Cam & Dursley Greenway – Traffic free paths for walking and cycling

Map 1

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Box Road is lightly trafficked outside peak hours, with 30 mph limit and suitable for cycling. There are concerns over use in peak hours, but it is probably not practical to make physical improvements on this route. Any off highway route to the station would necessarily be longer, and consequently unlikely to be used at those times. It is most desirable. Cycle warning signs should be considered.

Typical construction of tarmacadam path

1. Choose the location on either side of the road as far as is practicable.
2. Clear and mark a section in the island, and then fill it with a layer of crushed gravel.
3. Add a second layer of crushed gravel, level it, and then place a tarmacadam path on it. Ensure that the path is level and smooth, and stable on site.
4. Add a further layer of crushed gravel, and then place a tarmacadam path on it. Ensure that the path is level and smooth, and stable on site.
5. A gateway should mark the start of the Greenway. The railway corridor is well preserved between hedges.

A gateway should mark the start of the Greenway. The railway corridor is well preserved between hedges.

Parked cars force cyclists to move into road. This can cause conflict with following motor traffic.

Photo of station cycle parking at Cam & Dursley Station

Former railway maintained between hedges - near Box Road

2 m x 1.5 m entrance

- 25mm crushed aggregate (top layer) for wear
- 100mm ballast concrete for structural support
- 200mm tarmacadam
- 400mm tarmacadam

Sustrans Path Cross Section

(Section) 3

Eng Mr. FMeC
May 2007

Sustrans

2.3 m

6.0 m

8.3 m

23 m

1.8 m

2.3 m
Cam & Dursley Greenway
Traffic free paths for walking and cycling

Map 2

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**On road**

**Traffic free**

**Link** to industrial estate ramps down from path using field edge to pass below greenway using existing bridge and public footpath

**The former railway is preserved in the Local Development Plan for the Cam & Dursley Cycle Path. Any development on land east of the former railway should include construction of the path between publicly accessible points to create useful access to and from the development proposed.**

**AREA ZONED FOR DEVELOPMENT (EMPLOYMENT USES)**

**Future link to development east of railway**

**Concrete railway overbridge serves as access to Dursley industrial Estate**

**Field east of Middle Mill nearly planted with trees. The path should run close to field perimeter to allow future development of rail**

**Existing track round field would require improved surface**

**Any extension of Middle Mill could only be across the former railway to the east of the main site, and this is owned by the Mill owner for this purpose. It would certainly be very difficult to accommodate the path within the Mill site and a diversion round the field should be considered, despite the fact that the route is reserved in the local plan.**
Cam & Dursley Greenway - Traffic free paths for walking and cycling

Map 3

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Add parapets 1400mm high to existing river bridge

Greenway runs in fenced corridor on line of former railway. If agreed by landowners the riverside land should be maintained as public access on foot, opening up this short stretch of the River Cam for public enjoyment subject to occasional closure for dredging of the river.

Existing track would need to be re-surfaced to good standard and slightly raised on causeway above adjacent wet field.

The industrial unit at the southern end of this section is partially built on the former railway and the re-use of the railway as a greenway would entail passing very close to the unit, with attendant security issues, and the loss of a substantial proportion of the unit's car parking spaces. This option should be retained for future implementation if unit is redeveloped.

See enlarged detail

Rowley is a quiet residential road which being narrow with poor visibility at this corner encourages careful driver behaviour. The width at the corner is ample for vehicles and walkers and cyclists to pass in comfort.

On road - making the turn right/left adds security as the cyclist does not need to cross in front of oncoming traffic. Parking restriction close to the junction would lengthen sightlines and a bollard on Everards would deter traffic from cutting across the corner and endangering right turning cyclists.

The road width would allow 1.5m wide cycle lanes on both sides, but as this road is fairly quiet, and traffic calming will be improved, cycle lanes would be of marginal value. The exception would be at the junction with Woodview Road where a cycle lane across the junction would highlight cyclists' presence to motor traffic.

On road

Traffic free

Good road width on corner in Rowley

Very limited space at rear of industrial unit built on line of old railway

FAR

CH

SITE
Cam Village Centre – proposal for shared footway

Widen footway to 3m outside Village Hall by rebuilding wall set back.

Footway width outside fish and chip shop between shop and kerb of loading/parking is less than 2.5m. Increasing width to 2.9m would mean reducing width of bay to 2.0m and this should be considered.

There will be frequent movement of cars and the shop, but the area is well lit at night, sight lines in all directions are good and car drivers and passengers will normally be careful opening car doors.

Shared use signs will highlight presence of other users. Deterring pavement parking would assist footway users.

Narrowest point is 2m on corner. Beril out kerbs to min 3 metres at this point.

The planting should be set back by 1m and the footway widened to 3m round the corner.

Site to be developed. Opportunity should be taken of widening footway to 3.0m for shared use.

Service access and footway at Village Hall

Corner by Village Hall

Shop forecourt

Bay outside fish and chip shop

Planters and phone box

Narrowed part of corner

PIlling at corner

Parish site to be developed

Overlands junction
ELEVATION TO CHAPEL STREET

AERIAL VIEW

3m wide shared footway recommended

30m @ 1:500
6m @ 1:100
12m @ 1:200
1.2m @ 1:120

South facing slopes with potential for photovoltaic/solar panels

2 storey houses
2no flats

The development should be set back 3m from kerbs on Chapel Street and the vehicle entrance incorporate cycle priority measures

PLAN VIEW
APPROX 1:500

OUTLINE PROPOSALS

SUSTRANS • May 2008

8802/03
Cam & Dursley Greenway – Traffic free paths for walking and cycling

Map 4

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The existing speed cushions on Everlands are ineffective and their positioning near the kerb encourages motorists to drive very close to the footway to avoid them, intimidating pedestrians, potentially even putting them at risk. Traffic generated by the Littacombe re-development is likely to use Everlands as a short cut to the motorway or station, and physical measures will be put in place to slow traffic and discourage such use as inappropriate for this type of road. Such measures should ensure that conditions for walking and cycling are enhanced.

- Ineffective speed cushions at Everlands will be replaced by chicanes.
- North bank is a higher bank. Causeway or board could rise gradually to allow a level bridge.
- Widen existing path to 3m and ease dog leg.
- This area prone to floods several times annually. The path needs to be raised above normal flood level. Boardwalk 2m wide with 1400mm high hard rail leading to new bridge over Cam River. Use of boardwalk avoids loss of flood capacity but a cheaper option would be a simple earth causeway approx 600mm high to raise path out of flood level and a new bridge. Environment Agency advice required.
- If Everlands is traffic-calmed, it would not be necessary to re-use the old railway for the greenway, though it might be considered desirable regardless.
- The greenway should in any event switch onto the old railway near the southern end of Everlands. The footway on Church Road is adequate width for shared use to make the link to the Littacombe site cycleway entrance.
- Access to be closed as part of Littacombe works. A 1.2m wide gap should be retained for cyclists only.

On approach to Church Lane junction paths should switch to wide verge to avoid road junction.

The old galvanised footbridge could be restored and possibly re-sited on the greenway as a gateway feature.

Access to Cam Everlands Primary School.

See enlarged detail.
Cam & Dursley Greenway –
Traffic free paths for walking and cycling
Map 5

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The walking and cycling route of Littlecombe is shown separately.

Service road to be closed to through traffic – this will assist cycle movement from residential areas north of Rednock School.

New traffic lights to be installed to include pedestrian and cycle crossing phases (in hand 2008).

Public footpath re-aligned by Rednock School under construction Feb 2006.

Existing path drops and rises. Re-aligning the path by constructing a new path at a steady gradient through the trees to the west avoids the loss of height and gives a smoother link which could simultaneously be improved.

New 3m wide shared footway constructed Feb 2009.

The existing path should be widened to 2.5m minimum.

New link footway to be re-aligned for shared use. This will form a useful cycle/pedestrian link to the town centre.

Site of new light controlled crossing at junction with Kingsmill.

Widening existing footpaths to 3m for shared use from Kings Drive to new crossing to assist school journeys.

Existing gate should be replaced by open gate, 1200mm wide. A 1500mm wide cattle grid and a self-closing gate alongside should be specified.

The double line for travellers between Everlands and Rednock School and Dursley is Kingsmill Lane. A traffic-free route is included here as there is no land available but conditions could be improved by an uphill cycle route, heading to a shared footway and a crossing at the realigned junction with Kingsmill Lane. Travellers in the northerly direction would have easy access to the junction and use the redundant road to run downhill, where cycle speed would be much slower, to match vehicles, to Everlands.

Greenway follows existing alignment at steady easy gradient, the path width should be widened to 2.5 or 2.0 metres to carry high flows at peak hours as this will be a primary route to Rednock School.

Newly constructed ramp into Littlecombe development and Rednock School path.

Barrier should be removed and replaced with bollards.

Access to Littlecombe site shared pathway network (see separate map – Littlecombe Indicative Masterplan).

New ramp constructed from Littlecombe site.
Cam & Dursley Greenway -
Traffic free paths for walking and cycling

Map 6

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- - - - - - - - On road
•••••••• Traffic free

This is an important link to town. The redevelopment of the old fire station should include provision for cycle access to the new Sainsbury store and the town centre.

The link for cyclists and pedestrians moving from May Lane to Parsonage Street is difficult and could be improved by widening the footway on the junction to help the transition to Parsonage Street - see inset.

Sainsbury's development should incorporate a 1:20 ramp for access from north with minimum set-backs of acceptable radius.

Links to Littlecombe development shown on separate map.

Toucan crossing
Existing pedestrian crossing

Cycling should be permitted and cycle racks installed on Parsonage Street.

Parsonage Street Dursley - there is no reason that cycling should not be allowed to improve access by cyclists to shops. Cycle parking should be provided.

Note the very narrow pavement obstructed by the traffic light next to the Co-Op to left of the traffic light.
Cam & Dursley Greenway
Traffic free paths for walking and cycling

Map 7

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The quiet driveway is a PRoW and ideal for a quiet cycle route.

On road
Traffic free

These new estate roads appear quite suitable for cycling but should be reviewed when housing is occupied. An alternative riverside path (new construction) could be perceived as intrusive to neighbouring houses.

Quiet residential roads through new development

Existing traffic free path in valley leading to Fairley

Traffic free path (existing)

Road crossing — good visibility in both directions and a wide road make this suitable for a non-light-controlled crossing to Highfields. See Dursley – Uley Options Map
Cam – National Cycle Network Route 41: Options Map

The map shows two options identified as potential links. Both have their pros and cons.

The western option using the bridleways has the advantage of being almost entirely traffic free along very attractive green lanes, crossing the A38 at a safe point. The disadvantages are the cost of construction and maintenance, and the need to divert cyclists on to High Street. Cam at a point where more nervous cyclists may be intimidated by the traffic and parked cars.

The costs need not however be excessive if it was accepted that a safe route eastward was acceptable, which would be the case if there were only a few low levels of traffic use and regular maintenance. Also, as the section of High Street to be negotiated is quite short, nervous cyclists could at least walk the footway for this section.

The eastern option has the major advantage of being easy to achieve on local roads at relatively low cost (excluding a new bridge). It also lines directly between Cam and Slimbridge School (the cost of which would be subject). The advantages are the short distance eastward and the potential for shared use.

Notes
1. The lane to Gossington is quiet and suitable for family cycling and links directly to the National Cycle Network Route 41.
2. The single lane of the A38 at this point are separated by a central reservation and incorporate cycle lanes in both directions and there are good crossing points on both sides of the bridge with good visibility so that this offers a good point to cross the busy fast road.
3. This green lane is shown on the map as a HGV but would now be classified as a restricted bridleway. It appears little used but is maintained. The surface would need to be reconstructed and regular maintenance undertaken to keep it clear of the surrounding hedgerows.
4. Although not designated as a public right of way, there is a fenced path (badly overgrown at present) within the motorway perimeter. This would need to be surfaced and widened by one metre to make it quite suitable for shared use. This path should be designated as PHOW.
5. An underpass beneath the M5 exists and is suitable for cycle (but not equestrian) use.
6. A fenced corridor exists for the public footpath, and if cleared could be suitable for shared use. At present the vegetation renders it impassable (November 2007).
7. This green lane is partially tarmacked in good condition as far as the entrance to the Cam Parish Playing Fields and has the remnants of a stone surface but would need to be restated for shared use. The track is used by farm traffic, and there is a history of straying. A gated entrance to control vehicle access would address this problem.
8. Link to the main road. Flash kerbs at the junction of Morris Orchard and High Street.
9. In order to access the Cam & Dursley Greenway, a short stretch of High Street must be negotiated. There is currently no assistance for cyclists in the way of road markings, or cycle lanes, and this section of road is often used for on-highway parking. Nevertheless, observed speeds are low within a 30mph limit, and warning signs would probably be sufficient for cyclists making this link.
10. Proposed Cam & Dursley Greenway link to Bury Road on highway section. Transition to the shared footway can be made near the junction with High Street.
11. It would be possible to use the existing footway next to the main road for a shared use path. Sufficient width is available (min. 2m surfaced width).
12. The access road to the new houses in this area is quite suitable for shared use and a short section of new path could link back to the highway across the small green just south of the bridge over the railway.
13. The highway over the railway bridge is not provided with a footway, and there is no space available to create one. This forces walkers and cyclists onto the railway at a point at which space is congested and vehicle speeds appear quite high. Should path users need to cross at this point there is a high potential for serious accident. A new lightweight overbridge over the railway would resolve this issue, but the cost of the bridge and abutments, and the cost of removing a pedestrian bridge would probably be prohibitive.
14. The wide verge on the east side of Draycott carries a footway. This could be simply widened to 2 meters for shared use.
15. The junction with Wakes Road should be re-aligned to reduce the risk of the curve and improve pedestrian and cycle crossing including flash kerbs.
16. A crossing point on the A38 exists at this point with an easy link on St John’s Road to Slimbridge Primary School.
17. Quiet lane to Slimbridge.
18. A more direct link between the greenway lane and the station would be along Manor Avenue. This is blocked to traffic at the junction with Draycott, where it could join a new shared path on the wide verge. The link would improve access from the residential area to station.
19. In front of garages care needs to be taken to cross slip road at right angles, requiring re-alignment of the slip road. The use of the highway verge should be returned to the public for a shared path.
20. Cross Draycott just north of the Industrial Estate entrance. Extra width may be needed to enter bus shelter.
Notes on Cam & Dursley to Uley Options Map

The option of using either the B4066 or the footways alongside has been considered and dismissed on the grounds that the road is not conducive to cycling due to traffic volumes and speed, narrowness, and hilliness. The adjacent footways are narrow and not capable of widening within the verge width, and require a crossing over midway between Uley and Dursley. A route in the fields next to the road is ruled out due to a number of houses next to the road in the desired alignment.

The routes considered rely on existing rights of way. Walkers and cyclists have a right to use bridleways. Only walkers may use public footpaths. Further work would be worthwhile to investigate possible options requiring land acquisition.

1. Springhill is a quiet rural lane which opens up good views across the Severn Vale. The climb is about 1:12 on this section.
2. The road ascends to a height of about 140 m before dropping back to Uley.
3. The main road through Uley should form part of the route as this is the main means of access to the village.
4. The bridleway is a well made stone road requiring little improvement at this point.
5. The standard of the bridleway degrades to a muddy rutted track and requires substantial reconstruction for cycling, or even, in wet weather, for walking in comfort.
6. The line of the bridleway is unclear on the ground and does not appear to match the OS map. It joins a well made farm track south of Coleshall Farm.
7. Coleshall Farm - the bridleway runs through the yard and there is potential conflict with livestock and farm operations. This could be managed simply however by alerting path users and farm workers of the probable presence of the other, or alternatively a small modification to the path alignment away from the yard sought.
8. The bridleway is signed alongside a well made driveway (though it appears to share the driveway on the OS map) which is narrow and unsurfaced. Ideally the path should share the driveway, or if this is not the public bridleway, the existing path rebuilt and widened.
9. This very quiet lane passes Uley playing field.
10. This is clearly an ancient bridleway and a 'white road' on the OS map. It is probably a public road, but clarification is required. It offers a rather steep access to the bridleway along the foot of Cooper's Wood, quickly narrowing into a tarmacked lane. This is a major issue of intimation with the house near to the track.
11. The bridleway is a very attractive woodland track through beech woods which probably served the old quarter. There is a good stone base on much of the length, but the bridleway is unsuited for everyday cycling use, and such a surface may be resisted by those who feel that such a path is visually inappropriate in this rural woodland setting.
12. The more open track (Barnwell Lane) here requires reconstructing, though the section west of here is used by vehicles and has a good, if rough, base.
13. The wide verge at the top of Byron Road could be used to make a traffic free link to the network of quiet residential roads of Highfields.
14. A path off Somerset Avenue gives access to the rear entrance to Dursley Primary School.
15. The crossing of Uley Road is achieved easily at this point where the road is wide, speeds slow, and visibility good. Links to Cam & Dursley Greenway.
16. This is a private road serving a Severn Trent Water pumping station.
17. Achieving this entry to Dursley requires a new path around the pumping station. The field accesses at this point would require special attention.
18. New path along edge of public open space.
20. The path runs close to the hedge through open field - it is a public footpath only and would have to be upgraded. There are likely to be considerable issues with farming practice co-existing with the shared use path which would require careful consideration.
21. The conflict with farming and intrusion issues are probably insurmountable in the vicinity of the farm house, so that a diversion of the path might be the only way forward.
22. The path running close to the field boundary reduces potential for conflict.
Options for a cycle route between Cam, Dursley and Uley

The village of Uley lies at the foot of the Cotswold escarpment at the head of the Cam Valley. It is elevated above Cam by some 70 metres, and any approach from the Cam and Dursley settlements in the valley bottom inevitably involves an ascent. The task is therefore to identify a route which conforms as far as practicable with the NCN Guidelines recognising that a level route is not possible. The options considered in the matrix could meet NCN standards and there are a number of secondary considerations as outlined.

The profiles of the options are shown in the charts.

<table>
<thead>
<tr>
<th>Option</th>
<th>Distance Dursley / Uley (traffic free)</th>
<th>Description</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.5 km (1.5 km)</td>
<td>Uses quiet lanes north of A4296 requiring climb from either end - a long climb from Dursley</td>
<td>Existing lane is quiet, Low cost, Good views</td>
<td>Long climb from Cam at 1:12, Max gradient 1:8. Need to climb higher than destination of Uley.</td>
</tr>
<tr>
<td>1A</td>
<td>7.5 km (1.5 km)</td>
<td>As option 1 but diverts on bridleway to avoid unnecessary climb.</td>
<td>As option 1 but avoids maximum ascent and avoids steep section.</td>
<td>Long climb from Cam, New construction on existing bridleway. Possible conflict where HSOW passes through farmland.</td>
</tr>
<tr>
<td>2</td>
<td>6 km (1.8 km)</td>
<td>Very quiet lane from Uley to join bridleway along edge of woods. Enters Dursley through Highfields.</td>
<td>Passes Uley school field, Large traffic free element very attractive, Passes close to schools at Highfields.</td>
<td>High cost, Probable intrusion issues near housing, steep sections, &quot;Urbanisation&quot; of countryside issues.</td>
</tr>
<tr>
<td>2A</td>
<td>6 km (1.8 km)</td>
<td>As Option 2, but requires use of footpath through fields and new link through public open space.</td>
<td>As option 2, Avoids steeped climbs.</td>
<td>Serious intrusion issues at farm, Path across open fields most unlikely to be acceptable.</td>
</tr>
</tbody>
</table>

Conclusion
Option 1A is the preferred route of the four considered, but we recommend further investigation of a more direct link in the valley bottom would be worthwhile.
Art & the Travelling Landscape: Distinctive Gateways

A selection of individually designed entrances and gateways along the National Cycle Network.

Sustrans works with artists to create unique and memorable access points to provide a sense of continuity and rhythm along selected routes.
Art & the Travelling Landscape: Special Benches

A selection of individually designed seating and resting areas along the National Cycle Network.

Sustrans works with artists and craftspeople to create special benches, they are carefully orientated to take account of local materials, the gradient and views from the path and the environment of each site. Sustrans identifies sites at an early stage to integrate seating areas into the construction of all paths.
Direction Signing on the National Cycle Network

Introduction
This information sheet has been prepared to provide assistance for people involved with signing sections of the Network and to aid organisations in doing so. It offers guidance on:

• the recommended standard of signs
• the signs required and where they should be located
• reviewing newly signed routes
• the monitoring and maintenance of signing.

National Cycle Network and Signing
The National Cycle Network is a comprehensive network of safe and attractive places to cycle throughout the UK, comprising of both National and Regional Routes.

10,000 miles of National Route, together with numerous links have been completed. One third of these routes are traffic-free paths, while the rest follow quiet lanes or traffic-calmed roads. The National Cycle Network is co-ordinated by Sustrans, with the support of over 600 local authorities and other partners.

One of the key requirements in developing safe and attractive places to cycle is comprehensive direction signing that links paths, tracks, lanes and roads together to make up the Network.

The attractiveness and utility of a route to potential users will, in part, depend on the quality, coherence, consistency and frequency of the signs. Inadequate, missing or misleading signage is the main concern expressed by users on the Network. One missing sign can result in cyclists ending up on very busy roads and could put them off cycling forever.

Visions need to have confidence that they will not get lost, and should be able to follow the route – in either direction – without needing a map.

Clear signing towards and away from a network is as important as the signing along the network route.

Signage also advertises the presence of cyclists to other road users and advises them that there is an alternative to using the car.

Direction Signs
It is essential at frequent locations along the route that signs include key destinations and distances, and there should be consistency in the destinations selected. Ideally, two main destinations should be shown, showing locations close by (see figures 1 & 2). Typically, these will be the next village and town. Care may be needed to avoid erecting these in locations where they might encourage car drivers to follow the Network as a scenic route to their destination. In Wales, bilingual versions of the signs should be used (see figure 3).

The common ingredients of all National and Regional cycle route signs are the bike symbol and route number. These are directional, with the route number patch behind the bicycle (as if it were a trailor) or immediately below. National Routes use a red route number patch, in contrast to a blue patch for Regional Routes. In the case of an overlap of a Regional and a National Route, both a red and a blue patch appear.

Sustrans is the UK’s leading sustainable transport charity and works on practical projects to encourage people to walk, cycle and use public transport to benefit their health and the environment.

National Cycle Network Centre, 2 Cathedral Square, College Green, Bristol, BS1 5DD

www.sustrans.org.uk
It should be noted that the cycle symbol and the number patch are not recognised as tourism symbols and should not be used on brown signs.

**Link Signing**

Links are an essential component of the National Cycle Network and extend its reach. Links of a particularly high standard are treated as integral parts of the National Route itself, giving access to a wide range of local destinations.

If the link is traffic free, the pedestrian symbol should be included in signing positioned behind the bicycle (and route number patch if appropriate) (see figures 6 & 11).

**Towards the National Cycle Network**

Signing towards the National Cycle Network should show a local destination that can be safely and effectively reached using the National Cycle Network. It can also be of benefit to include the local route name as a destination itself (see figure 7 & 11). Where a local name does not exist, the National Cycle Network itself can be included as a destination. The bicycle symbol with the National or Regional Route number patch behind it should be included with the route number in brackets, in accordance with TSRGD 2002 (see figure 8). Where the link to a National Route coincides with a Regional Route, the Regional Route number in a blue patch should be included as well as the National Route number in brackets in a red patch (see figure 10).

**Away from the National Cycle Network**

The signs should include useful local destinations such as community centres, schools, stations, shops or attractions (see figures 6 & 10). It is important that local knowledge is used to select destinations. The bicycle symbol should be used without a route number patch unless the link is also a regional route, in which case the relevant blue route number patch should be included. Confirmation signs could also use an abbreviated destination such as “School” in order to reduce the sign size.

**Signs at the Junction of a Link and National Route**

At junctions, it is particularly important that the public know which way to turn along the main route, or if travelling along the main route where to turn off for their destination. At these junctions finger posts are particularly appropriate, where destinations and distances should be given (see figure 12).

**Joint Signing**

Where a National Route coincides with an existing signed cycle route, joint signing should be developed to cut down on sign clutter.

In the cases of the Trans Pennine Trail and the National Byway, the DFT agreed a set of joint signs incorporating the Trail logo. The inclusion of any logo still requires authorisation. In the case of joint signing with the National Byway, the signs should be blue (see figure 13).

**Locating Signs**

Along all routes, care must be taken to ensure that satisfactory signage is provided in both directions. The frequency and location of signs should take account of the ability of cyclists to follow the route and ensure that signs are placed where they can be easily seen.

Care should be taken to locate all signs so that they are clearly visible and legible to approaching cyclists, who can then prepare to make the appropriate manoeuvre. Signs must be free from obstruction by foliage or parked vehicles. A balance is to be struck between the need for continuous signing and the visual clutter that signing can cause. Within sensitive areas, such as rural settings or environmental factors, consideration is to be given to the visibility of the sign and the need to avoid breaking the skyline. Suitable backdrops might include a wall, building, fence, hedge, embankment or tree. Locations of signs should be agreed with the local authority and/or landowner. The colour and material for the sign support should be appropriate for the location (see figure 15).

**On-road Routes**

On-road direction signing should generally be provided at each junction where there is a change in direction, where cyclists using a route have to give way, or where there is another primary possibility. In addition, advance direction signing should be provided on the approach to a junction where the National Route is on the main road – this is particularly important where a right turn is involved (see figure 17).

A continuity sign just past a junction will normally be necessary to sign the route at every exit. On stretches of road with few junctions, additional continuity signs should be considered. Approximately every 1.5km in rural areas and more frequently in urban areas where the National Route turns off the main route.
given to existing signs in lamp columns, with the prior agreement of the Highway Authority to ensure continuity. Self-adhesive versions of some signs have been successfully trialled in Leicester (see figure 19).

The opportunity should be taken to re-examine existing signage in the process, so as to minimise clutter and incorporate new signs into the network. The most effective way to minimise clutter is to incorporate signs using a self-adhesive process, for example using a 10% reduction in the size of signs as shown in TSO2012 Diagrams 1210.5 and 1210.1. If the signs are being rationalised, it is possible to use the reserved standard for traditional signs and signs to show both cycle and pedestrian information (see figure 21).

This type of signing is particularly suitable where a number of cycle routes converge. Carriageway signs should normally be set back to give a clearance of at least 60mm from the edge of the carriageway. The best locations to fix a sign in the verge for visibility are between 900 mm and 1,000 mm above ground level. Care should be taken not to allow signs to obstruct visibility views with low level signs. Mounting a sign at this level will also reduce its visual intrusion. However, where signs are fixed on footways and transverse to the carriageway, the mounting height should be at least 1.6m clearance for pedestrians and 2.3m for a cycle track. Mounting height should also have regard to possible vehicle collision.

Traffic-free Routes

For routes free from motor traffic, the signing of junctions and access points should follow the same principles as for conventional signing. However, these principles should not be excluded from minor roads and paths, such as those through forests, paths, parks, and other similar areas where attention to signage and legibility is important. The provision of clear signage will help to ensure that cyclists remain on the correct route and are not subject to the same hazards as motorists. Good examples of these are shown in figure 18, including a circular sign using a circuit in the cycle lane. The same symbol and route number should be included on information boards, bulletins and elsewhere.

Surface Markings

This method of signing is often overlooked, yet most cyclists and drivers spend much of their travel time on the road in front of them. On Bodmin Moor, where the Council is not permitted to erect signs, a system of signing the National Route using carriageway markings was authorized by the Department for Transport (see figure 22). A similar system is also in use in parts of London.

Carriageway markings may also be useful for guiding cyclists through complex junctions and residential areas in urban areas. More use should be made of Diagram 1057 without lane markings, but with occasional use of signs in Diagram 1067 to let vehicles know they are on a cycle route.

Surface markings can also reduce sign clutter and vandalism, and have been successfully used in Swindon with full colour markings used on traffic free routes (see figure 24).

Review Of Signage

When a route is initially signed, it is vital to check that the signs have been erected as instructed and any corrections made. We strongly recommend that the accuracy of the signing then be reviewed in both directions with the assistance of the local Sustrans volunteer Rangers. The independent assessment by a cyclo may pick up aspects of the signing that should be improved. It is also useful to use someone who is not familiar with the route, who might identify gaps in the signage.

Monitoring and Maintenance

It is essential to establish the rout that is responsible for the maintenance of signing on each route. Ensuring the correct maintenance is vital, and a route needs to be regularly monitored to identify missing or damaged signs. Local Authorities will seldom have the resources to undertake this. This work lends itself to the assistance of the Sustrans volunteer Rangers, with individuals or groups taking on responsibility for specific sections of route (see figure 26).

Sustrans has a fault reporting system for volunteer Rangers, which can sort out faults as well as missing signs. Volunteer Rangers fill in the form, send it to the Local Authority and copy it to the local Sustrans manager. This provides a regular update on the state of the route and in particular the signing. Rangers are asked to put up temporary signs until the Highways Authority can replace the original or install a new sign (see figure 28).

A full schedule of all standard signs available to Sustrans volunteer Rangers together with the guidance issued to them can be obtained from the Sustrans Ranger teams at ranger-uk@sustrans.org.uk

Other Opportunities

Mileposts and Waymarkers

As well as formal direction signs, there will be other opportunities for marking the route such as mileposts and information boards. One thousand cast iron mileposts, incorporating the route number, have been erected throughout the Network, which are maintained by local residents, schools and Sustrans volunteer Rangers.

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Figure 17: Sign in advance of junction, Diagrams
Figure 18: Cycleway sign using existing pole, Cambridge
Figure 19: Example of self-adhesive continually sign
Figure 20: Tack cling sign with golds route direction
Figure 21: Integrated signing in Clapham
Figure 22: Confirmation sign fixed to a timber bollard, National Route 45
Figure 23: Road marking on National Route 5, Sustrans Moor
Figure 24: Preformed thermoplastic marking on traffic-free section of National Route 45, manufactured by Preformed Markings SW
Figure 25: Volunteer Ranger removing growth on the GSC, National Route 79
Figure 26: Volunteer Ranger removing growth on the GSC, National Route 79