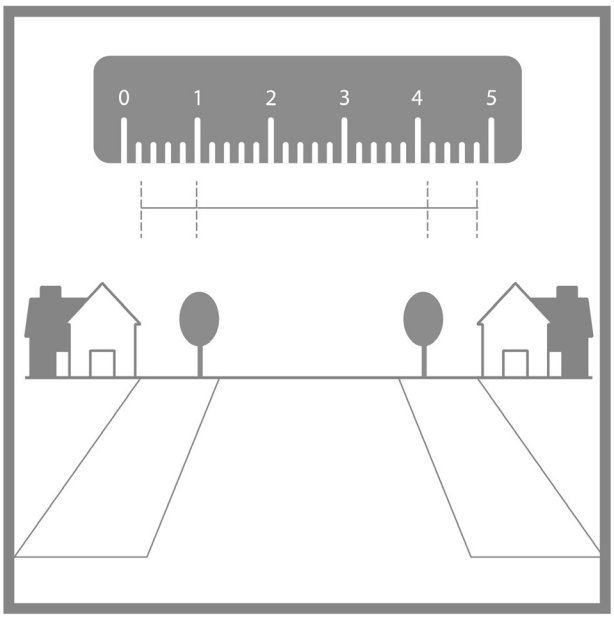
DESIGN



MANCHESTER | URBAN DESIGN | LAB

MUD-Lab Toolkit

The Size of Streets & Spaces

This document provides a reference toolkit identifying indicative sizes for a range of spaces and the objects which you may be designing into them. Its aim is to act as a guide to assist when you are designing streets and spaces, both in plan and in section.

MANCHESTER 1824
The University of Manchester

Inside Cover Page

Disclaimer: This handbook does not replace the practical session

A Introduction

This Toolkit provides a high-level summary of the size of streets, spaces and objects, which you can reference when designing places. For further detailed information you can refer to the Urban Design Handbook and Manual for Streets 2 (MfS2) as well as the MUD-Lab Toolkits which provide further detail on some of these specific topics.

It is important to remember that this Toolkit, alongside the published documents referenced above, provide guidance on the size of things. This guidance should be considered as a starting point for your designs but should be applied flexibly to fit the context and character of the site which you are designing. In the context of the UK planning system, local planning authorities and highway authorities may exercise discretion in both developing their own policies and standards, and in reviewing and approving designs submitted through the planning system. There are also instances where significant departures from these guidelines may be made in delivering an innovative design which is well considered and reflects the highest design quality.

B Purpose

Successful spaces should be designed into the contextual network of existing spaces and GI surrounding the site within which the new spaces will be located. It is therefore important to undertake a robust analysis of the site's context (see the Analysis section), with a particular focus on understanding existing networks. Analysis of the site at an area and local scale is also important in informing the character of new spaces. Character is something which may be presented at the detailed stage of design, however it should be considered from the outset in order to inform the size, shape and use of spaces.

It is important to remember that streets are a type of space and offer a similar level of potential as squares and plazas. They are also part of the fundamental scaffold of urban design and the hierarchy of streets will be intrinsic to your site design.
Once you have undertaken your analysis, you can start to develop your design. This Toolkit will provide guidance on the size of streets and spaces and should be read in conjunction with the remaining Toolkits in the Design section.

C People

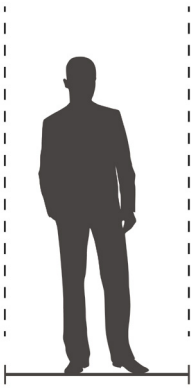
Designing a to-scale layout in plan form requires you to think about the size of the components which make up the development. At a high level these components include:

- Streets
- Public Realm / Green Infrastructure
- Blocks

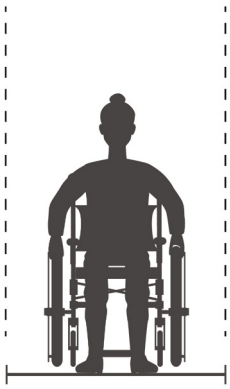
Before we start to think about the sizes of these spaces, we will consider the size of the people using them. Designs should be centred around people before anything else.

Please consider that these sizes are indicative for the purposes of informing a masterplan design.

To begin with we can think about the width taken up by a person using a footway.



INDIVIDUAL PERSON
0.75m



PERSON USING WHEELCHAIR
1.5m

TWO PEOPLE
2.5m

In order to comfortably walk through a space an individual person requires a width of approximately 0.75m. Therefore, two people require 2.5m to be comfortable. The turning circle for a person using a wheelchair is 1.5m.

In the UK, the recommended width of a footway or sidewalk is 2m, however increasing this to 2.5m would provide further comfort for pedestrians. There is no maximum width for a footway, however, do consider how increasing its width will impact upon the enclosure of the street (see Thinking 3D Toolkit). In built up areas, footways should be provided along both sides of a street.

The gradient of a footway should ideally be no greater than 1:20 or 5%, however if you are tackling difficult topography on your site this can be relaxed to 1:12 or 8% in accordance with the guidance in Inclusive Mobility (Inclusive Mobility, 2002).

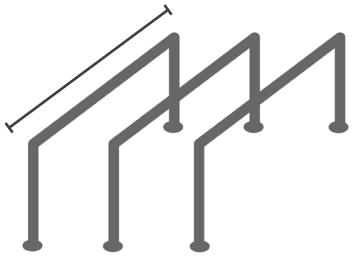
D Vehicles

Cycling

BIKE
1.5m

BIKE LANE
1.5-2m

A cycle lane should be a minimum of 1.5m or 2m wide on busy roads and should, in most instances, be provided adjacent to the street carriageway. In certain circumstances off road cycleways may be appropriate adjacent to footways and can be combined with a footway with a total width of 3m. This combined solution should be reserved for streets where space is limited.

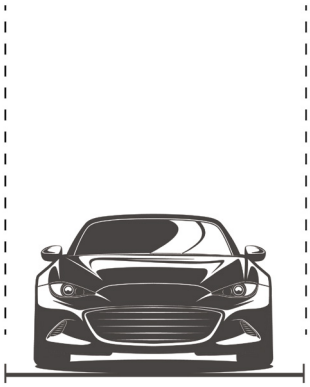


BIKE STAND
0.8m

Public cycle parking is typically provided in the form of Sheffield stands. These are 0.8m in length (with an overall 2m allowance for the parked bike) and require 1m between stands and a minimum of 0.6m to adjacent walls / kerbs.

In some areas, particularly associated with high-density residential development, a bike hub may be provided. Its size will be dependent upon anticipated number of cycles associated with the development.

Cars

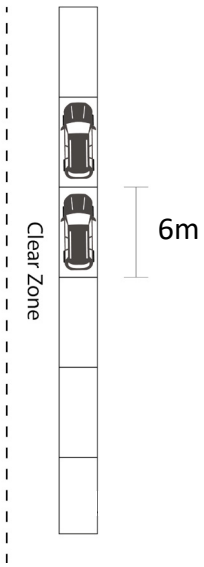


CAR
1.8m

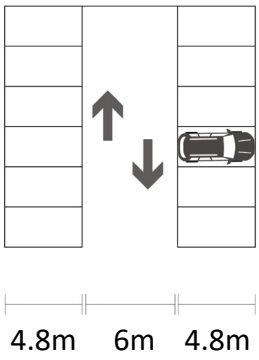
VEHICLE LANE
2.5m

Road widths can vary, but as a guide vehicular traffic lanes in built up areas should be 2.5m narrowing to 2m for lightly trafficked residential streets. Lanes wider than 3m are not typically necessary in built up areas and are reserved for bus routes or highly trafficked roads. This means that as a starting point your street width will be 5m (two lanes).

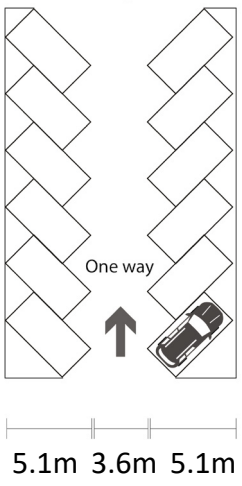
Consider whether you need additional space if you require a pedestrian refuge island for a pedestrian crossing. These should be between 1.2 – 2m width depending on the level of footfall anticipated.



STREET PARKING

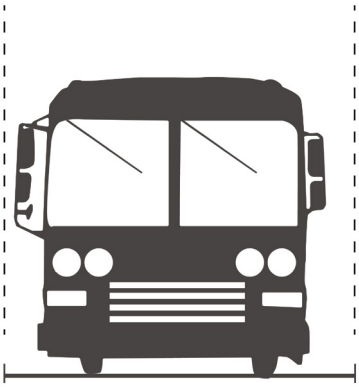


90 DEGREE PARKING



45 DEGREE PARKING

Bus

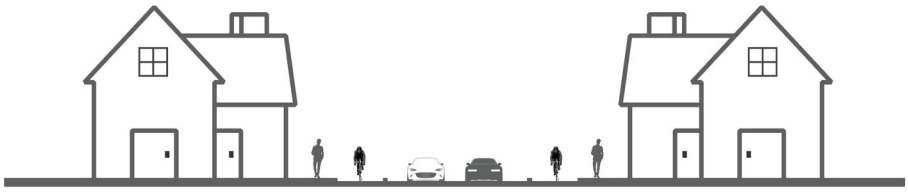


BUS
2.5m

BUS LANE
3m

A street accommodating buses should have lanes (each way) with a width of 3m. When designing in bus stops to a street, consider the design in plan view as well as section. Bus laybys are not continuous and so this space can be used for seating, lighting or planting along the rest of the street length.

The below cross section provides an example of how the above elements can be arranged together to deliver a basic street. This is an example of a street where pedestrians and vehicles are separated.



This cross section shows a street which is designed with vehicles as the focus. The next section will look at how we can bring activity and life to the street through the consideration of lighting, seating, green infrastructure and the interface with adjacent buildings. This will improve the human experience of the street.

E Objects

Street Furniture & Lighting

LIGHTING
0.5-1m

BENCH
1.5m

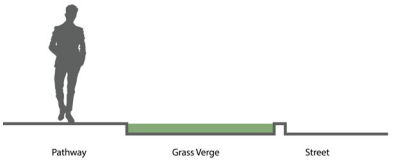
Lighting in an important element of street design, particularly with regard to safety. Consider which streets need lighting – these will be your pedestrian routes. It is unlikely that your service route will require street lighting columns.

Other street furniture including benches are important when considering user comfort, especially when designing for young or older people. It is however equally important to avoid cluttering your streets and spaces and to avoid obstructions. Note that seating within the public realm can work in a number of ways. This example provides a starting point for your design.

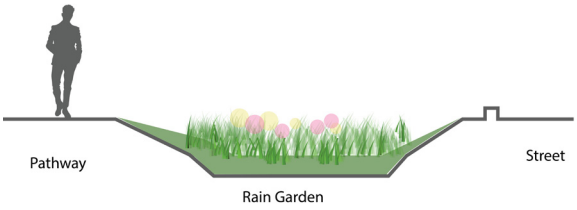
Green Infrastructure

TREE
1.5m

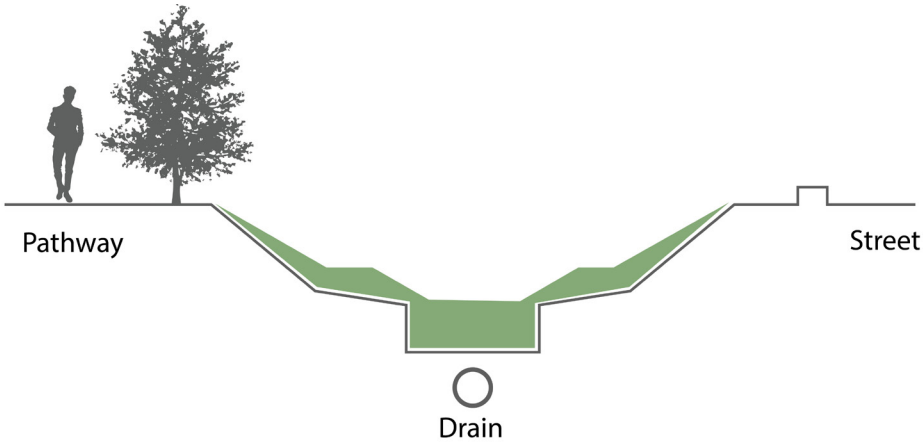
The minimum width required to accommodate a street tree is 1.5m. This allows space for the root system to grow to ensure the tree remains healthy. Trees are important in creating attractive spaces, but also in providing enclosure to a street or space and in providing screening of unattractive areas or noise sources.



VERGE
2m



RAIN GARDEN
3-4m

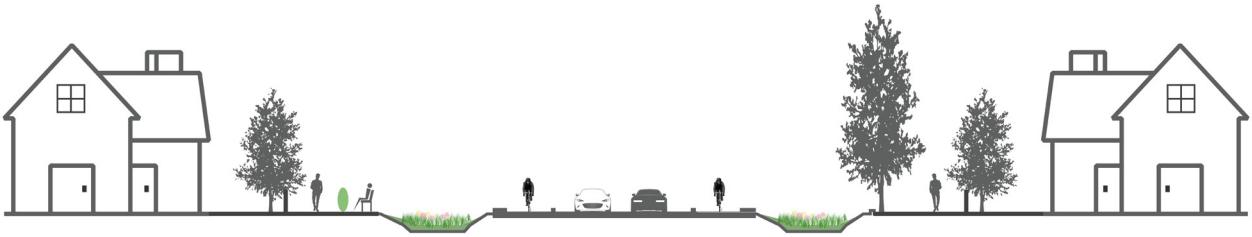


SWALE
5-20m

Introducing green infrastructure into streets and spaces is important for drainage, decreasing stormwater runoff rates and reducing the risk of flooding whilst also providing an attractive streetscape and biodiversity benefits.

Rain gardens and swales can form part of a wider drainage network across a development site, connecting into water storage features which are designed into the development. The size and function of these features is designed in coordination between drainage engineers, landscape architects and urban designers. The dimensions above provide an indicative guide for high-level design purposes.

The below cross section builds upon the previous street section example, this time introducing some of the elements considered in this section.



F Private Space

Residential Front Gardens

When you are designing buildings, be they commercial or private, it is important to consider how the building will interface with the street. Thinking first about residential buildings, specifically houses, you will need to make a design decision regarding how much private space is provided at the front of the property. Some, typically older properties, front directly onto the back of the pavement, however this is not common practice when designing new homes. Typically, a minimum distance of 2-3m is provided between the front door of the building and the back of the footway. This provides the homeowner with a small amount of private space and increases the distance between passers-by and the ground floor windows of the home.

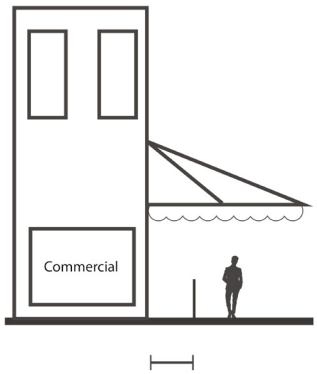
When you are thinking about parking, one option is to provide this within the curtilage of the house. If you are providing parking to the front of the property you will need to provide A minimum of 6m between the front door and the back of footway. Remember that the driveway will not typically cover the entire width of the house and so there will be space for planting.

RESIDENTIAL FRONT GARDEN
2-3m

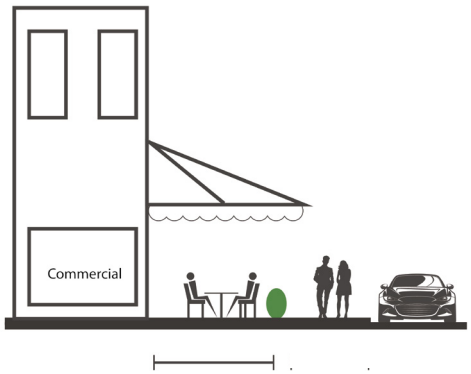
RESIDENTIAL FRONT DRIVEWAY
6m

Commercial Street Boundaries

When designing the boundaries of commercial buildings it is common to find a small amount of private space denoted through a change in surface material. This is often just 1m and can reflect land ownership. In the case of buildings with a leisure use, cafes and restaurants often spill out into the public realm or footway. If you are looking to provide one of these uses, 5-6m will allow adequate spill-out space to accommodate tables and chairs to bring activity from inside to outside.

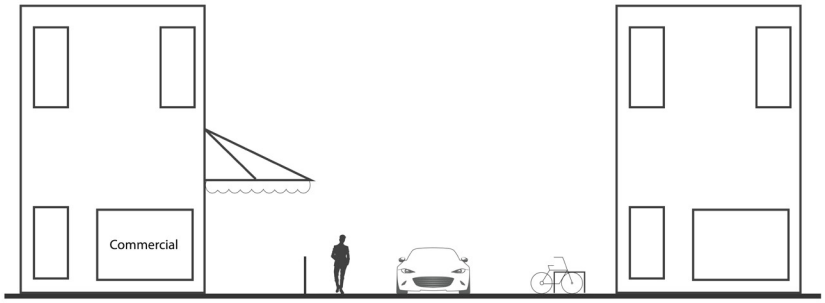


COMMERCIAL BUILDING
BUFFER
1m



COMMERCIAL BUILDING
SPILL OUT SPACE
5-6m

The below cross section shows an example of a street with commercial uses which is free of vehicular traffic and where pedestrians and cyclists share the main space.



G Public Open Spaces

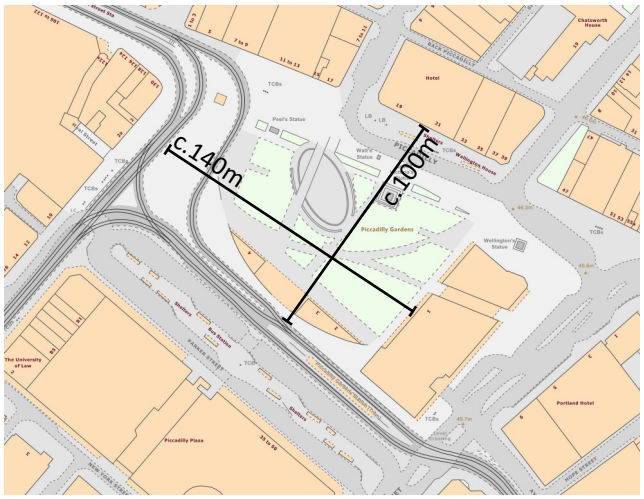
Public Realm & GI Open Spaces

We have looked at public realm and GI within streets, now this section will help you to think about the size of dedicated public open spaces you may be designing within your site. It is important to note that small sites located close to existing public open spaces may not require new open space, but should focus on providing strong pedestrian and cycle connections to the existing amenity area. This is why consideration of the contextual network of spaces should be undertaken prior to design in order to fit in appropriately.

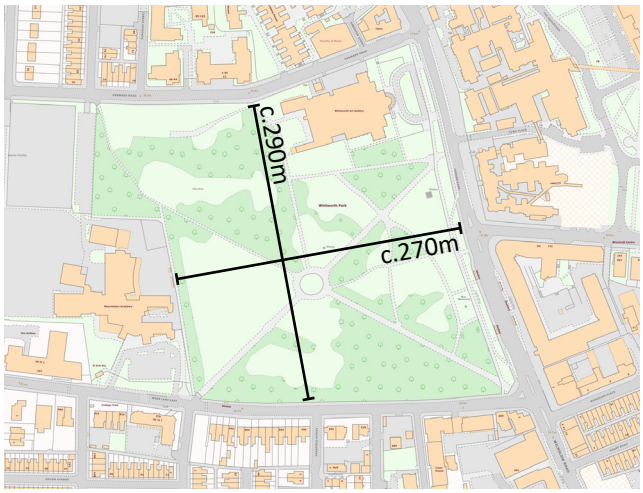
Similarly to streets, spaces can fit into a hierarchy which can be summarised as the city scale, area scale and local scale. You should consider which of these is most appropriate for your site's open space.

Below are a small number of examples of open space from the city of Manchester. You can use these as a reference to understand what different sizes of spaces look and feel like.

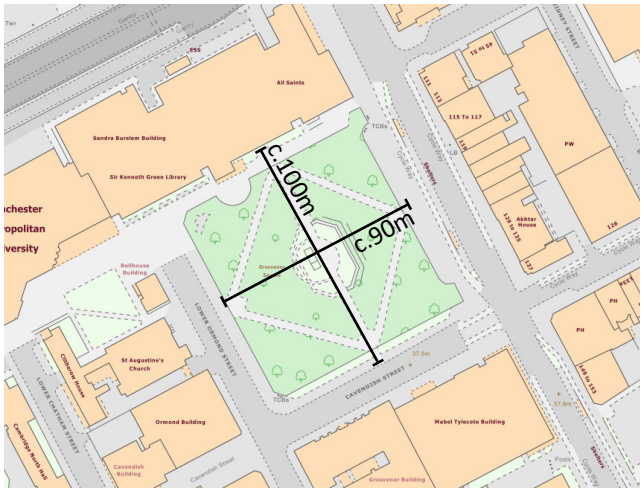
City Scale: Piccadilly Gardens



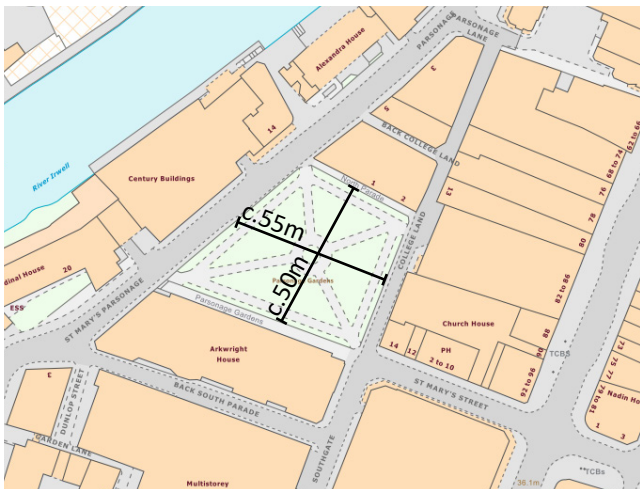
City Scale: Whitworth Park



Area Scale: All Saints Park, Oxford Road



Local Scale: Parsonage Gardens



Local Scale: Lincoln Square

The size of the open space within your site should be informed by the context of the area, by local policy, and by the use and vision for your site. Consider how people will move through the space, whether the space will be active or restful, how will it operate in the daytime and evening, how it incorporates GI and BI (water) and finally how you will create a characterful space through consideration of materials, features and style.

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