Topic:	Public Consultation on the new Local Transport Plan (LTP3) for CWaC Council
Date:	11 January 2010
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Appendix B

Cycling: a local transport solution – guidance for Local Transport Plans

CTC, November 2009

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Cycling: a local transport solution

guidance for Local Transport Plans

November 2009

1. Introduction

This report has been prepared by CTC (the UK's national cyclists' organisation) to assist people involved in the third round of Local Transport Plans (LTP3's), particularly local Councillors and officers who are responsible for developing the plans, and everyone who would like to see cycling become a safer and more accessible form of transport and recreation for all.

The new round of LTPs presents a great opportunity for moving towards a more sustainable transport system. Cycling is one of the most sustainable transport modes and offers tremendous potential for improving our society's health, environment, economic efficiency and mobility. Yet Britain lags behind other European countries in the support it gives for cycling.

The new LTPs offer an opportunity to put this right. This document examines how cycling could be given a much greater role in the next round of Local Transport Plans, enabling it to fully contribute to the Government's transport goals. The following pages describe:

- Some key changes in the new LTP3 guidance;
- Some lessons from the previous LTP2's;
- How cycling supports all of the national transport goals;
- The main elements of a good cycling strategy;
- How to match the strategy with adequate resources.

CTC's vision is that cycling will become mainstream, and that the new LTPs will help to achieve this.

2. Background to the new Local Transport Plans (LTP3)

The current local transport planning system was introduced in the late 1990's, to provide a longer-term framework and more integrated approach to planning transport at the local level. The first round of local transport plans (LTP1) covered the period 2001-2006, and the second round (LTP2) the period 2006-2011.

The current LTP2's are now coming to an end, and will be replaced by LTP3. New guidance has been issued by the Department for Transport, to advise local authorities on the scope and content of the new plans.[1] Some of the significant changes are outlined below.

Separate Strategy and Implementation: First of all, Local Transport Plans are required (by the Local Transport Act, 2008) to contain policies (or strategy) and an implementation plan. These can be separate documents, or combined in a single document, but there must be a clear distinction between the two. [2]

Flexibility over Time Frames: Secondly, the new LTPs no longer have to be for a 5-year period: instead, local authorities can set their own time frames, and renew the LTPs

[1] DfT, Guidance on Local Transport Plans, July 2009
[2] op cit, Section 2.4

whenever they choose. For example, the strategy component could be of 10, 15 or 20 years' duration (to align with the Sustainable Communities Strategy or the relevant regional strategy), while the implementation plan could be 3 years (to align with local government funding settlements and Local Area Agreements) or longer (if major transport interventions need more time). Alternatively, local authorities can continue with 5-year LTPs for both strategy and implementation, if they wish. [3]

Supporting Documents: Thirdly, local authorities are encouraged to prepare supporting documents for specific areas such as walking, cycling, buses, road safety, and so on. (There are also mandatory duties, such as air quality management plans, transport asset management plans, rights of way improvement plans, and several others). The key point is that local authorities are encouraged to develop a long term cycling strategy and a detailed cycling action plan.

Transport Monitoring will be Less Prescriptive: Fourthly, the transport monitoring requirements for the new LTP3's will be less prescriptive, compared with previous LTPs. Local authority performance will now be monitored primarily through Local Area Agreements (LAAs). These are 3-year agreements between central Government and the local area. The LAAs contain policies and targets covering most aspects of local activity (from social services to education to road safety). The local authority agrees up to 35 targets (from the Government's "menu" of 188 National Indicators) against which its performance will be measured. Just 10 of the National Indicators relate specifically to transport, of which just one relates (only partially) to cycling.

Hence the monitoring required in the previous LTPs is no longer mandatory, unless the LAA includes some of the 10 National Indicators related to transport. However, the LTP3 guidance advises that monitoring is still expected:

> *"Performance monitoring should be an integral part of managing the LTP programme. A strong LTP will include ambitious target setting, clear trajectories and close monitoring of delivery. ….A robust monitoring framework is likely to include not only the transport and transport-related NI's in the LAA process, but* ***additional voluntary targets and indicators*** *that are relevant to the locality and to the specific goals and challenges the authority has identified."* (see Chapter 3, Sections 59 and 61 – emphasis added). [4]

Hence monitoring of cycling is now largely voluntary, and future monitoring methods may vary from place to place, which could make it harder to compare between areas.

The LTP3 guidance contains many other requirements and guidelines, but the overall conclusion is that local authorities will have a lot more freedom in how they prepare their LTPs – which also means that quality and approaches may vary considerably from place to place. Local people concerned for the future of transport in their areas will need to be active, if their views are to be fully reflected in the next round of Local Transport Plans.

[3] op cit, Section 4.13

[4] Note: There are other statutory assessments to be carried out of the LTP3's – notably a Strategic Environmental Assessment (including a Health Impact Assessment); an Equality Impact Assessment; and, if necessary, a Habitats Regulation Assessment.

3. Lessons from the second round of LTPs (LTP2)

Levels of cycling in the UK are among the lowest in the developed world. Approximately 1% of trips in the UK are made by bicycle, compared with 6-11% in countries such as Switzerland, Germany and Sweden, and 18-27% in Denmark and the Netherlands.[5]

With such a low base, the low priority given to cycling in the second round of Local Transport Plans was disappointing. In the LTP2 national guidance published in 2004, all except one of the references to cycling bracketed it together with walking.[6] Yet while walking is also a truly sustainable mode, it has very different needs and characteristics. The Accessibility guidance made only one reference to cycling (referring to cycle parking and lockers), while the Rights of Way guidance gave just two paragraphs to cycling. Unlike the first LTPs, no specific guidance was given on how cycling should be treated in the second Local Transport Plans.

The low priority to cycling was reflected in the LTP2's themselves. The targets for cycling were substantially reduced. The National Cycling Strategy of 1996 had set a national target of 300% increase in cycling by 2012, and this was largely reflected in the first round of LTP1's. However, by the second round the targets were nearly all downgraded – some local authorities set targets of zero cycling growth (i.e. their ambition was simply to halt the rate of cycling decline), while even the 'ambitious' local authorities expected no more than 10% increase (over a very low base) by 2011.

London's experience showed that these targets were far too pessimistic. The Mayor's Transport Strategy, 2000 set a target of an 80% increase in cycling by 2010, and this was achieved several years early. Many of the local authorities outside London have already achieved or exceeded their LTP2 cycling targets, and cycling nationally is increasing fast.

Despite the lack of central government encouragement, many local authorities updated or prepared new cycling strategies, as part of the LTP2 process. Some were stand-alone documents; others were included in the overall LTP2 text. The quality and content of these cycling strategies varied considerably. Some were just a few pages long; others were 30-60 pages long, with detailed action plans. Some simply re-stated the case for cycling, while others gave specific policies for cycling. Some of the better examples include: Merseyside (2005), Somerset (2006) and Stoke on Trent (2000).

Most of the LTP2 cycling strategies were for five years only, hence they are now due to be replaced. The LTP3 guidance provides an opportunity for the new cycling strategies to be:

- For a longer time period – adapting the roads for cycling, and achieving behavioural change, requires time and a long-term commitment;
- More ambitious – the urgency of climate change, and the potential for increasing cycling, means that the old targets need to be revised upwards by several degrees of magnitude;
- Backed by strong commitment, in terms of political leadership, funding (both capital and revenue) and properly trained and qualified staff, to ensure successful delivery.

[5] John Pucher and Ralph Buehler, 'Making Cycling Irresistible – Lessons from The Netherlands, Denmark and Germany', *Transport Reviews,* Vol. 28, No. 4, 495-528, June 2008

[6] Full Guidance on Local Transport Plans (for LTP2): Second edition DfT December 2004

4. Making the case for cycling

The Department for Transport has set five objectives for new Local Transport Plans as part of its new long-term transport strategy. These five priorities, together with examples of how cycling supports these objectives, are:

A. Support economic growth

- Promoting cycling tackles congestion. A lane of a typical road can carry 7 times as many bicycles as cars.
- Making town centres and residential areas cycle-friendly enhances their attractiveness, boosting property values and retail vitality. It also supports local businesses, and maximises the "agglomeration" benefits of enabling businesses to locate close to one another.
- Reducing the oil-dependence of our transport system is good for our energy security and our balance of trade.
- There are also economic benefits due to improved health (see below), e.g. reduced health-care costs and absenteeism, and improved productivity.

B. Tackle climate change

- A person making the average daily car commute of 4 miles each way would save half a tonne of CO2 by switching to cycling – 7% of the average UK carbon footprint.
- If we doubled cycle use through switches from cars, this would reduce Britain's total greenhouse emissions by 0.7 tonnes, about as much as switching all air travel between London and Scotland to the rail network.
- Cycling is one of the easiest and cheapest ways for individuals to reduce their contribution to greenhouse emissions on a day-to-day basis.

C. Contribute to better safety, security and health

- Someone cycling in mid-adulthood typically has a level of fitness equivalent to being 10 years younger, and a life expectancy 2 years above the average.
- Cycling gets safer the more cyclists there are: the "safety in numbers" effect.
- Cyclists have a very low rate of involvement in collisions where another road user is injured. Hence more cycling is good not just for cyclists' safety but for other road users too.

D. Promote equality of opportunity

- Cycling provides independent mobility for many people who do not or cannot drive, including children, people on lower incomes, older and many disabled people.

E. Improve quality of life and make a healthier natural environment

- Cycling reduces the harmful pollutant emissions and noise from motor vehicles.
- Cycling requires far less space to be allocated either for roads or for parking in urban areas. It therefore has a much lower negative impact on townscapes as well as on rural landscapes and biodiversity.

5. Key principles of a cycle-friendly LTP

CTC has published two documents, setting out the role of cycling in national transport policy and road safety policy respectively:

- New Vision for Cycling (www.ctc.org.uk/newvision) sets out the benefits of cycling and outlines the types of measures needed to achieve a doubling of cycle use and a halving of the risks of cycling at the national level. Rates of growth at least this high are already being seen in places like London, Leicester, Sheffield and the Cycling

Towns programme, suggesting that proven value-for-money interventions are now in place for a 10-year doubling to be an entirely achievable aim at the national level. The benefits would be worth around £3.5bn annually.

- Safety in Numbers (www.ctc.org.uk/safetyinnumbers) provides international and GB-based evidence that cycling gets safer the more cyclists there are, and thus a doubling of cycle use and a halving of the risks of cycling are entirely compatible aims. We therefore believe road safety policies nationally and locally must aim for more as well as safer cycling, by tackling the fears which deter people from cycling. Our calls for a halving of the risks of cycling within 10 years, and for cycle safety to be measured in terms of "rate-based targets" (i.e. cycle casualties per unit of distance travelled) have already been endorsed by the Government's draft Road Safety Strategy.

Translating the principles of these two documents to the local authority level, we believe that a cycle friendly LTP should at minimum cover the following:

1. *Policy framework for cycling*
   - Recognising cycling's full benefits and integrating with wider objectives for transport, road safety, planning, health etc

2. *A quality environment for cycling*
   - Signing up to key principles of cycle friendly highway planning and design, and commitments to provide quality off-road leisure routes, access to key destinations, signing and cycle-friendly road and path maintenance policies and procedures

3. *Information, incentives and opportunities to try out cycling*
   - Maps, journey planners, promotion, individualised marketing, and incentives.
   - Cycling events, cycle training, schools, workplaces, health, minority or disadvantaged communities

4. *Partnerships*
   - Linking with schools/colleges, health sector, employers and businesses, public transport operators and the police
   - Engaging communities and the voluntary sector in developing, delivering and monitoring an effective local cycling strategy

5. *Resources*
   - Revenue as well as capital, plus suitably qualified / trained staff

6. *Targets, indicators and monitoring*
   - Commitment to substantial increases in cycle use
   - Targets to promote more and safer cycling (rate-based) and reduce fear
   - Identify suitable data collection methods, with costs

Councils will vary in how they divide up material between their LTP strategies, delivery plans and separate cycling strategies, and the degree of detail employed in each. The following sections outline more detailed policies for each of the above elements.

6. Policy framework for cycling

To achieve the full benefits of cycling, LTPs must also seek to integrate their wider transport policies with other strategies, as follows:

- **Links with the wider aims of local transport policy**. Everyone is in favour of less traffic and safer streets. Cycling is a means to achieve both these outcomes. However

the reverse is also true: a willingness to restrain traffic volumes and speeds is necessary to achieve increases in cycling, a point fully recognised in Government guidance (see the "Hierarchy of Provision" in section 7 below). The essential two-way relationship between cycle use and tackling road traffic volumes and speeds needs to be explicitly recognised.

- **Local road safety strategies** should aim for more as well as safer cycling, recognising that cyclists gain from "safety in numbers" and that the benefits of increased cycle use and improved road safety (for cyclists and for other road users can and should be seen as entirely complementary aims. The emphasis then should be on tackling the fears which deter people from cycling (and not, as so often in the past, being concerned that more cyclists might mean more cycle casualties). The issues to focus on are i) the volume and speed of traffic; ii) irresponsible driving (working in partnership with the police); iii) hostile roads and junctions; and iv) lorries. The provision of good cycle training and other "smarter choices" measures can also help encourage more as well as safer cycling through the safety in numbers effect. Local road safety targets should measure the risks of cycling rather than pursuing policies that reduce overall number of casualties. We also recommend the adoption of indicators for the perceptions of the safety of cycling – see

- **Health sector policies** must support the increase in cycling levels as a way of improving public health. Local health trusts can work with local highway and planning authorities through the Local Strategic Partnerships and other means, to support cycling in the following ways:

    - Making explicit links between local health and transport policies
    - Developing travel plans for both patients and staff, including i) ensuring that hospitals and other health services are easily accessible by cycle and ii) signing up to the Governments "cycle guarantee scheme" for cycle-friendly employers (see section 8);
    - Promoting cycling as a healthy activity, both for their patients (as a form of "exercise on referral") and as part of their area-wide health promotion activities.

- **Plannning policies**. Local Development Framework should incorporate policies on reducing the need to travel, especially by private motorised transport, and securing provision and facilities for cycling in all developments. They should adopt standards for cycle parking and other facilities to be secured in the context of new developments of different types (residential, office, retail etc).

7. Cycling Infrastructure and the Physical Environment

Probably the greatest barrier to getting more people cycling is the traffic conditions on our roads. Cycling amidst heavy, fast-moving traffic is daunting for most people. The challenge is to re-organise the traffic and road arrangements in our towns and rural areas, so that both motorised and non-motorised transport can co-exist safely and effectively. Fortunately, this can be done – as experience from other countries has shown.

This section now considers how towns and rural areas can be adapted to cater for cyclists, through the provision of new infrastructure and the adaptation of existing infrastructure. This section draws particularly on recent guidance available in LTN 2/08 *Cycle Infrastructure Design* and the Design Checklist guidance sheets produced by Cycling England.

The Hierarchy of Provision

Cyclists who simply want to get from A to B will generally wish to minimise the time and effort involved. Moreover the destinations they wish to reach will be dispersed throught the road network, just as for other road users. Hence a key principle of cycle planning is that the cyclists' route network should include the whole of the road network (excepting motorways). This should be supplemented with high-quality off-road routes which give cyclists advantage, either because they are quicker and more direct, or because they are safer and/or more attractive for cyclists happy to travel at a more leisurely pace. However off-road routes should be seen as additional to, not instead of, creating a comprehensively cycle-friendly road network.

To achieve this aim, the creation of a cycle-friendly travelling environment should be guided by the Hierarchy of Provision, as set out in the Government's Manual for Streets and guidance note LTN 2/08. Its underlying principle is that pavements should be for pedestrians and that the carriageway should be safe and attractive for cycling. The top priorities should be to look for solutions which cycle-specific measures reduce the impact of motor traffic, as follows:

Consider first  **Consider last**	i. Traffic volume reduction
	ii. Traffic speed reduction
	iii. Junction or hazard site treatment, traffic management
	iv. Reallocation of carriageway space
	v. Cycle tracks away from roads
	vi. Conversion of footways to shared use for pedestrians and cyclists

Local authorities should, as their first preference in making provision for cycling, seek to reduce traffic volumes and/or traffic speeds. Other solutions, in order of priority, are the redesign of junctions, reallocation of road space (e.g. through bus lanes or cycle lanes), and only finally the provision of off-carriageway cycle tracks. In this way, it is often possible to meet cyclists' needs without the need for cycle-specific infrastructure, potentially freeing up cycling budgets for "smarter choices" measures bearing in mind their very cost-effectiveness (see next chapter).

This does not mean that cycle tracks are never appropriate. If properly designed and in the right location, they can provide useful routes through green open spaces or through areas otherwise restricted to motor traffic, which can be quicker and more direct for cyclists, as well as obviously being safer and pleasanter for the less confident or more leisurely-minded cyclist.

In the case of a high-speed dual carriageway (where reducing traffic speed and volume is not a realistic option), a well-designed cycle track may well be the solution of choice. But in all cases where off-carriageway tracks are built, they should be designed to have sufficient width and visibility to allow safe and comfortable use by the number of pedestrians and cyclists who use (or are expected to use) the route in question.

One of the first steps in improving the infrastructure is therefore to review the existing conditions. The principles of cycle audit and review mean that all planning of the road network needs to take account of cyclists' needs. This is particularly important for any road alterations affecting cyclists, but there should also be an on-going review of all existing facilities for cyclists.

New or proposed changes to the road network must take account of the need to improve accessibility for cyclists. Major roads or junctions are hostile for cyclists and their impact on accessibility to services requires provision for cyclists to be built in from the beginning. **(See DfT *Cycle Audit and Review*)**

i. Traffic Volume Reduction

Invisible infrastructure (see Cycling England Design Portfolio A.01)

Changes to the network which improve conditions for cyclists but do not appear to be related specifically to cycling may be said to realise the concept of 'invisible infrastructure'. In many cases, invisible infrastructure may preclude the need for any cycle-specific provision.

Invisible infrastructure includes congestion charging, car parking management, speed reduction, land-use planning to reduce the need for and distance travelled, redistribution of the carriageway into bus lanes, traffic calming as well as many other policies aimed at curbing motor traffic and prioritising cycling.

Giving priority over motor vehicles (see Design Portfolio A.05)

Cyclists benefit greatly when given exemption from road closures, one-way streets, turning bans and vehicle restricted areas. Exemption will invariably provide advantage and permeability by shortening journey time and distance cycled as well as improving accessibility.

Closing access to motor vehicles but retaining cycle access can result in a reduction in the volume and speed of motor traffic which can further encourage more cycling through the creation of safer and more pleasant conditions on the roads affected.

Advice on retaining cycle access in urban centres which would otherwise be pedestrianised can be found in Design Portfolio A.07 Vehicle Restricted Areas.

Providing contraflow access to cyclists (Design Portfolio A.06)

One-way systems can cause significant barriers and deterrents to safe and convenient cycle travel, by forcing cyclists to use more circuitous and hazardous alternative routes.

Two-way cycling should, therefore, be the default option where it is proposed to introduce one-way working for general traffic. Any decision not to provide cyclists with this facility should only be taken after a thorough examination of the proposal has shown that such an arrangement could not be made to operate safely. Since many one-way streets were originally two-way working it is likely that most could be converted to rectify this omission.

It is expected that the Department for Transport will soon permit "no entry" signs to have an "except cyclists" plate underneath. This will allow greater flexibility to local authorities to allow contraflow cycling without the need for extensive changes to street layout or existing signs.[7]

Providing short-cuts

In urban areas, radial roads which have been closed to through-traffic can provide cyclists with ideal strategic routes, often combining the benefits of a high quality road surface with direct access, attractive surroundings, and very little traffic.

Closures can be created by, bollards, gates or where necessary rising bollards. They may also be affected by appropriate signing. At signal controlled junctions cycle gaps can also be included by closing one arm of the junction to motor vehicles.

Case Study: Restoring permeability for cyclists, Hackney

Hackney permeability – before and after

New sections of cycle track, cycle access at road closures, removal of guard railing, reshaping traffic islands, carriageway resurfacing and new signing / road markings have been elements in recent schemes implemented by the London Borough of Hackney. Most of the improvements are focussed on improving access on cyclist desire lines identified through meetings with key cycle interest groups. This local knowledge is used to target areas where there are obstacles to cycling in order to promote convenient cycle routes.

For more information, please visit www.hackney-cyclists.org.uk/permeability.htm

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[7] The Department for Transport is currently consulting on this proposal, with the consultation due to close on 24th December 2009.

ii. Speed reduction (Design Portfolio A.02)

A reduction in traffic speeds will always benefit cyclists. Since 1999, it has been permissible under certain conditions to apply 20 mph speed limits with few, if any, obvious measures to reduce speeds. The effectiveness of such limits can sometimes be increased by using them in conjunction with environmental improvements such as varied surfacing materials, narrowed carriageways, and the layout of on-street parking areas. These features often overcome the need for additional traffic calming in the form of road humps or cycle-specific measures.

20 mph speed limits and zones have achieved substantial reductions in injuries. The benefits of reduced speeds accrue beyond simply casualty reduction. 20 mph streets create more people-centred environments, where people are more likely to walk or cycle, with a better quality of life and the potential to reduce emissions from motor traffic.

They are also very popular, with 75% of respondents to the 2005 British Social Attitudes survey supporting their use in residential areas. It should be noted, however, that the streets which can benefit most from 20 mph treatments are those which are most heavily used by pedestrians and cyclists – such as shopping streets. See below for an example case study from Hull.

In addition, a reduction in speeds in rural areas can improve conditions for cyclists. This can be achieved either with variations to speed limits and can also be enhanced by changes to the status of the road – ie, by designating it as a 'Quiet Lane' under section 268 of the Transport Act 2000, or by steps such as removal of the centerline (Design Portfolio A.12). A case study of the latter approach can be found below.

Cycle friendly traffic calming (Design Portfolio A.03)

Where traffic calming is used to achieve speed reductions it must be carefully designed and built to avoid creating difficulties or unforeseen hazards, for cyclists. The use of a cycle audit will highlight any potential problems **(See DfT *Cycle Audit and Review*)**.

Road narrowings or deflections must not create 'critical widths' – ie, the width at which drivers cannot overtake safely but may still be tempted to do so. This is between 2.75m and 4.5m (although this can reduce to 3.5m on roads where there is little or no lorry or bus traffic). Widths between 2.6 and 2.75 m will prevent overtaking but may still provide an intimidating experience for cyclists. Cycle bypasses cannot prevent this problem, but must be of a suitable width and adequately swept and maintained.

Vertical deflections (road humps or tables) are uncomfortable for cyclists unless they employ tapered or "sinusoidal" ramps, with a shallower initial slope. An alternative solution is to provide speed cushions with 1.2 m spaces between cushions.

Case Study: Mixed priority routes – Newland Avenue, Hull

The Newland Avenue Mixed Priority Route Project in Hull is part of a national initiative to improve road safety on busy urban shopping streets. The scheme is one of ten DfT best practice demonstration projects and was designed to provide a safer and more attractive street environment with more space for pedestrians.

Newland Ave	Users	Injuries
Pedestrians	+59%	-100%
Cyclists	+48%	-21%

The scheme design has been influenced by successful examples from the continent and elsewhere in the UK and represents an

innovative approach to mixed use streets. Measures include 'shared surface' areas without road markings and pioneering informal pedestrian crossings at raised table junctions, together with a 20 mph zone over the entire area affected by the scheme.

Covered onstreet cycle parking on Newland Avenue, Hull

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iii. Junction and hazard treatment (Design Portfolio A.08)

Signal controlled junctions are the most common kind of major junction on busier roads in urban areas. In general, they are safer for cyclists to use than roundabouts, particularly the larger ones. However, without due consideration of their needs, signalised junctions can unnecessarily create difficult conditions or delays for cyclists. Many of these can be designed out if considered early enough. For example, uninterrupted left turns can be enabled by the creation of a cycle bypass where space permits.

Roundabouts (Design Portfolio A.13) are, in general, more hazardous for cyclists than signalised junctions, however careful design can mitigate their impact. The use of continental style roundabouts, with tighter geometry, single lane entry and exit and a narrow circulating lane, can improve conditions for cyclists.

Large roundabouts can create the most intimidating and unpleasant environment for cyclists and must be improved or bypassed wherever possible. However, the use of peripheral cycle tracks without priority over the roundabout arms suffers from all the problems of off-carriageway facilities set out above.

The provision of advanced stop lines (Design Portfolio A.09) at signals should be implemented wherever possible.

iv. Reallocation of road space

Reducing the road space available to motor traffic helps create better conditions for cycling, particularly if the remaining road space remains open to cyclists. Bus lanes can be a means of achieving this, and in London the introduction of bus lanes and bus priorities has been one of the most important measures benefitting cyclists.

Where provided, bus lanes (Design Portfolio A.10) should always be open to cyclists. They provide cyclists with a direct and barrier-free route into town centres. They are

generally popular with cyclists and avoid the difficulties associated with parallel shared footways. Cyclists particularly value the perceived safety and reduced journey times they afford. Bus lanes are likely to form an important part of the overall cycle network and should be publicised as such. They should also be designed generously (at least 4m wide), to provide room for buses to safely overtake cyclists.

Cycle lanes (Design Portfolio A.11)

The decision to provide cycle lanes should be reached by reference to the Hierarchy of Provision (see above) and should take into account the individual characteristics of the road to be treated; they should not be seen as a universal solution.

Guidance from Cycling England includes a version of a 'speed/flow' diagram to help determine where cycle lanes can be usefully applied. For example, roads with over 10,000 vehicles per day and 85% speeds up to 40 mph are good candidates for cycle lane treatment, other factors being taken into account.

Where provided, cycle lanes should be a minimum of 1.5 metres wide, preferably 2m, continuous, made conspicuous across side roads at junctions and not abandon cyclists where roads become narrow, for example at right turning lanes. When cycle lanes are being introduced, the cost of remedial measures to the carriageway surface should be included within the scheme budget. In many cases 2 m can provide sufficient width for two cyclists to travel side by side, an important requirement for some, especially parents with children.

Recent research supported by CTC found that cars overtook significantly closer to cyclists on two roads with cycle lanes compared with the same road where no cycle lane was present. This suggests that where cycle lanes are implemented extra care needs to be taken to provide enough width to compensate for driver behaviour.

In Hessle, Hull, one lane of a dual carriageway was reallocated to car parking and a cycle lane (Cycling England case study). Importantly, where the cycle lane runs alongside the parking a buffer zone was provided to avoid cyclists passing too close to car doors.

Case study: Rural cycle lanes – Martlesham, Suffolk

The Felixstowe Road 'Cyclists Priority Route' is an innovative scheme for Suffolk, but is a well tried method elsewhere. Similar layouts have also been used at other sites in the UK such as Lowestoft (also in Suffolk), Barking, Scunthorpe, Faversham, Peebles, and Peterborough.

This scheme has a 6.5m carriageway width, split between two 1.5m cycle lanes and a single 3.5m central traffic lane. The road is subject to a 30 mph speed limit and carries some 4500 vehicles per day, including over 180 cyclists. This level of vehicle usage should be taken to be the maximum desirable flow at which this treatment can operate successfully. In this case 30% of motor vehicles have diverted to another route.

Traffic speed is a crucial deciding factor when considering this type of scheme: At 20mph or below the 'quiet lanes' or 'shared space' concepts can work well with limited, if any marked facilities as all road users are going slowly enough to anticipate each others movements and give way informally as necessary. At 40mph and beyond dedicated space is normally required. However, between these speeds, at 30mph there is flexibility and room for innovation. There is some need for demarcation of space and on narrower roads the 'shared-space-cycle-lanes' approach works well.

Martlesham rural road before and after treatment

Case Study: A network on both quiet and busy streets - London Cycle Network +

When the London Cycle Network routes were being reviewed, there was a lot of debate about whether the strategic cycle routes should be on busy main roads, or on quieter (but less direct) side roads. Main roads were preferred by regular cyclists because they are more direct, pass close to destinations such as shops, offices and stations, and are already used by the majority of cyclists. However, some people felt that the cycle routes should cater for all users, including inexperienced cyclists, and should therefore avoid heavily-trafficked locations.

In fact, *both* types of route are needed, to cater for all types of cyclists. In the event, it was decided that the strategic LCN+ routes should follow the direct roads (including busy corridors such as the A1, A10 and many other 'A' roads), while TfL's Greenways programme is developing quieter but less direct routes based on residential roads, parks and canal paths.

Developing the strategic cycle routes can be relatively costly. Feasibility studies for the LCN+ produced an average cost of improving the routes of around £275k per kilometre. Most of this was accounted for by a few key locations, such as high street traffic calming, re-organising major junctions, and providing missing links (such as bridges, new cycle tracks and signalised crossings). On the other hand, the benefits were much wider than just cycling – they included bus priorities, walking improvements, safety improvements, and so on.

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v. Cycle tracks and off-carriageway features (Design Portfolio B.01)

Provision of off-carriageway facilities should, like cycle lanes, be subject to a test using a 'speed/flow' diagram (see **Design Portfolio A.11**) or in reference to table 1.1 of Cycle Infrastructure Design. Both of these can help determine the conditions where an off-carriageway facility can be most useful.

Additional off-carriageway links can offer enhanced permeability, potentially safer routes for cyclists and advantageous journey times compared to motor traffic. These need to be designed, built and maintained so that they achieve their intention of drawing cyclists away from less attractive routes on the carriageway.

The measures available to create cycle links can range from a cycle gap in a road closure to the construction of a new bridge. To be effective, cycle links should be clearly signed, direct and relevant to cyclists' needs.

Cycle tracks away from the road

Facilities away from the carriageway through parks, alongside rivers or canal or using old railway alignments can provide an attractive alternative to the road network for both leisure and utility cyclists. These facilities will often be shared with pedestrians. In most circumstances it is advantageous not to segregate between these users. Widening the path can alleviate conflict.

Paths or tracks in these circumstances are often treated with access control gates to prevent unauthorised use by motor traffic. Such controls must only be based on proven need and in many circumstances may not be necessary. Access controls can create significant difficulties for users of non-standard cycles (e.g. tandems, tricycles, trailers) and cyclists with disabilities. (Design Portfolio B.08)

Cycle tracks adjacent to the carriageway

As stated above, the conditions in which a cycle track can be useful beside the carriageway are limited. Decisions on providing cycle tracks need to take account of the Hierarchy of Provision and the individual characteristics of the site. In most cases provision on the road with measure to reduce volume or speed of motor traffic is preferable, and proposals for cycle tracks should be reviewed to ensure that the existing road network cannot be made more attractive for cycling.

Where cycle tracks are provided there are a series of design solutions that can make them much more attractive than the on-road alternatives. These include:

- **Priority at junctions with side-roads (Design Portfolio B.02)** – giving cyclists priority reflects the general behaviour of cyclists and is more convenient. Design details for these important treatments need to be done with great care.
- **Priority or signal crossings of roads (Design Portfolio B.03)** – in some cases it will still be possible to provide priority for cycle tracks over roads using a humped crossing. In other cases a well designed signal
- **Providing priority on return to carriageway** – where a cycle track ends and the route continues on the carriageway it is important to ensure that a build-out shelters the entrance, allowing cyclists to rejoin the carriageway without yielding priority.
- **Ensuring all kerbs are flush (Design Portfolio B.06)** – even slight upstands in the cycle route can provide discomfort and danger to cyclists. Where cycle tracks cross side-roads, rejoin the carriageway or meet other facilities the two surfaces should be flush.
- **Quality of surface and maintenance (Design Portfolio C.06)** – the surface of cycle tracks must be maintained to a high standard. Extra maintenance of cycle tracks may be required to keep the surface swept clean.

Cycle parking (Design Portfolio C.04 – see also CTC/Sustrans cycle parking guide)

The introduction of good quality cycle parking is a key element in developing a cycle friendly environment. Cycle parking should be provided at all major destinations, including schools and other educational sites, hospitals, large employment sites, public transport interchanges and leisure attractions. Cycle parking is best when it is situated as close as possible to the destination. This preserves the advantage of cycling over alternative modes and is more likely to be visible.

Simple 'Sheffield' stands – an inverted U – are the simplest and best means of providing cycle parking, but care must be taken to ensure that there is adequate space between and around parking stands.

Standards for the provision of cycle parking at different types of developments should be included in local development documents. Example standards are cited in the Cycling England advice note.

Integration with public transport

One of the areas where cycle parking is most important is at public transport interchanges and stops. Parking for cycles at bus or light rail stops should be considered, especially in rural or suburban areas where catchment areas are large.

At railway stations, the lack of cycle parking can often be the main factor restricting levels of cycling. Increase in levels of secure cycle parking may require more innovative solutions, such as double-decker parking or 'cycle centres' – secure areas where large numbers of cycles can be stored together with repair and sales services.

Bikes parked at Bristol Temple Meads station

In addition to parking, access within and to railway stations needs careful consideration. Provision of lifts should ensure accessibility for cycles of all types. As an interim measure, wheeling ramps (Design Portfolio B.10) on shallow steps can improve accessibility within the station. Cycle networks should provide access to and from the station entrances.

Maintenance

Approximately 10% of cyclists' injuries result from road defects. In addition the discomfort from poor road surfaces or inadequately swept surfaces can be a major deterrent to cycling. Maintenance is particularly important with regard to cycle tracks (see above). Bringing the standard of the road surface up to high standard must be seen as a priority, especially where roads are used as priority cycle routes.

In rural areas care must be taken to ensure that maintenance of hedges does not result in debris left in the road, which can cause punctures.

6. Information, encouragement and opportunities to cycle

The value of measures to influence attitudes and awareness – often known as "smarter choices" – has gained considerable recognition in the last few years. Such measures include public awareness campaigns, school and workplace travel plans and individualized marketing. At the same time the Department for Transport and Cycling England have given wholehearted backing to the new Bikeability" national standard for cycle training, instigated by CTC around 10 years ago.

A Department for transport review of "smarter choices" measures found that they typically had benefit-to-cost ratios of around 10:1, representing exceptionally good value for money in terms of transport spending. A review for the Scottish Government found that "travel plans" (the term used in that report for "smarter choices" measures") found that they were also among the most cost-effective ways to reduce transport's carbon emissions.

Even more recently there has been growing interest in the use of "social marketing" techniques, where specific population groups are offered an opportunity to try out cycling, with supporting incentives and information, tailored to their needs and interests. For many groups who lack confidence in their bike handling ability, a chance to try out cycling in a local park or sports stadium is an excellent starting point. For others who are able to cycle but are wary of doing so in busy traffic, cycle training and the promotion of cycling through schools and workplaces can deliver very substantial increases in cycle use at remarkably low cost.

It is thus possible now to divide "smarter choices" measures into two broad groups:

Information, incentives and awareness campaigns:

- Advertising and promotional material
- Maps and online journey planners
- Individual travel marketing (e.g. Travelsmart)
- Incentive schemes

Opportunities to cycle:

- Cycle training
- School and workplace-based programmes e.g. BikeIt or Workplace Cycle Challenges
- Group or mass-participation bike rides
- Activities for specific groups: health referral patients, older people, women, ethnic minorities, all abilities cycling etc

Finally, schools and workplaces alike can adopt "travel plans", packages of measures to promote the use of sustainable and healthy travel modes. They focus mainly on behavioural measures of the types listed above, but can also include infrastructure provision such as cycle parking and access, lockers and changing facilities. We discuss these at the conclusion of this section.

Information, incentives and awareness campaign

a) Advertising and promotional material

A key rule in delivering effective promotional campaigns – whether on billboards, leaflets or media advertising – is to show a positive image of cycling. Cycling needs to be depicted as a desirable activity, open to people of all ages and backgrounds, where one

can look relaxed and happy in whatever clothes one would normally wear when out and about.

Case study: 'Catch up with the Bicycle'

Transport for London's (TfL) "Catch up with the Bicycle" summer advertising campaign from 2009 is an example of positive, effective marketing of cycling.

TfL propose the following guidelines for cycling promotion images:

- use attractive models (aspirational but not intimidating)
- range of bicycles (folding, Pashley-style, fixed gear, town bike)
- people wearing normal (non cycling-specific clothes) which are aspirational but not too high fashion
- feature clothes that can be used for a range of seasons i.e. not too obviously summer or winter (skirts with tights, jumpers and light scarves)
- mix of settings – parks, roads, urban environment
- have a mix of photos with and without helmets to side-step the usual debate – it's then clearly an individual choice

b) Cycle maps

Good cycle maps can encourage novice cyclists to explore routes away from main roads while they gain confidence. A Transport for London evaluation of their range of cycle maps found that they had been well received and had been highly cost-effective in encouraging new people to take up cycling.

However cycle maps need to indicate a comprehensive range of route options for the diverse journeys cyclists will want to make. Some local authorities and campaign groups have adopted the approach of showing not only dedicated cycle facilities but also grading the whole road network to show what level of confidence a cyclist needs to handle each road in the network.

The Cheltenham cycle map, compiled by volunteers from the Cheltenham Cycling Campaign, is a good example of the route-grading approach to cycle mapping: see www.cyclecheltenham.org.uk/map.html. Similar maps have been produced in Northampton, Kettering, Warrington, Gloucester and Stroud.

Extract from the Cheltenham Cycle Map

c) Online cycle journey planners

In response to the growing popularity of web-based information sources, two cycle journey planners are now been developed. One is being sponsored by Cycling England, involving extensive surveys of cyclable routes in particular towns – see www.dft.gov.uk/cyclingengland/encouraging-cycling/journey-planner/. Meanwhile CycleStreets (see www.cyclestreets.net), a not-for-profit social enterprise, has developed an algorithm-based journey planner which also includes a user-generated photo library, and the ability to create dedicated URLs for specific towns (e.g. http://cambridge.cyclestreets.net). When the journey planner plots a route, it also includes photos of what the user will see along the route – this helps them with route-finding and enables them to see the type of street environment they will encounter.

d) Individualised Travel Marketing (Smarter Choices Portfolio SM.02)

Individualised Travel Marketing (ITM, also known as Personalised Travel Planning, PTP) involves offering people tailor-made information to support them in choosing to walk, cycle and use public transport more often. Based on an initial contact (either by phone or on the doorstep) with individuals in the area covered, people are segmented into those who are already primarily using sustainable transport, those who are interested in making changes to the way they travel and those who are not. For many people in the middle group, providing them with a bus timetable or a cycle route map is enough to do the trick, highlighting possibilities they were unaware of or journey time savings they would not have expected. For others a fuller discussion of their travel patterns and some advice on how they could be met more easily by sustainable travel is required.

The best-known ITM scheme, Sustrans' "TravelSmart" programme, has proved extraordinarily cost-effective, achieving increases in cycle use of between 16%-67% in the towns where it was piloted, and has consistently reduced road traffic between 10 and 14%. A Department for Transport review of Personal Travel Planning initiatives have truly exceptional benefit-to-cost ratios averaging 7.6:1 (compared with 2:1 typical of most road schemes). At a cost of around £20 per household, Sustrans estimates that Travelsmart could be extended to a city the size of Birmingham for around £8million, typically about the cost of a quarter of a mile of motorway! For more information see www.sustrans.org.uk/travelsmart.

e) Incentives

There are a number of ways and specific schemes to incentivise cycling. These are aimed primarily (in some cases exclusively) on promoting work-related cycling, although some can be adopted in other contexts too.

- The recently launched 'Cycle to Work Guarantee' is a government scheme that sets out five measures which cycle friendly employers should aim to provide. These are:

  i. Secure, safe and accessible parking
  ii. Good quality changing and locker facilities
  iii. The 'Cycle to work' scheme – see below
  iv. Bike repair on or near workplace
  v. Cycle training and reward or incentive schemes

  So far 70 employers, both public and private, have signed up.

- HM Revenue and Customs allows a number of tax-deductable benefits to encourage cycling. The main one is the Cycle to work which allows employers to purchase cycles and cycle safety equipment, and lease them to their employees at a reduced rate, with both sides allowed to make savings against tax. The scheme has proved a very popular means of acquiring bikes for those in employment with many retailers now suggesting that it constitutes a major proportion of their sales.

- Other tax-deductable benefits include:

  i. Paying a cycle mileage rate of up to 20p per mile as a tax-deductable benefit. If the employer does not pay this or pays a lower rate, individual cyclists can claim the difference as a tax-deductable benefit.
  ii. Cyclists' breakfasts. These are an excellent way not only to motivate people to cycle but also to bring new and existing cyclists together socially. They also help novice cyclists in particular to overcome the feeling of "being alone out there", particularly in areas where cycle use is low.
  iii. Employers are able to reclaim the tax on the provision of showers and changing facilities to promote cycling.[8]

Opportunities to cycle

f) Cycle training (Smarter Choices Portfolio SM.08)

Quality cycle training (to the National Standard) enables people to cycle with confidence, helping them to ride safely and in a manner which also makes their intended manoeuvres clearly understood by other road users. It is offered for children under Cycling England's 'Bikeability' branding, which has supporting materials and presentation packs and badges for participants.

Unlike the previous "Cycle Proficiency" programme, the National Standard progresses through three levels, from basic control skills (typically learnt in the playground) through to having the confidence and skills to handle busy traffic and major junctions. It is therefore important to offer cycle training not just for children but also for teenagers (as they gain

[8] Full details on these tax benefits are available here: www.into.org.uk/uploads/HM%20Revenue%20and%20Customs%20IR%20176%20-%20Green%20Travel.htm

independence and start making longer journeys) and for adults who wish to enjoy the benefits of cycling but who first need to overcome their fears of doing so.

A study for Transport for London of the training offered to adults in London found strong evidence that training led to people cycling a lot more often, making longer journeys by bike and feeling more confident when doing so. Based on this research, a Cycling England evaluation of the cost effectiveness of different pro-cycling initiatives found that cycle training had a benefit to cost ratio of 7.4 :1, the highest figure of all the intervention types analysed.[9]

Programmes of cycle training and other cycling activities that actively involve parents, particularly mothers, can be effective in helping to encourage family cycling either for leisure or utility purposes. Cycle training can be incorporated into a 'package' of cycling activities such as after school clubs, bike maintenance courses or as part of a multi activity course in school holidays for example. This can be a more attractive way to offer training to older pupils of secondary school age.

Case Study: TravelWise, Merseyside

Research in to the effects of cycle training using a database of 30,000 children in Merseyside has found strong indications that cycle training led to an increase in cycling levels for both utility and leisure trips, both for the children themselves and their relatives.

The telephone survey generated 1,100 respondents and found a reported:

- 56% increase in family members cycling
- 37% increase in utility cycling amongst children
- 63% increase in leisure cycling amongst children
- 17% cycle regularly to school (1.2% in wider Merseyside)

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g) Workplace-based programmes: Cycle Challenges

Workplace Cycle Challenges aim to encourage people who hadn't cycled at all or very little in a long time to get on a bike and cycle to work or just hop on a bike for a period of time and enjoy themselves. Giving people a short positive cycling experience is a good first step to changing people's perceptions towards cycling and to encouraging them start cycling again. Challenges also encourage those people who are currently cycling recreationally to give cycling to work a go.

Case Study: Swindon Workplace Cycle Challenge

Swindon's Workplace Cycle Challenge was run over a two week period in July 2008. 41 organisations and 913 people took part. 306 of these participants either never usually cycle or only cycle once or twice a year. 5,283 trips and 49,190 miles were cycled over the two weeks of the Challenge with 3,540 of these trips being for transport purposes.

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h) School-based programmes: BikeIt

Bike It is a Sustrans-managed programme to promote cycling in schools. Bike It officers typically work with around 12 schools in their area, raising awareness among school staff, pupils and parents alike, leading discussion of cycling in school assemblies and in subjects like geography or PHSE, organising events and activities such as bike to school

[9] SQW, *Valuing the benefits of cycling: a report to Cycling England.* 2008

days, bike breakfasts and promoting cycle training. Bike It projects also feature incentives schemes and competitions between schools to see who can do the most cycling. Bike It regularly increases the number of pupils cycling every day to school to around 8%, typically a doubling (and in some cases a quadrupling) of cycle use before the start of the Bike It programme. The national average is around 1%. For more information see www.sustrans.org.uk/bikeit.

Case study: Furzefield Primary School, Reigate, BikeIt

The Virtual Bike Race is one of Sustrans most successful activities delivered as part of the BikeIt project. During a four week period in Spring 2009, 120 schools took part in a round the World challenge, generating 94,000 cycling journeys to school. Virtual Bike Racing is a great way of encouraging the whole school to start cycling, encouraging parents, teachers, and the wider school community to participate, whilst learning about the World and competing against schools across the country. Furzefield Primary School was the national race winner in 2008.

BikeIt, Furzefield Primary School

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j) Youth-based programmes: Bike Club

CTC has recently launched a series of Bike Club projects in conjunction with UK Youth and ContinYou (the national charities supporting youth clubs and extended schools respectively. Activities can include on and off road cycle training, cycle maintenance sessions, cycle festivals, competitions and challenges, tours and expeditions, BMX outings. See www.bikeclub.org.uk

k) Bike Week and other cycle festivals

Bike Week takes place annually in the 2nd week of June, and the EU-sponsored In Town Without My Car day is on 22nd September. Both are great opportunities for councils, employers, schools and local cycling groups to come together and create opportunities for would-be cyclists to give it a try.

l) Group or mass participation rides

Mass bike rides, such as the London Freewheel or Skyrides, allow individuals and families to give cycling a try in a large crowd with a festival atmosphere. The 2009 Mayor of London's Skyride attracted 65,000 participants.

m) Activities for specific groups in society

Voluntary sector bodies are activities for groups such as health sector patients relating to physical inactivity, women, teenage girls, people from ethnic minorities, young people at risk, and people with disabilities. These groups stand to gain significantly from taking up cycling, but for whom this involves overcoming specific cultural or practical barriers.

Many such projects – particularly those aimed at health patients, older people and people with disabilities – take the form of led rides, often in parks or sport stadiums, allowing newcomers to cycling to gain confidence in their ability to cycle. Other projects can involve cycle training and learning basic cycle mechanics. A number of bike-recycling projects have involved youth at risk or young offenders, giving them not only useful skills but in some cases a bike to keep at the end of the project, which they built up themselves.

Case study: Cycle Champions in Reading

CTC's Cycling Champions programme in Reading is being run in conjunction with Reading Borough Council. In just 8 months since the start of the programme the following initiatives have been launched, with over 300 direct beneficiaries gaining heath benefits from increased physical activity through their participation:

- *'Everybody Active' disability cycling group:* with funding from the Learning Disability Partnership board, a weekly disability cycling group is running at the Palmer Park Stadium in Reading. Two volunteers with learning disabilities are helping run the sessions. They become so well attended that extra sessions are now being arranged.
- *Alafia Cycle Club for black and minority ethnic women:* Alafia is a Reading-based charity which supports black and minority ethnic women caring for children and young people with disabilities. A weekly cycling club is attracting more and more new people each week keen to improve their health and fitness.
- *Cycling for health:* Weekly cycling to health sessions for health referral patients are being run in conjunction with a fully qualified health referral instructor who has been trained as a cycling instructor. The growing number of participants (include cardiac rehabilitation patients) get to use a variety of conventional or adapted cycles, and can ride at the Palmer Park Stadium or on a nearby cycle track.

Cycling for health at Palmer Park, Reading

Travel plans: residential, work, school, station

Written with input from the local and highway authorities, travel plans aim to ensure an integrated approach to promoting alternatives to the private car as a means of accessing the workplace, school or public transport interchange.

Often the travel plan will set out suggested measures to achieve a reduction in private car use and increases in sustainable modes. This can include: reduction for or charges in car parking, promotional activities and materials, incentives (see below), the provision of new infrastructure, such as cycle parking, showers or routes.

Local authorities can require a travel plan to be drawn up in association with development proposals to minimise the motor traffic (and associated adverse impacts) generated by the development. Local authorities need to set effective travel plan policies in their development frameworks, including suitable monitoring arrangements to ensure compliance, and mechanisms to strengthen travel plans themselves if their outcomes are not achieved.

Guidance on school, workplace and residential travel plans is available at www.dft.gov.uk/pgr/sustainable/travelplans/

Case study: Lancaster University Travel Plan

Lancaster University has done a lot to encourage and enable travel by bicycle since the introduction of its Travel Plan in 2004. A combination of 'carrot' and 'stick' measures has been crucial to the success of student cycling doubling in less than two years. A restrictive student car parking policy was introduced in 2006, along with new secure bicycle parking facilities in its residences and a well-used signed University cycle route into the city centre.

Overall, student car use dropped by 4.8% between February 2006 and November 2007, while cycling levels for those living off campus rose from 5% to 10%. 13% of staff cycle to work.

7. Resourcing the Plan

Levels of Investment in Cycling

If cycling is to increase to the levels seen on the Continent, then the resources allocated to the cycling sector will need to be substantially increased.

In major European cities with high levels of cycling, the average per capita investment in cycling infrastructure has been in the region of £2-3 per person (e.g. Berlin, Vienna, Copenhagen)[10], which is two to three times the level of investment seen in English towns in the past decade. Moreover, these higher levels of investment have been sustained over long periods – Holland, Denmark and Germany, for example, began large-scale investment in cycling in the 1970's and 1980's, and continue to do so.

It is difficult to compare the level of cycling investment in different locations because of differences in the way that budgets are defined, and also because many projects serve multiple purposes (e.g. road safety schemes, travel plans, transport interchanges, etc). With these limitations in mind, the past investment in cycling in the UK has nevertheless been very low. In the first round of LTPs, the average funds allocated specifically for cycling infrastructure was only £0.80 per person per annum.[11] This continued in the second round of LTPs – for example, in Greater Bristol the five-year LTP2 allocation to cycling infrastructure averaged only £1.05 per person per year. In Sheffield, the comparative figure was £0.84. In Merseyside, only £0.60 per person per year *(NOTE: this does not include investment in other schemes such as local safety schemes, town centre schemes, travel planning, etc.)*.

The places with the highest levels of cycling investment have been London and the recent Cycling Demonstration Towns. In London, TfL invested an average £22million per year in cycling in the period 2004/5 to 2009/10, [12] or roughly £3 per person per year – i.e. similar to European levels. In the 18 Cycling Demonstration Towns (including Bristol Cycling City), the three-year investment programme for 2008/9–2010/11 is approximately £100 million (including local match funding), which is approximately £13 per person per annum, [13] or sixteen times the average level of LTP2 investment in cycling.

Therefore the funds allocated directly to cycling in the next round of LTPs need to increase very substantially – say by a magnitude of three- to ten-fold, compared with previous LTP allocations. The following sections consider how this might be done.

How Might the Extra Cycling Funds be Spent?

The budgets for London and the Cycling Demonstration Towns give some indications about how increased cycling funds might be allocated.

In London, of the £131 million budgeted for TfL's Cycling Centre of Excellence over six years (2004/5-2010/11):

- 88% was for 'infrastructure' (both LCN+ and non-LCN+ cycle routes):

[10] TfL, Cycle Benchmarking Study, 2005 (Table 5).

[11] DfT, Long Term Process and Impact Evaluation of the Local Transport Plan Policy, Final Report (prepared by Atkins, PWC and Warwick Business School), June 2007, Table 4.1. *Note: the table shows total per capita investment over the five-year period of LTP1, for different modes.*

[12] Figures refer to the Cycling Centre for Excellence's budget, which includes LCN+, cycle training, greenways and cycle parking.

[13] Cycling England, Cycling City and Towns Programme Overview, May 2009, pages 5 and 7.

- 6.5% was for cycle parking;
- 5.5% for cycling training and promotion.

Clearly, cycling infrastructure was the main area of investment, and this is being repeated in the Cycling Demonstration Towns. Shrewsbury Cycling Town, for example, allocated its 3-year budget (2008-2011) as follows:

- 78% to cycling infrastructure;
- 5% for cycle parking and workplace facilities;
- 7% for cycling promotion;
- 3% for cycle training;
- 5.6% for project management and monitoring.[14]

Bristol Cycling City initially allocated 68% of its £26 million 3-year cycling plan to infrastructure, and a higher proportion (than elsewhere) to promotion – 17% for smarter choices and PR, and 11% to bike training. The remaining 4% was for project management and evaluation. [15]

Thus the pattern from the higher-spending local authorities is that the largest share of direct investment in cycling is for infrastructure, and usually the bigger the urban area, the higher the proportion on 'hard' measures, (as compared with 'soft' measures such as cycle training and promotion).

Value for Money

Economic evaluations commissioned by Cycling England show that investment in cycling produces very high returns. A recent study of both urban and rural situations found that £10,000 invested in cycling needs to generate just ONE extra cyclist over a 30-year period for the monetised benefits to equal the costs. In other words, if £1million is invested in a cycling project, then it needs to generate only an additional 100 cyclists (full-time over a 30 year period) for the project to pay for itself; and if more are generated, then the project is in surplus. [16]

Other studies have calculated the return on investment from different types of cycling project. **Cycle training** appears to have the highest benefit-cost ratios: a case study of cycle training in London (all ages) funded by TfL found that the overall BCR (Benefit-Cost Ratio) was 7.44, which is very high indeed.[17]

Cycling infrastructure investment also produces very high rates of return. An assessment of the London Cycle Network+ programme gave it an overall BCR of 3.94, which is excellent for a transport project. This can be compared with government guidance on the evaluation of major projects, which says that a '*medium*' value-for-money project will have a BCR between 1.5 and 2, and a '*high*' value-for money project a BCR of at least 2.

In other words, cycling investment – if done properly – is one of the most cost-effective forms of transport investment available. [18]

[14] Shropshire County Council, Shrewsbury Cycle Town, Draft Delivery Strategy (2008-2011), page 14
[15] Greater Bristol Cycling City, The Delivery Strategy (2008-2011), Feb 2009, page 4 . Note: the proportions have since been modified, with infrastructure now accounting for slightly less (63%) of the total budget.
[16] SQW Consulting, 'Planning for Cycling: A Report to Cycling England', December 2008 (page 5)
[17] SQW Consulting, 'Valuing the Benefits of Cycling: A Report to Cycling England', May 2007 (page 73)

[18] As further evidence of the cost-effectiveness of cycling investment, the BCR of road safety schemes in the first round of LTPs was estimated at about 2 – see DfT, Long Term Process and Impact Evaluation of the

Funding Sources for Cycling (Cycling England guidance)

In the past, funds for cycling have come from a bewildering variety of sources. The main source of capital funds has been the LTP block allocation, followed by:

- Developer funding (e.g. Section 106 and 278 developer contributions)
- Regeneration budgets
- EU regional development funds (Objective 1 grants)
- Lottery funds
- and many other sources.

Revenue funds have also come from many different sources.

Non-LTP funds have been a significant proportion of the cycling budget – for example, in Sheffield's LTP2 cycling strategy, about 45% of the 5-year programme was funded by developer contributions and regeneration funds. In England overall, a study of the total funds for LTP1's found that about 38% of local authority expenditure on Integrated Transport and Maintenance came from external (i.e. non-LTP) sources.[19]

The diversity of funding sources has not helped the planning of cycling programmes. Firstly, non-LTP sources have tended to be irregular, and without continuity it is hard to plan a long-term programme. Secondly, the multiple sources of funds have taken up a lot of officer time in securing and managing the funds. Thirdly, and the late (or non-) arrival of funds has also caused delays (*see Colliers' Way example*). Fourthly, some officers are not aware of all of the different sources, hence some funding opportunities may have been missed.

Case Study: 'The Colliers' Way' Project, Somerset

The Colliers' Way is part of Route 24 of the National Cycle Network, and extends for 19 miles from near Bath to Frome. The route follows a disused railway and quiet country lanes, and is being implemented by B&NES, Somerset County Council, Mendip District Council, Sustrans and other partners. Funding of £2million was secured from 25 different funding sources, ranging in size from £250 to £250,000. The diversity and complexity of funding sources has had some negative effects, including:

- Large amount of effort needed to prepare funding applications;
- Delays with individual funding components;
- Funding shortfalls have led to funds being 'stretched' to complete the scheme, resulting in lower quality in some cases and higher long-term maintenance costs;
- Uncertainty about revenue funding for maintaining the route.

Source: Local Transport Funding Toolkit for Local Authorities, TRL Report PPR 326, via DISTILLATE, Project E: http://www.distillate.ac.uk/outputs/products.php

Increasing the Funds for Cycling

Local Transport Plan Policy, Final Report (prepared by Atkins, PWC and Warwick Business School), June 2007, Pages10-2 and 3.

[19] Ibid, Footnote 24. (Note: this estimate was based on returns from 31 local authorities, and should be used with caution).

In future, the funding arrangements for cycling may be less complicated, with the new block allocations to local authorities. On the other hand, the current economic uncertainties may mean less funding are available. How can local authorities increase the funds for cycling in their LTPs? Possible approaches might include:

- **Shift some of the investment from road schemes to cycling and sustainable transport.** For example, in the five years of LTP1, £1 billion of capital funds was spent on local and major road schemes (not including road maintenance, safety and traffic management). This was 21 times the capital investment in walking, cycling and road crossing schemes. A slight reduction in road spending (say, reducing the ratio to 20:1) would have released £50 million for cycling and walking, and doubled the funds available for the sustainable modes. [20]

- **Dedicate a fixed percentage of major projects specifically to cycling.** An example is the Bath Package, currently being implemented by Bath and North East Somerset Council (B&NES). This involves £54mill. for Park & Ride and other bus improvements. The funding for the bus project is 1,000 times greater than the funds allocated for cycling. If just 5% of the package was specifically earmarked for complementary cycling improvements (such as feeder routes, integrated facilities, etc.), the city-wide funds for cycling would be increased ten-fold.

- **Develop a major scheme bid specifically for cycling.** 'Major schemes' are those costing more than £5 million. In previous LTPs, major schemes accounted for about one-quarter of LTP capital funds, and half of these were for local road projects and another one-third for public transport projects. No local authority has yet considered developing a cycling package for a 'major scheme' bid, but why not? The benefits could be far greater (than with previous major schemes).

- **Mobilise other government funding streams** – for example health, education and rail network improvements all involve massive funding programmes. Cycling supports many of these organisations' aims and objectives, and could be more directly supported by them.

- **Developer funding:** The above sections have shown the importance of developer funding. These could be increased (see Horley, for example, where every dwelling in a 2,600 housing expansion is providing £18,728 in Section 106 and Section 278 development contributions towards major bus improvements – i.e. about £49 million in total). [21]

- Developer contributions could also be pooled, and applied over a wider area. Gloucestershire's LTP2 Cycling Strategy states, for example, that: "Planning design, and Section 106 contributions, should provide for cycle access directly to and from the site being developed and also for cycle route infrastructure up to 5km radius of the site." (2006, Section 3.2).

Conclusions: Boosting the Funds for Cycling:

There are many other sources of funding for cycling, both existing and potentially new. Hence while the overall financial outlook may be tight, there is no reason why cycle funding could not be increased substantially and very swiftly. Furthermore, increased investment in cycling will help to develop its own momentum, both attracting new sources

[20] 'Long Term Process and Impact Evaluation of LTP1', Fig. 4.3

[21] 'Local Transport Funding Toolkit for Local Authorities', at http://www.distillate.ac.uk/projects/project-e.php

of funds, and by galvanising private sector and voluntary efforts. The latter are now considered in the next section.

8. Organisational Arrangements to Deliver an Increase in Cycling

Local Authority Cycling Teams

To support a major increase in cycling, local highway authorities in England will need to radically overhaul and strengthen their organisational and staffing arrangements.

London provides some useful lessons. Soon after TfL was established in 2000, a dedicated Cycling, Walking and Accessibility team was established with approximately 30 staff to implement programmes and provide technical support to TfL and the Boroughs. In addition, a separate project management team of 12 cycling specialists was set up to co-ordinate the implementation of the London Cycle Network+.

While London's strategic cycling capabilities were strengthened, the same did not happen at the Borough level. A review by the London Assembly in 2005 noted significant local staff shortages for implementing the LCN+. [22] Borough officers commented that senior officers and elected councillors were often not interested in cycling schemes – many still regarded cycling as a marginal activity.

> "There is a big gap between the policy of increasing cycling levels and the reality of implementation. The reality is that cycling still comes bottom of priorities when trying to implement a scheme. Capacity for private cars, bus journey times, car parking, 'expeditious movement of motor traffic', the Traffic Management Act, local car access for residents are all allowed to take prominence over the needs of cyclists on the LCN+. When this is combined with traffic engineers and management who have little interest in cycling, it becomes impossible to put in a decent cycle scheme." *(London Assembly Transport Committee, 2005, Section 4.18).*

Hence in most Boroughs, only a few staff were allocated to cycling programmes, and sometimes just a single officer (usually the cycling officer). Consequently, some Boroughs experienced difficulty in spending all of their cycling funding. To tackle this, the London Assembly study recommended that TfL should appoint a senior manager to 'champion' the LCN+ and cycling generally. Cycling England also recommend this approach, advocating:

- That all local authorities should appoint a 'Member Champion' for cycling, who will take the lead in promoting all aspects of cycling within the authority;
- That one or more senior officers should be nominated to support the Member Champion in this role.

Cycling England offers a funded toolkit to support Member Champions (see http://www.dft.gov.uk/cyclingengland/encouraging-cycling/member-support/), and also free technical support [23] to local authorities (and other public bodies) in all aspects of cycling development – policy making, infrastructure design, soft measures, funding sources, etc. - see http://www.dft.gov.uk/cyclingengland/encouraging-cycling/professional-support/

[22] London Assembly Transport Committee, The London Cycle Network, Nov. 2005, Section 4.22

[23] The free technical support can be up to several days' input from Cycling England's professional support team.

London's LCN+ programme is now coming to an end, (though much of the 900km network is still incomplete, particularly the more difficult sections). Nonetheless, the LCN+ provides important lessons for other local authorities, particularly:

- The need to allocate significantly more staff for cycling programmes (both for infrastructure and soft measures);

- The need to raise the understanding, motivation and technical capability of the wider local authority staff for cycling – through training, site visits, involvement in cycle audits, and so on;

- The need, particularly in larger urban areas, for strategic co-ordination of cycling programmes. The major conurbations (Manchester, Merseyside, South Yorkshire, West Midlands, Tyneside, Southampton and others) should follow London and Bristol's lead and establish strategic cycling teams to guide the cycling progammes in their areas.

At present, some local authorities have only a single cycling officer to manage their cycling programmes, and others have none, taking the view that staff will look after cycling requirements in their general work. This approach has several drawbacks: (i) no-one is specific responsible for cycling; (ii) responsibilities become divided between different teams; (iii) cycling is downgraded to a less important sub-component of other schemes.

If local authorities really wish to boost cycling, they must match increased funding with increased staff and a higher profile – with a Member taking on the role of 'champion', a senior officer taking direct responsibility for cycling, and a dedicated team to support them.

Harnessing the Voluntary and NGO Sector

The voluntary and NGO sector can do a lot to boost cycling in the local authority's area. Individuals and organisations such as CTC, the Cycling Campaigns, Sustrans, and others can assist particularly with:

- Planning the strategies and programmes for cycling;
- Commenting on new cycling infrastructure proposals;
- Promoting cycling (for example, organising promotional events and bike rides, distributing information, etc.);
- Delivering training programmes – at schools, clubs and workplaces;
- Encouraging people to cycle to work (through workplace travel plans and Bicycle User Groups);
- Organising cycling sports;
- Helping disadvantaged groups to take up cycling.

The voluntary sector's effort may be purely voluntary, or grant-supported for specific projects.

Planning and Design of Cycling Infrastructure: One of the LCN+'s most innovative features was the degree of stakeholder participation. Cycle route inspections were conducted jointly by officers and cyclists for the whole 900km network. Also, questionnaires were sent to many stakeholders – councillors, schools, colleges, major employers, town centre managers, and also transport agencies and the emergency services. As a result the adopted routes usually reflected cyclists' preferences, and proposals were generally (though not always) of a higher quality.

- Local highway authorities should therefore involve stakeholders directly in the planning and development of schemes, adapting the London 'CRISP approach' [24] to local circumstances.

A cycle route inspection in London for the LCN+ (Photo courtesy of LCN+)

Interactive Websites: Another method of harnessing local knowledge, recently adopted by Bristol City Council, is an interactive website that enables people to propose cycling improvements at specific locations. These might be minor improvements such as a central refuge (for safer right turns), or a cycle contra-flow, or requests for cycle parking. Bristol's website is at http://www.bristolstreets.co.uk, and contains information on cycle routes, cycle parking, bus routes, road repairs, open spaces, and other subjects. Since it was launched in 2008 some 2,000 cycling-related comments have been posted. These include some useful suggestions, but staff time (for analysing the results) appears to be the main limiting factor at present.

Cycle Forums (or fora): These exist in many places across England, particularly in the larger urban areas. In Devon, for example, cycle forums currently operate in Exeter, Plymouth, Torbay, and Barnstaple (plus a cycle group in Newton Abbot). The Exeter Cycle Forum is open to all, and meets every two months. The main participants are from the highway authority, city council, Cycle Exeter team, local cycling campaigners, and local large employers. The Forum acts as a channel of communication on cycling issues between the various bodies represented on the Forum; makes suggestions on the future of cycling in the area; and comments on specific proposals affecting cycling.

Cycle forums allow a two-way flow of information, and are important for developing cycling in a local area. Yet surprisingly many towns in England still do not have them. This may reflect a (low) level of priority given to cycling by the local authority.

- Local highway authorities should establish and support cycle forums in each town in their area, (or local transport forums, if there is insufficient demand for a cycle forum);

- County councils and large conurbations should also establish an overarching cycling forum for their area, to consider strategic cycling issues affecting the whole area.

[24] CRISP = Cycle Route Inspection and Stakeholder Plan. This approach was adopted for developing proposals for all routes on the LCN+. See http://www.londoncyclenetwork.org.uk/ (CRISP Documentation)

9. Evaluation and Monitoring

The new LTP3 guidance emphasises that good monitoring is an integral part of the LTP programme. On the other hand, the requirements to monitor cycling are now largely voluntary, and it remains to be seen how local authorities will respond to the guidance.

Up till now, the main methods of monitoring cycling in a local authority's area have been:

- Annual traffic counts on selected roads (which are aggregated into an overall annual index for the local authority area – known as performance indicator LTP3, Index of Cycle Flows);
- Surveys of mode of travel to schools, as part of the school travel planning process. (This indicator remains as one of the 10 National Indicators relating to transport);
- Road casualties, by type – (this indicator also remains among the 10 National Indicators relating to transport);
- Mode of travel to work – this indicator is obtained from the national census, but is only updated every 10 years.

In addition, local authorities sometimes carry out a variety of other monitoring relating to cycling – for example, monitoring town centre traffic schemes, before and after surveys for specific cycle schemes, and so on.

Recent studies have found wide variations between local authorities in the quality and reliability of their cycling monitoring data. (See, for example, Cycling England's 'Essex CC: Cycle Monitoring Best Practice Case Study', 2007, at: http://www.dft.gov.uk/cyclingengland/encouraging-cycling/monitoring-evaluation/)

In future, if local authorities really want to boost cycling in their areas, they will need to devote more attention and significant resources to strengthening their cycling monitoring systems, and harmonising their approaches with other local authorities and nationally. It is instructive that the cycling demonstration towns have allocated around 5% of their (much increased) cycling budgets to 'project management and monitoring'.

Other useful references (for monitoring): see DISTILLATE programme C3, at: http://www.distillate.ac.uk/outputs/Deliverable%20C3%20v9.pdf