GREATER CAMBRIDGE CITY DEAL

Urban Design Guidance for Transport Infrastructure Projects

UNIVERSITY OF CAMBRIDGE

Cambridgeshire County Council

GREATER CAMBRIDGE
GREATER PETERBOROUGH
ENTERPRISE PARTNERSHIP

South Cambridgeshire District Council

CAMBRIDGE CITY COUNCIL

KEY OBJECTIVES OF CITY DEAL

The City Deal aims to help Greater Cambridge maintain and grow its status as a prosperous economic area. The City Deal creates an infrastructure investment fund to accelerate the delivery of 33,000 planned homes and help create 45,000 new jobs through joint decision making between local councils.

Between 2015/16 and 2019/20, Government will provide Greater Cambridge with £100m and dependent on the economic impact of this local investment, Greater Cambridge will be able to access up to an additional £400m over 10-15 years.

The vast majority of this funding will be used to provide new sustainable transport infrastructure in and around Cambridge on new and existing transport corridors.

KEY OBJECTIVES OF THE DESIGN GUIDE

The purpose of this document is to ensure that infrastructure schemes are developed in the context of relevant national and local guidance and to comply with best practice. It sets out design principles and processes to make the most of the opportunities that transport infrastructure schemes offer to improve the quality of the highway environment so that the City Deal contributes to maintaining Cambridge as an attractive place to live and to its quality of life. In the context of individual project objectives, it will aim to:

- Inform and influence the design of major routes into and out of the city and key city centre access streets.
- Achieve an appropriate blend of the needs for movement along these routes and the desire to make them attractive places to live, work and pass through.
- Engage with local communities and groups that represent movement modes to influence and inform the development of designs that meet project objectives in a balanced way.

1.0 CONTEXT

1.1 STATUS AND SCOPE OF THE GUIDE

The guidance in this document is advisory but should be considered in the design of projects being delivered by the Greater Cambridge City Deal. It has not been prepared as a Supplementary Planning Document (SPD) as set out in the Town and Country Planning (Local Planning) (England) Regulations 2012.

This guidance note should be read in with the Cambridgeshire Design Guide (2007) which has been prepared by the County and District Councils in partnership to provide guidance on the design of streets within new development.

Click here

Cambridgeshire Design Guide (2007)
https://www.scambs.gov.uk/sites/default/files/documents/Cambridgeshire%20Design%20Guide%20for%20Streets%20and%20the%20Public%20Realm%202007.pdf

Click here

South Cambridgeshire District Council's Biodiversity SPD
https://www.scambs.gov.uk/content/biodiversity-spd

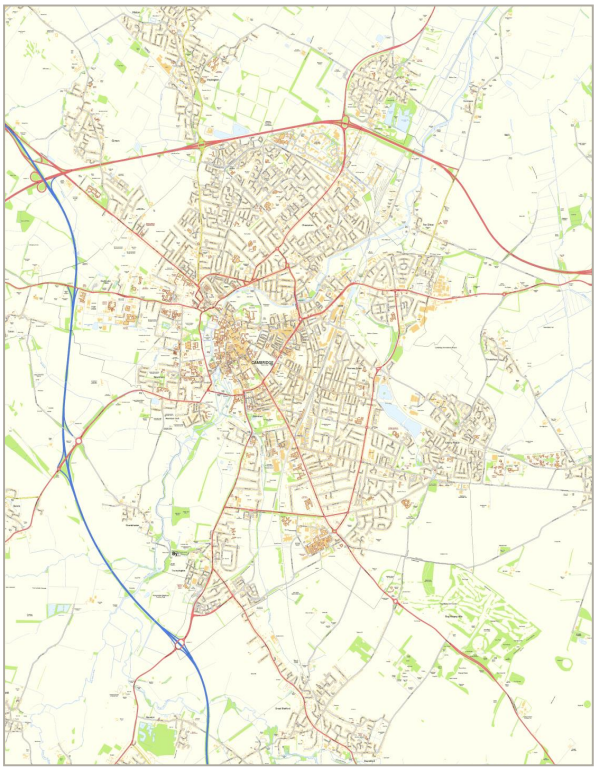
Click here

County Council's Green Infrastructure Strategy
http://www.cambridgeshire.gov.uk/info/20012/arts_green_spaces_and_activities/344/protecting_and_providing_green_space

This guide is to be used in urban areas where City Deal transport infrastructure projects are undertaken, primarily on main radial routes in Cambridge and central access streets. It will assist with the design of these spaces highlighting some of the challenges where the existing street width is limited and the sometimes competing requirements for place and movement need to be balanced.

Some projects will be developed on routes which have both urban and rural environments along their length and reference should be made to the County Council's Green Infrastructure Strategy and South Cambridgeshire District Council's Biodiversity SPD as part of the design process for the development of transport infrastructure in rural settings:

Milton Road (1), Histon Road (2) and Madingley Road (3) are radial routes into the city which exhibit typical cross-sections and features that need to be addressed as part of this process



2.0 STREET DESIGN PRINCIPLES

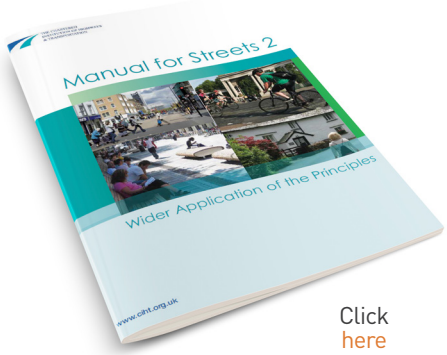
2.1 DESIGN PARAMETERS

In many existing towns and cities streets have been designed where the transportation or movement elements dominate which has impacted on the quality of the environment experienced by those who walk, cycle and live in these streets; The development of new sustainable transport infrastructure should ensure that placemaking forms an integral part of the design process for streets within Greater Cambridge; to design them as quality places, with an appropriate blend of movement needs and making them liveable, inclusive, green places.

Better street design can be achieved through a blend of movement and place functions. The street 'place' functions deal with how the street feels as a pleasant and attractive environment and the street 'movement' functions address how it operates in terms of movement for a range of users (see Figure xx). These principles are set out in the Manual for Streets 1 and 2 national guidance documents for England and Wales and reference should be made to them to expand on these principles and for more detailed design guidance. Street Design for All also provides relevant guidance and design guidance.

Click here

Manual for Streets (2007)
https://www.gov.uk/government/publications/manual-for-streets



Click here

Manual for Streets 2 (2010)
http://www.ciht.org.uk/en/document-summary/index.cfm/docid/055693F6-8DB0-4BBE-AA9FF1B5BC5E9412

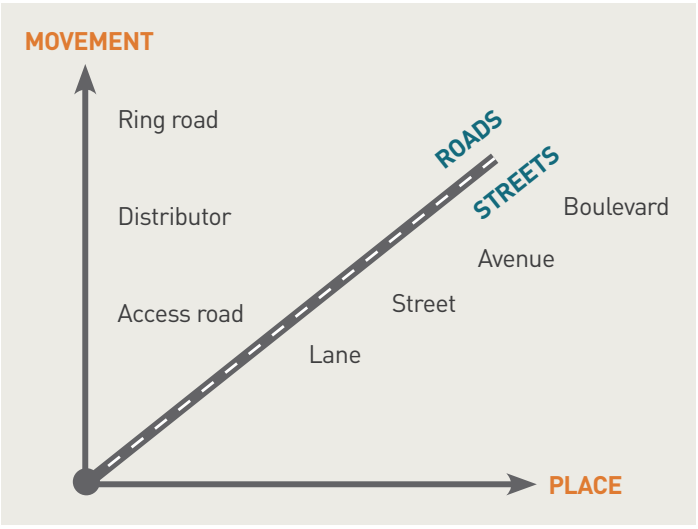
Click here

Street Design for All (2014)
http://www.civicvoice.org.uk/uploads/files/street_design_2014.pdf

Reference should also be made to the Design Manual for Roads and Bridges Volume 10 which considers environmental design and management issues when improving existing roads:

Click here **Design Manual for Roads and Bridges Volume 10**
http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol10/section2.htm

The diagram below illustrates the move to street design from road design as 'placemaking' is brought into better balance.



At times the 'highways design' of places is separated out from the overall design development of streets and this can lead to places where roads dominate and pedestrians, cyclists and public transport users are downgraded in terms of the environments that they have to use.

The positioning of buildings and the life they bring to the streets, landscaping, trees and other planting area and materials all have a role to play in making a good quality environment. To do this we need to bring together a synergy between the requirements of transport planning, engineering and the art of placemaking.

Road dominated layout that segregates communities (above) compared to a street composition that creates a high quality place (below)

2.2 DESIGN PARAMETERS

In the context of Greater Cambridge City Deal project objectives, the designers of streets should consider all users when thinking about how the streets are laid out in cross-section and plan and what they will feel like when completed. They should consider:

- Pedestrians and those who are disabled
- Cyclists
- Buses and Taxis
- Goods and servicing vehicles
- Cars

For many existing streets the availability of space may be limited and final designs will need to strike a balance between some of the requirements for these users. See section 3.0.

In addition, designers will need to look at the accessibility requirements for pedestrians and those who may be disabled. Reference should be made to the Equality Act (2010) and current guidance on the use of dropped kerbs and tactile paving for example. Consultation with local access groups should be undertaken.

3.0 THE STREET IN CROSS-SECTION

3.1 STREET SECTION DESIGN

Putting the street section together is one of the main tasks to start the design process. Good streets are a composition of many elements and they need to be pleasant places as well as functional and efficient movement routes.

The table below sets out some of the most common elements that need to be considered within the street section along with desirable and minimum dimensions for these. There may well be other elements to consider and provide for (e.g. bus stops, the retention of existing trees, post boxes or other existing features) but below is a start point for design.

Based on individual scheme objectives, designers should use this to start to configure street sections so that a consultation can begin with businesses, residents, user groups and others.

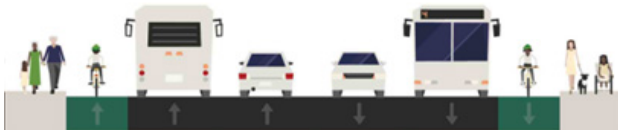
STREET SECTION ELEMENT	DESIRABLE (metres)	IMAGES	MINIMUM (metres)	IMAGES
Pedestrian footway	2.00		1.50	
Tree planting / landscape zone (separate from the footway)	2.00 (minimum}		1.00	
Combined footway with trees	3.00		3.00	
Cycle lane (one way) Can be on carriageway or segregated / stepped	2.00		1.50 (absolute minimum 1.20)	
Cycle lane (two way) Can be on carriageway or segregated / stepped	3.00		2.50	

Running lane for traffic (one direction)	3.00		3.00 (2.75 over short lengths)	
Bus lane (one direction)	3.00		3.00	
Median (i.e. design feature to separate functional uses and to add pedestrian crossing opportunities)	2.00		0.50 (absolute minimum 0.20)	

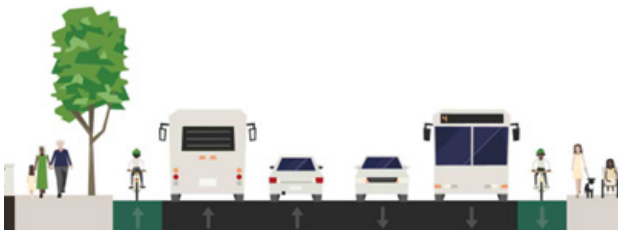
When working with new development and unconstrained land then these dimensions can be achieved as the ideal section can be provided, however when looking at existing streets with a defined width of street section available (which is often less that desirable) then a balance needs to be struck between the widths used for each element. In striking this balance care needs to be taken not to undermine project objectives.

Priorites on radial routes in Cambridge should be determined at the outset within individual project briefs for each user type and street design element so that cross sections can be determined.

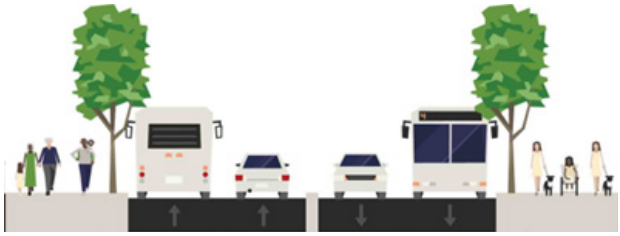
As an example, for a typical 20 metre wide existing street some of the options for street section design are set out below but other permutations are possible. As part of the design process these combinations should be explored.



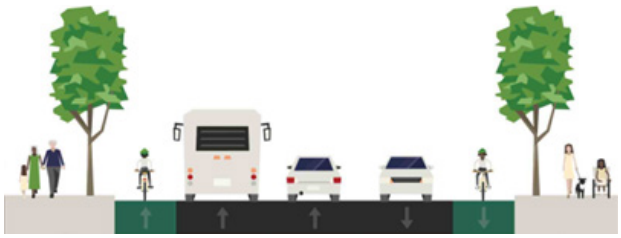
'Movement only' scenario



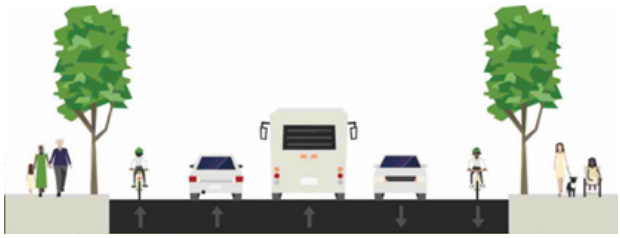
Trees on one side with reduced width cycle and/or running lanes



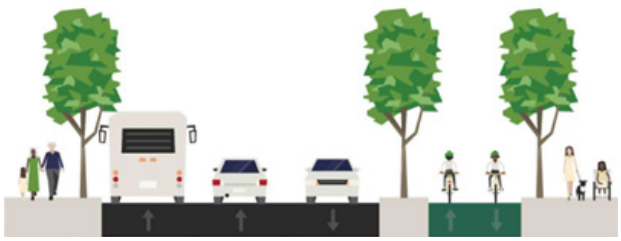
Shared 3.0m footway/cycleway, reduced width running lanes and a median strip



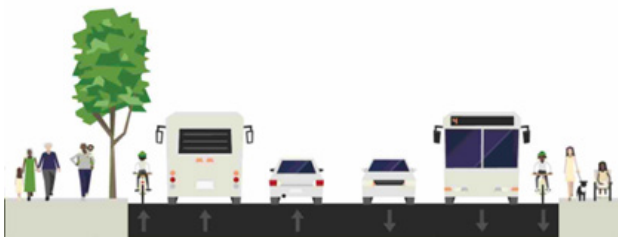
Tree lined street with bus lane only in one direction



Central bus lane



Tree lined street with two way bike lane (3.0m) and bus lane in only one direction



Retained existing tree within 4.0m zone (left hand side), 1.0m wide cycle lanes

EXAMPLES

Other cities have addressed these issues in a variety of ways where the existing street dimension is limited and hence some street elements have had to be omitted or reduced in width.

Copenhagen: bus lane only in one direction to allow for wider cycle lanes and median provision

Dedicated cycle facilities, Huntingdon Road, Cambridge

Kensington High Street (two lanes in each direction, variable width median, no dedicated cycle lanes)

Paris: reduced with median and cycle lanes within existing streets

4.0 STREET ELEMENTS

4.1 CROSSING THE STREET AND JUNCTION DESIGN

Street design must also be considered in plan and in three dimensions; some of the main issues include:

1. Junction design and 'crisscrossability'; i.e. the ability and desire for pedestrians to cross easily.

   Provide cycling facilities, including priority over side roads, continuity, good quality surfaces, safer approaches and passage through junctions and cycle parking

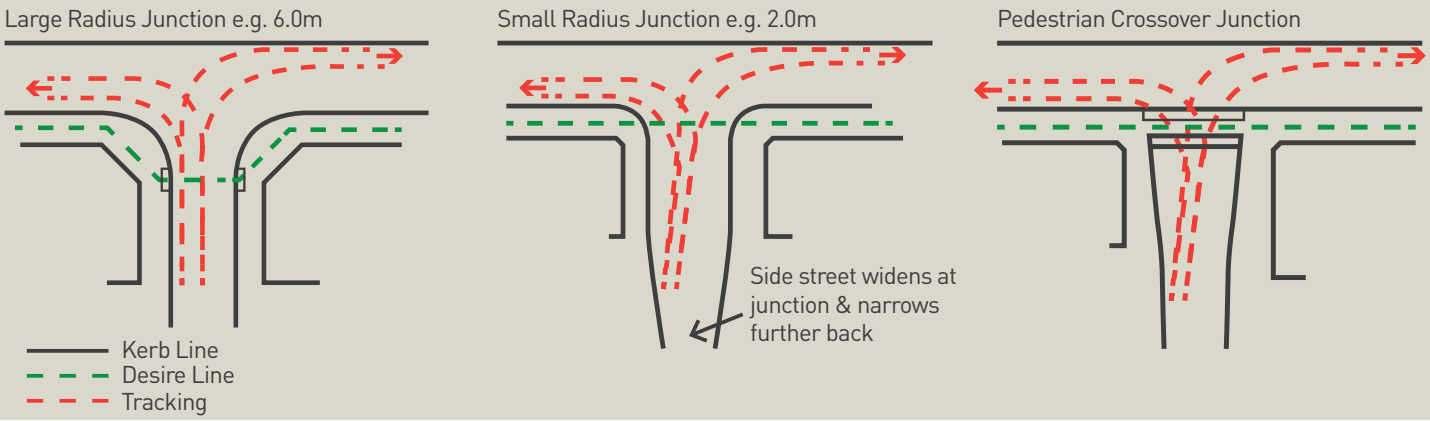
2. Crossing types: use of designated crossings e.g. zebras, pelicans, toucans, or more informal types such as a courtesy crossings or changes in materials / surfacing.

3. Introduction of a median and/or refuge points to help pedestrians cross the street and to slow vehicles

4. Incorporation of pedestrian crossovers at junctions to facilitate level movement for pedestrians.

5

Junction radii: reduce in dimension to assist pedestrian desire lines and consider removing completely



4.2 HIGHWAY PUBLIC REALM AND STREETSCAPE

The choice and use of materials and trees must not be considered as an 'add on' or last minute thought. They should be integral in the design to help create high quality, welcoming streets. Key considerations include:

- Material choice to be based on whole life cost.
- Some differentiation between footway and road materials helps break up the ground-scape.
- A high quality kerb is desirable.
- Landscaping and the retention / planting of new trees and verges to help create green streets.
- Maintainability and the ongoing cost of maintenance to be considered; along with the adoption of streets and public realm.
- Keep signs and lines to a minimum to satisfy statutory needs; consider bespoke elements:

EXAMPLES

High quality design with minimal 'highway engineering', Trumpington Meadows

Minimal signage and attention to detail, lighting columns carrying traffic lights and footpath lighting, Kensington High Street

Bespoke cycle lane markings

Bespoke signage and public realm, Bury St Edmunds

Consider placing of bus stops, bus shelters, on street car parking requirements and servicing and deliveries requirements.

Street furniture needs to earn its place; consider carefully the use of bollards but look for opportunities to site benches, public art, waste bins and other useful items of street furniture as required.

Consider use of Sustainable Urban Drainage Systems (SUDS):

Left to right. SUDS doubling as place space (Upton, Northampton), urban SUDS providing greener (Polnoon), historic drainage channel (Truro, Cornwall)

4.3 HIGHWAY TREES AND PLANTING AREAS

- Protect and retain existing quality trees where practicable and desirable.
- Determine early the scope for new tree planting.
- Consider at an early stage maintenance and operational requirements.
- Specify the right tree using native species considering both functional and aesthetic requirements including future canopy spread.
- Consider design detailing to protect green landscaping from vehicle overrun.
- Planting conditions have to be good (consider both the use of structural soil and cells).
- Planting in and around existing infrastructure where conditions allow, requires time (investigation of utility services) and investment. At times the constraints of existing utilities may prevent planting.
- Consider other areas for greenscape and habitat creation (although the opportunities may be very limited in existing highways).
- Explore opportunities for local community stewardship of green landscaping.

Reference should be made to the Trees and Design Action Group document: Trees in Hard Landscapes:

Click here — **Trees in Hard Landscapes**
http://www.tdag.org.uk/trees-in-hard-landscapes.html

Planting trees in Silva Cells, Riverside, Cambridge

4.4 INFRASTRUCTURE REQUIREMENTS

- Identify existing utilities and accommodate them where possible and appropriate.
- Allow for new utilities to be provided and the potential to upgrade as works are undertaken.
- Future-proofing of new designs should be considered now for the utilities that may come later.
- Opportunities for additional ducting and spare capacity to be made in the designs now; to help reduce the need for major street works in the future.

5.0 PUTTING IT ALL TOGETHER

5.1 SUMMARY

The City Deal offers a great opportunity to improve accessibility along key routes and in city centre locations for pedestrians, cyclists and bus users. Precedents elsewhere show that it is possible to achieve the infrastructure to support more sustainable modes of travel and deliver high quality inclusive places, but ultimately there will be choices to be made in order to strike the right balance of infrastructure and the amount and type of public realm (soft and hard landscape)

Detailed investigation of constraints (services etc.) and the development of design options to integrate soft and hard landscaping will be an important stage of the design development of the streets to be improved along with consultation with local residents, businesses and user groups.

The options that are developed need, as much as possible, to respond to their context (urban, historic, residential, suburban, etc.) and the improvements to mobility must be blended with creating attractive places and streets that will enhance the experience for all users.

Making use of the design references set out in this document will ensure that relevant policies and guidance are taken into account during the design process and that legal expectations are satisfied.

6.0 OTHER REFERENCES

Conservation Area Appraisals for Cambridge. These can be found at the attached link:

Click here — **Conservation Area Appraisals**
https://www.cambridge.gov.uk/conservation-areas

Suburbs and Approaches Studies for Cambridge. These can be found at the attached link:

Click here — **Suburbs and Approaches Studies**
https://www.cambridge.gov.uk/content/suburbs-and-approaches

Sustainable Urban Drainage Guidance can be found at:

Click here — **Sustainable Urban Drainage Guidance**
http://www.cambridgeshire.gov.uk/info/20099/planning_and_development/49/water_minerals_and_waste/10