Essex Highways

Cycling at Roadworks

Guidance for Designers of Temporary Roadworks in Essex

24/03/2020

RINGWAY JACOBS

Essex County Council

Document Control Sheet

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Contents

Tables and Figures

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1. Cycling at Roadworks

1.1 Introduction

This document sets out new guidance that considers the specific needs of people who cycle at roadworks. It is aimed at the designers of temporary roadworks and traffic management in Essex Highways and has been informed by the outcomes of a review of existing relevant legislation, policy and literature.

The following sections of the report set out the emerging guidance, whilst the policy background and relevant literature review, which have fed into the development of this guidance, are contained in Appendix A. Appendix B contains the existing *ECC Highways Practice Note 018 – Pedestrians and Cyclists at Roadworks*, the cycle part of which will ultimately be updated by this guidance.

1.2 Relevant Literature Review

Whilst roadworks are inevitable, enabling growth, maintenance and modernisation of infrastructure, they can be a cause of barriers, delays and inconvenience to road users. For people who cycle, lengthy diversions, caused by roadworks are, in some cases, an unavoidable problem. In addition, roadworks can be unsafe, with historically, many people being killed or seriously injured in the vicinity of roadworks. Therefore the design of road works needs to be carefully considered and adhere to appropriate legislation to ensure all road users are able to navigate the road works in a safe and convenient way.

Currently, the general provision of temporary traffic management at roadworks is subject to the following key pieces of legislation and guidance, some of which date back to 1974. Whilst it is appreciated there may be further guidance on this topic, we have identified the below as the most relevant and appropriate for this review:

- The Health & Safety at Works Act, Health and Safety Executive, 1974
- The Highways Act, 1980
- The Roads and Streetworks Act, 1991
- Disability Discrimination Act, 1995
- Traffic Advisory Leaflet 15/99 - Cyclists at Roadworks, DfT 1999
- Local Transport Note 2/08: Cycle Infrastructure Design. DfT, October 2008
- Traffic Signs Manual (Chapter 8), 2009
- Equality Act, 2010
- Safety at Streetworks and Roadworks: A code of Practice (the Safety Code). DfT, 2013
- Construction (Design and Management) Regulations, Health and Safety Executive, 2015
- The Traffic Signs Regulations and General Directions (TSRGD). DfT, 2016

Whilst these documents set out the legislative requirements surrounding the design and implementation of roadworks to ensure that safety for all road users is considered, it is appreciated that there has been a significant increase in the appetite for cycling in recent years, along with growth in the desire of local authorities to encourage further cycling. Therefore there is a need for more specific guidance to be produced around the provisions for people who cycle at roadworks.

Most notably, this type of guidance has recently been produced for London, where typically, the number of cyclists using the road network is higher. In December 2018, TfL produced its Temporary Traffic Management Handbook, which provides specific guidance for traffic management designers and work promoters on how to make their roadworks safer. It recognises that London's road network

has changed in recent years, with far more people choosing to travel on foot, by cycle or by bus and this guidance specifically focuses on these travel choices.

In the context of Essex, there is a developing Cycling Strategy and strong intentions from Essex County Council (ECC) to promote the use of cycling across the county. ECC do, however, recognise the difficulties that people who cycle can face at roadworks and have commissioned this work to identify how provisions for these people can be improved and to make plain to their designers of temporary traffic management that they can and should be given special consideration, along with the form this should take.

This "Cycling at Roadworks" study is therefore intended to set out procedures to be followed during road closures and temporary road works, which specify where and how people who cycle should be dealt with safely (and conveniently wherever possible) on the Essex Highway network. The purpose of this guidance is to bring consistency to the approach to dealing with people who cycle at road closures across the County, and develop upon the Essex Highways Practice Note (HPN) 018: Pedestrians and Cyclists at Road Closures, produced by Essex Highways in April 2013.

1.3 Background for the Essex "Cycling at Roadworks" Guidance

Existing documentation relating to guidance for cycling at roadworks has been reviewed as a starting point and is summarised above. This review can be found in full in Appendix A. The findings of this review note that the existing Essex HPN 018 provides a good starting point for the guidance for cycling at roadworks, and an acknolwedgement that the needs of people who cycle should be carefully considered. The underlying premise of the existing HPN, that access for pedestrians, those cycling and residents, should be maintained through roadworks is one that will be developed (for people who cycle) in this new emerging guidance for cycling at roadworks. The existing HPN provides brief and high-level guidance on the provisions for people who walk and cycle at roadworks, currently placing reliance on cyclists dismounting at roadworks. It is therefore recommended that more comprehensive guidance is required to address specific considerations for people who cycle.

It has been identified that the TfL Temporary Traffic Management Handbook: Keeping People Safe at Roadworks, December 2018, along with the London Cycle Design Standards, TfL, 2014, are the most relevant, up to date and comprehensive approaches to setting out guidance for designers of temporary road works and traffic management, with regards people who cycle. It is therefore recommended that Chapter 3 (Cyclists at Roadworks) of the Temporary Traffic Management Handbook, TfL, 2018 and the 'Cyclists at Roadworks' appendix of the London Cycle Design Standards should be used as the basis for this guidance developed for Essex.

Whilst the TfL guidance is applicable to the urban road network within Essex, specific requirements for provisions for people who cycle at roadworks in a rural context will need to be considered, for example the design of diversion lengths and temporary traffic signal phasing will be different in a rural environment.

To remain consistent with existing guidance, it is advised that this renewed Essex guidance for the provisions for people who cycle at roadworks should cover the following categories:

1. General Principles
2. Hazards to Consider
3. Detailed Design Guidance, to include:
    - Maintaining Access
    - Road Closures and Diversion Routes
    - Lane Widths and Temporary Speed Limit Reduction
    - Length of Roadworks

- Temporary Signing
- Temporary Traffic Signals
- Use of Barriers
- Surface Quality
- Use of Ramps and Boards
- Works on the Carriageway Without Cycle Lanes
- Works on the Carriageway With Cycle Lanes
- Works on Cycle Tracks
- Shared-Use Footways
- Road Safety Audit
- Example Layouts

To ensure compliance from those involved in the design and implementation of road works is maintained, it is recommended that a design checklist template is created and incorporated into the Essex guidance, similar to the checklist included in TfL's London Cycling Design Standards Consultation Draft (2014) document.

The above recommendations have been used to inform the development of a set of Essex guidelines for designing for Cyclists at Roadworks that adheres to and supplements the existing legislative requirements.

The emerging guidance is set out in the following sections of this report. The policy background, literature review, which set the context for this guidance, and the existing Highways Practice Note, which this guidance will replace, are contained in Appendix A and B of this report.

1.4 Outcomes of the Literature Review

To ensure that our roads and highways infrastructure are maintained, up to date and fit for purpose in a growing and prosperous region, roadworks are inevitable in Essex. However, they can be a cause of inconvenience to all road users and poorly planned and ill-designed roadworks can be an unnecessary barrier to people travelling, which can ultimately result in delays, inconvenient diversions and , in some cases, unsafe conditions. People cycling are often asked to dismount or join narrow, congested traffic lanes. Conversely, the proper planning and design of roadworks can lead to much more convenient solutions for cyclists being developed and much safer conditions created for all road users.

In Essex, there is presently very little guidance for the designers of roadworks, particularly in consideration of people who cycle, which this document seeks to address. It is intended that, through consultation with with relevant Essex Highways officers and members of Jacobs' Design Team, the guidance outlined in this report can be used as the basis for a revised and updated "Cycling at Roadworks" section of Highways Practice Note (HPN 018).

In producing this document, a thorough review of the existing and recent guidance relating to the design of temporary road works has been undertaken and elements of relevance have been extracted and included in the resulting recommended guidance for Essex. It has been observed that people who cycle face a number of potential hazards at roadworks and temporary traffic management, which this resulting guidance addresses, including: pinch points that 'squeeze' people who cycle unacceptably long diversion routes; lack of consideration for the slower moving speed of people who cycle through roadworks (particularly through temporary traffic signals and on uphill sections); poor temporary road surfaces (including raised ironworks); road closures (without cyclist exemption); people who cycle entering the work site; inadequate signing to caution drivers of the additional hazards facing, or caused by, cyclists; and cyclists merging with other traffic. It is

considered that, in producing this guidance, designers of roadworks in the county will be minded to pay improved attention and greater consideration to the needs and concerns of people who cycle.

In order to address these hazards and allow the safer movement of people who cycle through roadworks, designers should follow the detailed guidance provided in the following sections, sourced primarily from the TfL Temporary Traffic Management Handbook: Keeping People Safe at Roadworks, December 2018 and the London Cycle Design Standards, TfL, 2014. In summary, the key recommendations for designers that have emerged from the guidance include:

1. Undertake site-specific assessment to determine level of use, vehiclular mix, geometry and level of risk to people who cycle
2. Retain existing cycle facilities/ level of service where practicable
3. Maintain access for people who cycle through works by diverting motor vehicles
4. Where it is not possible to maintain access through the works for people who cycle, consider diverting motor vehicles and people cycling along different routes
5. Where access can only be achieved by retaining cycle access on carriageway with motor vehicles, give consideration to lane widths
   - In the case of (5), give consideration to temporary speed limits
   - In the case of (5) give consideration to the length of works to reduce exposure of people who cycle and promote cyclist comfort
   - In the case of (5), and if narrow lanes are utilised, provide adequate warning/ signing
6. For one-way working, requiring temporary traffic signals, ensure signal timings accommodate cycle passage as well as ensuring greater clearance times for slow moving traffic, particularly on uphill gradients, and that adequate warnings are given to motorists about the same.
7. Provide correct signing and clear warnings to people who cycle and motorists of diversions and hazards, incorporating ‘do not overtake’ where necessary, as well as highlighting slow moving vehicles (particularly on uphill sections and where one way working is in operation, which could result in people who cycle facing oncoming traffic if insufficient clearance times have been allowed)
8. When temporary signage is required, refer to the Traffic Signs Regulations and General Directions 2016 (TSRDG) guidance when considering specific sign regulations and dimensions.
9. Provide effective barriers to work sites, so that people who cycle are not able to enter work sites, keeping all vulnerable road users as safe as possible
10. Provide an alternative off-carriageway cycle facility if necessary/ possible
11. If an off-line cycle diversion is required, ensure it is of appropriate length, signed and surface is appropriate
12. Provide correct road surface, ramps, boards and humps (including transitions), having considered the needs of people who cycle
13. Provide an offside merge on two lane carriageways
14. Use ‘cyclist dismount’ signs only as a last resort and where absolutely necessary
15. If no alternatives are possible, use “cycling prohibited” signs
16. Consider whether a Road Safety Audit should be carried out, particularly if a worksite remains in operation for a period of six months or more, or if the work is ancipated to cause a significant impact on the highway network

The resulting document, Cycling at Roadworks: Guidance for the Designers of Temporary Roadworks in Essex, is set out in Section 2.

1.5 Structure of Report

This report is structured as per the following sections:

- **Section 2** of this report provides the resulting recommended guidance for the designers of temporary road works and traffic management in Essex Highways, specifically with regards to cycling through roadworks, as informed by the outcomes of Appendix A. It is envisaged that this guidance will be circulated among senior personnel at Essex Highways for comments, with a view to the guidance being adopted as a refreshed Highways Practice Note in Essex. As per the Brief Response for this study, this report will be emailed for comment to relevant Essex Highways officers and members of Jacobs Design Team, including:
    - Ken Kintrea, Head of Construction, Essex Highways
    - Erwin Deppe, Head of Major Projects, Essex Highways
    - Chris Stevenson, Head of Network Development, ECC
    - Vicky Duff, Head of Network Assurance, Essex Highways;
    - Mark Godson, Essex Highways Communications;
    - Mark Redgewell, ECC Permit team
    - Mark Atkinson, Essex Highways
    - And others as directed.

- **Appendix A** of this report outlines the outcomes from Task 1 of this study, which has sought to understand the existing available legislation surrounding cycling at roadworks and guidance for designers, to identify relevant and up to date guidance for Essex. This section provides a high level review of the existing documentation and highlights any specific requirements, hazards and concerns to be included in the production of a new Essex-specific guidance note.
- **Appendix B** of this report contains the existing ECC Highways Practice Note – Pedestrians and Cyclists at Roadworks, the cycle part of which will ultimately be updated by Appendix A of this document.

2. Cycling at Roadworks: Guidance for the Designers of Temporary Roadworks in Essex

2.1 Context

This document sets out the procedures to be followed during road closures and temporary road works in Essex. It has been specifically produced to detail where and how people who cycle should be dealt with safely (and conveniently wherever possible) in the event of roadworks on the Essex Highway network.

The purpose of this guidance is to bring consistency to the approach to dealing with people who cycle at road closures across the County, and develop upon the Essex Highways Practice Note (HPN) 018: Pedestrians and Cyclists at Road Closures, produced by Essex Highways in April 2013.

The guidance provided in this document has been derived from Chapter 3 (Cyclists at Roadworks) of the Temporary Traffic Management Handbook, TfL, 2018 and the 'Cyclists at Roadworks' appendix of the London Cycle Design Standards.

It outlines appropriate guidance for those planning, designing and operating temporary roadworks and traffic management within Essex to ensure that the convenience and safety of people who cycle is fully considered alongside the needs of all other road users, as well as those undertaking the works. This guidance will sit within the wider legislative context governing the provision of roadworks, and should be applied to both planned and, where applicable, unplanned works.

2.2 Practice

As per the Safety at Streetworks Code of Practice, any person involved in the design and implementation of roadworks should always consider the following fundamental questions:

- ***Will someone using the road, cycle network or footway from any direction understand exactly what is happening and what is expected of them?***

- ***Have I made the site safe to work in and for the general public?***

The overall risk to cyclists at roadworks should be considered on a case-by-case basis, taking into account, firstly, the number of people who cycle, whether it sits within the Essex Cycle Network (see Map Essex) and the effect that the proposed works and resultant temporary traffic management will have on their journey. The assessment should include an estimation of the relative cycle and non-cycle flows. If a significant number of cyclists will be affected by road works, then they should be provided for specifically in the design of temporary traffic management. If an existing facility exists, every effort should be made to maintain it. It is also important to check the existing cycle provision at the site and ensure traffic management retains any cycle lanes, signage, cycle tracks, crossings. For consistency, the following terminology may be used throughout this guidance (Table 1).

Table 1: Terminology of Cycle Infrastructure

Cycle provision	Description
Cycle network	A set of connected cycle routes that can legally be used by cycles
Cycle route	Any infrastructure that can legally be used by cycles, including roads, bridleways, cycle tracks, hybrid cycle tracks, cycle lanes, light segregated cycle lanes and carriageways
Cycle lane	On the carriageway, marked with a formal lane marking and allocated for use by cyclists (either mandatory using solid lane markings, or advisory, using dashed lines)
Cycle track	A right of way for pedal cycles with or without right of way on foot. It can either be part of a public highway adjacent to a carriageway, or a separate carriageway in its own right. A track separate from the main carriageway for use by people who cycle. Cycle tracks may be newly constructed or created through conversion of a footway or footpath, and where there is shared use between people who cycle and pedestrians (either segregated or unsegregated).
Cycle route	A continuous series of links and junctions, signed and/ or branded as a coherent facility from A to B. For roadworks that are local in nature, signing should make reference to cycle lanes or tracks as appropriate. Only when a substantial section of a defined route is diverted onto an alternative road would reference be made to a route. Any infrastructure that can be legally used by cycles, including roads, bridleways, cycle tracks, hybrid cycle tracks, cycle lanes, light segregated cycle lanes and carriageways.
Cycle path	A non-specific term and should not be used on road traffic signs
Hybrid Cycle Track	This is a non shared use cycle track that is adjacent to the carriageway often constructed at an intermediate height between the carriageway and the verge or footway. This is a very specific term that is unlikely to be used on temporary road signs.
Light segregation	A mandatory cycle lane that is separated from the carriageway by intermittent physical objects. This is a very specific term that is unlikely to be used on temporary road signs.
Remote cycle track	A remote cycle track is a cycle track that follows its own path away from the highway network.

The Safety Code states that the designer "*should consider whether access on the carriageway can be preserved for cyclists, even if it needs to be closed to motor vehicles".* Ultimately, traffic management designs should **retain or re-provide cycle facilities** unless there are insurmountable barriers to doing so.

This includes:

1. *Looking to preserve cycle access, even when the carriageway is closed to motor vehicles*
2. *Preserving or introducing exemptions, contraflows and cycle gaps to maintain cycle accessibility during works*
3. *Creating temporary dedicated cycle facilities where necessary*

For routes that are part of the Essex Cycle Network, or streets with high cycle flows, **a level of service reasonably equivalent to the permanent arrangement should be maintained**. Where all or part of the highway is closed on such streets, alternative suitable quality provision should be found for those that cycle.

Where shared cycle facilities are temporarily closed, re-providing a similar standard facility may be challenging, but temporary facilities should be designed to work for all road users. Alternative provisions for people who cycle may be re-established by sharing general traffic lanes as part of temporary traffic management, but only where suitable lane widths exist, and only where speeds are appropriate for the purposes of sharing.

Footways may only reasonably be shared between those walking and cycling if sufficient width is available and if traffic management has been designed to encourage courteous and responsible behaviour towards more vulnerable pedestrians.

Road closures impacting people who cycle need careful consideration. Diverting people who cycle onto other roads should only be necessary where it is not reasonably practicable to preserve cycle access. Diversions, if required, must not be unnecessarily long and should avoid mixing people who cycle with heavy goods vehicles. As above, alternative provisions for those who cycle may be re-established by sharing general traffic lanes as part of temporary traffic management, but only where suitable lane widths exist, and only where speeds are appropriate for the purposes of sharing.

2.3 Potential Hazards or Impacts to consider

There are a number of potential hazards or impacts that must be considered when designing ‘cycle friendly’ temporary traffic management on the carriageway, including:

- **Impact:** E.g.: cyclists dismounting; removal or obstruction of existing cycle lanes or tracks; road closures (without cyclist exemption) and unacceptably long diversion routes; one-way working (without cyclist exemption);
- **Signage & Guarding:** Eg: inappropriate use of temporary ‘cyclists dismount’ signs (where a clear route has been maintained, people who cycle should still be able to use the carriageway); measures to avoid conflicts between people who cycle and those who walk; cyclists entering the work site;
- **Geometry:** E.g.: pinch points that ‘squeeze’ people who cycle; sightlines
- **Surface Condition:** E.g.: poor temporary road surfaces, including raised ironworks; raised cable protectors, hoses or road plates;

2.4 Cycle Flows

The London Cycle Design Standards provide useful information such as defining flow categories for people who cycle, which are applicable to the Essex road network. It is important to understand the expected cycle flow prior to designing tempory road works, as this will likely influence the provisions required. Within Essex, peak hour flows are more likely to be considered “low” in rural areas.

Table 2: Peak Hour Flow Categories for Cyclists

Peak Hour Flow Category	One-way Lane/Track	Two-way Track
Low	<100	<100
Medium	100-200	100-300
High	200-800	>300

2.5 Range of Users

The Safety Code highlights the requirement for traffic management to take into account the needs of disabled and older people in the planning and execution of works. Not all people cycling can easily dismount, particularly when the cycle is used as a mobility aid. Some types of cycle are wider and longer than others (such as cargo/child-carrying cycles and tricycles), and some users are particularly sensitive to poor surface conditions. Hence, the 'cyclists dismount' approach must only be used as a last resort.

Cycle infrastructure and temporary roadworks should be designed in a way that they are inclusive both of larger types of bicycle such as the tandem, tricycle (trike), trailer bicycle and cargo bicycle, and various models used by disabled people such as the handbike. Whilst the use of these different types of cycles is less likely in Essex than London, the aim of the Essex Cycling Strategy is to see more people cycling more often, so with this, it is possible that the range of cycles used will also increase with time, hence their needs should be accommodated within this guidance.

Hence, it is recommended that the concept of 'the inclusive bicycle' is embraced – meaning a recognition that, because of the size of many non-standard types of bicycle and the possible limitations of riders, a more forgiving environment is required. It is important that temporary traffic management systems are tolerant of nonstandard users and do not exclude or disadvantage them.

Obviously, where cycle networks are disrupted through street works requiring temporary traffic management, these philosophies should be applied to the design of those works as far as is practicable. Clearly, the numbers involved in cycling in Essex has not yet reached the levels attained in London but the philosophy and understanding should be applied nevertheless.

Whilst bicycles are significantly smaller than motor vehicles, designing for them needs to take account of their physical characteristics, along with a provision for comfort and safety for the rider. The typical dimensions of a conventional bicycle are 1800mm long and 700mm wide. For a solo adult cyclist, 750mm is the typical static width but extra width is needed for moving cyclists. A reasonable assumption is that this amounts to a total width of 1000mm (as stated in LTN 2/08: Cycle Infrastructure Design), although this varies according to speed and type of bicycle. That dimension is often referred to as the 'dynamic envelope' of a cyclist.

People using non-standard types of bicycles should be included through design in all cycle infrastructure. The dimensions of non-standard bicycles are included in the Essex Cycle Design Portal and should be referenced accordingly.

Table 3: Non-Standard Bicycle Dimensions

Non-Standard Bicycle Types	Dimensions
Cycles with trailers for children or deliveries	(2200-2500mm x 750-850mm)
Tricycles, including those used by some disabled people	(1400-2100mm x 750-850mm)
Tandems with two or more seats	(2100-2500mm x 750mm)
Recumbent bicycles	(1700-2240mm x 750mm)
Purpose-built cycles for disabled people, such as handbikes	(1650-2050mm x 800-860mm)

Key considerations for inclusive design include the following:

- Minimum turning circles for non-standard bicycles are much greater than the dimensions for a standard bicycle shown in LTN2/08 (850mm inner radius, to turn around a fixed object, and 1650mm outer radius, to complete a full turn).
- A tandem needs 2250mm inner radius and 3150mm outer radius.
- Vertical deflections such as speed humps should be minimised as cycles with long wheelbases, such as tandems and some recumbent models, are particularly sensitive to the effects of sudden changes in surface level.
- Dropped kerbs and ramps should be provided to aid manageable transitions between levels.

2.6 Understanding of effort in relation to physical characteristics

Those involved in the design of temporary works must have an underlying understanding that the main factor that sets people who cycle apart from other road users is that they work on human-generated power. This is significant because characteristics of a street that increase the effort required to cycle might deter people from going that way as part of a route, or may put them off cycling at all.

Good design for cycling, including the design of temporary traffic management, must therefore be sensitive to physical conditions that matter less for other users, such as surface quality, surface material, ability to maintain constant speed, gradients, deflections and undulations.

2.7 Maintaining Access for People who Cycle

Wherever possible, diversions should be avoided and access maintained for people who cycle in both directions, even where a road is closed to motor vehicles. People who cycle are unlikely to accept lengthy detours or long delays. It is therefore necessary, under such conditions, to take action that precludes them from attempting to access a road lane used by traffic travelling in the opposite direction, or mount footways.

In many circumstances, road closures can be avoided by providing temporary infrastructure, such as:

- Segregated contraflow cycle lanes
- Shared paths
- Routes away from the carriageway

This provision is particularly preferable to sending people who cycle on a diversion that involves dual carriageways. Diversions, if required, must not be unnecessarily long and should avoid mixing people cycling with heavy goods vehicles. Alternative provisions for those who cycle may be re-

established by sharing general traffic lanes as part of temporary traffic management, but only where suitable lane widths exist, and only where speeds are appropriate for the purposes of sharing.

Figure 1: Options for Maintaining Cycle Provision

2.8 Road Closures and Diversion Routes

Full road closures can present unique issues for people who cycle, which may be particularly important on routes with high cycle flows or in rural areas where diversion routes are likely to be lengthy. This will be especially necessary where a diversion route fulfils one or more of these conditions:

- Involves significantly greater effort to the diverted people who cycle owing to new, unreasonably extensive distances and gradients
- If it is a heavily used cycle commuter route and the intention is to close the road during peak hours
- Put people who cycle at greater risk due to the road layout and traffic conditions on the diversion rout
- The temporary works will be required for a prolonged period

Diversion routes must be assessed for their suitability for cycling as well as motor vehicles because, from the perspective of those who cycle, they may appear to be overly long or arduous. If those who cycle find an apparently shorter route more attractive, this may result in unsafe movements through junctions and prohibited or illegal footway riding.

The following protocols should be followed before deciding a full road closure is required:

1. In the first instance, the site should be assessed with the aim of maintaining a safe route for people who cycle past the works. While a closure to motor traffic may be necessary, exceptions can often be made for cycles, which can use relatively narrow widths (but ideally no less than 1.5 metres). Guidance on suitable widths is provided below. In this case it is important that the retention of access for those who cycle is clearly signed from the earliest signing of the roadworks and on all approaches to the roadworks, especially in rural parts of Essex. The “road closed except cycle” sign may be used in these circumstances.

2. Where a road is fully closed to motor vehicles in both directions, yet a route is retained for cycles, signing stating ‘Road closed except cycles’ or ‘Road closed except for access and cycles’ should be used. Note, the ‘road closed except cycles’ sign should be used on all ‘road closure’ signs approaching the roadworks, since in rural areas in particular, advance warning of the road closure to motor vehicles can be signposted for several miles in advance of the roadworks. People who cycle should know from the earliest indication of a road closure whether or not they are also required to re-route, or whether they are excepted.

3. Where a road is partially closed i.e. closed in a given direction to motor vehicles only, with cycles permitted through a closure point, then it may be preferable to use a 'No entry' sign with an 'Except cycles' sub-plate. It is important that the cycle exception is indicated at all signs indicating the road closure on approach to the roadworks.

Figure 2: Cycle signs to be used at road closures

Care must be taken to ensure the design makes it clear to all road users, especially pedestrians, that cycles are permitted through a closure point. Where cycles pass through a closure point that prohibits motor traffic or in contraflow situations, it should be clear to pedestrians to expect cycles, particularly at crossings. Barriers and other methods of separation may well be required to mitigate any risk and designers should consider sight lines.

Contraflow cycle lanes or tracks can be implemented to allow cycle access through roadworks. There should be a recommended minimum width of 1.5m, or where providing the desirable width would compromise facilities for other road users, an absolute minimum of 1.2m wide. Utilising a site-based risk assessment prior to design may identify the need for physical segregation from opposing traffic, which must have sufficient lane width not to encroach into the contraflow cycle facility.

Contraflows of any vehicles can be confusing to pedestrians who may instinctively not notice approaching traffic if they are not expecting it. Pedestrian barriers should be considered along the length of the contraflow to prevent pedestrian encroachment other than at crossing points. Further mitigation measures should be considered to warn people crossing the contraflow cycle lane to look out for cycles in both directions and also cycles approaching in the temporary contraflow lane. Designers should acknowledge that some people who cycle may decide to remain on the carriageway if the diversion is too long.

If it is not possible to retain space for cycling on a road closed to motor vehicles and the primary diversion route is likely to be too arduous or hazardous for people who cycle to use, a cycle-specific alternative route should be considered, which could be shorter, on quieter roads and signed accordingly.

Where cycle diversion routes are necessary they must be as short as practicable to desire lines and clearly signed, preferably using routes with light traffic flows. Often cycles can legally pass through routes prohibited to motor vehicles such as roads with filtered permeability, eg bollard protected cul-de-sacs.

2.9 Diversions in Rural Areas

In rural areas, where the cycle network is less developed, designers should be mindful of potentially lengthy diversions. Access for people who cycle should be maintained through a site wherever

possible and a “road closed except cycles” sign provided at the earliest opportunity to avoid directing people who cycle onto lengthy diversions.

2.10 Lane Widths and Temporary Speed Limit Reduction

Whilst retaining or re-providing facilities for people who cycle to the pre-existing level of service are the preferred options for providing for people who cycle at roadworks, it is not always feasible to do so, owing to physical constraints of the highway. It is particularly difficult where people who cycle are accommodated on the carriageway. In the instances where people who cycle must share road space with other traffic as they pass the roadworks site, it is essential that their safety is protected by providing adequate lane widths.

Figure 3: Narrow Lane Signage

Temporary lane widths through road works should be designed for the comfort of those on cycles as well as safety. The key initial considerations are whether people who cycle are predominantly on or off the carriageway and, if on carriageway, what the volume, speed and composition of motor traffic is. Transitions to and from areas with traffic management layouts are also important and consideration needs to be given to ways of preventing people who cycle being ‘squeezed’ by manoeuvring vehicles at the lead-in taper.

The below graphic provides guidance on apprioriate lane widths as provided by the London Cycle Design Standards.

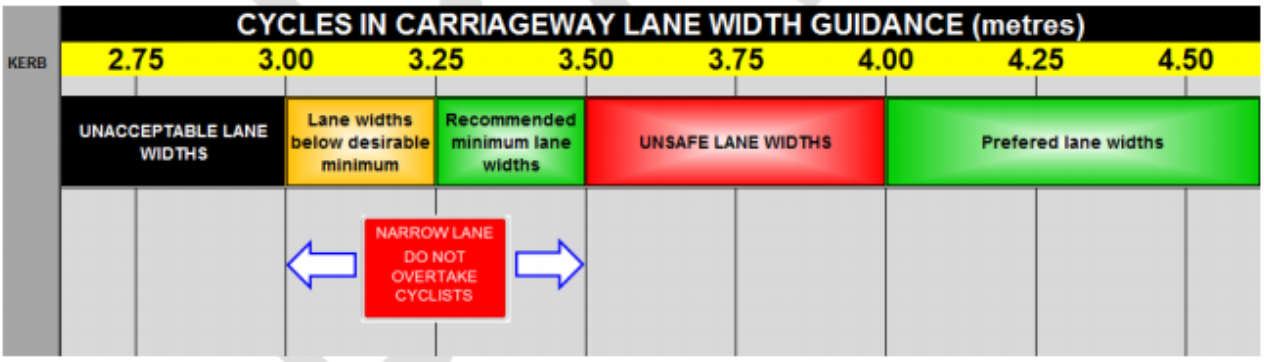

Figure 4: Lane Width Guidance (source: Draft London Cycle Design Standards, 2014)

Preferred lane widths

Lane widths of four metres or more enable cars and wider vehicles to overtake cyclists safely. Therefore, where possible, designers should look to maintain or create lane widths of at least 4 metres on carriageways where high cycle flows exist (refer to Table 2: Flow Categories).

Narrow lane widths

If a 4m lane width cannot be achieved then, according to advice given in TAL 15/99 Cyclists at Roadworks (1999), a 'narrow' lane width of 3.25m to 3.50m will enable car drivers to overtake comfortably and will generally deter drivers of larger vehicles from trying to pass at all.

Unsafe lane widths

Lane widths between 3.50m and 4m should normally be avoided as drivers of large vehicles may attempt to overtake people who cycle without adequate clearance.

Lane widths below desirable minimum

If even 3.25m cannot be provided, then a 'narrow' lane width of up to 3.25m and a speed limit of 20mph should be considered with signs stating 'narrow lane(s): do not overtake cyclists'.

20/30mph speed limit roads: on-carriageway provision for people who cycle

Where people who cycle are on-carriageway and the speed limit is 30mph or 20mph, it is usually desirable to keep them on carriageway through the roadworks. In this case, a wide lane (minimum width of 4m) enables drivers of all motor vehicles to overtake cyclists with an acceptable clearance.

40mph speed limit roads: off-carriageway provision for people who cycle

On higher speed roads (40mph), there will often be off-carriageway provision for people who cycle, which they should be encouraged to use through signing, though people who cycle will usually also be permitted to use the carriageway. In these cases, a minimum lane width of 4.25m should be used through the roadworks to enable comfortable overtaking of cyclists. Where this cannot be achieved, a speed limit of 30mph should be considered in conjunction with a 3.25m to 3.50m or 4m lane width, or a 20mph speed limit and 'narrow' lane as described above. Consideration should be given to the need for extra width at bends and turns in traffic management layouts.

50mph speed limit roads

On roads with speed limits of 50mph or more, scheme specific measures appropriate to the existing provision and use by people who cycle should be provided.

Temporary speed limit reduction

Where road widths are limited but sufficient volumes of cycle traffic exists, consideration should be given to lowering the speed limit or a temporary maximum speed recommendation to encourage motorised vehicles to either safely overtake or follow cyclists in accordance with Chapter 8. Lowering the speed limit will require a Temporary Traffic Regulation Order (TTRO).

Use of contra-flow facilities

On prestige cycle routes, including the PC1 network, or routes with high peak time cycle flows (> 10 per cent of vehicles), consideration should be given to arranging the works layout such that temporary cycle lanes can be provided.

Where it is not feasible to maintain two-way traffic and where there are significant cycle flows, consideration should be given to providing a cycle contra-flow facility. This will be particularly beneficial where a diversionary route would satisfy one or more of these conditions:

- be in place for a long period
- involve significantly greater effort owing to distance and gradients
- put people who cycle at greater risk due to the road layout and traffic conditions

Contraflow cycle facilities should be a minimum of 1.2m wide (recommended 1.5m) and may require some physical segregation from opposing traffic, based on site specific risk assessment.

Road layout

Where possible, the available lane width will encompass the normal running lane but it may also include hatched areas where traffic is permitted to enter for short duration works. For longer duration works or where the road layout may lead to road user confusion, it may be necessary to modify the existing markings.

Where the work site requirements allow, the cone line or outer edge of the segregation can often be pulled back from the lane markings on multi lane carriageways to accommodate cycling (Figure 5) and thus increase the nearside lane width. This approach is especially important for sites immediately on the approach to signalised junctions, where people cycling filter through queuing vehicles in order to reach the stop/ give way line.

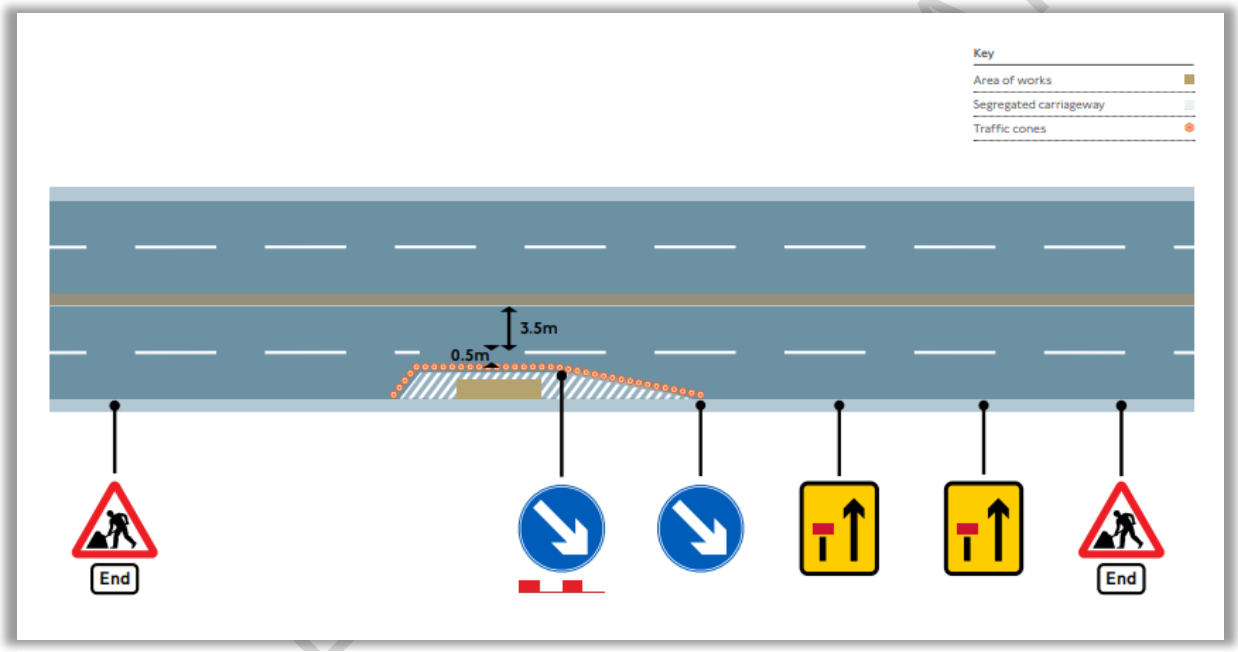

Figure 5: Minimising the width of a full lane closure to allow space for cyclists

2.11 Length of Works

Where a dedicated cycle facility or traffic lanes wider than 4m cannot be provided, limiting the length of the site shoud be considered to restrict the traffic management to shorter sections and thereby reduce the exposure of people cycling through more vulnerable road conditions.

Where there is significant cycle demand and the length of the works cannot be reduced, provision of an off-road cycling facility or a general vehicular traffic diversion, whilst maintaining cycle access through the works site should be put in place.

2.12 Temporary Signing

Temporary routes and other facilities for the exclusive use of those who cycle (and walk) should be clearly signed well in advance of the road works and all temporary signs at roadworks must meet the requirements of the TSRGD. Further detailed guidance is provided in the DfT Traffic Advisory Leaflet 01/14: Temporary white on red signs at roadworks.

Designers must use prescribed signs where they exist before they design other temporary signs that are covered in Schedule 13 Part 9 of the TRRDG 2016. Where designers need to create temporary signs for people who cycle under this provision, they must be white text on a red background. If the sign contains a more general message, it should be black text on a yellow background. In order to promote consistency in terminology when designing signing, designers should use the definitions provided in Table 4.

Table 4: Terminology of Cycle Provision to be used on temporary signing

Cycle provision	Description
Cycle lane	On the carriageway, marked with a formal lane marking and allocated for use by cyclists (either mandatory using solid lane markings, or advisory, using dashed lines)
Cycle track	A right of way for pedal cycles with or without right of way on foot. It can either be part of a public highway adjacent to a carriageway, or a separate carriagewsy in its own right
Cycle route	A continuous series of links and junctions, signed and/ or branded as a coherent facility from A to B. For roadworks that are local in nature, signing should make reference to cycle lanes or tracks as appropriate. Only when a substantial section of a defined route is diverted onto an alternative road would reference be made to a route.
Cycle path	A non-specific term and should not be used on road traffic signs

Traffic management signs in the approach zone to roadworks must avoid being placed in the cycle lane unless all other options are ruled out. Signs which are placed in a cycle lane are highly likely to block the facility entirely; potentially forcing cycles into a more hazardous situation, or at the very least will create unsafe and unacceptable pinch points.

As discussed above, running lane widths must be suitable for all vehicle types that are likely to use the lane, which could mean that certain widths are hazardous to cycles sharing space with motor vehicles. If it is not possible to design the hazard out, the risk must be mitigated with signing. To minimise the risk arising from people who cycle being overtaken too closely in a narrow lane where the risk cannot be designed out and to improve comfort levels for people who cycle, the “narrow lane do not overtake cyclists” sign should be used (Figure 3). Greater risk at bends, pinch-points and corners may also justify a ‘do not overtake’ sign.

The sign should be placed on all approaches to the narrow lane, normally after the road narrows sign or lane closure (wicket board) signs and prior to the first cone, and only be used where all of the conditions apply:

- Where cycles must share a lane with motor vehicles as no suitable alternative facility is achievable
- Where the carriageway is either a single carriageway of any speed limit, or a dual carriageway where the permanent speed limit is 30mph or less
- Where there is only a single lane available for traffic in the given direction
- Where the available lane width is 3 metres to 3.5 metres

Additional circumstances where signage should be used to mitigate against hazards for people who cycle include:

- Where necessary, and particularly where gradient could impact on the speed of people who cycle, signs warning drivers of slow moving traffic should be provided
- "Cyclists dismount and use footway" signs should only be used as a last resort and only when all other reasonable possibilities have been exhausted. In the vast majority of cases, the network can be reconfigured to retain space for cycling and the use of this sign is very much a last resort option.
- Where the 'dismount' signs are unavoidable, works promoters should consider the impact of cyclists who wilfully ignore the signed instruction and potentially compromise the safety of pedestrians. Not all cyclists are able to dismount easily, especially those using cycles as mobility aids.
- Where a cycle lane is closed within the carriageway and cycles are directed to join the traffic by blue and white arrows and cone tapers, there is no requirement for additional 'cycle lane closed' or 'cycle lane closed ahead' signs.

Figure 6: Cycle lane closure sign

However, if the works necessitate the closure of a cycle lane and motor vehicles are necessarily directed to use the lane, then the signs would be expected to notify all road users that motor vehicles will need to enter the cycle lane.

- When signing is required to give instructions or information to people who cycle (eg 'Cycle lane closed'), designers must consider the need for advance signing (eg 'Cycle lane ahead closed'), so that people who cycle may alter their road position in good time. This is especially important on declines and sections of road with high cycle demand.

Figure 7: Cycle Lane Ahead Closed sign

- Where people who cycle are required to merge back in with motor vehicle traffic because a cycle lane or cycle track is closed ahead, it would not be necessary to sign a cyclist diversion route. It should be clear to people who cycle approaching from either direction where the facility is closed, where they can safely join the carriageway and where the facility is re-

opened. Excessive signing contributes to clutter and creates potential obstructions and maintenance issues.

- For longer duration works, semi-permanent sign installation may be preferable to conventional temporary A frame signs. These reduce trip hazards and maintenance and ensure the signs remain visible and effective at all times.

2.13 Temporary Traffic Signals

When designing temporary traffic signals at roadworks, consideration needs to be given to the varying speeds of traffic passing the site. Temporary traffic signals must give greater clearance times for slow moving traffic, allowing people who cycle enough time to pass safely through the roadworks before giving the opposing traffic flow their green time.

Appropriate intergreen times must therefore be used to prevent collisions or unsafe passing with oncoming motor vehicles in a shuttle lane. If roadworks are located on steep hills, it may be necessary to give people who cycle longer clearance times to negotiate the roadworks safely. It is advised that signs warning motorists about slow moving traffic past the site are provided where necessary.

Research suggests that the expected speed for vehicles passing through temporary traffic lights is 10 metres per second (or 22mph), when following the DfT guidelines (as DfT's "Pink Book": 'An Introduction to the use of Portable Vehicular Signals, 2016'). people who cycle typically average a speed of 4.5 metres per second, or 10mph (applied across all cycling journey time signs in Essex). This is supported by TfL guidance: London Cycle Design Standards. Chapter 6: Signs and Markings.

Therefore, when designing temporary traffic signals it is clear that the very different needs of cyclists to motorists should be considered, and particularly so when the roadworks are located on a long length or on an uphill gradient where cyclists' speeds will be lower still. As a rule of thumb, people who cycle require at least twice the time for motor vehicles to pass through roadworks; more time may be required on uphill sections or where there is a lengthy stretch of works (Table 5).

This information should supplement the recommendations of the DfT's "Pink Book" and require the designers of temporary traffic management to provide sufficient time for cyclists to pass through temprary traffic signals.

Table 5: Time required (seconds) for motorists and cyclists to travel through roadworks

Vehicle type	Average speed(m/s)	Length of roadworks (m)					
		50	100	150	200	250	300
Motor vehicle	10	5	10	15	20	25	30
Cycle	4.5	12	23	34	45	56	68

2.14 Use of Barriers

Careful consideration needs to be given to selecting the most appropriate equipment to segregate people who cycle from the safety zones and protecting the works area. This hazard could be minimised by the use of a solid barrier and closely spaced cones in the taper and the first metre, then normal cone spacing along the remaining length, whilst also providing barriers alongside the linear safety zone. This would provide a clearer obstruction to people who cycle, to discourage encroachment into the working and safety zones.

Where barriers are required along longitudinal runs, the site should be checked to ensure the feet or bases of the barrier do not present a hazard to the pedals of bicycles.

2.15 Surface Quality

People who cycle are particularly vulnerable on uneven, slippery or excessively rough surfaces and designers should be mindful of this. Risk assessments should be undertaken to ensure that people who cycle are not guided into hazardous surfaces and raised ironwork.

If cyclists are signed onto a diversion route, the surfacing on the alternative alignment should be similarly assessed and made safe if necessary before the diversion is acceptable.

2.16 Use of Ramps and Boards

Existing cycle infrastructure with different characteristics require assessment before a decision about the type of temporary ramp or board to use is made. Where cycle infrastructure is on footways, conventional footway boards will be sufficient.

Boards, humps or ramp approaches that are greater than 50mm high should be sinusoidal in profile. If a sinusoidal ramp is not achievable, leading edges of ramps should be clearly highligted or clearly marked.

Temporary ramps should have high friction surfaces and should avoid adverse cambers as certain cycles are more prone to tipping over, such as disability cycles, tricycles and cargo cycles.

In accordance with the London Cycling Design Standards, maximum linear ramp gradients should normally be between 1:10 and 1:20. It is recommended that the new surface of the ramp be continued 500mm beyond the ramp into the existing carriageway surface to produce a smoother, easier to ride profile.

All temporary ramps should be signed with ‘Ramp’ signs to highlight the hazard. Where advanced visibility is fully or partially obscured, or it could reasonably be expected to be obscured during high cycle flows, a supplementary ‘Ramp ahead’ sign is advisable.

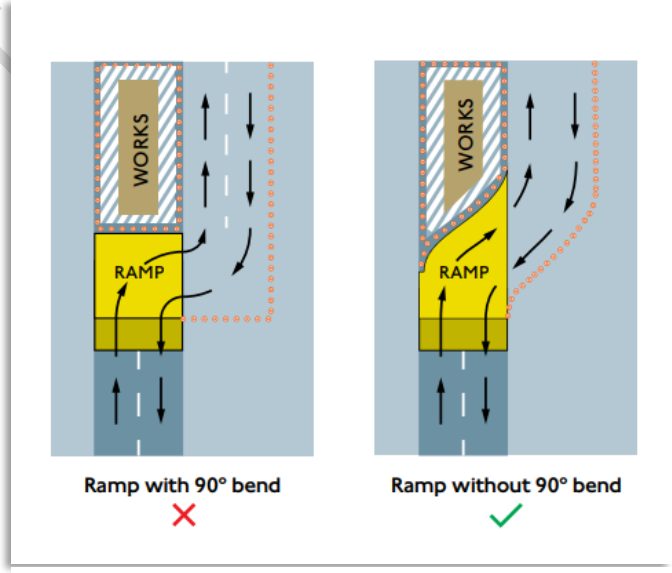

Figure 8: Cycle ramps with turning circles

2.17 Works on the Carriageway Without Cycle Lanes

Where works occupy an area in the carriageway where there is no permanent provision for cycle lanes (this may include bus lanes), either at the location or in close proximity to the approaches to the site, it is not normally expected that a temporary cycle lane would be required for the works. In these instances the traffic management would look typically generic with no additional measures for people who cycle, except for signing to warn of narrow lanes when lane widths are less than 3.5 metres.

However, if a risk assessment identifies that the road layout and/ or workspace requirements place people who cycle in a significantly more vulnerable position, then the provision of a higher level of service for cyclists, than is usual for the location, may be appropriate.

Where there is an identifiable increased risk to people who cycle, consideration should be given to providing a facility through temporary carriageway markings or physical segregation. Risks include heavy traffic flows, poor surface quality, construction traffic movements, or high volume of cyclists. The available space and resulting lane widths available will be a key consideration in addition to the risk, as discussed above.

As discussed previously, the works site length should be kept to a minimum to reduce the impact on general traffic and exposure and discomfort to people who cycle. When considering the length of traffic management arrangements, designers should be mindful of the likely speeds of cyclists passing through sites and any adverse impacts of gradients on speed.

2.18 Works on the Carriageway With Cycle Lanes

When it is apparent that the roadworks working area or safety zones will cause obstruction to an existing cycle lane within the carriageway, it is expected that the cycle facility will be re-provided past the temporary works **unless the risk to people who cycle has been deemed acceptably low.**

As before, if it is not possible to provide delineation or segregation, designers are expected to implement risk mitigation using other measures, such as:

- Using hazard warning signing
- Separation of road users by diverting motor vehicles
- Separation of road users by diverting people who cycle along a different route from motor vehicles
- Speed reduction

Designers should be mindful of cyclist behaviours and the possibility of cyclists preferring to enter and exit the works between individual barriers so as to avoid conflict with traffic. In these instances, to prevent access and egress for the cyclist along the lane, the use of continous barriers is recommended.

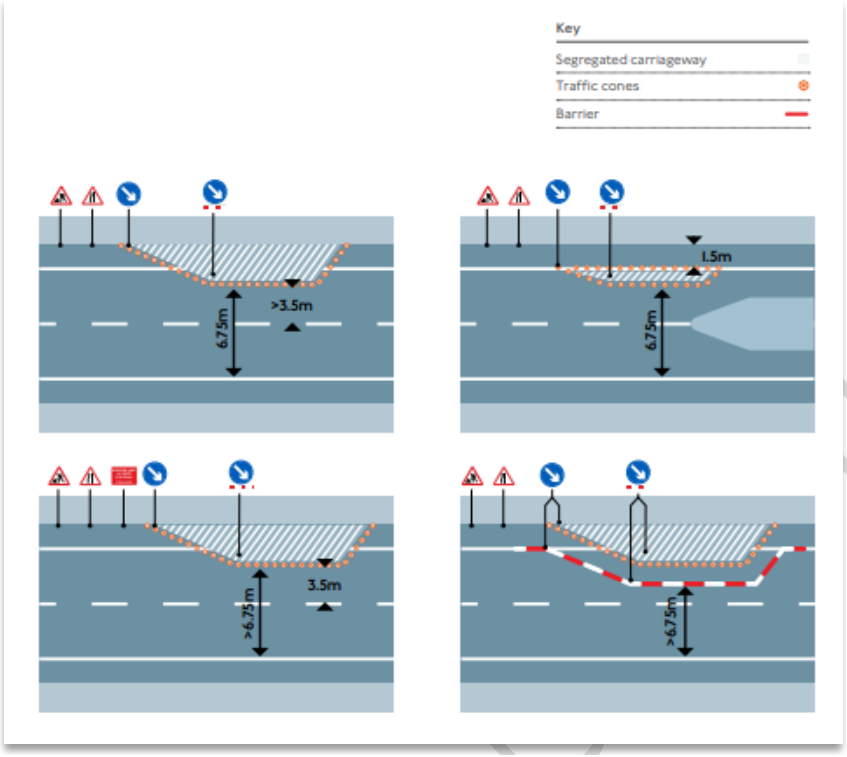

Figure 9: Alternative examples for works in or adjacent to cycle lanes

2.19 Works on Carriageways with Light Segregation

Light segregation is a term given to the use of physical objects intermittently placed along the inside of a cycle lane marking to give a higher degree of separation and protection to motorists over motorised traffic. In effect, light segregated lanes are a variant of mandatory cycle lanes and should be treated as such during periods of roadworks. Therefore, designers of temporary roadworks should refer to the section about *Works on the Carriageway With Cycle Lanes*, above, for guidance as to how this infrastructure should be re-designed to best accommodate those cycling through roadworks.

2.20 Works on Cycle Tracks

Segregated cycle facilities feature on the Essex cycle network and provide vital links for people who cycle. They are a complicated facility to design for in terms of temporary traffic management if they are blocked or obstructed by works as consideration needs to be given to the managing the passage of pedestrians, cyclists and motor vehicles, all with separate facilities that will often intersect. This is complicated further in the case of bi-directional tracks.

Signalised junctions will need detailed consideration and consultation with Essex Highways will be required to ensure traffic management designs can be operable and safe in conjunction with the phasing of the signals.

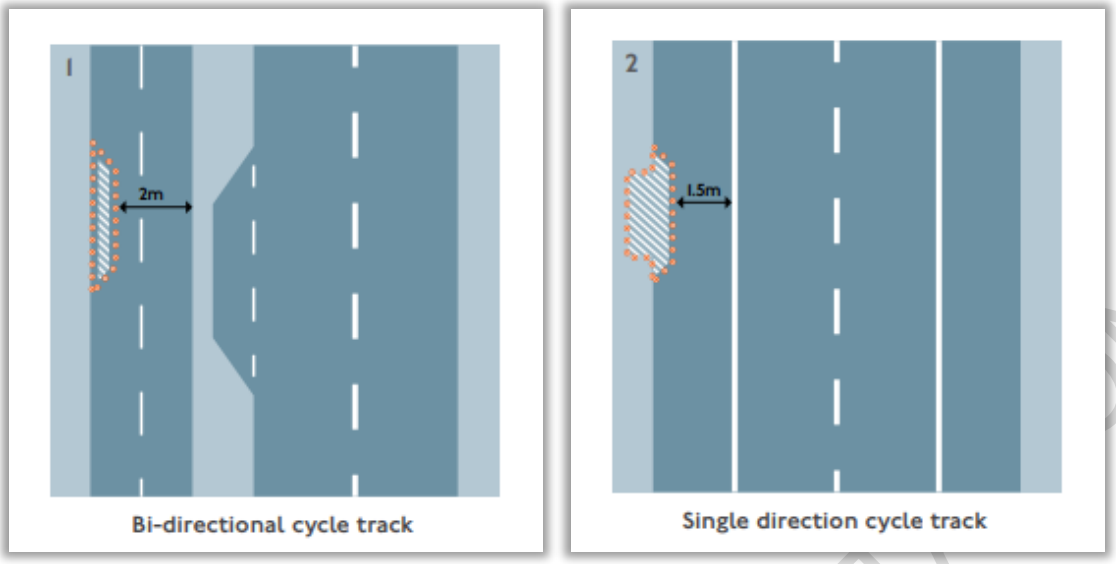

Figure 10: Desirable minimum cycle track and cycle lane widths

In instances where partial obstruction of the segregated cycle tracks is required for works, the same sign sequence and signing principles apply to cycle traffic in the track as to general vehicular traffic in the carriageway.

A number of factors will feed into the calculation of the necessary space remaining open to cycling, including: predicted cycle flows; the day and time of works; and the duration of the works. Track widths should adhere to the following principles:

- Bi-directional tracks: 2 metres desirable minimum total track width
- Single direction tracks: 1.5 metres desirable minimum total track width

The segregation boundary should be well maintained with cones or barriers, avoiding protruding feet which can hinder cyclists' pedals and degrade their safety.

Should works require the total obstruction of the cycle facility, the designer should first seek to provide a segregated facility of similar level of service past the works. This will most likely require the cycle track to be re-routed onto the carriageway. If this is not possible, those cycling could potentially be diverted onto the footway by creating a new shared-use footway to enable them to continue without dismounting. In the event that neither of these options is possible, those cycling should be redirected to join the carriageway at a safe location.

2.21 Shared-Use Footways

It is not generally desirable to providing temporary shared use footway (cycles and pedestrians) as traffic management solutions for roadworks. Efforts should be made to accommodate cycles safely on the track or carriageway.

Where it is deemed necessary, an assessment of the cycle and pedestrian flows will need to be made to ensure the design is robust and viable for the anticipated demand. Local Transport Note LTN 1/1217 'Shared use routes for pedestrians and cyclists'[i] is a useful reference guide, as is the London Cycling Design Standards, which gives indicative pedestrian and cycle flow ranges for shared facilities

The characteristics of shared-use footways can vary significantly and will influence the optimum traffic management design solution. A local risk assessment must therefore be undertaken to understand:

- The locality of street furniture
- Access to properties
- Flows of cycles and pedestrians when the works are taking place
- Whether the route has any form of segregation
- The length of works
- The nature of the adjacent carriageway and available space

A width of 3 metres is the desirable minimum for shared path with two way cycling but, this is heavily dependent on user flows. On shared use routes with single direction cycle routes the desirable minimum width is 2.5 metres, however this maybe reduced with low usage footways.

For works of longer durations and where wider footways are present and subject to cycle and pedestrian flows, the creation of a shared facility may be possible. This would however require a permit to be obtained through the ECC The Essex Permit Scheme: Transport and Infrastructure, 2014, process.

2.22 Road Safety Audit

A Road Safety Audit may be required for temporary traffic management schemes, particularly if they are intented to remain in operation for a period of six months or more. Consideration should be given to auditing temporary traffic management schemes that are to remain in operation for a period of less than six months if a significant impact on the highway network is anticipated.

2.23 Example Layouts

TfL's Temporary Traffic Management Handbook: Keeping People Safe at Roadworks[ii] provides some example drawings adopting the general principles detailed in the above sections in order to assist with the design of temporary traffic management to cater for people who cycle more adequately.

In developing the most appropriate solution, reference should also be made to the 'Cyclists and temporary traffic management design checklist' shown below.

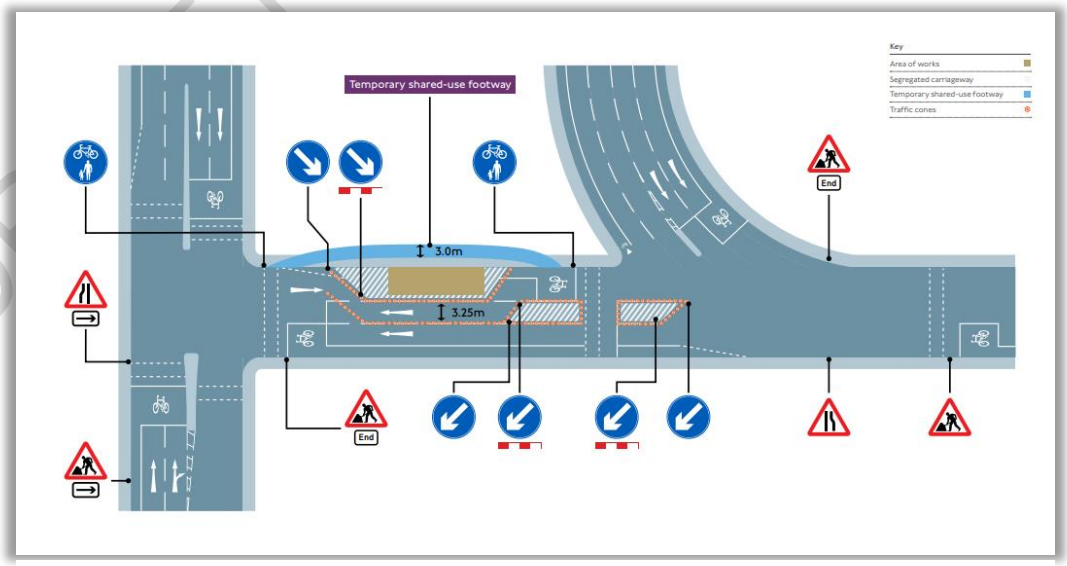

Figure 11: Example Road Layout - Temporary Shared-Use Footway

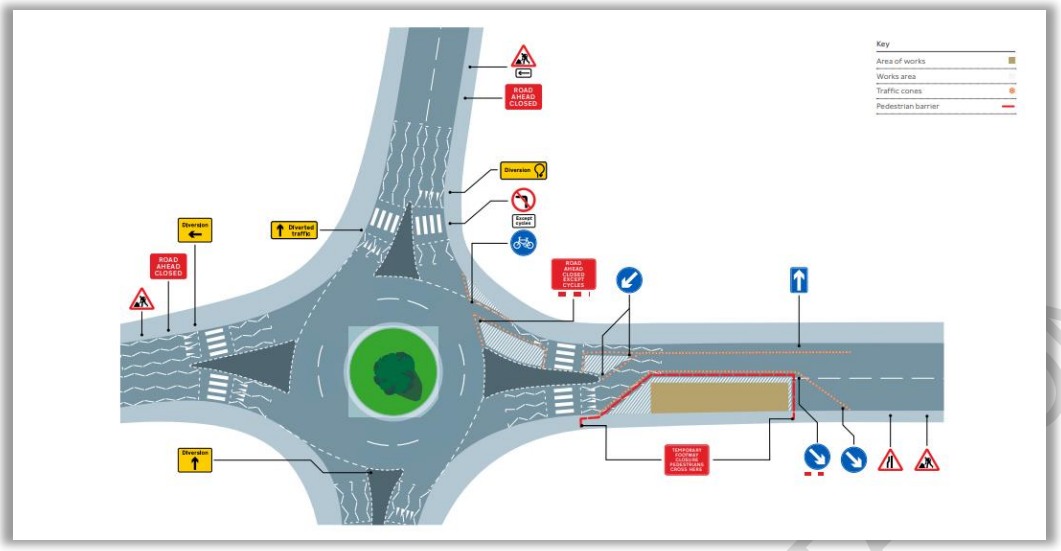

Figure 12: Example Road Layout - Cycle Contraflow System

2.24 Cyclists and Temporary Traffic Management Design Checklist

TfL's Cyclist and Temporary Traffic Management Design Checklist, which can be found in the London Cycle Design Standards, 2014, has been modified below (Table 6), with some Essex specific amendments to create a useful pro-forma which takes the designer of temporary traffic management though the thinking process from a cycle-friendly point of view.

This Checklist is intended to ensure all aspects are considered when designing 'cycle friendly' roadworks on the Essex Highway network. The correct signing of roadworks is essential to inform road users of changes to layouts, routes and any hazards. Schedule 13 of the TSRGD provides guidance for the design of signs in temporary situations applicable to Essex. Due to the level of detail provided, it is recommended that designers should be directed to the TSRDG document itself (https://tsrgd.co.uk/pdf/tsrgd/tsrgd2016.pdf) when considering specific sign regulations and dimensions.

Table 6: Cyclist and Temporary Traffic Management Design Checklist

Project name:			
Location:			
General Comments:	Type of area (urban, rural, residential, town centre etc) Any local geographic/ geometry features?		
Road number:		PR1/ PR2/ Local road/ private road/ other	
Cycle Network		PC1/ PC2/PC3/NCN/ other	
AADT (two-way):			
Peak hour cycle flow (two way):			
% Commercial vehicles			

Existing cycle facilities		**Proposed temporary cycle facilities**	
Direction 1:		Direction 1:	
Direction 2:		Direction 2:	
Junction 1:		Junction 1:	
Junction 2:		Junction 2:	
Existing speed limit (mph):		Proposed speed limit (mph):	
Existing no. of lanes:		Proposed no. of lanes:	
Existing nearside lane width (m) if no cycle lane:		Proposed nearside lane width (m) if no cycle lane:	

Cycling at Roadworks – process checklist		Y, N, N/A
1	Have you undertaken a site specific risk assessment to determine:	
	- Level of use ?	
	- Vehicular mix ?	
	- Geometry ?	
	- Level of risk to people who cycle ?	
2	Have existing cycle facilities/level of service been retained where practicable? If not, see below:	
	- Maintain access for people who cycle by implementing contra-flow working?	
	- Has adequate signage on approach been provided to indicate cycle access is maintained and warn road users of contra-flow working? This is especially applicable on rural routes and warnings for those cycling (whether road is closed or excepted for cycles) be provided at earliest opportunity.	
3	Maintain access for people who cycle by diverting motor vehicles?	
	- In the case of (3), do signs indicate access for cycles is maintained on all approaches?	
4	Where it is not possible to maintain access for people who cycle, can motor vehicles and people who cycle be diverted along different routes?	
5	Where access can only be achieved by retaining cycle access on carriageway with motor vehicles:	
	- Have appropriate lane widths for people who cycle been achieved?	
	- If narrow lanes, 'do not overtake cyclists' signs specified?	
	- Have the length of works been considered to reduce exposure and improve comfort of people who cycle ?	
	- Have temporary speed limit reductions been implemented?	
	- If the answer to any of (5) is no, why not?	
6	For one way working, requiring temporary traffic signals:	
	- Do signal timings allow clearance times for people who cycle and slow moving traffic?	
	- Has additional allowance of time been made on uphill gradients?	
	- Have adequate warnings been given to road users?	
	- Are temporary signal cables in existing ducts or using wireless portable traffic signals?	
7	Have correct signing and clear warnings been given to road users of diversions and hazards, incorporating "do not overtake" where necessary, as well as highlighting slow moving vehicles?	
8	Are there effective barriers to work sites, preventing people who cycle from entering (barriers / closely spaced cones to deter cycle encroachment)?	
	- Where continuous barriers are used, are cycle 'escape areas' provided?	
	- Are the length and number of pinch points minimised?	
9	Is an alternative off-carriageway cycle facility necessary?	

Cycling at Roadworks – process checklist		Y, N, N/A
10	Off line cycle diversion required (potentially different diversions for motor vehicles and cycles)- ensure cycle diversion is appropriate?	
	- Temporary off carriageway cycle facility signed and TTRO?	
	- Cycle safety, and surface checked on diversion?	
11	Provide correct surface, ghaving considered the needs of people who cycle:	
	- Has surface been checked for exposed ironworks?	
	- Are cable covers suitable	
	- Have appropriate ramps, boards and transitions been used?	
12	Has an offside merge been provided on two lane carriageways?	
13	If all alternatives have been rejected, as a last resort, have “cyclists dismount” signs been provided?	
14	If no alternative, have “cycling prohibited” signs been provided?	
15	Is a Road Safety Audit required?	

Appendix A: Relevant Document Reviews

Introduction

In order to understand the context within which the resulting guidance for cycling at roadworks will sit, the point from which this is starting within Essex and the direction in which it should be developed, a review of relevant documents has been undertaken, which included:

- A review of existing legislation and guidance
- Understanding the wider legilslative context
- Understanding Existing Legislation for Cyclists at Roadworks
- Review of Essex-specific guidance

Review of Existing Legislation and Guidance

In order to establish the content of the final document, a review has been undertaken of existing legislation and guidance that currently governs the design and implementation of temorary road and streetworks, and specific considerations for people who walk and cycle.

The following research routes have been undertaken:

- *Understand the wider context*
  - The Health & Safety at Works Act, Health and Safety Executive, 1974
  - The Highways Act, 1980
  - The Roads and Streetworks Act, 1991
  - Disability Discrimination Act, 1995
  - Equality Act, 2010
  - Construction (Design and Management) Regulations, Health and Safety Executive, 2015
- *Understand existing guidance*
  - Review the 'Traffic Advisory Leaflet 15/99 - Cyclists at Roadworks, DfT 1999'
  - Review the 'Local Transport Note 2/08: Cycle Infrastructure Design. DfT, October 2008'
  - Review 'Traffic Signs Manual 2009: Chapter 8 Traffic Safety Measures and Signs for Road Works and Temporary Situations'
  - Review 'Safety at Street Works and Road Works – A Code of Practice, 2011 (updated 2013)', otherwise known as the "Red Book"
  - London Cycling Design Standards Consultation Draft, June 2014 (to understand the direction, flavour and content of recent London-based guidance)
  - Review 'The Traffic Signs Regulations and General Directions (TSRGD). DfT, 2016'
  - Review TfL's Temporary Traffic Management Handbook, December 2018
  - CD 195 Desigining for Cycle Traffic, Highways England, 2019
  - Design Guidance: Active Travel (Wales) Act 2013. Welsh Government Procedure and Advice Guidance (PAG) 102/14, Welsh Government, December 2014
- *Review of existing Essex-specific guidance*
  - Review 'Essex Highways HPN 018: Pedestrians and Cyclists at Road Closures, April 2013

Through review of the above documents, it is possible to understand the legislative requirements governing the design of roadworks for the safety of road users and works, and the shortcomings of the existing guidance for Essex. In doing so, it has been possible to identify guidelines that should be included in the emerging guidance.

An overview of each of the documents that has been reviewed has been provided in the sub-sections below, with recommendations for the new document, outlining the new Essex-specific guidance, provided in Sections 0, 0 and Appendix A.

Understanding the Wider Legislative Context

The Health & Safety at Work Act, 1974

The Health & Safety at Work Act 1974 requires all clients, employers and employees to establish and maintain safe systems at work. Highway Authorities, statutory undertakers and contractors must give due attention to the detailed traffic management arrangements at road works sites and incident locations in order to ensure the safety of the public and of their own employees at these obstructions.

Highways Act 1980

Within the Highways Act 1980, section 174 outlines the requirements for street works and road works sites to be signed and guarded to ensure the safety of those using the highway. Section 174 makes it clear that the proper guarding, lighting and signing of the works are the responsibility of the person carrying them out. Failure to comply with this code is a criminal offence which can lead to criminal prosecutions.

The Roads and Streetworks Act, 1991iii

Similar to the Highways Act, the Roads and Street Works Act 1991 (NRSWA), supported by relevant Regulations and Codes of Practice, provides a legislative framework for street works by undertakers (including utility companies) and works for road purposes. The purpose of the act is to balance the statutory rights of highway authorities and undertakers to carry out works with the right of road users to expect the minimum disruption.

The Code reflects various changes made to the provisions of NRSWA under the Traffic Management Act 2004 (TMA). The TMA tightens the regulatory framework within which undertakers dig up roads, giving authorities more power to co-ordinate, control and direct works effectively with the aim of minimising disruption.

The Code also incorporates the requirements set out in the following regulations:

- The Street Works (Registers, Notices, Directions and Designations) (England) Regulations 2007,SI 2007, No. 1951;
- The Street Works (Fixed Penalty) (England) Regulations 2007, SI 2007, No. 1952; The Street Works (Charges for the Unreasonably Prolonged Occupation of the Highway) (England) Regulations 2009, SI 2009, No. 303 (as amended by SI 2012 No. 2272);
- The Street Works Register (Registration Fees) Regulation 1999, SI 1999, No. 1048; and
- The Street Works (Charges for Occupation of the Highway) (England) Regulations 2012, SI 2012 No. 425.

Disability Discrimination Act, 1995

The Disability Discrimination Act (DDA) works to protect people with disabilities – including blind and partially sighted people – from discrimination. Anyone with a disability is protected by the DDA.

The New Roads and Street Works Act 1991 (NRSWA) sets out the objectives of the coordination function:

- to ensure safety
- to minimise inconvenience to people using a street, including a specific reference to people with a disability
- to protect the structure of the street and the apparatus in it.

Part III of the Disability Discrimination Act 1995 (DDA) as amended by the DDA 2005, gives disabled people a right of access to goods, facilities, services and premises. Therefore under this act, we have a duty to take into account the needs of people with all types and degrees of disability through consultation and design of roadworks.

Construction (Design and Management) Regulations 2015 (CDM)

Under the Construction (Design and Management) Regulations 2015 (CDM), clients, designers and contractors have legal duties to plan, co-ordinate and mange health and safety throughout all stages of the project. CDM goes hand in hand with the Management of Health & Safety at Work Regulations 1999 (MHSW) which establishes the need for work to be managed in a way that prevents accidents and ill health.

Understanding Existing Legislation for Cyclists at Roadworks

Traffic Advisory Leaflet 15/99 - Cyclists at Roadworks, DfT 1999

The Traffic Advisory Leaflet 15/99 - Cyclists at Roadworks was produced by DfT in 1999 and originated from the fact that there was an average of 8.3 road works per year per km of road, ranging from minor openings in the footway, lasting less than an hour, to major works such as structural maintenance of the carriageway, or bridge strengthening. Larger road works often involve road closures and lengthy diversions and can last weeks or months. At the time of the report, about 200 cyclists were reported injured at road works in Great Britain per year. Approximately 40 of these were serious or fatal injuries. This represents 5% of all accidents that occur at roadworks.

The study found that the main safety concern for cyclists at road works was drivers overtaking within narrow lanes and leaving inadequate passing distances. It was found that this was also a problem for cyclists at other locations but was particularly critical at road works due to the complication of only one operation lane and other complicating factors such as cones, bad surfaces and tidal flows.

Key Guidance:
The engineering recommendations provided by the guidance include:

a. **Temporary Speed Limits:** More use should be made of temporary speed limits, especially where motor vehicles are unable to pass cyclists safely, e.g. where the effective lane width is less than 3.5 metres. These should be backed by appropriate enforcement measures, where feasible.
b. **Lane Widths:** Subject to the type of traffic expected to pass through the road works, lane widths should be maximised wherever possible (see Table 1 for guidance). Lane widths between 2.75 and 3.25 metres should be avoided in most cases.
c. **Signal Timings:** Traffic signals should give cyclists sufficient opportunity to pass safely through road works, particularly where oncoming motor vehicles cannot pass without conflict.
d. **Maintaining Access:** Wherever possible, access should be maintained for cyclists in both directions throughout the period of road works, avoiding more hazardous diversions. Cyclists are unlikely to accept lengthy detours or long delays. In such conditions some cyclists will be tempted to ride contra-flow or use the footway.
e. **Route Signing:** Routes and other facilities for the exclusive use of cyclists (and pedestrians) should be clearly signed well in advance of the road works.
f. **Existing Cycle Facilities:** Where there is cycle provision, such as cycle lanes or tracks, efforts should be made to keep these open or to provide an acceptable alternative during the road works. They should not be blocked by signs, debris, plant, etc.
g. **Special Provision:** Cyclists will often ride contra-flow or use the footway to avoid potential hazards or lengthy diversions. This can be avoided by, for instance, providing a segregated

cycle lane or route away from the carriageway. This kind of provision is likely to be desirable or even essential on dual carriageways or multi-lane roads.

h. **Road Surfacing:** It should be borne in mind that cyclists are particularly vulnerable to rough surfaces (temporary or otherwise). Therefore, wearing courses should be kept as level as possible, especially at locations where cycling demand is known to exist.
i. **Equipment and Materials:** Care should be taken not to place cones, signs and other items in locations likely to cause hazards to cyclists.
j. **Cyclist Dismount and Footway Cycling**: Where access is permitted for motor vehicles, "Cyclist Dismount" signs should not be used. The hazards to cyclists at roadworks are rarely great enough to justify this measure. In any case, cyclists are likely to ignore such instructions. The only situation where cyclists should be advised to dismount is where the carriageway is closed off but the footway remains open. In such cases a white-on-red temporary sign "CYCLISTS DISMOUNT AND USE FOOTWAY" may be used.

Local Transport Note 2/08: Cycle Infrastructure Design, DfT, October 2008

This design guide brings together and updates guidance previously available in a number of draft Local Transport Notes and other documents regarding the design of cycle infrastructure. Although its focus is the design of cycle infrastructure, parts of its advice are equally appropriate to improving conditions for pedestrians. The guidance provides no specific guidance regarding the provision for cyclists at roadworks or during periods of temporary traffic management.

Traffic Signs Manual Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations, DfT, 2009

Chapter 8 of the Traffic Signs Manual provides guidance for those responsible for the design of temporary traffic management arrangements which should be implemented to facilitate maintenance activities or in response to temporary situations, with particular reference to how how temporary works should be signed and guarded. Though this document has no statutory status, it is still considered best practice and compliments the Safety at Streetwork and Roadworks: A Code of Practice by DfT (outlined below).

Safety at Streetwork and Roadworks. A Code of Practice, DfT, October 2013

The Safety at Streetworks Code of Practice is intended to ensure the safe delivery of signing, lighting and guarding of street works and road works on all highways and roads, except motorways and any dual carriageways with a speed limit of 50 mph or more. The Code is directed at operatives, supervisors, managers, planners and designers who are responsible for making sure that all street and road works are safe for both operatives and the public. Failure to comply with this code is considered a criminal offence which can lead to criminal prosecutions.

Existing provision within the Code of Practice identifies that cyclists should be given different consideration to motorists, particularly with reference to maintaining access on the carriageway for cyclists, even if it needs to be closed to motor vehicles. Whilst useful, the extent of the guidance is limited in scope.

TfL London Cycling Design Standards Consultation Draft, June 2014

The revised London Cycling Design Standards (LCDS) sets out the approach needed to deliver consistenty higher standards of cycling infrastructure. This document is used to inform design options and promote an integrated and ambitious approach to delivering high quality infrastructure for cycling in all parts of London, and is currently used as the accepted design standards for Essex.

Section 2 of this document provides guidance for those planning, designing and operating temporary traffic management associated with construction activities on the highway to ensure that the convenience and safety of cyclists is fully considered alongside the needs of all other road users, as well as those undertaking the works.
The document highlights the importance for traffic management designers to **examine and assess each and every site individually** and not just apply standard layouts. Each option should be carefully considered and risk assessed to ensure that the most appropriate option is taken forward.

The London Cycling Design Standards consider the following as the key potential hazards or impacts that must be considered when designing 'cycle friendly' temporary traffic management, all of which are relevant in the Essex context:

- pinch points that 'squeeze' cyclists
- removal or obstruction of existing cycle lanes or tracks
- unacceptably long diversion routes
- inappropriate use of temporary 'cyclists dismount' signs: where a clear route has
- been maintained, cyclists should still be able to use the carriageway
- poor temporary road surfaces, including raised ironworks
- raised cable protectors, hoses or road plates
- road closures (without cyclist exemption)
- one-way working (without cyclist exemption)
- cyclists entering the work site
- measures to avoid conflicts between cyclists and other vulnerable road users

Consideration of these issues is required from the outset of every project, whether it is a major scheme or minor maintenance.

Design Guidance: Active Travel (Wales) Act 2013. Welsh Government Procedure and Advice Guidance (PAG) 102/14, December 2014

This document sets out the Welsh Government's ambition, to be at the forefront of new thinking about active travel, through this ground-breaking Active Travel Act. For the first time, this legislation places a clear obligation on local authorities to provide transport systems that enable walking and cycling to be the first and natural choices when people need to make short everyday journeys. This PAG sets out how local authorities should set about the task - sometimes for the first time - of planning and designing comprehensive networks of walking and cycling routes that connect places that people need to get to, whether for work, education, shopping or for other reasons.

It draws together best practice on infrastructure design, including innovative techniques, and gives guidance on how best to provide vital related facilities, such as cycle parking. It also explains how improving conditions for cycling and walking should be integrated into the general duties of authorities when planning, designing and maintaining highways. All of these elements will be essential if Wales is to achieve the First Minister' s ambition of having the best cycling infrastructure in Europe.

In Section 10.17, the document sets out how active travel is to be maintained through roadworks. It refers to Section 9 of the Active Travel Act requires that roadworks should provide suitable provision for pedestrians, cyclists, including disabled people, and cyclists – and preferably cyclists without having to dismount. It directs that equipment located on the footway should be fenced off and the accessibility of the route maintained for all types of user, with signed diversion routes where necessary.

The Traffic Signs Regulations and General Directions (TSRGD), 2016iv

The TSRGD 2016 prescribe the designs and conditions of use for traffic signs to be lawfully placed on or near roads in England, Scotland and Wales. The Traffic Signs Manual (listed in section 0, above) is a companion guide to the TSRGD which sets out dimensions and other details for using the authorised signs and markings. The current edition of the TSRGD regulations came into force on 22 April 2016, with minor amendments in England and Wales in 2017.

Schedule 13 of the TSRGD provides guidance for the design of signs in temporary situations applicable to Essex. Due to the level of detail provided, it is recommended that designers should be directed to the TSRDG document itself (https://tsrgd.co.uk/pdf/tsrgd/tsrgd2016.pdf) when considering specific sign regulations and dimensions.

TfL Temporary Traffic Management Handbook: Keeping people safe at roadworks, December 2018

The 'TFL Temporary Traffic Management Handbook: Keeping people safe at roadworks' is the most recent and useful guidance available on the design of provisions for transport users at roadworks.

The handbook sets out good practice for those involved with roadworks and other construction-related activities on TfL's road network (TLRN), and is aimed at keeping people safe when they travel on London's road network by foot, by cycle or by bus. The document supplements existing national standards and TfL expect anyone involved with the design, planning, implementation and inspection of temporary traffic management on the TLRN to follow this guidance. The overall aim is to ensure that works are not a barrier to people travelling. TfL's vision is to accomplish a zero-risk standard for roadworks operations by 2025.

Whilst this guidance is London specific, given the relevance of London Cycling Design Standards within Essex, it is considered appropriate to use this document as a guideline for Essex because it is the most relevant, up to date and comprehensive approach to setting out guidance for designers of temporary road works and traffic management. It is acknowledged that further guidance will need to be provided with regard to road work requirements in rural environments, for example in terms of diversion length, to make it suitable to the Essex context.

CD 195 Designing for Cycle Traffic, Highways England, 2019

The CD 195 Designing for Cycle Traffic section of the Design Manual for Roads and Bridges (DMRB) provides the Highways England-specific requirements for cycle traffic on the trunk road and motorway network. The guidance is intended to be used by highway design professionals to facilitate the covenient and safe movement of cycle traffic, where cycling is legally permitted.

Whilst detailed guidance for the design of cycle infrastructure on Highways England roads is provided, the CD 195 document doesn't provide specific guidance for designing for people who cycle at roadworks.

Review of existing Essex-specific guidance

A Highways Practice Note (HPN) regarding Pedestrians and Cyclists at Road Works specific to Essex was produced by Essex Highways in April 2013, and can be seen in Appendix A. This document sets out the existing procedures to be followed to deteremine where and how pedestrians and cyclists should be dealt with during road closures within Essex. The need for the HPN came about due to inconsistencies in how these situations were being dealt with across the county.

The HPN currently provides the following high-level guidance along with reference to further information in the Traffic Signs Regulations and General Directions 2002 (TSRGD) and to relevant cycling contacts:

a. When considering the Notice or drafting the Order and designing the Traffic Management for road works and road closures, engineers will be required to assess the requirements of non motorised users within the scope of the works.

b. Where practicable pedestrian routes should remain accessible at all times, however where this is not possible due to safety considerations alternative diversionary routes should be as short as possible.

c. Where pedestrians and/or residents are allowed access through the road closure, cyclists must be accommodated. The Order and signing should indicate that access is available, however as it is an offense to cycle on a footway cyclist may need to dismount.

d. Where this is not possible alternative routes should be signed separately for cyclists especially when the diversion routes are more than two miles. Alternatively, cyclists could be diverted on the same route as pedestrians and asked to dismount. The diversion routes should not include any busy main roads. The use of Public Rights Of Way (PROW) should be investigated as possible diversion routes depending on the status and condition of the PROW route, with cyclists only being diverted onto bridleways or higher status PROW, and not onto footpaths

e. If separate signage for pedestrians and cyclists is necessary they will be black on yellow with a symbol so they are distinguished from the vehicular diversion signs.

Recommendations for Essex "Cycling at Roadworks" Guidance

Following review of the existing documentation in the above sections, it is noted that the existing Essex HPN 018 provides a good starting point for the guidance for cycling at roadworks, and an acknolwedgement that the needs of people who cycle need to be carefully considered. The underlying premise of the existing HPN, that access for pedestrians, those cycling and residents, should be maintained through roadworks is one that will be developed (for people who cycle) in the new emerging guidance for cycling at roadworks. The existing HPN provides brief and high-level guidance on the provisions for people who walk and cycle at roadworks, currently placing reliance on cyclists dismounting at roadworks. It is therefore recommended that more comprehensive guidance is required to address specific considerations for people who cycle.

It has been identified that the TfL Temporary Traffic Management Handbook: Keeping People Safe at Roadworks, December 2018, along with the London Cycle Design Standards, TfL, 2014, are the most relevant, up to date and comprehensive approaches to setting out guidance for designers of temporary road works and traffic management, with regards people who cycle. It is therefore recommended that Chapter 3 (Cyclists at Roadworks) of the Temporary Traffic Management Handbook, TfL, 2018 and the 'Cyclists at Roadworks' appendix of the London Cycle Design Standards should be used as the basis for this guidance developed for Essex.

Whilst the TfL guidance is applicable to the urban road network within Essex, specific requirements for provisions for people who cycle at roadworks in a rural context will need to be considered, for example the design of diversion lengths and temporary traffic signal phasing will be different in a rural environment.

To remain consistent with existing guidance, it is advised that the renewed Essex guidance for the provisions for people who cycle at roadworks should cover the following categories:

4. General Principles
5. Hazards to Consider
6. Detailed Design Guidance, to include:
    - Maintaining Access
    - Road Closures and Diversion Routes
    - Lane Widths and Temporary Speed Limit Reduction
    - Length of Roadworks
    - Temporary Signing
    - Temporary Traffic Signals
    - Use of Barriers
    - Surface Quality
    - Use of Ramps and Boards
    - Works on the Carriageway Without Cycle Lanes
    - Works on the Carriageway With Cycle Lanes
    - Works on Cycle Tracks
    - Shared-Use Footways
    - Road Safety Audit
    - Example Layouts

To ensure compliance from those involved in the design and implementation of road works is maintained, it is recommended that a design checklist template is created and encorporated into the Essex guidance, simlar to the checklist included in TfLs London Cycling Design Standards Consultation Draft (2014) document.

The above recommendations will be used to inform the development of a set of Essex guidelines for designing for Cyclists at Roadworks that adheres to and supplements the existing legislative requirements.

The emerging guidance is set out in Section 2 of this report.

Conclusions

To ensure that our roads and highways infrastructure are maintained, up to date and fit for purpose in a growing and prosperous region, roadworks are inevitable in Essex. However, they can be a cause of inconvenience to all road users and poorly planned and ill-designed roadworks can be an unnecessary barrier to people travelling, which can ultimately result in delays, inconvenient diversions and , in some cases, unsafe conditions. People cycling are often asked to dismount or join narrow, congested traffic lanes. Conversely, the proper planning and design of roadworks can lead to much more convenient solutions for cyclists being developed and much safer conditions created for all road users.

In Essex, there is presently very little guidance for the designers of roadworks, particularly in consideration of people who cycle, which this document seeks to address. It is intended that, through consultation with with relevant Essex Highways officers and members of Jacobs' Design Team, that Section 2 of this report can be used as the basis for a revised and updated "Cycling at Roadworks" section of Highways Practice Note (HPN 018).

In producing this document, a thorough review of the existing and recent guidance relating to the design of temporary road works has been undertaken (Appendix A) and elements of relevance have been extracted and included in the resulting recommended guidance for Essex (Section 2). It has

been observed that people who cycle face a number of potential hazards at roadworks and temporary traffic management, which this resulting guidance addresses, including: pinch points that 'squeeze' people who cycle unacceptably long diversion routes; lack of consideration for the slower moving speed of people who cycle through roadworks (particularly through temporary traffic signals and on uphill sections); poor temporary road surfaces (including raised ironworks); road closures (without cyclist exemption); people who cycle entering the work site; inadequate signing to caution drivers of the additional hazards facing, or caused by, cyclists; and cyclists merging with other traffic. It is considered that, in producing this guidance, designers of roadworks in the county will be minded to pay improved attention and greater consideration to the needs and concerns of people who cycle.

In order to address these hazards and allow the safer movement of people who cycle through roadworks, designers should follow the detailed guidance provided in Appendix A, sourced primarily from the TfL Temporary Traffic Management Handbook: Keeping People Safe at Roadworks, December 2018 and the London Cycle Design Standards, TfL, 2014. In summary. the key recommendations for designers that have emerged from the guidance include:

1. Undertake site-specific assessment to determine level of use, vehiclular mix, geometry and level of risk to people who cycle
2. Retain existing cycle facilities/ level of service where practicable
3. Maintain access for people who cycle through works by diverting motor vehicles
4. Where it is not possible to maintain access through the works for people who cycle, consider diverting motor vehicles and people cycling along different routes
5. Where access can only be achieved by retaining cycle access on carriageway with motor vehicles, give consideration to lane widths
   - In the case of (5), give consideration to temporary speed limits
   - In the case of (5) give consideration to the length of works to reduce exposure of people who cycle and promote cyclist comfort
   - In the case of (5), and if narrow lanes are utilised, provide adequate warning/ signing
6. For one-way working, requiring temporary traffic signals, ensure signal timings accommodate cycle passage as well as ensuring greater clearance times for slow moving traffic, particularly on uphill gradients, and that adequate warnings are given to motorists about the same.
7. Provide correct signing and clear warnings to people who cycle and motorists of diversions and hazards, incorporating 'do not overtake' where necessary, as well as highlighting slow moving vehicles (particularly on uphill sections and where one way working is in operation, which could result in people who cycle facing oncoming traffic if insufficient clearance times have been allowed)
8. When temporary signage is required, refer to the Traffic Signs Regulations and General Directions 2016 (TSRDG) guidance when considering specific sign regulations and dimensions.
9. Provide effective barriers to work sites, so that people who cycle are not able to enter work sites, keeping all vulnerable road users as safe as possible
10. Provide an alternative off-carriageway cycle facility if necessary/ possible
11. If an off-line cycle diversion is required, ensure it is of appropriate length, signed and surface is appropriate
12. Provide correct road surface, ramps, boards and humps (including transitions), having considered the needs of people who cycle
13. Provide an offside merge on two lane carriageways
14. Use 'cyclist dismount' signs only as a last resort and where absolutely necessary
15. If no alternatives are possible, use "cycling prohibited" signs
16. Consider whether a Road Safety Audit should be carried out, particularly if a worksite remains in operation for a period of six months or more, or if the work is ancipated to cause a significant impact on the highway network

The resulting document, Cycling at Roadworks: Guidance for the Designers of Temporary Roadworks in Essex, precedes this section, in Section 2.

Appendix B: Highways Practice Note (HPN) 018: Pedestrians and Cyclists at Road Closures

Essex Highways
Highways Practice Note 018 Pedestrians and Cyclists at Road Closures

Version 1 created by Rosemary Wilkins and Olive Porter

Pedestrians and Cyclists at Road Closures

Scope

To set out procedures to be followed, to determine where and how pedestrians and cyclists should be dealt with during road closures. This guidance will apply to all closures whether by Notice or by Order.

Background

The accommodation of pedestrians and cyclists during road works or road closures has not been consistent throughout the County. Many cyclists are left to follow lengthy diversions set up for vehicles whilst pedestrians and local residents are still allowed access to the roads in question. Neither the Order nor the signing on site is clear as to whether cyclists are allowed to use the closed road.

Policy

To ensure that all highway users are provided with a safe, suitable and appropriate alternative route through a road closure.

Practice

When considering the Notice or drafting the Order and designing the Traffic Management for road works and road closures, engineers will be required to assess the requirements of non-motorised users within the scope of the works.

Where practicable pedestrian routes should remain accessible at all times, however where this is not possible due to safety considerations alternative diversionary routes should be as short as possible.

Where pedestrians and/or residents are allowed access through the road closure, cyclists must be accommodated. The Order and signing should indicate that access is available, however as it is an offense to cycle on a footway cyclist may need to dismount.

Where this is not possible alternative routes should be signed separately for cyclists especially when the diversion routes are more than two miles. Alternatively, cyclists could be diverted on the same route as pedestrians and asked to dismount. The diversion routes should not include any busy main roads. The use of Public Rights of Way (PROW) should be investigated as possible diversion routes depending on the status and condition of the PROW route, with cyclists only being diverted onto bridleways or higher status PROW, and not onto footpaths.

If separate signage for pedestrians and cyclists is necessary, they will be black on yellow with a symbol so they are distinguished from the vehicular diversion signs.

A copy of the closure or diversion notices will be sent to known cycling groups in the area for information.

5. Further Information

Chapter 8
The Traffic Signs Regulations and General Directions 2002 (TSRGD)

List of Cycling Contacts

SMO1: (Braintree, Colchester, Tendring)

CTC - www.ctc.org.uk/local-groups

Sustrans - Liaison Ranger Alan Morgan www.sustrans.org.uk/sustrans-near-you or info@sustrans.org.uk

Clubs -
Colchester Rovers Cycling club - www.Colchester-rovers.org.uk/contract.asp
Cycle Colchester - cyclecolchester@gmail.com

SMO2: (Chelmsford, Maldon, Rochford, Uttlesford)

CTC - Peter Moore, Chelmsford www.ctc.org.uk/local-groups

Sustrans - Liaison Ranger Ian Willard www.sustrans.org.uk/sustrans-near-you or info@sustrans.org.uk

Sustrans - Liaison Ranger John Purvis www.sustrans.org.uk/sustrans-near-you or info@sustrans.org.uk

Clubs -
East London Vélo - info@eastlondon_velo.cc
Eagle Roads Club - secretary@eaglerc.org
Glendene Cycling Club - www.glendenecc.org.uk/
Chelmer Cycling Club - chelmercc@aol.com
Maldon & District Cycling Club - bcsec@madcc.org.uk
Shaftesbury Cycling Club - RRSec@ShaftesburyCC.co.uk

SMO3: (Basildon, Brentwood, Castle Point, Epping Forest, Harlow):

CTC - John Steer, 10 Frobisher Way, Shoeburyness, Southend-on-Sea SS3 8XA
jonsue@blueyonder.co.uk

CTC - Steve Bearpark, 36 Honeypot Lane, Brentwood CM14 4QX
www.ctc.org.uk/local-groups

Sustrans - Liaison Ranger Trevor Taylor, 2 Hawkesbury Bush Lane, Basildon, Essex, SS16
www.sustrans.org.uk/sustrans-near-you or info@sustrans.org.uk

Clubs -
Harlow Cycling Club - info@harlowcc.fsnet.co.uk
Essex Roads Club - chairman@essexroads.com
Ford Cycling Club - www.fadcc.org.uk
Gateway Cycling Club - GatewayCycling.org@virginmedia.com
Southend Wheelers - secretary@southendwheelers.org

Compiled by Rosemary Wilkins and Olive Porter Date: April 2013
Network Management Team
Approved by Liz Saville Date: 24th April 2013
Business Unit Leader - Network & Safety
Authorised by Paul Bird Date: 26th April 2013
Director of Highways & Transportation
Mark Rowe Date: 2nd May 2013
Service Leader - Essex Highways
Version Control: 1
Current Version [1] April 2013
Previous Version date - None - New

Appendix C: References

A number of documents have been referenced throughout this document to understand the context within which the resulting guidance for cycling at roadworks would sit. They include:

1. The Health & Safety at Works etc Act, Health and Safety Executive, 1974 http://www.legislation.gov.uk/ukpga/1974/37/contents
2. The Highways Act, 1980 http://www.legislation.gov.uk/ukpga/1980/66
3. The New Road and Street Works Act, 1991: Code of Practise for the Co-ordination of Works in Roads https://roadworks.scot/sites/default/files/publications/add/Code_of_Practice_for_the_Coordination_of_Works_in_Roads_-_March_2013.pdf
4. Disability Discrimination Act, 1995 http://www.legislation.gov.uk/ukpga/1995/50/contents
5. Equality Act, 2010 http://www.legislation.gov.uk/ukpga/2010/15/contents
6. Construction (Design and Management) Regulations, Health and Safety Executive, 2015 http://www.legislation.gov.uk/uksi/2015/51/contents/made
7. Traffic Advisory Leaflet 15/99 - Cyclists at Roadworks, DfT 1999 http://www.ukroads.org/webfiles/tal%2015-99%20cyclists%20at%20road%20works.pdf
8. Local Transport Note 2/08: Cycle Infrastructure Design. DfT, October 2008 https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-208
9. Traffic Signs Manual (Chapter 8), 2009 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/203669/traffic-signs-manual-chapter-08-part-01.pdf
10. Safety at Streetworks and Roadworks: A code of Practice (the Safety Code) (the “red Book”). DfT, 2013 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321056/safety-at-streetworks.pdf
11. The Traffic Signs Regulations and General Directions (TSRGD). DfT, 2016 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/520923/2003-traffic-signs.pdf
12. CD 195 Desigining for Cycle Traffic, Highways England, 2019
13. An Introduction to the use of Portable Vehicular Signals, DfT, 2016, the “Pink Book” https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/509198/introduction-use-portable-vehicular-signals.pdf
14. Design Guidance: Active Travel (Wales) Act 2013. Welsh Government Procedure and Advice Guidance (PAG) 102/14, Welsh Government, December 2014 https://gov.wales/sites/default/files/publications/2017-09/active-travel-design-guidance.pdf

Due to the fact that the following documents are the most up to date and comprehensive guidance regarding cyclists at roadworks, they have been cited in this document as “best practice” and therefore have been heavily referred to throughout. In preparing the resulting guidance for Essex, parts have been extracted (including figures) and modified to be of relevance to the resulting guidance for Cycling at Roadworks: Guidance for the Designers of Temporary Roadworks in Essex:

15. London Cycling Design Standards Consultation Draft, TfL, June 2014 (to understand the direction, flavour and content of recent London-based guidance) https://tfl.gov.uk/corporate/publications-and-reports/streets-toolkit#on-this-page-2

; and

16. Temporary Traffic Management Handbook: Keeping people safe at roadworks, TfL, December 2018 http://content.tfl.gov.uk/temporary-traffic-management-handbook.pdfv

The existing guidance for Essex has also been referenced to understand the starting point for developing the Essex guidance furrther:

17. Essex Highways Practice Note (HPN) 018: Pedestrians and Cyclists at Road Closures, produced by Essex Highways in April 2013.