Design Manual for Roads and Bridges

Road Layout
Design

CD 195
Designing for cycle traffic

(formerly IAN 195/16)

Revision 1

Summary
This document contains the requirements for cycle traffic on the trunk road and motorway network.

WITHDRAWN

Application by Overseeing Organisations
Any specific requirements for Overseeing Organisations alternative or supplementary to those given in this document are given in National Application Annexes to this document.

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

This is a controlled document.

Contents

Release notes **2**

Foreword **3**
Publishing information 3
Contractual and legal considerations 3

Introduction **4**
Background 4
Assumptions made in the preparation of this document 4

1. Scope **5**
Aspects covered 5
Implementation 5
Use of GG 101 5

2. Normative references **6**

WITHDRAWN

Release notes

Version	Date	Details of amendments
1	Mar 2020	Revision 1 (March 2020) Update to references in England NAA only. Revision 0 (September 2019) CD 195 replaces IAN 195/16. This full document has been re-written to make it compliant with the new Highways England drafting rules.

WITHDRAWN

Foreword

Publishing information

This document is published by Highways England.

This document supersedes IAN 195/16 Cycle traffic and the strategic road network, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

WITHDRAWN

Introduction

Background

This document provides requirements and advice relevant to the motorway and trunk road network for the design of infrastructure for cycle traffic. It is intended to be used by highway design professionals to facilitate the convenient and safe movement of cycle traffic, where cycling is legally permitted.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 1.N] apply to the document.

WITHDRAWN

1. Scope

Aspects covered

1.1 This document shall be used for the design of routes and assets used by cycle traffic.

NOTE *This document does not cover the design of shared use facilities for pedestrians, equestrians and cyclists.*

1.2 The national requirements for designing for cycle traffic set out in the National Application Annexes shall be followed.

Implementation

1.3 This document shall be implemented forthwith on all schemes involving cycle traffic on the Overseeing Organisations' motorway and all-purpose trunk roads according to the implementation requirements of GG 101 [Ref 1.N].

1.4 Desirable minimum values presented in this document shall be used as default values.

1.5 Absolute minimum values shall only be used where there are existing physical constraints preventing the use of desirable minimum values on existing roads where a cycle route is proposed or an existing cycle route is to be improved.

Use of GG 101

1.6 The requirements contained in GG 101 [Ref 1.N] shall be followed in respect of activities covered by this document.

WITHDRAWN

2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'

WITHDRAWN

WITHDRAWN

© Crown copyright 2020.
You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:
visit **www.nationalarchives.gov.uk/doc/open-government-licence/**,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email **psi@nationalarchives.gsi.gov.uk**.

Road Layout
Design

CD 195
England National Application Annex to CD 195
Designing for cycle traffic

(formerly IAN 195/16)

Revision 1

Summary
This National Application Annex sets out the Highways England specific requirements for cycle traffic on the trunk road and motorway network.

WITHDRAWN

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

This is a controlled document.

Contents

Release notes 3

Foreword 4
Publishing information . . . 4
Contractual and legal considerations . . . 4

Introduction 5
Background . . . 5
Assumptions made in the preparation of this document . . . 5

Abbreviations 6

Terms and definitions 7

E/1. Types of cycle route 9

E/2. Cycle design vehicle 10

E/3. Cycle route design 11
Common elements . . . 11
Cycle lane and cycle track widths . . . 11
Visibility splays . . . 13
Longitudinal gradients . . . 14
Cycle route transitions . . . 15
Bus stops on cycle routes . . . 16
Off-carriageway elements . . . 17
Design speed . . . 17
Stopping sight distance . . . 17
Forward visibility envelope . . . 18
Horizontal alignment . . . 18
Vertical alignment . . . 18
Crossfall . . . 18
Horizontal separation . . . 19
One and two-way cycle tracks . . . 20
Stepped cycle tracks . . . 21
Measures to prevent motor traffic access to cycle tracks . . . 21
On-carriageway elements . . . 21
Light segregation . . . 21

E/4. Crossings 23
Cycle crossing design options . . . 23
Uncontrolled cycle traffic crossings . . . 26
Priority cycle traffic crossings . . . 26
Refuges at cycle traffic crossings . . . 26
Cycle traffic crossings of priority junctions . . . 26
Bent-out and bent-in crossings of minor roads . . . 27
Stepped cycle track crossings of minor roads . . . 28
Controlled cycle traffic crossings . . . 28
Signal controlled cycle traffic crossings . . . 28
Parallel pedestrian and cycle traffic crossings . . . 30
Staggered crossings . . . 31
Toucan crossings . . . 31
Cycle traffic at grade separated cycle track crossings . . . 31
Underbridges . . . 31
Overbridges . . . 31
Wheeling ramps . . . 31

WITHDRAWN

E/5. Junctions **32**
On carriageway cycle traffic provision at priority junctions 32
Cycle traffic at roundabouts 32
Compact roundabouts 32
Normal roundabouts 32
Cycle track priority around roundabouts 32
Cycle traffic at signal controlled roundabouts 32
On-carriageway provision at signal controlled roundabouts. 33
Cycle track provision at signal controlled roundabouts 35

E/6. Signing **36**
Cycle traffic direction signing strategies 36
Design of direction signs for cycle traffic 36

E/7. Normative references **37**

E/8. Informative references **38**

Appendix E/A. One-way and two-way cycle tracks **39**

WITHDRAWN

Release notes

Version	Date	Details of amendments
1	Mar 2020	Revision 1 (March 2020) Revision to update references only. Revision 0 (September 2019) Highways England National Application Annex to CD 195.

WITHDRAWN

Foreword

Publishing information

This document is published by Highways England.

This document supersedes IAN 195/16 Cycle traffic and the strategic road network which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

WITHDRAWN

Introduction

Background

This National Application Annex gives the Highways England-specific requirements for cycle traffic on the trunk road and motorway network.

A Highways England e-learning tool provides additional interactive information to help designers provide appropriate cycle routes.

The Highways England e-learning tool can be found here: https://cycletraffic-elearning.com CT-elearning [Ref 1.I]

This document refers to the provision for cycle traffic only which allows for a higher design speed when separated from pedestrian and equestrian traffic.

Requirements and advice for shared routes are provided in CD 143 [Ref 3.N].

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 7.N] apply to this document.

WITHDRAWN

Abbreviations

Abbreviations

Abbreviation	Definition
AADT	Annual Average Daily Traffic
DfT	Department for Transport
SSD	Stopping Sight Distance

WITHDRAWN

Terms and definitions

Terms

Term	Definition
Absolute minimum	The design parameter(s) that can be used where there is an existing physical constraint on existing roads where a cycle route is proposed or an existing cycle route is to be improved within the highway boundary.
Advisory cycle lane	A cycle lane bounded by a broken white line which enables motor traffic to enter the lane when legal to do so.
Cycle	As defined by the Road Traffic Act 1988 Road Traffic Act 1988 [Ref 8.N] (Section 192) [3]. NOTE: Types of cycle include: 1) standard cycles; 2) solo tricycles; 3) hand-cranked cycles; 4) tandem cycles; 5) recumbent cycles; 6) trailer cycles (tandems with a hinge, usually with the rear seat to carry a child); 7) cycles towing trailers; 8) cargo cycles; and 9) cargo tricycles.
Cycle design vehicle	A composite of the many types of cycle defined above, used to provide design criteria.
Cycle lane	A lane in the carriageway for use by cyclists.
Cycle network	A set of connected cycle routes that can be legally used by cycle traffic.
Cycle route	Any infrastructure that can be legally used by cycle traffic, including cycle tracks, stepped cycle tracks, cycle lanes, light segregated cycle lanes and carriageways.
Cycle route transition	A smooth and gradual feature where a cycle track joins, or a cycle lane leaves, the carriageway.
Cycle track	A track separate from the main carriageway for use by cyclists. NOTE: Cycle tracks can be newly constructed or created through conversion of a footway (using powers under the Highways Act 1980 Highways Act 1980 [Ref 6.N] [4]) or footpath (using the Cycles Traffic Act CTA [Ref 1.N] [5]).
Cycle traffic	A specific type of traffic on the network where the vehicles meet the definition of a cycle.
Desirable minimum	Design parameters that apply where the conditions for use of absolute minimum value criteria are not applicable.

WITHDRAWN

Terms (continued)

Term	Definition
Green wave	Coordination of a series of traffic lights to allow continuous traffic flow over several junctions in one direction.
Light segregated cycle lane	A mandatory cycle lane that is separated from the carriageway by intermittent physical objects.
Mandatory cycle lane	A cycle lane bounded by a solid white line which excludes motor traffic.
Off-carriageway cycle route	A cycle route segregated from motor traffic and provided off the carriageway. NOTE: This includes cycle tracks.
On-carriageway cycle route	A cycle route provided on the carriageway. NOTE: This includes cycle lanes, light segregated cycle lanes and quiet streets.
Quiet street	A cycle route on low speed and low traffic volume roads where cycle traffic is combined with motor traffic. NOTE: A maximum motor traffic volume of 2500 vehicles per day and a speed limit of 20mph applies to quiet streets.
Shared use facility	A combined facility for use by pedestrians and cyclists.
Stepped cycle track	A one-way cycle track that is constructed at an intermediate height between the carriageway and the verge or footway.
Wheeling ramp	A feature which enables cyclists to go up or down steps without carrying their cycle.

WITHDRAWN

E/1. Types of cycle route

E/1.1 Table E/1.1 shows the minimum cycle route provision which shall be used for different traffic speeds and volumes.

Table E/1.1 Minimum provision for cycle routes

Speed limit (mph)	Motor traffic flow (AADT-Average annual daily traffic)	Minimum provision for cycle routes
40 and over	All flows	Cycle tracks (excluding stepped cycle tracks)
30	>5,000	Cycle tracks
	0-5,000	Cycle lanes
20	>5000	Cycle tracks
	2,500-5,000	Cycle lanes
	<2500	Quiet streets

E/1.1.1 The design should achieve the best balance of the five design criteria set out in Table E/1.1.1.

Table E/1.1.1 Cycling design criteria

Coherence	Cycle networks link trip origins and destinations, including public transport access points and are continuous and easy to navigate.
Directness	Cycle networks serve all the main destinations and seek to offer an advantage in terms of distance and journey time.
Comfort	Infrastructure meets design standards for alignment and surface quality, and caters for all types of user, including children and disabled people.
Attractiveness	Aesthetics, noise reduction and integration with surrounding areas are important.
Safety	Cycle networks not only improve cyclists' and other road users' safety, but also their feeling of how safe the environment is (their personal security).

NOTE The following design characteristics can improve the personal security of users on cycle routes:

1) cycle routes within the view of passing people and passing traffic;

2) lighting;

3) underbridges that provide cross-sections wider than the specified values with flared wing-walls, good lighting and good sight lines;

4) vegetation that is a low growing variety (up to 0.8m) on underbridge approaches and adjacent to entries.

WITHDRAWN

E/2. Cycle design vehicle

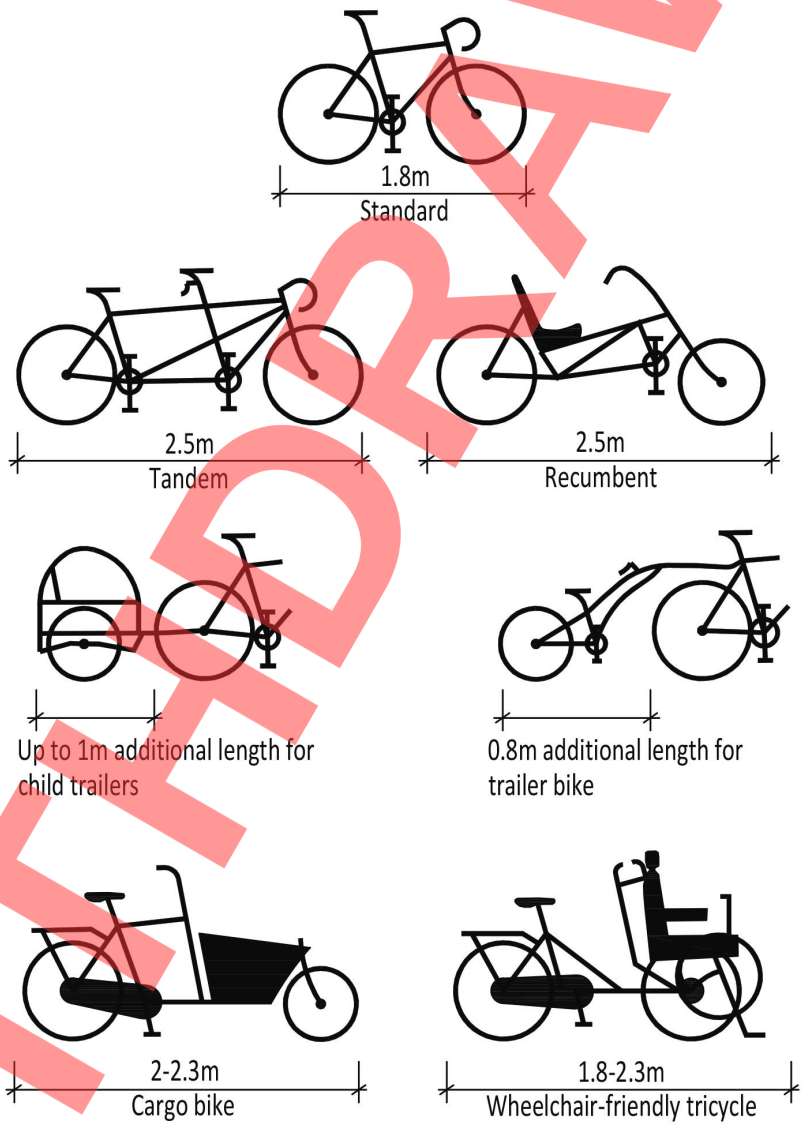
E/2.1 The dimensions of the cycle design vehicle shall be 2.8 metres long and 1.2 metres wide.

NOTE 1 *The cycle design vehicle has been created to cater for a wide range of users.*

NOTE 2 *The length of 2.8 metres is made up of a bicycle at 1.8 metres plus a child trailer of up to 1.0 metres in length.*

NOTE 3 *Figure E/2.1N3 provides examples of different categories of cycle.*

Figure E/2.1N3 Categories of cycle



WITHDRAWN

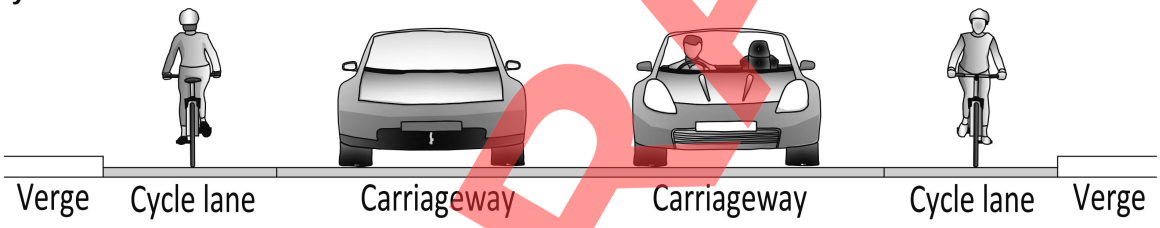
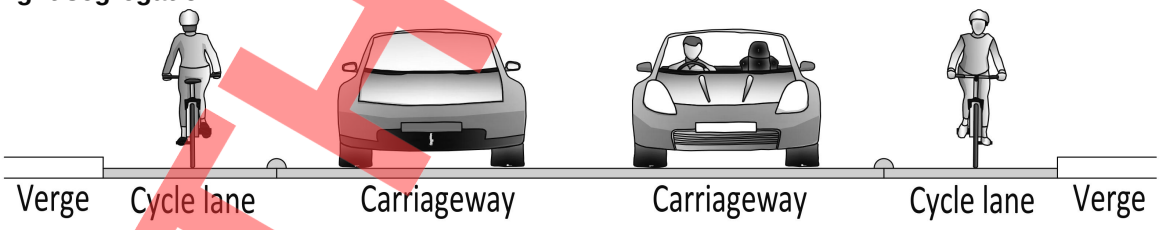
E/3. Cycle route design

Common elements

Cycle lane and cycle track widths

E/3.1 Table E/3.1 shall be used to determine the desirable minimum and absolute minimum widths of different types of cycle routes.

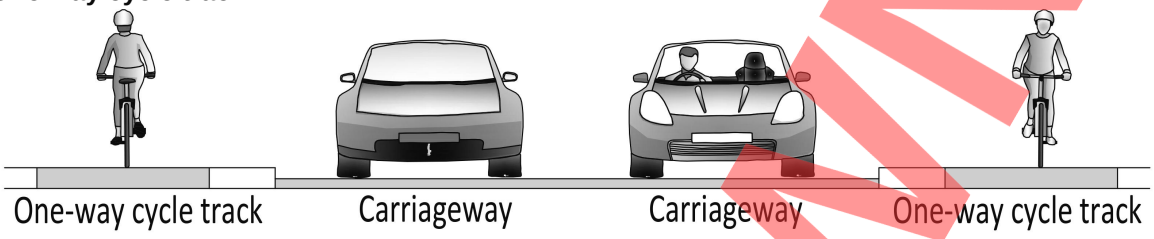
Table E/3.1 Minimum widths of cycle routes

Cycle route type	Peak hour cycle flow (either one-way or two-way depending on cycle route type)	Desirable minimum width	Absolute minimum width (for sections up to 100 metres)
Cycle lane	<150	2.0 metres	1.5 metres
Cycle lane 			
Cycle route type	**Peak hour cycle flow (either one-way or two-way depending on cycle route type)**	**Desirable minimum width**	**Absolute minimum width (for sections up to 100m)**
Cycle lanes with light segregation	<150	2.5 metres	1.5 metres
Light segregation 			
Cycle route type	**Peak hour cycle flow (either one-way or two-way depending on cycle route type)**	**Desirable minimum width**	**Absolute minimum width (for sections up to 100m)**
One-way cycle track (including stepped cycle track)	<150	2.5 metres	1.5 metres
	150-750	3.0 metres	2.5 metres
	>750	4.0 metres	3.5 metres

WITHDRAWN

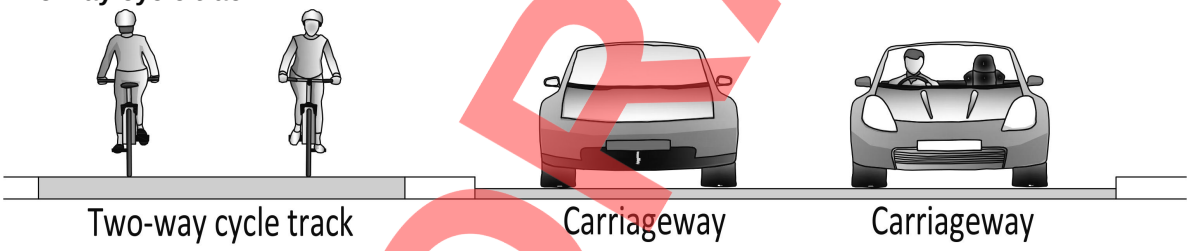
Table E/3.1 Minimum widths of cycle routes (continued)

One-way cycle track



Cycle route type	Peak hour cycle flow (either one-way or two-way depending on cycle route type)	Desirable minimum width	Absolute minimum width (for sections up to 100m)
Two-way cycle track	<150	3.0 metres	2.5 metres
	150 or greater	4.0 metres	3.5 metres

Two-way cycle track



NOTE *Cycle lanes with widths of more than 2.0 metres can benefit from a coloured surface, in addition to prescribed cycle markings to discourage general traffic from using the lane.*

E/3.1.1 Where cycling is intended to take place in a shared bus lane, the bus lane should be a minimum of 4.5 metres wide.

E/3.2 Additional width shall be added to cycle tracks to make allowance for fixed objects adjacent to or within the cycle track in accordance with Table E/3.2.

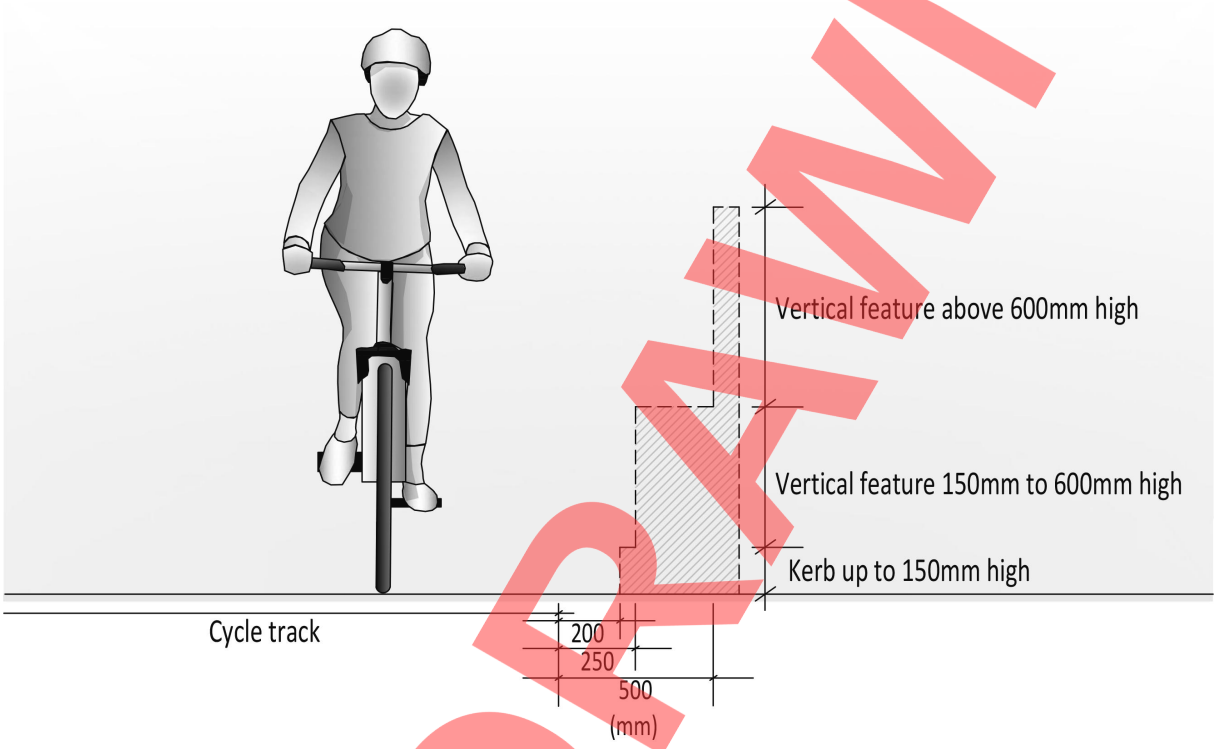
Table E/3.2 Additional width required to maintain effective width of cycle tracks

Type of edge constraint	Additional width required to maintain effective width of cycle track (mm)
Flush or near-flush surface (up to 6mm high)	No additional width needed
Kerb or other vertical feature from 6mm to 150mm high	Add 200mm
Vertical feature from 150 to 600 mm high	Add 250mm
Vertical feature above 600 mm high	Add 500mm
Drainage gullies	Add width of drainage gully

NOTE *Figure E/3.2N illustrates the additional width required to maintain effective widths for cyclists on cycle tracks.*

WITHDRAWN

Figure E/3.2N Additional width required to maintain effective width of cycle tracks



E/3.3 Where edge constraints are adjacent to both sides of the cycle track, then allowance for each edge constraint shall be made in accordance with Table E/3.2.

NOTE *Using splayed kerbs along the edge of the cycle track increases the effective width and helps to prevent collisions by reducing the risk of pedals striking the kerb.*

Visibility splays

E/3.4 A visibility splay shall be provided for cycle traffic approaching crossings and junctions where the cyclists have to stop or give way.

E/3.5 Cycle traffic "x" distances shall be provided in accordance with Table E/3.5.

Table E/3.5 "x" distances for cycle traffic

Desirable minimum (metres)	Absolute minimum (metres)
4.5	2.4

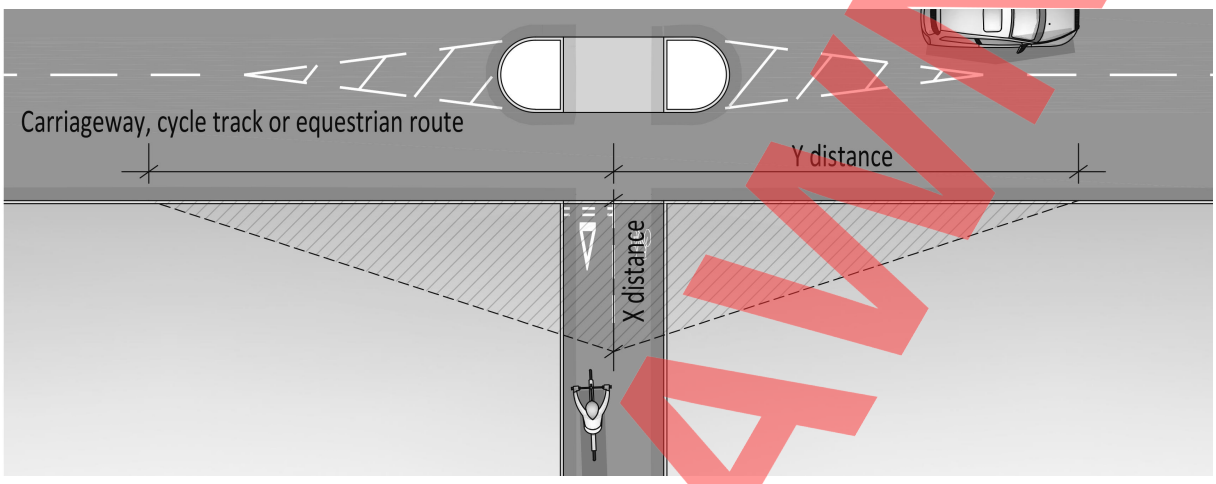
NOTE 1 *The "x" distance is measured from a give way or stop line, back along the centre line of the minor arm.*

NOTE 2 *The desirable minimum "x" distance allows two cyclists to observe the full "y" distance and both accept the gap in traffic.*

NOTE 3 *Figure E/3.5N3 indicates the "x" and "y" measurement for cycle traffic.*

WITHDRAWN

Figure E/3.5N3 Visibility splay



NOTE 4 *The '"y" distance is the stopping sight distance (SSD) required.*

NOTE 5 *The "y" distance is measured along the edge of the major arm from the centre of the minor arm.*

E/3.6 "y" distances at junctions on cycle tracks shall be provided in accordance with the SSD references in Table E/3.6.

Table E/3.6 SSD references for cycle traffic

Major arm	Minor arm	SSD reference
Carriageway	Cycle track	Table 7/1 in CD 123 [Ref 4.N]
Cycle track	Cycle track	Table E/3.19
Equestrian route or footpath	Cycle track	Table 3.4 in CD 143 [Ref 3.N]

E/3.7 An eye height range of 0.8 metres to 2.2 metres for cyclists shall be used when measuring the "y" distance.

E/3.8 The object height shall be taken as 0.26 metres to 2.0 metres when measuring the "y" distance for cycle routes.

NOTE *More detail on object heights is provided in CD 109 [Ref 2.I].*

Longitudinal gradients

E/3.9 Cycle track gradients shall be provided in accordance with Table E/3.9.

Table E/3.9 Maximum length for gradients

Gradient	Maximum length of gradient (metres)
2.0%	150
2.5%	100
3.0%	80
3.5%	60
4.0%	50
4.5%	40
5.0%	30

NOTE 1 *Steep gradients can lead to high speeds for descending cyclists or low speeds for climbing cyclists, which can create hazards for all users of the route.*

WITHDRAWN

NOTE 2 *Stopping distances increase significantly on downhill gradients in excess of 3%.*

E/3.9.1 Level sections of 5.0 metres minimum length should be used between gradients to achieve compliance with Table E/3.9.

E/3.9.2 Cycle lanes, stepped cycle tracks and lightly segregated cycle lanes on or adjacent to existing carriageways may follow the existing gradient.

E/3.10 Potential hazards adjacent to a cycle route shall be subject to a risk assessment to determine the need for protective measures.

Cycle route transitions

E/3.11 Cycle route transitions shall be provided where a cycle lane joins or diverges from the carriageway.

E/3.12 Cycle route transitions between the cycle track and the carriageway shall be a continuous surfacing course.

E/3.13 Where a cycle lane diverges away from the carriageway to become a cycle track, a cycle route transition shall be provided and include a mandatory cycle lane of a minimum of 5 metres length before diverging from the carriageway.

E/3.14 Where a cycle track re-joins the carriageway, a cycle route transition shall be provided and include a mandatory cycle lane of a minimum of 5 metres length before merging with a subsequent cycle lane.

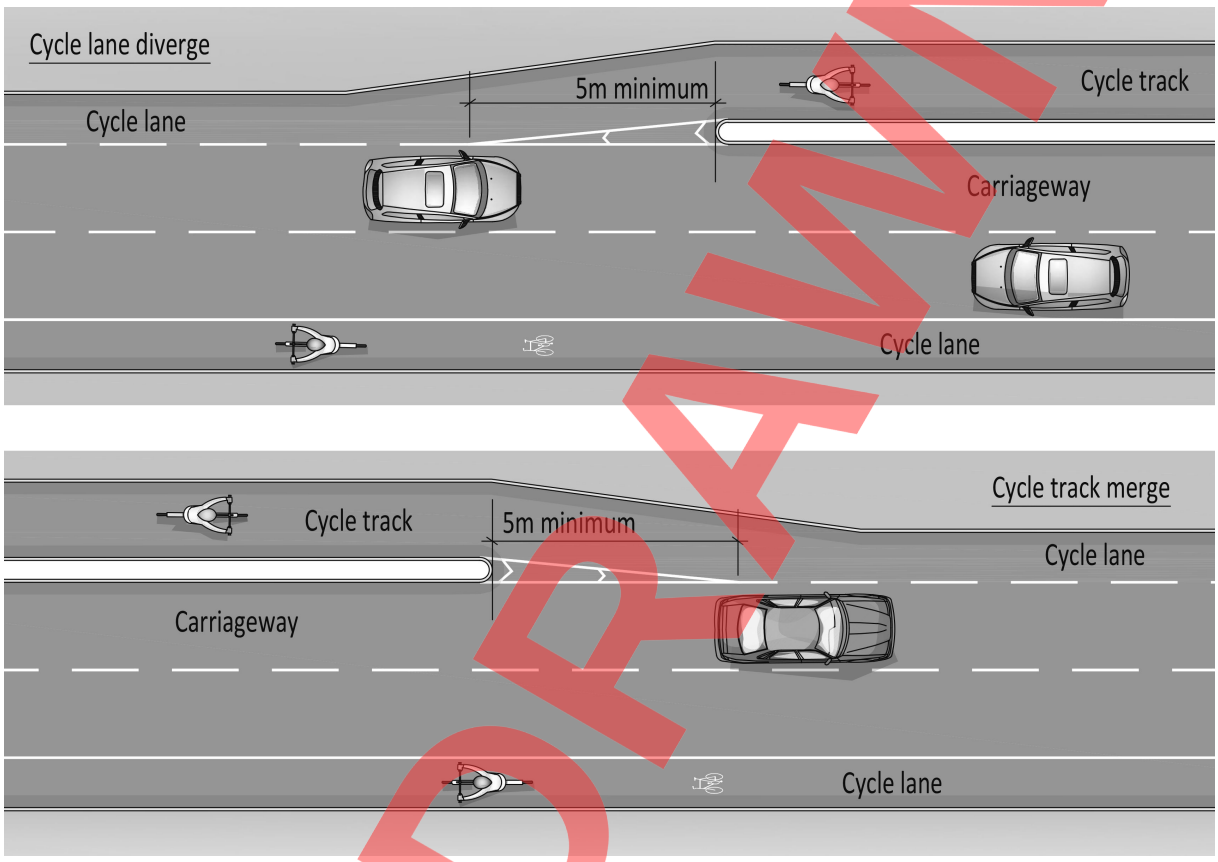
NOTE *A cycle route transition can reduce the risk of cyclists colliding with vehicular traffic from behind whilst not inconveniencing on-carriageway cyclists.*

E/3.14.1 A cycle route transition between the carriageway and a cycle track should be smooth and gradual.

NOTE *Figure E/3.14.1N provides an indicative layout of a cycle route transition between a cycle track and carriageway.*

WITHDRAWN

Figure E/3.14.1N Cycle route transition



WITHDRAWN

Bus stops on cycle routes

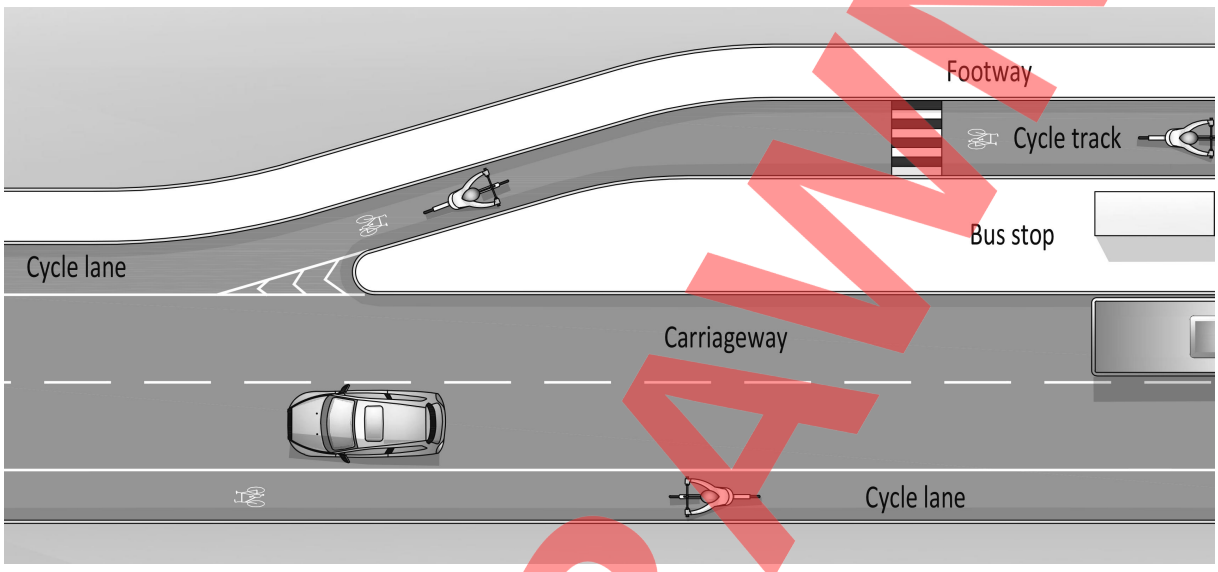
E/3.15 Cycle tracks shall be designed so that passengers disembarking from buses do not step down directly on to a cycle track.

NOTE 1 *Bus stops can be a point of conflict between cyclists and buses and also between passengers and cyclists.*

NOTE 2 *Where there are high numbers of bus passengers boarding and alighting at the bus stop, a zebra crossing can be provided across the cycle track.*

NOTE 3 *Figure E/3.15N3 provides an indicative layout of a zebra crossing across a cycle track at a bus stop.*

Figure E/3.15N3 Zebra crossing across a cycle track at a bus stop



NOTE 4 *Zebra crossings across cycle tracks do not necessarily include amber light beacons or zig-zag markings.*

E/3.15.1 Where a route with cycle lanes has bus stops with space available at the back, the cycle lane should be changed to a cycle track and routed behind the bus stop.

E/3.15.2 Where it is not feasible to route the cycle track to the back of the bus stop, cycle lane markings should be omitted for the length of the bus stop, except where the bus stop is in a bus lay-by which would allow the cycle lane markings to continue outside the bus lay-by.

NOTE *Requirements and advice for cycle tracks passing parking lay-bys are provided in CD 169 [Ref 11.N].*

Off-carriageway elements

Design speed

E/3.16 The design speeds in Table E/3.16 shall be used for cycle tracks.

Table E/3.16 Design speed for cycle tracks

Circumstance	Design speed (kph)	Absolute minimum design speed (kph)
On down gradients of 3% or greater	40	40
Gradients of less than 3%	30	20

E/3.17 Absolute minimum values for cycle track design speed shall only be used for distances up to 100 metres.

E/3.17.1 Where absolute minimum design speed values are used for cycle tracks, 'SLOW' markings should be included.

Stopping sight distance

E/3.18 Minimum SSDs provided in Table E/3.18 shall be used for cycle tracks.

WITHDRAWN

Table E/3.18 Minimum SSD

Design speed (kph)	Minimum SSD (metres)
40	47
30	31
20	17

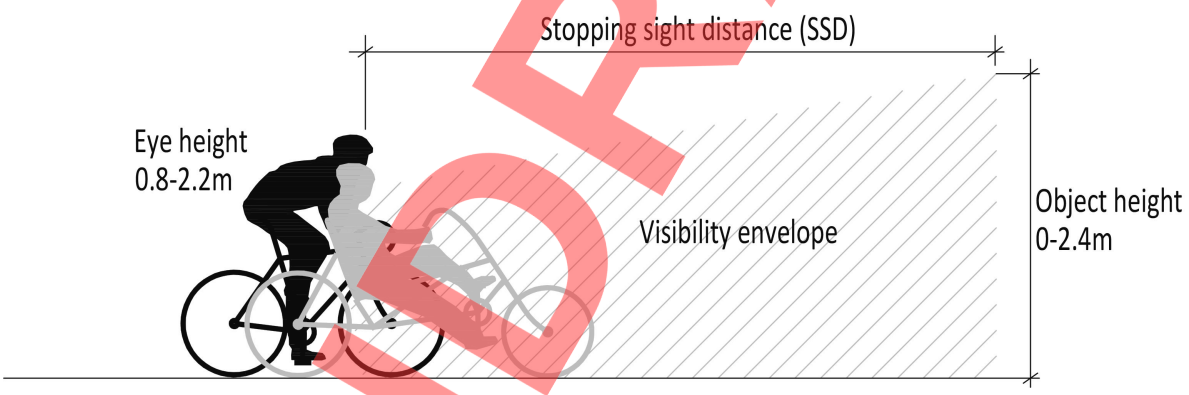
NOTE *SSDs are based on the same perception reaction times and deceleration rates for comfortable and emergency braking as assumed in CD 109 [Ref 2.I] Highway Link Design.*

Forward visibility envelope

E/3.19 For cycle tracks, the forward visibility envelope shall allow for objects between the cycle route surface and a height of 2.4 metres to be visible from an eye height in the range of 0.8 metres to 2.2 metres.

NOTE *The values quoted for the forward visibility envelope accommodate a range of cyclists including recumbent users, children and adults (reference Figure E/3.19N).*

Figure E/3.19N Forward visibility envelope



Horizontal alignment

E/3.20 Changes in horizontal alignment on cycle tracks shall be via simple curves with minimum horizontal radii values given in Table E/3.20.

Table E/3.20 Minimum horizontal radii for cycle tracks

Design speed (kph)	Minimum horizontal radius (metres)
40	57
30	32
20	14

NOTE *The minimum cycle track horizontal radii values are based on a V^2/R of 28.28 as per CD 109 [Ref 2.I] Highway Link Design.*

Vertical alignment

E/3.21 Sag and crest K values for cycle tracks shall be in accordance with Table E/3.21.

Table E/3.21 Minimum sag and crest K values for cycle tracks

Minimum sag K value	Minimum crest K value
5	6

WITHDRAWN

Crossfall

E/3.22 Crossfall shall be provided on cycle tracks to prevent the collection of surface water.

E/3.23 Crossfall on cycle tracks shall not exceed 5%.

NOTE *Higher crossfall values can create manoeuvring difficulties and contribute to loss of control in icy conditions.*

E/3.24 Crossfall greater than 2.5% shall not be used on cycle tracks where cycle traffic is moving slower than the design speed or coming to a stop.

E/3.25 Crossfall on cycle tracks shall not be in an adverse direction where the horizontal radius is below 50 metres.

Horizontal separation

E/3.26 The minimum width of the horizontal separation between the carriageway and the closest edge of a cycle track shall be determined using the values in Table E/3.26.

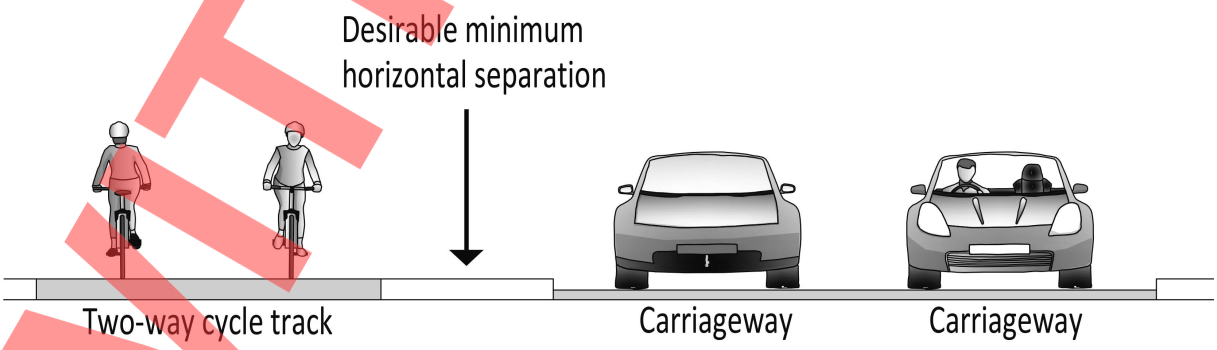
Table E/3.26 Minimum horizontal separation between carriageway and cycle tracks

Speed limit (mph)	Desirable minimum horizontal separation (metres)	Absolute minimum horizontal separation (metres)
30	0.5	N/A
40	1.0	0.5
50	2.0 (including any hard strip)	1.5 (including any hard strip)
60	2.5 (including any hard strip)	2.0 (including any hard strip)
70	3.5 (including any hard strip)	3.0 (including any hard strip)

NOTE 1 *Horizontal separation between the carriageway and cycle tracks helps protect cyclists from the draught created by passing motor traffic and from debris thrown up by vehicles.*

NOTE 2 *Figure E/3.26N2 provides an indicative cross section for horizontal separation between the carriageway and cycle track.*

Figure E/3.26N2 Horizontal separation between the carriageway and cycle track

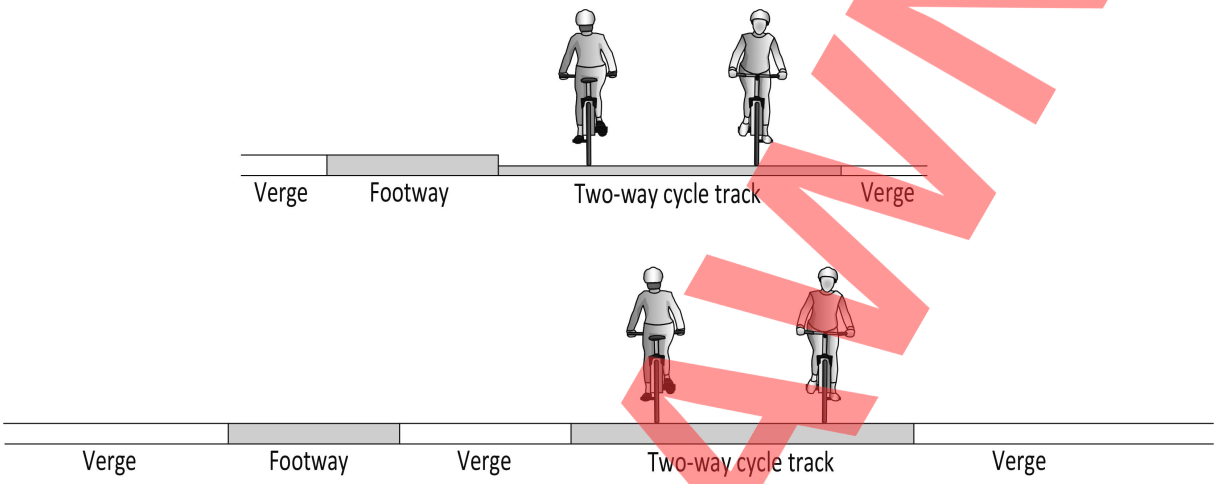


E/3.26.1 Where a footway is adjacent to a cycle track this should be separated by a kerb or a verge.

NOTE *Figure E/3.26.1N provides indicative cross sections of the horizontal separation between a cycle track and a footway by a kerb and a verge.*

WITHDRAWN

Figure E/3.26.1N Two-way cycle track seperation by kerb or verge



E/3.26.2 Cycle tracks may be provided at the same or higher level as the adjacent carriageway.

E/3.27 Where a solid white line is used to mark the edge of a cycle track, this shall be used in conjunction with an edge of carriageway marking to avoid drivers from mistaking the cycle track marking for an edge of carriageway marking.

NOTE *In unlit areas a solid white line to the Traffic Signs Regulations and General Directions (TSRGD 2016 [Ref 12.N]) diagram 1049B can be used to mark the edge of a cycle track adjacent to a kerb.*

One and two-way cycle tracks

E/3.28 Centre line markings shall be provided on two-way cycle tracks.

NOTE 1 *The use of centre line markings helps to differentiate one-way cycle tracks from two-way cycle tracks.*

NOTE 2 *Figures E/3.28.N2a and E3.28.N2b illustrate typical cross sections of one-way and two-way cycle tracks adjacent to a carriageway.*

Figure E/3.28N2a One-way cycle track adjacent to a carriageway

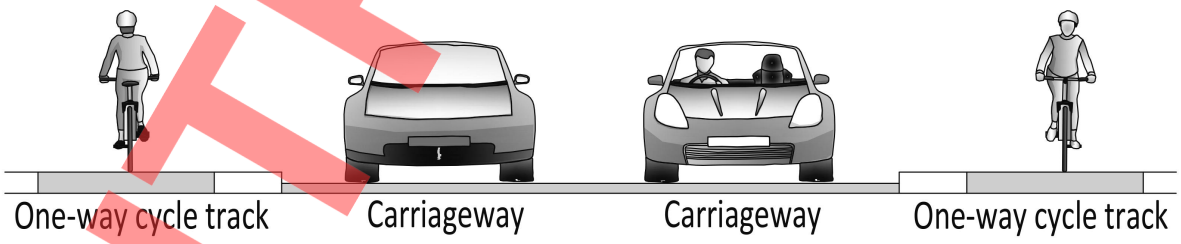
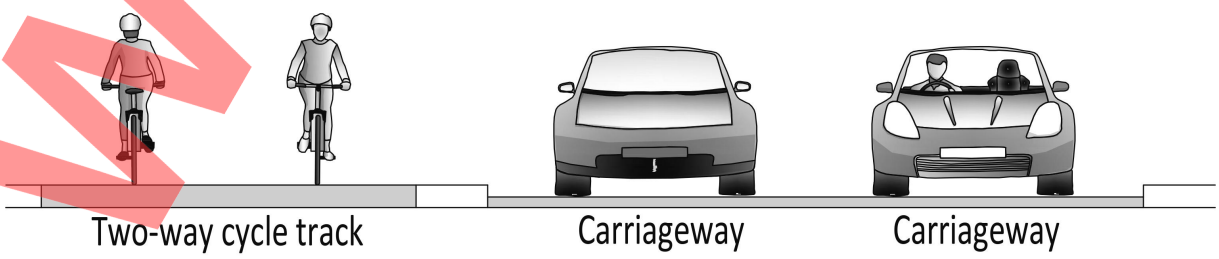


Figure E/3.28N2b Two-way cycle track adjacent to a carriageway



NOTE 3 *Further information on cycle track characteristics and potential hazards can be found in Appendix E/A.*

WITHDRAWN

Stepped cycle tracks

E/3.29 Where a stepped cycle track is to be used, a cycle route shall also be provided on the opposite side of the road to deter cyclists from using a stepped track as a two-way facility.

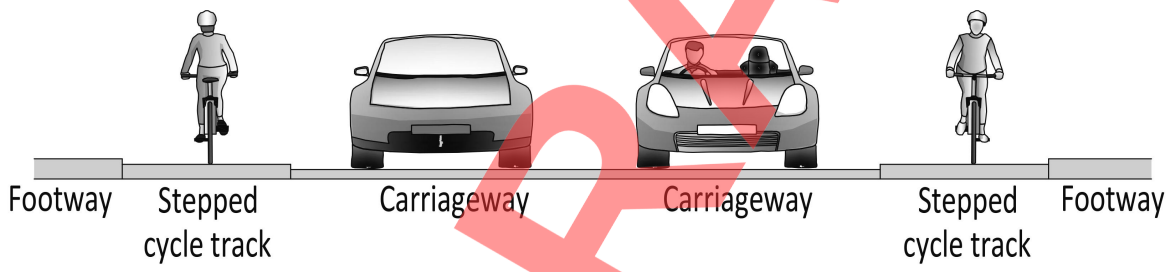
NOTE 1 *Stepped cycle tracks are one-way in the same direction of flow as the adjacent traffic lane.*

NOTE 2 *The advantage of the stepped cycle track is that it provides physical separation in a space efficient way by taking a similar amount of space to a cycle lane, and it allows cyclists to retain priority at side road junctions which have give-way priority.*

E/3.30 The height difference from a stepped cycle track to the carriageway shall be a minimum of 50mm with a further 25-50mm step up to an adjacent footway (if not separated by a verge).

NOTE *Figure E/3.30N provides an indicative cross section of a stepped cycle track.*

Figure E/3.30N Stepped cycle track



E/3.31 On the approach to junctions, stepped tracks shall transition to a mandatory cycle lane, a minimum of 5m before changing to TSRGD 2016 [Ref 12.N] markings (Diagram 1010) through the junction.

Measures to prevent motor traffic access to cycle tracks

E/3.32 Cycle tracks shall be clear of street furniture and obstructions with the exception of features to prevent motor traffic access.

E/3.33 The gap between posts and other physical constraints on cycle tracks shall be a minimum of 1.5 metres to restrict access by motor traffic while retaining access by cycle traffic.

E/3.34 Bollards on cycle tracks shall be aligned in such a way that enables a cycle design vehicle to approach and pass through the bollards in a straight alignment.

E/3.35 A frame and K frame type barriers, often used to prevent motorcycle access, shall not be used on cycle tracks.

NOTE *A and K frame barriers cannot be negotiated by the cycle design vehicle.*

E/3.36 Bollards on cycle tracks shall be designed to allow access for maintenance.

On-carriageway elements

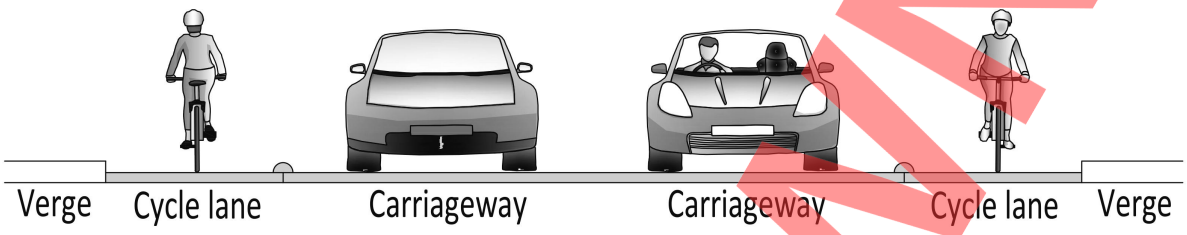
Light segregation

E/3.37 Light segregation of cycle lanes shall only be used on mandatory cycle lanes.

NOTE 1 *Light segregated cycle lanes (as illustrated in Figure E/3.37N1) are mandatory cycle lanes with the addition of intermittent physical objects between motor traffic and cycle traffic to reduce the risks of motor vehicle incursion.*

WITHDRAWN

Figure E/3.37N1 Light segregation



NOTE 2 *The options for segregation features can include flexible bollards, low height separators (typically less than 0.3 metres vertical height) or an intermittent raised kerb.*

E/3.38 A solid white line shall be marked on the motor vehicle side of a vertical feature used for the light segregation of a cycle lane.

E/3.39 The offset between the nearside of the solid edge line and vertical features of a light segregation cycle lane shall be in accordance with TSM Chapter 5 [Ref 13.N] for refuge islands.

WITHDRAWN

E/4. Crossings

Cycle crossing design options

E/4.1 The type of cycle crossing to be provided on links and at junctions shall be in accordance with Table E/4.1.

WITHDRAWN

Table E/4.1 Suitable types of cycle crossing

Speed limit	Location type	Two-way traffic flow on carriageway to be crossed, AADT	Maximum number of lanes to be crossed in one movement	Preferred cycle crossing type	Other possible cycle crossing type(s) in order of preference
≥60 mph	All	Any	Any	Grade separated	No alternative
40 mph and 50 mph	All	>10000	Any	Grade separated	Signal controlled cycle crossing
		6000-10000	2 or more	Grade separated	Signal controlled cycle crossing
		0-10000	1	Uncontrolled: cycle traffic gives way	Grade separated or signal controlled cycle crossing
		0-6000	2	Uncontrolled: cycle traffic gives way	Grade separated or signal controlled cycle crossing
≤30 mph	Links	>8000	Any	Grade separated	Signal controlled cycle crossing
		0-8000	2	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated
		0-4000	1	Uncontrolled: cycle traffic has priority	Signal controlled cycle crossing or grade separated
	Roundabout entries	>8000	Any	Grade separated	Signal controlled cycle crossing
		0-8000	2	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated
		0-4000	1	Uncontrolled: cycle traffic gives way	Signal controlled cycle crossing or grade separated
	Roundabout exits	>8000	Any	Grade separated	Signal controlled cycle crossing
		0-8000	1	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated
		0-4000	1	Uncontrolled: cycle traffic gives way	Signal controlled cycle crossing or grade separated

WITHDRAWN

Table E/4.1 Suitable types of cycle crossing (continued)

Speed limit	Location type	Two-way traffic flow on carriageway to be crossed, AADT	Maximum number of lanes to be crossed in one movement	Preferred cycle crossing type	Other possible cycle crossing type(s) in order of preference
≤30 mph	Side road entries	>8000	Any	Grade separated	Signal controlled cycle crossing
		0-8000	2	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated
		0-2000	1	Uncontrolled: cycle traffic has priority	Signal controlled cycle crossing or grade separated
	Side road exits	>8000	Any	Grade separated	Signal controlled cycle crossing
		0-8000	1	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated
		0-2000	1	Uncontrolled: cycle traffic has priority	Signal controlled cycle crossing or grade separated

WITHDRAWN

NOTE 1 *'Speed limit' parameter refers to the highest speed limit on any arm at the junction.*

NOTE 2 *'Two-way traffic flow' refers to the traffic flow on the link to be crossed by cycle traffic.*

E/4.1.1 The default option should be to design crossings for cyclists separate from pedestrian crossings.

E/4.2 The same type of cycle traffic crossing shall be used across a junction arm entry and exit.

NOTE *At multiple arm junctions, each arm can have different types of cyclist crossing, provided that each junction arm entry and exit has a consistent cyclist crossing type.*

Uncontrolled cycle traffic crossings

Priority cycle traffic crossings

E/4.3 Where cycle traffic has priority, the cycle track shall be on a flat-topped speed hump.

E/4.3.1 The use of coloured surfacing across the carriageway at the crossing point should be provided to highlight an area of the road intended for cycle traffic in accordance with CD 236 [Ref 9.N].

E/4.4 All speed humps must be constructed in accordance with the Highways (Road Humps) Regulations SI 1999/1025 [Ref 10.N].

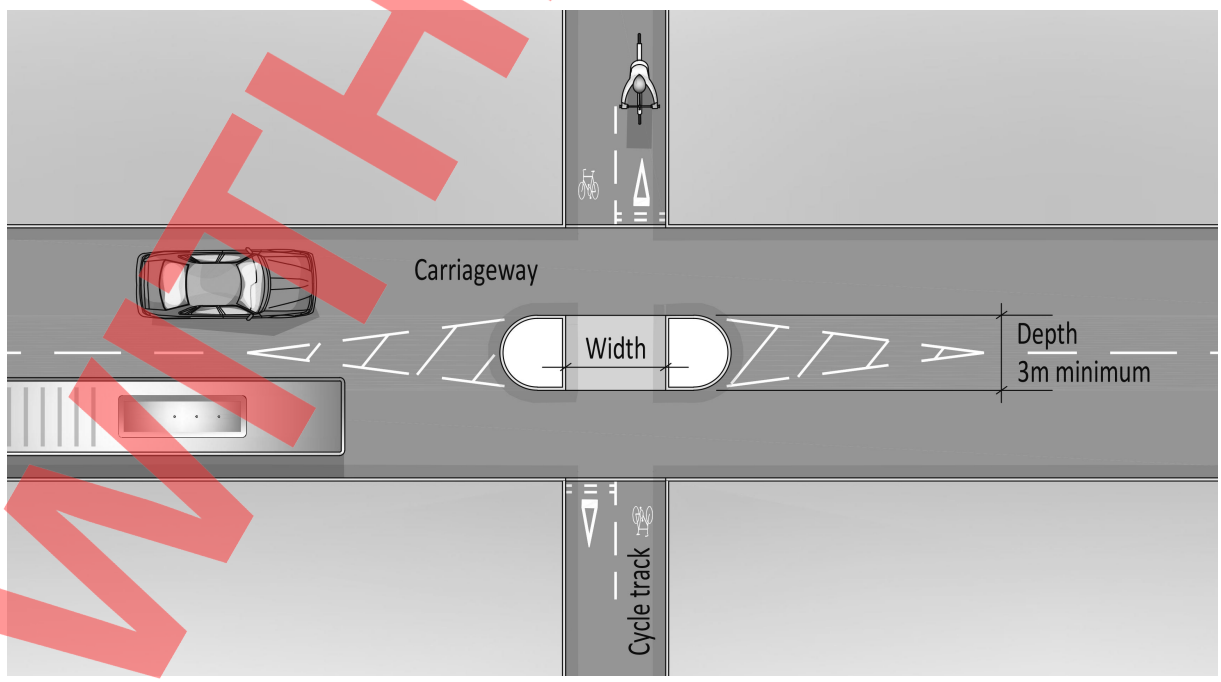
Refuges at cycle traffic crossings

E/4.5 Where a refuge is to be provided at a cycle traffic crossing, the width of the refuge shall provide space for cycle traffic at least equal to the width of the cycle track connecting to the crossing point either side of the carriageway (see Figure E/4.6).

NOTE *Refuges allow cycle traffic to cross carriageways in two or more separate movements. At uncontrolled crossings they improve safety and comfort and reduce delay where cycle traffic does not have priority.*

E/4.6 The depth of the refuge measured in the direction of cyclists' travel shall be a minimum of 3m (as shown in Figure E/4.6).

Figure E/4.6 Refuges at cycle traffic crossings



WITHDRAWN

Cycle traffic crossings of priority junctions

Bent-out and bent-in crossings of minor roads

E/4.7 Cycle tracks which intersect the minor road at priority junctions shall cross the minor road in one of two ways - either bent-out or bent-in crossings.

NOTE 1 *Bent-out crossings cross the minor road away from the give way line.*

NOTE 2 *Bent-in crossings cross the minor road at the mouth of the junction as a mandatory cycle lane.*

E/4.8 Where a cycle route intersects the minor road of a priority junction, the order of preference for a crossing facility shall be the following:

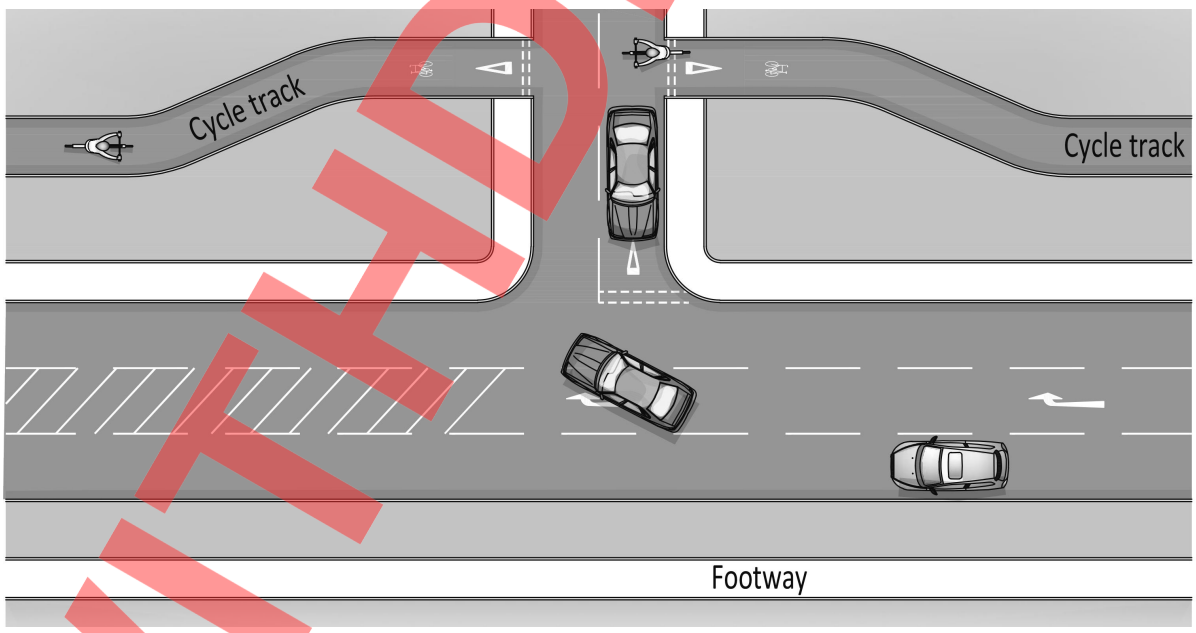
1) bent-out crossing where cycle traffic has priority;
2) bent-in crossing;
3) bent-out crossing where cycle traffic does not have priority.

NOTE *The decision to adopt at-grade priority for the cycle track depends on the amount of traffic turning in and out of the side road (and the ability to safely accommodate the anticipated volume of traffic turning off the main road when cyclists are using the crossing).*

E/4.9 Bent-out crossings shall not be used for stepped cycle tracks.

NOTE *Bent-out crossings of minor roads, as shown in Figure E/4.9N, are suitable for roads with a speed limit up to 30mph on the minor road.*

Figure E/4.9N Indicative layout of a bent-out crossing at a minor road



E/4.10 At bent-out crossings the set-back distance to the minor road crossing shall be measured from the kerbline of the major road, or from the kerbline of the nearside diverging taper if present, to the nearest edge of the cycle track.

E/4.11 Where cycle traffic does not have priority at bent-out crossings the set-back distance for the crossing of the minor road shall be a minimum of 10 metres from the junction.

E/4.12 Where signal controlled bent-out crossings are provided on minor roads, the crossing shall be located far enough away from the major road so that vehicles do not queue back into the major road.

E/4.13 Where the signal controlled bent-out crossing cannot be located far enough away from the major road to prevent queuing on to the major road, the whole junction shall be signal-controlled.

WITHDRAWN

E/4.14 At bent-out crossings, where cycle tracks cross minor private access roads carrying less than 2000 AADT, there shall be no marked priority for either cycle traffic or traffic using the minor road.

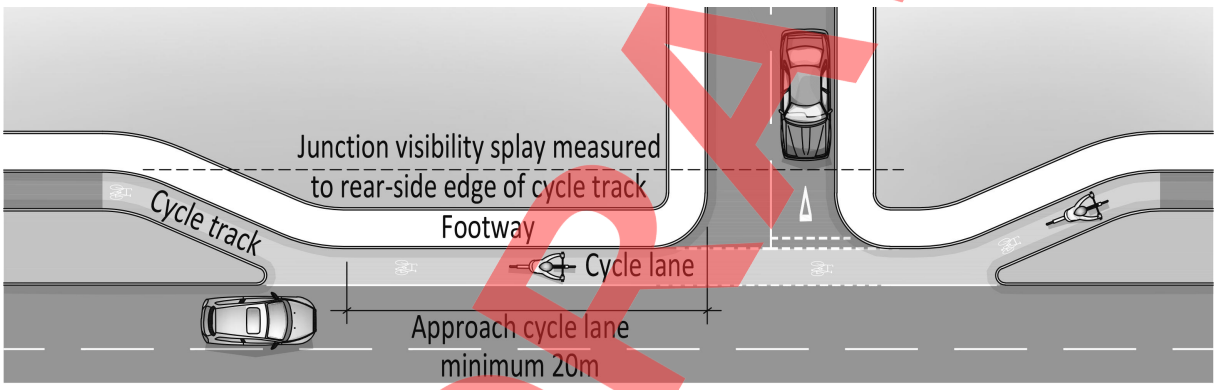
E/4.15 At bent-out crossings, where cycle tracks cross minor private access roads carrying less than 2000 AADT, there shall be a minimum set-back distance of 5 metres.

E/4.16 Cycle tracks at bent-in crossings shall be one-way.

NOTE 1 *Bent-in crossings of minor roads are suitable where the speed limit on any arm of the junction does not exceed 30mph.*

NOTE 2 *Figure E/4.16N2 provides an indicative diagram of a bent-in crossing.*

Figure E/4.16N2 Indicative layout of a bent-in crossing



E/4.17 At bent-in crossings the cycle track shall become a cycle lane in advance of the corner radius of the minor road junction.

E/4.18 At bent-in crossings the length of the approach cycle lane shall be at least 20 metres.

E/4.19 The cycle lane shall return to a cycle track immediately beyond the corner radius of the minor road junction at bent-in crossings.

Stepped cycle track crossings of minor roads

E/4.20 Where a stepped cycle track approaches a minor road, the stepped cycle track shall transition to a cycle lane.

E/4.21 At stepped cycle track crossings where the corner radius of the minor road is ≤6 metres, the length of the approach cycle lane shall be a minimum of 5 metres.

E/4.22 At stepped cycle track crossings where a radius larger than 6 metres is used in the design, the length of the approach cycle lane shall be a minimum of 20 metres.

E/4.23 Where the speed limit and traffic flows on the major road, downstream of the minor road, prevent the use of a cycle lane, the cycle lane shall return to a stepped cycle track immediately beyond the mouth of the minor road junction.

Controlled cycle traffic crossings

Signal controlled cycle traffic crossings

E/4.24 Detectors shall be provided on the cycle track approaches to signal controlled crossings so that the cycle traffic green phase is called in advance of a cyclist arriving at the cycle track stop line.

E/4.24.1 Cycle traffic may be controlled by primary low and high level cycle signals at the cycle traffic stop line.

E/4.24.2 Secondary high level cycle traffic signals should be provided at signal controlled cycle traffic crossings where there is a risk of poor visibility to low level cycle traffic signals.

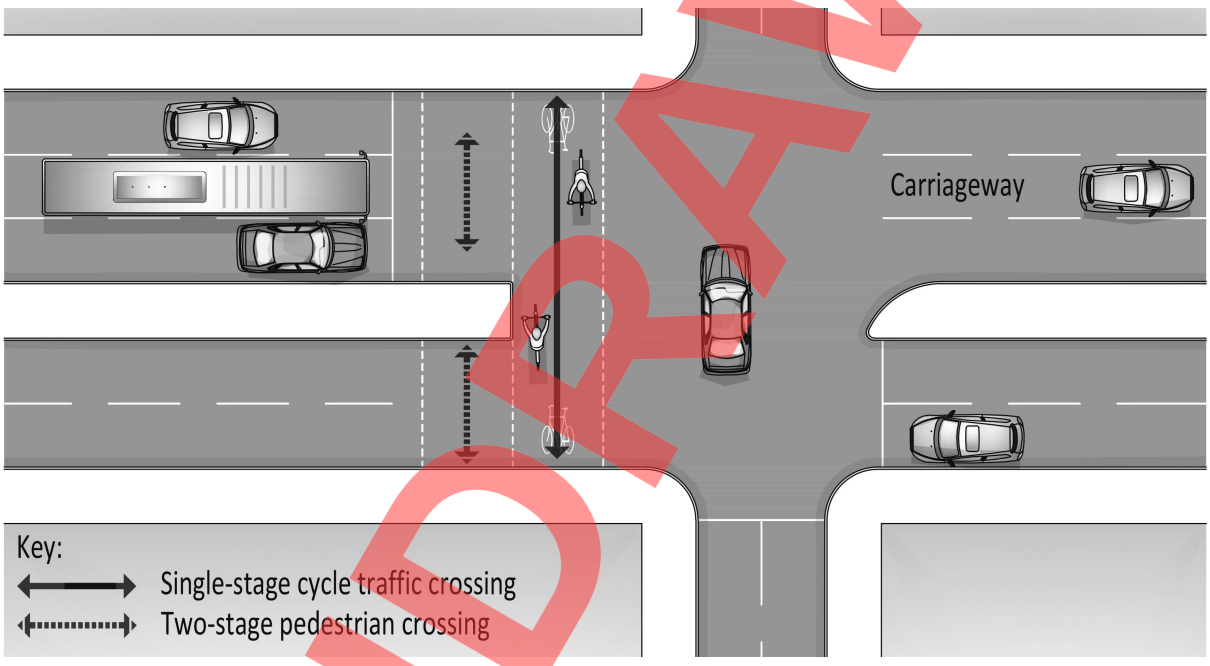
WITHDRAWN

E/4.24.3 Where a cycle route passes through a series of signal controlled crossings, the signals should be coordinated to provide a green wave for cycle traffic, based on the cycle traffic design speed.

E/4.25 Signal controlled cycle traffic crossings shall be provided with road markings to diagram 1055.3 TSRGD 2016 [Ref 12.N] Schedule 14, Part 2, Item 57 (informally known as elephant's footprints) to indicate to all road users the presence of the crossing and the route to be taken by cycle traffic.

NOTE *Figure E/4.25N provides an indicative layout of a separate cycle traffic and pedestrian signal controlled crossing.*

Figure E/4.25N Separate cycle traffic and pedestrian signal controlled crossing



E/4.25.1 The footway and cycle track on the approach to signal controlled cycle traffic crossings should be surfaced in contrasting materials to each other.

E/4.25.2 A single stage should be provided to eliminate the need for cycle traffic to wait on islands in the middle of signal controlled junctions.

E/4.26 The design parameters in Table E/4.26 shall be used for calculating signal timings for signal controlled cycle traffic crossings.

Table E/4.26 Design parameters for calculating signal timings for signal controlled cycle traffic

Design parameter	Flat, downhill or uphill gradient of less than 3%	Uphill gradient of 3% or more
Reaction time	1 second	
Acceleration	0.5 m/s^2	0.4 m/s^2
Maximum design speed	20 kph	15 kph

NOTE *The cycle traffic crossing times at signal controlled cycle traffic crossings provided in Table E/4.26N are determined principally by the acceleration rate of cyclists.*

WITHDRAWN

Table E/4.26N Cycle traffic crossing times for signal controlled cycle crossings

Crossing length (m)	Indicative situation	Cycle traffic crossing time from standing start	
		Flat, downhill or uphill gradient of less than 3% (seconds)	Uphill gradient of 3% or more (seconds)
8	Single carriageway	8	8
10		8	9
12		9	10
14		9	10
16	Dual 2 lane carriageway	10	11
18		10	11
20		11	12
22		11	12
24	Dual 3 lane carriageway	11	13
26		12	13
28		12	14
30		12	14
32		13	15
34		13	15
36		14	16

E/4.26.1 Designers may decide that there are circumstances where the maximum design speed of 15 kph, as suggested for uphill gradients of 3%, is appropriate as the design speed for flatter crossings.

NOTE *The assumed maximum design speed is based on the absolute minimum value given in Table E/3.17 to allow for slower-moving cyclists to clear the signals safely.*

E/4.27 The green aspect for cycle traffic at signal controlled cycle traffic crossings shall run for the minimum of 7 seconds (normal minimum green time for crossings).

E/4.27.1 On-crossing detectors at signal controlled cycle traffic crossings should be used to extend the green aspect to the maximum green for cycle traffic when demand necessitates.

E/4.28 The maximum green time at signal controlled cycle traffic crossings shall be no less than the cycle traffic crossing times given in Table E/4.24N derived using Table E/4.24.

E/4.29 Stages parallel with other traffic phases at signal controlled cycle traffic crossings shall be called if cycle traffic demand exists, even if no demand exists on parallel traffic phases.

Parallel pedestrian and cycle traffic crossings

E/4.30 Parallel pedestrian and cycle traffic crossings shall be used where it is necessary to provide crossings which cater for both cycle traffic and pedestrians.

E/4.30.1 Parallel pedestrian and cycle traffic crossings may be provided on raised tables subject to authorisation from the DfT.

NOTE *Statutory requirements for the layout of parallel pedestrian and cycle traffic crossings for pedestrians and cycle traffic are given in TSRGD 2016 [Ref 12.N] .*

E/4.31 When providing for cycle traffic at roundabouts, parallel pedestrian and cycle traffic crossings shall be introduced between 5 metres and 20 metres from the give-way line.

E/4.31.1 When providing for cycle traffic at roundabouts, signal controlled pedestrian and cycle traffic crossings should be introduced at 20 metres or more than 60 metres from the give-way line.

WITHDRAWN

E/4.32 Parallel pedestrian and cycle traffic crossings shall be used in situations where zebra crossings are recommended in CD 116 [Ref 5.N].

Staggered crossings

E/4.33 Staggered crossings shall not be used unless the central refuge can accommodate the design parameters for the cycle design vehicle and a two-way cycle track (including pedestrian facilities where appropriate) in accordance with Tables E/3.1 and E/3.2.

Toucan crossings

E/4.34 Toucan crossings shall only be used where it is necessary for pedestrians and cyclists to share the same space at the crossing.

NOTE 1 *An example of where it can be necessary to share the same space at a crossing would be where a shared use path leads to the crossing.*

NOTE 2 *Further guidance on the design of toucan crossings is given in Local Transport Note 02/08 LTN 2/08 [Ref 3.I] and Sustrans Technical Info Note No.18 [Ref 4.I].*

Cycle traffic at grade separated cycle track crossings

Underbridges

E/4.35 Height dimensions for cycle tracks at underbridges shall be provided in accordance with Table E/4.35.

Table E/4.35 Height dimensions for cycle tracks at underbridges

Length (m)	Cycle track headroom (metres)	
	Desirable minimum	Absolute minimum
<23	2.4	2.2
≥23	2.7	2.2

E/4.36 Appropriate signs shall be used to warn cyclists of low headroom where underbridge heights do not meet the desirable minimum headroom height given in Table E/4.35.

E/4.37 Kerb separation shall be provided between cycle tracks at underbridges and any adjacent pedestrian facilities.

Overbridges

E/4.38 Where an overbridge is being introduced because a road severs an existing right of way, the overbridge shall be sited and aligned to minimise the diversion from the existing line of the cycle route.

NOTE *Further requirements regarding overbridge design are provided in CD 353 [Ref 2.N] Design Criteria for Footbridges.*

E/4.39 Where a footpath is required alongside a cycle track on an overbridge, the footpath shall be separated from the cycle track with a kerb and additional width provided on the cycle track (see Table E/3.2).

Wheeling ramps

E/4.40 Wheeling ramps at steps shall be a minimum of 100mm wide and be positioned 200mm from a vertical feature (for example a parapet or hand rail) to avoid handlebars and bags from becoming snagged.

E/4.40.1 Wheeling ramps at steps should only be installed as an interim solution until there is acceptable alternative provision that is accessible to users of all types of cycle.

E/4.40.2 Where wheeling ramps are used at steps, signing for a suitable alternative route should be provided.

NOTE *The wheeling ramp can be provided as a channel or by infilling a section of the steps.*

WITHDRAWN

E/5. Junctions

On carriageway cycle traffic provision at priority junctions

E/5.1 At priority junctions, the continuation of nearside cycle lanes using road markings to diagram 1010 (TSRGD 2016 [Ref 12.N]) shall be provided across the minor road(s).

E/5.2 The width of a cycle lane shall be a minimum of 2 metres where the cycle lane is passing the mouth of a junction that does not have a minor road entry treatment road hump.

E/5.3 Any segregation feature of a cycle lane on the major road approach to a priority junction shall be terminated a minimum of 5 metres from the minor road where the corner radius is 6 metres or less.

E/5.4 Where a radius greater than 6 metres is used, the segregation feature of a cycle lane on a major road shall terminate a minimum of 20 metres from the minor road.

Cycle traffic at roundabouts

E/5.5 Cycle lanes shall not be provided on the perimeter of the circulatory carriageway of a roundabout.

NOTE *Cycle lanes on the perimeter of the circulatory carriageway of a roundabout encourage cyclists to take up a nearside position where they are vulnerable to being hit by vehicles exiting the roundabout.*

Compact roundabouts

E/5.6 At compact roundabouts, cycle tracks shall be provided when the total junction throughput is above 8,000 AADT.

E/5.7 When cycling is on-carriageway through a compact roundabout, any cycle lanes, light segregated cycle lanes or stepped cycle tracks shall end 20-30 metres in advance of the give way line so that cyclists integrate with motor traffic on the roundabout approach.

Normal roundabouts

E/5.8 At normal roundabouts, including where there are segregated left turn lanes, one of the following design options shall be used when providing for cycle traffic:

1) provide cycle tracks around the junction, with cycle track crossings of each arm;
2) remodel the junction as a compact roundabout, where permitted by CD 116 [Ref 5.N];
3) provide grade separated cycle tracks around and/or across the junction;
4) introduce signal control to the roundabout, with appropriate cycle track provision;
5) replace the roundabout with a signal controlled junction or another form of junction, with appropriate cycle track provision.

NOTE *Refer to CD 116 [Ref 5.N] for requirements and advice for cycle tracks and shared use at segregated left turn lanes.*

Cycle track priority around roundabouts

E/5.9 Where cycle tracks are provided at roundabouts they shall be two-way, except where cycle traffic has priority over any of the roundabout entries and exits.

E/5.9.1 Where cycle tracks are used on the roundabout approaches, they should link with cycle tracks around the roundabout.

Cycle traffic at signal controlled roundabouts

E/5.10 When providing for cycle traffic, one of the following four approaches shall be used at signal controlled roundabouts:

1) on-carriageway provision;

WITHDRAWN

2) off-carriageway provision;
3) a cycle track across or around the central island;
4) grade separated provision.

On-carriageway provision at signal controlled roundabouts.

E/5.11 Advanced stop lines shall not be used at signal controlled roundabout approaches that:

1) carry more than 5000 AADT;
2) have more than two traffic lanes; and/ or
3) receive more than 30% of the traffic signal cycle time.

E/5.12 Facilities for on-carriageway cycle traffic at signal controlled roundabouts shall be provided in accordance with Table E/5.12, in order of preference.

WITHDRAWN

Table E/5.12 Methods of providing for on-carriageway cycling at signal controlled roundabouts

Order of preference	Method of provision	Description	References
1	**Separate stages**	Cycle traffic is provided with separate stages at the signal controlled node. Cycle traffic complete their manoeuvres without conflict. Cycle traffic approaches the signal controlled node via a cycle lane or track.	Appendix E/A
2	**Exiting traffic held**	Cycle traffic is provided with a track or lane (protected by light segregation) around the outside of the circulatory carriageway. Left turning motor traffic exiting the roundabout is held on red while circulating traffic are given a green aspect. Traffic turning left to leave the roundabout is given a green aspect at the same time as traffic entering the roundabout. This requires tighter exit geometry than is common where existing large roundabouts are signal controlled.	CD 116 [Ref 5.N] provides requirements for signal controlled roundabouts. Appendix E/A
3	**Cycle gate with early release**	A cycle gate controls how cycle traffic enters an area between two traffic stop lines (the reservoir area). Cycle signals show red to cycle traffic while traffic is receiving green at the two stop lines. Cycle traffic is released into the empty reservoir while traffic is held at the first stop line, and given an early release. This improves safety but introduces a time penalty for cycle traffic and is less suitable for cycle traffic movements that pass through a number of signal controlled nodes.	Appendix E/A

WITHDRAWN

NOTE *Cycle gates can be used at signal controlled junctions at locations other than roundabouts.*

Cycle track provision at signal controlled roundabouts

E/5.13 Cycle tracks at signal controlled roundabouts shall be two-way, so that right turning cycle traffic takes the shortest route through the junction.

NOTE *Access to and from these two-way routes can be from one-way cycle tracks, cycle lanes or general traffic lanes on the roundabout entries and exits (see Section 4 for requirements for transitions between cycle tracks and carriageway).*

E/5.14 Cycle traffic crossings of the roundabout entries shall be integrated with the junction control so that cycle traffic can cross while circulatory traffic is receiving a green aspect.

E/5.15 Where the red period for motor traffic entering the roundabout is of insufficient duration to enable a minimum green to be provided for cycle traffic crossing movements, an alternative stage shall be provided on demand.

WITHDRAWN

E/6. Signing

Cycle traffic direction signing strategies

E/6.1 Cycle traffic signing strategies shall be developed for all cycle routes.

E/6.1.1 Cycle traffic signing strategies should include the following attributes:

1) promotion of connectivity to local destinations and with local cycle networks in consultation with the local highway authority;
2) identification of primary, target, local place name and other local destinations in consultation with the local highway authority;
3) liaison with the local highway authority regarding all signed destinations so that they are coherently signed on the local cycle network until the destination is reached;
4) provision of additional cycle signs (blue face) to promote the cycle route and provide easier wayfinding for cyclists;
5) minimised sign clutter in accordance with Traffic Advisory Leaflet 01/13 Reducing Sign Clutter TAL 1/13 [Ref 5.I].

E/6.2 Cycle traffic direction signs shall be provided for all junction layouts for both on and off-carriageway cycle routes.

NOTE 1 *Existing road signs can be included as part of the overall cycle signing strategy if suitable to minimise sign proliferation and repeated information.*

NOTE 2 *Where route choice options are considered challenging to understand, wayfinding maps or TSRGD 2016 [Ref 12.N] "indication of a route for cyclists through a road junction ahead" signing can be beneficial where the path of cyclists through the junction is not intuitive.*

Design of direction signs for cycle traffic

E/6.3 There shall be a minimum clearance of 500mm between the edge of a cycle facility and any parts of a sign or lighting assembly that are less than 2.3 metres in height.

E/6.4 All sign faces shall be specified with retro-reflective material.

E/6.5 Either the distance or the cycle journey time to destinations shall be shown on cycle direction signs.

E/6.5.1 Where a destination is within a 15 minute cycle journey time, then the destination should be signed using the journey time and not the distance.

E/6.6 Where journey times are provided on signs, these shall be calculated assuming a typical cyclist speed on the route in question, taking account of factors (e.g. topography and crossing points) that can slow the cyclist.

E/6.6.1 The average speed of cyclists on a level surface should be assumed as 12mph (reference LTN2/08 LTN 2/08 [Ref 3.I]).

WITHDRAWN

E/7. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	CTA, 'Cycle Tracks Act'
Ref 2.N	Highways England. CD 353, 'Design criteria for footbridges'
Ref 3.N	Highways England. CD 143, 'Designing for walking, cycling and horse riding (vulnerable users)'
Ref 4.N	Highways England. CD 123, 'Geometric design of at-grade priority and signal-controlled junctions'
Ref 5.N	Highways England. CD 116, 'Geometric design of roundabouts'
Ref 6.N	The National Archives. legislation.gov.uk. Highways Act 1980, 'Highways Act 1980'
Ref 7.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 8.N	The National Archives. legislation.gov.uk. Road Traffic Act 1988, 'Road Traffic Act 1988'
Ref 9.N	Highways England. CD 236, 'Surface course materials for construction'
Ref 10.N	The Stationery Office. SI 1999/1025, 'The Highways (Road Humps) Regulations 1999'
Ref 11.N	Highways England. CD 169, 'The location and layout of lay-bys and rest areas'
Ref 12.N	The Stationery Office. TSRGD 2016, 'The Traffic Signs Regulations and General Directions 2016'
Ref 13.N	The Stationery Office. TSM Chapter 5, 'Traffic Signs Manual Chapter 5 - Road Markings'

WITHDRAWN

E/8. Informative references

The following documents are informative references for this document and provide supporting information.

Ref 1.I	Highways England. CT-elearning, 'Cycle Traffic E-Learning'
Ref 2.I	Highways England. CD 109, 'Highway link design'
Ref 3.I	LTN 2/08, 'Local Transport Note - Cycle infrastructure design'
Ref 4.I	Sustrans. Sustrans. Technical Info Note No.18, 'Toucan Crossings'
Ref 5.I	Department for Transport. TAL 1/13, 'Traffic Advisory Leaflet 01/13'

WITHDRAWN

Appendix E/A. One-way and two-way cycle tracks

WITHDRAWN

Table E/A.1 Characteristics, hazards and uses of one-way and two-way cycle tracks

	One-way cycle track	Two-way cycle track on one side of carriageway
Characteristics		
Layout	Cycle tracks along both sides of carriageway.	One cycle track.
Directness and coherence	Crossings of carriageway to access and leave the cycle track and make all movements.	Crossings of carriageway to reach destinations on the opposite side of carriageway from the cycle track; and for cyclists on that side to access the cycle track.
Hazards		
Turning movements	Cycle traffic at risk from left turning traffic entering side roads.	Cycle traffic at risk from left turning traffic entering side roads.
	Cycle traffic at risk, but lower risk than with two way cycle tracks, from right turning traffic entering side road and from minor road traffic entering the junction.	Cycle traffic at risk from right turning traffic entering side roads.
Blocking issues	Cycle track may be blocked by traffic queuing on side road, affecting one direction of cycle traffic.	Cycle track may be blocked by traffic queuing on side road, affecting both directions of cycle traffic.
	Cyclists may use main carriageway if side road blocked. This use would be in the same direction of travel as the adjacent general traffic lane.	Cyclists may use main carriageway if side road blocked. This may encourage use of the carriageway by cycle traffic travelling in the opposite direction to traffic in the adjacent general traffic lane.
Sight lines and visibility	When crossing side roads, whatever form of priority or control is provided, cyclists need to look behind to check for left turning vehicles.	When crossing side roads, whatever form of priority or control is provided, cyclists need to look behind to check for left turning vehicles (or right turning vehicles if travelling in the opposite direction to the adjacent general traffic flow).
	n/a	Sufficient separation or barriers may be needed to reduce risk of drivers being dazzled by oncoming cycle lights and cyclists being dazzled by oncoming vehicle head lights particularly on unlit roads.
	Cyclists may incorrectly use one-way tracks in the wrong direction if it is easier than crossing a major road.If cycle users persist in using one-way tracks the wrong way, this suggests that the facility may need to be made two-way.	n/a
Implementation locations		
Locations	Urban areas due to high frequency of side roads.	Rural and urban areas with few side roads.
	n/a	Large junctions where network for cycle traffic needs to maintain coherence.

WITHDRAWN

WITHDRAWN

© Crown copyright 2020.
You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:
visit **www.nationalarchives.gov.uk/doc/open-government-licence/**,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email **psi@nationalarchives.gsi.gov.uk**.

Department for Infrastructure
An Roinn Bonneagair

Road Layout
Design

CD 195
Northern Ireland National Application Annex to CD 195 Designing for cycle traffic

(formerly IAN 195/16)

Revision 0

Summary
This National Application Annex contains the Department for Infrastructure Northern Ireland specific requirements for cycle traffic on the trunk road and motorway network.

WITHDRAWN

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated team in the Department for Infrastructure, Northern Ireland. The email address for all enquiries and feedback is: dcu@infrastructure-ni.gov.uk

This is a controlled document.

Contents

Release notes **2**

Foreword **3**
Publishing information 3
Contractual and legal considerations 3

Introduction **4**
Background 4
Assumptions made in the preparation of this document 4

NI/1. Requirements for cycle traffic **5**

NI/2. Normative references **6**

WITHDRAWN

Release notes

Version	Date	Details of amendments
0	Sep 2019	Department for Infrastructure Northern Ireland National Application Annex to CD 195.

WITHDRAWN

Foreword

Publishing information

This document is published by Highways England on behalf of Northern Ireland.

This document supersedes IAN 195/16 Cycle traffic and the strategic road network, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

WITHDRAWN

Introduction

Background

This document provides requirements and advice relevant to the motorway and trunk road network for the design of infrastructure for cycle traffic. It is intended to be used by highway design professionals to facilitate the convenient and safe movement of cycle traffic, where cycling is legally permitted.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 1.N] apply to this document.

WITHDRAWN

NI/1. Requirements for cycle traffic

NI/1.1 Direction on the design of routes and facilities for cycle traffic in Northern Ireland shall be obtained from the Department of Infrastructure.

WITHDRAWN

NI/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'

WITHDRAWN

WITHDRAWN

© Crown copyright 2020.
You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:
visit **www.nationalarchives.gov.uk/doc/open-government-licence/**,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email **psi@nationalarchives.gsi.gov.uk**.

Road Layout
Design

CD 195
Scotland National Application Annex to CD 195 Designing for cycle traffic

(formerly IAN 195/16)

Revision 0

Summary
This National Application Annex contains the Transport Scotland specific requirements for cycle traffic on the trunk road and motorway network.

WITHDRAWN

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Transport Scotland team. The email address for all enquiries and feedback is: TSStandardsBranch@transport.gov.scot

This is a controlled document.

Contents

Release notes **2**

Foreword **3**
Publishing information 3
Contractual and legal considerations 3

Introduction **4**
Background 4
Assumptions made in the preparation of this document 4

S/1. Requirements for cycle traffic **5**

S/2. Normative references **6**

WITHDRAWN

Release notes

Version	Date	Details of amendments
0	May 2020	Transport Scotland National Application Annex to CD 195.

WITHDRAWN

Foreword

Publishing information

This document is published by Highways England on behalf of Transport Scotland.

This document supersedes IAN 195/16 Cycle traffic and the strategic road network, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

WITHDRAWN

Introduction

Background

This document provides requirements and advice relevant to the motorway and trunk road network for the design of infrastructure for cycle traffic. It is intended to be used by highway design professionals to facilitate the convenient and safe movement of cycle traffic, where cycling is legally permitted.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 2.N] apply to this document.

WITHDRAWN

S/1. Requirements for cycle traffic

S/1.1 The design of routes and facilities for cycle traffic in Scotland shall be in accordance with Cycling by Design 2011 [Ref 1.N].

WITHDRAWN

S/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Transport Scotland. Cycling by Design, 'Cycling by Design' , 2011
Ref 2.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'

WITHDRAWN

WITHDRAWN

© Crown copyright 2020.
You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:
visit **www.nationalarchives.gov.uk/doc/open-government-licence/**,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email **psi@nationalarchives.gsi.gov.uk**.

Llywodraeth Cymru
Welsh Government

Road Layout
Design

CD 195
Wales National Application Annex to CD 195 Designing for cycle traffic

(formerly IAN 195/16)

Revision 0

Summary
This National Application Annex contains the Welsh Government specific requirements for cycle traffic on the trunk road and motorway network.

WITHDRAWN

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Welsh Government team. The email address for all enquiries and feedback is: Standards_Feedback_and_Enquiries@gov.wales

This is a controlled document.

Contents

Release notes **2**

Foreword **3**
Publishing information 3
Contractual and legal considerations 3

Introduction **4**
Background 4
Assumptions made in the preparation of this document 4

W/1. Requirements for cycle traffic **5**

W/2. Normative references **6**

WITHDRAWN

Release notes

Version	Date	Details of amendments
0	Sep 2019	Welsh Government National Application Annex for CD 195.

WITHDRAWN

Foreword

Publishing information

This document is published by Highways England on behalf of Welsh Government.

This document supersedes IAN 195/16 Cycle traffic and the strategic road network, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

WITHDRAWN

Introduction

Background

This document provides requirements and advice relevant to the motorway and trunk road network for the design of infrastructure for cycle traffic. It is intended to be used by highway design professionals to facilitate the convenient and safe movement of cycle traffic, where cycling is legally permitted.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 2.N] apply to this document.

WITHDRAWN

W/1. Requirements for cycle traffic

W/1.1 The design of routes and facilities for cycle traffic in Wales shall be in accordance with Active Travel (Wales) Act 2013 Design Guidance ATDG (W) [Ref 1.N].

WITHDRAWN

W/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Welsh Government. ATDG (W), 'Active Travel (Wales) Act Design Guidance'
Ref 2.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'

WITHDRAWN

WITHDRAWN

© Crown copyright 2020.
You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:
visit **www.nationalarchives.gov.uk/doc/open-government-licence/**,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email **psi@nationalarchives.gsi.gov.uk**.