

## MUD-Lab Toolkit

# GRAPHICAL LANGUAGE

*The Basics of Visualizing Urban Design Graphics*

*Urban design illustrations are not necessarily self-explanatory. Urban design graphical language plays an important role in communicating our messages to the target audience. In this toolkit, we are looking at the basics in communicating urban design graphics effectively.*

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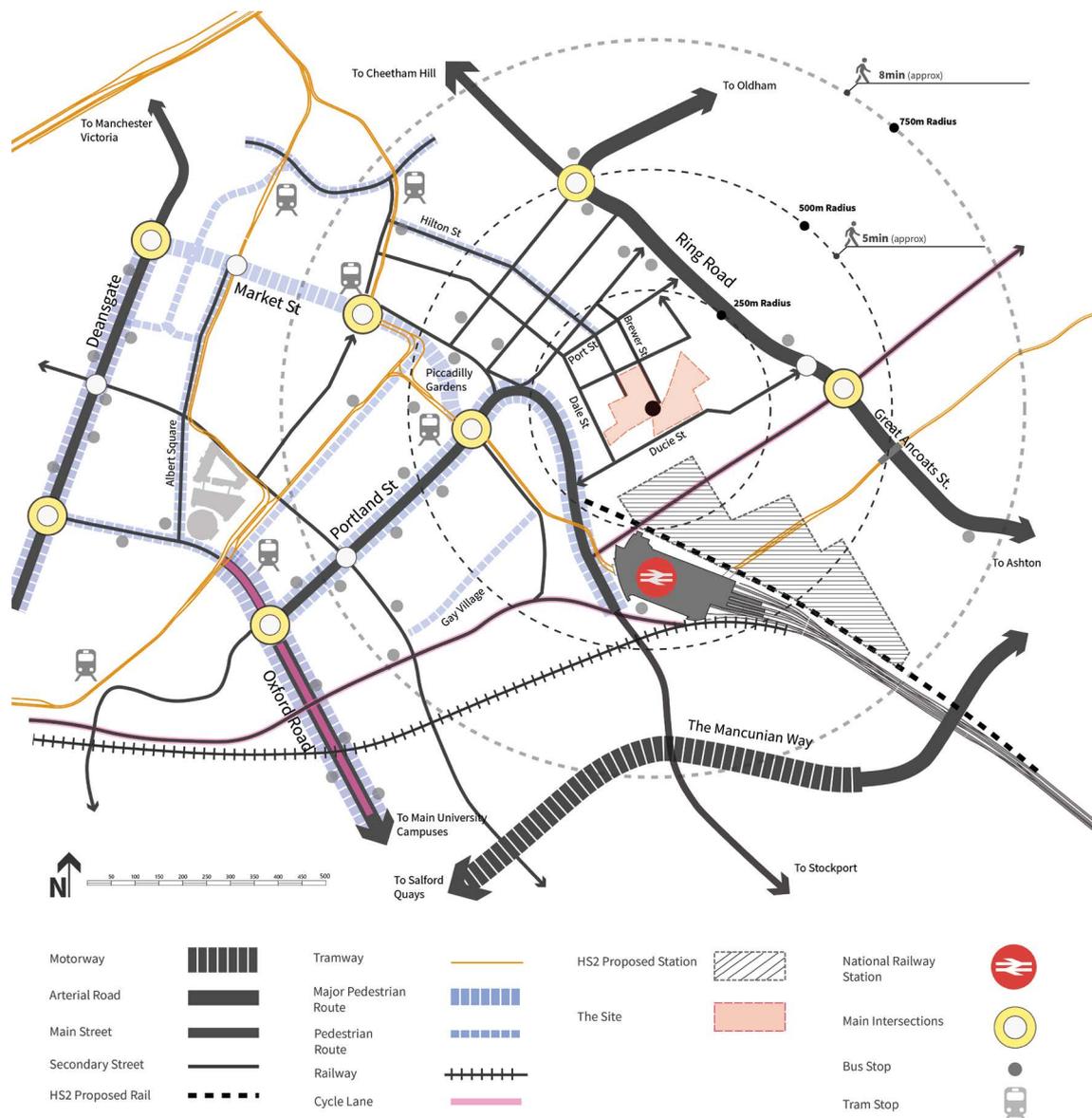
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Disclaimer: This handbook does not replace the practical sessions

# A Introduction

Urban design illustrations are not necessarily self-explanatory. Urban design graphical language plays an important role in communicating our messages to the target audience. Maps can be over-complicated, vague, misleading or lacking information. A good piece of urban design visualisation has clear messages communicated in relatively simple ways.

The street hierarchy map below is relatively complicated as it shows different types of routes, in which they are naturally presented as lines. Different line weights, colours selection, objects shapes, text size, and the right basemap have made the map readable, yet communicating a multi-variable analytical message. In this toolkit, we are looking at the basics in communicating urban design graphics effectively. We will explore the different techniques and elements that shape our analysis maps, and the way we should design them.



STREET HIERARCHY AND MOVEMENT ANALYSIS

## B Creating good urban design graphics

Creating a good map is never an easy task. Maps tend to be complex; even "simple" aerial view maps are very complicated for urban design context as they simply show everything. Urban design physical analysis starts with de-constructing the space into different layers. Streets, green spaces, buildings...etc. are separated and then carefully re-introduced on maps in a thoughtful way. The key questions would be:

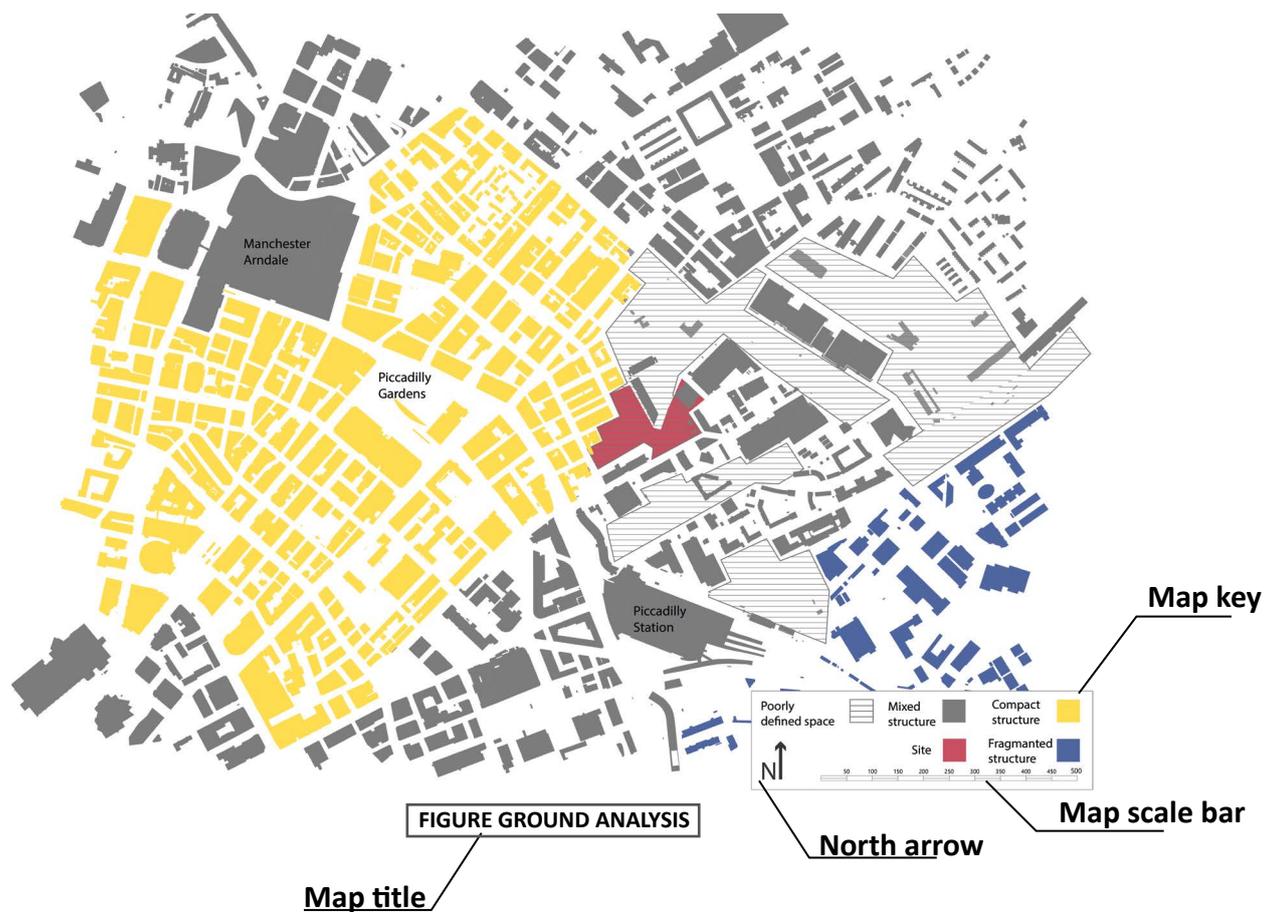
*What do I want to show in this map? What is the key **message** I want to communicate?  
What elements I should leave and what elements I should add to clarify this message?*

These questions, while they would affect your map appearance, are not graphical in their essence. They are embedded in your analysis and your understanding of the space. So a good understanding of the piece of analysis or design you are presenting is the first key thing for a good urban design analysis map.

However, there are a few essential graphical elements that should be considered to create a good map and they can be summarized as following:

- Map scale (how much context do you want to show)
- Map colours (right selection of colours and tones)
- Base map (buildings as a basemap? Streets as a basemap? No basemap?)
- Objects hierarchy (line weight/ line shape / objects size/transparency)
- Shapes (clarity, distinction)
- Text/ annotations location and hierarchy (straight, aligned to streets..Etc.)
- Abstract graphics (mental maps, infographics, online imported graphics)

Let us have a general look at the map below. The map shows a figure ground, a solid and void morphological analysis. Buildings are the key elements that need to be shown on this map. Highlighting some key voids could also add to this message. Streets, green spaces, land plots, or any other extra details are not important to this message so they should be excluded. The colours are fade yet very distinct, with grey dominating the map.

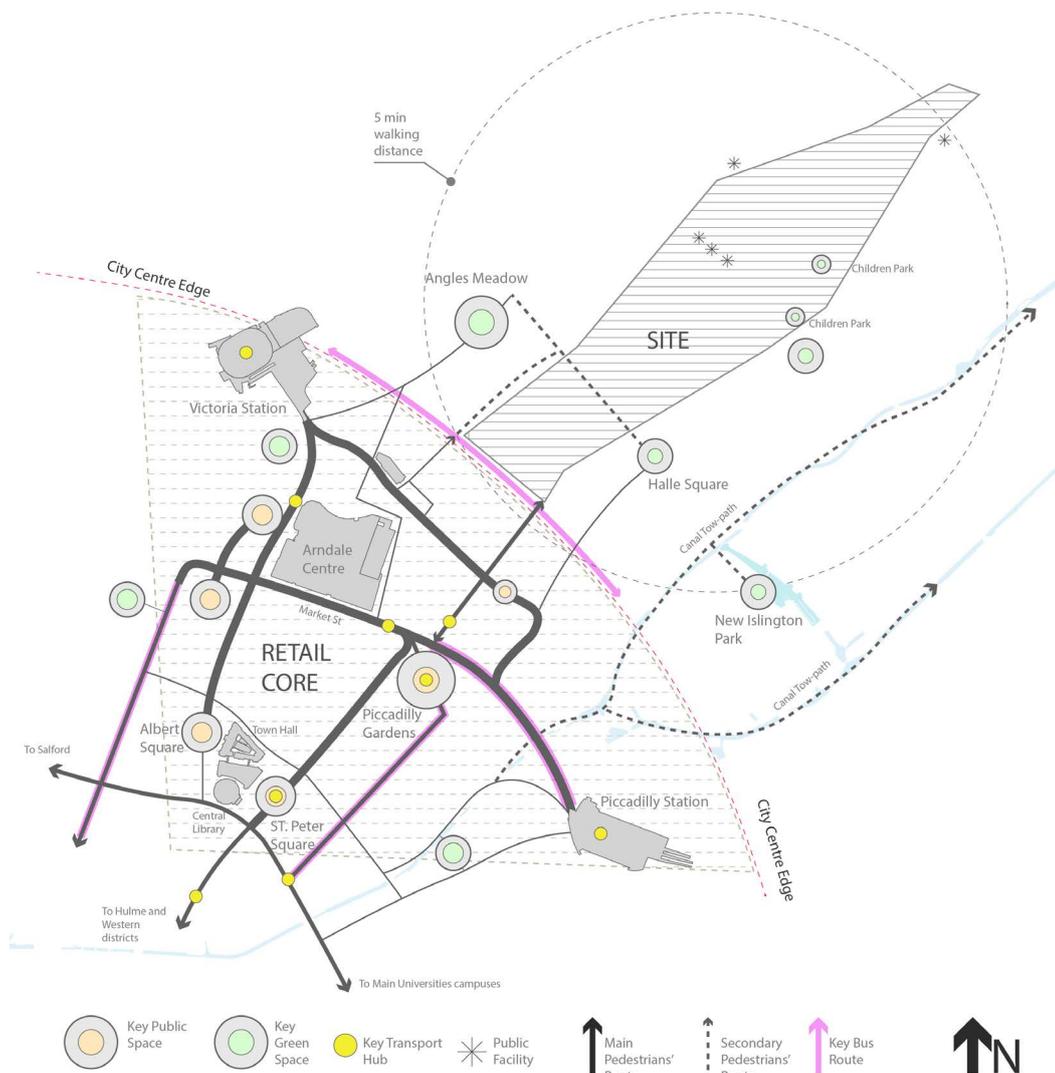


Regardless of the design and style, 4 key elements should be present in all your maps: Map scale or scale bar, map title, the north arrow and the map key. The represent the standard elements to start reading any map.

Map scale

Selecting the right scale is important to communicate the right message. This is both an analytical and a graphical aspect. Site scale analysis are naturally focused on the site and its immediate surrounding context. If the map is zoomed out to the neighbourhood scale, while the analysis is focusing on the site scale, the graphic would look empty and unfinished.

The map below is showing pedestrians' activities at the neighbourhood level. The key message in this map is to show how the site is connect to the retail core, with most main pedestrians' paths and activities located in the city centre while almost no main walkable routes surrounding the site. The availability of pedestrians key activity area such as public spaces and green spaces are also part of this message. The map scale here is selected to show this contrast. The white spaces to the north of the site represent part of this message. Zooming in further would crop the city centre, and zooming out further would not allow us to show the details and the nodes.



KEY PEDESTRIANS' ACTIVITIES

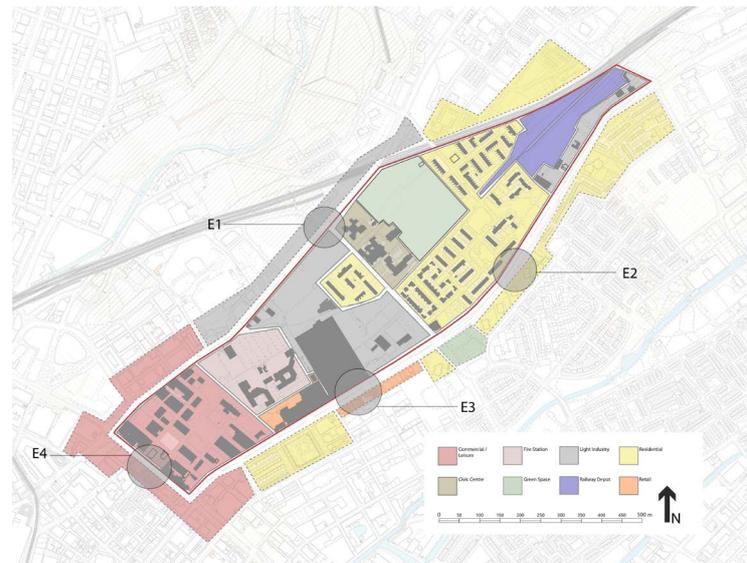
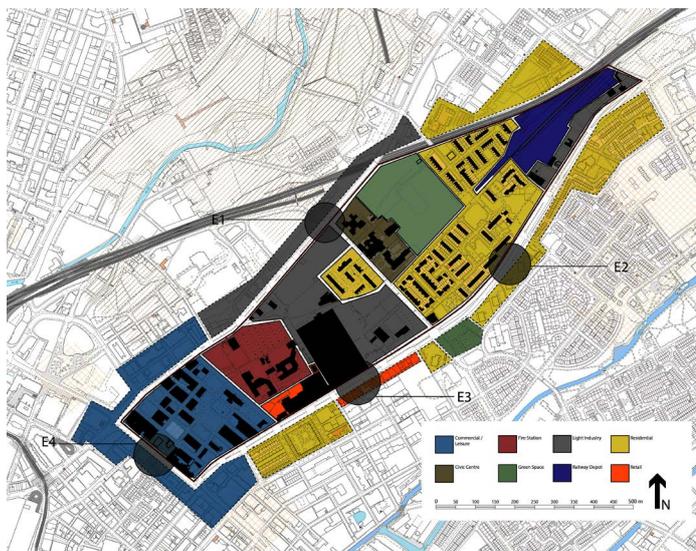
## Colours

Colours represent a key factor that gives maps their style and clarity. They are essential to distinct different uses and zones and the various objects in the map. However, choosing the wrong colours might complicate the map and affect its readability.

Some maps might need many colours such as land use maps. In order to create a visually sound map, colours should be of a fade tone. Fade colours can blend more effectively than strong/ bold colours. For example, the colour black should be replaced with a dark grey for large spaces. Otherwise the black zones would dominate the graphic which might affect the message. Neutral colours should be used with large spaces and basemaps, with stronger, more distinct colours should be used for the key elements in the map.

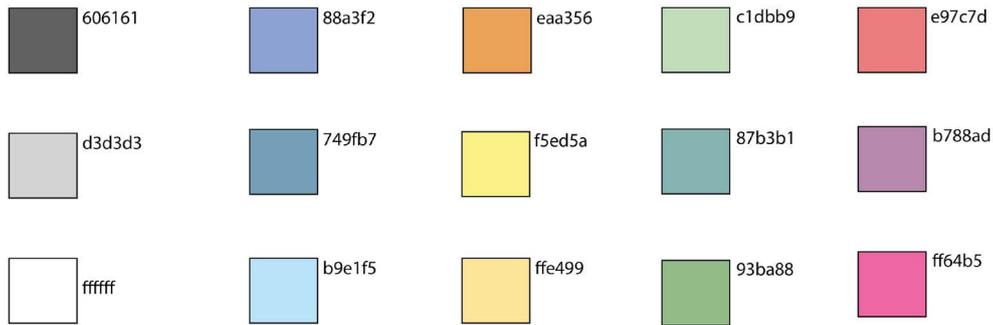
A good practice is to start with light/ grey colours to shape the majority of the map, and then highlighting the elements that represent parts of the map message and giving them distinct colours.

Have a look at the maps below:

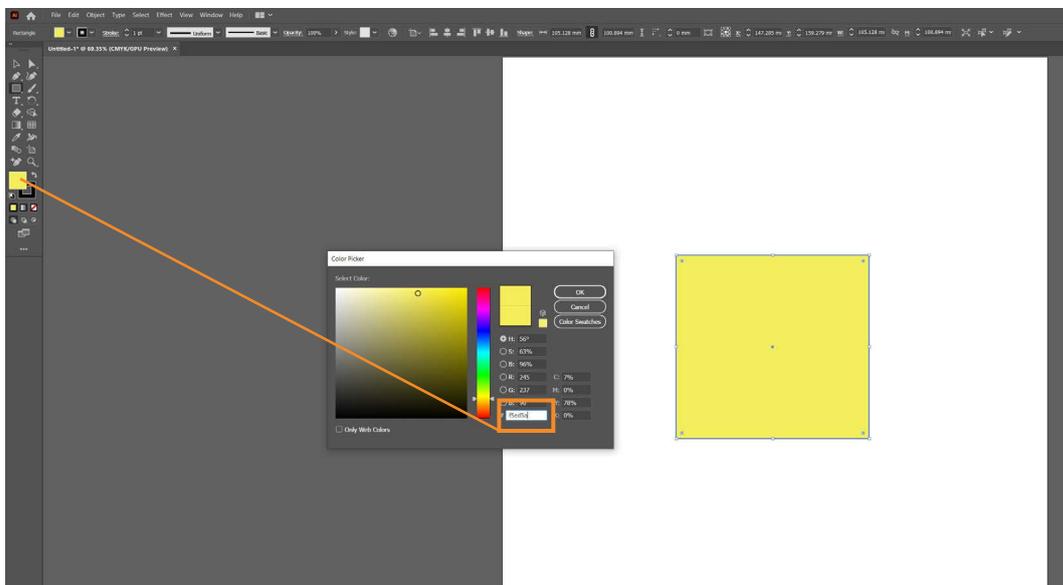


The map to the right has a better colour blend than the map to the left. The colours are fade and while we have 8 different colours they still sit side by side without being overwhelming. Considering that the final submission would be an A1 sheet with over 25 maps, this technique would ensure that the whole sheet would look better and easier to follow.

The selection of colours is important for both single maps, and the full presentation on A1 boards where many maps are presented along each other. This would make colour blending and softness even more important. The colours below are frequently used in MUDLAB graphical representation of urban space. They are distinct yet blend easily to produce harmonious graphics.

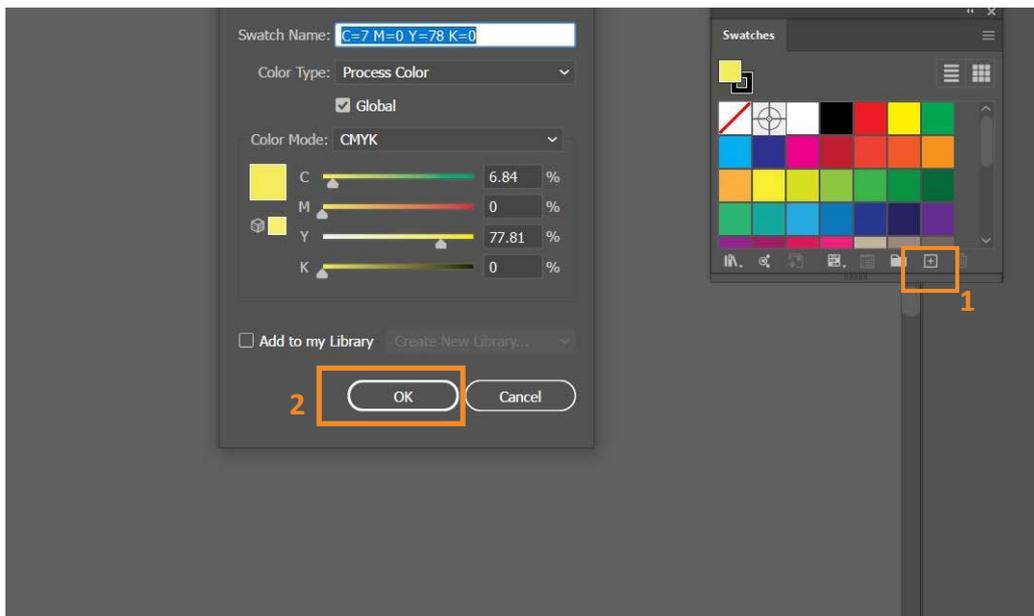


Simply, type the code to the right side of each colour in any Adobe software Colour Picker (Adobe Illustrator in the example below), and hit enter to select it.

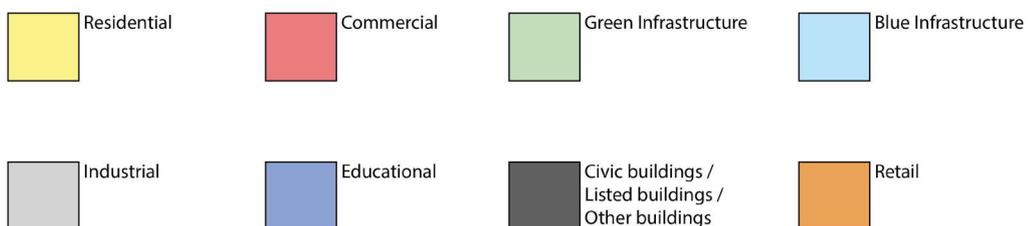


To save the colour to your colour swatches library (so you can use it easily in the future):

- From the top menu, go to Window/Swatches to show the Swatches box
- Click on the small Plus symbol at the bottom of the window to add a new swatch, then hit OK.



In order to unify and simplify the presentation across the whole MUDLAB presentations, we recommend using the colours below to represent different uses. Doing this would help in making an easy comparison between different maps and would make the analysis more effective.



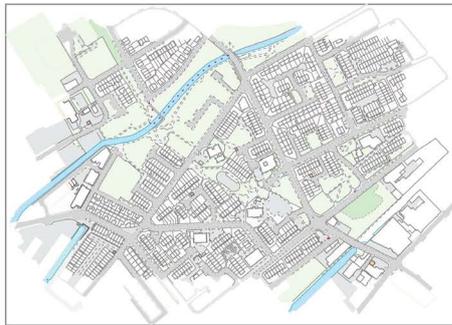
## Base Map

The selection of the right basemap represents one of the most important factors to produce clear maps. This is both a graphical and an analytical requirement. A wrong basemap could add a lot of unnecessary elements to the map, complicating its message, and undermining important annotations/elements.

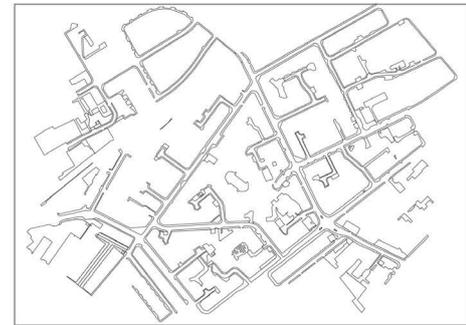
Below are the key basemaps that we usually use in our analytical maps. Full colour or grey scale aerial maps should be used in the very early site introduction maps, in which showing an overall picture of the topography and general features might be useful. The rest of the maps decrease details gradually based on the needs of the graphics and the key question: "What do I want to show?"



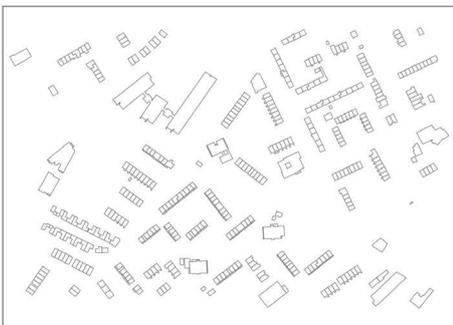
Full color/greyscale aerial map



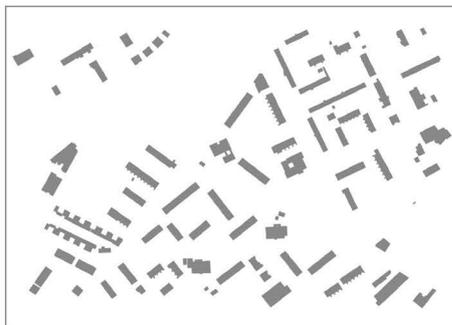
Fully detailed vector map



Streets skeleton as a basemap



Buildings' outline as a basemap



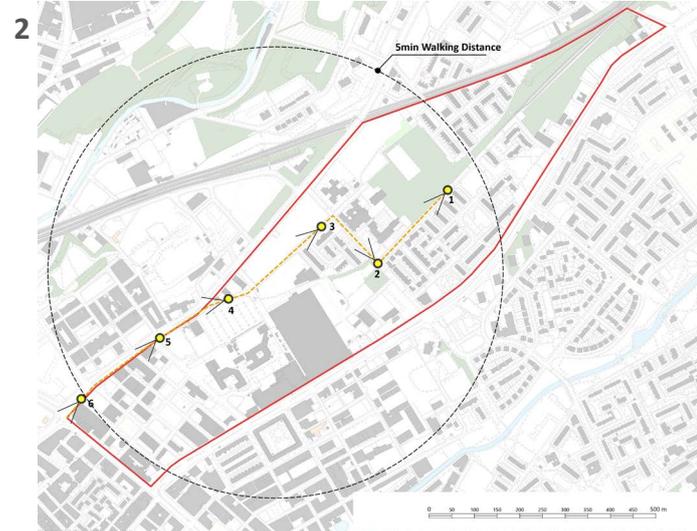
Buildings as a basemap



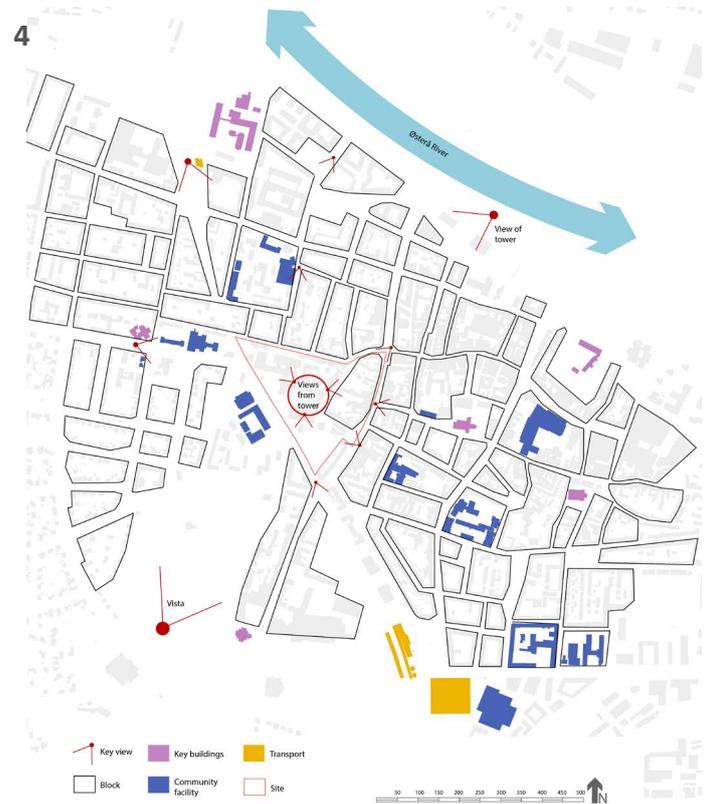
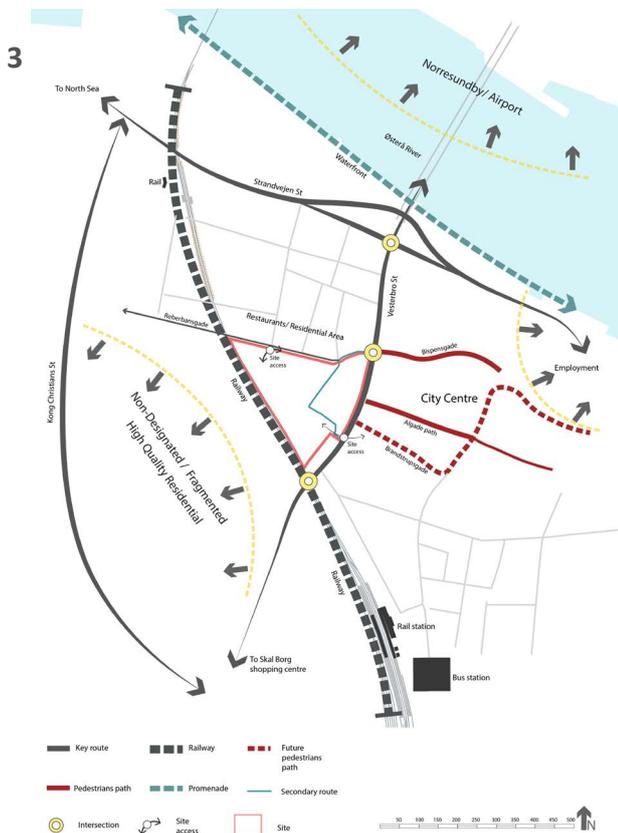
White spaces as a basemap

In most cases, less is more. Your graphic would probably look better with a fader basemap, or in some case without a basemap at all. Below are four examples to that are using basemaps differently.

The first example shows an introduction to the site in which the inner area is full colour, while the surrounding area is grey-scale. The method allows a representation without the site boundary in red, especially if the site boundary would cover some important elements such as entrances and the edge condition. The second example is a map showing the serial vision path, and it uses a fade figure ground, and very fade streets, while the site boundary and the path and stopping points stand out. This helps in communicating the message effectively.



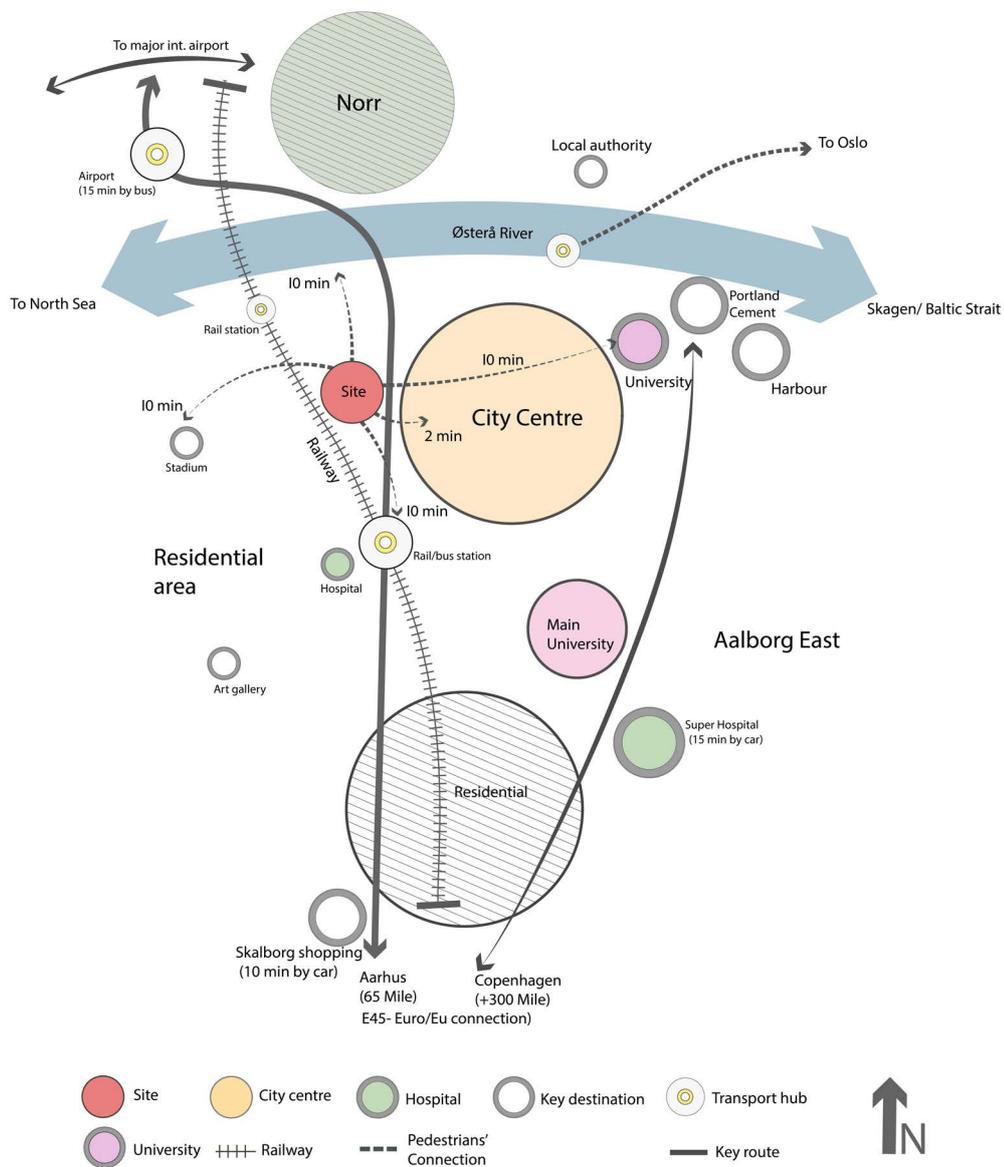
The third example below show street hierarchy maps without any basemap. All streets have been created from scratch. The Last example is a map showing the urban blocks formation in addition to the key buildings. A fade figure ground is enough to communicate this map effectively.



Objects Hierarchy

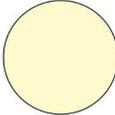
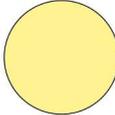
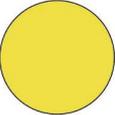
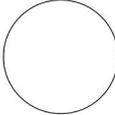
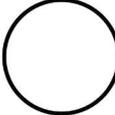
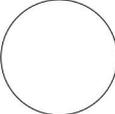
Objects hierarchy plays an extremely important role in the legibility of the map. It is both a graphical; and analytical factor that is usually undermined. In most analytical maps, streets, paths, nodes, buildings, green spaces and squares are not of a similar importance. They are important enough to make it to the map, but they should be presented with different hierarchy.

It is important to be consistent and clear when it comes to categorizing these elements. You might want to assign 3 to 4 distinct different hierarchies to nodes or streets for examples to make reading the map easier.



The map above uses shapes of different sizes to highlight areas of different importance in relation to the site. The map is meant to be abstract with simple shapes to simplify the message.

However, showing hierarchy is not only about objects sizes. You can use line weight, line shapes (dashed/continuous) colours intensity, objects shapes and hatch intensity to show hierarchy.

Line shape			
Line weight			
Colours Intensity			
Outline weight			
Object size			
Object shape			
Hatch Intensity			

Urban design presentation is about telling a graphical story. Presentation hierarchy is important for individual maps and your final presentation of a collection of maps. In your final presentation, the hierarchy will extend to your A1 board, to show maps at different sizes based on their importance. Without a proper consideration to presentation hierarchy you will risk losing the flow and the key messages in your story.

## Objects shapes

Selecting the right shapes that form your analysis is very important. Shapes can either complicate the map and mess up the style, or they can unify it and help in reading the message smoothly. We usually construct our maps using simply shaped objects including blobs, arrows, nodes and buildings, in addition to a few other symbols that serve specific purposes.

Nodes	Blobs	Buildings	Arrows	Other symbols

The table above shows a variety of shapes that you can use in your maps. Consider the following:

1- Unify the shapes as much as possible. For example, all nodes are circles, all areas are blobs. This would make understanding the message easier for our brains. Similarly, all movement represented with arrows (dashed or contentious), however, dashed arrows are for a different type of movement (for example, pedestrians' movement).

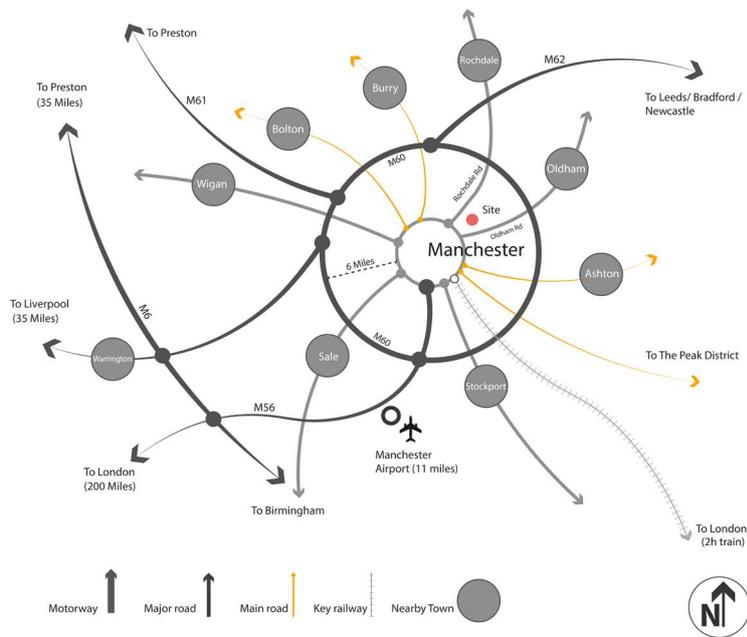
2- Simplify the shapes. Go for circles rather than square as they blend better.

3- Use dashed lines carefully. Your main lines should be continuous, however, dashed lines are used only if you are showing a different type of movement. Make dashes and the gaps between them small with thin lines to make the line more sophisticated.

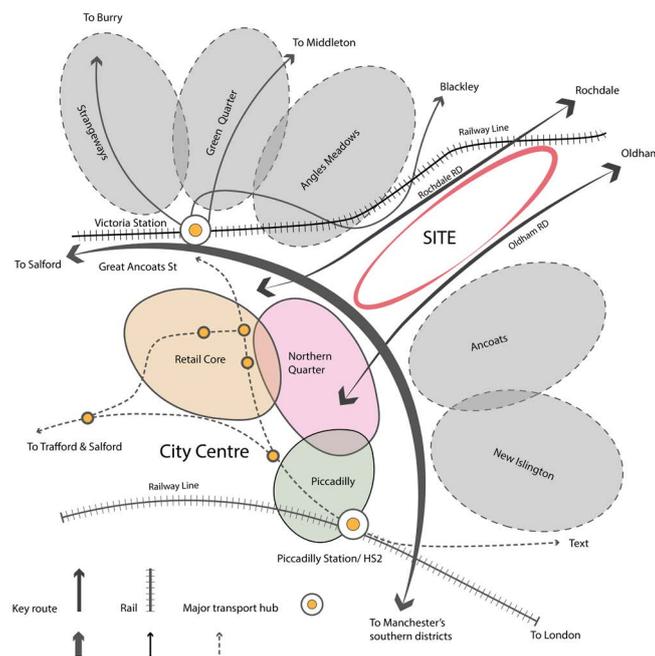
4- Blobs should have a stroke to outline them. Otherwise they would look dull when printed.

5- Give small shapes (such as small nodes) a dark colour or a central dot to give them more weight, and give larger shapes lighter colour so they do not overwhelm the map.

Have a look at the examples below. Those two maps are using simple shapes to communicate their messages. The first map is a Strategic Location map at the regional level presented in an abstract way. All towns are presented as circles, while all connections as arrows. As all shapes used are circles and arrows, that made reading the map more efficient.

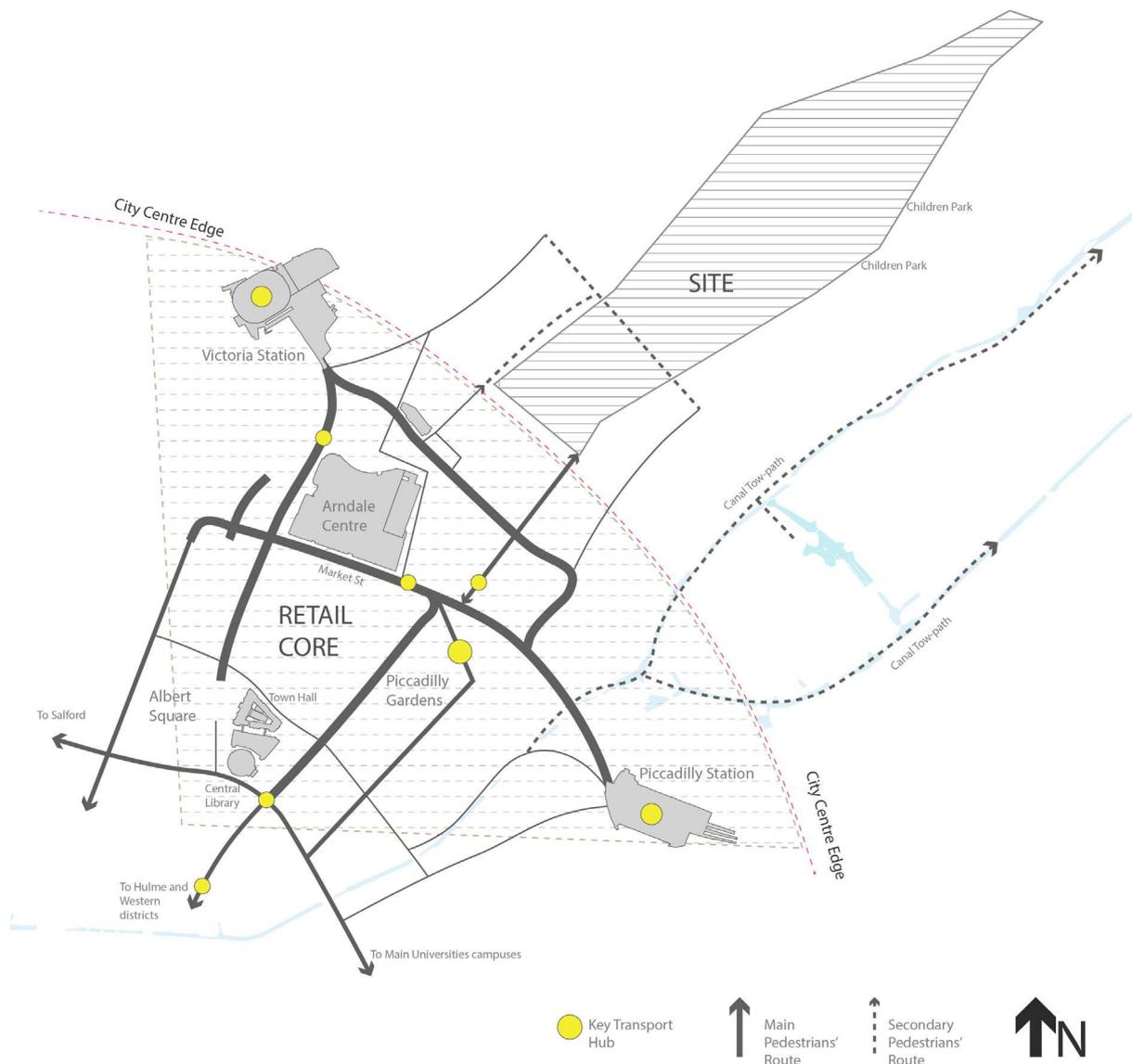


The example below is a Strategic Location Map at the neighbourhood level, also presented in an abstract way. This map is complex in its nature as it needs to show many areas, connections and transportation hubs in a crowded city. However it is presented using 4 simple shapes: Blobs for the City Centre areas, ovals of similar shapes and size for the surrounding neighbourhoods, circles to show the transportation hubs, and arrows to show different types of movements. Pay attention to details and look at the scale of the dashed line.



This example combines different methods to communicate the message effectively:

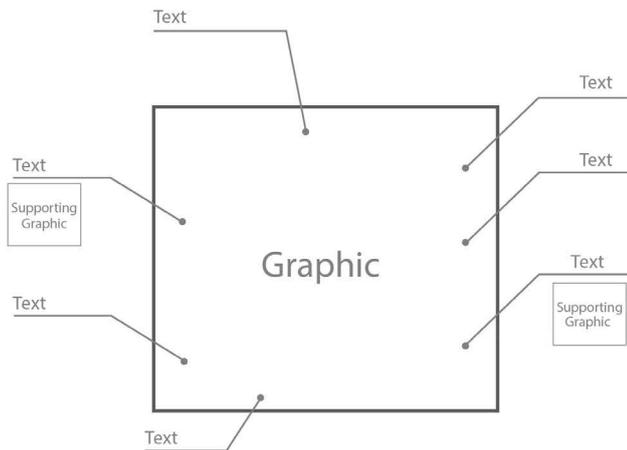
- The simplicity of the basemap (white background with a few key buildings),
- The simplicity of colours,
- Objects hierarchy (streets in this case)
- Objects shapes (simple circles with thin outline, continuous lines, dashed lines for less important routes)



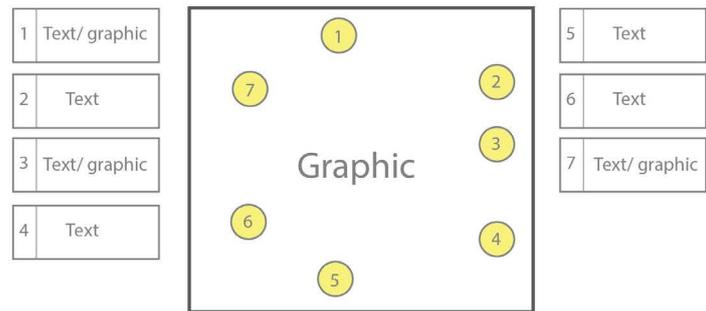
The map shows clearly that while the area to the south of the site is pedestrians friendly and well connected (being the retail core), the site area has barely any pedestrians activities and it lacks transportation hubs.

**Text and Annotations**

Annotations play an essential role in making graphics inviting and communicative. Text heavy presentations are often caused by lack of annotations on graphics which make graphics look empty, while the board full of text. It is very important to think about the best way to annotate your graphics. Below are four main methods to add annotations to your graphics.

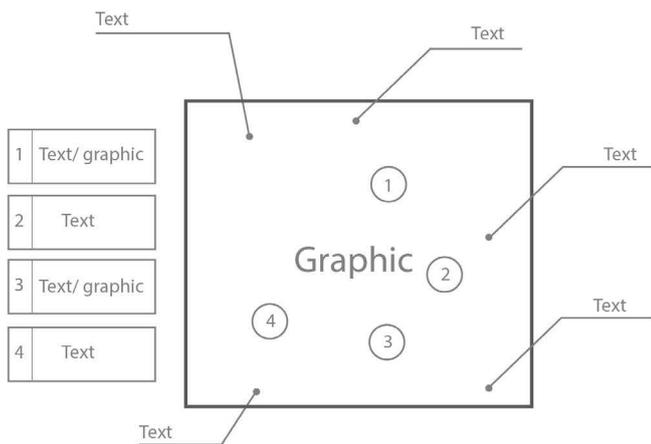


Method 1: Annotation lines

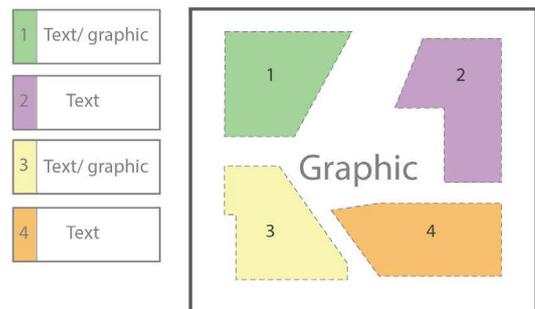


Method 2: Annotation signs

If your graphic is complicated, you would probably go with method 1 as it allows annotation with minimal intervention with the graphics, yet provide a direct connection with text which makes reading the map easier. Method 2 is useful when annotations take a shape of a small paragraph in which the boxes surrounding the graphic allow for such text, while the circles on the graphic make a simple intervention with the map.



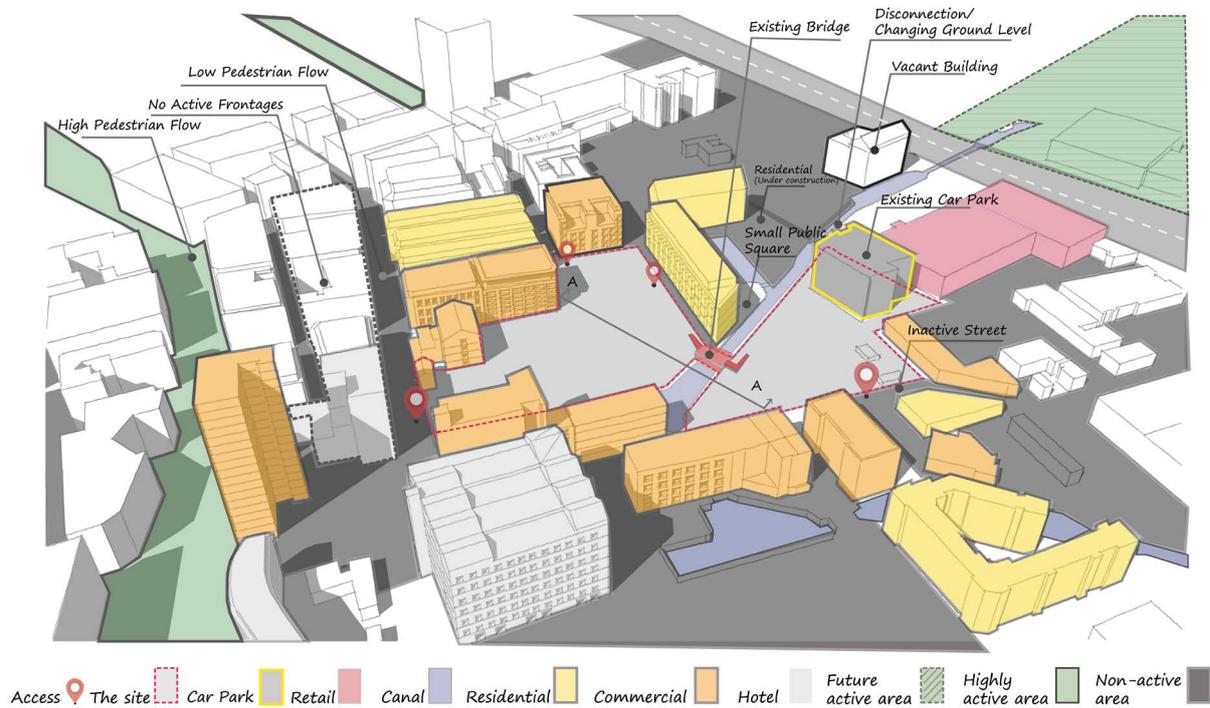
Method 3: Combined annotation



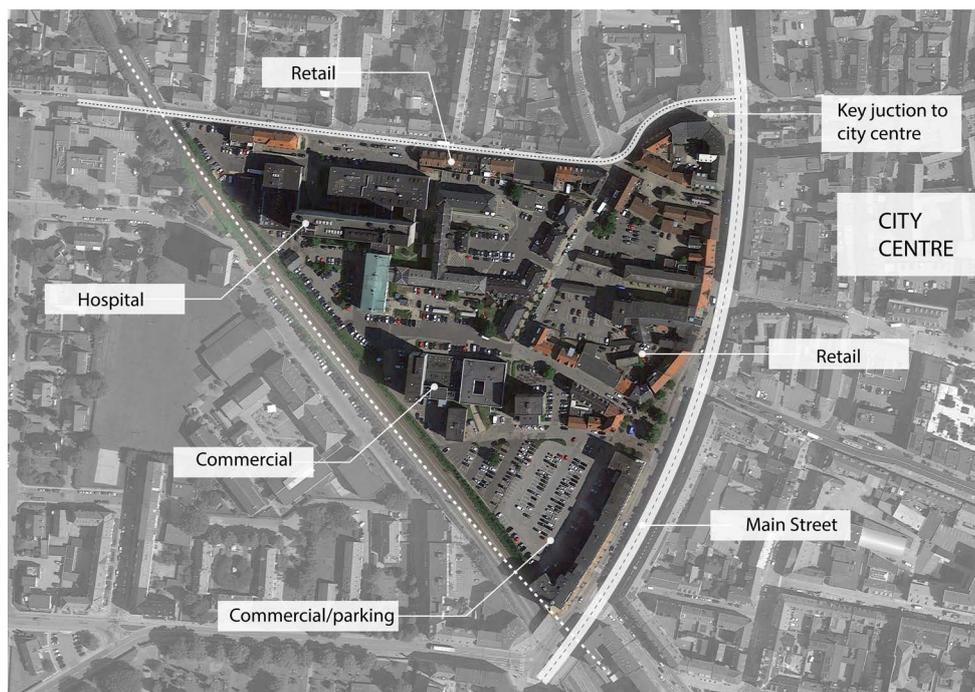
Method 4: Color coding

Method 3 in a combination between 1 & 2 in it can work when the graphic needs multiple ways of annotations. Method 3 depends on colour coding, in which boxes around the graphic are given certain colours that matches areas in the graphic.

The graphic below is a 3D perspective that shows the context and site existing condition. Both methods 1 and 4 are used to annotate it.



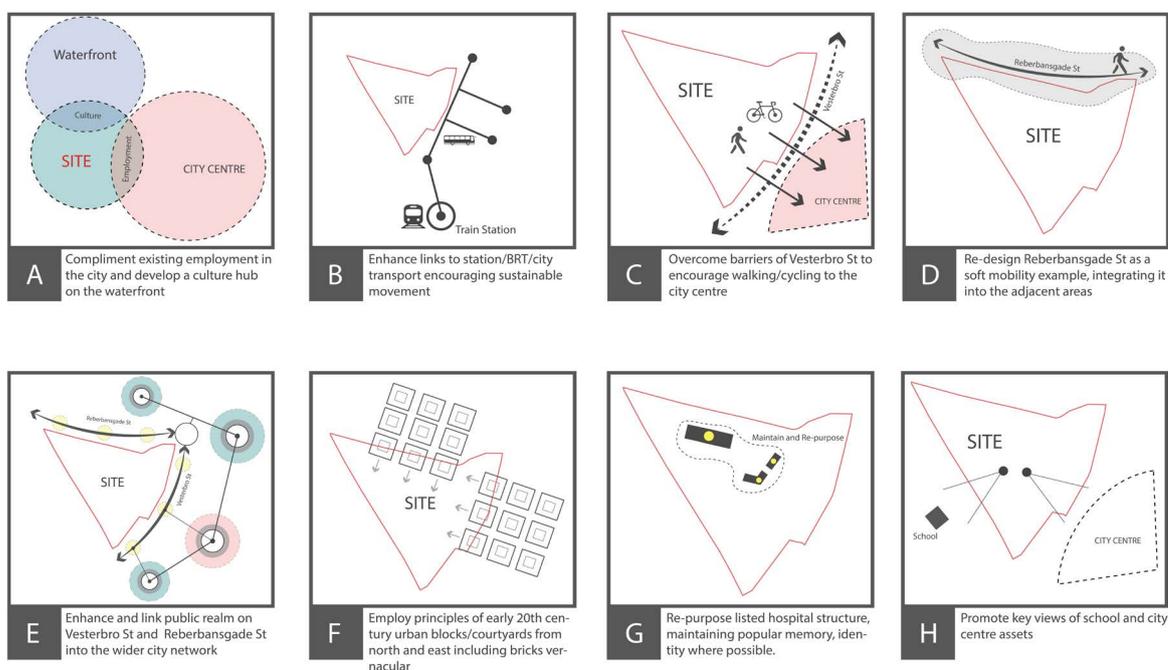
In this example, method 1 is used as the basemap is a complicated aerial view. See how the area around the site is given a grey-scale mask, and that the annotation lines are given white colours, with a transparent white background behind the text to make them easier to read and create a good contrast.



## Abstract Graphics

Abstract urban design graphics are often created in certain stages of the design process in a shape of non technical, not to scale graphics. They are very important to simplify messages and make them easy to remember. In MUDLAB we use them for two main purposes: 1- creating basic spatial mental maps such as design concepts and design actions, and 2- creating infographics.

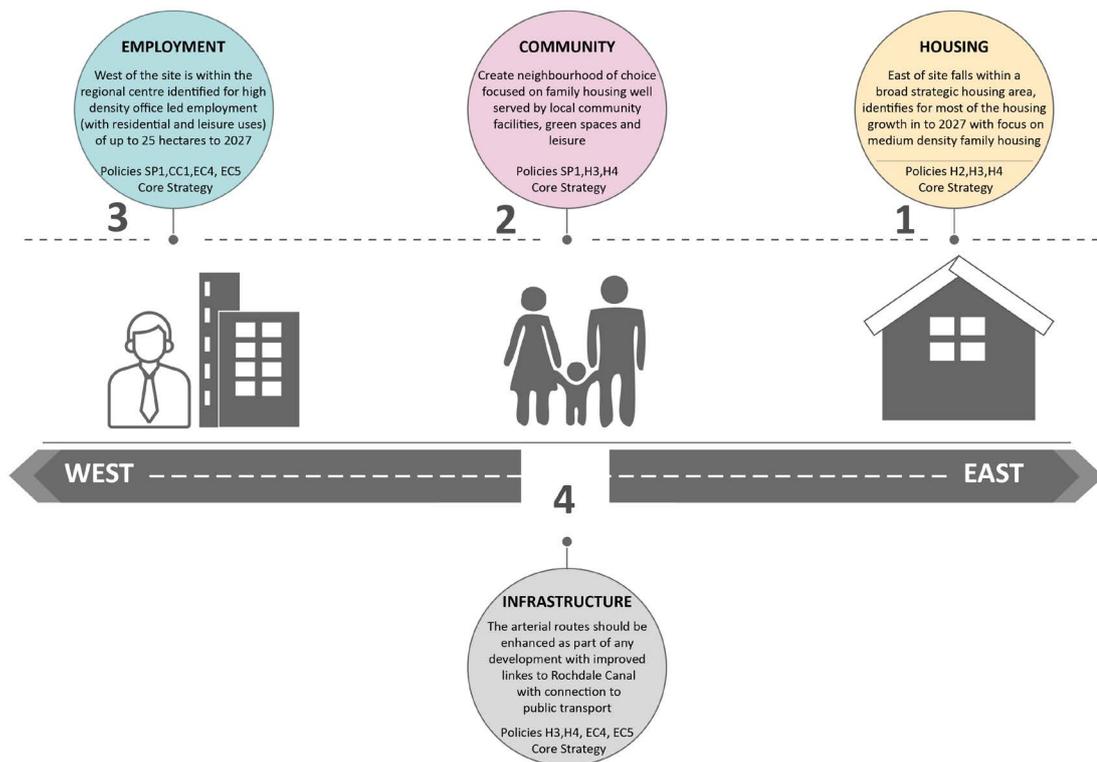
Mental maps are very effective techniques to strip the graphic down from all non-important elements and focus it on essential simple messages. The graphic below represents "design actions". These are spatial design steps that would inform our design concept. The fact they are abstract allows them to be flexible and easy to remember.



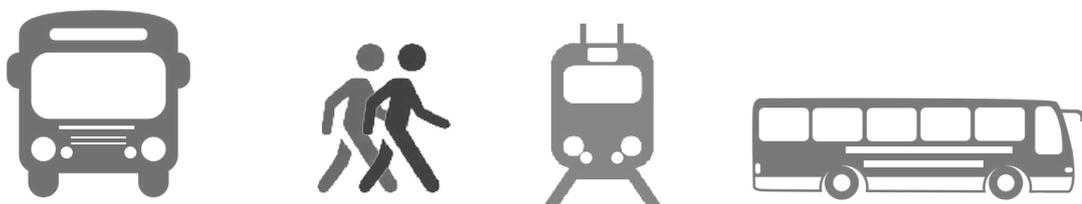
Here are a few techniques to help you making effective abstract graphics:

- Write down the main message of the map in a short sentence with simple language
- Think about the simplest way to visualise this message
- Use simple shapes
- Do not use basemaps
- Support it with a short text to explain it

Infographics on the other hand are not spatial graphics. They are visual representation of text that help in summarising it, highlighting key messages and graphically showing connections between textual elements. Using infographics is essential to make your presentation graphical, rather than text heavy. They are particularly useful to summarise policies or to communicate design ideas to the general public.



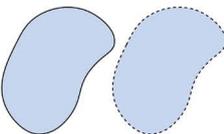
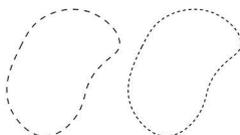
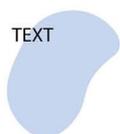
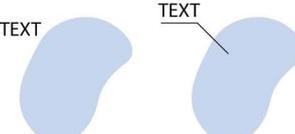
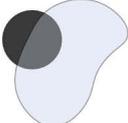
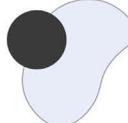
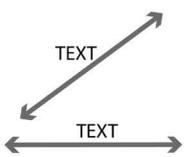
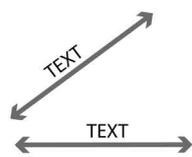
In the example above, the diagram shows the policies that are relevant to a large masterplan site in Manchester. It shows which policies apply to the east of the site and which apply to the west. The shapes used are simple. The graphic is created in Adobe Illustrator, with some imported Vector or Raster elements from free online sources. Some useful sources include Vecteezy, Pixabay Free Vector.



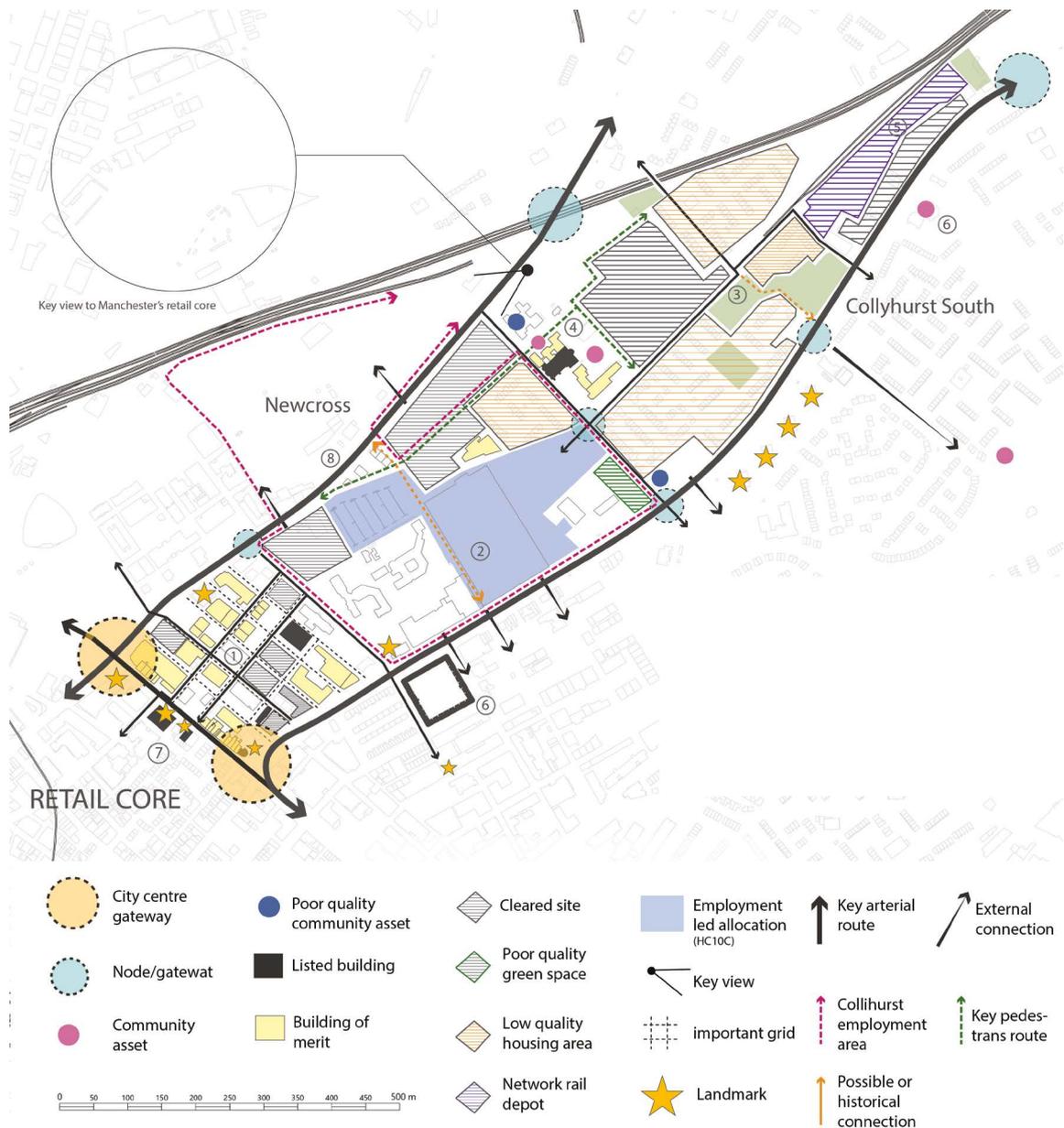
These elements can be edited in Photoshop or Illustrator to fit your style. The examples above are Vectors that were edited in Ai. Some of them were changed from rasters to vectors using the tool Image Trace (Select object then from the top menu go to Object/Image Trace/ Trace and Expand) to convert the graphic into a vector object that can be edited. This only works if the image is very simple with mono colours.

# C Conclusion

In this toolkit we focused on the key considerations and techniques to create effective and professional urban design graphics. Good graphics need excellent attention to details. The table below summarises some of the key points that we consider in MUDLAB to create our graphics, it is a good starting point to improve your graphics before seeking a professional advice from our Technical Specialist:

Give blobs a stroke		→	
Make dashes smaller		→	
Give dots weight		→	
Stroke hatches		→	
Grey not black		→	
Position text right		→	
Solid over transparent		→	
Pale not dark		→	
Align text with lines		→	
Create Smooth curves		→	

The map below is a naturally complicated area appraisal map of a large masterplan site that needs to showcase many elements on a single graphic in including land use, gateways, access, key buildings...etc. The techniques highlighted in this toolkit helped to keep it readable yet looking sophisticated. Based on this, try to identify what makes it readable in spite of the complexity.



To conclude, effective graphics are very relevant to the quality of the message it tries to communicate, so understanding the message of your piece of analysis or design is an essential first step. You should then develop an artist eye to be able to identify good graphics. This comes with training and experience and understanding they graphical language urban designers use to create such graphics. A good next step is to try to imitate good graphics in terms of style and colours selection. Do consult both professionals and non-professionals and seek feedback.