

C1 Cycle Environment

Introduction

On many streets cyclists share the carriageway with a range of motor vehicles. This provides an acceptable environment for cycling when speeds and traffic volumes are low. However on busy streets specific cycle facilities are very important to making cycling a real choice for a broad spectrum of people.

This section provides details on the range of options for cycle facilities covering:

- **Description and general requirements**
- **On road cycle facilities**
 - On carriageway- advisory lanes/ mandatory lanes/ shared bus lanes
 - On carriageway- contraflow/ false one-ways
 - On carriageway- physical separation
 - Off carriageway- separation
 - Off carriageway- shared footway
- **Specific facilities- on road**
 - Advance stop lines
 - Bus stops
 - Parking and loading bays
 - Traffic calming measures
 - Side road provision
 - Crossings
 - Access barriers and access points
 - Surfacing
- **Off Road cycle facilities**
 - Shared use paths- segregated/ unsegregated

Description

On road cycle facilities

These are intended to provide a safer and more convenient experience for cyclists than sharing roadspace with motor vehicles. They are appropriate for use on strategic and secondary streets; most local streets will be suitable for use by cyclists without specific facilities.

On road cycle facilities are considered as on or off the carriageway.

The type of facility provided should relate to the cyclist user groups being catered for and to the character and traffic levels/speeds on relevant streets. 'Family network' routes, aimed at suitability for all types of cyclists from 8 to 80, will typically require off carriageway facilities, particularly where the speed limit is 30mph or higher. (see Edinburgh's Active Travel Action Plan for map and more detail on this network).

The provision of other cycle facilities will require a judgement taking into account;

- The Council's wider strategy/ objectives for the street
- Street width
- Current and potential future cyclist numbers
- Numbers of other road users and the balance between providing for/prioritising cyclists and these other users

It is particularly important to provide cyclists with a direct, continuous and safe passage past/through any conflict points and obstacles, including;

- side road crossings
- bus stops
- parking bays, traffic islands and right turn lanes
- signalised junctions (including advanced stop lines, feed in lanes and provision through the junction)

On carriageway facilities are at carriageway level and include;

- Advisory and Mandatory with-flow cycle lanes,
- physical separation using soft or hard features
- Shared Bus Lanes
- Contraflow/ false one way facilities

Off carriageway facilities are within the public road and include;

- physical separation, using generally a kerb, from the carriageway (and sometimes the footway)
- Shared footway, used where the footway is in a non frontage situation and the speed of the road is high

Off Road Cycle Facilities

These are completely separate from the general road network. They are generally paths also open to pedestrians and sometime horse riders. Users often share a single surface but on busier paths segregation of users helps to maximise convenience and minimise conflicts. This guidance makes widespread use of cross references to other available guidance for this type of facility. It covers;

- Shared use paths including segregated and unsegregated
- Other measures including access barriers and speed control methods

General Design Requirements for cycle facilities

Layout

- Continuity of design standard and consistent signage
- Route design following the 5 Core Principles of Coherence, Directness, Safety, Comfort and Attractiveness
- Make space for cyclists: where segregation of traffic is appropriate this should be achieved through reallocation of road space – taking space from pedestrians should be the last resort
- Bicycles are human powered so cycle friendly design should aim to minimise energy losses though stopping, hills and sharp corners.
- Short or intermittent lengths of cycle lane that stop abruptly and abandon cyclists are unacceptable
- A poorly designed ‘cycle route’, for example a shared footway with frontage access, substandard width or poor sightlines, can be more dangerous for cyclists (and pedestrians) than the road it is avoiding and so inconvenient that it will not be used

Signing

- Proposals to sign cycle routes should be taken forward in consultation with the Councils cycle team. At the time of writing a major programme of signing the ‘family’ cycle network is underway
- Direction signing is crucial to the successful operation of cycle routes where cyclists are asked to follow routes different from other traffic
- Continuity of destinations - an index of destinations is available from the cycle team
- Particular attention must be given to signing off-road routes from the main road network
- Cycle signing must be maintained on the same basis as other road signs

Temporary works/diversions

- Temporary closures of roads should provide exemptions for cyclists and pedestrians, particularly where alternative routes involve a considerable detour
- One way workings should not force cyclists into narrow lanes and traffic light cycle times must allow cyclists enough time to clear the works

On road cycle facilities



Advisory Lanes

Description

Advisory Lanes are the most common type of on-road cycle facility in Edinburgh at present. They are used to define an area of the carriageway for cyclists but can be legally overrun by motor vehicles, for example to avoid a right turning vehicle. They are relatively cheap to install and are marked by using a broken white line.

Unless there is no parking/loading demand, these lanes must be supplemented by parking/loading restrictions. The hours of operation of these restrictions need to balance the needs of cyclist users of the lanes with other demands, for example loading for businesses and overnight car parking. Lanes should not be introduced unless they are fully protected by waiting and loading restrictions at times when the highest demand for cycle use is expected. In deciding whether to install this type of facility consideration should be given to whether the majority of cyclists using a route will experience the lanes reasonably free from parked and loading vehicles.

Design detail

- Used where mandatory cycle lanes are not appropriate such as where loading/parking facilities are essential
- TRO not required for cycle lane but is required for parking/loading restrictions
- Reduced general traffic lane width of the carriageway can help reduce traffic speed
- Continuity of cycle lane essential – used across [side roads](#)
- Bounded by broken white line 100mm wide (diagram 1004 TSRGD)
- Cycle symbol markings (diagram 1057 TSRGD) should be placed at the start of the lane and after every break

- Use of Traffic Signs plate 967 should only be used sparingly to inform other users of a cycle lane
- See later section on taking lanes past parking bays

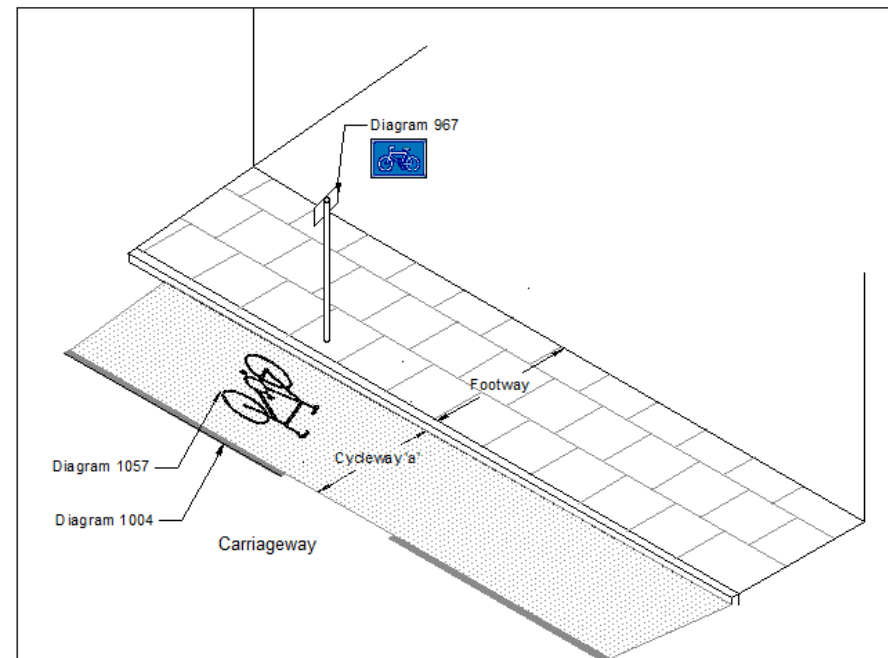
Roads on Hills

- If space is limited uphill lane preferable to downhill, bigger speed difference between cyclists and motor vehicles
- A single uphill cycle lane is preferable to two sub-standard lanes
- Greater width should be considered on uphill cycle lanes to allow for additional lateral movement

Dimensions

- Recommended Width 1.75m
- Normal maximum 2m
- Minimum 1.5m

Lanes narrower than 1.5m should not generally be provided unless in exceptional circumstances such as feeder lead in lane. (1.2m Minimum) See Traffic Signs Manual Chapter 5 for more detail.



Mandatory Lanes

Description

Mandatory cycle lanes are used to define an area of the carriageway that is reserved for cyclists. They are relatively cheap to install and are marked by using a continuous white line. They currently require a Traffic regulation order (May change as part of TRSGD 2015).

Mandatory lanes should not be crossed by motor vehicles but there are exceptions, such as emergency service vehicles and access to private driveways.

Mandatory lanes are preferable to advisory lanes and should be considered first.

Design detail

- Reduced lane width for motor traffic likely to reduce traffic speeds
- TRO required (Prior to TRSGD 2015)
- Solid white delineation line 150mm wide (Diagram 1049)
- Use of Traffic Sign plate 958.1 should be used at the beginning of cycle lane
- Use of Traffic Signs plate 959.1 should be used sparingly to inform other users of a cycle lane
- Should operate at all times
- Should not be used where loading/parking is required
- Mandatory lanes must be discontinued at side road junctions with the use of a short length marking to diagram 1010 to preserve continuity

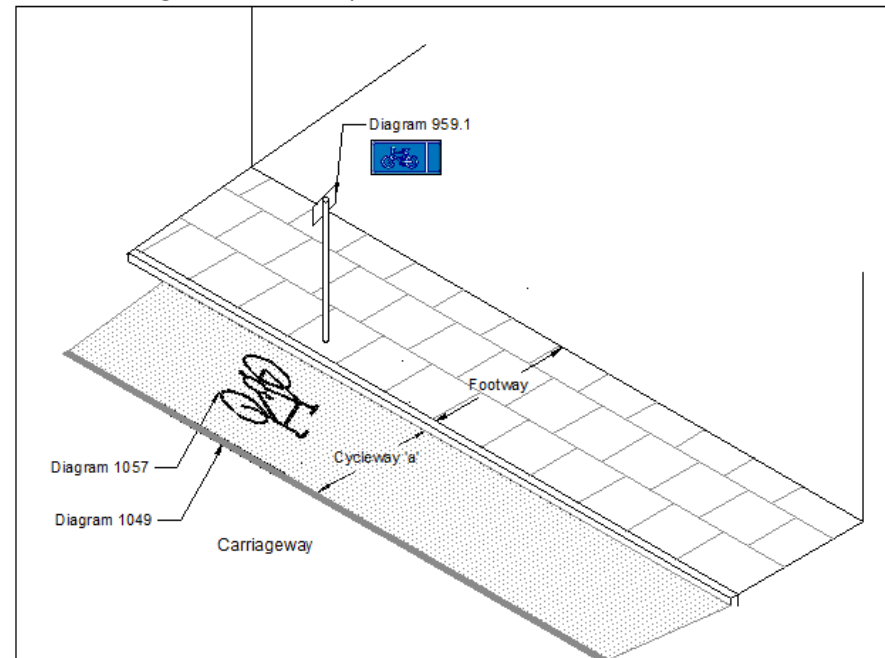
Roads on Hills

- See advisory cycle lanes information

Dimensions

- See advisory cycle lanes information- Widths narrower than 1.5m unlikely ever to be appropriate

See Traffic Signs Manual Chapter 5 for more detail.



Shared Bus Lanes

Description

Sharing bus and cycle lanes are common in Edinburgh; nearly 60km are in place. Such lanes provide a degree of separation for cyclists from general traffic. Where possible a preferred solution is to have separate facilities for cyclists, however space constraints often make this impossible without sacrificing bus priority.

Bus lanes must break where crossing past a side road or junction. At these locations an advisory cycle lane should be used to help alert turning vehicles to the presence of cyclists and cyclists a sense of continuity of facilities.

Lane widths of 4.25m and above assist buses in passing cyclists; at 4.5m a kerbside advisory cycle lane within the bus lane can be considered.

Design Detail

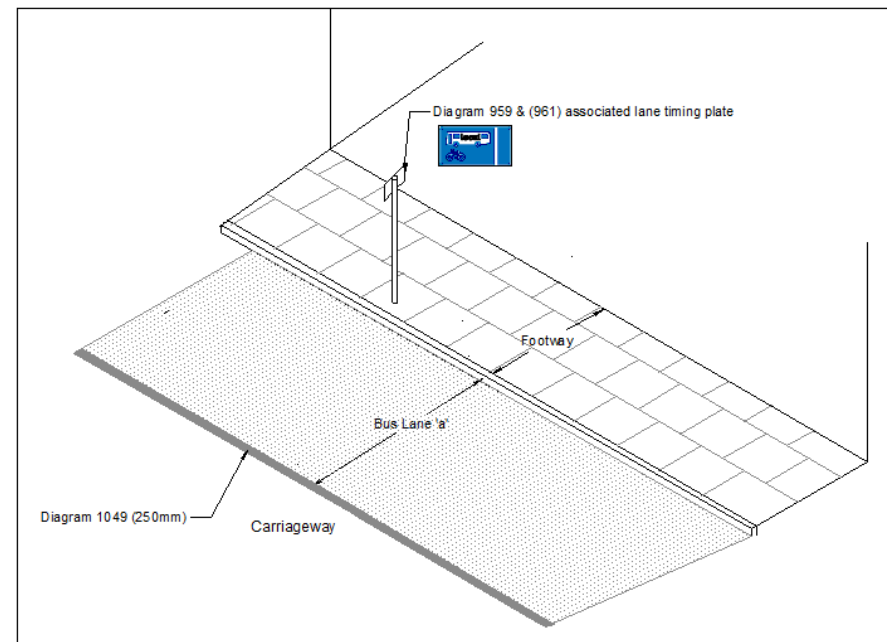
- Continuity of cycle facilities essential, continue advisory cycle lane where Bus Lane is stopped at junctions
- Solid white delineation line 250mm wide (Diagram 1049)
- Use of Traffic Sign plate 958 should be used at the beginning of lane
- Use of Traffic Signs plate 959 should only be used where appropriate to inform other users of a bus/cycle lane

Dimensions

- Recommended Width 4.5 m + - consider marking 1.5m advisory cycle lane at kerbside
- Desirable minimum 4.25m
- Absolute minimum 3.0 m

Any increase in lane width above 3.0m is helpful for cyclists, particularly when waiting and loading is permitted within the bus lane at certain times of day.

See Traffic Signs Manual Chapter 5 for more detail



Unsegregated Contraflow

Description

The permeability of the road network for cyclists can be greatly improved by exempting them from one-way roads to provide connections only available to cyclists.

These can help improve the quickness & directness of cycle journeys and avoid longer potential busy routes.

Unsegregated contraflow cycle use can be used on routes where the traffic flows are below 1000 vehicles a day. Where the speed limit is 20mph flows of up to 2000 vehicles a day may be acceptable. These can be used to provide a link to cyclist where otherwise they might utilise the footway.

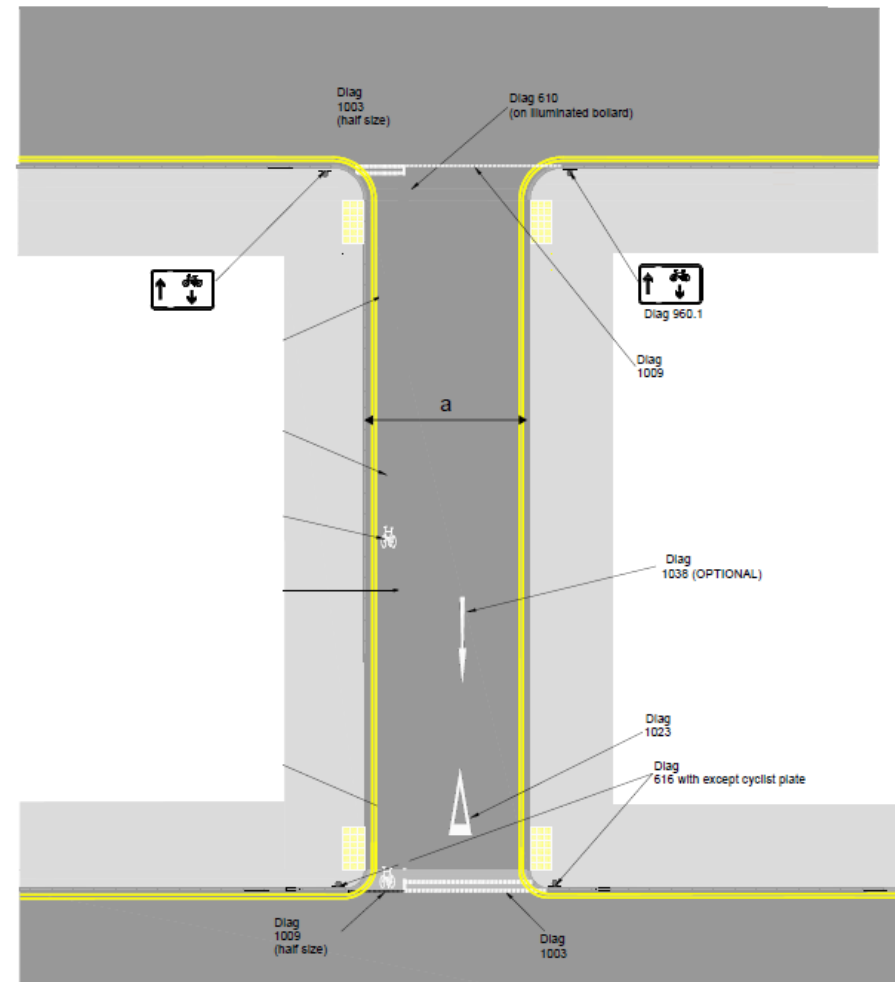
Design Detail

- Short sections of advisory cycle lane should be used at the beginning and end of the street to alert motor vehicles and pedestrians of contraflow cycle movement
- Cycle logos aligned in the direction of contraflow cycle movement should be used at the entrances/exits, across side roads and at 50m intervals to alert drivers of likely cycle movements
- These streets should be signed with appropriate no enter signs with associated except cycles
- Advisory cycle lanes can be provided for full length if required as a safety aspect

Dimensions

- Street Width
 - Desirable minimum 3.85m based on car passing cycle (no car parking)

- Absolute minimum 4.6m (with car parking on one side) –



where parking pressure is high passing places (stretches of yellow line) at least 5m long should be provided at least every 50m.

Segregated Contraflow

Description

Segregated contraflows can be provided with either mandatory or advisory lanes - or with physical separation where appropriate.

Design Detail

- Further guidance is being prepared on the conditions under which mandatory or advisory lanes are recommended
- Where width is restricted advisory cycle lane can be used to allow vehicles to overrun
- Physical segregation can be used where speeds/volumes are high.
- If parking is allowed on street it should generally be at the opposite side of the road to the Contraflow lane
- If provided on both sides a buffer zone (0.5m min) should be provided
- Entry/exits points should be provided with traffic islands.
- Waiting and loading restrictions should be included.

Dimensions

- a. Advisory/Mandatory
Recommended Width 2m
Absolute minimum 1.5m
- b. Segregated Lane
Recommended Width 2.25m
Absolute minimum 2m

False One ways

Description

Generally the street remains 2-way with one exit closed off to motor vehicles. This allows cyclists to access to the street and rejoin the carriageway.

Design Detail

- A short section of advisory cycle lane is required at the cycle entrance to alert motor vehicles and pedestrians of cycle access.
- A traffic island should be installed to prevent vehicles from entering the street.
- Cycle logos should be used at the entrance.
- These streets should be signed with appropriate no entry signs with associated except cycles plate.
- Suitable turning area should be allowed to allow vehicles to turn back.
- Waiting and loading restrictions should be introduced at the cycle access to prevent vehicles from parking across the cycle exit.

Dimensions

- a. Advisory/Mandatory
Recommended Width 2m
Absolute minimum 1.5m

Physical separation of facilities On-carriageway

Description

Physical separation can help improve the integrity of mandatory cycle lanes by protecting them from encroachment by moving vehicles or from illegal parking/loading. Such separation can significantly improve cyclists' feeling of safety and security.

This kind of separation can be 'soft', using measures such as intermittent raised rubber dividers ('armadillos'), collapsible bollards, planters or intermittent kerbs or 'hard', using a continuous kerb.

Soft measures avoid any additional drainage requirements and allow cyclists to manoeuvre between lane and carriageway where required. They are reasonably cheap compared with hard separation and can be easily and quickly installed. Conversely 'hard' separation generally gives a greater separation from motor traffic.

See general section on physical separation of cyclists from motor traffic for a discussion of 1way/ 2 way facilities.

Design

- Should be used in combination with Mandatory cycle lane (diagram 1049)
- Physical features should be placed next to cycle lane marking, if used so that marking can clearly be seen
- Careful consideration needed for the design of the segregation physical features – they need to be visible, robust and minimise the hazard to pedestrians and motor vehicles. It is particularly important for 'soft' segregation measures to be conspicuous

- Design at side roads and junctions are important – measures should be considered to emphasise continuity of the cycle facility and minimise the speed of turning vehicles
- Design needs to deal effectively with bus stops, delivering an effective solution for all users (see separate sheet)
- Car parking should be outside the lane and towards the carriageway. Separation between the cyclists running area and parked/loading vehicles should be at least 0.5m (desirably 0.75m), more where cyclists are expected to be travelling faster e.g. downhill or where frequent access to parked vehicles is expected
- Kerb should be chamfered 45° on the cycle side to provide maximum effective width for cyclists. Hard segregation should use 100mm to 125mm high kerbs
- Segregation features such as 'armadillos' or bollards should be spaced at 2.5-5m intervals dependent on local circumstances
- When separation is 'hard' using a continuous kerb, drainage is a key factor. Short gaps in the separation at regular intervals (10m generally but dependant on local circumstances) should avoid the need to install completely new drainage

Dimensions

(a)Width	One Way	Two Way	Separation strip ^{1,2}
Recommended	>2.0m *	>3.0m	1m
Desirable Minimum	1.75m	2.5m	0.75m
Absolute Minimum	1.5m	2.2m	0.5m

- *Where cycle flows are heavy (over 150 cyclists in the peak hour) and frequent overtaking occurs, widths should be increased to 2.5m
- All widths measured from kerb face to the inside of physical separation feature

- Safety strip to carriageway kerb edge minimum width should be 1.0m adjacent to frequently accessed parked cars
- Where the cycle facility is solely being separated from moving traffic it is possible to reduce the separation strip to 0.25m (back to back kerbs) where space is very constrained. This is more suitable in the 'hard' separation situation

Physical separation of facilities- Off-carriageway

Description

Physical separation from motor traffic on busy roads provides cyclists with a considerably enhanced feeling of safety and security. Separate cycle facilities are commonplace in most cities which have a high share of trips made by bike. The lack of separate facilities on busy roads is often cited as an important barrier to significantly widening spectrum of people who feel comfortable cycling. With these points in mind physical separation should be considered when providing for cyclists on busy roads.

However fully separated facilities, especially those involving full kerb separation, are relatively expensive and also require significant amounts of space. Furthermore there are safety challenges at side –road junctions, particularly for two-way facilities.

Ideally facilities should be provided on both sides of the road following the direction of other traffic. This is not always possible and options should be considered. In considering whether separated facilities can be provided on both sides of the roads (1 or 2 way) or should be 2 way on one side, the following factors should be considered;

- *Cyclists movements.* Consider the length and extent of the separated facilities and where users will go from the end points. In most cases facilities on both sides are likely to be most convenient. If 2 way on one side is proposed, how will cyclists regain the 'right' side of the road at the end of the facility?

- *Side road junctions.* Particular care is needed in the design of the intersection of a 2 way cycleway with side roads given that some cyclists will be coming from a direction different to other traffic. The more frequent and busier side roads are, the less likely a 2 way segregated cycleway is to be appropriate (without signals)
- *Available space.* It may be that in balancing space demands between different road users there is space for a 2 way cycleway on one side of a road but not one on each side
- In the 2-way on one side scenario, which is the best side of the road? Take account of;
 - Numbers and traffic volume of side roads (see above) and space availability at junctions for measures to manage conflict
 - Hills and the effect these will have on cyclists speeds, especially those on the 'wrong' side of the road
 - Potential for interaction/conflict with pedestrians and with activities such as loading and unloading from businesses
- Would a 2-way on one side solution mean a facility can be designed that enables cyclists to avoid significant conflicts or adopt a shorter or more convenient route?

2-way facilities will often be appropriate in the following scenarios;

- a) Where a relatively short stretch of segregation is being provided adjacent to a main road as part of a cycle route that is crossing between 2 side roads or off-road paths that are not directly opposite one another (i.e. not at a cross-roads).
- b) In rural or sometimes outer suburban situations with minimal need to cross the main road and with few side roads.

Cycle tracks (i.e. facilities completely separated from the carriageway - not mandatory cycle lanes) are by default 2 way and need to be legally defined as 1 way if this is to be enforceable. Even if separated facilities

intended for 1 way use are provided on each side of a road, some cyclists will tend to use them 2 way, for example as a means of travelling between adjacent side road junctions. This should be considered when designing such facilities.

Layout and Design

Key design considerations include;

- Achieving enough space – space for cycle provision should as far as possible be taken from the carriageway rather than the footway
- The balance of widths of footway and cycleway. In general the footway should be at least as wide as the cycleway. The only exception would be if cycle flows are expected to be greater than pedestrian flows
- Providing and marking a separation strip between cyclists and the carriageway
- Ensuring that the cycleway is unobstructed by street furniture etc
Wider separation strips can provide a location for street furniture or trees
- How any parking and loading will work , in particular how to ensure that the cycleway is continuously useable
- Dealing effectively with bus stops - (see separate details)
- Side roads –(see separate details)
- How cyclists enter and leave the cycle track, including at appropriate intermediate points along its length
- Considering pedestrians who are crossing the main road and cycleway informally
- Dealing with any formal pedestrian crossings that cross the cycleway
- Ensuring that the facility will drain properly - generally requiring new gullies at the rear of the cycleway
- Cycle/pedestrian priority should generally be via a 25mm kerb chamfered at 30 degrees to provide separation whilst minimising the risk of cyclist/pedestrian crashes/trips

- Priority should be afforded to cyclists over any accesses to properties by retaining the raised level
- The cycleway should generally be lowered to carriageway level across signalised junctions

Dimensions

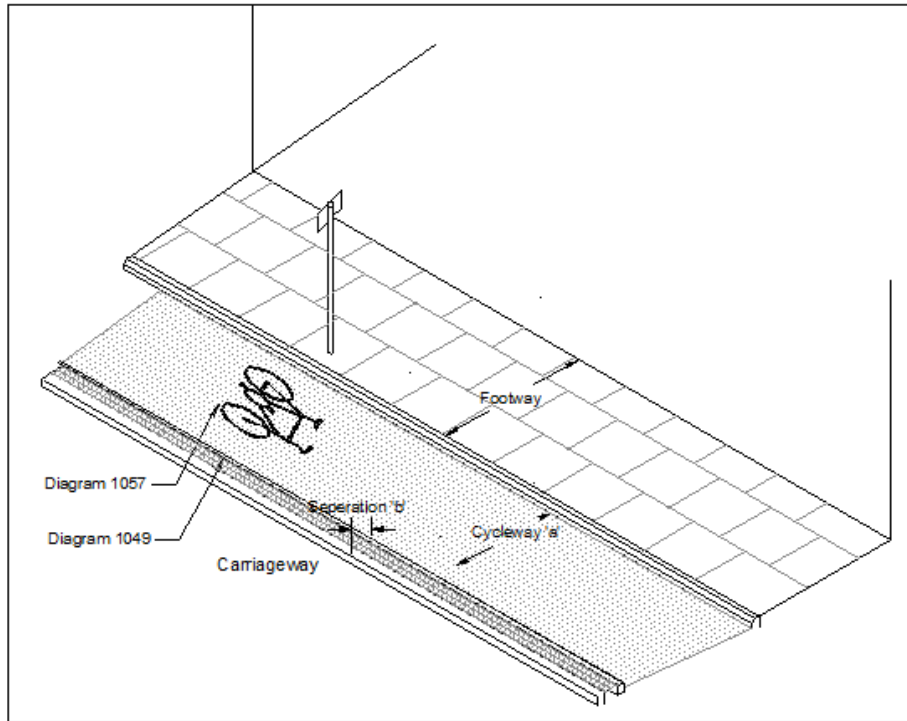
(a)Cycle Track	One Way	Two Way
Recommended	>2.0m *	>3.0m
Desirable Minimum	1.75m	2.5m
Absolute Minimum	1.5m	2.2m

(a)Separation strip	
Recommended	>0.75m
Desirable Minimum	0.5m

Width measured from kerb face to kerb face

Kerb Heights

- Footway to Cycle Lane upstand 25mm to 50 mm
- 30 degree chamfered kerb
- Carriageway to separation strip upstand 100mm to 75mm
- vertical kerb
- Cycleway to separation strip can also have an upstand echoing the cycleway to footway upstand, this will mean a higher (100 to 125mm) kerb from carriageway to separation strip



Off-carriageway - shared footway

Description

The general approach will vary according to location. Where cycle and particularly pedestrian flows are relatively low a solution that doesn't segregate cyclists from pedestrians is likely to be appropriate (examples = Seafield Rd and A904 to Dalmeny).

Where traffic speeds and flows are higher a solution segregating cyclists from pedestrians by a line becomes appropriate.

Specific facilities



Advanced Stop Lines

Description

Advanced stop lines are widely used throughout Edinburgh and should be installed at every approach to signalised junctions.

They provide an area for cyclists to move into the appropriate position for their intended manoeuvre ahead of general traffic.

They should be provided with a feeder lane on approach which allows cyclist to bypass stationary traffic.

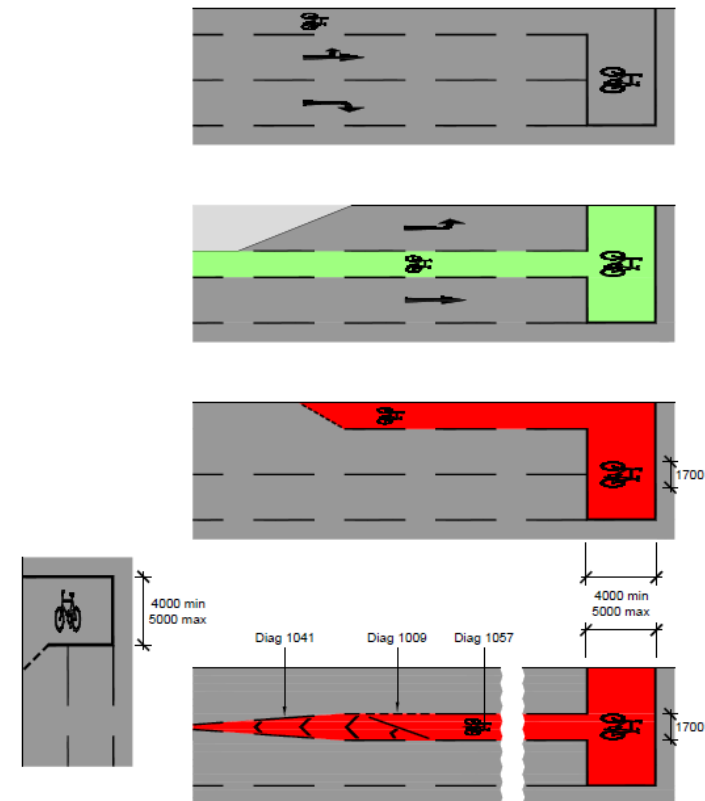
Design Detail

- The ASL should be a site specific design, dependent on the traffic volumes, cycle movement, signal staging and location and number of lanes on approach
- The feeder lane should be provided where possible, typically installed along the kerbside. However where there is a high flow left turn lane a straight ahead feeder lane should be provided
- Advanced Stop Lines and feeder lanes should be surfaced with Red chipped HRA at all locations
- ASL can be part width dependent on the requirements of the junction
- General traffic lanes may be reduced to a minimum of 2.5m, which allows motor traffic not to block or encroach on the cycle lane (See [junction approach lanes](#) for more details)

Dimensions

- Advanced Stop Line
 - Recommended minimum length 5.0m
- Nearside feeder lanes
 - Minimum width 1.5m

- Absolute width 1.2m
- Central and offside feeder lanes
 - Desirable Minimum width 1.75m
 - Absolute Minimum width 1.5m
- Vehicle lane widths. See intersections factsheet.



Bus Stop Solutions

Description

Taking cycle facilities through/past bus stops presents challenges. It is important to maintain cycle route continuity, conversely bus passengers require to get on and off buses safely and conveniently. There are a variety of options. Choice of the appropriate option will depend on type of cycle facility, space available, number of bus passengers and frequency of buses.

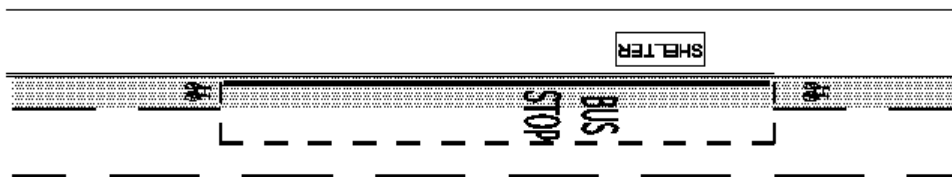
General Approach - Use with Advisory, Mandatory Cycle Lanes.

This is the standard approach currently used.

- When buses are stopped, cyclists either have to wait or to move out into general traffic without any protection. This is unsatisfactory for less confident cyclists in a busy urban environment.

Detail

- Cycle Lane continues straight along Kerb edge
- Cycle Lane markings to be terminated at Bus Stop
- Red Coloured Surfacing to continue
- Shelter & Pole to be sited at front of footway (See Bus Stop Layout)



Alternative options can be considered;

Cycle Lane Bypass - Use with Advisory, Mandatory Cycle Lanes.

This option provides cyclists with a dedicated cycle lane around the outside of the bus stop and encourages traffic to move away from the cycle lane. It requires more width than option 1 in order to provide for a bus stop with a cycle lane alongside.

This option is most suitable for situations where the bus stop is in a layby enabling the cycle lane to proceed in a straight line. It is particularly worth considering at:

- stops with large numbers of boarding or alighting passengers – meaning buses stop for longer periods
- stops with low to moderate bus numbers (up to say 20 buses per hour). At higher bus frequencies there will be an increasing tendency for conflict between cyclists and buses entering/leaving stops

Conflict

As noted above there are conflict issues between buses and overtaking cyclists.

Detail

Cycle Lane continues around the bus stop;

- Desirable width 1.75m
- Absolute minimum width 1.5m

Buffer should be provided between bus stop and cycle lane;

- Desirable width 1m
- Minimum width 0.5m

Bus Stop cage;

- Desirable width 3m
- Minimum width 2.7m

When bus stop is not in layby, approach taper should be at least 1 in 10

Exit taper should be at least 1 in 5.

Bus Stop Boarder

Provision of a bus boarder in line with the cycle lane / track will bring cyclists up to footway level onto a shared use area enabling them to continue across the bus boarder when it is clear or to cycle past pedestrians waiting at the bus stop.

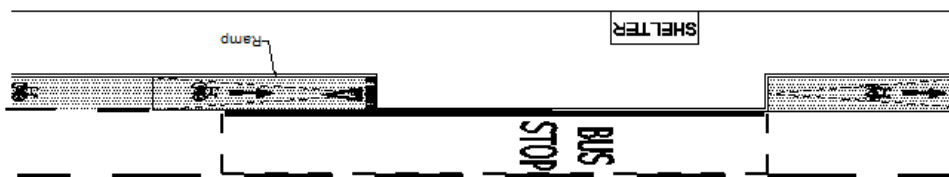
This option maintains a route for cyclists and eliminates cyclist/bus conflict, and so will be more attractive for less confident cyclists. It also allows buses to pull up to the kerb to the benefit of pedestrians. However there is potential for pedestrian/cycle conflict.

This option is best suited to bus stops with lower bus and pedestrian volumes and/or for use with separated cycle facilities, particularly off carriageway separate routes.

Detail

- Ramp onto footway shared area which will reduce cycle speeds.
- Shelter & Pole to be sited at rear of footway to avoid conflict with cyclists
- Clearly signed for cyclist to Give Way to pedestrians
- Sufficient space should be provided on footway for pedestrians waiting for bus not to conflict with cyclists when no bus is present.
- Good visibility is required for all users to be aware of and avoid conflicts.
- Shared Bus Boarder area

- Desirable width 2m
 - Minimum width 1.5m
- Existing Footway
- Desirable width 3m



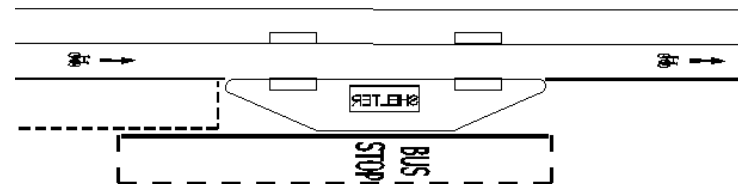
- Minimum width 2m

Bus Stop Islands

These options are the safest and most comfortable way to enable cyclists to pass stationary buses by providing a cycle track past the bus stop on the footway side.

Passengers will board and alight from buses from the kerbed island between the cycle track and the carriageway. This option has a relatively high space requirement so will often be impossible to deliver. It is also relatively expensive and so most likely to be considered where volumes of cyclists and or buses/bus passengers are relatively high.

There is potential for conflict involving pedestrians when crossing from the traffic island across the cycle lane, or where a high number of pedestrians spill over from island onto cycle lane



Detail Option A

Cycle Lane continues straight along Kerb edge
Provide a continuation of cycle lane without deviation. (Likely to require measures to slow cyclists/ask them to give way)

Option to either raise cycle lane to footway level or remain at hybrid/carriageway level. Pedestrian crossing with drop kerbs provided at either end of island. Allows parking/ loading bays to be installed alongside cycle lane and bus stop without interfering with cycle lane. Shelter & Pole should be installed on the bus stop island.

Bus Stop Island

- Desirable width 2m or more
- Minimum width 1.5m

Detail Option B

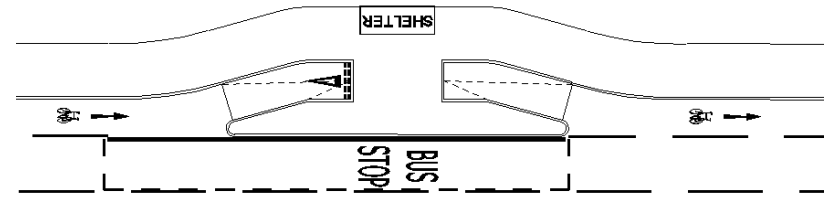
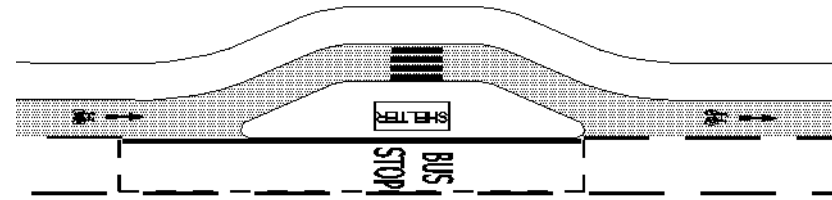
This option diverts cyclists away from the carriageway and towards to the footway. This can be used where there are no parking/loading bays provided and the running carriageway is alongside the cycle lane or cycleway.

Only suitable where sufficient width to continue footway behind cycle lane – most likely in an outer suburban or rural situation.

Option to either raise cycle lane to footway level or remain at hybrid/carriageway level. Pedestrian crossing provided at either end of island/or centrally with a mini zebra crossing provided. Shelter & Pole should be installed on the bus stop island.

Bus Stop Island

- Desirable width 2m
- Minimum width 1.5m



Parking/Loading Bays

Description

Where cycle lanes pass bays there must be a suitable buffer zone outwith the parking bay to minimise the risk of car doors hitting a passing cyclist.

Advisory Cycle Lane Design

- Hatched road markings should be used in the areas on the left of the tapers
- If there is insufficient width for a cycle lane and buffer strip past car parking, consideration should be given to narrow traffic lanes or removal of centre line, rather than substandard facilities for cyclists
- Removal or relocation of parking/loading and introduction of mandatory cycle lanes should be considered, for example if a street has adequate off street car parking facilities or excess provision.

Dimensions

a. Buffer Strip

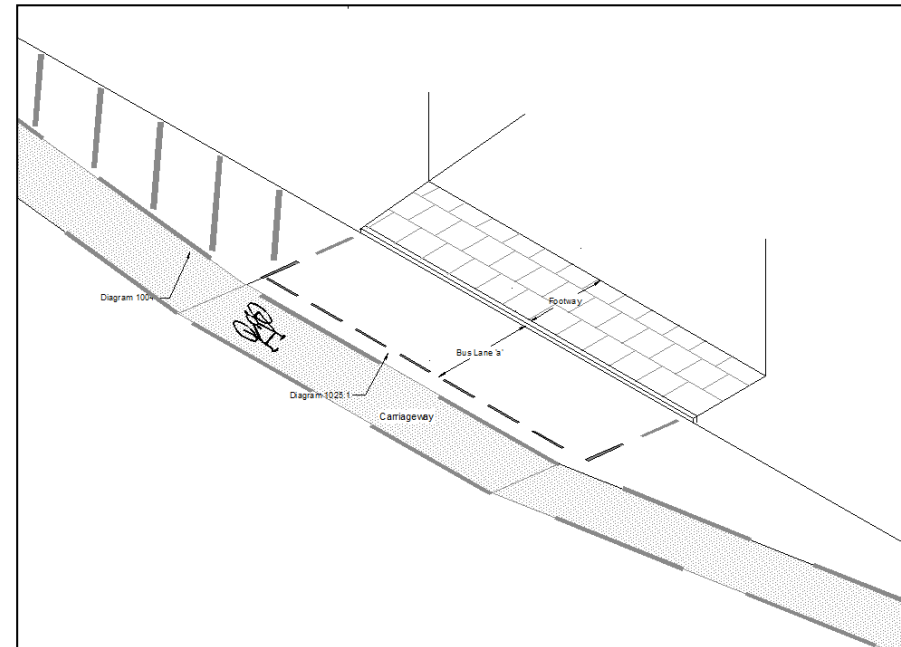
Recommended Width 1.0 m,
Desirable Minimum 0.75m
Absolute minimum 0.5m

Cycle lane width can be reduced locally to 1.5m to allow a 0.5m buffer strip to be provided

b. Parking Bay width

Cars 2.0 m,
Vans 2.4m
Buses & HGV's 2.8m

- Approach Taper should be 1:10 approach to allow cyclists the opportunity to safely realign themselves before passing parked vehicles
- Exit taper should be a minimum of 1:5 to allow cyclists the opportunity to safely realign themselves after passing parked vehicles



Parking/Loading Bays at Mandatory/ Separated Cycle Design

Description

Where mandatory or separated cycle lanes are provided and parking /loading measures are to be provided, they should be installed on the carriageway side of cycle tracks with a buffer strip provided to avoid issues with car doors opening into cycle lanes.

Design Detail

- Standard width parking/loading bays should be provided alongside cycle track
- Parking/loading should be avoided less than 15m 'upstream' of side road junctions (taking account of direction of cyclists movement) to improve visibility of cyclists by drivers on approach to the junction
- Buffer strip to be provided alongside bays
- Parking restrictions to remain in place along kerbside edge

Dimensions

- a. Buffer Strip
 - Recommended Width 1.0 m,
 - Desirable Minimum 0.75m
 - Absolute minimum 0.5m
- b. Cycle lane width - see relevant factsheets
- c. Parking Bay width
 - Cars 2.0 m,
 - Vans 2.4m
 - Buses & HGV's 2.8m

Side Road Provision

Description

Continuing cycle lanes across side road junctions to ensure continuity and help improve cycle safety. There are number of options available dependent on the type of cycle lane on approach and the priority given to either the cyclist or motor vehicle.

Typical solution for on road cycle lanes

This can be achieved by continuing the advisory cycle lane across the junction face or on mandatory/separated lanes have been used by using a stretch of road marking 1010, where the white line is broken.

Detail

- Recommended that the cycle lane width be increased at the mouth of side road (this increases its effectiveness and avoid conflict with vehicles nosing out of junctions)
- Coloured road surfacing should continue across the junction face.
- The use of Diagram 1010 markings is recommended in preference to advisory cycle lanes to make it conspicuous
- Cycle symbols (Diagram 1057 TSRGD) placed in the cycle lane along the mouth of a junction
- Option to introduce a raised table at the junction to reduce vehicle speeds
- Separated lane features to be stopped 5m prior to junction and resume 5m following junction

Dimensions

- | | | |
|---------------------------|---------------|-----------------------|
| a. Cycle Lane at junction | | |
| | Recommended | Increase lane by 0.5m |
| | Minimum Width | As per approach lane |

Widening at side road introduced with 1:10 entry taper and 1:5 exit taper

Road Humps

Description

Road humps help reduce vehicle speeds and so benefit cyclists. However conventional UK 'round-top' road humps are uncomfortable for cyclists. A sinusoidal profile (see diagram) should always be used - this has the same slowing effect on motor vehicles but is much more comfortable on a cycle.

Side Road Provision at raised cycle lanes

Description

Continue cycle lanes across side road junctions to ensure continuity and help improve cycle safety. To retain priority over the side road raised cycle lanes should remain at same level as the approach.

The carriageway should ramp up and over the junction via a raised table to improve pedestrian movement.

The kerb separating the cycleway and footway should be stopped just prior to junction and the separation continued using an appropriate material or by use of road marking 1010.

Design detail

- Recommended that the cycle lane width be increased at the mouth of side road (this increases its effectiveness and minimises conflict with vehicles nosing out of junctions)
- Coloured road surfacing should continue across the junction face.
- The use of Diagram 1010 markings is recommended in preference to advisory cycle lanes to make it more conspicuous
- Cycle symbols (Diagram 1057 TSRGD) placed in the cycle lane along the mouth of a junction
- Separated kerb features to be stopped 5m prior to junction and resume 5m following junction

Dimensions

b. Cycle Lane at junction

Recommended	Increase lane by 0.5m
Minimum Width	As per approach lane

Left Turn at Signalised Junction

If a junction has a banned left turn, there should be a provision for cyclists to make this manoeuvre.

E.g. The Mound junction

Traffic Islands and Road Humps

Description

Traffic Islands are often used to improve crossing conditions for pedestrians and to help control motor vehicle speeds. However these islands can create pinch points which can affect the safety of cyclists passing.

Traffic Islands

- Dimensions Width of carriageway between kerb line and island should avoid widths between 3.1m & 3.9m
- Recommended width between 4.0m and 4.5m
- Cycle lane width should be consistent through the features Minimum 1.5m
- Waiting & Loading restrictions required to avoid obstructions.

Dimensions

- Traffic Island

Recommended Width	2.0 m,
Desirable Minimum	1.75m
Absolute minimum	1.5m
- Carriageway width

Recommended Width	between 4.0m & 4.5m,
Not Recommended Width	between 3.1m & 3.9m
- Cycle lane should remain at the approach width typically 1.5m
- Traffic should be reduced to 2.5m at pinch point (Cycle lane should convert to advisory for length of feature)

Cycle Bypass at Narrowing

- Cycle bypass exits should not require cyclists to merge abruptly with motor vehicles
- Parking and loading/waiting restrictions should be installed to avoid obtrusions at cycle bypasses

- Careful consideration should also be given to drainage at cycle by-passes to minimise gully grate conflict and flooding in the area
- Bypasses should be wide enough to facilitate maintenance, e.g. street sweeper vehicles
- Bypass should be kept at carriageway level to avoid drainage issues

Dimensions

- Cycle Bypass

Recommended Width	2.0 m
Desirable Minimum	1.75m
Absolute minimum	1.5m
- Carriageway width between features

Recommended Width	3m
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Road Humps

Road humps help reduce traffic speeds. However the standard UK round-topped hump is uncomfortable for cyclists and a 'sinusoidal' profile should always be used.

Access Barriers and access points

Access Controls

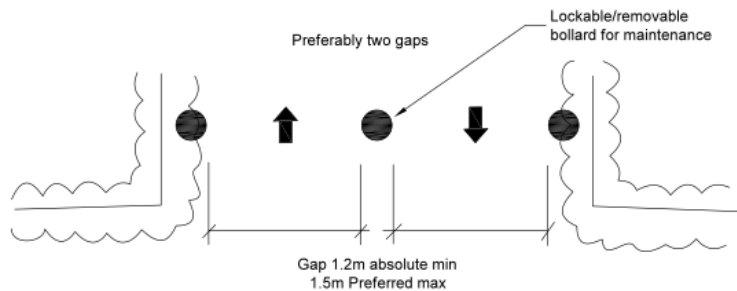
Access controls are commonly provided to prevent entry by motor vehicles or to slow cyclists' speed on the approach to a junction or bend.

Access control to slow cyclists or encourage young children to stop and wait for parents may be required on:

- The approach to a junction or crossing;
- On steep ramps and gradients
- At a blind bend

Access controls on cycle routes should be avoided wherever possible, and only used where there is a proven requirement.

- Bollards are the preferred method of access control



Controls designed to exclude motorcycles are ineffective in practice and impede wheelchair users and cyclists, including users of tricycles, cycle trailers and tandems.

Existing controls should be removed or repositioned from locations where they could prevent access for wheelchair and disabled users.

They should be highly visible so they do not cause a hazard to the user.

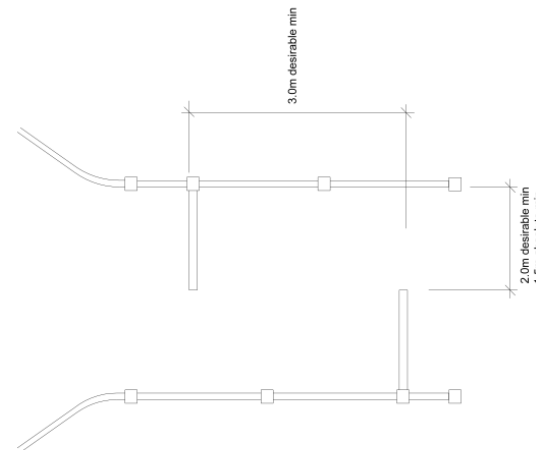
Where maintenance vehicle access is required, a central lockable removable bollard or a self closing gate for pedestrians and cyclists adjacent to a locked main gate can be used.

Measures to slow cyclists down can include;

- rumble surfaces
- SLOW markings (Diagram 1058.1)
- Staggered barriers

If staggered (chicane) barriers are used, the arrangement should be designed to slow cyclists rather than force them to dismount.

Chicane layouts should provide gaps of at least 2.5 metres between barriers and walls to permit access by tandems, tricycles and child trailers. There are however no absolutes as chicanes may be required on paths which are not wide enough to provide the recommended widths (see photo of Crawford Bridge)



Note: Rider meets barrier on left hand side first

Chicanes should be conspicuous; if possible this should be achieved by using large diameter tubing (100mm or more) in white or another light colour.

Tonal contrast banding and night-time reflectivity will normally be required on the chicanes.

Chicanes should if possible be placed at least 5.0 metres from any bend or

junction, so riders can approach them straight on.



Crawford Bridge

Access points to cycleways - dropped crossings

Access points to cycleways from the road network should always have a dropped kerb. This should have an upstand of 0 to 6mm. (see Sustrans Handbook for Cycle Friendly Design April 2014);

- The potential for the access point to double as a road crossing point for pedestrians should be considered. If this is appropriate then a matching dropped kerb on the opposite side of the road should be provided
- Appropriate tactile paving should be provided wherever possible. This will vary according to the situation, however, in some cases there is not an appropriate paving type for the message required

- Cycleway access points should always be protected by 24hour waiting and loading restrictions, where possible extending from the access point itself to allow good sightlines
- Where there is significant parking pressure, consideration should be given to putting the access point dropped crossing on a build-out to avoid clocking by vehicles and provide improved protection to cyclists

Surfacing

Description

Variation in the surfacing material/colour is used in cycle lanes including across junctions faces, separated lanes and ASLs. Colour is used to increase the visibility of the cycle facilities to other road users.

Red Chipped Surfacing is the main choice for cycle surfacing and should be used throughout the city on all types of cycle lanes, ASLs and Bus Lanes.

The final decision on what type of surfacing to be used should be discussed with the cycle team and local roads manager.

Chipped Surfacing

The main advantages of red chipped HRA over coloured applied colour are;

- it has much a longer lifespan (around twice or more)
- indicative whole life costs are less
- mitigation of streetscape issues regarding bright coloured surfacing in sensitive areas
- elimination of unsightly surface flaking in bus and cycle lanes and ASLs
- elimination of frequent black irregular patches in lanes due to utilities work
- weather when laying is less problematic (it can affect lifespan of thermoplastic screed)
- Utilities can reinstate excavations in a single operation (patching thermoplastic screed involves an additional process, a factor in the current high frequency of black patches in bus and cycle lanes)

If there is a requirement to use applied surface due to unusual circumstances a cold applied plastic resin (MMA) should be used.

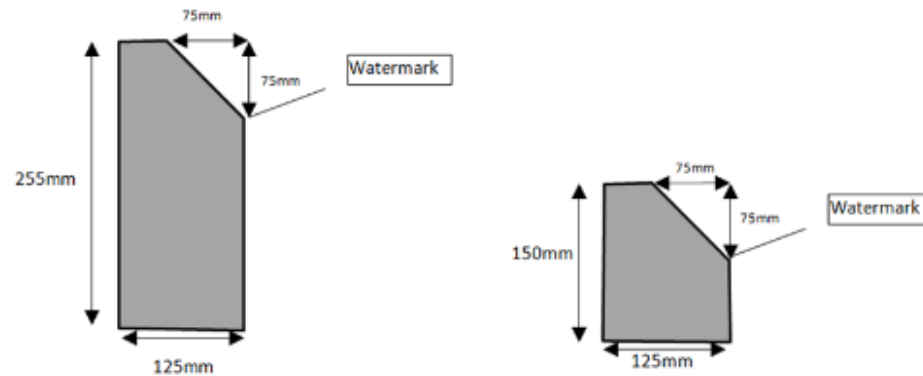
Kerbing

Description

Where separated cycle lanes have been installed with Back to back kerbs installed. The kerb facing the cycle lanes should be a Splay kerb as found on motorways and 'A' roads.

These present less of a danger to cyclist catching there pedals, allowing them to utilise the full width of the cycle lane. This is particular relevant where the lane installed is at the minimum desirable width.

Splay kerb- 45 degree slope back and so present less risk from being clipped by pedals.



Installation

As per Standard Kerb installation See [Factsheet C-1-4-d](#)

Off Road Cycle facilities



Shared Paths