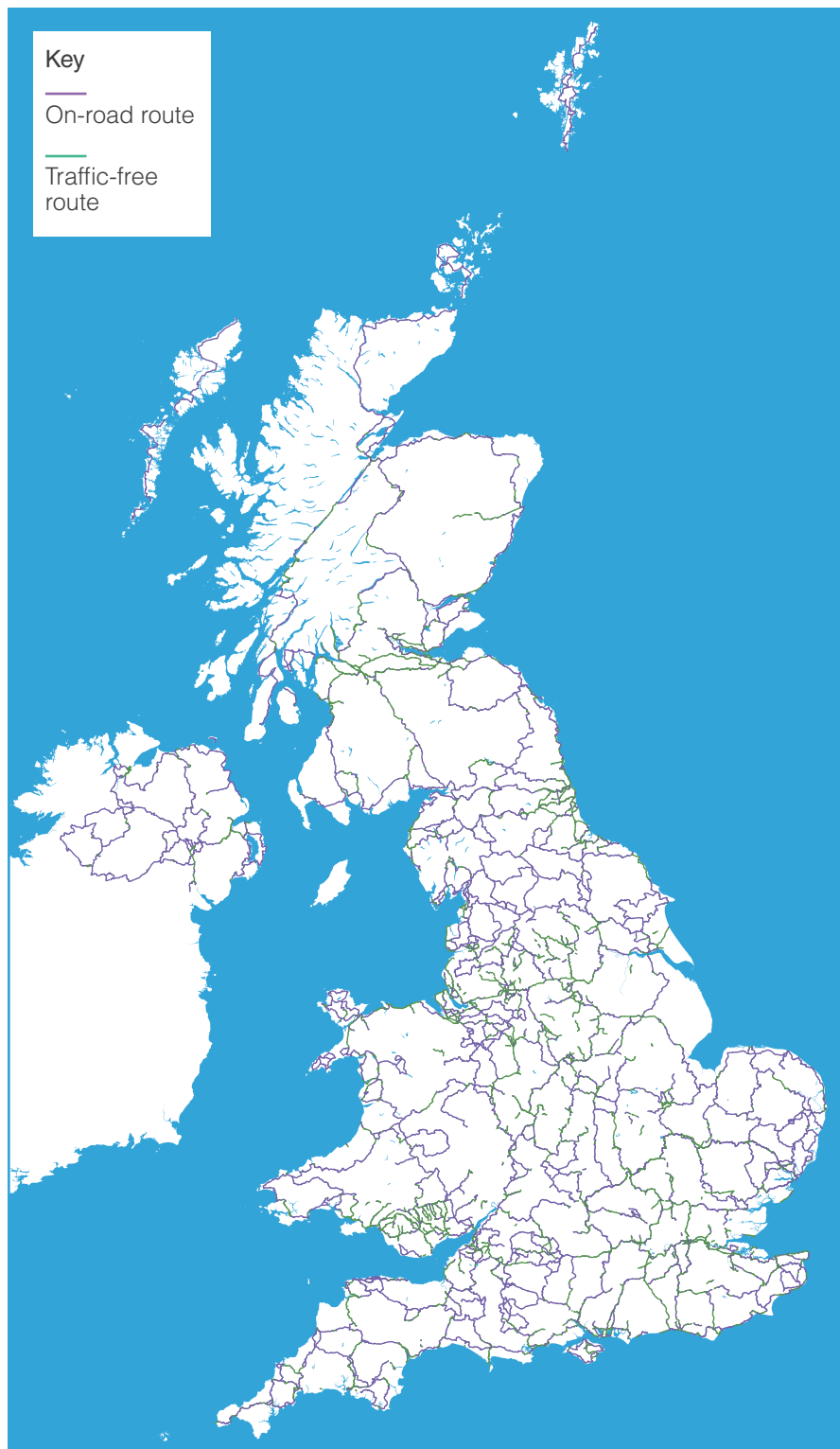
The National Cycle Network is a 23-year-old network of 16,575 miles of signed routes spanning the UK. It is used by walkers, joggers, wheelchair users and horse riders, as well as people on bikes.

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 and 16 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 North of England

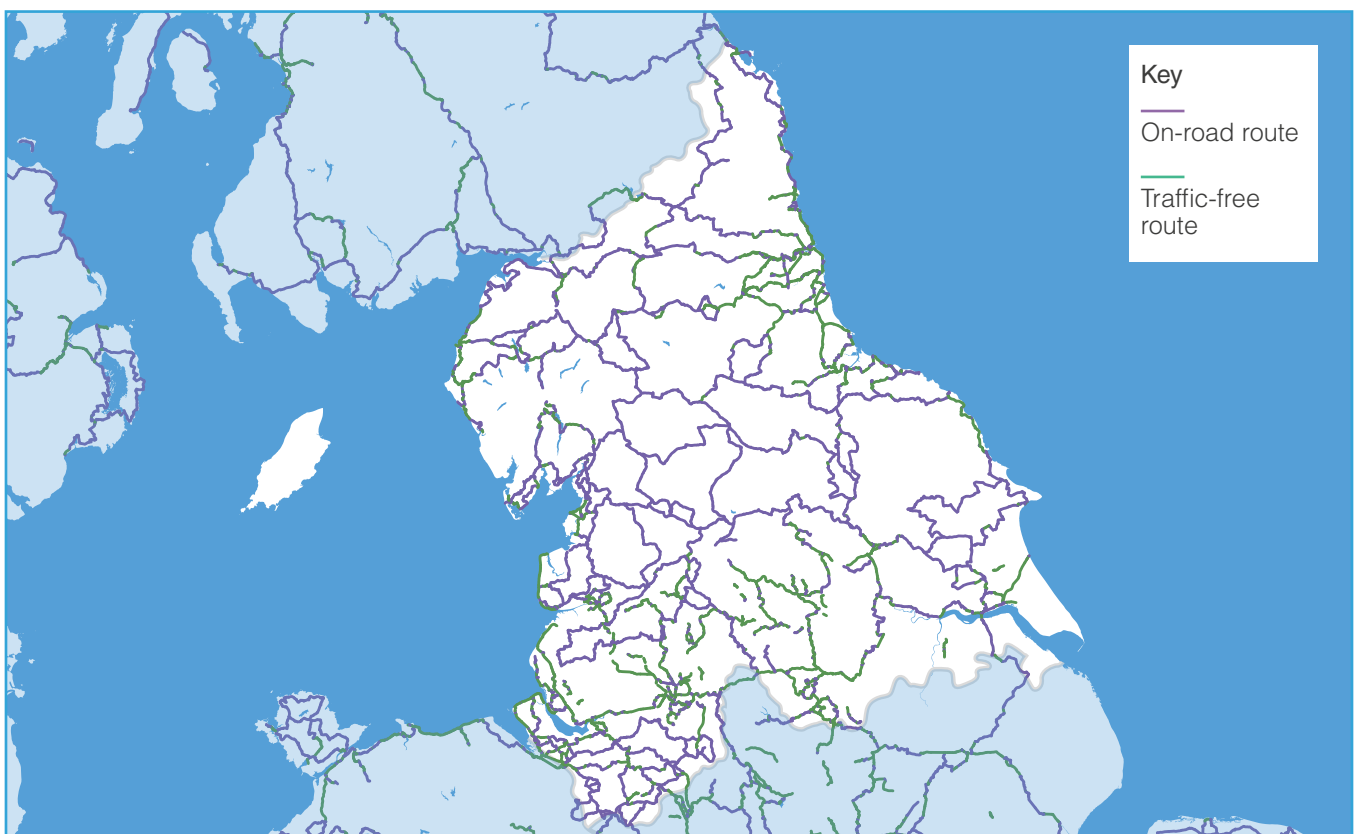
The North of England has the highest quantity of National Cycle Network routes of all the UK regions and nations with a total of **3,886 miles**. The Network covers a very extensive and diverse area that includes several city regions making up the Northern Powerhouse, contrasted with vast swathes of rural National Park-protected landscape divided by the Pennine backbone of England.

Of the Network in the North of England, a total of **2,567 miles** (66%) is on-road and, of this 1,709 miles are now considered to be on roads that are too fast or too busy.

The remaining 34% of the Network, a total of **1,319 miles**, is on traffic-free paths.

The Network in the North of England includes several high-profile long-distance challenge routes that significantly support the tourism economy including the internationally-renowned Coast to Coast (C2C) route that sees over 15,000 users per year, the Way of the Roses, the Trans Pennine Trail, Hadrian's Cycleway, Walney to Wear & Whitby (W2W) Cycle Route, the Reivers Cycle Route, the Pennine Cycleway and the Coast and Castles Cycle Route that forms a part of Eurovelo 12 North Sea Cycle Route from Scotland to Norway.

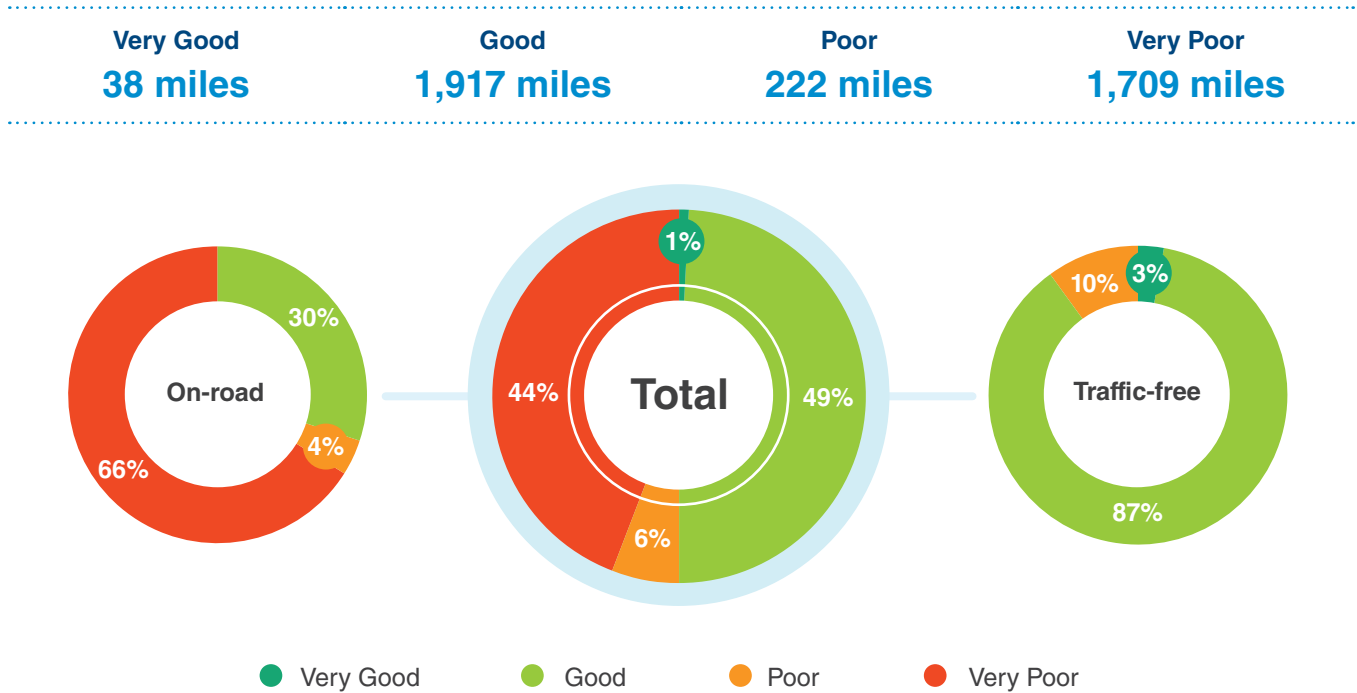
The Network in the North runs through several National Parks: Yorkshire Dales, North York Moors, Lake District, Northumberland and Peak District; as well as numerous Areas of Outstanding Natural Beauty.



Condition of the Network

Our analysis of the audit data has provided a snapshot of the condition of the Network in the North of England, with all sections rated as Very Good, Good, Poor or Very Poor.

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

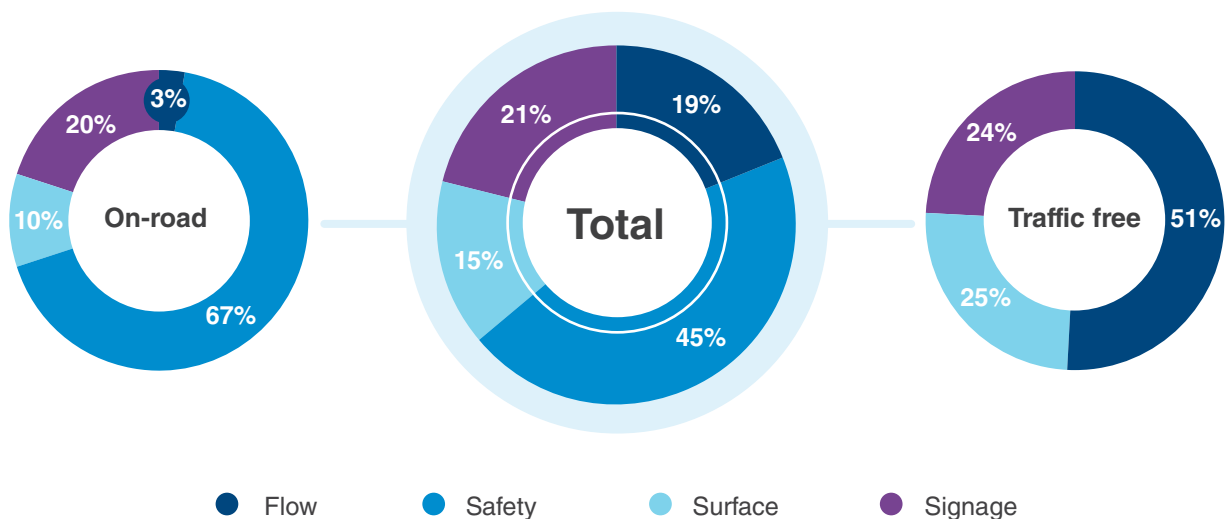


Identifying the issues

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

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

Almost half (45%) of the issues on the Network are due to traffic safety concerns, followed by 19% flow issues, 21% signage issues and 15% surface issues.



3. Strategic priorities for the North 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 in the Network. All new sections will meet the National Cycle 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 or even national and international routes (e.g. Eurovelo routes).

Creation of new routes to improve connectivity

In some cases new routes or corridors will be required to ensure that the aim of 'connecting and crossing settlements and countryside' is achieved.

De-designation of routes

Route assessment and de-designation

A significant quantity of the Network in the North of England is classified as Very Poor. These sections are all on-road and where roads are too busy or fast with high traffic volumes and speed.

These Very Poor and Poor sections of on-road Network, particularly where the usage is low and other routes exist, will be considered for de-designation from the Network. Where a Very Poor or Poor route has acknowledged strategic value, an achievable solution will be devised to achieve a Good or Very Good rating.

Challenge routes

Existing challenge routes and other popular, well-known long-distance routes will be sustained but where the essence of the challenge or the accepted proposition to the user does not conform to the principles of the National Cycle Network, it may be classified differently from the rest of the Network.

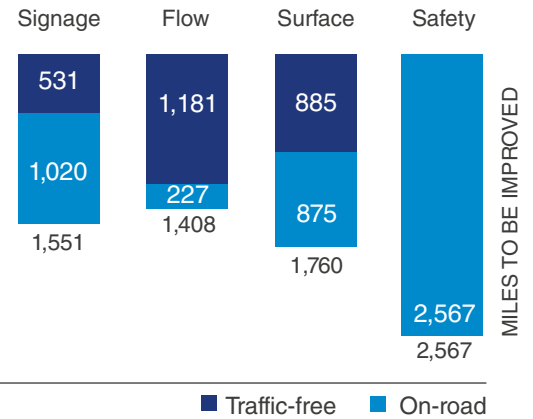
4. Quantifying the ambition for the North of England

Closing the gap to Very Good

The focus of the action plan is to bring all of the Network in the North 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 North of England Network to qualify as Very Good:

The gap to Very Good



On-road improvements required to be classed as Very Good:

<p>2,567 miles</p> <p>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.</p>	<p>1,020 miles</p> <p>need signage improvements.</p>	<p>875 miles</p> <p>need surface improvements.</p>	<p>227 miles</p> <p>need flow improvements.</p>
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Traffic-free improvements required to be classed as Very Good:

<p>885 miles</p> <p>need surface improvements.</p>	<p>531 miles</p> <p>need signage improvements.</p>	<p>1,181 miles</p> <p>need flow improvements.</p>
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Junctions and crossings

56 crossings

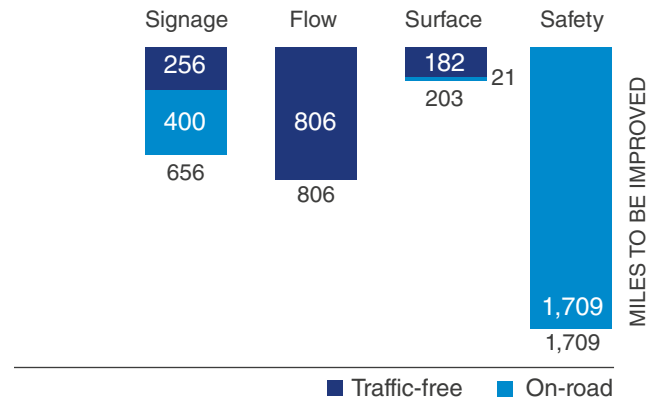
56 road crossings identified in the North of England as requiring attention to make safe based on a comprehensive dangerous crossings/junctions assessment carried out in 2017.

These crossings will be included as projects in the Network development plan, with very high priority improvements included as activation projects.

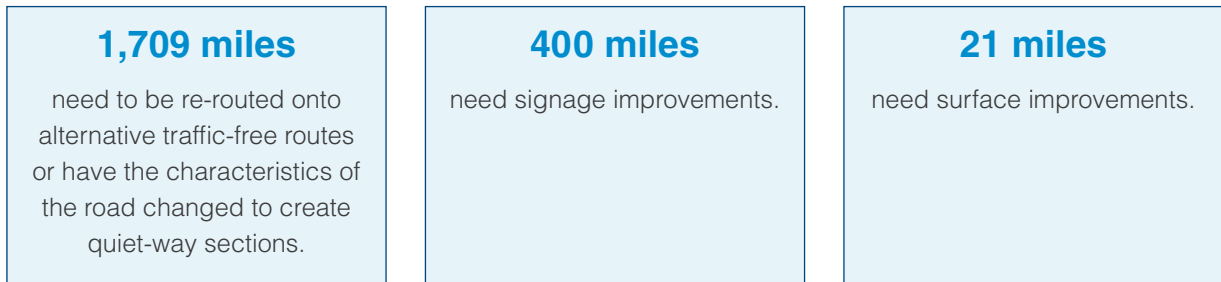
Closing the gap to Good

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

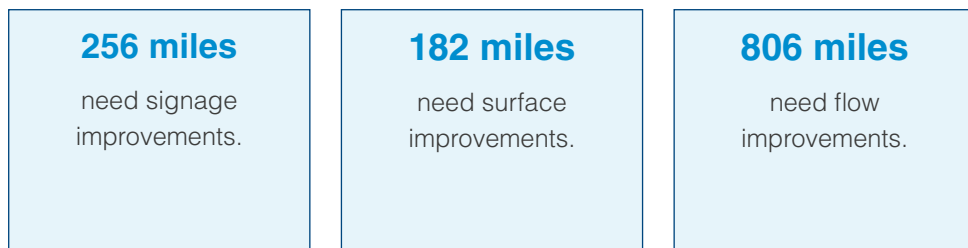
The gap to Good



On-road improvements required to be classed as Good:



Traffic-free improvements required to be classed as Good:



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':

- **375 miles** of traffic-free routes in the North of England have barrier issues that impede flow.
- **548 miles** of traffic-free routes in the North of England have width issues that impede flow.

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 will be addressed through national and regional programmes.

1,551 miles in the North of England require signage improvements:

- **1,020 miles** of this is on-road and will need the permission of the relevant Highway Authority.
- **531 miles** of this is on traffic-free sections.

Signage issues 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.

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

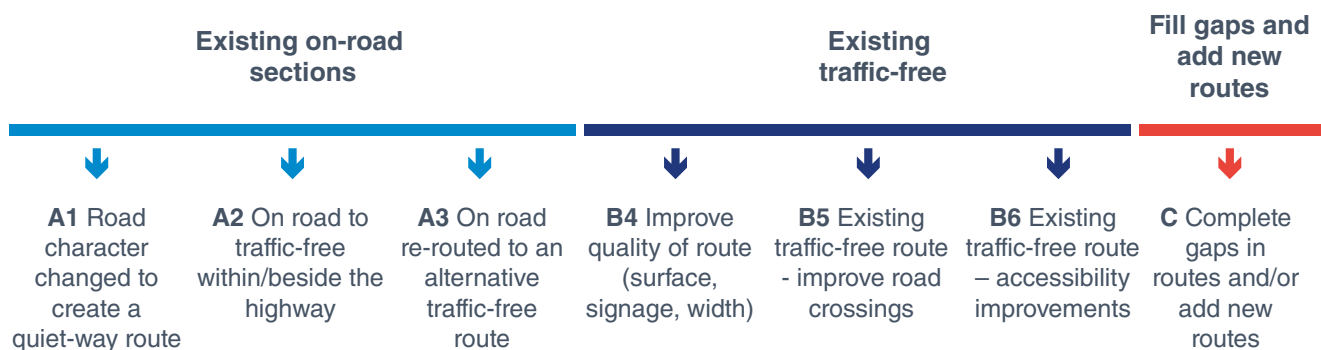
Cycling and Walking Infrastructure Plans (LCWIP) projects wherever possible and funding has been provided by those organisations to develop a number of the activation projects in England.

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 North of England

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



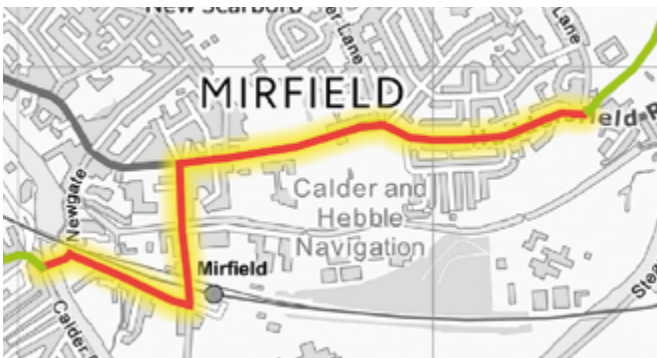
National Route 70 – Cheshire Cycleway

WHY The rural nature of Cheshire means that there are few opportunities to develop off-road routes between towns and villages to provide safe routes for all types of user.

PROBLEM Many rural lanes have national speed limits and peak hours rat-running issues, despite parallel main roads. The speed and flow of traffic on certain rural roads is now causing a problem resulting in a Very Poor rating for many of these sections.

SOLUTION To retain important National Cycle Network routes, there will need to be a change to the highway authority's approach to management of certain rural roads by reducing traffic speed and volume in order to ensure a safer user experience.

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



National Route 66 – Calder Valley Greenway - Mirfield A644

WHY The National Route 6 Calder Valley Greenway route between Dewsbury and Huddersfield is one of several high-quality traffic-free greenways in Kirklees District. This section is a longstanding gap in the route and is a deterrent to users on an otherwise good route.

PROBLEM At this location users are expected to join the very busy A644 Huddersfield Road and Station Road for a mile, mixing with heavy traffic before re-joining onward traffic-free greenways in either direction.

SOLUTION Although the river, canal and railway all cause severance for north-south movements, there are several route options that could be considered by stakeholders. Options will include the provision of segregated infrastructure on roads or re-routing to the canal towpath using an existing or a new canal overbridge.

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



National Route 67 – Methley Trans Pennine Trail re-route

WHY The Trans Pennine Trail (TPT) is a well-used national tourist route with local utility value. A significant number of new routes have been developed as part of the National Cycle Network in the local area that will now inevitably lead a greater number of users to this sub-standard section.

PROBLEM This section of TPT is one of only a few on-road sections between Wakefield and Leeds and is rated Very Poor with fast-moving traffic and rat-running issues. There are several turning and crossing manoeuvres that are hazardous to inexperienced users.

SOLUTION A traffic-free route option is readily available on the continuation of a disused railway for which planning permission is currently being sought. This will provide half of this solution and join the TPT to Methley Junction. There will then need to be feasibility, design and consent work required to make the necessary connection to Mickletown and the onward TPT to Leeds.

Key		Condition of the Network		Proposed route realignment	
	Very Poor	Very Good	Proposed route realignment	Crossing/barrier for improvement	Scope for improvement measures
	Poor	Good			

Category B4: Improve quality of route (surface, signage, width)



Various National Routes – signing Greater Manchester

WHY 2018-20 is a key period in Greater Manchester due to the Made to Move vision to create a comprehensive local walking and cycling network across the region. It is important that the National Cycle Network features in the development of this fully joined-up local network, standing out as quality infrastructure.

PROBLEM There is a relatively high density of existing Network across Greater Manchester and as the local network develops, the National Cycle Network signing legibility and identity will need to be greatly improved.

SOLUTION This project would seek to raise the profile and modernise the National Cycle Network throughout Greater Manchester in collaboration with the Made to Move project.

Category B4: Improve quality of route (surface, signage, width)



National Route 67 – Follifoot Underpass

WHY Vital grade separated crossing of the busy and fast A658. This is a fundamental section of the Harrogate to Wetherby route and used by a lot of cyclists, pedestrians and equestrians.

PROBLEM It is in unsatisfactory condition due to poor path surfaces and significant drainage issues in the underpass. On-road sections of National Route 67 to either side of this section also require attention to achieve a higher standard and this will raise the profile and demand for the route.

SOLUTION Design work for the required improvements has been completed and agreed with stakeholders and is currently awaiting funding for delivery. Attention and priority should then also be given to improve the on-road sections to either side.

Category B4: Improve quality of route (surface, signage, width)



National Route 1 – North of South Hetton - Moonscape

WHY A much needed improvement to link South Hetton to employment in Seaham and further north. The poor quality of this section of route causes concern for many users.

PROBLEM Land ownership issues and unclear responsibility for maintenance has resulted in a poor quality section of route. It is currently narrow and unsealed.

SOLUTION The path would benefit from being widened and upgraded to a smooth all-weather specification.

Key	Condition of the Network		— — — Proposed route realignment
	— Very Poor	— Very Good	● / ✕ Crossing/barrier for improvement
	— Poor	— Good	— Scope for improvement measures

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



National Route 6 – Fallowfield Loop Line - Wilmslow Road crossing

WHY The Fallowfield Loop Line is a well-used traffic-free greenway and has been identified as a key route in Manchester's Made to Move project. This necessary crossing of the B5093 Wilmslow Road has been identified as a concern and detracts from the safe continuity of the Loop Line for users. This junction also falls within the Wilmslow Road/Oxford Road corridor also identified as a cycle superhighway.

PROBLEM It is difficult to safely navigate existing crossings of this road, particularly at busy times of day when there is a significant amount of vehicle traffic and pedestrian flow around this junction.

SOLUTION The design of this junction could give greater separation in space and time to vehicular, pedestrian and cyclist flows. The necessary redesign and reallocation of road space for the cycle superhighway should take this into account and integrate joining and crossing flows and also provide appropriate infrastructure along Sherwood Street until it re-joins the traffic-free Loop Line.

Category B6: Existing traffic-free route – accessibility improvements



National Route 62 – Liverpool Loophline accessibility

WHY Liverpool Loophline forms an important part of the Trans Pennine Trail and is becoming increasingly strategically important due to the introduction and development of Liverpool City Region Key Route Network. It is very important to ensure access to this high-quality traffic-free infrastructure for all legitimate users.

PROBLEM Access to the route is typically very poor with a multitude of historic restrictive barriers that now have questionable positive benefit. This poor access situation does not welcome a wide range of legitimate users of the route.

SOLUTION By working in collaboration with the local authority and key stakeholders, the physical access to the route should be improved by redesigning access points and changing the external identity of the Loophline to the local communities through which it passes.

Key	Condition of the Network		Proposed route realignment Crossing/barrier for improvement Scope for improvement measures		
		Very Poor			Very Good
		Poor			Good

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



National Route 665 – Wetherby Railway Path extension

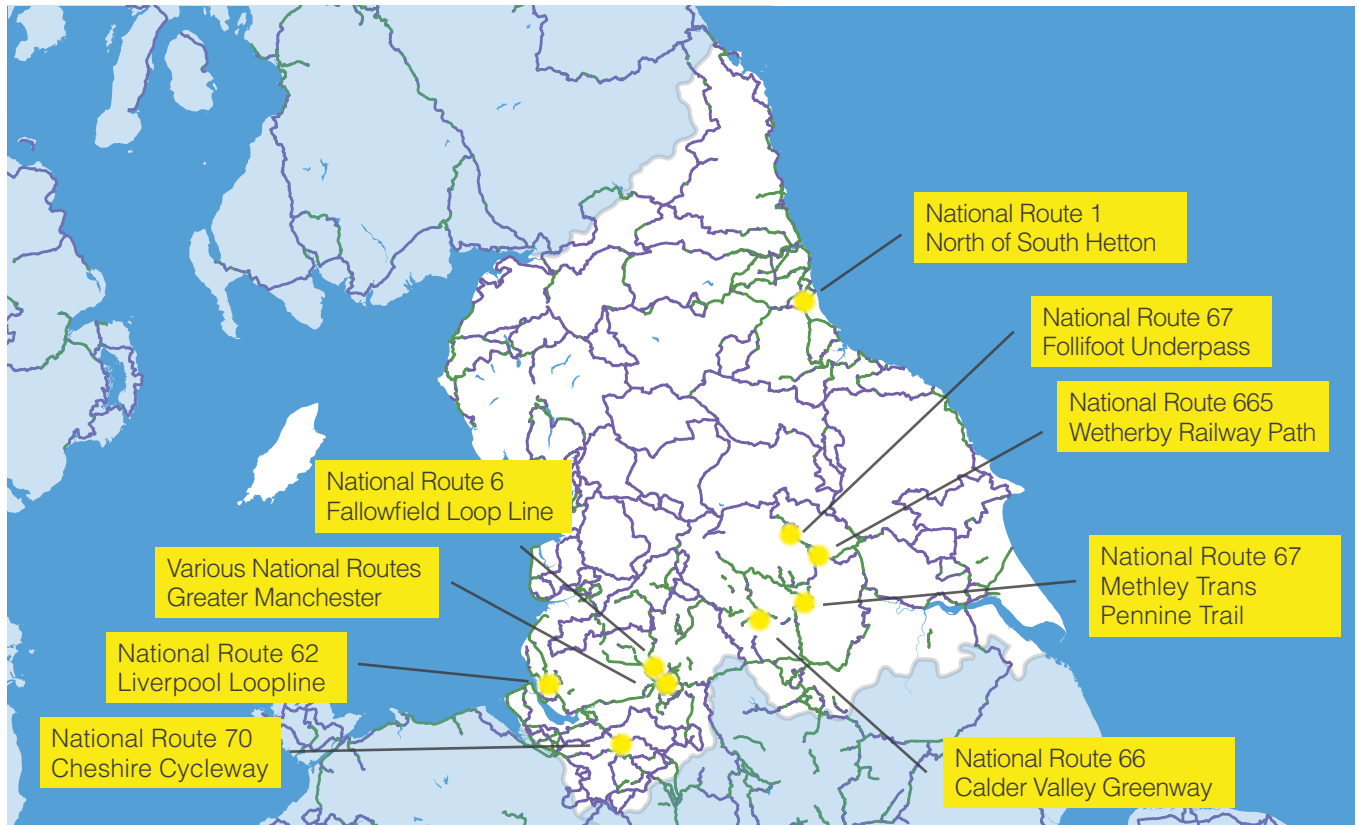
WHY There is a significant demand from local stakeholders to provide a safe and traffic-free link from Wetherby to Tadcaster via Thorp Arch Estate over the River Wharfe using a listed viaduct. This is also a key gap in the Network between Harrogate and York.

PROBLEM The existing Wetherby Railway Path currently terminates at Thorp Arch Estate with no possible onward route. A short section of new route is now required to link to the newly-refurbished listed viaduct over the River Wharfe and onward greenway alongside a new housing development at Newton Kyme.

SOLUTION This new section of route is easily deliverable should the required funding be found. Options appraisal, feasibility, design and development work would then be required to join this high-quality traffic-free route to Tadcaster.

Condition of the Network		Proposed route realignment	
Key	Very Poor (Red line)	Very Good (Green line)	Proposed route realignment (Blue dashed line)
	Poor (Orange line)	Good (Light Green line)	Crossing/barrier for improvement (Yellow circle with X)
			Scope for improvement measures (Yellow shaded area)

Activation project map



7. Conclusion

During this National Cycle Network review process, we have engaged with a wide range of stakeholders nationally and locally and this has shaped the new vision and strategy for the Network.

In the North of England, we have a very significant diversity of Network which serves the urban, rural, utility, tourism, nature, heritage and recreation sectors.

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

This is mainly relating to speed and volume of traffic affecting safety scores on trafficked sections, and surface or flow considerations for traffic-free routes.

Priorities for the action plan reflect this situation, particularly in dealing with sections of route on busy A or B roads, key crossing points, route quality and accessibility.

The activation projects, which demonstrate the types of improvement we now need to see, should be delivered by 2023. These will mostly be linked to existing local authority delivery plans, including existing and planned funding streams.

A wider long-list of priority improvement schemes is being created and can provide a pool of projects for consideration as funding opportunities arise, linked to local active travel and tourism strategies.

The longer term Network development plan will consider how gaps and potential new routes will fit into improvements of the Network.

Acknowledgements

Sustrans would like to acknowledge the following organisations for their assistance in undertaking the National Cycle Network review in the North of England and involvement with the National Cycle Network review advisory panel.

- Trans Pennine Trail
- Highways England
- National Trust
- Wheels For All
- North York Moors National Park
- Yorkshire Dales National Park
- Sustrans volunteers