

New Forest NCN Audit

National Cycle Network Routes 2 and 236

Client: New Forest National Park Authority

22nd October 2024



About Sustrans

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

We are engineers and educators, experts and advocates. We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute.

Sustrans works in partnership, bringing people together to find the right solutions. We make the case for walking and cycling by using robust evidence and showing what can be done.

We are grounded in communities and believe that grassroots support combined with political leadership drives real change, fast.

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1 Introduction

Purpose of this study

The New Forest contains 26 miles of National Cycle Network (NCN), as well as an extensive network of recreational walking and cycling routes, including approved off-road gravel tracks, bridleways & byways and other routes on relatively quiet country lanes.

This study has been commissioned by the New Forest National Park Authority (NFNPA) to carry out a light-touch audit of the National Cycle Network within the boundary of the New Forest, to include recommendations for key sections needing further work on both NCN2 and NCN236. This will not be a root and branch review of the alignment of the two routes, rather it will be a light-touch validation exercise to confirm the alignments and flag key sections in need of further study.

The study will:

- Provide the background and policy context to the audit
- Build a strategic case for the further development of the NCN within the forest by identifying local problems and highlighting the importance of the network to local connectivity
- Gather existing audit data for both routes obtained during an NCN audit undertaken in 2016 in which every mile of existing NCN was assessed for safety, surface quality and signage
- Propose high level solutions taken from the Sustrans' Network Development Plan, based on existing NCN audit data e.g. surface upgrades, on-highway degradation and alternative routes required, to provide a starting point for more detailed site audits or design work
- Review recently gathered Sustrans volunteer audit data on the quality of sections of the NCN, where available
- Gather input from Sustrans colleagues and volunteers who have worked in or have experience of the New Forest
- Gather relevant input or information that the NFNPA or local stakeholders can provide
- Present site audit findings structured around an assessment of both routes against the five core principles in Cycle Infrastructure Design Standard, Local Transport Note 1/20
- Recommend indicative next steps for each section based on the findings of the above activities



Figure 1.1 NCN within the boundary of the New Forest National Park (OS Maps)

Area of study

The above map shows the current alignment of both NCN routes within the boundary of the New Forest. NCN2 is a long-distance route through the South of England, connecting Dover in the east to St Austell in the West. It crosses the New Forest from the Hythe Bypass at its eastern edge, taking in the town of Brockenhurst and popular destinations such as Holmsley Inclosure and Beaulieu. It leaves the forest at its western edge south of Bransgore. The route contains a mix of gravel tracks, sealed surface traffic-free sections and on-road cycling.

NCN route 236 connects the residential areas of Ashurst and Foxhills with the town of Lyndhurst, where it currently ends. Within the boundary of the forest, it consists predominantly of shared use path along the A35 Southampton road / Lyndhurst road. The route also provides a link to Ashurst train station.

2 Background and context

Active Travel in the UK

In July 2020 the UK government published 'Gear Change: a bold vision for cycling and walking' outlining its intent to make cycling and walking the natural choice for many journeys with half of all journeys in towns and cities being cycled or walked by 2030.

The plan – backed up by new funding for walking and cycling – sets out a vision for a step change in provision for active travel in this country. The report notes the contribution made by active travel to:

- Health and wellbeing
- Easing congestion
- Increasing footfall for local businesses
- Improving environmental and air quality
- Reducing transport CO2 emissions

LTN1/20

'Local Traffic Note 1/20' (LTN1/20) presents the design guidance for all cycling infrastructure based on 5 core design principles:

- Coherence
- Directness
- Safety
- Comfort
- Attractiveness

LTN1/20 uses research, conducted by the Department for Transport, to specify which provisions should be made for cyclists based on a number of factors, including number and speed of vehicles.

Regional Policy

The New Forest Local Cycling and Walking Infrastructure Plan is currently in development. Once complete, the plan will provide a strategic approach to identifying cycling and walking improvements at a local level within the New Forest National Park.

Other regional plans and programmes currently in place include:

Hampshire Local Transport Plan (LTP4)

A statutory plan setting out Hampshire's vision for future transport and travel infrastructure

NFNPA Net Zero with Nature

A commitment from NFNPA to work with partners and communities to make the National Park "net zero with nature" by 2050 as well as to become a net zero organisation by 2030

New Forest National Park Partnership Plan

A plan to guide and co-ordinate the work of all those with an interest and influence in the National Park including statutory organisations, land managers, businesses, local communities and user groups

New Forest National Park Recreation Management Strategy

A strategy setting out the strategic direction for the management of outdoor recreation in the New Forest National Park from 2010 - 2030

NFNPA and New Forest District Council Local Plans

Plans setting out the planning framework for the National Park and District Council including the scale and location of new development and the need to conserve the local distinctiveness of the area

New Forest Waterside LCWIP

A Local Cycling and Walking Infrastructure Plan for Hampshire's Waterside region which borders the National Park

3 Strategic case

Existing route users

One of the UK's 15 designated National Parks, the New Forest is a unique landscape known for its heathland, pastures and ancient woodland. The forest is a popular destination for recreational walking and cycling, with an extensive cycling network crossing the area consisting mostly of waymarked gravel tracks, byways & bridleways and minor roads, making it a popular destination for tourists.

The National Cycle Network routes 2 and 236 within the forest also attract tourists and recreational walkers and cyclists, however these make up just a small portion of the wider recreational cycling network. With both routes prioritising directness and connections to residential areas and local transport hubs, there is potential to increase the impact of utility journeys to support local residents to make use of better active travel connections for day to day journeys. There are also opportunities to further increase the impact of leisure cycling by improving connections between the NCN and the forest's wider leisure cycling network.

Local issues

While the wider cycling network in the New Forest has been promoted through online resources, mapping and waymarking, the National Cycle Network, though largely consisting of attractive rural routes, has a number of sections deemed unacceptable by current cycling infrastructure standards which create significant barriers to walking and cycling. The A35 and current alignment of NCN2 along the Holmsley Straight are considered to be one of the biggest challenges for the safety and comfort of route users.

There are also wider challenges around the surface type. The primary surface of traffic-free sections of NCN2 is unsealed gravel which is prone to degradation and wear, and which inhibits disabled walkers and cyclists. (See Appendix A). Due to the protected nature of the New Forest and its international designations, it is difficult to make significant changes to the surface type in these locations.



Figure 8.1 Shared use path at Ashurst Station (Sustrans)



Figure 8.2 Conditions in Brockenhurst at level crossing (Sustrans)

4 Gathering information

Network Development Planning Tool

The Network Development Planning Tool was developed as part of Sustrans' Paths for Everyone programme, launched in 2018. It holds data for every mile of NCN across the UK with each section given a rating from "very good" to "very poor". Interventions are proposed, identifying any main problems and recommended solutions. This preexisting data has been used to provide a high-level recommendation for sections of NCN2 and NCN236 within the New Forest, and to inform further study during the site visit.

Volunteer Engagement Tool

A survey of the NCN by Sustrans volunteers was commissioned in 2022 in order to improve the narrative of each of the following fields within the Network Development Planning Tool:

- The problem
- The proposed intervention
- The primary characteristics of the route
- The secondary characteristics of the route

The data was collected by Sustrans volunteers using a bespoke engagement tool. This data was then inputted into the wider Network Development Planning Tool which has been used to support engagement and collaboration with local authorities, landowners, national government agencies, local communities and other organisations to establish how each of the 4020 projects in the England South Network Development Plan will be funded and delivered. For the purposes of this audit, the data has been used to support the high-level intervention recommendations along both routes.

INRIX data and Average Annual Daily Traffic (AADT)

Sustrans obtained a package of traffic volume and speed data from INRIX in 2018, which assigns an index value for each section of route between 1 and 16. Work was completed by Sustrans' in-house GIS team to compare actual AADT data for 2300 locations against INRIX index figures, to establish a correlation between the index number from the INRIX data and actual AADT value, allowing Sustrans to access an approximate daily flow for each on-road section of the NCN.

Using this data, it is possible to interpret an approximate AADT for each section. AADT is a simple but useful measurement of how busy a road is, and is the total volume of vehicle traffic on a highway or road for a year, divided by 365 days.

The use of INRIX data allows for an initial assessment of likely traffic flows along a route, prior to any further counts being commissioned.

5 Stakeholders

Key stakeholders

Stakeholder engagement is an essential part of route auditing, planning and designing. Talking to stakeholders and local route users provides a unique opportunity to discover the barriers and opportunities to walking and cycling on the route and to the wider network, including knowledge of key trip attractors, local landownership and existing issues on a more granular level. It also offers an opportunity to open up engagement and co-design.

Key stakeholders in the New Forest include:

- Hampshire County Council
- New Forest District Council
- New Forest National Park Authority
- Parish and town councils including Beaulieu, Denny Lodge, Brookerhurst Ashurst & Colbury, Sway and Bransgore
- New Forest Cycling Working Group
- New Forest Access Forum
- New Forest Verderers
- Forestry England
- Local cycling businesses
- Local cycling groups
- Network Rail
- National Highways



Figure 5.1 Part of the stakeholder group riding JR5M2 (Sustrans)

Stakeholder input

As part of the review of the National Cycle Network within the New Forest, a group of local cyclists took part in a route ride and audit alongside the Sustrans project team in July 2024. The group consisted of members of Hampshire County Council, New Forest National Park Authority, former parish councillors and members of the New Forest Cycling Working Group. The audit was an opportunity for people with local knowledge to identify key barriers to cycling and longstanding issues with the network.

Stakeholder comments

During the site audit the group of route users identified the following barriers to cycling on the current network:

- Poor walking and cycling conditions on NCN2 along the Holmsley Straight. Options to re-route this section are limited by a shortage of safe crossing opportunities of the A35
- Substandard crossing at Lyndhurst Road - high traffic speeds and poor visibility / sightlines
- Variable wayfinding signage and a need for greater signage visibility, particularly on on-highway sections and in urban areas such as Brookenhurst
- Greater consistency is needed in signage to advise of route conditions ie "rough track" or "steep slope"
- Surface issues on traffic-free sections including waterlogging and route degradation near the Holmsley campsite. Instances of gravel washing onto roads and paths as a result of flooding.
- A general lack of directness of the NCN2, particularly near the Holmsley Passage, which could be improved if safer crossings of the A35 are identified (see "route re-alignment options")
- Poor walking and cycling infrastructure at the B3055 Sway Road rail bridge where a narrow and unintuitive shared use path takes cyclists off the carriageway and back on again
- Traffic speeds and flows on Sway Road - a need to extend the 30mph zone
- Uncomfortable cycling conditions at Brookley Road and Lymington Road junction due to high traffic volumes on Lymington Road and congestion at the level crossing. A need for greater space for cyclists and pedestrians at the level crossing which may include segregation and footway widening
- Vehicle speeds on Mill Lane and a need to reduce the speed limit or provide traffic calming measures
- Poor visibility at Beaulieu Road railway Bridge with a blind summit and narrow carriageway
- A widening of the NCN236 shared use path on Southampton



Figure 5.2 Part of the stakeholder group riding NCN2 (Sustena)

Road is needed to improve safety for users, putting back of vegetation to provide more space and side road treatment.

6 Site audit

Following a site visit in July 2024 in which members of Sustrans' Network Development and Design & Engineering teams cycled both routes, an audit was completed using information and experience obtained during the visit, evidence from the Network Development Plan and input from stakeholders. This section will appraise the existing National Cycle Network routes 2 and 236 by identifying existing challenges and opportunities presented by existing conditions, including gradients, surfaces, barriers to access and interactions with motor vehicles.

Recommendations for key sections and locations will be made based on 'Local Traffic Note 1/20' (LTN1/20) which presents the design guidance for all cycling infrastructure based on 5 core design principles:

- Coherence
- Directness
- Safety
- Comfort
- Attractiveness

LTN1/20 uses research, conducted by the Department for Transport, to specify which provisions should be made for cyclists based on a number of factors, including number and speed of vehicles.

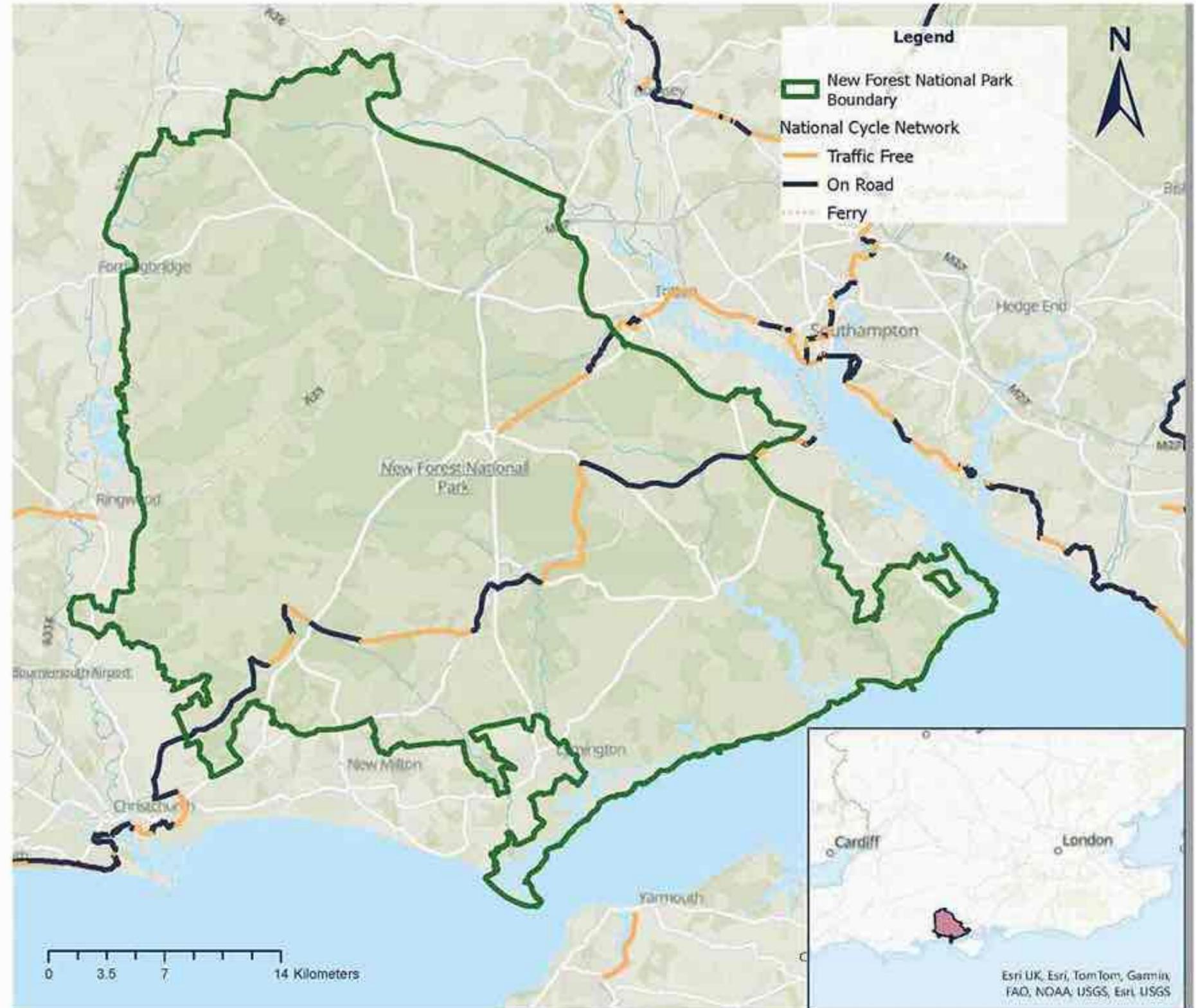
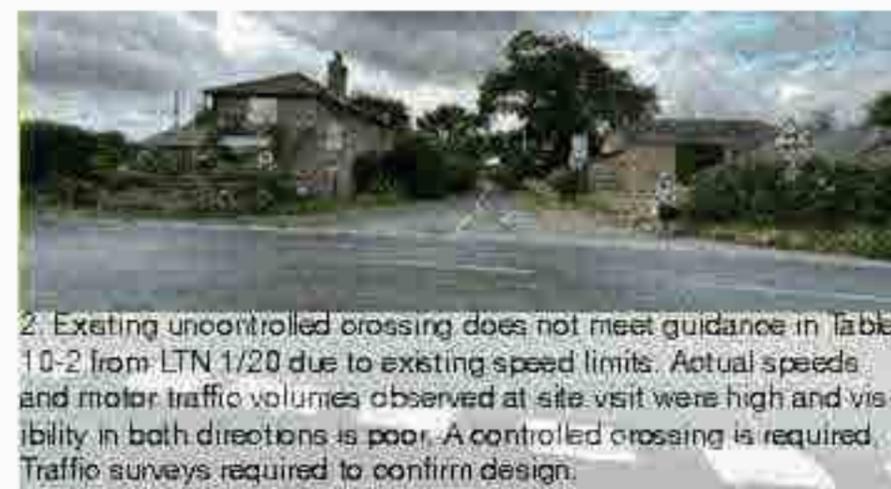
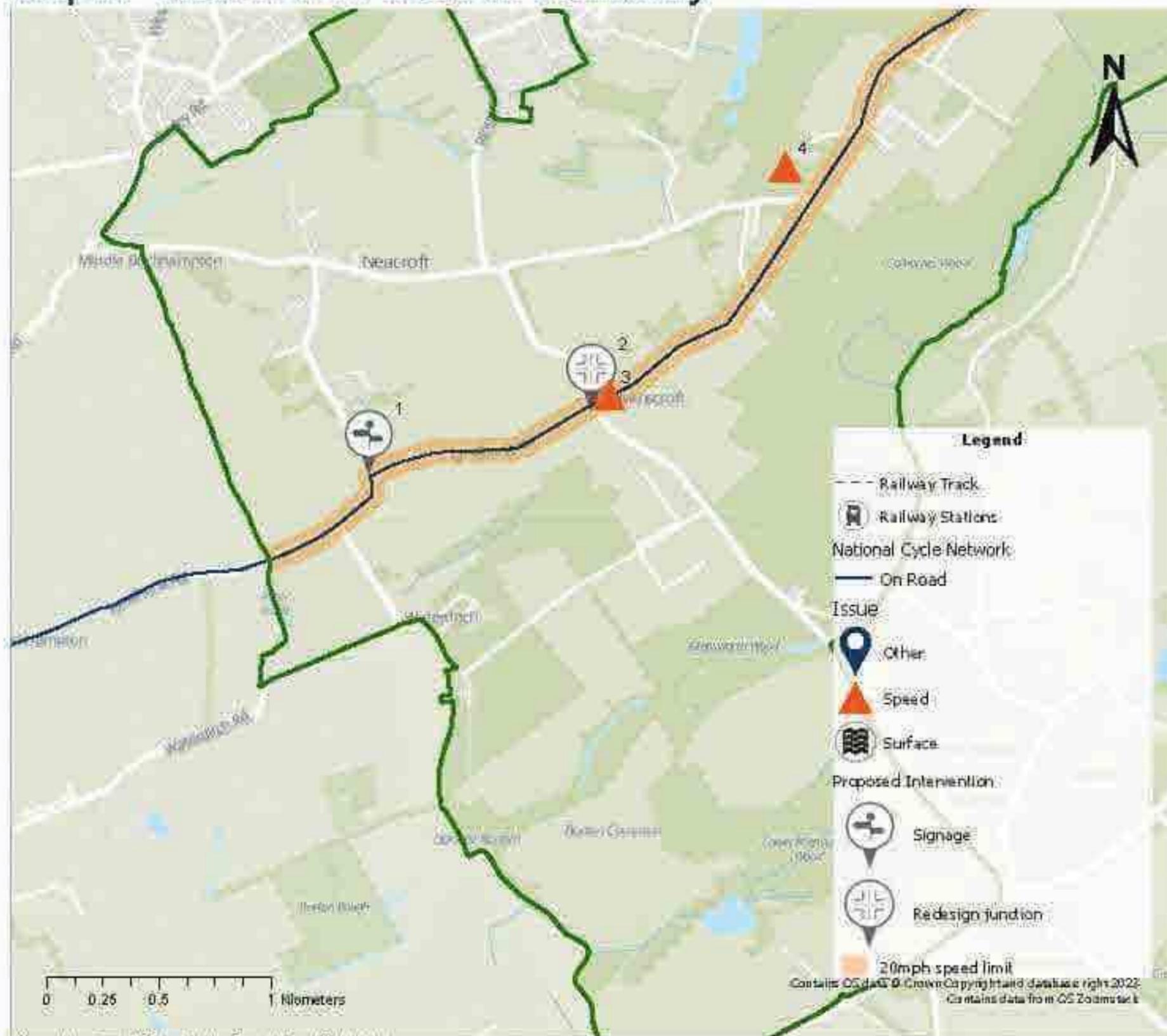


Figure 6.1 Existing NCN within boundary of the New Forest (OS Maps)

National Cycle Network route 2

Map A - New Forest western boundary



National Cycle Network route 2

Map B



National Cycle Network route 2

Map C



Figure 5.4 Caption (Gogros)

Figure 5.6 Caption (Gogros)



7. Wayfinding signage is present in this location but the direction it faces means it is not visible from the route. Improve positioning of the sign on the post. A wayfinding audit for the full route would be beneficial.



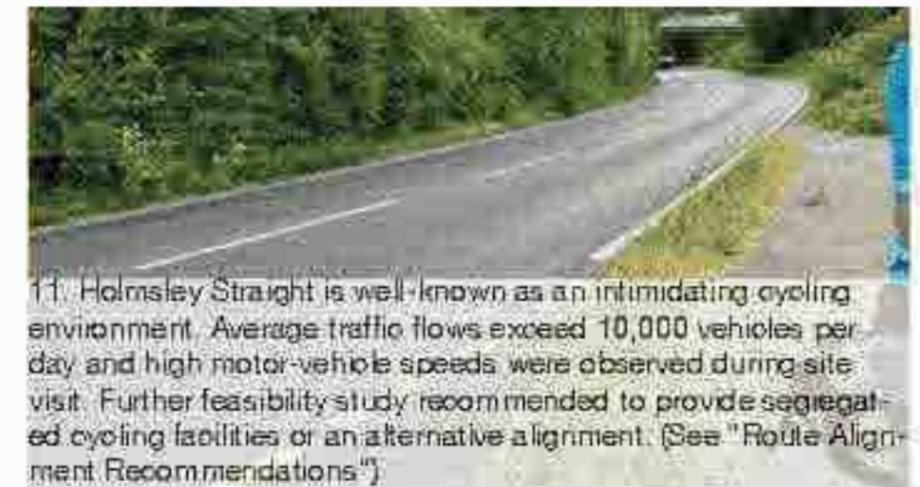
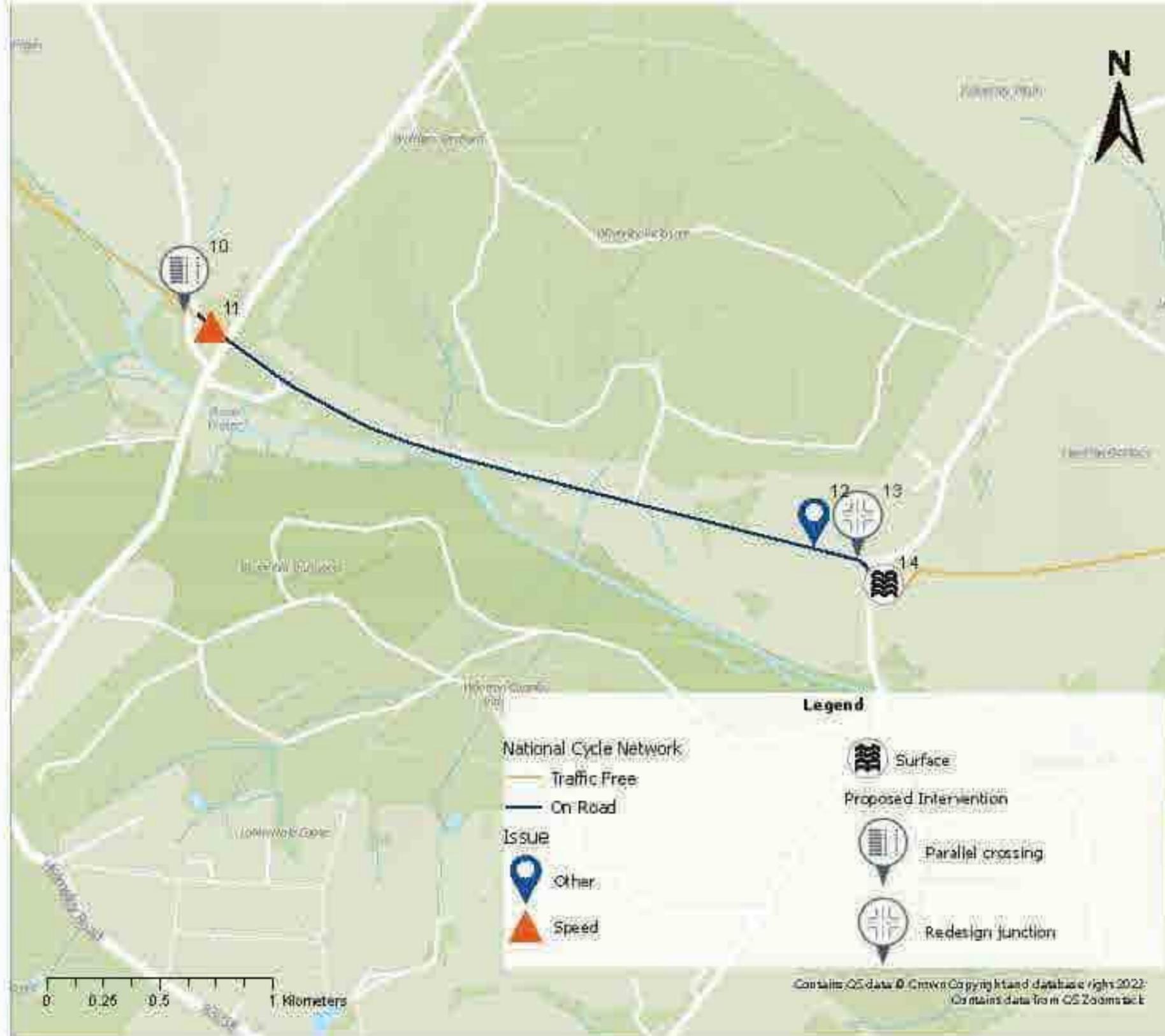
8. The route is indirect and steep from this point. An alternative route could provide a greater level of comfort and coherence for route users (see "Route Alignment Recommendations").

9. Loose gravel on top of bound surface at the bottom of a steep hill. User safety would be improved by clearing debris regularly. See Appendix A.



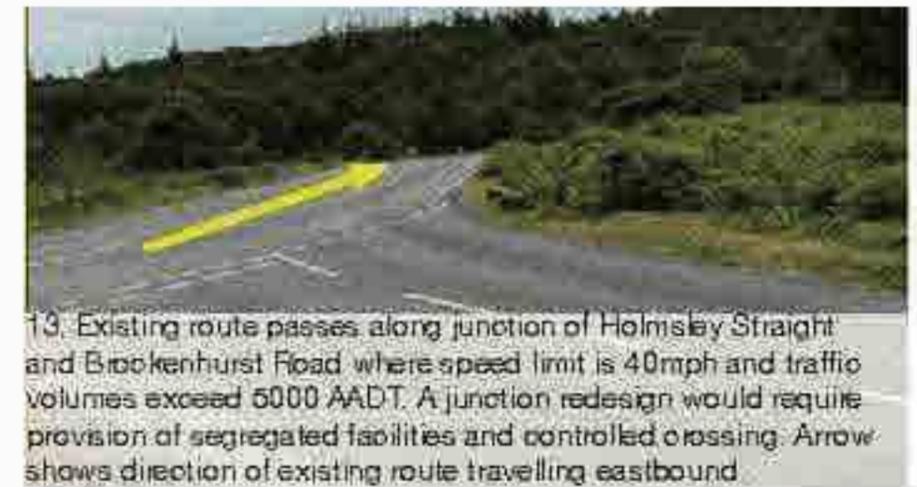
National Cycle Network route 2

Map D Homsley Straight



National Cycle Network route 2

Map E



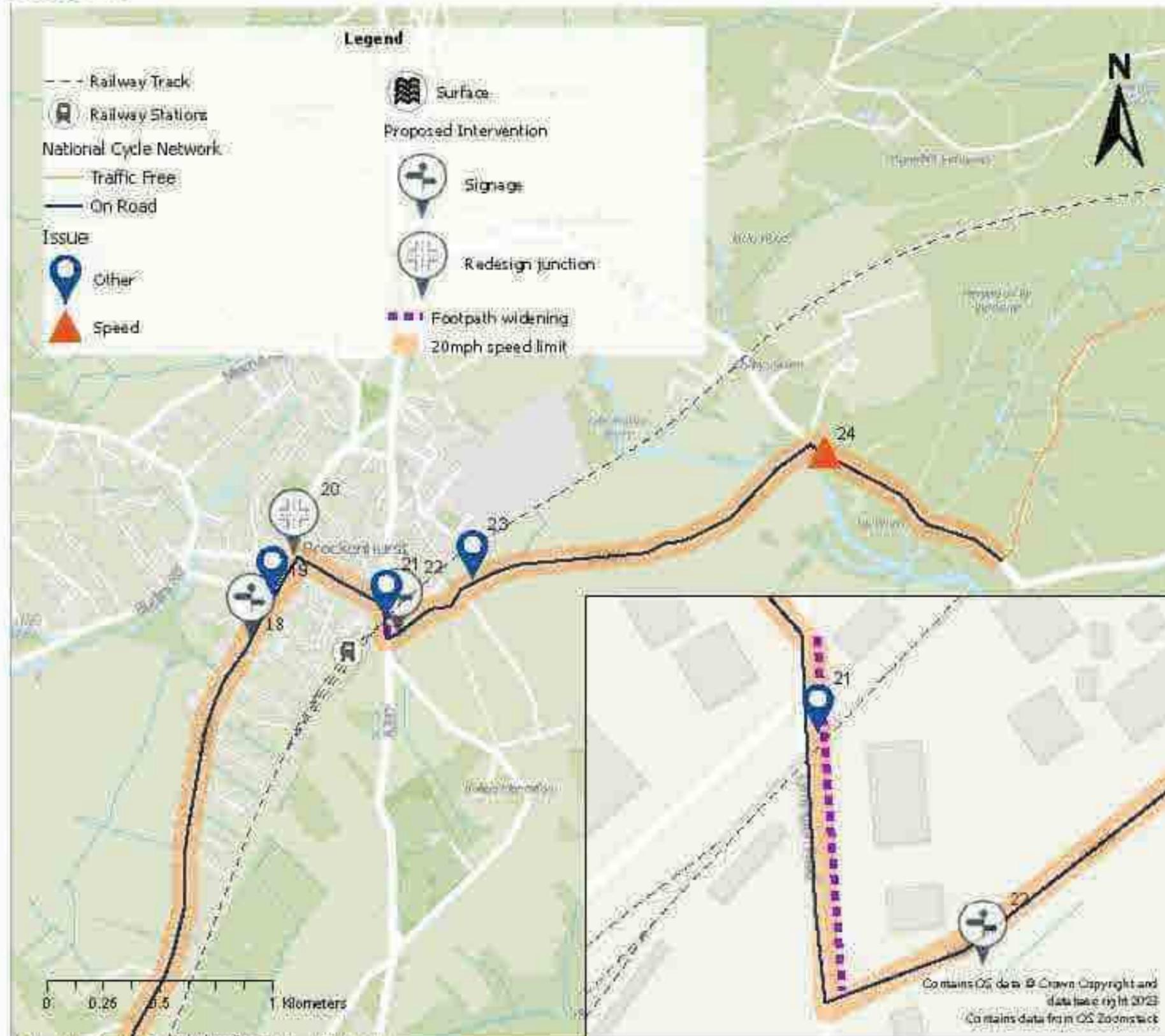
National Cycle Network route 2

Map F



National Cycle Network route 2

Map G



18. Improve wayfinding signage at the junction of Avenue Road and Sway Road to enable route users to join the route when leaving rear of Brookenhurst Station. Existing signage for "New Forest Cycle Network" may be confusing for users.



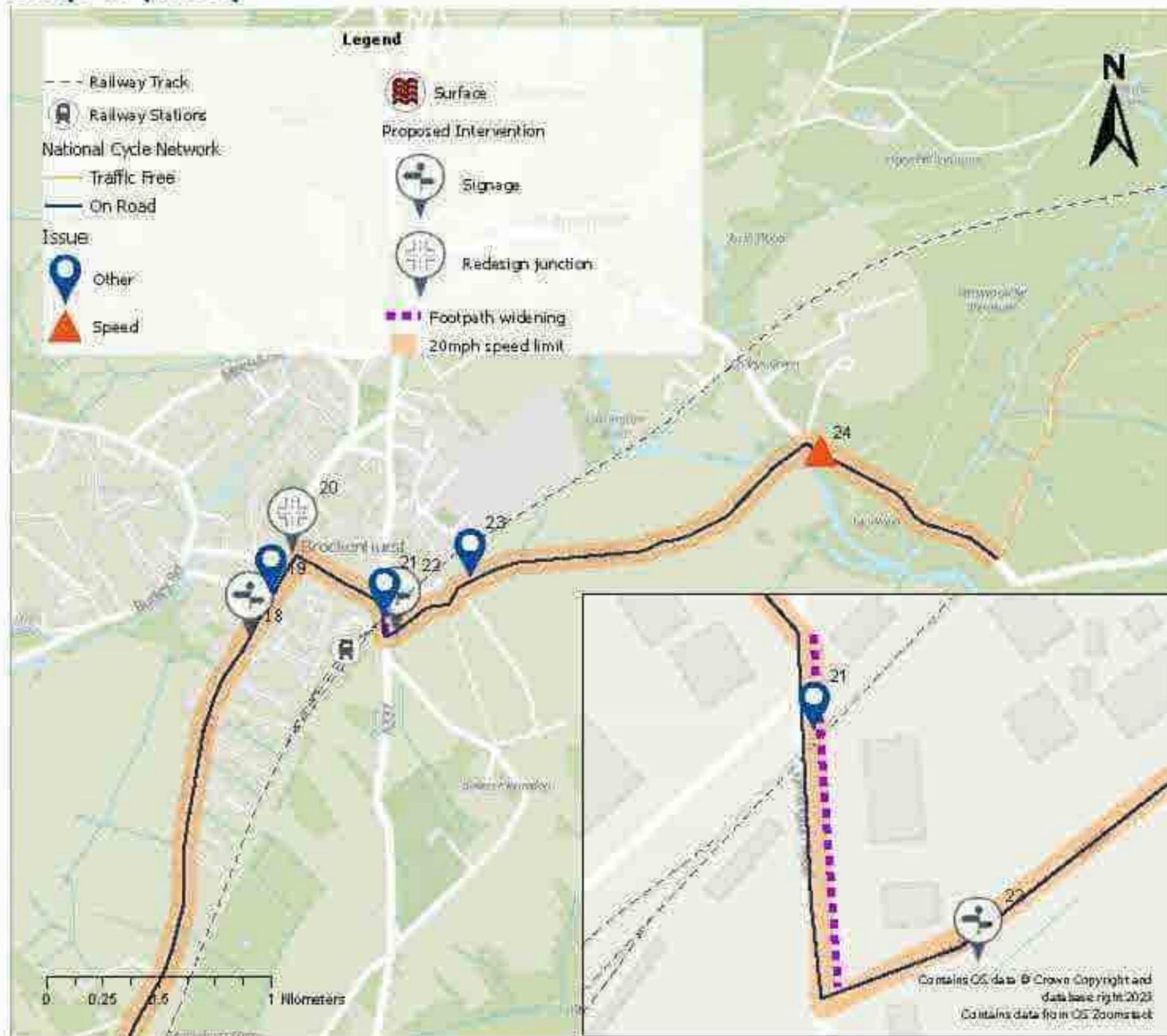
19. High traffic volumes on Sway Road. Consider rationalisation of parking or reducing traffic speeds.



20. On-road cycling provision is unsuitable due to 30mph speed limit and flows exceeding 7000 AADT. Investigate a junction redesign at Brookley Road to provide controlled pedestrian and cyclist crossing, and segregated cycling provision.

National Cycle Network route 2

Map G (cont)



21. Uncomfortable right hand turn onto Lymington Road. Insufficient space or protection for pedestrians or cyclists waiting at level crossing, which could be improved by the installation of an advanced stop line (ASL). Further design development would require additional traffic surveys.



22. Obstructed wayfinding signage at Mill Lane / Lymington Road junction for route users travelling westbound. Install permanent signage and maintain vegetation.



23 & 24. Traffic speeds on Mill Lane and B3055 exceeding 40mph. Close passes from cars and motorcycles observed and AADT exceeds 5000 motor vehicles per day. Consider installing traffic-calming measures and extending nearby 30mph zone.

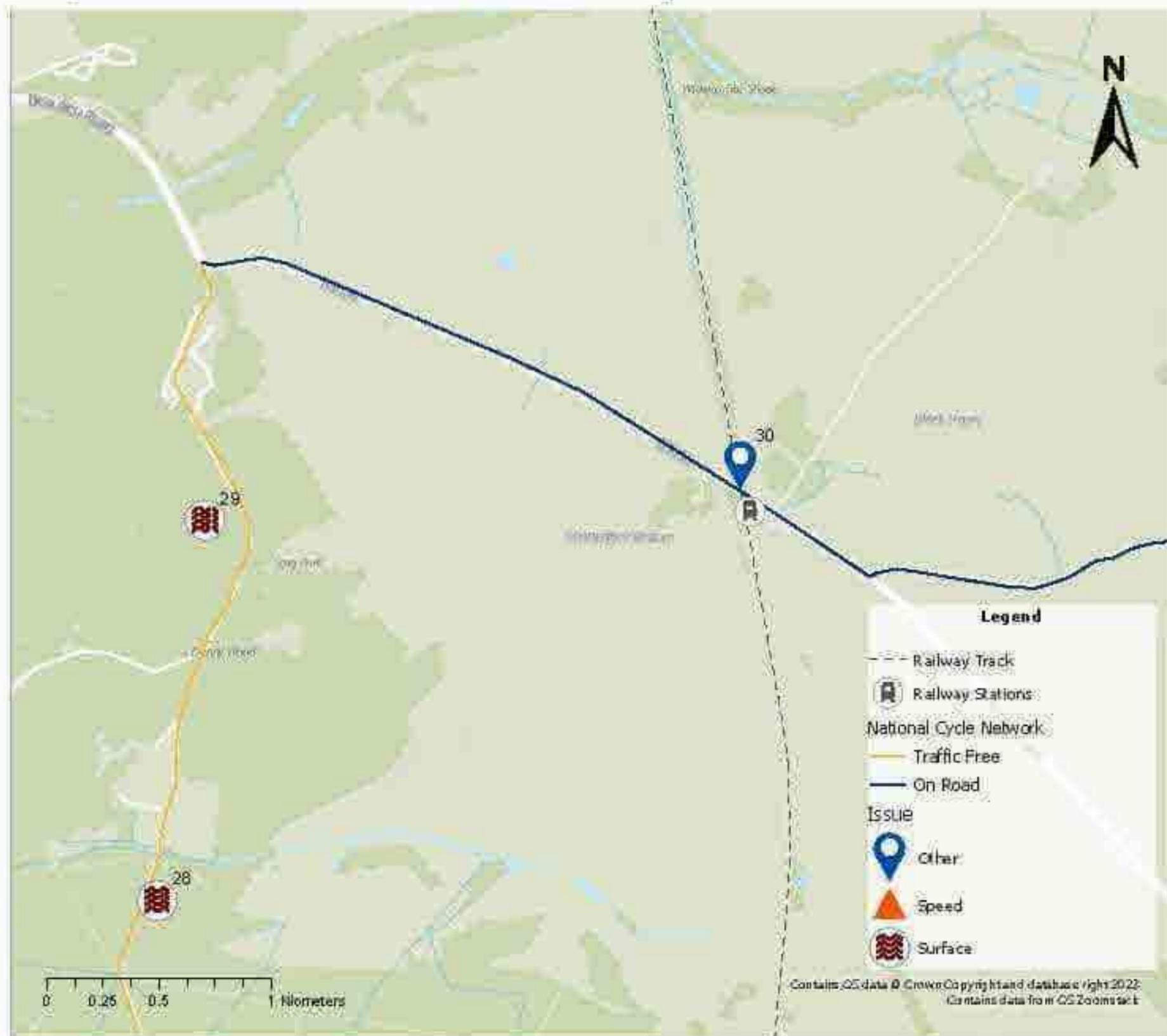
National Cycle Network route 2

Map H



National Cycle Network route 2

Map I - New Forest eastern boundary



28. Steep gradient and loose gravel makes this section challenging and not accessible for everyone. Provide "rough track" signage to warn route users travelling westbound. Ideally a bound surface would be provided for a route of this gradient. See Appendix A: Inclusive rural and semi-rural path surfacing.



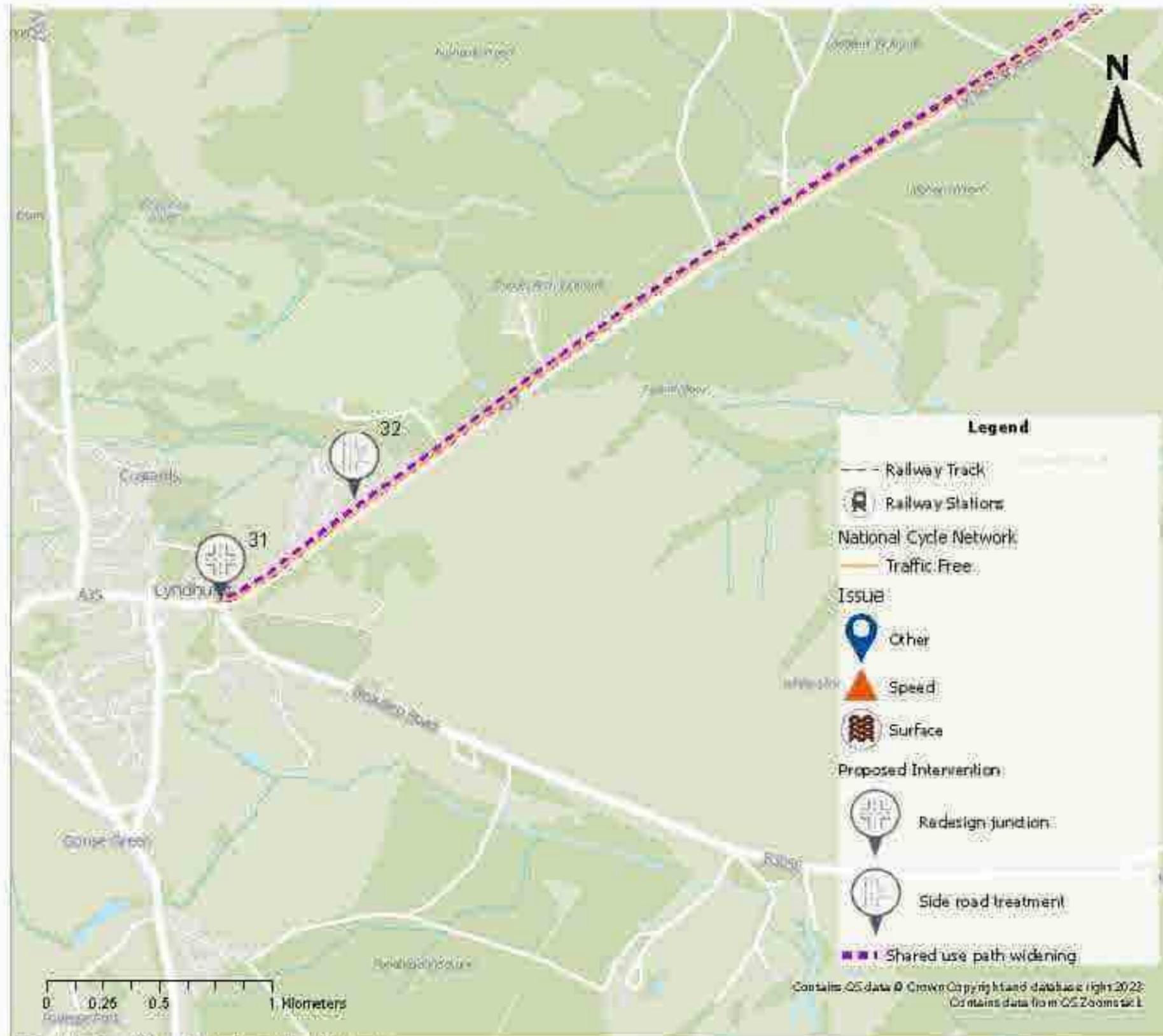
29. Loose gravel across tarmac surface makes this section slippery. Recommend increased maintenance to keep surface clear.



30. Narrow crossing of railway bridge with blind summit. Recommend investigating segregation for cyclists and improved warning signage.

National Cycle Network route 236

Map J



31. Existing uncontrolled crossing is not suitable for all users due to 30mph speed limit and high traffic volumes. Further traffic surveys may be required to determine suitable controlled crossing.



32. Side road treatments would improve route comfort, directness and safety for pedestrians and cyclists and reinforce their priority. This involves narrowing junction turning radii and providing a continuous crossing for pedestrians and cyclists.



Narrow sections all the way into Ashurst. Consider widening shared use path to 3m where possible, prioritising the sections which are the narrowest.

Map K



33. Widen shared use path to 3m where possible and maintain vegetation.



34 & 35. Uncontrolled crossing to Ashurst train station entrance is unsuitable due to traffic speeds and volumes. Further traffic surveys may be required to determine suitable crossing, which is likely controlled. Consider improving wayfinding signage to/from station and NGN.



36. Crossing over Woodlands Road requires side road treatment to reduce junction turning radii and provide continuous crossing for pedestrians and cyclists.

Map K (cont)



Re-Alignment Options and Extensions



Alternative link from Holmsley passage to railway track

The current alignment of NCN2 along Holmsley Passage is indirect, follows a steep gradient and has surface issues in places which is detrimental to user comfort and directness. An existing track connecting to the former railway line may present an opportunity to re-align the route, if cycle access can be secured.

Further investigation is recommended into obtaining cycle access at this location, as doing so would provide an opportunity to re-align the NCN route to one which is flatter and removes interaction between cyclists and motor vehicles.

Alternatives to Holmsley Straight

The Holmsley Straight is commonly considered the most uncomfortable environment for cyclists and pedestrians on the NCN in the New Forest. In addition to providing segregated cycling facilities along the Holmsley Straight itself, there are a number of possible re-alignments to the route available, subject to the provision of a suitable crossing of the A35. A further feasibility study is recommended in order to thoroughly appraise both the Holmsley Straight and each of the following route and crossing options. This will make it possible to identify the preferred route option and if needed, make a stronger case for investing in the Holmsley Straight if none of the alternative alignments are suitable.

The study would also need to consider existing journeys made by bike along the Holmsley Straight, NCN and off-road network in relation to trip attractors such as the Holmsley Tea Rooms, and to investigate the cost-benefit ratio of providing more significant and expensive interventions in this location.

Crossing 8A and A35 underpass

Point 8A passes underneath the A35 just north of the Holmsley Straight. Route users following this alignment would join from Station Road travelling eastbound, following the gravel track along the southern section of Wilverley Inclosure. Cycle access is currently not permitted along the track. The conditions at the underpass are very poor, with loose gravel and very steep gradients and would likely need significant investment to improve in order to make it a suitable alternative for cycling.

Crossing 9A and Wootton - Brownfield alignment

The alignment making use of crossing point 9A makes use of an existing path with permitted cycle access, connecting to the alignment through Wootton and Brownhill Inclosures shown on the map. The crossing of the A35 currently involves approximately 50m of on-road cycling before joining Holmsley Passage via the Holmsley Tollhouse. Segregated provision and a controlled crossing would need to be provided to bring this crossing up to an LTN 1/20 compliant standard. Existing conditions on the road include high traffic speeds and poor visibility at a bend in the road where motor vehicles travel uphill.

Re-Alignment Options and Extensions (cont.)



Crossing 9B and Wootton - Brownfield alignment

This crossing makes use of the entrance to Holmsley Road and the approach to the Brownhills car park, enabling users to follow the Wootton - Brownhill alignment shown on the map. The location benefits from greater visibility for users and limits the hazards of the road to one location. Segregated cycling provision could be provided along the western edge of the carriageway making use of the existing verge, providing a safer link to the Holmsley Passage via the Holmsley Tollhouse. The existing path connecting to the Brownhills car park is not currently part of the New Forest Cycle Network and cycle access and suitable surfacing would also need to be secured and provided.

Crossing 10

This location connects to an existing desire line between the former runway at the Holmsley campsite, and Little Wootton Inlosure. This alignment would provide a more direct east-west route, removing the Holmsley Passage "dog leg" and eventually joining to the Wootton - Brownhill alignment via the Brownhill carpark. Further feasibility work would be required to determine whether cycle access should be secured through this location, and to the type of crossing provision and any required segregation on the A35.

It is recommended that a feasibility study is carried out to explore each of the options set out above in further detail, to ascertain whether an alternative alignment to the Holmsley Straight can be provided, or to begin building a case for further investment on the Holmsley Straight itself.

Extension of NCN236 to Ringwood

The current NCN236 route connects Southampton with Lyndhurst, providing opportunities for utility journeys between residential areas, transport hubs, retail and other local services. There is potential to investigate extending this route to connect to the town of Ringwood approximately 13 miles west of Lyndhurst. This would provide further opportunities for impactful utility journeys as well as improving access to wider sections of the leisure cycling network. The traffic-free Castleman Trailway begins in Ringwood and extends 18 miles south-west to Poole following NCN25 and NCN256. Connecting NCN236 into this attractive former railway would further enhance the route by enabling users to continue their journeys through Dorset's scenic rural landscape.

Appendix A: Inclusive rural and semi-rural path surfacing

Sustrans want to see a UK-wide network of traffic-free paths, for everyone walking, wheeling or cycling, that connects cities, towns and countryside. Comfort & accessibility are fundamental to inclusive design for all and it is therefore recommended to provide good quality, well-maintained smooth surfacing (LTN 1/20 Figure 1.1).

Poor quality surfacing will inhibit users, and here are some examples of how:

- Disabled cyclists and hand cyclists suffer from bumps and shocks due to poor surfacing such as potholes or rumble strips, as they do not always have the option of lifting off the saddle.
- Those with more than two wheels will be less able to swerve around imperfections in the surfacing (Wheels for Wellbeing) and are adversely affected by steep cambers which can be particularly problematic where a turning movement is required onto or off of a slope.
- Blind and partially sighted people are also impacted by imperfections or cambers (LTN 1/20).
- Extremely smooth surfaces can become a slip-hazard in frosty/icy conditions without appropriate gritting.

Wheels for Wellbeing state that surfaces should be free of potholes or other hazards and regularly cleared of leaves and debris which can hide potholes or create a slip hazard.

Terminology

1. Sealed or unsealed: this refers to the infiltration of water through a surface. A sealed surface will not allow water through it, an unsealed surface will allow water to drain through it.
2. Bound or unbound: this refers to whether the surface material sticks together and acts as a homogeneous mass. Surfaces that do are considered bound.

Introduction

Key to constructing and maintaining a path with a good quality level of service for all, is understanding:

- a. The durability of the surface type & subsequent construction/maintenance requirements.
- b. Drainage & subsequent camber requirements.

Durability & maintenance

Surfacing types differ in durability and the choice of surface will therefore have an impact on any maintenance requirements. The most durable surfaces are bound surfaces, and therefore require the least maintenance. The least durable surfaces are un-bound surfaces, and will require the most maintenance.

Appropriate maintenance is key to ensuring a good quality level of service. LTN 1/20 Summary Principal 14 (section 1.6) states that surface materials should be easy to maintain but that exceptions will be allowed for streets of special heritage value. LTN 1/20 Summary Principal 13 (section 1.6) recommends that all route proposals should have a clear maintenance regime attached.

Drainage & camber

Sustrans' best practice is to ensure that all routes are free draining to ensure no water build up on the surface that can create potholes.

A free draining surface is achieved through either a permeable (unsealed) material or an appropriate camber to allow the water to run off the surface. LTN 1/20 clause 5.10 states that the camber gradient should "not exceed 2.5%" and 6.2.43 states that the "Cross-fall should be no more than is required for drainage purposes, as steep cambers can cause instability for cycles with more than two wheels."

LTN 1/20 clause 7.6.5 suggests speed bumps should have a sinusoidal profile and clause 1.6.1.14 suggests that speed bumps should not be necessary if guidance on reducing traffic volumes has been properly followed.

Types of surfaces

Unbound surfaces

Whin dust or granite dust surfaces can form a smooth and semi-durable surface. These surfaces are highly dependent on high quality construction techniques and long term maintenance plans. Unbound surfaces have a typical lifespan of 6-10 years.

Unbound surfaces are susceptible to damage from moving water, and a suitable cross-fall or camber is essential to avoid this. The 'Paths for All's Surfacing Guide for Paths Projects' states that higher maintenance is required for unbound surfaces particularly in woodland settings, where the path is more susceptible to wash out.

For steep surfaces (with gradients over 1:10), semi-bound or bound surfaces are recommended to ensure durability.

Semi-bound surfaces

Self-binding surfaces are an example of a semi-bound surface. They are chosen in some circumstances away from the highway, where machine-laid bituminous or asphalt (bound) surfaces cannot be applied. They can be highly durable. Examples include Ultitree



Unbound surface

which is available in black or red and GEDEG which is available in gold, grey, green, bronze or red.

The 'Paths for All' report states that semi-bound surfaces are better suited to heavily trafficked routes than unbound, as well as routes with steep sections, routes in woodland locations and general all-weather use routes. They have a typical lifespan of 10-15 years.



Semi-bound surface

Bound surfaces

Bound surfaces typically use a resin-based binder to glue aggregate together. Tarmac can provide very smooth and durable finishes which can last more than 30 years before significant maintenance is required (Paths for All). However, winter frost, ice and snow can increase maintenance requirements. Leaf litter can also quickly create very slippery conditions.

While there may be initial concerns about disturbance to the natural environment or the appearance (of sealed surfaces) these can be addressed through choice of materials (LTN 1/20 16.2.12). Resin-



Bituminous surfacing/ Tarmac/ Asphalt concrete



Coloured bituminous surfacing

bound aggregate can be obtained in different colours, reducing the visual impact of this type of surfacing as can tar-spray and chip. Tar-spray and chip can be sprayed onto an un-bound or semi-bound surface. This low-cost surface topping can be particularly useful in steep sections to aid durability and traction. However, tar-spray and chip has a lifespan closer to that of semi-bound surfaces (10-15 years).

Smart Surface also offers a solution to revitalise worn-out paths and provides a better landscape fit in rural paths where bitumen based surfacing products are not suitable or desirable.



Resin-bounded rubber surfacing



Tar spray and chip

Costs

The overall costs of unbound, semi-bound and bound surfaces vary dependent on the different surface options, location of the project, availability of skilled contractors (required for some surfaces), durability requirements and maintenance requirements. Therefore, it is recommended that further analysis is undertaken specific to any project to ensure the best value for money whilst also ensuring the design is accessible and inclusive for all.

Conclusion

Route 2 contains sections of varying terrain, historic requirements and varying habitat. To bring this route to LTN 1/20 standards, different surface types would be appropriate for different sections of the route.

LTN 1/20 recommends that wherever possible, bound surfaces are used to ensure accessibility and reduce maintenance requirements. However, in some locations along route 2 semi-bound or unbound surfaces may be more appropriate, as long as appropriate maintenance regimes are put in place.

Semi-bound surfacing is recommended as a minimum in areas through woodland; this poses a significant challenge if the historic granite features along the path must also be maintained.

Appropriate stakeholder engagement is also recommended to ensure any designs suit the needs of all potential users, as well as other stakeholders.

Appendix B: Inclusive barrier design

Chicanes

LTN 1/20 8.2.1.2 states that "Traffic calming devices will inevitably also introduce hazards and discomfort for disabled users. They should be used sparingly and only in response to site-specific problems that cannot be addressed in another way"

Chicanes may be compliant if the chicone has a width (W) of 1.5m and a length (L) of 3.5m.



Chicone

Bollards

Sustrans traffic-free routes and green-ways design guide states that "where bollards are used at access points, a clear width of 1.5m should be provided"



Bollard

Gates

LTN 1/20 8.3.4 states "an access control that requires cyclists to dismount will exclude hand cyclists and others who cannot easily walk" Therefore any gate that requires users to dismount to open will exclude many users of non-standard cycles. The width (W) of a gate should be no smaller than 1.5m



Gate

Cattle Grids

LTN 1/20 8.3.7 states that "where it is necessary to control the movement of livestock a cattle grid should be used, in preference to a gate which will cause delay to cyclists. Experience in Cambridge showed that a cattle grid with closely spaced (100mm) threaded rod bars can be crossed by cycles without undue difficulty"

A minimum width (W) of 1.5m should be provided.



Cattle Grid

Non-compliant barriers

The following barriers are never compliant with LTN 1/20 guidance

- York barrier
- A-frame or K-frame
- Horse step over
- Steps
- Tight turns
- Kerbs without a drop

Appendix C: Quietways

What are Quietways?

Quietways are either:

- Rural lanes, where motor traffic speeds and volumes are sufficiently low for people walking, wheeling, cycling and horse riding, to comfortably share with motorised traffic. These can be formally designated as 'Quiet Lanes'.
- Streets in built up areas where volumes and speeds of motor vehicles are low enough for people cycling to comfortably share the carriageway with motor traffic. In this situation people walking and wheeling will often be accommodated by one or more footways.

What are the key design principles?

Key design principles are summarised below:

- In built-up areas where people are expected to cycle on the carriageway, motor vehicle volumes should be lower than 2,600 average passenger car units (PCU) per day. The speed limit should be 20mph, and people in motor vehicles should generally be driving at or below the speed limit.* Where no footway is provided, the motor vehicle volumes or speeds may need to be significantly lower than this. In addition, peak flows should not be more than 10% of the 24-hour flow.
- In a rural setting achieving speeds of 20mph may be difficult, and so shared routes with speeds (and a speed limit) of up to 30mph will generally be acceptable with motor vehicle flows of up to 1,000 PCU per day. Again, peak flows should not be more than 10% of the 24-hour flow.
- People walking, wheeling, cycling (and where appropriate horse riding) should feel safe and comfortable to use the route, and all users should be aware of who they are sharing the surface of the lane or street with, with signage and markings used where appropriate.

How can existing streets, lanes and roads be made into Quietways?

Where existing volumes or speeds of motor vehicles are currently higher than this, these can be reduced through a variety of measures. These should be appropriate for the specific location, and can include:

- Lowering speed limits
- Quiet lanes designation and signage (for rural lanes)
- Modal filters to prevent some or all private motor traffic passing along a street or lane
- Centre line removal, and/or reducing carriageway widths
- Surface changes and treatments
- Physical traffic calming features, such as speed cushions and build-outs
- Junction priority changes
- Changes in signage, including adding gateway features.

It is important that local communities are engaged in the process to achieve local support and make sure the solution meets the needs of all users. This is especially the case for some measures such as Quiet lanes designation and modal filters.

What are the advantages of Quietways over Traffic-Free provision?

Quietways are a key solution to connect people for a number of reasons:

- In many places, there is not enough space to build cycle tracks and other infrastructure next to roads.
- Traffic-free provision, such as cycle tracks or shared use paths, is often significantly more costly to implement. It also typically results in significantly more carbon emissions and environmental impacts from construction.
- Creating Quietways can help to create healthier streets. When volumes and speeds of motor vehicles are low, it is more typically a space that is desirable for people to spend time in as well as travel through.
- A Quietway is more likely to be overlooked and have natural surveillance than an isolated greenway, and therefore some people may feel safer (especially at night) to use one.

In particular, Quiet Lanes can help facilitate a rural modal shift though making people feel safer when using what are often already tightly trafficked lanes for walking and cycling. Within towns and cities, Quietways can also form a key element of the network, including by connecting people to and from the core routes in a local cycling network.



Where can I find out more?

Key sources of design guidance are listed below:

- Local Transport Note (LTN) 1/20 – Cycle Infrastructure Design
- Manual for Streets and Manual for Streets 2
- CIHT Designing for Walking
- Traffic Signs Manual
- Inclusive Mobility
- Active Travel England Design Assistance and Scheme Review Tools
- Local Transport Note (LTN) 1/07 – Traffic Calming
- Traffic Advisory Leaflet 3/04 – Quiet Lanes

Design process

Figure 3.2 sets out the process for determining the feasibility and the likely design criteria for a potential Quietway.

Key design features crucial to the success of Quietways include traffic calming (where speeds are too high) and traffic volume reduction (where there are too many vehicles).

Where Quiet Lanes are not deemed feasible, alternative routes should be sought, either by alternative Quiet Lanes, or the development of traffic-free routes.

