

2.1 Introduction

2.1.1

This chapter sets out the procedures and processes over the lifecycle of a scheme. It covers all schemes that may affect cyclists:

- LCN+ schemes;
- Other schemes specifically aimed at improving conditions for cyclists; and
- Infrastructure improvements where the primary purpose is to assist one or more other transport modes, but where cyclists may be affected.

2.1.2

Although this chapter is mainly focused on the first of these, LCN+ schemes, the principles will be equally applicable to other schemes aimed at improving conditions for cyclists.

2.1.3

TfL commissioned in 2004 a review of procedures⁷ for providing for cyclists. This has confirmed the importance of a documentation standard to enable a clear audit trail by which objectives, investment priorities, consultation feedback and design decisions can be communicated and subsequently reviewed and evaluated. All this forms an integral part of the quality assurance framework within which work is undertaken, reflecting the designer's professional duty of care.

⁷ TRL report "Review of procedures associated with the development and delivery of measures designed to improve safety and convenience for cyclists"

2.1.4

It is recognised that individual authorities may have their own terminology, standards, and procedures for streetscape, committee approvals and project management. Specific procedures will vary according to the type and size of scheme. Whatever the policy or investment programme motivator, responsibility for the design of and individual schemes on streets rests with the highway/traffic authority.

2.2 Stages of a scheme

2.2.1

The progress of a scheme will normally follow the following stages:

- Objective setting
- Brief
- Overall route selection (or confirmation of earlier choice)
- Feasibility study and development of options
- Preliminary and detailed design
- Implementation
- Monitoring that maintenance is being carried out

2.2.2

Consultation, approvals, checks and audits will be incorporated within this framework.

2.2.3

The core elements of the process apply to all schemes. For LCN+ schemes, a specific consultation and feasibility study procedure has been developed known as the “CRISP” process – the Cycle Route Implementation and Stakeholder Plan. This is described in section 2.3 below.

Objective setting

2.2.4

Every scheme should have objectives that are described in terms of expected outcomes. For a scheme whose main purpose is to help cyclists, a suitable primary objective might be:

“To contribute to growth (80% targets) by removing barriers, maintaining or improving existing (acceptable) conditions and, wherever possible, providing increased priority and incentive to choose cycling.”

2.2.5

Objectives need to recognise the intended outcomes for other modes besides cycling. Similarly, the objectives set for schemes whose main purpose is to assist other modes (e.g. buses) should include an intended outcome for cyclists.

2.2.6

Note that implementation of a cycle facility is generally just one option for encouraging cycling. It is not a cycling objective.

2.2.7

It is important at each critical point in a scheme’s development to document ultimate objectives including the specific barriers that will be removed or mitigated, to communicate them to all parties involved in a scheme, to revisit objectives at specified points to ensure that they are still relevant, and to monitor outcomes against objectives.

Brief

2.2.8

Briefs are used to define the scope of the studies and other work to be carried out by consultants or by the highway/traffic authority in-house. They can also be useful, in an abbreviated ‘objectives’ form, to highlight the key issues and guide the work. They are the natural starting point to ensure that cycling is adequately considered within any scheme.

2.2.9

In broad terms all schemes should involve an assessment of existing conditions from a cycling perspective to identify current routes, main movements and specific barriers and problems, as well as scope to offer cyclists increased advantage. All schemes should contribute positively to London Cycle Action Plan (LCAP) objectives.

2.2.10

A generic brief has been produced by CCE for the CRISP feasibility study used for LCN+ schemes. A similar but simplified brief is appropriate for other schemes, and to cover the various stages of work.

Route selection or confirmation

2.2.11

Route selection is a critical stage in the provision of a cycle route or facility. An overview needs to be taken of cyclists' desire lines, including the generators and destinations of cycling. Alternative routes may need to be considered, ensuring that the route will meet the criteria of fast, safe and comfortable. What at first sight may appear to be the best route alignment may not be when gradients, traffic signals, traffic and other factors are considered.

2.2.12

On the LCN+ network, the route corridors have been agreed but there is still a need to check and confirm that the best alignment has been chosen. Particular care is required where a route crosses the boundary between two boroughs. The overall route needs to be chosen without reference to administrative boundaries. Once this has been chosen, the point at which the route enters and leaves each borough will have been defined, but this should not be taken as a rigid constraint if subsequent work shows that a different border crossing point would be more sensible.

Feasibility study and development of options

2.2.13

The next design step will normally be a feasibility study of a length of route or junction. This is covered in a later section of this chapter.

Preliminary and detailed design

2.2.14

Preliminary and detailed design should then be carried out in accordance with Chapters 3 to 8 of this document. This will need to include the necessary approvals and audits at the various stages.

Implementation

2.2.15

In order to implement a scheme, it may be necessary to use one or more of the statutory powers given to highway authorities to enable them to fulfil their responsibilities. A summary of the more relevant powers is given in a later section of this chapter.

2.2.16

The appropriate contract procedures as set down by the highway authority will need to be followed.

Monitoring maintenance

2.2.17

Finally, it is essential that the completed scheme be monitored to check that it is meeting its objectives. Maintenance of the running surface is especially important for cyclists. If this is inadequate, cyclists are likely to stop using the facility and may give up cycling as a result

2.2.18

It is easiest to apportion responsibility for poor maintenance and reinstatement of statutory undertakers' work if these are dealt with as soon as they occur.

2.2.19

The foregoing principles are included in figure 2.1 which sets out the key stages in the progress of a cycle scheme from route identification to construction and subsequent monitoring. The diagram is shown for an LCN+ scheme but many of the procedures are relevant to other highway schemes.

2.3 Consultation and the Cycle Route Implementation and Stakeholder Plan (CRISP)

2.3.1

CCE has introduced a new consultation process for LCN+ routes. This Cycle Route Implementation and Stakeholder Plan (CRISP) has evolved in collaboration with key stakeholders.

2.3.2

CCE have issued a generic brief for a CRISP study to all boroughs and TfL Area Teams for their use. It is also available on the LCN website.

2.3.3

A CRISP Study is an enhanced feasibility study of a Link that will support boroughs in scheme planning, programming, design and implementation. A key element of the study is the involvement of local stakeholders.

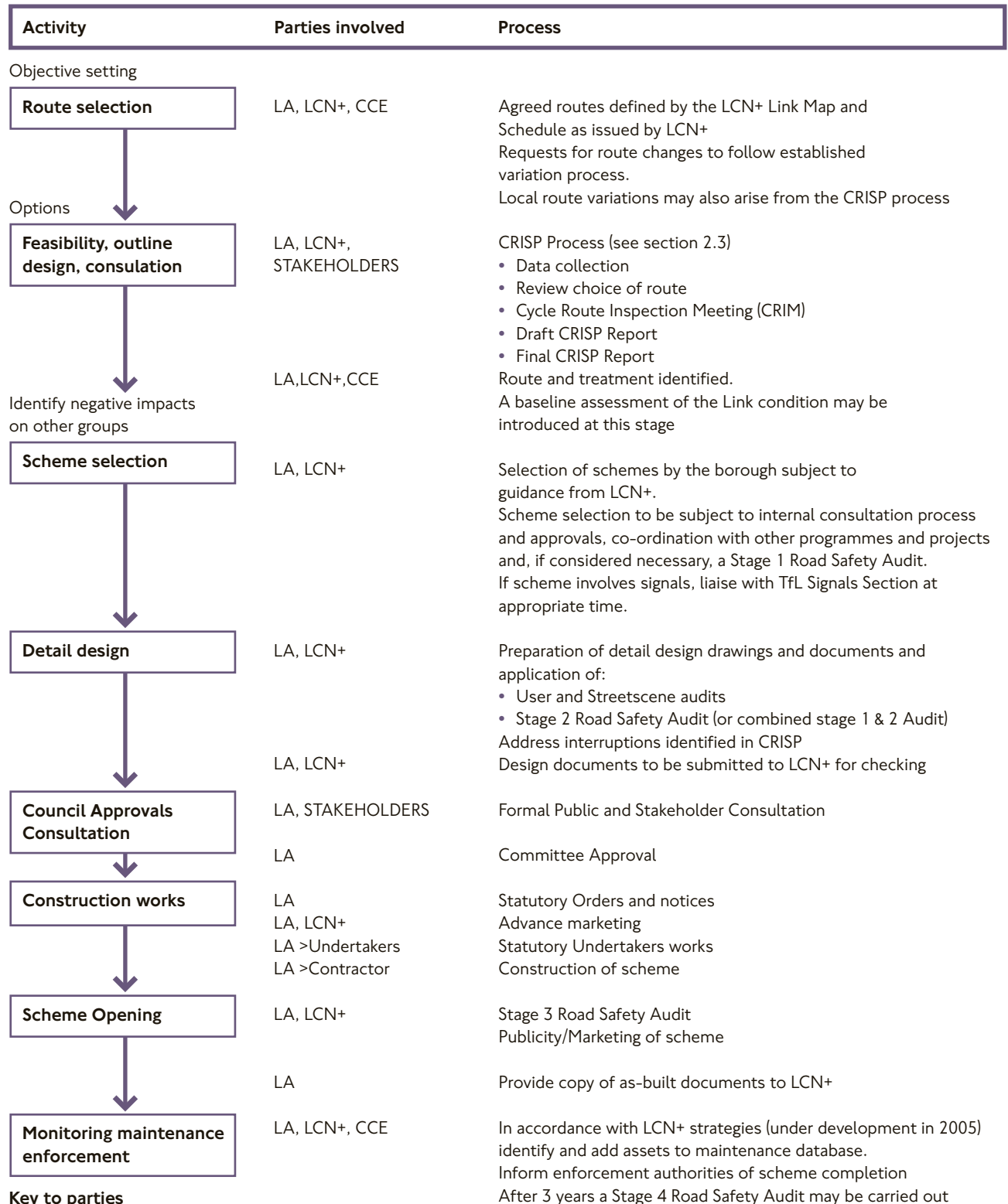
2.3.4

The LCN+ Link Map and Schedule identifies each of the approximately 240 Links on the network, in each local authority. Each Link runs from borough boundary to borough boundary (or terminates within a borough).

2.3.5

CRISP studies should be commissioned by the authority that controls the majority length of the Link. In most cases this will be the borough, but in some cases will be the relevant TfL Area Team. The commissioning authority will play a key role in the study.

Figure 2.1
Illustrative stage diagram for LCN+ scheme on borough road



Key to parties

LA – Local Authority

CCE – Cycling Centre of Excellence

LCN+ – London Borough of Camden LCN+ Project Management team

STAKEHOLDER – These are identified in the CRISP process

The schemes processes identified above might require a number of iterations, depending on whether schemes are accepted or rejected

2.3.6

To make the process as efficient as possible consideration should be given to “bundling” Links together for a CRISP study, particularly where they are connected or where one Link is very short.

The CRISP approach

2.3.7

The following are the key elements of the CRISP approach

- An emphasis on identifying existing problems, local needs and local and strategic constraints and ensuring they are addressed
- Stakeholder involvement at an early stage to identify and agree issues of concern and risks to delivery. This will encourage group ownership of the Link and the report recommendations.
- The setting out of a consistent and structured approach to the study
- Addressing access on and off the Link as well as the Link itself
- Providing drawings showing key information at an adequate scale, and printed in colour where necessary to make the drawing comprehensible.
- Providing a justification for scheme funding
- Encourage continuity of programming which will in turn make the case for future TfL funding of good schemes

2.3.8

Using information gathered and with reference to this document, the CRISP study will set out preferred treatment options that will provide fast, safe and comfortable conditions on the Link. The need for further consultation or modelling e.g. with signals, buses or network management should be identified. An outline appraisal for each option and a timetable and budget cost estimate for the preferred option is expected. This output should be used by the commissioning authority to plan schemes for inclusion in their future programme.

Who are the Stakeholders?

2.3.9

Stakeholder support is important for schemes to be successful and can be achieved partially by catering for their interests, and partially by keeping them informed of issues that affect their interests. Stakeholders will include:

- Borough and TfL Stakeholders;
- Local employers and other generators (or potential generators) of significant cyclist movement, such as higher education establishments and hospitals;
- Cycling organisations;
- Developers or landowners whose land may be affected and/or who may be asked to contribute to scheme funding.



Stakeholders are invited to participate in the Cycle Route Inspection Meeting.

2.3.10

For borough cycling schemes, Councillors and local authority senior officers are key “approving stakeholders”, as they can determine:

- whether schemes are considered at all by borough officers
- where schemes rank in terms of priority with other work
- approving how schemes are funded
- approving bids for funding from other agencies
- approving scope of work, outline plan timings, and consultations
- final designs

2.3.11

In many boroughs these aspects are formalised through council committee or panel processes. One constraint this imposes is that there are a limited number of committee meeting dates each year when schemes are considered. In some boroughs, meetings are held at six weeks intervals or more, with lead-in times for scheme reports to be on the agenda as long as three weeks.

2.3.12

If approval is needed several times, (for example, financial approval, start approval, reporting results of consultation on design, and final design approval), progress and timing of the stages of scheme development may be constrained by committee meeting dates. When approval is not granted at a meeting, delay may be more than one meeting interval.

2.3.13

In these circumstances stakeholder management includes planning for production of reports, diagrams, and other material to be available before these dates, and possibly to have staff with expertise in cycling scheduled to attend well in advance.

2.3.14

Separate briefings for Councillors and senior managers can also be useful to gauge support for a scheme, particularly before a report is presented at a public committee meeting.

2.3.15

It is recommended that “approving stakeholders” are identified early in scheme development, normally before a CRISP or feasibility study is performed. When preparing a scheme programme, communication plans for each approving stakeholder group can be developed.

2.3.16

Although the borough will normally be the most influential stakeholder, the need for early involvement of other stakeholders is important. These may include occupiers or future occupiers of nearby developments for which a green travel plan has been prepared, which may include obligations on the developer to promote the use of cycling. Stakeholders of this kind can bring a useful degree of focus to the process.

CRISP process detail

2.3.17

The detailed requirements for the CRISP process are explained in the latest version of the CRISP brief. In summary, the CRISP process has four stages or milestones:

Stage 1 – Existing information gathering and dissemination to CRIM invitees

Stage 2 – Cycle Route Inspection Meeting (CRIM)

Stage 3 – Prepare and Issue Draft CRISP report

Stage 4 – Prepare and Issue Final CRISP report

2.3.18

Stage 1 of the CRISP process will include:

- Prepare and issue questionnaires to appropriate stakeholders identified by the commissioning authority
- Collate existing information on conditions on a Link, with relevant data provided by the commissioning authority (e.g. relevant correspondence, reports, traffic and cycle flows etc.). Identify opportunities for growth of cycling and removal of specific barriers to cycling
- Collect available data on motor traffic and cycle flows and identify significant movements. This will mainly be existing information, not obtained from new surveys.
- Divide the Link into Sections of similar characteristics – this is mainly to enable a consistent approach to recommended solutions for similar situations on a Link.
- Compile this information into a report for issue to CRIM invitees in advance of the CRIM. This will form an appendix to the eventual CRISP report.
- Mapping used in the report must be of an appropriate scale, and must be printed in colour when this is necessary to make the information understandable. For overall route planning and the explanation of how the particular overall route choice has been made, the base maps will normally be an extract from the relevant London Cycle Guide, together with an Ordnance Survey map at 1:2500 or 1:5000 scale covering a sufficiently wide area that the route can be seen in the context of cyclist generators away from the route. For collation of local information, Ordnance Survey 1:2500 mapping will usually be appropriate, again with a sufficiently wide area of coverage and showing all LCG routes. The use of vertical air photos may also assist comprehension.

2.3.19

Stage 2 of the CRISP process will include:

- Hold the Cycle Route Inspection Meeting with stakeholders (CRIM) - this is a route inspection on foot or bicycle
- Issue a summary of the CRIM within 14 days

2.3.20

Stage 3 of the CRISP process will include:

- Using information obtained in Stages 1 and 2, review problems and constraints and set out options and recommendations in conjunction with the authority, CCE and other stakeholders as appropriate
- Prepare and issue draft CRISP report to CRIM stakeholders for comment

2.3.21

Stage 4 of the CRISP process will include:

- Update Draft report based on comments from stakeholders
- Issue Final report to stakeholders

The importance of consultation

2.3.22

Once a need for change has been identified it is important to consult internally on LCN+ and other cycling schemes at the earliest stage, and to identify local external stakeholders and keep them fully informed. A list of neighbouring destinations that may have a specific interest in cycling such as town centres, schools, interchanges, hospitals should be identified and included in the project plan.



Hospitals such as the Chelsea and Westminster can be major generators of cycle movements

2.3.23

For non-cycling schemes likely to affect high or medium impact cycling routes, the local authority's team responsible for cycling should be consulted and informed of the proposals.

The local authority's team responsible for cycling should be consulted and informed of proposals for non-cycling schemes likely to affect high or medium impact cycling routes

2.4 Feasibility, identification and assessment of options

2.4.1

The first design step after settling the brief is normally a feasibility study of a length of route or junction. This forms part of the CRISP process.

2.4.2

The functions of the highway, its capacity and the different needs of cyclists, road users and frontagers need to be taken into account in the development of a scheme. Figure 2.2 (based on the CRISP Brief for LCN+ Links) defines the existing characteristics that will influence the choice of route and treatment, and which should be recorded at this stage in the study. This should be taken as a checklist rather than a definitive requirement. Not all factors on the list will apply to all schemes, and other factors may be relevant on certain schemes.

Figure 2.2
Current characteristics
of link

<p>Cyclists</p> <ul style="list-style-type: none"> • Cycle routes, flows and main movements • Accident statistics • Complaints and comments 	<p>Traffic kerbside and island amenity</p> <ul style="list-style-type: none"> • Parking/loading • Bus stops • Frontage access • Islands
<p>Available widths</p> <ul style="list-style-type: none"> • Carriageway • Footway • Other 	<p>Pedestrian amenity and activity</p> <ul style="list-style-type: none"> • Conflicting pedestrian/vehicle movements at junctions
<p>Major barriers/severance</p> <ul style="list-style-type: none"> • Waterways • Railways • Major roads • Large contiguous landholdings 	<p>24 hour access</p> <ul style="list-style-type: none"> • Timed closures
<p>Traffic operations</p> <ul style="list-style-type: none"> • Volume, Speed, Mix • Capacity • Turning movements • Junctions/conflicting vehicle movements 	<p>Legal restrictions</p> <ul style="list-style-type: none"> • Traffic orders • Land ownership • Conservation areas
	<p>New developments and other schemes</p> <ul style="list-style-type: none"> • Changes to physical layout • New or removed generators of cycle movement

2.4.3

These factors are described in more detail below. Each of these existing characteristics should be considered during the development of outline scheme designs and strategies identified to address them. Many of the characteristics are closely inter-linked and the suggested treatments are often complementary. It is important not to follow a pre-conceived idea of an appropriate solution without considering each of these characteristics.

Cyclists

2.4.4

All scheme designs should take into account existing cycle routes, as shown on the London Cycle Guides, and main cycle movements.

2.4.5

It is essential that schemes are designed to cater for growth. Prediction of this may be difficult where completely new routes or developments are planned. Planned and potential cycle trip generators should be considered, with an assumption of providing for cycling as a transport mode that is being encouraged. The expected cycle use arising from new development needs to be co-ordinated with the cycle parking that the developer is required to provide.

2.4.6

Cyclists' accident statistics should be investigated. All schemes should ensure that at locations where there is a history of accidents to cyclists that the causes of these are considered and addressed in scheme design.

2.4.7

Correspondence and complaints from cyclists or others that identify problems and could influence the proposals should be taken into account

Available widths

2.4.8

Situations may arise where provision for cyclists (and possibly other users such as buses) to address existing conditions on a route cannot satisfactorily be provided within the space available. In this context "space" could mean kerb-to-kerb distance or availability of highway land.

2.4.9

Possible solutions to these issues include relocation of function, re-alignment of kerbs, removal of obstructions and land acquisition with building demolition if necessary. The latter solution is not expected to be used frequently but where it is identified as a need, authorities should ensure it is incorporated into planning and development briefs.

Major barriers/severance

2.4.10

Obvious major barriers to cyclists can include major roads, railways or waterways that are currently impossible to cross, or require a long deviation to cross. Crossing provision, with appropriate access should be considered, which might range from a new bridge to, where this cannot be justified on cost grounds, the provision of cycle channels alongside steps leading to a footbridge. For major roads, new surface level crossings should be considered.

2.4.11

Less obvious but equally important barriers can exist where large contiguous areas of development create areas through which cyclists cannot penetrate. Large parks and pedestrianised areas without provision for cycle access can have a similar effect, and increase cycling distances significantly. Options for obtaining cycle access across such areas need to be investigated.



A cycle ramp alongside steps can make them easier to climb

2.4.12

Finally, there are those common highway infrastructure barriers such as large roundabouts and one-way streets referred to in section 1.1.

Traffic operations

2.4.13

The volume of motorised traffic has a major influence on the feasibility and attractiveness of an on-carriageway route for cyclists due to:

- Perceived and actual levels of collision risk
- Congestion
- Poor air quality due to exhaust emissions
- Dirt and spray in wet conditions
- Noise

2.4.14

Where peak period vehicle flows are considered to be such that cycling is unsafe or uncomfortable, consideration should first be given to whether a sustainable reduction in flows to acceptable levels can be achieved by traffic management measures. What flow is acceptable for comfortable cycling will depend on other factors such as carriageway space available and speed of traffic.

2.4.15

If flows cannot be reduced to an acceptable level to support comfortable cycling conditions, and/or where traffic volume is such that cyclists are impeded by queuing traffic, the preference is for a cycle-specific facility to be provided. This could be in the form of on-carriageway cycle lanes or off-carriageway cycle tracks. Where such facilities are not practical, measures to raise driver awareness of the presence of cyclists should be provided, coloured surfacing and markings, including cycle symbols.

2.4.16

The speed of motorised traffic also has a major influence on the attractiveness of an on-carriageway route for cyclists due to the perceived and actual levels of collision risk. Where the speed of motor traffic is considered to be such that cycling is unsafe or uncomfortable, consideration should first be given to introducing measures that would result in a sustainable reduction in speeds. This could be in the form of narrowing of motor traffic lanes, changes to the streetscape, traffic calming and/or a lower speed limit.

2.4.17

Where these are not feasible, a cycle facility should be provided. This could be in the form of on-carriageway cycle lanes or off-carriageway cycle tracks.

2.4.18

Traffic mix is also a significant factor. For example, even if overall flows are not high, high proportions of HGV traffic and/or buses will affect conditions for

cyclists. Priority measures for buses should also be designed to provide benefits for cyclists.

2.4.19

Driver awareness measures such as cycle lanes and additional markings should be introduced. On back streets, measures such as width restrictions can be used to control HGV access. On LCN+ routes with high volumes of HGVs, cyclists and HGVs should not be expected to share the same space over a link.

2.4.20

The space required for traffic on a carriageway can be heavily influenced by the provision of slip and offside lanes for turning traffic.

2.4.21

Vehicles waiting to turn right where an offside lane is not provided can significantly reduce the capacity and free flowing nature of a link. Consideration should be given to introducing traffic management measures, such as road closures and banned turns to minimise these effects. Such measures can allow for space to be provided and create safer conditions for cyclists as well as having significant benefits for the majority of road users, including buses.

2.4.22

Where there are conflicting vehicle movements at junctions, including conflict between cyclists and motor vehicles and/or other cyclists (excluding pedestrians), options include:

- road closure and banned turns (with cyclist exemption)
- signalisation
- removal of priority
- clarification of priority using additional road markings, hatching, colour or other surface treatments.

Traffic kerbside and island amenity

2.4.23

Where there is a high level of kerbside activity, additional space for cycle measures can be created by re-locating or improved management of parking and loading activities.

2.4.24

Surface treatments can be provided to clarify to pedestrians and cyclists the use of space in the vicinity of bus stops where there is an off-carriageway cycle facility.

Pedestrian amenity and activity

2.4.25

There are a number of situations where cyclists and pedestrians are required to share the same space, for example at Toucan Crossings. There are also



Road closure with cyclist exemption creates an almost traffic-free through cycle route.

locations where cyclists should normally be given access but historically have often been prohibited, for example pedestrian zones in town centres.

2.4.26

In these situations designers should use different surface treatments with tactile paving and cycle logos where appropriate to provide a route for cyclists, while clarifying to pedestrians that the area is for shared use. Signing should be kept to a minimum.

2.4.27

CCE is currently investigating the introduction of a new standard sign for shared use areas, that will indicate areas where pedestrians have priority, but cycling is permitted provided that cyclists give way to pedestrians when necessary.

2.4.28

In some cases the level of pedestrian activity will mean that provision of cycle access will not be appropriate at certain times. Such instances will be rare. In November 2003 a report by Transport Research Laboratory⁸ recorded the results of a study of the behaviour of pedestrians and cyclists in vehicle restricted areas in 12 UK cities and towns. It found that the majority of cyclists slowed down or dismounted in vehicle-restricted areas. The report's authors concluded that whilst shared pedestrian and cycle space is not ideal for either group, it may be an appropriate compromise in terms of trying to meet sustainable transport objectives.

2.4.29

There are also benefits in terms of crime, surveillance and community safety in planning for cycle access. Increasingly, London's police and ambulance services are using bikes to patrol congested town centres, parks and housing estates because they find they can get to the parts others can't reach.

2.4.30

Within pedestrianised areas, people will wish to park their cycles as close as reasonably possible to their destinations, and cycle parking should be provided to recognise this. There will be movement of cycles between such cycle parking and the surrounding road system.

2.4.31

Accordingly, for any highway or pedestrianisation scheme, there should be an assumption that cyclists will be there, whether or not they are allowed. By making a presumption that cycling will be allowed, unless an assessment of the overall risks dictate otherwise, provision of appropriate sightlines, space to take avoiding action and other measures to manage conflict can be designed into the scheme from the outset.

24-hour access

2.4.32

All LCN+ routes should be available for use by cyclists at all times of day and night. If motor vehicles are prohibited at certain times e.g. during the night

⁸ Report to Department for Transport: TRL 583 "Cycling in Vehicle Restricted Areas"



Cycle-mounted police can reach closer to the community

through parks, but pedestrian access is allowed at all times, DDA considerations will result in a route that can also be traversed by cyclists at all times.

2.4.33

If all access including pedestrian access is prohibited at certain times and the route is physically barred, this will not normally be suitable as an LCN+ route. Very exceptionally, if for example a route were only barred during the small hours of the morning, it could be considered for use as an LCN+ route. In such cases, signs should be erected at the points of closure to direct cyclists in the right direction, but otherwise signs along the deviation route will not normally be justified unless it is a cycle route in its own right.

Legal restrictions

2.4.34

Outside of the public highway, there are distinct policies and procedures for providing for cyclists where there is no public right of way. On the public highway, there are many areas, streets and movements where cycling is not currently permitted, and which present an additional and unnecessary barrier. In many cases restrictions on cyclists can be removed or modified without detriment to other road users, or road safety targets

2.4.35

Examples of improvements that can be achieved by changing legal restrictions are contra-flow cycle facilities in a one-way street, cycle gaps through point no-entry treatments, and conversion of footways to shared use with cycles.

2.4.36

Land ownership issues may well arise, sometimes with the existing 'highway' land not always being public highway. In addition there are conservation and other restricted areas where the highway and traffic authority will have particular responsibilities.

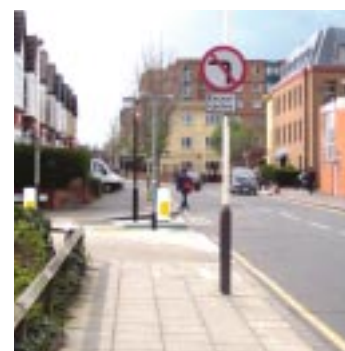
New developments

2.4.37

Authorities should look at how new developments can contribute to the cycling targets. They should ensure, through s106 or s278 legal agreements where appropriate, that provision is made for easy access by cycle in all new developments and regeneration schemes, and that cyclists are properly considered in changes to highway layouts.



Restrictions for motor vehicles do not need to interrupt cyclists



Restrictions on cyclists can be removed without detriment to other road users

A new riverside route for cyclists and pedestrians under Chelsea Bridge provided by an adjacent developer



2.4.38

Developments also provide an opportunity to alter road layouts and improve through routes. Opportunities for creating space for cyclists by, for example, revising building lines, should be identified by authorities and addressed at the planning stage.

Option development

2.4.39

Having taken all the foregoing base data into account, options can then be developed using guidance from Chapters 3 to 8 in this document, as set out at figure 2.3.

2.5 The highway authority's powers

2.5.1

In order to achieve the sorts of improvements outlined in the previous section, highway authorities have a number of legal powers derived from statute. In some cases e.g. 'keep clear' markings, no statutory procedure is required other than delegation of authority in accordance with internal processes.

Traffic and other Orders

2.5.2

Traffic authorities are empowered under the Road Traffic Regulation Act (1984) (RTRA) to make Traffic Regulation Orders (TROs) to regulate the speed, movement and parking of vehicles and to regulate pedestrian movement. Authorities also have powers to make Orders, similar to Traffic Regulation Orders, which require the same or similar procedure to be followed for management of parking and loading. The Environment Act 1995 enables orders to be made in pursuit of national or local air quality management strategies.

Figure 2.3
Options diagram for carriageway

Existing characteristics	Strategies	Examples of treatment	LCDS Chapter
Adverse moving motor traffic (volume, speed, turns, mix)	Manage volume/mix	<ul style="list-style-type: none"> Queue re-location Road closures/turning restrictions 	3
	Priority lanes	<ul style="list-style-type: none"> Cycle lanes Bus lanes Wide near-side lanes 	4
	Reducing Speeds	<ul style="list-style-type: none"> Physical speed control measures Lower speed limits Streetscape treatment Narrow motor traffic lanes 	3 4
Conflicting vehicle movements/ junctions	Signalise	<ul style="list-style-type: none"> Signalise some/all arms 	5
	Clarify/adjust priority	<ul style="list-style-type: none"> Adjust timing Introduce ASL Introduce markings 	5
	Raise driver awareness & guide cyclists	<ul style="list-style-type: none"> Advisory lanes Coloured surface Cycle symbols Tighter geometry 	4 5
Restricted widths, pinch points	Remove/reduce obstruction	<ul style="list-style-type: none"> Re-align kerbs Reduce/remove central islands Acquire land Demolition Manage cyclists 	4
Traffic kerbside amenity and activity	Parking/Loading	<ul style="list-style-type: none"> Introduce controls Relocate 	4
	Bus stops	<ul style="list-style-type: none"> Surface treatments to guide and manage cyclists and pedestrians 	4
	Frontage access	<ul style="list-style-type: none"> surface treatments/markings 	4
Major Barrier/ Severance	Create new route	<ul style="list-style-type: none"> Provide crossing Build Bridge 	5
	Improve alternative route	<ul style="list-style-type: none"> Assess and treat alternatives 	ALL
Legal limitations	Legitimise access for cycling	<ul style="list-style-type: none"> Provide new routes Exemptions from banned turns Two-way cycling in one-way street Convert footway/path to shared Exemptions from access restriction 	3 4
New developments	Legitimise cycling to and through where appropriate	<ul style="list-style-type: none"> Include in planning documents and agreements with developers 	2

2.5.3

In London, the criteria for making Orders under Section 6 of RTRA are set out in Schedule I thereof and by cross-referencing to Section 1.

2.5.4

Typical examples of TROs which may be relevant to schemes intended to create good conditions for cycling are:

- Prohibition with exemption for certain classes of vehicle – commonly used for providing priority or improving access for cyclists or buses
- All motor vehicles prohibited – allows pedal cycles and horse-drawn vehicles to continue to use the road
- All vehicles prohibited – either full or part time (an alternative that could be considered is contained in Section 249 of the Town and Country Planning Act 1990 – referred to below)
- Prohibitions of specific classes of vehicle – by weight, width, length or specific description e.g. goods vehicles above 7.5 tonnes
- Restricted vehicle movements. These may be shown either by restrictive signs – which prevent certain manoeuvres being undertaken and are indicated by a sign within a red roundel – or by positive signs which make certain manoeuvres mandatory and are indicated by a round sign with a blue background. (The no-entry sign is exceptional insofar that in the UK, although bus exemption is permitted, cycling exemption is not.)

2.5.5

Traffic Orders may be permanent, experimental (up to 18 months) or temporary (in most cases up to 18 months).



Cycling exemption from no-entry requires special authorisation

2.5.6

Where there is uncertainty as to the public response to proposals, an Experimental Order may be used to test response. This may be useful when introducing exemption for cyclists and monitoring the effect. In situations where temporary orders are required, specific consideration should be given to maintaining conditions for cycling on cycle routes.

2.5.7

The procedures for making Orders under the RTRA are specified in a number of different acts and regulations. This process generally includes advertisement in the local press and London Gazette and on site, consultation on proposals, and consideration of objections. Provided that proposals are not substantially changed, there is no need to re-advertise. An Order must be made within two years of publication. It is essential to follow procedures. Failure to do so may make the Order invalid and unenforceable.

2.5.8

In many situations cyclists should be exempt from general traffic orders. Where restrictions are in place, consideration should be given to exempting cyclists. This will require a new Order.

Unless overall risks dictate otherwise, cyclists should be made exempt from restrictions in Traffic Regulation Orders

2.5.9

There are a variety of situations where there are prohibitions on parking and waiting, including on a mandatory cycle lane during its period of operation.



Cyclists should be exempted from over-restrictive Traffic Regulation Orders

2.5.10

TROs may be introduced to prohibit waiting at any time or to restrict waiting at certain times of day or on certain days of the week or to limit the length of the stay. This is shown by yellow line markings on the carriageway and the kerb. In environmentally sensitive areas, the intrusiveness of standard yellow line road-markings may be reduced by using narrower lines and a paler shade of yellow. Further advice is contained in Chapter 6.

2.5.11

In addition to powers under RTRA, authorities can make orders, similar to TROs, which require the same or a similar procedure to be followed. These include:

- Parking Orders – RTRA 1984 as amended by Road Traffic Regulation (Parking) Act 1986
- Section 249 of the Town and Country Planning Act 1990 – Extinguishment of Vehicular Rights – for use where an authority adopts a proposal to improve the amenity of an area by excluding specific vehicles or classes of vehicles (commonly used when streets are pedestrianised)

2.5.12

No traffic orders are required for advisory cycle lanes.

2.5.13

Sample TROs may be obtained from CCE.

Cycling off-carriageway

2.5.14

Provision for cycling on the footway i.e. on land that is part of the public highway, requires conversion of that section of the footway to Cycle Track under the Highways Act 1980. A council resolution, appropriate consultation, and a record of the decision-making process including a plan are all that is required. The same procedure is used for shared use and for tracks adjacent to pedestrian facilities. For further details see draft LTN 2/04.

For cycle tracks on the public highway, consult widely and follow Highways Act 1980 procedure

Footpaths

2.5.15

Cycling is not permitted on public footpaths, unless an order has been made under s.3 of the Cycle Tracks Act (1984) to convert the footpath to a cycle track. This is the only procedure currently available and if there are objections has been known to take more than five years.

2.6 Procedures for schemes involving traffic signals

2.6.1

For any scheme involving traffic signals, authorities are required to comply with the procedures set out below by the Signals Section of Transport for London.

2.6.2

All specific signals work is designed and organised by TfL Signals Section. There may be a lead-in time of several months depending on the site and the signals equipment required. Work should be ordered from TfL Signals Section using the standard proforma (Appendix B).

2.6.3

Civils construction works such as ducting, dropped kerbs and tactile paving will need to be carried out by the borough's contractor, for which the borough will provide the necessary drawings. These plans will be required by Signals Section to produce their layouts, and a series of changes may be necessary to achieve the final design. Safety audits of any signals schemes will be carried out by Signals Section using their signals plans. The civils works will normally be in advance of the Signal Section works. Signals will not be commissioned until all works, including markings, are completed.

2.6.4

For all new signals schemes a request should be completed and provided to Signals Section with as much basic site information as can be obtained. It is usual for these proformas to be presented at Borough Liaison meetings so that the schemes can then be added to the borough workload programme. The basic site information required by Signals Section is defined in "TTS6 – Design Standards for Signal Schemes in London". It is recognised that it is not always possible to provide all of this data, but it will aid the progress of the scheme if this information is provided as early as possible. A summary of the information required is included in Appendix B.

2.6.5

If the signal controlled junction or crossing is part of London's computer controlled network, the Directorate of Traffic Operations must be consulted on the acceptable design and timing constraints.

Scheme implementation

2.6.6

Following the receipt of the proforma and basic site information, the implementation timescales to which Signals Section work are as shown in Appendix B. The scheme will be commissioned once all site works are complete and this will constitute the end of the signals works.

2.7 Risk assessment, safety audit and other checks

2.7.1

Cycling is an inherently healthy activity. In overall terms, the accident risk of cycling is many times outweighed by the general health benefits. In this respect, it could be said that the only thing more dangerous than cycling is not cycling⁹.

⁹ Cycling towards Health and Safety – British Medical Association 1992

2.7.2

However, individual components of cycling activity can be dangerous and all schemes need to be designed to minimise accident risk. The casualty rate for cycling is higher than for motorised 4-wheel transport. Reduction of the casualty rate is one of the targets of the LCAP.

2.7.3

In seeking to reduce accident risk, a balance needs to be drawn between reasonable risk reduction measures, and over-elaborate or restrictive measures that will deter the cyclist from cycling, or simply be ignored by cyclists.

Road Safety Audit

2.7.4

Road safety audit is often regarded as a fundamental protection against unsafe highway schemes. There is a well-established procedure, which is widely applied to cycling and other traffic schemes. CCE research shows that in the hands of competent practitioners, safety audit is a useful procedure and improves the design and safety of cycle schemes.

2.7.5

Safety audit is not an appropriate tool for determining cycling priorities and requirements that will support growth. The focus of road safety audit is explicitly and solely on road safety of all road user groups and therefore requires no systematic consideration of the effects of non-cycling highway schemes on cycling objectives, access, priority or conditions for cycling.

2.7.6

There are four standard audit stages that are required to be carried out during the development of a scheme, subject to the size and scope of the scheme. The audit is to be carried out by an appropriately qualified team who are independent of the scheme designer, but could be within the same organisation. The final decision on the extent of audit required rests with the highway authority.

Stage 1 feasibility / outline design

Stage 2 detailed design

Stage 3 post construction, preferably prior to use

Stage 4 post implementation monitoring audit(s), if appropriate

2.7.7

Changes to schemes are recommended as the audit team considers appropriate. On receipt of the safety audit report, the scheme engineer/designer should consider its content and amend the scheme accordingly. If the project sponsor authority does not wish to incorporate some or all recommendations of the safety audit they are required to prepare an "exception report" stating the reason(s) why they consider the recommended action is not appropriate. Further information can be obtained from TfL's Road Safety Audit Procedure SMS-007 (2005).

Cycle Audit

2.7.8

In 1996 the Institution of Highways and Transportation (IHT) prepared and published guidelines for carrying out Cycle Audits on non-cycling specific highway schemes to ensure that the needs of cyclists are taken into account.

IHT have also prepared Cycle Review, a procedure for reviewing existing infrastructure conditions from a cycling perspective.

2.7.9

A non-motorised road user audit is being prepared for the Highways Agency for application on trunk road schemes. It is expected that this will be incorporated in the Design Manual for Roads and Bridges in 2006. TfL are considering the potential for adoption of an equivalent audit suitable for application in London to ensure consideration of cyclists' needs during highway scheme design.

Design document check

2.7.10

A procedure for internal use has been developed jointly by CCE and the LCN+ project management team for checking LCN+ scheme design documents, particularly drawings. This is to check that the basic requirements have been addressed by the scheme, for example that it recognises cyclists' desire lines, provides facilities of adequate width, and that the provisions are legally correct.

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