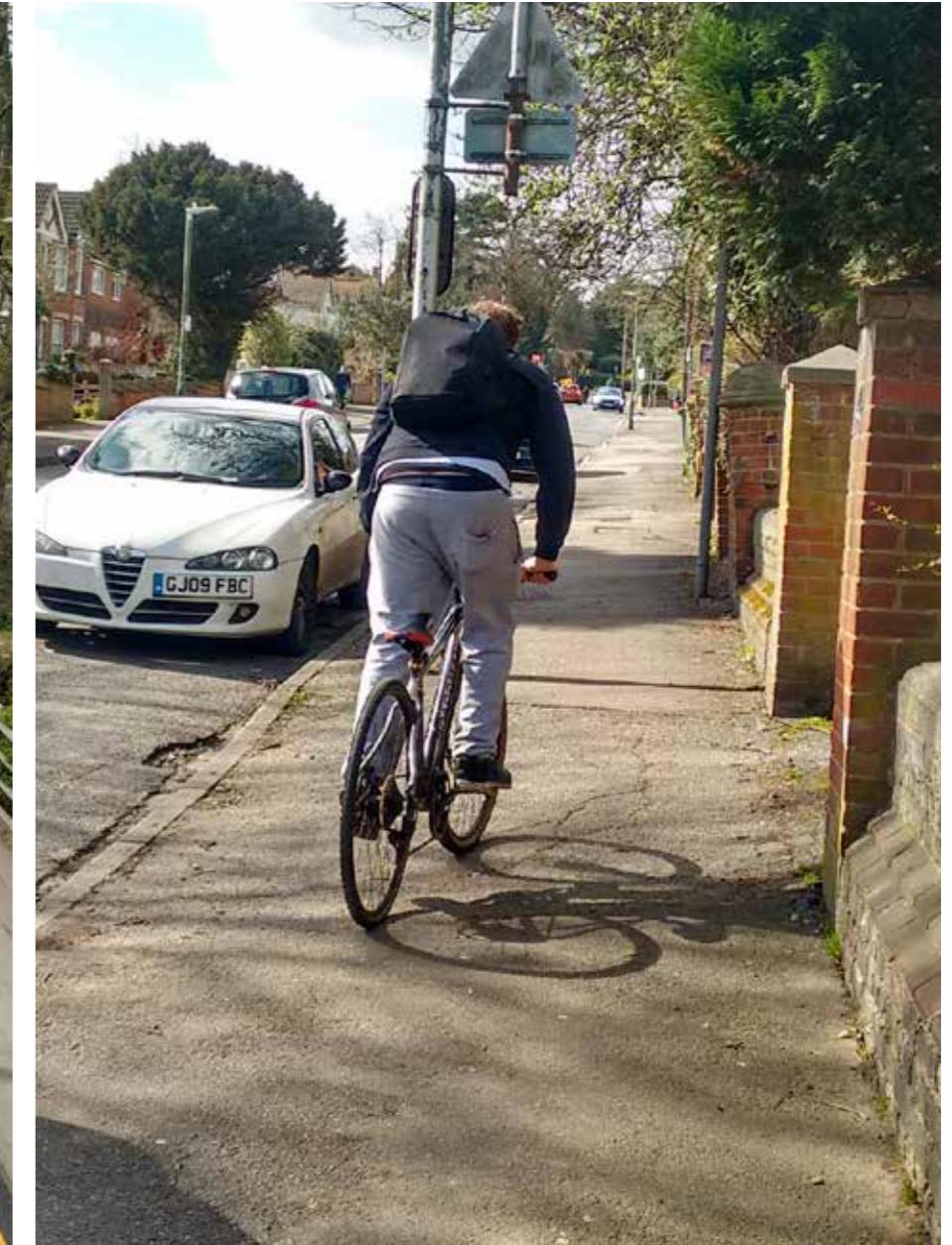


Route Corridor Walking and Cycling Assessment

The A20 London Road, Maidstone

May 2019



About Sustrans

Sustrans is the charity making it easier for people to walk and cycle.

We are engineers and educators, experts and advocates. We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute.

Sustrans works in partnership, bringing people together to find the right solutions. We make the case for walking and cycling by using robust evidence and showing what can be done.

We are grounded in communities and believe that grassroots support combined with political leadership drives real change, fast.

Join us on our journey. www.sustrans.org.uk

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Introduction

Context

The A20 London Road is an important movement corridor connecting 11,000 residents (2011 Census) with the town centre. The corridor includes multiple local destinations both along and off this road including 10 schools, 8 retail outlets and a handful of leisure and health destinations as well as the London Road Park and Ride located on Beaver Road.

The corridor has good potential for cycling and walking with a maximum journey distance to the town centre of 2 miles, representing a 12 minute journey by bike (based on a speed of 10mph) and a 42 minute journey on foot (based on a speed of 2.8 mph).

The existing design and layout of this street is geared to maximising motor traffic capacity, facilitated by a lack of pedestrian green stages at junctions and a lack of pedestrian signal crossings on links. The existing cycle network avoids the London Road and is instead routed via indirect back streets which reduces its utility and appeal for users. Provision in parts is critically substandard both in terms of width and a lack of crossings of the London Road.

Reallocating road space along this corridor has significant potential to unlock suppressed demand for walking and cycling with the rebalancing of road space giving people more choice in how they travel. The space efficiency of cycling and walking also has significant potential to offset congestion.

Alignment Choice

The following three route options were considered at the initial stage of the project:

1 A route along the A20 London Road

This a busy road carrying up to 19,000 vehicles per day which represents both the main barrier to walking and cycling as well as the most intuitive and direct route into the centre. The other two options run east of the A20 and only serve people living in the immediate area so only half the 11,000 local residents.

2 A route via the traffic-free section along the rail line

This option is well below the common standard required for a shared use path and would need to be at least 3.5m wide. Currently the path pinches at 1.7m and the overall width fluctuates around 2m which combined with the flight of steps at Buckland Lane make this route difficult to promote in its current form.

3 A route via Whatman Park

This is the most attractive option but would feel isolated after dark with the potential for issues of safety, and perceptions of safety, to discourage use. This option could be assessed further as required subject to a further commission.

Recommendations

- Accommodate crossings where people want to go (desire lines)
- Provide priority crossings for pedestrians and cyclists at junctions and widen footways
- Provide a cycleway consisting of two way and with flow stepped tracks along the London Road and via Leafy Lane into the centre.

Scope

It was agreed at the inception meeting to concentrate on improving provision along and across the London Road as this option provides the most direct route to the centre as well as providing access to the most local destinations.

This study will assess the existing level of service, existing street profile and make recommendations based on current guidance.



View East on Buckland Lane

Constraint

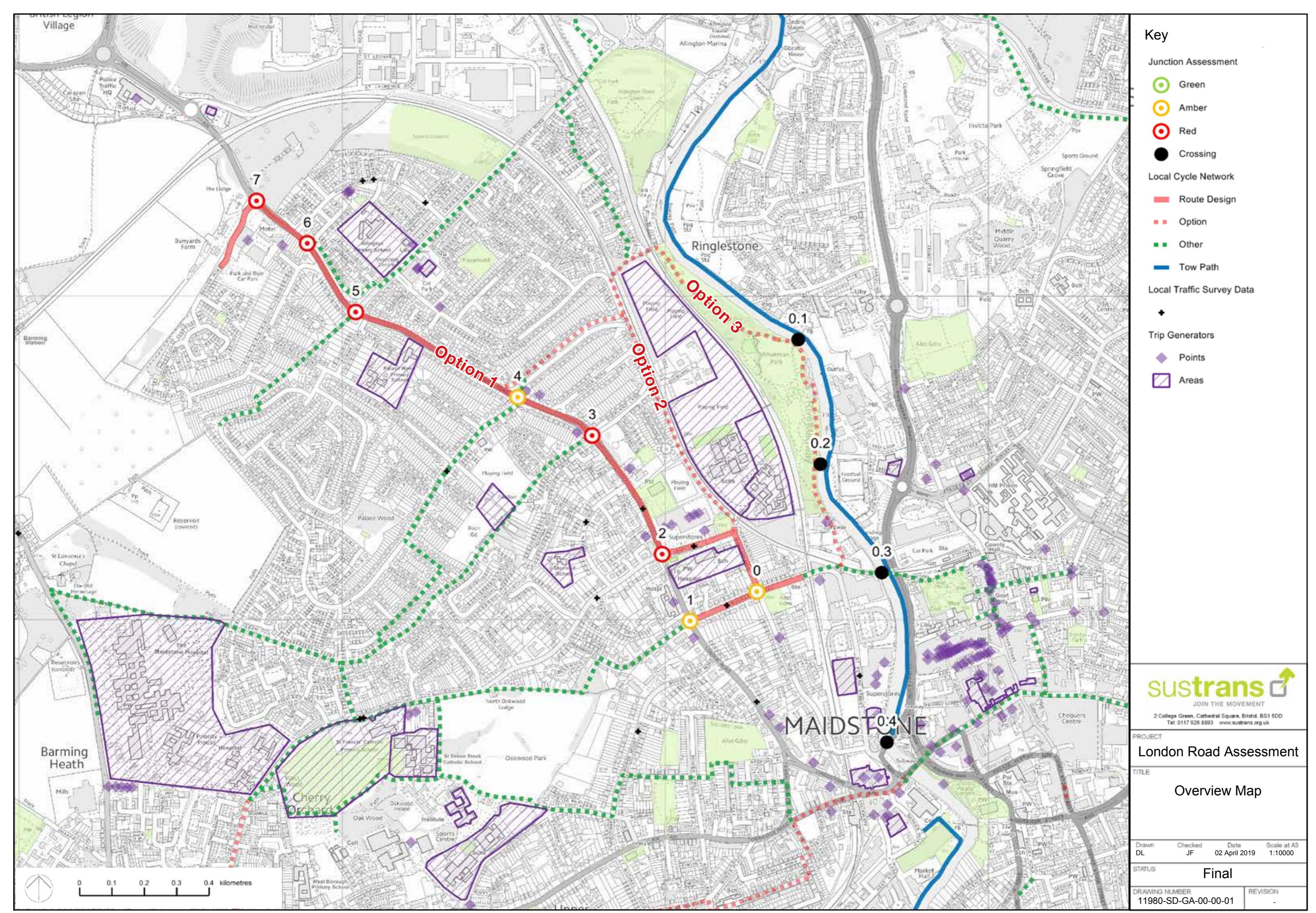
Set of steps that significantly impacts the level of service for cycling, would be impossible to negotiate for some and reduces the utility of the route for commuting



View North along the off-road section of option 2

Barrier

A general width of 2m that pinches at 1.7m and is further reduced when considering effective width due to edge constraints



Summary of Interventions

Table of recommendations

The table is a summary of the recommended interventions described in more detail in each section of the report. A brief description of each item is provided, along with a very broad assessment of cost.

Costs

The costs have been calculated as a standard rate per metre length or per intervention type, based on similar projects in the South of England such as the Quietways and Connect2.

These figures should be taken as an early estimate and should not be considered as accurate. They do not include any allowance for land costs, which may be appreciable, nor for ancillary costs such as traffic management, statutory undertakers works, contingencies, supervision, detailed design or project management.

More detailed surveys of ground conditions, detailed information on rates from the highway authority and more detailed designs would be required to establish a better forecast of the total costs.

Section	Item	Brief Description	Rate (per linear m)	Cost
A1	-	150m Two-way track	£250 - 400	50 to £80,000
A2	-	220m Two-way track (includes road realignment)	£500 - 750	110 to £165,000
A4	1	New entrance		£2,000
A4	2	2 x continuous footway		£10,000
A4	3	Table junction		£35,000
A4	4	200m Two-way track	£250 - 400	50 to £80,000
A5	-	350m Two-way track	£250 - 400	87,500 to £140,000
Junction 0	-	Table junction		35 to £50,000
Junction 2	-	Re-configure junction		150 to £200,000
Junction 3	-	Re-configure junction (includes new crossing)		£100,000
Junction 4	-	Re-configure junction		150 to £200,000
Junction 5	-	Re-configure junction		150 to £200,000
Junction 6	-	Re-configure junction		150 to £200,000
Junction 7	-	Re-configure junction		150 to £200,000
B1	-	220m with flow cycle tracks	£500 - 800	110,000 to £176,000
B2	-	450m with flow cycle tracks	£350 - 600	157,500 to £270,000
B3	-	400m with flow cycle tracks	£350 - 600	140,000 to £240,000

Existing Conditions & Level of Service

Existing conditions for cycling and walking are poor when assessed using the cycling level of service and pedestrian comfort level tools backed by the DfT

Barriers to Walking & Cycling

The key barriers include:

- Traffic volume and mix along the A20 creating a barrier to all age and ability movement either by bike or on foot

Cycling

- Critically substandard existing provision for cycling
- Lack of a joined up cycle network with provision stopping at the main road

Walking

- The seven main junctions along the London Road pose significant issues for pedestrians with limited provision and a lack of pedestrian phases
- Lack of priority crossings of the London Road away from the junctions
- Sections of road with very limited footway widths especially around the junctions



View at the Junction of Castle Road and London Road

Desire Line & Barrier

Safe and easy movement across the London Road at the junctions are a significant desire line that isn't catered for. Users currently have to cross multiple lanes without any priority



View at the Junction of Leafy Lane and London Road

Barrier

Footway widths drop as low as 1.1m well below DfT standards



View at the Junction of Leafy Lane and London Road

Desire Line & Barrier

Pedestrians crossing multiple lanes and taking risks despite the bridge provision



View North on the London Road

Constraint

Conflict between pedestrians and cyclists. Cyclists seen going the wrong way on the east side of the London Road to avoid pedestrians



View at the Junction of Grace Avenue and London Road

Constraint

Lack of a single stage crossing means pedestrians seen crossing outside the green phase representing a lower level of service



View west on Buckland Hill

Barrier

Cyclist seen using the pavement all along this corridor due to difficult on-road conditions

Design Guidance

The London Road is part of the A road network and therefore should have provision in line with Highways England Interim Advice Note 195/16.

Existing Traffic Conditions

London Road (DFT 2016 & 7 day Count)

Volume 19,000 Average Daily Flow 1.8% HGVs
Speed 85th% 32.4mph

Buckland Hill (KCC 7 day Count)

Volume 7,000 Average Daily Flow
Speed 85th% 26mph

Provision based on Guidance provision should be as follows:

For cycling:

- Segregated cycleway of 2m in both directions with a minimum 0.5m separation from the carriageway
- Crossings should be signalised on the London Road and Parallel Zebra on Buckland Hill

For walking

- As a low flow environment footways should be a minimum of 2.9m with street furniture and 2m without
- 2.6m preferred next to 40mph sections
- Crossings should be provided that give a greater degree of priority on junctions, links and side roads
- All green pedestrian phases at junctions are suggested

Design Options

- The three street profiles shown represent the key design options based on guidance and existing conditions on the London Road.

1.1 Highways England 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	0-5,000	Cycle Lanes
	>5,000	Cycle Tracks
20	<2,500	Cycle Streets or Quiet Streets: combined traffic
	2,500-5,000	Cycle Lanes
	>5,000	Cycle Tracks

1.2 Highways England Minimum Widths of Cycleways

Table 2.2.11 Minimum Widths of Cycle Tracks and Cycle Lanes

Cycle Route Type	Peak hour cycle flow (either 1-way or 2-way depending on Cycle Route Type)	Desirable Minimum Width	Absolute Minimum Width (for sections up to 100m)
Cycle Lane	<150	2.0m	1.5m
Cycle lanes with light segregation	<150	2.5m	1.5m
1-way cycle track (including stepped cycle track)	<150	2.5m	1.5m
	150-750	3.0m	2.5m
	>750	4.0m	3.5m
2-way cycle track	<150	3.0m	2.5m
	>150	4.0m	3.5m

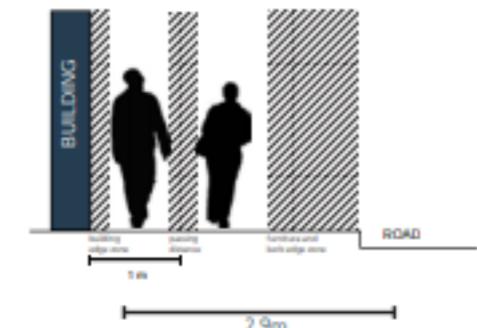
1.3 London Cycle Design Standards

Cycle lanes ⁽¹⁾	2.0 metres	
	Lanes of 1.5 to 2 metres may be acceptable provided that the adjacent traffic lane does not have fast-moving traffic and a high proportion of HGVs and is not less than 3.2 metres wide.	
Nearside lead-in lanes to ASLs ⁽²⁾	1.5 metres	
	This should be for short lead-ins only, allowing space for cyclists to pass waiting traffic and access the ASL. Site-specific physical and traffic conditions may dictate that a 1.2- to 1.5-metre lead-in is preferable to no lead-in.	
Bus/cycle lanes	4.5 metres	
	A 'narrow bus lane' of 3.0 to 3.2 metres may be provided in constrained scenarios – this does not allow for overtaking ⁽³⁾ . Bus lanes of 4.0 to 4.5 metres can be acceptable, depending on site-specific conditions (risk associated with bus or cycle crossing into adjacent lane when overtaking). ⁽⁴⁾	
	one-way	two-way
Cycle tracks including segregated lanes ⁽⁵⁾	very low / low flow	1.5 metres
	medium flow	2.2 metres
	high / very high flow	2.5 metres +
		4.0 metres +

1.4 Pedestrian Comfort Levels Minimum Widths

Low Flow

< 600 pph



The recommended minimum footway width (total width) for a site with low flows is 2.9 m. This is enough space for comfortable movement and a large piece of street furniture such as guard rail, cycle parking (parallel with the road), a bus flag for a low activity bus stop or a busy pedestrian crossing.

In high street or tourist areas the total width can be reduced to 2.6m if there is no street furniture (except street lights) to allow space for people walking in couples or families and with prams etc.

In other areas, low flow streets can be 2m wide if there is no street furniture. This total width is required for two users to pass comfortably and to meet DfT minimum standards.

Section A

Link from Maidstone Barracks Station and North West Maidstone via Buckland Hill, Buckland Road, Leafy Lane and the London Road (A20)

Design Choices

- Buckland Hill east of Buckland Road has a narrow street profile which limits options meaning that traffic management is required to free up space for better cycling and walking provision
- Provide provision on Buckland Hill west to the London Road as this connects to the Oakwood Park schools
- Provide a two way cycle track on the south side of Leafy Lane and the East side of the London Road. This will have to include short sections of absolute minimum widths for this type of provision due to width restrictions

Discounted Options

Limited widths on Buckland Hill east of Buckland Road make provision impossible to provide whilst retaining a two way road.

The section of the London Road between Buckland Hill and Queens Road was considered for cycle provision but discounted due to limited width at the south end.

Shared use

Discounted as an option for the following reasons:

- Limited width would mean a low level of service for both groups
- Any future increase in numbers for either mode will mean increased levels of conflict

Route over the river between Maidstone East and Maidstone Barracks

Please refer to previous Maidstone Walking and Cycling Assessment, April 2018.

Section B

Link along the London Road from Buckland Lane to the London Road Park and Ride

Design Choices

- From section B1 to B3 the street profile widens allowing space for with flow cycle tracks. This will require removal of hatching. In some places where there is significant verge such as section B3 the existing road lane profile can be retained through movement of the kerb lines
- For walking provide pedestrian phases of signals and priority crossings on links and continues footways over side roads.

Discounted Options

Two Way Cycle track

Discounted as an option for the following reasons:

- Cyclists travelling against the flow of the adjacent traffic lane are less likely to be spotted by turning vehicles creating conflict
- Two way tracks are more difficult to provide for at junctions
- With flow cycle tracks reduce the requirement for crossing the road

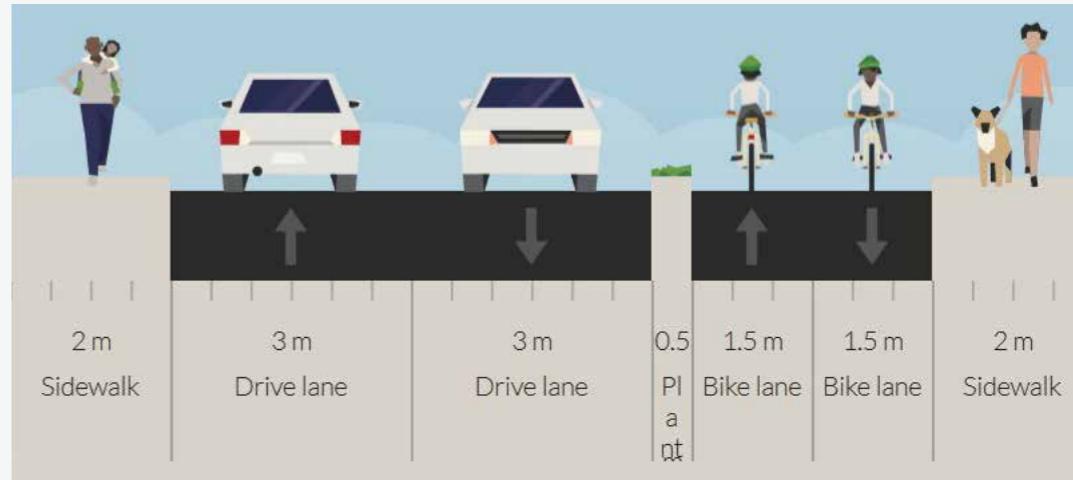
Shared Bus Lane

Discounted as an option for the following reasons:

- Provides a lower level of service for cyclists and would not be appropriate for all ages and abilities
- The recommended width for bus/cycle provision is 4/4.5m as shown in table 4.1. Narrowing the existing bus lane to 3m frees up enough space for with flow tracks
- From junction 3 onwards the street profile widens creating enough space to provide segregated provision
-

Street Profile: 2-way cycleway 13.5m

Minimum provision 13.5m Street, Absolute minimum (short sections) 12.6m street



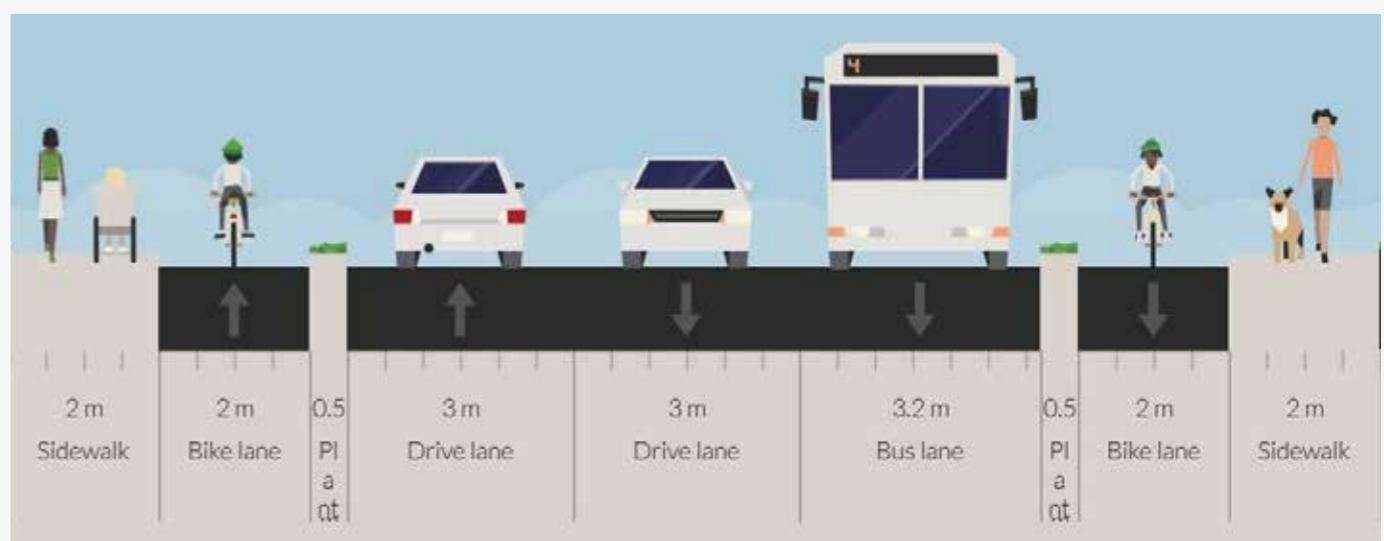
Street Profile: With flow cycleway 15m

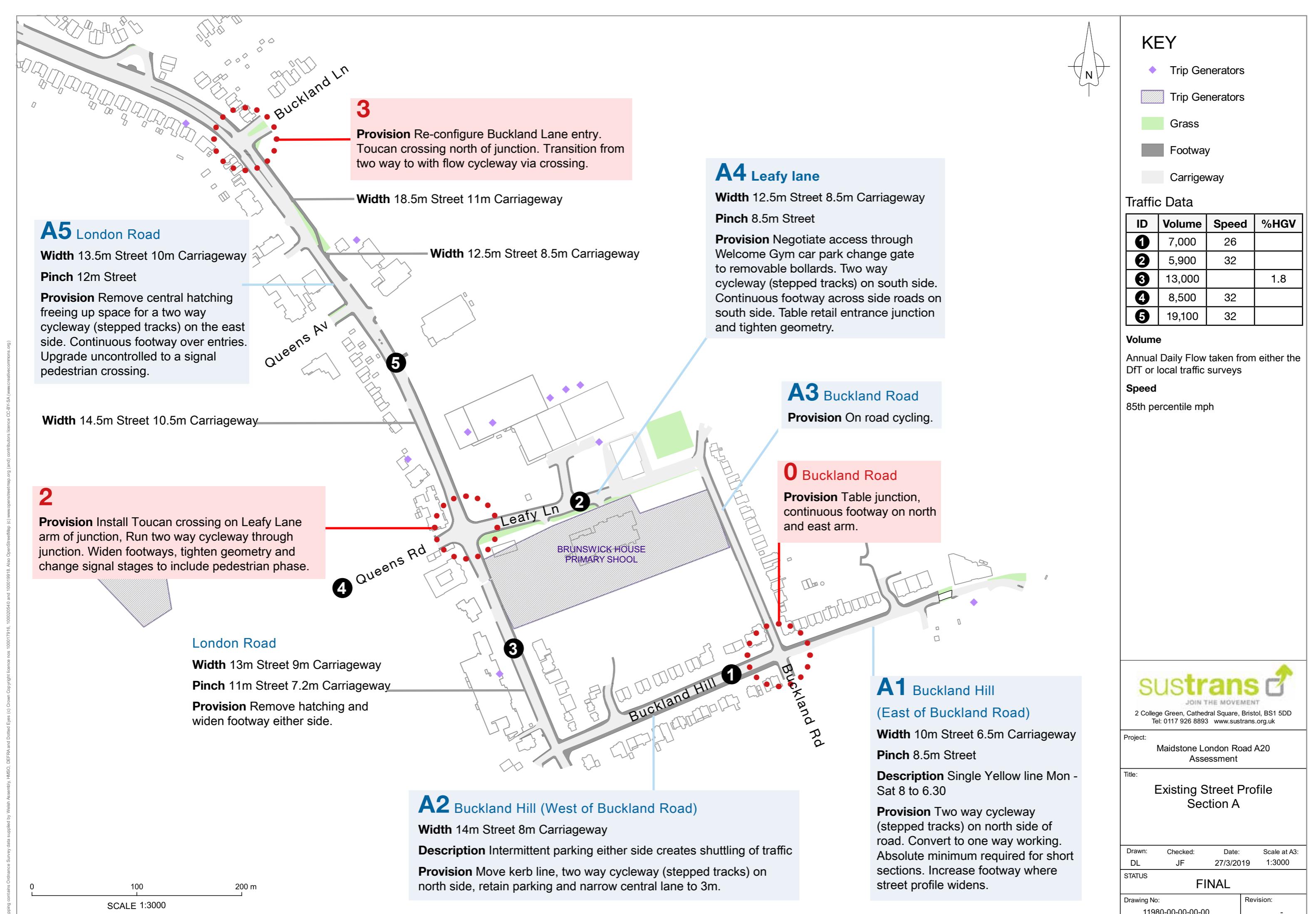
Minimum provision 15m Street, Absolute minimum (short sections) 13.6m street

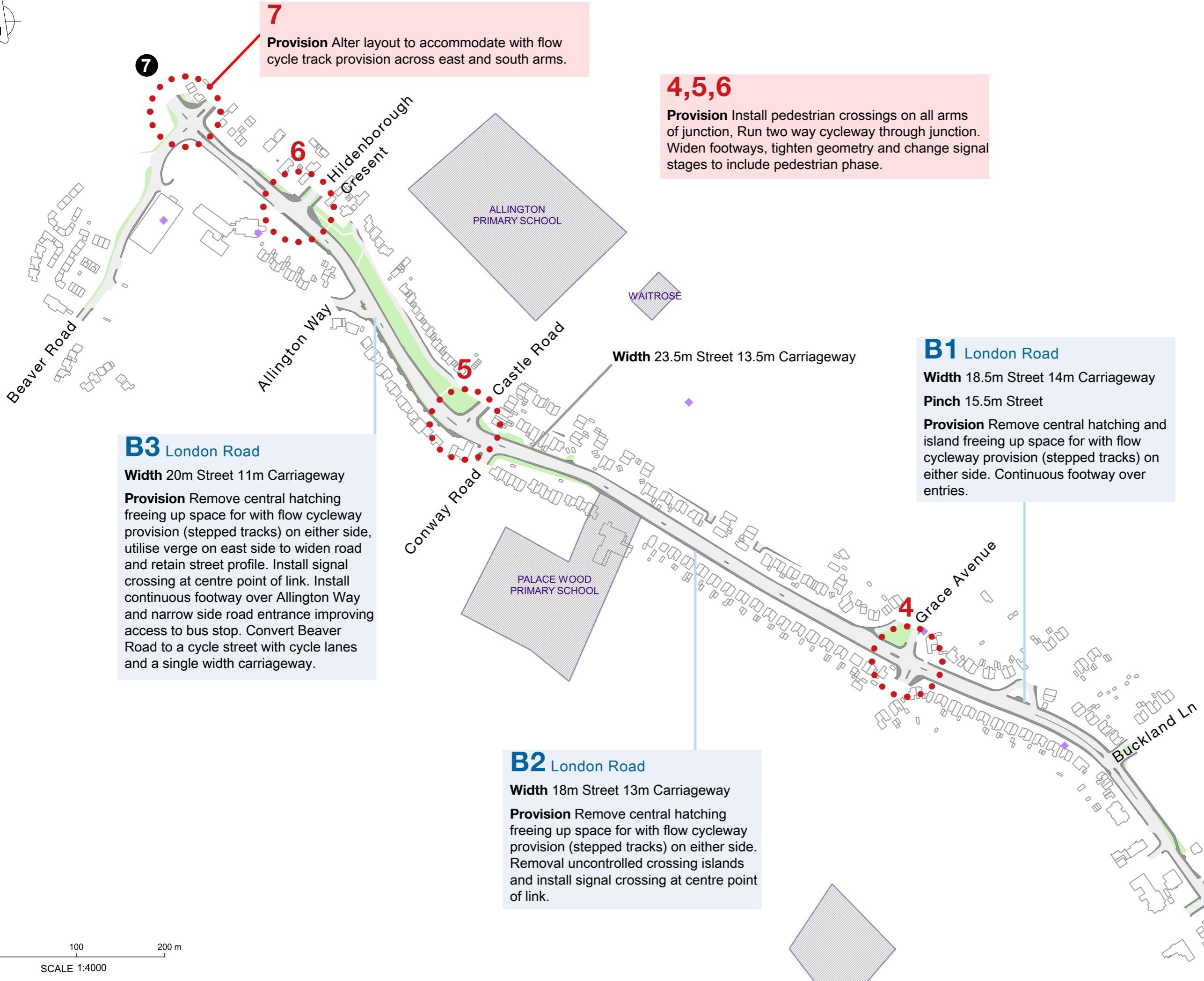
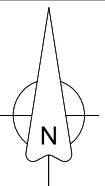


Street Profile: With flow cycleway & bus lane 18.2m

Minimum provision 18.2m Street, Absolute minimum (short sections) 16.6m street







KEY	
◆	Trip Generators
▨	Trip Generators
■	Grass
■	Footway
■	Carrigeway

Traffic Data

ID	Volume	Speed	%HGV
7	11,800		1.8

Volume

Annual Daily Flow taken from DfT traffic surveys

Speed

85th percentile mph

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Project:
Maidstone London Road A20 Assessment

Title:
Existing Street Profile
Section B

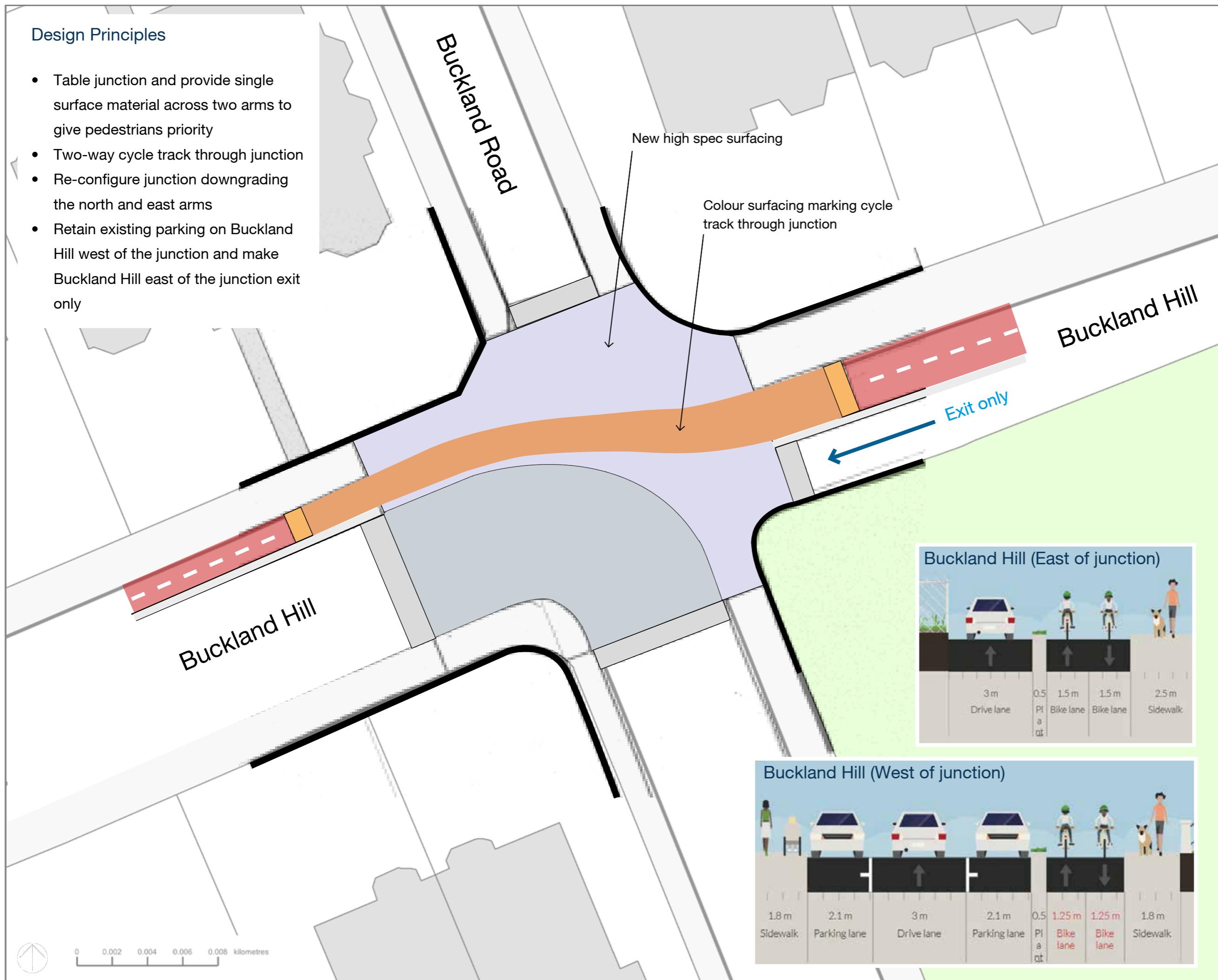
Drawn: Checked: Date: Scale at A3:
DL JF 27/3/2019 1:4000

STATUS FINAL

Drawing No: Revision:
11980-00-00-00-00 -

Design Principles

- Table junction and provide single surface material across two arms to give pedestrians priority
- Two-way cycle track through junction
- Re-configure junction downgrading the north and east arms
- Retain existing parking on Buckland Hill west of the junction and make Buckland Hill east of the junction exit only



Key

2-way cycle track
Continuous footway

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PROJECT

London Road Assessment

TITLE
Buckland Hill/Buckland Road Junction Sketch Design

Drawn **DL** Checked **JF** Date **04 April 2019** Scale at A3 **1:1000**

STATUS **Sketch**

DRAWING NUMBER **11079-SD-GA-00-00-02**

REVISION

Conclusions and Next Steps

Other similar Schemes

The layout and character of the London Road is very similar to the Lea Bridge Road (A104) in Walthamstow which has recently seen significant improvements for walking and cycling. Based on this similarity, both in terms of the existing conditions and the extent of the change being proposed it would be advisable to liaise with Waltham Forest Council to gain an understanding of the lessons learnt from delivery of this scheme.

Proposed Design

- Provision for cycling should be in line with Highways England guidance meaning this will require significant change to the existing road layout
- If provision in line with the minimum standards set out in this document is not possible, then further work will be required to identify and assess alternative options that provide an acceptable level of service to cyclists and pedestrians

Prioritisation

- Although the design being proposed is an end to end route it is recognised that there is potential to deliver sections as standalone schemes. Especially given the level of change being proposed
- If the scheme is delivered in phases, provision close to the town centre should be prioritised
- **Walking and cycling improvements at any of the junctions are recommended and could be delivered as individual point interventions**
- Cycling improvements could be decoupled from walking improvements if these can be delivered in a shorter time frame

Community Engagement

- This should fit into all stages of the design process going forward and is a useful tool to better understand the appetite for change
- Testing the designs in the report will help ensure the solutions being advanced are appropriate as well as ensuring there's appetite for such change

Making the Case

Schemes that involve significant change to the existing street can be difficult as they challenge the status quo. The political, economic and policy element is often pivotal; therefore, ensuring any schemes are underpinned by strong and robust arguments that join up with the local political and community context is key.

- Fitting the scheme into the corporate objectives of both Maidstone and KCC
- Showing the health benefits of this scheme
- Demonstrating the potential for increased cycling and walking trips and putting a value on this model shift

Glossary of Terms

(taken from London Cycling Design Standards)

Advisory cycle lane

A dashed white line marking an area of the carriageway designated for the use of cyclists. Motor vehicles may need to cross the markings but generally should not enter the lane unless it is unavoidable.

ASL – Advanced stop line

Stop line for cyclists at traffic signals ahead of the stop line for general traffic, with a waiting area marked with a large cycle symbol and extending across some or all of the traffic lanes.

Bus lane

Lane designated for bus use during the signed hours of operation. Signs also advertise whether other vehicles, such as cycles, are permitted in the lane during those times.

Bus stop bypass

A bus stop layout in which through-movement for cycles is away from the carriageway and from the bus stop cage. Can be achieved with shared use or partially separated footway around the bus stop but usually features a dedicated cycle track passing behind the bus shelter.

Carriageway

That part of a road or highway constructed for the use of vehicular traffic (including cycles).

Chicane

A horizontal deflection in the carriageway used as a speed-calming measure.

Continuous footway

Technique used at priority junctions and other vehicular accesses to assert visual priority for pedestrians over turning vehicles by continuing the footway material across the access or the mouth of the junction. A ‘continuous cycleway’ can be added in a similar way if a cycle lane or track is present.

Contraflow or Cycle contraflow

A facility allowing cyclists to travel in the opposite direction to one-way motor traffic. Requires a Traffic Order and can be implemented using lane markings, which may or may not have some other form of physical protection, or by using signing only.

Courtesy crossing

Location designed to invite pedestrians (or cyclists) to cross and to encourage vehicles on the carriageway to give way – although there is no legal obligation to do so. Often used as part of a design approach aimed at reducing vehicle speeds.

Cycle bypass

Form of physical separation for cycles enabling them to avoid a controlled feature for other road users – e.g. traffic signals or a pinch-point requiring ‘give way’ to oncoming traffic.

Cycle street

A street where the carriageway is dominated by cyclists and, by virtue of the width and design of the street, all motor traffic moves at the speed of the slowest cyclist.

Cycle track

A cycle facility physically separated by kerbs, verges and/or level changes from areas used by motorists and pedestrians. It may be next to the road or completely away from the carriageway and may either be at footway level, carriageway level or in-between.

Decluttering

Rationalisation of street furniture, signs and signals aimed at minimising the amount of such objects in the street environment, thereby reducing visual and physical clutter.

Dropped kerb

Feature to facilitate access, usually between the footway and the carriageway. Must be flush when provided for pedestrians, wheelchair users or cyclists.

‘Dutch-style’ roundabout

A type of roundabout where cyclists are physically separated from other road users with orbital cycle tracks. It is one of many types of roundabout seen in the Netherlands.

Entry treatment or Raised entry treatment

Raised carriageway surfacing at a side road junction, taking the form of a hump with ramps on either side and usually provided at footway level. The purpose is principally to slow vehicle movements at the junction.

Filtered permeability

An area-based network planning approach to improving conditions for cycling by removing through motorised traffic in zoned areas. Cyclists can pass freely through motorised traffic restrictions between zones and so are favoured in terms of journey time and convenience.

Footway build-out

Area of footway that extends out further than the previous kerb edge and narrows the carriageway.

Greenways

Various shared use route types largely or entirely off-highway – generally designed for people of all abilities to use on foot, cycle or horseback, for leisure, local connection or commuting.

Homezone

A group of streets and spaces designed primarily to meet the needs of non-motorised users and where the speed and dominance of motorised traffic is reduced. A 10mph limit normally applies.

Horizontal traffic calming

Forms of traffic calming that work by changing the width available for driving. Typically these take the form of static elements such as build-outs or traffic islands, but they may also utilise car parking or temporary features.

Junction table or Raised table

Raised carriageway surface (often to footway level) at a junction, used as a speed control measure and a way of supporting pedestrian movement and

pedestrian priority.

Light segregation

The use of intermittently placed objects to separate and protect a cycle facility (usually a marked cycle lane) from motorised traffic.

Mandatory cycle lane

A section of the carriageway marked by a solid white line that is designated for the exclusive use of cyclists during the advertised hours of operation.

Parallel priority crossings or ‘parallel crossing’

A cycle crossing next to a zebra crossing where users of the main carriageway have to give way to both pedestrians and cyclists crossing that carriageway.

Pedestrian crossings

One of various crossing types for pedestrians that do not allow cycle access. Includes signal-controlled types (Pelican, Puffin and Ped-X crossings) and priority crossings (Zebra crossings).

Pedestrian Zone

Area closed to vehicles, including cycles – often marked with exceptions for loading. Cycles may also be specifically exempted, or they may be included by designating a ‘Pedestrian and Cycle Zone’.

Pinch point

Locations where the carriageway narrows, often as a result of traffic calming measures or addition of refuge islands. Unless well designed, they can add to collision risk and discomfort for cyclists by forcing them into close proximity with motorised traffic.

Point closure

Method of closing a street to through-traffic, ideally in the form of a modal filter (i.e. allowing access for cyclists).

Priority junction

A junction where the priority is shown by ‘give-way’ road markings – i.e. the minor arm gives way to the major arm.

Quietway

A branded cycle route type established by the London Mayor's Vision for Cycling (2013). Quietways are strategic routes using less heavily trafficked local streets and off-carriageway facilities.

Raised delineator

A raised strip, between 12 and 20mm high, that separates areas used by cycle and pedestrians when they are at the same level. It is defined in TSRGD (diagram 1049.1) and therefore has legal status as a road marking.

Refuge islands

Islands in the carriageway to support either pedestrian crossing or vehicle right turns (which may include cycle-only turning pockets). Their placement and design should avoid creating hazardous pinch-points for cyclists.

Segregated cycle lane/track

Cycle facility separated by a continuous or near-continuous physical upstand along links (usually verges or kerbed segregating islands).

Shared use area, footway or path

A footway, footpath or part of any public space shared between pedestrians and cyclists but where motorised vehicles are not permitted. It is identified by the shared use sign – a blue circle with white pedestrian and cycle symbols. In these spaces, pedestrians have priority.

Shared space

A design approach that seeks to change the way streets operate by reducing the dominance of motor vehicles, primarily through lower speeds and encouraging drivers to behave more accommodately towards pedestrians and cyclists.

Shared surface (level surface)

A street or space either with no distinction between footway and carriageway or no kerb upstand between the two.

Speed cushions

Small speed humps installed across the road with gaps at distances that, ideally, allow certain users such as buses and large emergency service vehicles to pass easily, but force most other motorised vehicles to slow down to negotiate the humps.

Speed humps

Raised areas, typically placed horizontally across the carriageway, designed to reduce traffic speeds. The ramps either side of the hump should have a sinusoidal profile so as to minimise discomfort to cyclists.

Tactile paving

Textured paving that helps people with sight impairments to read the street environment around them by feeling the change in surface underfoot and/or seeing the change in material.

Two-stage turn

A manoeuvre allowing cyclists to make an opposed turn at a junction in two stages, without having to move across lanes of moving traffic. Between two traffic signal stages, the cyclist waits in the junction, away from the traffic flow.

Uncontrolled crossing

A pedestrian and/or cycle crossing where vehicles do not legally have to give way but may do so out of courtesy. They are used where vehicle flows and speeds give safe opportunities for crossing the street without the need for a controlled facility.

Vertical traffic calming

Forms of traffic calming that rely on a change of level in the carriageway for slowing effect – typically speed humps or speed cushions.

Visibility splay

The physical space at an access or junction through which a road user exiting from the minor arm needs good, clear visibility in order to see potential conflicts or dangers in advance of the distance they need in order to brake and come to a stop.