



Mud-Lab Toolkit

Adobe Ai Explained

Adobe Ai is the software we will be using to create our analytical maps. You have been introduced to the software basics in Adobe Ai 1 handbook. In this handbook you will learn how to add variables and details and how to edit the map to communicate messages using some basic tools.

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The MUD-Lab Toolkit

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INTRODUCTION

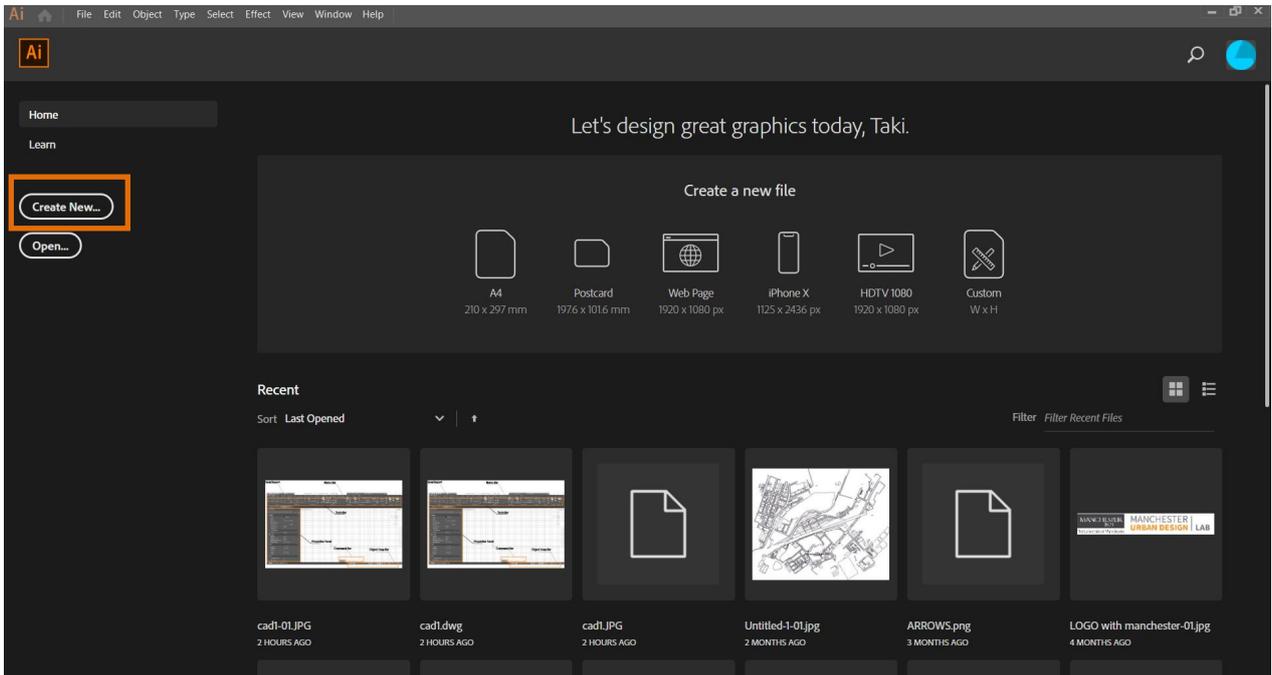
Adobe Illustrator, a software part of the Adobe Creative Suite, is the leading vector graphics software used worldwide by designers who want to create digital graphics for all kinds of media: print, web, interactive, video, and mobile. While the well-known software Photoshop uses Pixels to create images, Ai uses Vectors to construct graphics.

Vector Graphics are one of the two most commonly used graphic formats in design, the other being bitmap (or raster) graphics. Vector graphics, like those created with Illustrator, are object based graphics and they are resolution independent which means they can be resized indefinitely with no loss of quality. For example, the same map created with Illustrator can be printed at different scales (large posters or small A4s) without losing resolution.

NOTE:

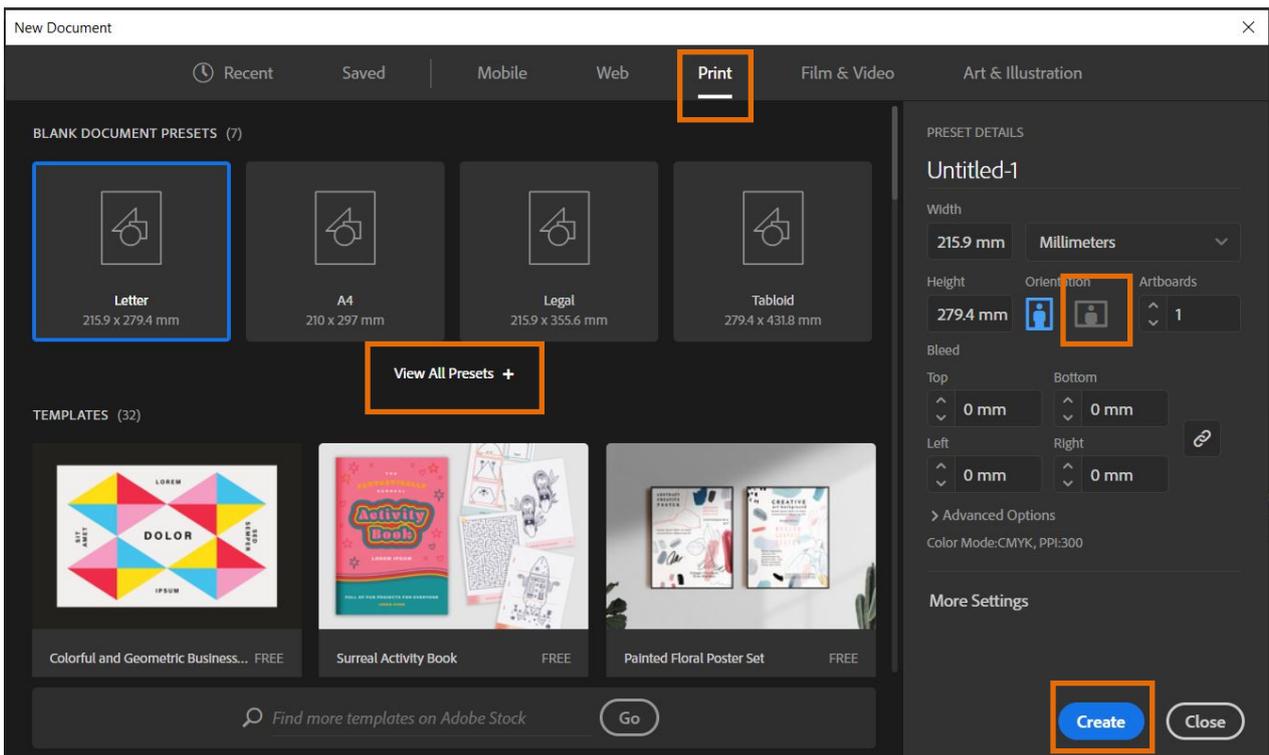
All the maps we will be using are vector maps (PDFs) imported from Digimap. This is the key to work effectively in Ai. If you import a JPEG map (i.e. a raster graphic not vector graphic) to Ai, this will be opened as a solid image and it will not be editable.

STARTING ADOBE ILLUSTRATOR

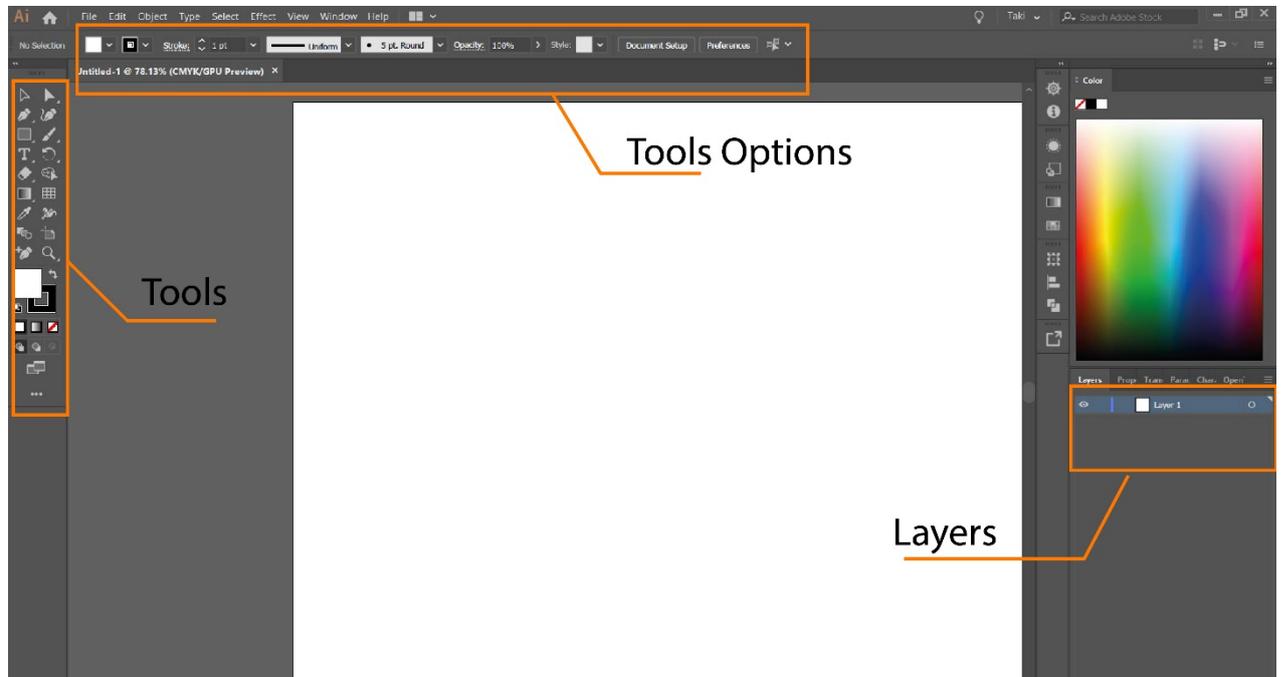


- Open Ai: File/ Adobe Illustrator
- Click on create a new file

- Click on Print and then click View All Presets below and select A3. Select Landscape orientation. Hit Create.

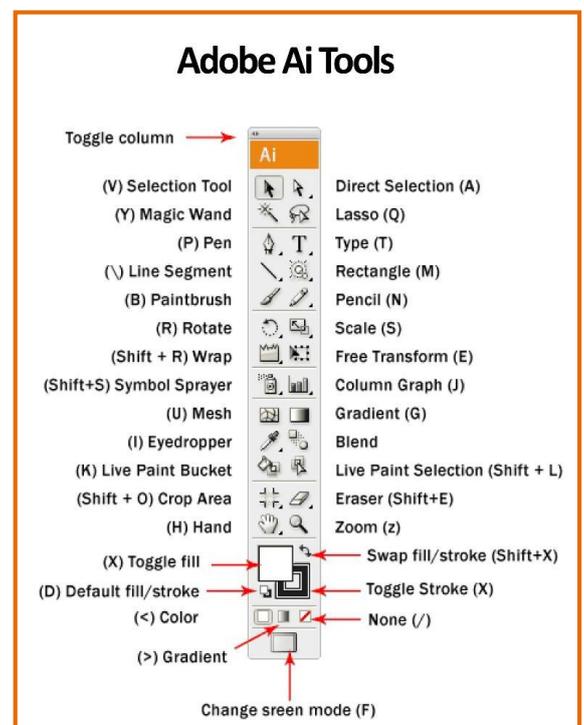


- Have a look at the software interface. The tools are all you need to create and edit shapes in Ai. The tools options bar is an interactive bar that changes according to the tool you are using. So you will notice that the Selection Tool options are different to the Pen options. The layers panel shows all the layers you will be creating while constructing and deconstructing your maps.



Illustrator provides many tools for creating and manipulating your artwork including: selection tools, drawing tools, type tools, painting tools and reshaping tools.

For further information on all of these tools please see <https://helpx.adobe.com/illustrator/using/tool-galleries.html>



- **Inserting Your Map from Digimap**

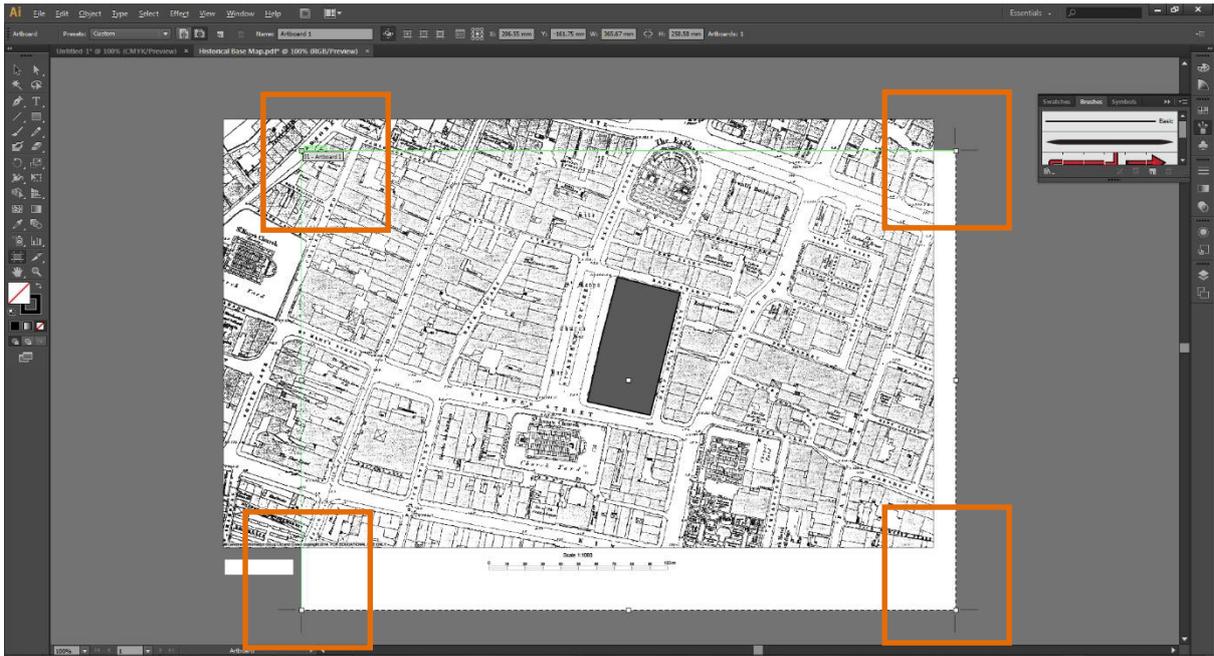
Drag our PDF that you downloaded from Digimap to Ai to bar to open the file.

Moving Your Map to a New Tab/Overlaying Features

Press **V** on your keyboard, this will select the **Selection Tool**, simply click and drag your map/layer, hover over the tab you wish to move to, when the tab opens, move your mouse into the middle of the screen and unclick. Ai contains a snap-to feature so it is easier to align your selection when dragged into a new tab.

ARTBOARDS

1. Ai features an **Artboards Panel**. Artboards represent the areas that contain printable work (you can use Artboards as crop areas for printing). The artboards are essential for maintaining scales in your maps.
2. Those artboards will be automatically created for you when you drag the PDF file into Ai. If the PDF file is downloaded as an A3 sheet, Ai will open an A3 sheet for you. If you downloaded the file as A2 from Digimap, Ai will open A2 Artboard when you drag the map to it and so on. As long as you keep the artboards as is, you will print a scaled map.
3. Sometimes you may want to change the artboard boundary (for example to release the map and make it less blocky), to edit artboards: Select **Artboards (Shift+O)** use the **Intersects** (located in each corner) to resize and scale the Artboard (you can do this freely or by holding Shift). If you print a map without its original artboards it will not be to scale. This is acceptable when you want to add a collection of maps into a single big sheet, in this case you will need the scale bar on the maps to maintain a sense of scale , but you will have to delete the numeric scale as it is no longer valid.
4. If you wish to print a particular area of the map you can do so by moving these Intersects.

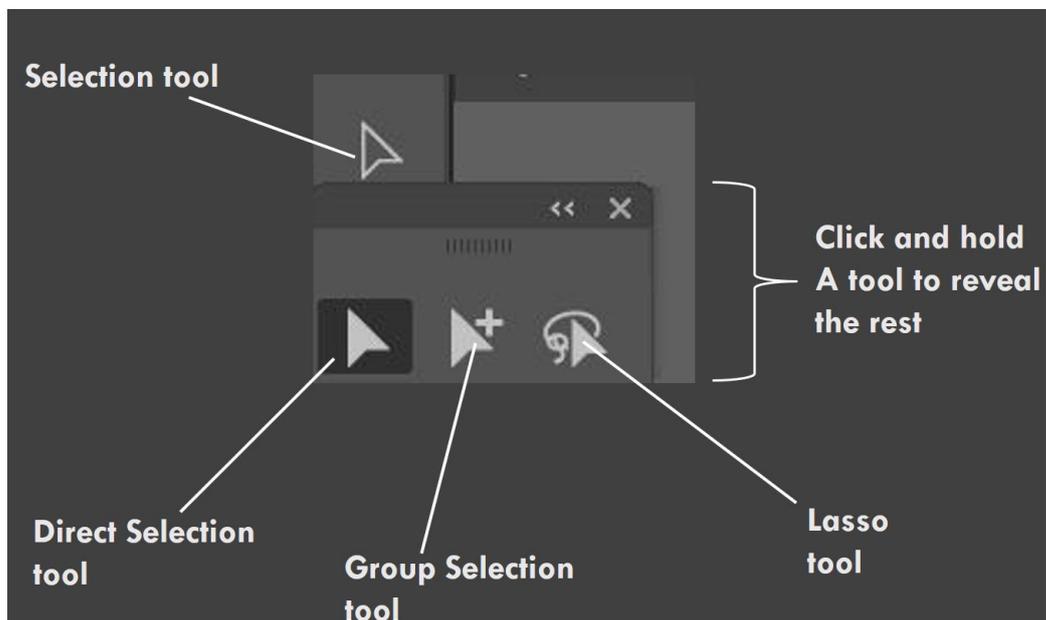


- **Undo/Redo:** Use Ctrl+Z for Undo and Shift+Ctrl+Z for Redo.

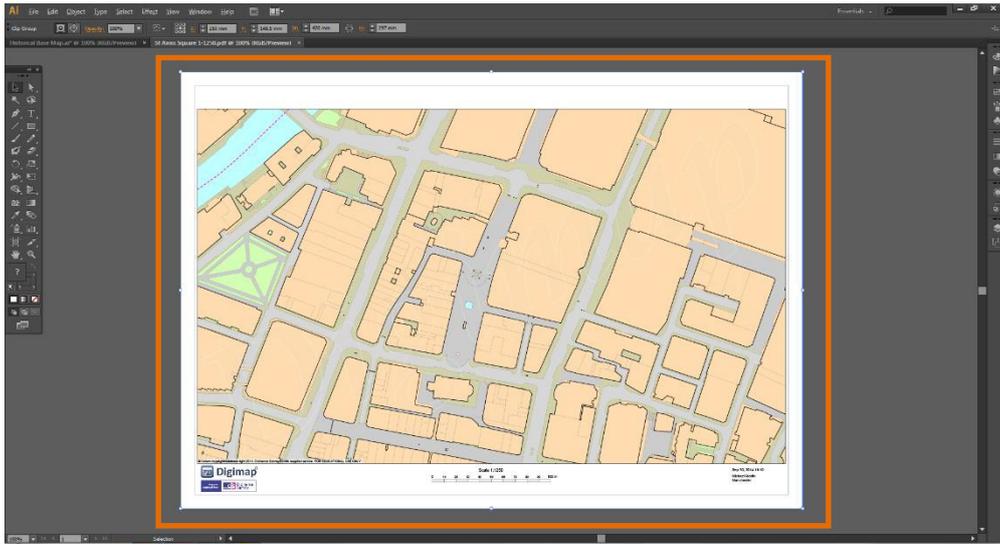
SELECTION AND LAYERS

Selection Methods

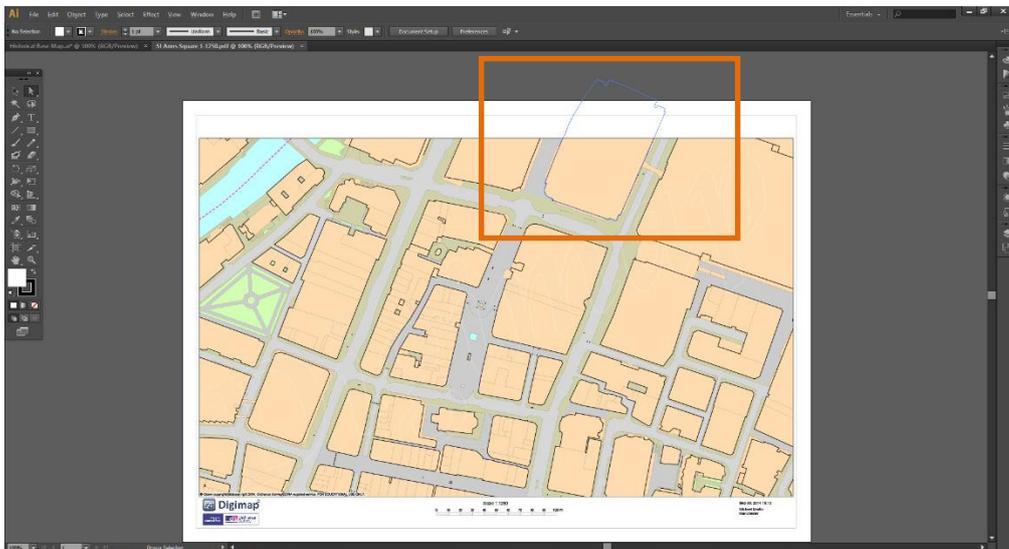
There exist five ways of selecting Layers/Paths/Objects in Ai (see https://helpx.adobe.com/illustrator/using/tool-galleries.html#selection_tool_gallery for details on all five). The three main methods of selection are:



1. **The Selection Tool (V)** – this tool selects the object in its entirety.



2. **The Direct Selection Tool (A)** – this selects points or path segments within individual objects.
3. **The Group Selection Tool** – this selects objects and groups which are within groups.

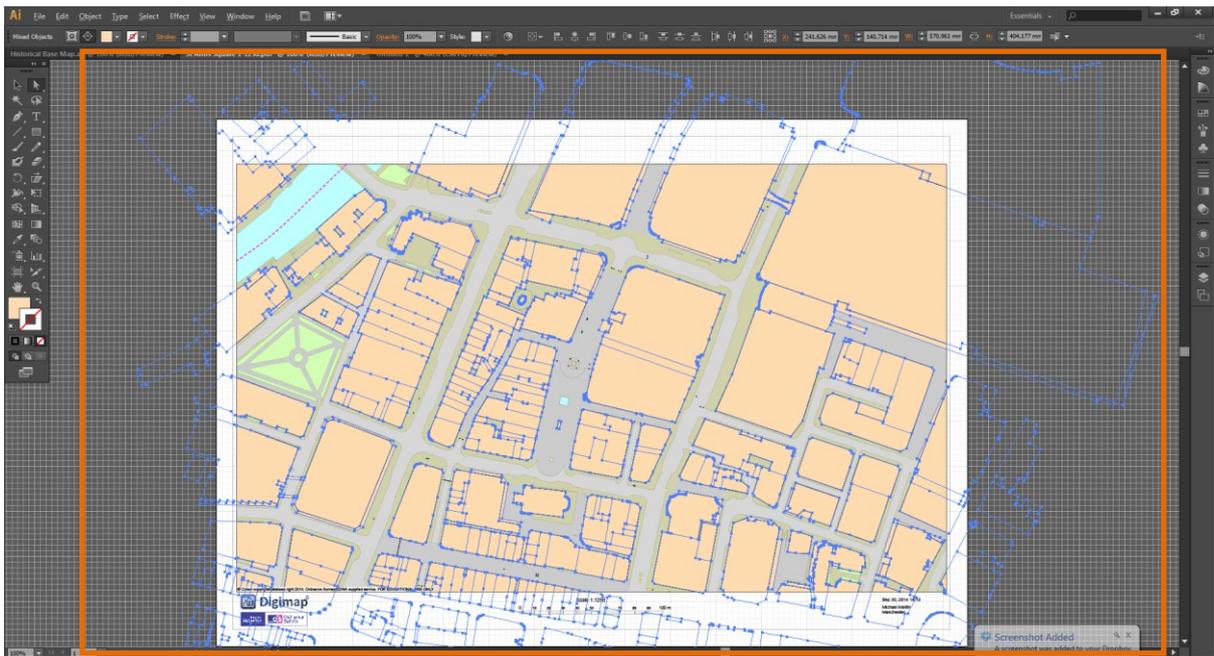
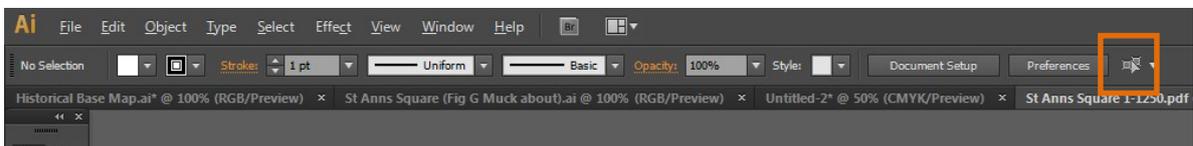


4. To **select multiple objects** at the same time using the Direct Selection Tool (A) or Group Selection Tool simply hold Shift. To **deselect particular objects** relick on them whilst holding Shift.

The Select Similar Objects Function

The **Select Similar Objects Function** is an extremely useful option which will allow you to select groups of similar objects (this is coded based on their fill and stroke). This is particularly important to create your figure ground and to deconstruct the map as we will be doing in the practical session.

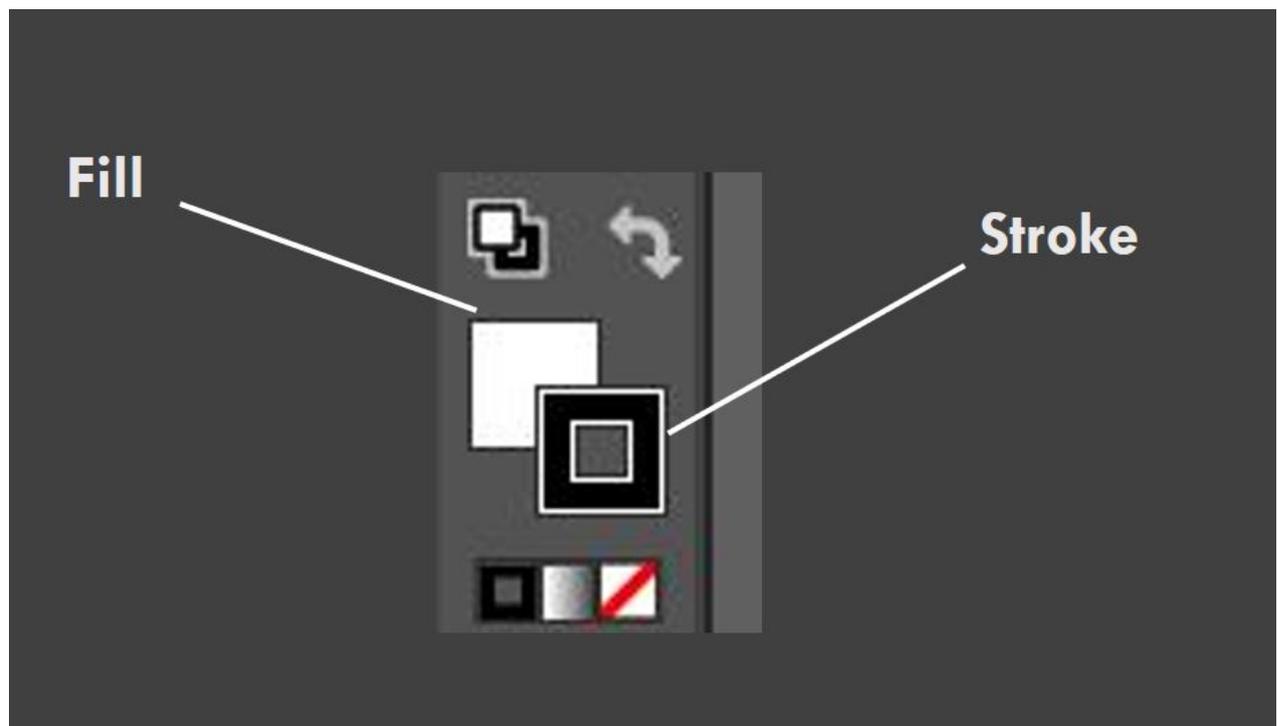
1. Use the **Group Selection Tool** (the one with plus symbol, NOT the selection tool) and select a building >then click outside of the Artboard/off of the canvas>click the **Select Similar Objects Function**. In the example all of the building paths have been selected.



2. Click outside of the **Artboard**>click the **Select Similar Objects Function**

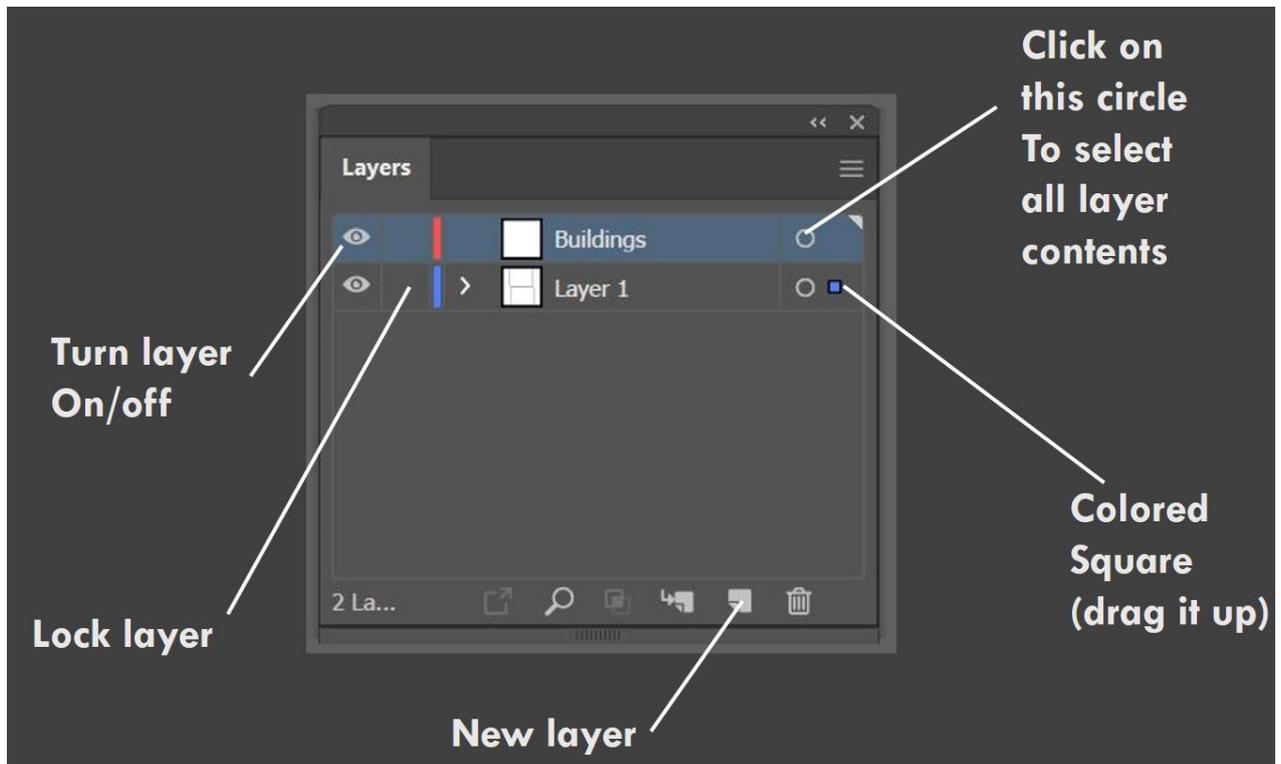
Objects Fill and Strokes

- When you select any object with the group selection tool you will be able to change the colours of the inner part of the object (the Fill) and its outline (the Stroke). Simply double click on those squares to change objects colours.

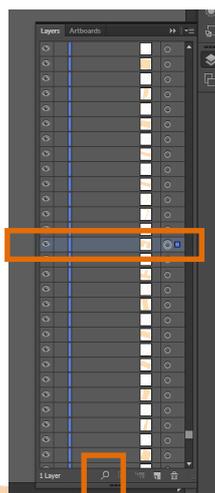


Layers

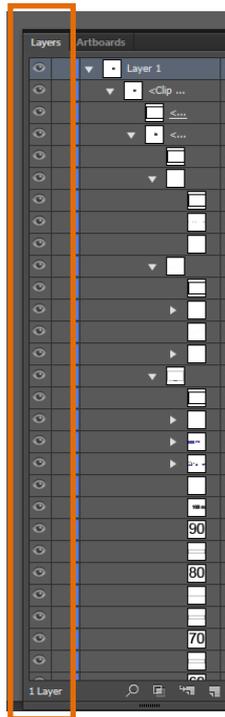
Adobe Illustrator Layers Panel:



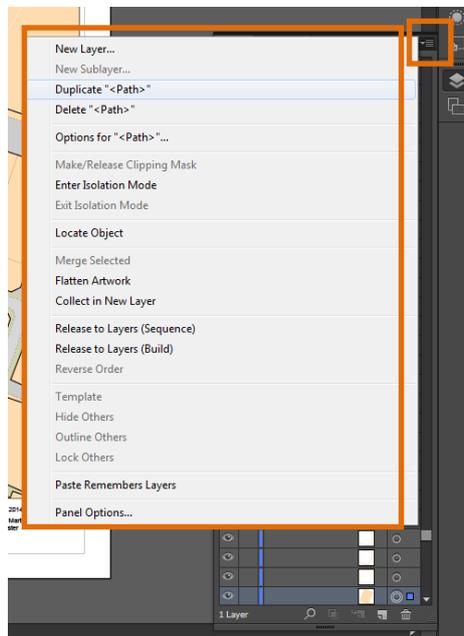
- Ai files might contain thousands of objects and it might be difficult to find a specific object within its layer. As a result Ai contains a **Locate Object function**. Tap (A) to select the **Direct Selection Tool**>click on an object on the map> look at the **Layer Panel** and you will see a **blue square highlighted to the right of the layer**>click on the **Locate Object Function** (magnifying glass symbol). This will automatically show you where this path/object is contained.



- From here you can turn off the path by clicking on the **Eye Symbol**.



- By dragging this blue circle up or down to a different layer you can also send or copy this path to a new.



All of these are very useful functions which you will endlessly repeat as you construct your analysis maps.

Layers Panel Options

There are two additional features in the Layers Panel you should be aware of:

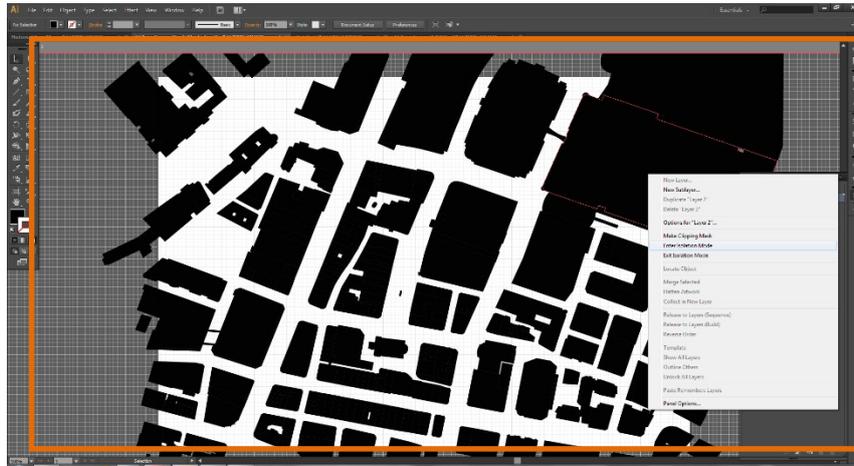
- **Layer Lock** – locking layers in Ai will make them unselectable (this is particularly handy when adding additional details to your analysis maps as only the aspects associated with an unlocked layer can be edited or selected). Represented by the lock symbol.
- **Indicate Selected Art** – by clicking to the right of the ‘circle logo’ on any layer you will select all of the associated objects and paths contained within that layer (extremely useful when you want to edit the colour, opacity or strokes associated with those paths/objects).



Isolation Mode

Similar to Layer Lock, Adobe Ai features an Isolation Mode which allows you to isolate artwork for editing (only the selected artwork will be edited). This is particularly valuable when you have a number of features present on your map and you only wish to amend/edit one in particular.

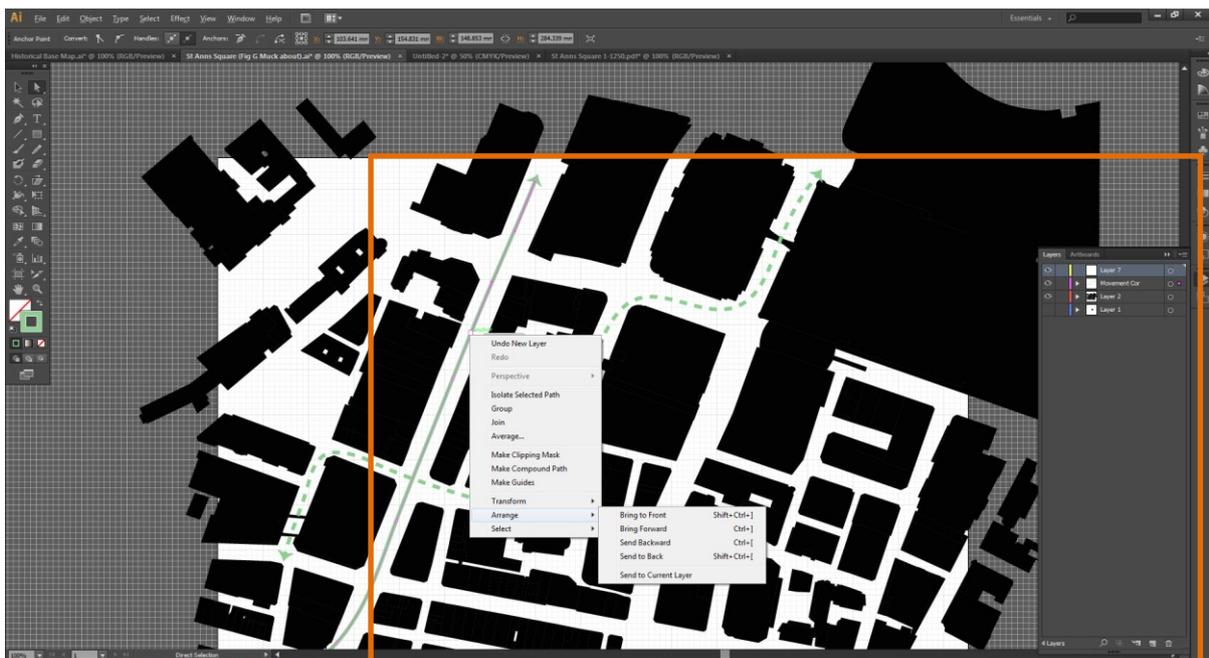
- Click the **Additional Options Tab** on the **Layers Panel**>click **Enter Isolation Mode**. To exit repeat and click **Exit Isolation Mode**.



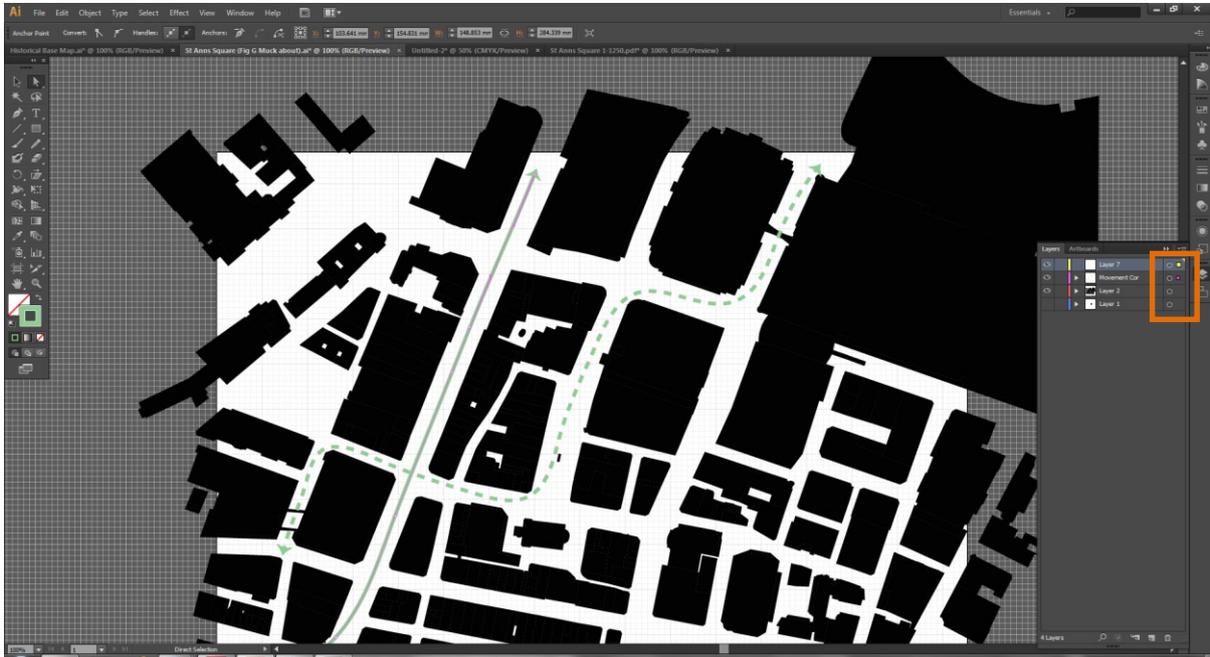
- **Rearranging Layers**

Ai provides you with the option to rearrange existing layers and move specific objects to new layers very easily. There are two ways in which you can do this:

- With the Group selection tool >click on the feature you want move>click **New Layer**>right click on the object>select **Arrange**>Send to Current Layer. You can do this for multiple objects by holding **Shift**.



- Group selection tool >click on the feature you want to move>click **New Layer**>drag the **Indicate Selected Artwork Box** from the **Current Layer** to the **New Layer**. *If multiple objects have been selected they will automatically be transferred to the New Layer.*



Organising Layers

When creating maps in Ai you can accumulate a lot of layers/paths/objects. Make sure to organise your Layers Window.

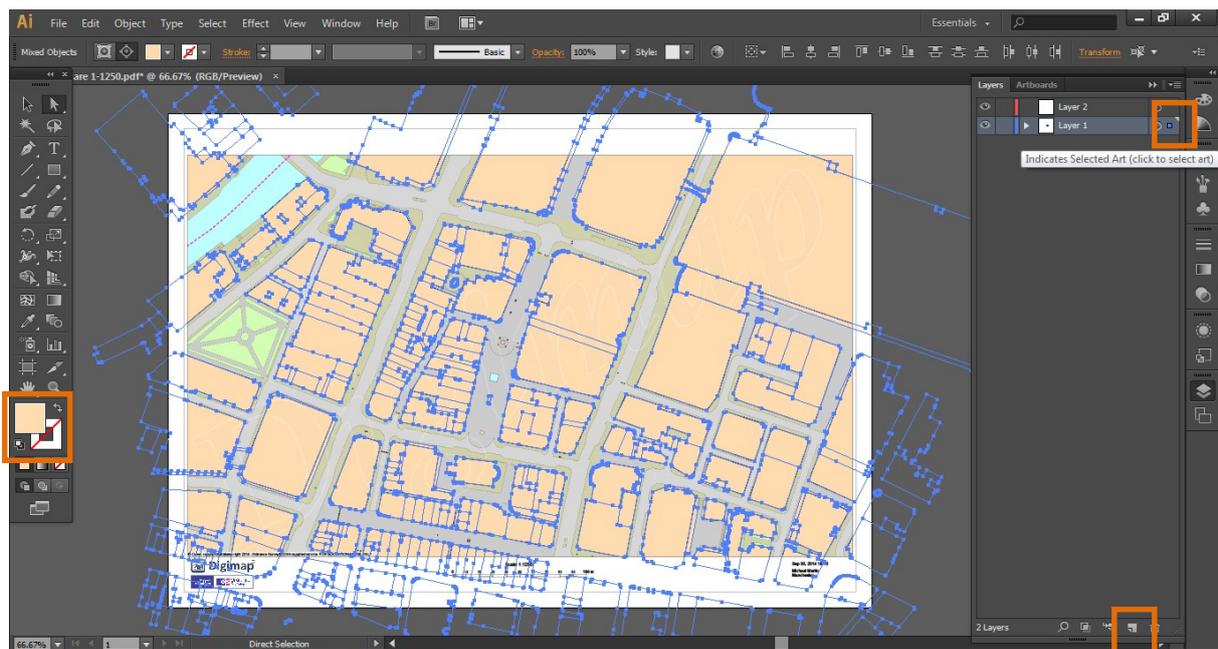
- You can do this by labelling your layers – simply **double click on the text** and rename appropriately.
- Ai also features a **Sublayer** option for grouping layers. When working on a particular feature, e.g. Movement Corridors, click **Create New Sublayer** for each layer in order to group them.

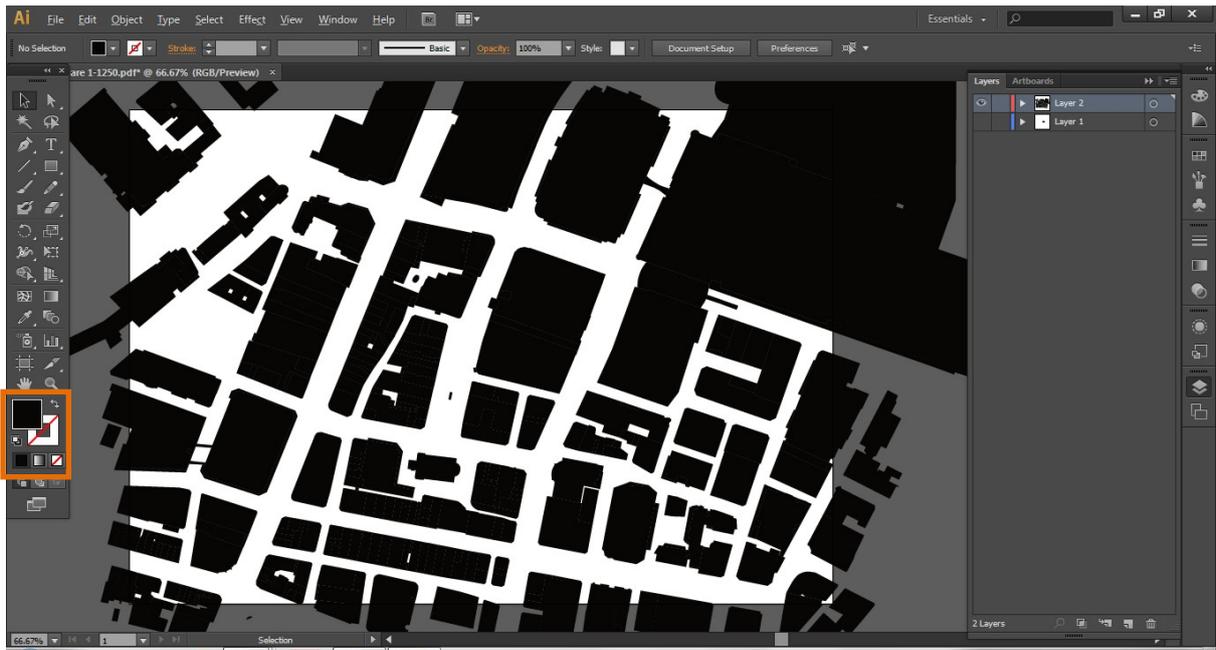
DECONSTRUCTING THE MAP

The first thing you need to do with the map you downloaded from Digimap is deconstructing it into different layers. For example: You will simply select a building for /select similar objects/create a new layer/drag the blue circle to the new layer/name the new layer “buildings”. You will end up with buildings, streets, green spaces, blue spaces...etc. This will make your analysis much more effective. Here a few techniques that you will be using frequently throughout the year:

Editing the Basemap (Figure Grounds and key analytical maps)

1. Returning to the **Select Similar Objects Function** and **Locate Object Function**. Using these Functions it is possible to make alterations/edits to the Basemap for the purposes of your analysis.
2. Select the **Group selection Tool**>click on a building>then click outside of the Artboard/off of the canvas>click the Select Similar Objects Function. All of the building paths have been selected.
3. Click **New Layer**>Drag the **blue square** (which means ‘indicated selected art’) from **Layer 1** to **Layer 2**>Click **(X)** to select **Fill** and **Stroke**>Choose a **Fill Colour**>Choose a **Stroke Colour**.
4. You can instantly create a **Figure Ground Map** for example by turning off the basemap layer and keeping the buildings layer on:

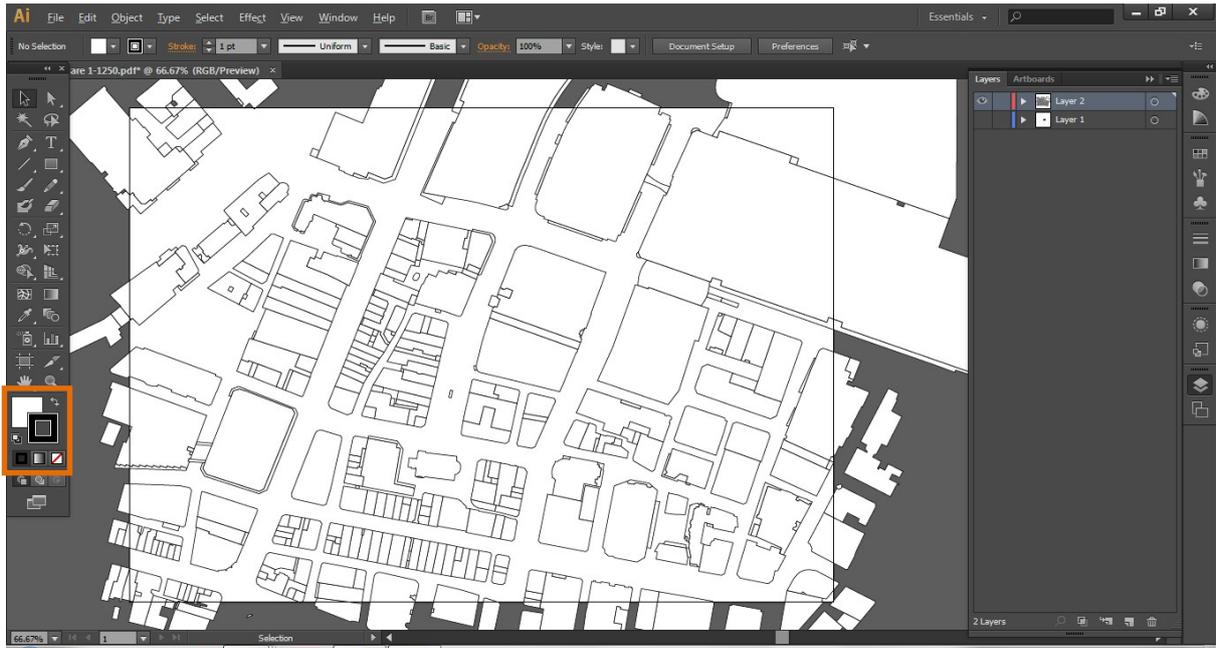




Map A: Figure Ground Analysis



5. Play around with different **Fill** and **Stroke** Options to create different Basemaps:

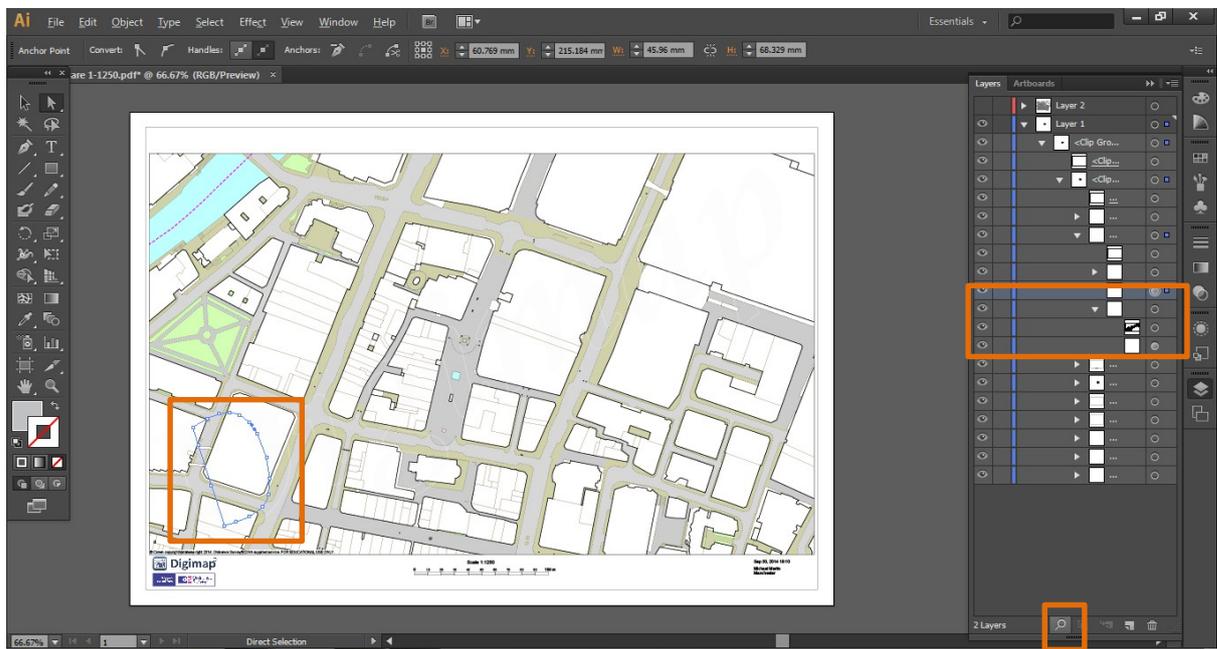


Map B: Building Height

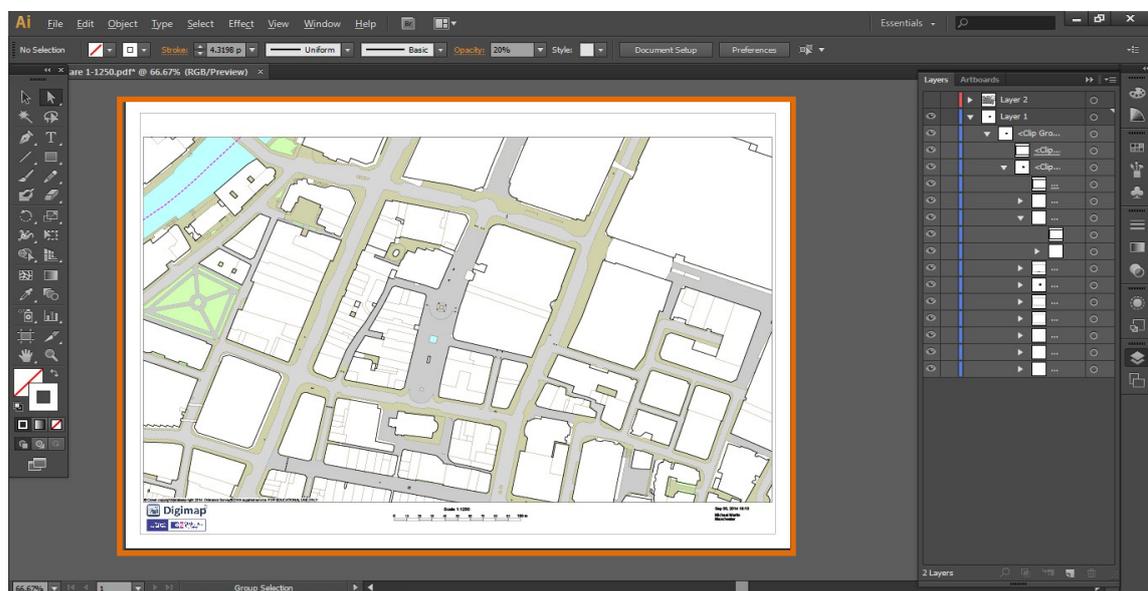


6. Select **Direct Selection Tool (A)**>click on individual buildings>change the **Fill** and **Stroke** Options. You can use this technique to create a variety of maps (see Map B).

7. Now turning to the **Locate Object Function**. The **Locate Object Function** can be used to delete the **Digimap Watermark**. There is nothing more annoying than trying to select particular paths and the objects associated with them and the Digimap Watermark gets in the way.
8. Tap **(A)** to select the **Direct Selection Tool**>click on the **Digimap Watermark**>open the **Layer Panel**>click on the **Locate Object Function** (magnifying glass symbol)>click the **Additional Options Tab** in the **Layers Panel**>click **Delete Path**>Repeat this process **2-3 times** until the Watermark is removed (there are three vector objects linked with the logo which is why you have to repeat the process).



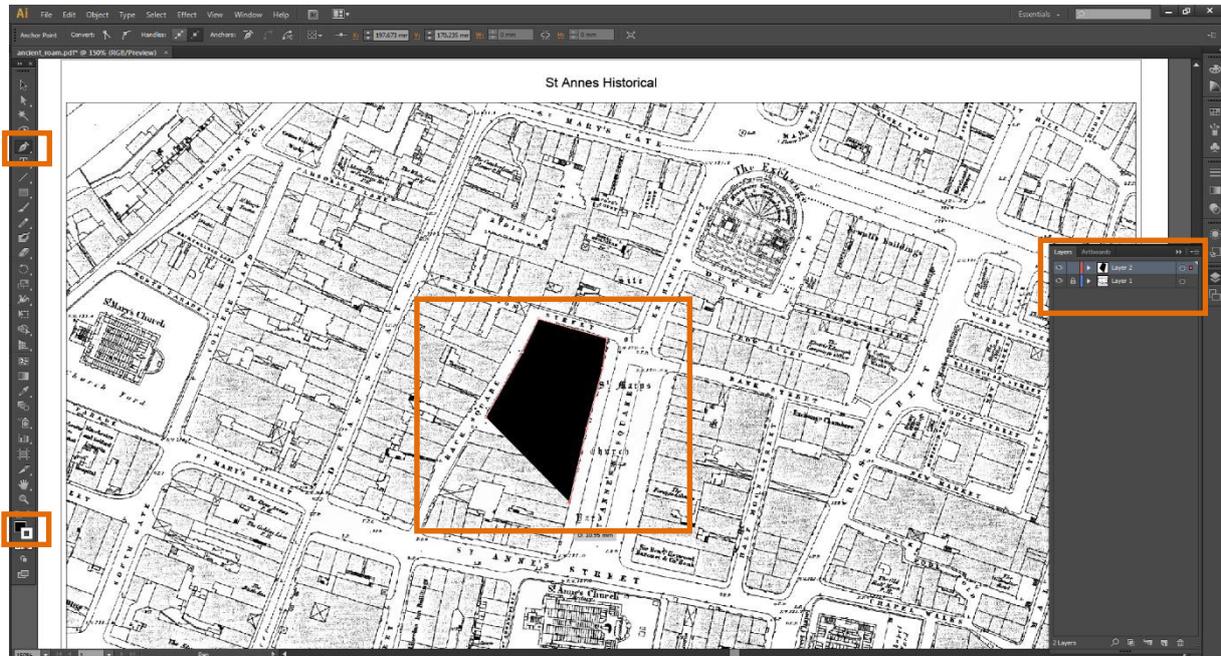
9. Once the Watermark is removed your map will look like this:



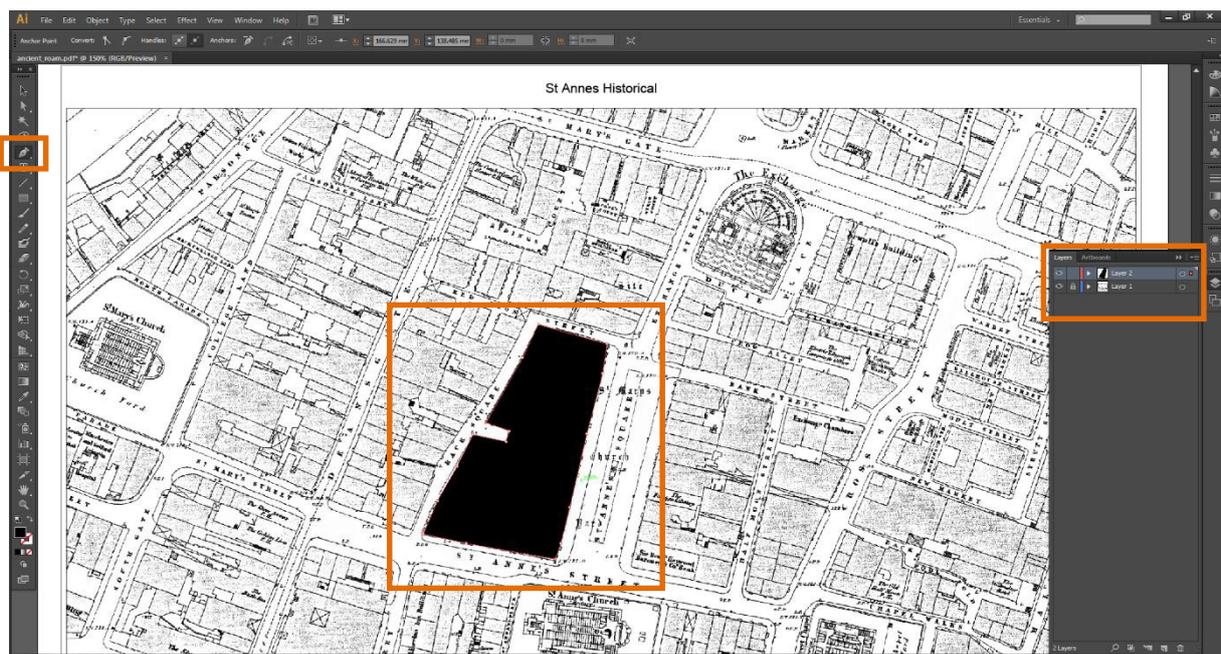
Historical Figure Grounds; Frontage; Activity and Pedestrian Movement Maps

Historical Figure Grounds

1. Select the **Pen Tool (P)**>**Lock the Basemap Layer**>**Create a New Layer**>Now simply trace the entirety of the Building (or whatever feature it may be).



2. Select **Fill (X)**>select **Black** (you can select different colours by double clicking on the Fill window). Your map will look like below. Repeat step one until you have selected all of the built form. You will end up with something similar to **Map C** (overleaf).

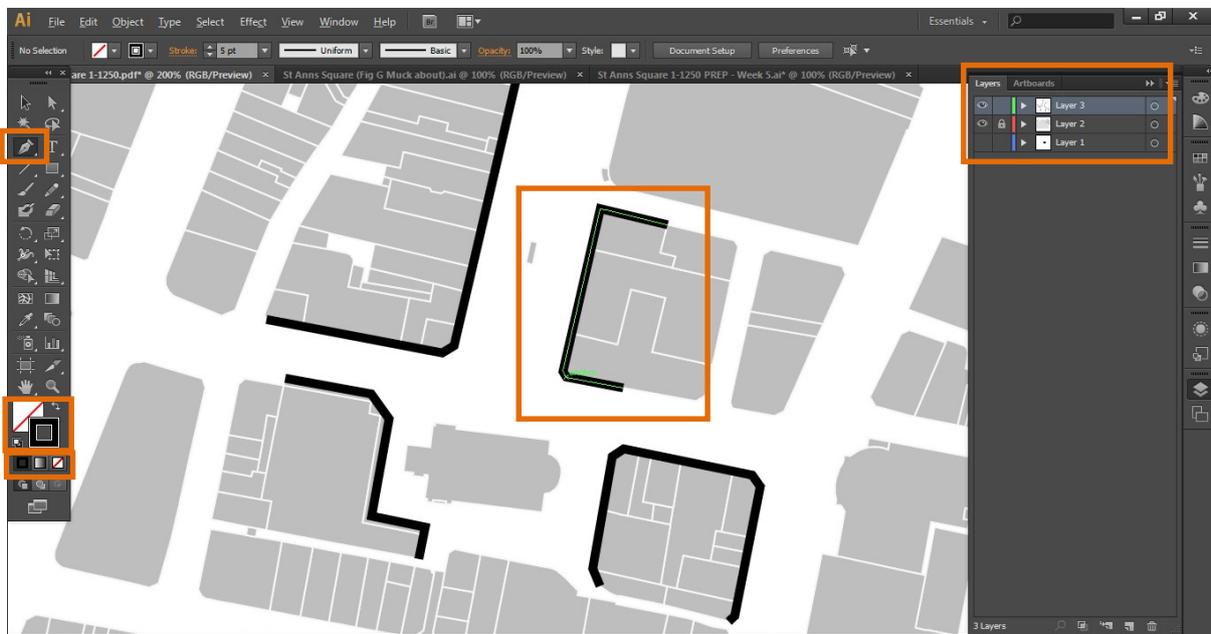


Map C: Historical Figure Ground Analysis

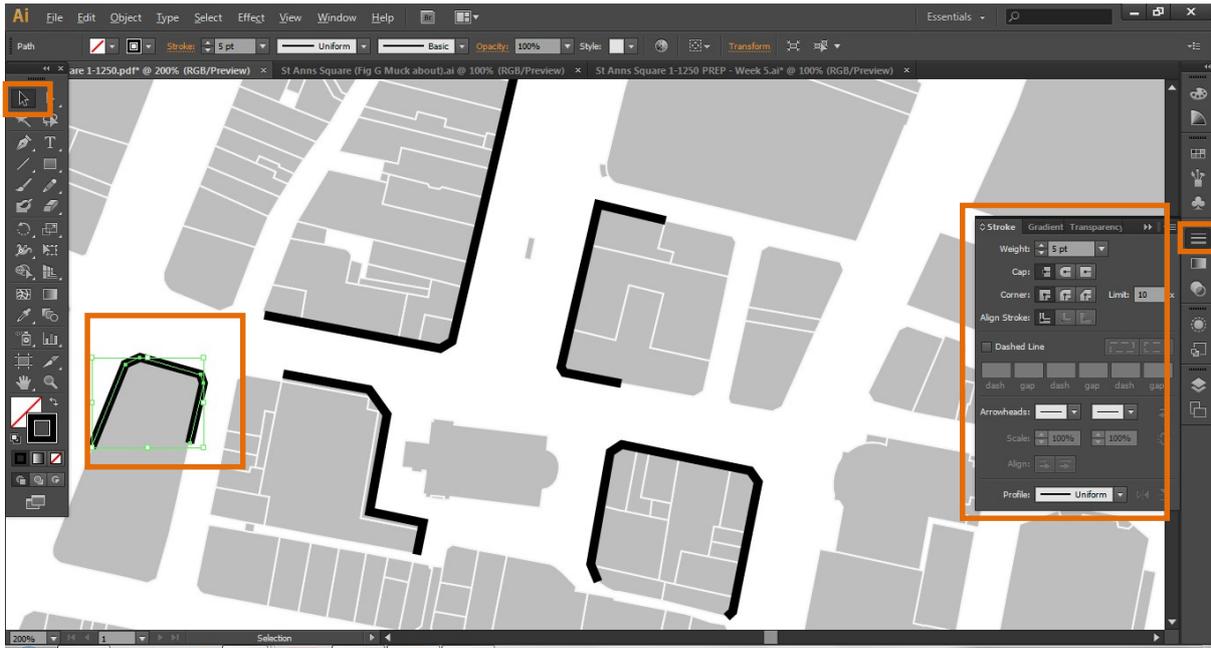


Frontage; Activity and Pedestrian Movement Maps

3. Often in Adobe Illustrator single tools can be recycled to create multiple types of analysis. Using exactly the same steps in 5.2.1 you can create a variety of analysis maps.
4. Again select the **Pen Tool (P)**>**Lock the Basemap Layer**>Create a **New Layer**>this time simply trace around the Buildings Fronts (or whatever feature it may be).
5. Again Select **Fill (X)**>this time **Remove the Fill (/)**>now Select **Stroke (X)**>select **Black** (you can select different colours by double clicking on the Stroke window). Your map will look like below. Repeat step one until you have selected all of the building fronts.

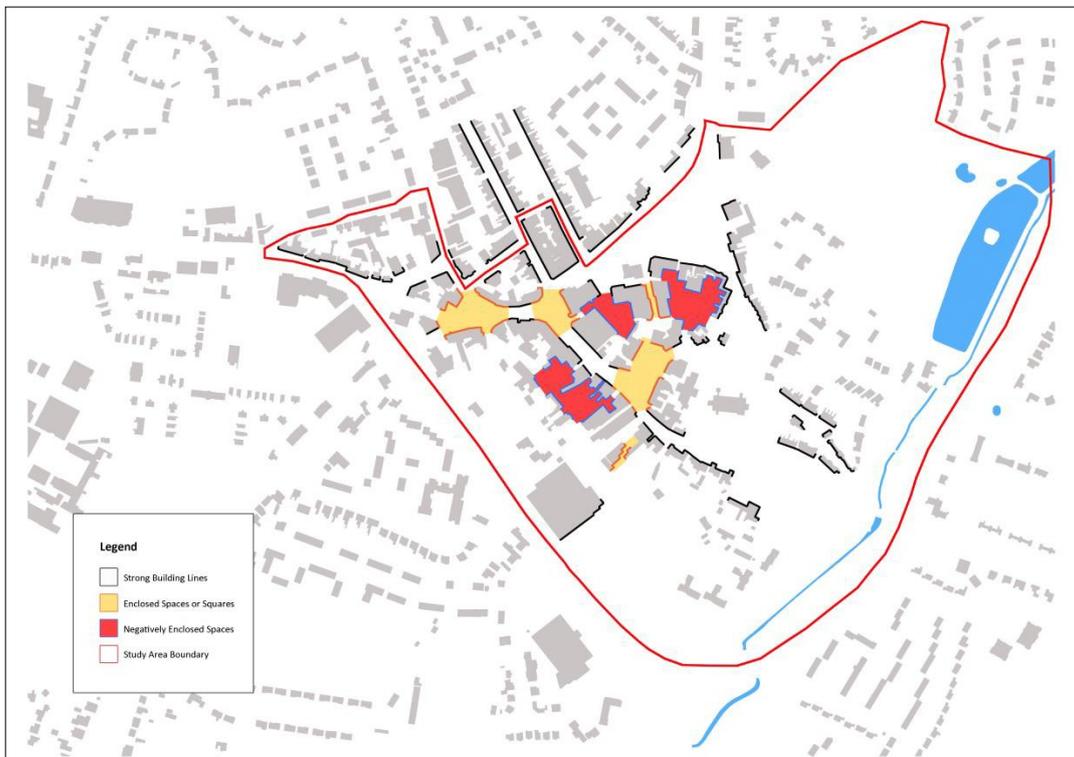


6. Now Select the **Direct Selection Tool (V)**>Select the **Object**>then select **Stroke** in **Panel Groups**>You can now edit the **Weight, Cap** or **Corner** of the **Stroke**, you can even make it a **Dashed Line**.

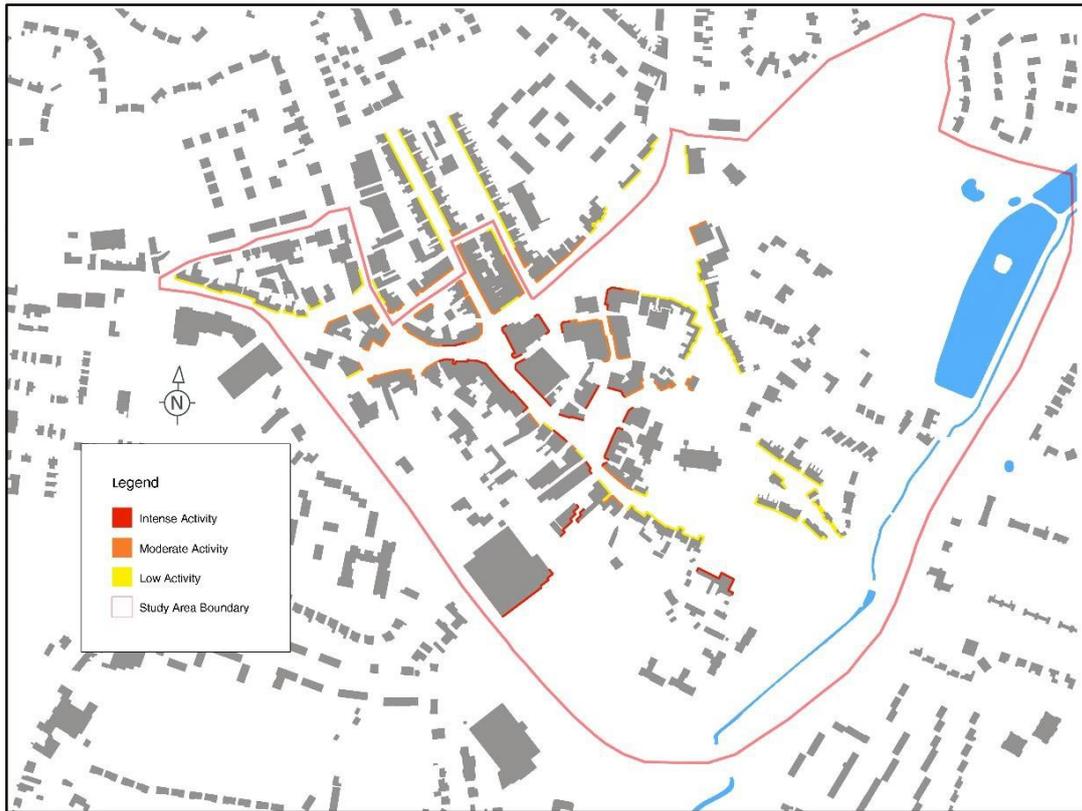


7. **Play around with these settings.** By simply changing the colour, weight or appearance of the Stroke you can create multiple forms of Urban Analysis.

Map D: Frontage, Squares and Enclosed Spaces



Map E: Active Frontages



Map F: Pedestrian Movement Hierarchy

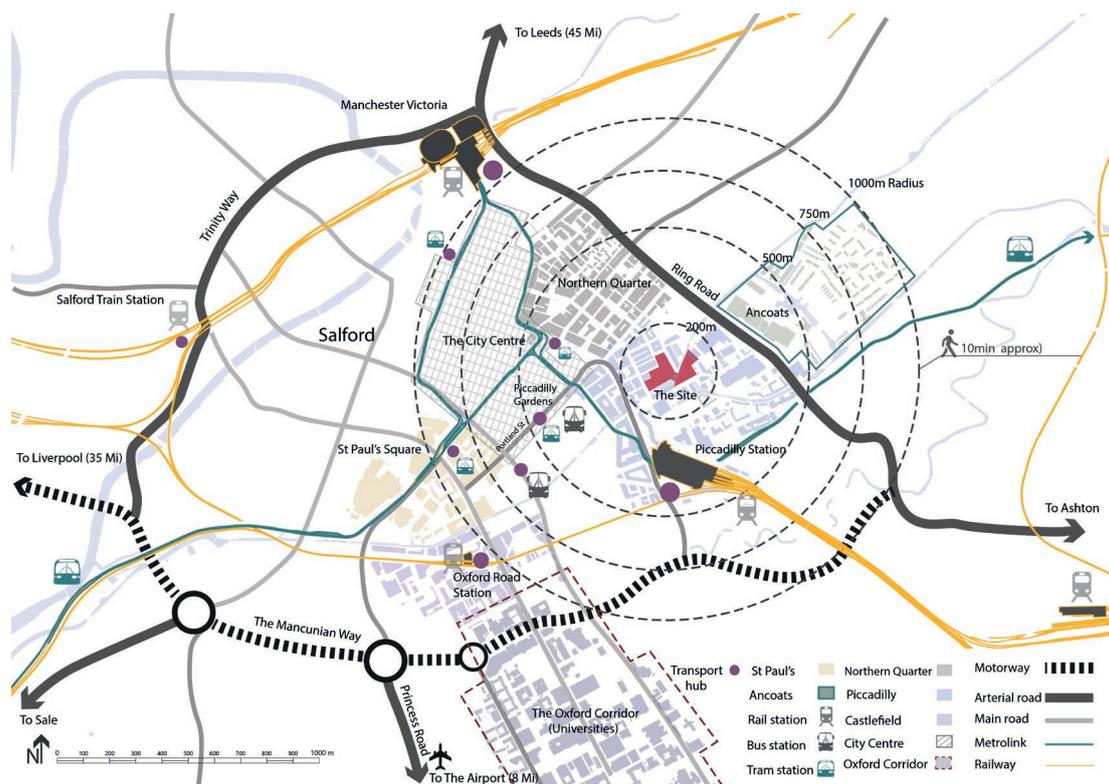


Road Hierarchy Mapping

10. The best way to create a road hierarchy map is by tracing the key routes manually. While this might sound time-consuming it is actually the best way to create a clean map with style. This will also help you in thinking through those roads hierarchy and not simply following the width provided by Digimap. In the example below all streets have been traced manually by simply:

- Moving all streets into a separate layer
- Locking this layer
- Creating a new layer and tracing the required streets using the Curvature tool.

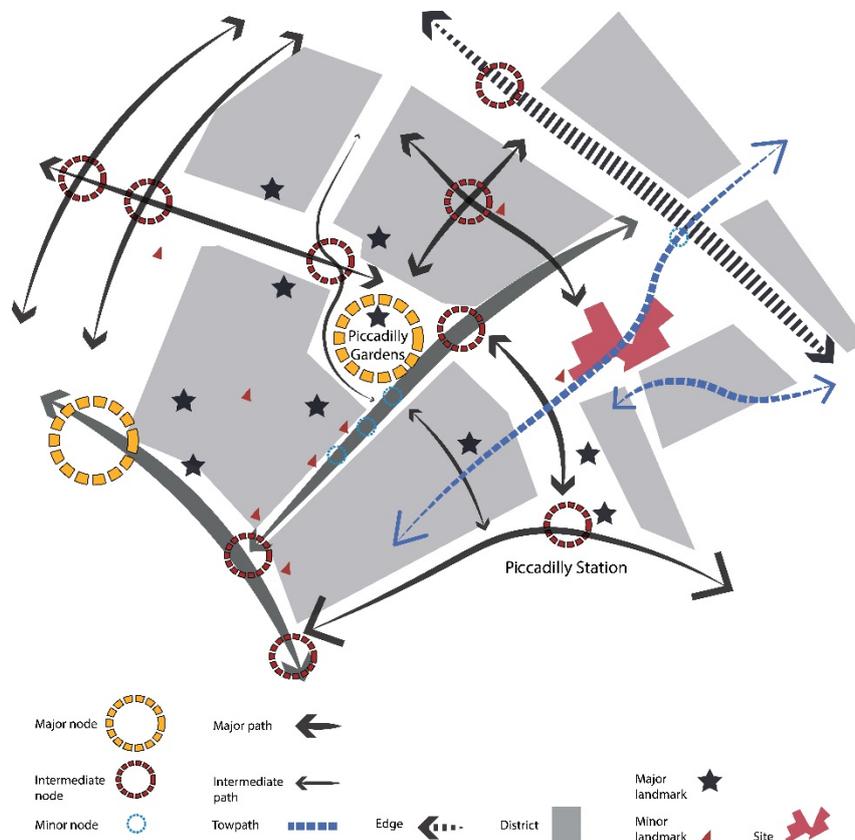
We will create the map below together during the technical session using that simple method.



Legibility/Townscape Maps

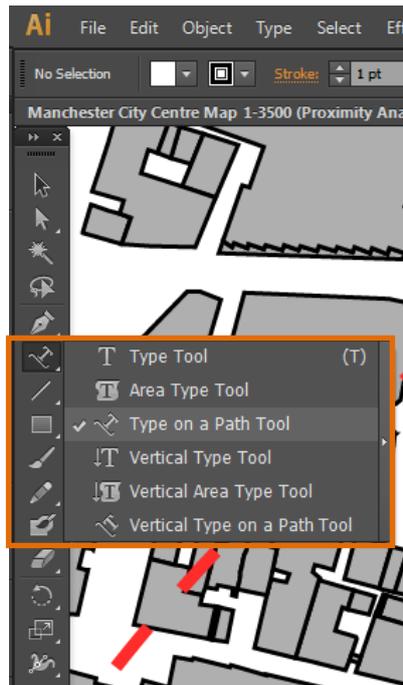
Undertaking Legibility Analysis:

Map G: Legibility Analysis (see Lynch 1960)



Districts

11. Use the **Pen Tool (P)** to identify the **Districts (Civic Centre, Historic Core, Market Place etc.)** Draw around the District boundaries using the **Pen Tool (P)**>Select **New Layer**>Select the **Fill** and **Stroke** Colour (**X**).
12. Add names using the **Text Tool (T)** (in particular see the **Type on a Path Tool**). The **Type on a Path Tool** will allow you to shape your text along the chosen path.



13. Select **Appearance** in **Panel Groups**>Click on **Fill** and/or **Stroke**>**Opacity**>You can now edit the Opacity of the Fill and Stroke of your selection.



Edges

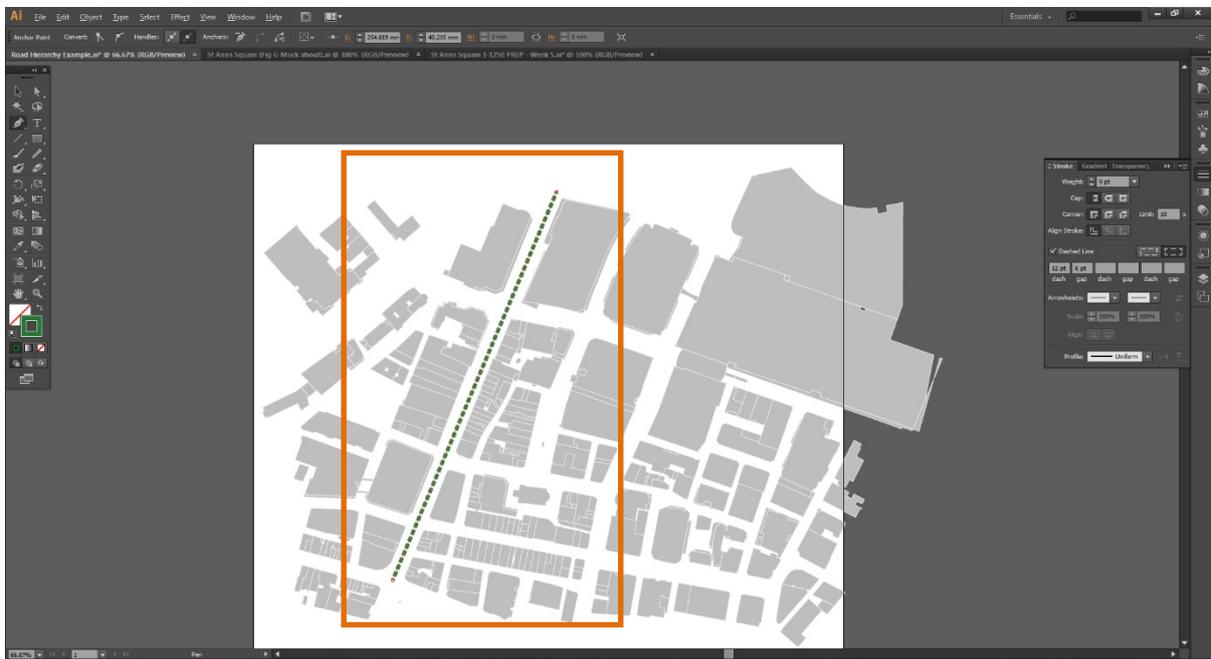
1. Select **Direct Selection Tool (A)**>Select the **base layer**>Whilst holding **Shift** click on what you have identified as an **Edge**>When you have finished selecting all of the objects

associated with that Edge>Click **Locate Object**>Scroll back up to the beginning of the base layer>Click **New Layer**>Drag the square from the base layer to the new layer to transfer the objects/paths (in exactly the same way as 5.3).

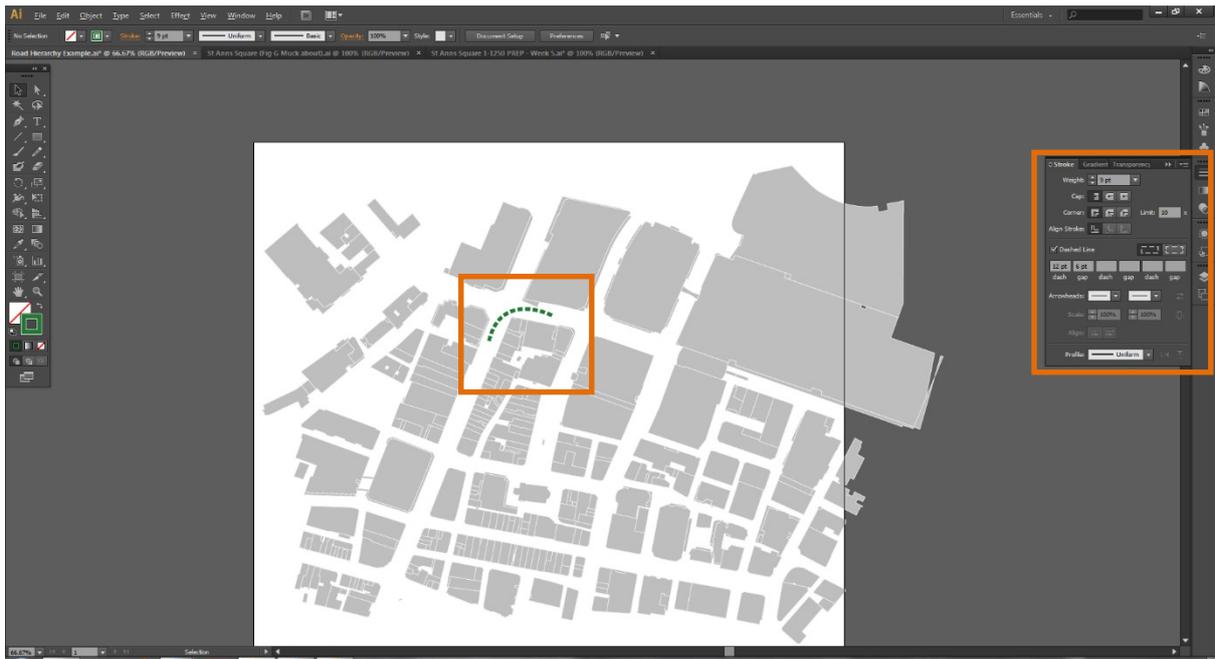
2. Select **Fill (X)** and choose a colour.
3. Again **Opacity** can be altered by selecting **Appearance** in **Panel Groups**.

Paths

1. There are two methods for drawing Paths in Ai 1) **Pen Tool (P)** 2) **Pencil Tool (N)**.
2. Select the **Pen Tool (P)**>Click a Start and End Point>Your Path will appear.

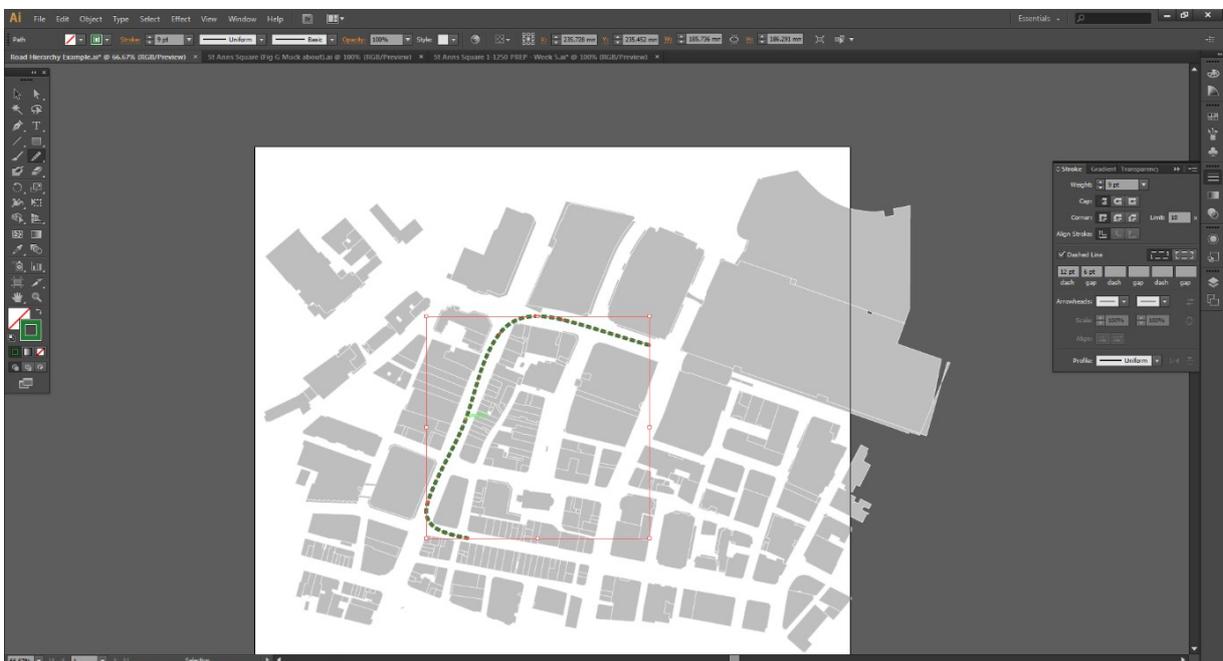


3. Alternatively you can create a **Curved Line**>Click a Start and End Point>**This time do not let go of click**>Drag your mouse>this will automatically create a curved line.

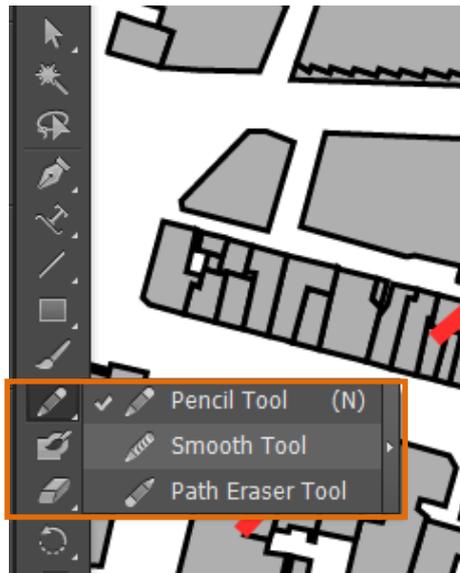


4. You can edit the **Weight etc.** of your path by selecting **Stroke** in **Panel Groups**. To create a **Dashed Line**>Click **Expand Options**>Now simply **Tick Dashed Line**.

5. Creating **Paths** and **Curved Paths** using **Pencil Tool (N)**. Select **Pencil Tool (N)**>simply draw to add paths.



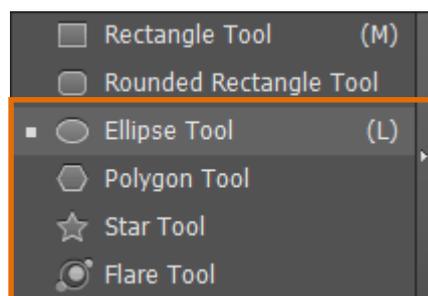
6. You can **edit** the **Path** when it is still selected>**Draw over it again**. OR you can select the **Smooth Tool** to refine the edges of the Path>**Draw** over the path **using the Smooth Tool**.



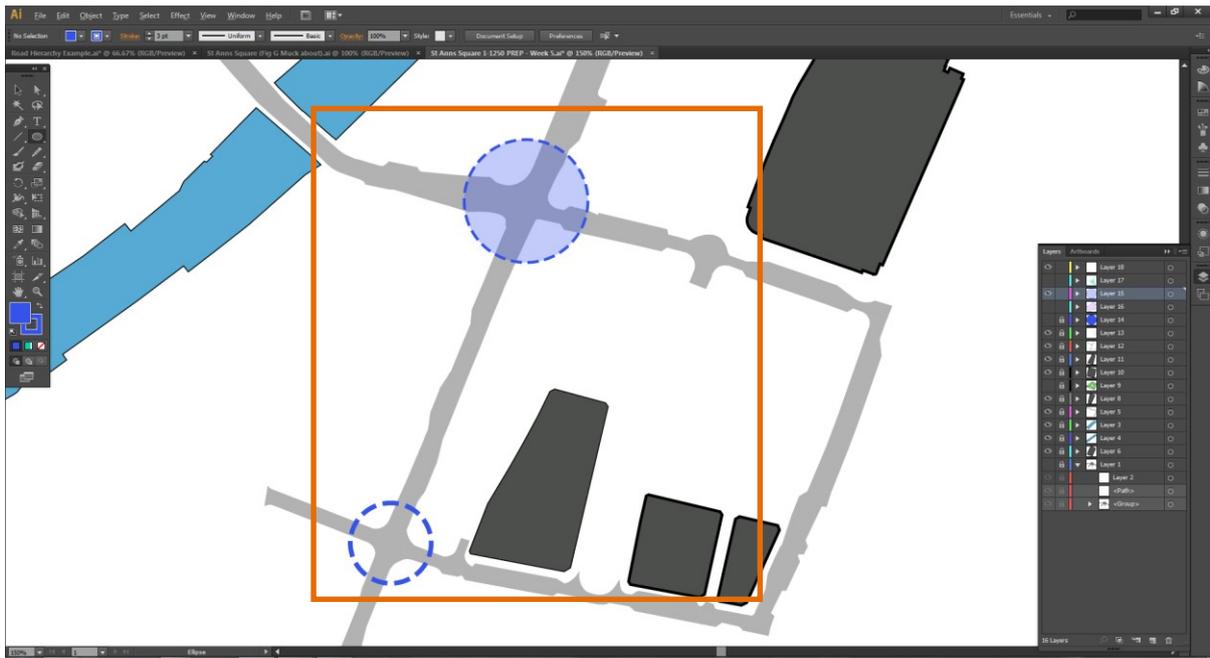
7. Play around with these Tools (changing the options etc.) to get used to them. **Paths** can also be created using **brushes**, see <http://helpx.adobe.com/illustrator/using/brushes.html> for information on creating new/using existing brushes.

Landmarks and Nodes

1. Identify important **Landmarks** and **Nodes** in and around your area; highlight them using different shapes and colours.
2. Select **Shape Tools (M)**>then simply select either the **Ellipse Tool (L)** or the **Star Tool**. Place the shape onto your map and size appropriately using **Selection Tool (V)**.



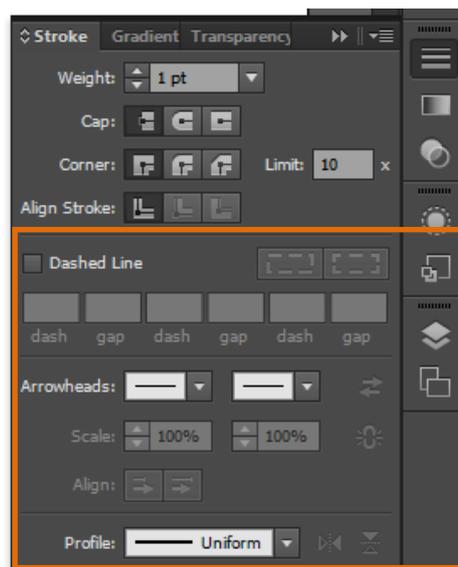
3. You can also create **Shapes** for your Analysis using the **Pen Tool (P)**.
4. Again you can **edit these Shapes** by **Selecting Stroke** or **Appearance** on **Panel Options**. Or Transform them via **Selection Tool (V)**.



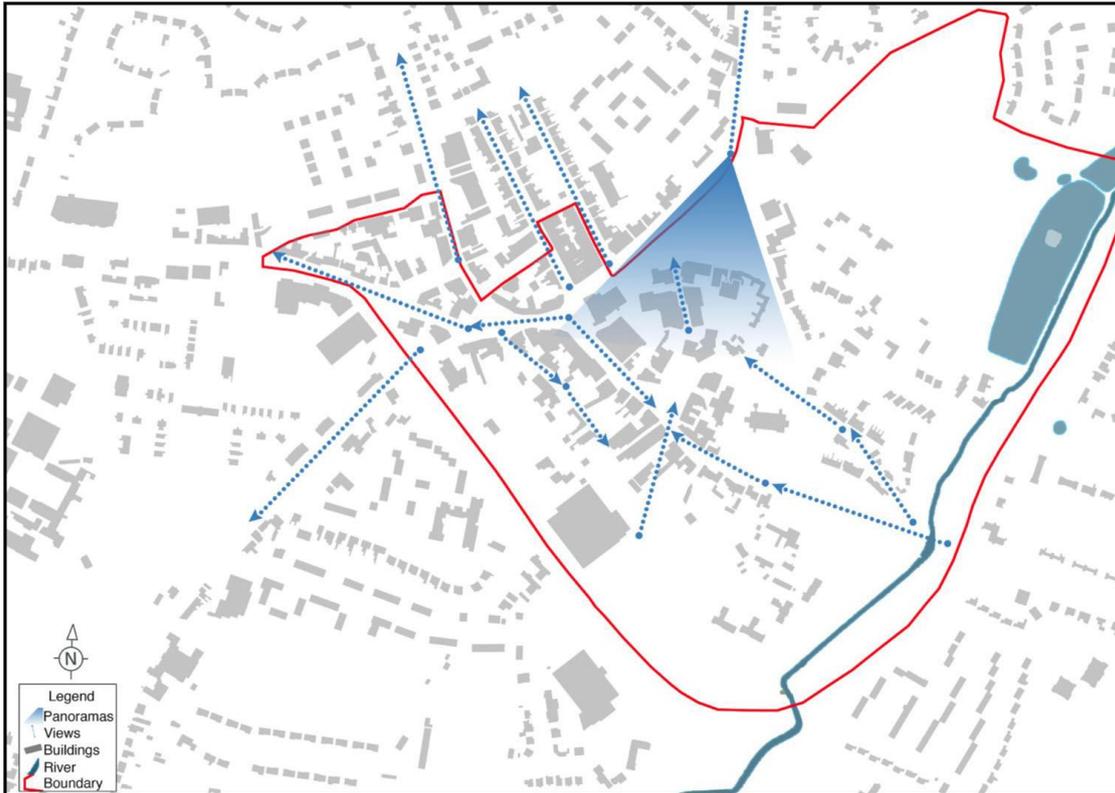
5. Play around with these Tools (changing the various Panel Options) to get used to them

Views and Vistas

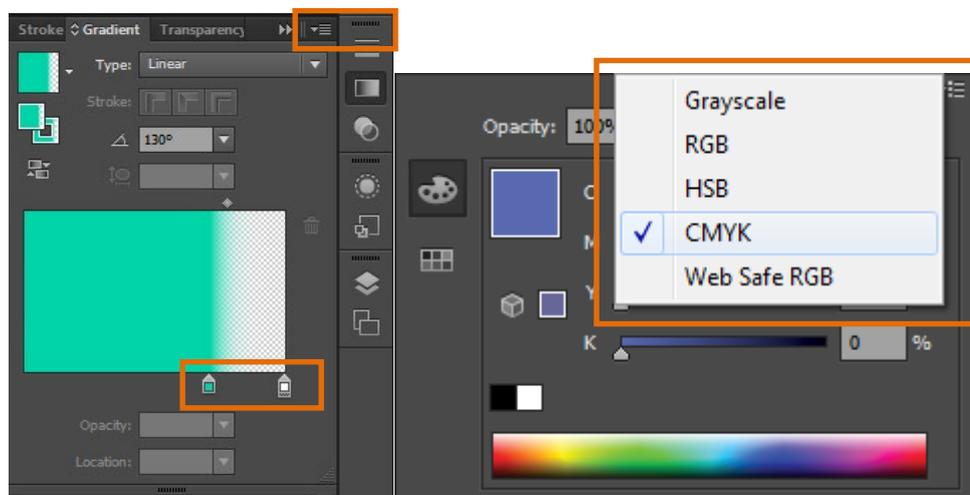
14. You can reuse the techniques above to also create Views and Vistas Maps.
15. Select the **Pen Tool (P)**>Click a start and end point to create a line>Select **Stroke** in **Panel Options**>Select **Dashed Line**>**Arrows Heads** (you can then scale and align these). Play around with these options.



Map H: Strategic Views and Vistas

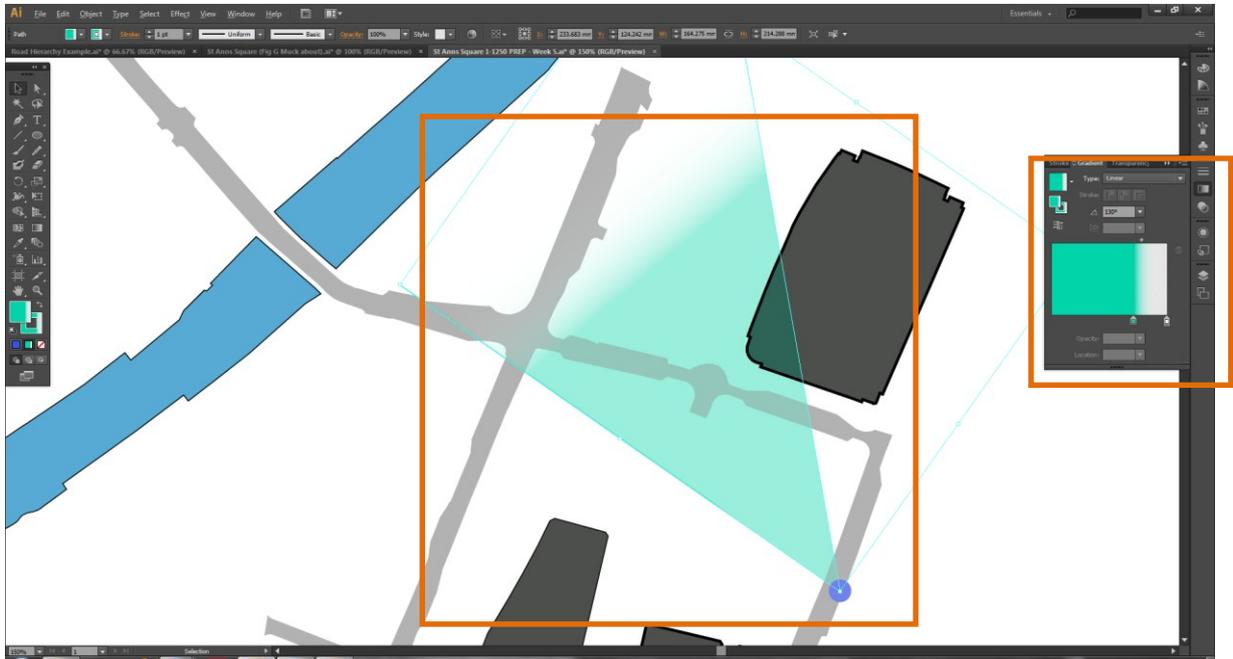


1. Select the **Blob Brush Tool (Shift+B)**>Click to add a **Dot** to indicate the beginning of the View Point.
2. You can also use **Gradient** to show **Vistas or Panoramas**>Select the **Pen Tool (P)**>Draw a **V** (or a triangle shape)>Select **Stroke** in **Panel Options**>Select **Gradient** to add a **Gradient**>then select **Show Options**.



3. Play around with the various Options here **Type / Angle / Gradient Slider** until you achieve your desired effect.

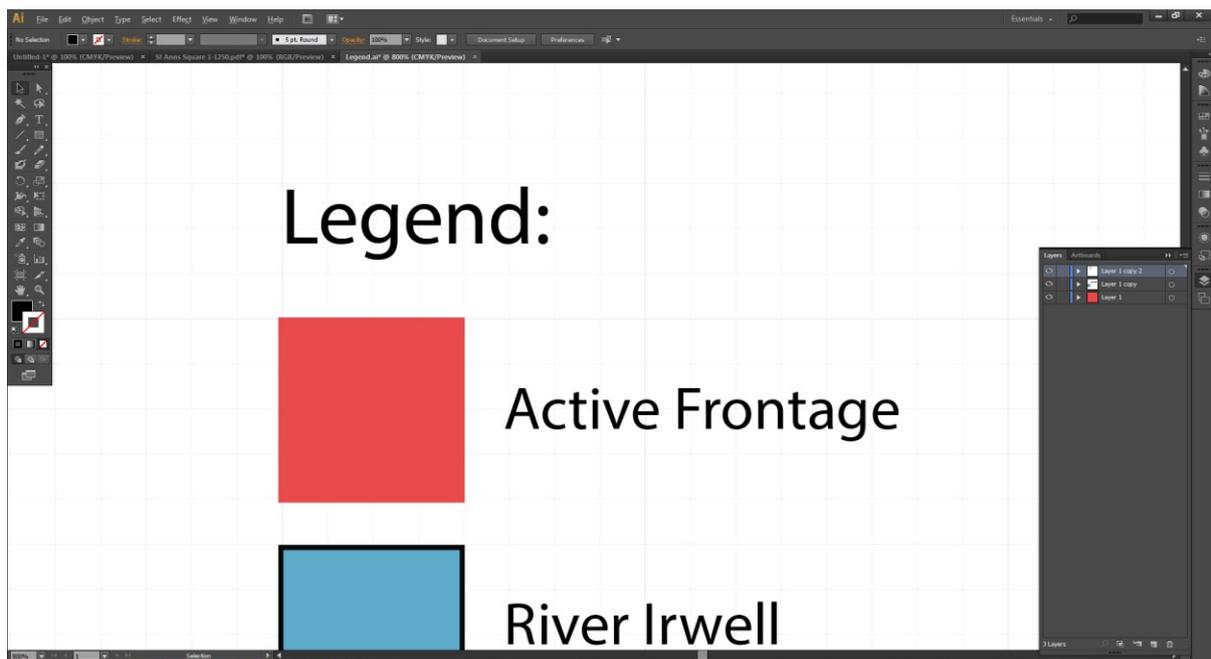
4. If your **Gradient** appears in **Greyscale**>double click on the **Gradient Slider**>click **Expand Options**>select **CMYK** (below).
5. You should end up with something which looks like this:



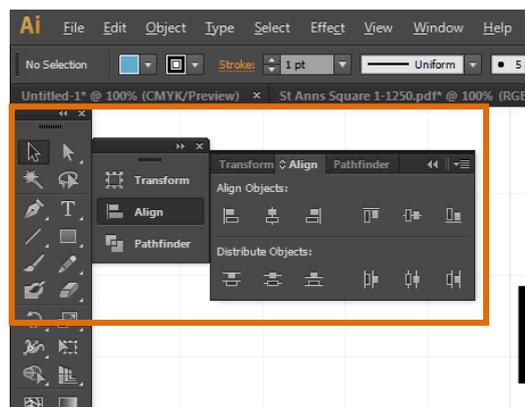
BUILDING LEGENDS IN AI

1. Legends are an extremely important map reading tool, especially for the marker.
2. However they are tedious and most of the time end up as a complete after thought, are too small or are badly laid out.
3. To build a **Legend in Ai** - Select **View>Show Grid** to display the grid.

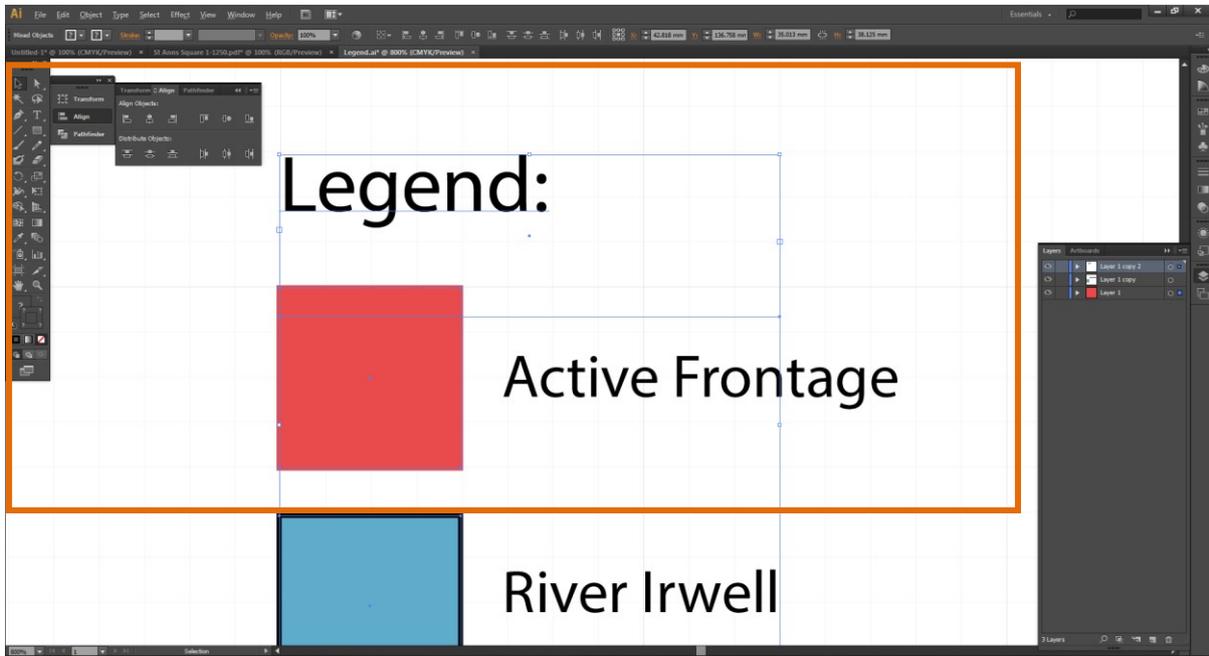
Grid



4. The grid will allow you to manage the **Aligning** and **Scaling** of **Shapes** and **Text** which are all part and parcel of creating a Legend. Ai will also assist you with this as a result of its **snap-to** and **intersect** functions.
5. Select **Window>Align**. This feature will allow you to Align all of the Objects which make up your Legend.



6. Select **(M)** for the **Rectangle Tool** (or whatever shape you wish to include)>Click **(X)** to select **Fill** and **Stroke**>Choose the required colours (remember if you wish to edit the Stroke or Appearance select **Stroke** or **Appearance** in **Panel Groups** (on the right hand side of your screen).
7. Select **(T)** for the **Type Tool**>Draw a **Textbox**>Enter **Your Text**.



8. **Repeat** this process until you have captured all of the features contained within your map> Click on the **Additional Options Tab** in the **Layers Panel** for **Duplicate Layer**.
9. Should you wish to **edit/amend** your **Shapes** or **Text** select **(V)** **Selection Tool**>Click on the object>you can resize **Shapes** by **dragging the Anchor Points** (hold **Shift**, this will ensure that when you transform the layer it will keep the correct shape). To resize **Text** simply change the value in the **Control Panel**.

NORTH ARROW AND SCALE BAR

10. These tools will allow you to effectively manage and create Legends, **but the N Arrow and Scale bar are down to you:**

Map I: Masterplan – Great Legend, Forgot Scale Bar – End Result Marked Down.

Legend Tips

11. Do not forget your **North Arrow** – which of course should be pointing North, not just straight up.
12. **Scale Bar** – when you put your Basemap into Ai from Digimap use the included scale bar (**NB** make sure that when you size your maps using **Ctrl T (Transform)** you remember to select your scale bar too, otherwise everything will be out of scale).
13. **Miss them out and you run the risk of being marked down!**

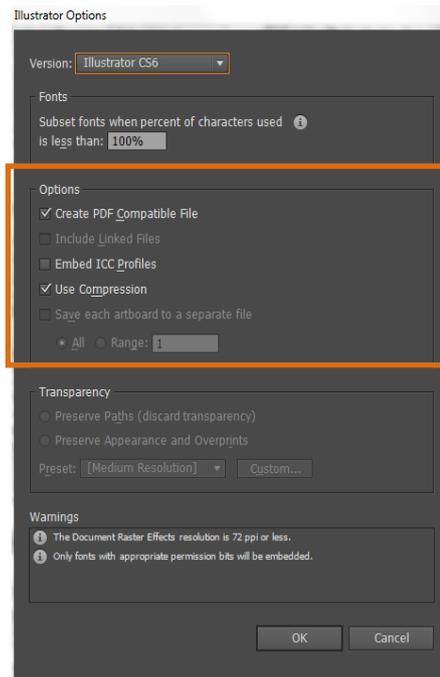
SAVING, EXPORT AND PRINTING IN AI

Saving

There are a number of available methods for saving your work in Illustrator. The two formats you should save in are – **AI** and **PDF**. I recommend you save your work in both formats (always keep one of each).

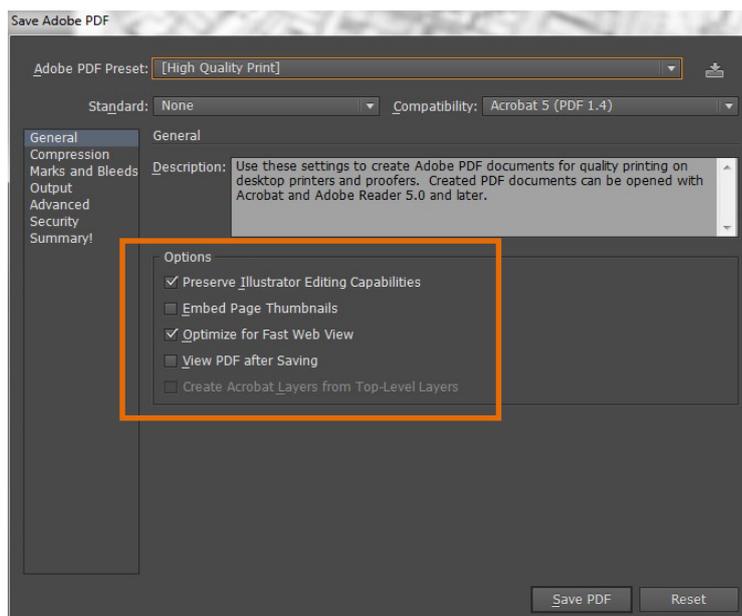
AI

1. Hit **Shift+Ctrl+S** – this will bring up the save window.
2. Select **Adobe Illustrator Ai**.
3. You will then be presented with the **Illustrator Options** window (make sure your **Options** are the same as below)

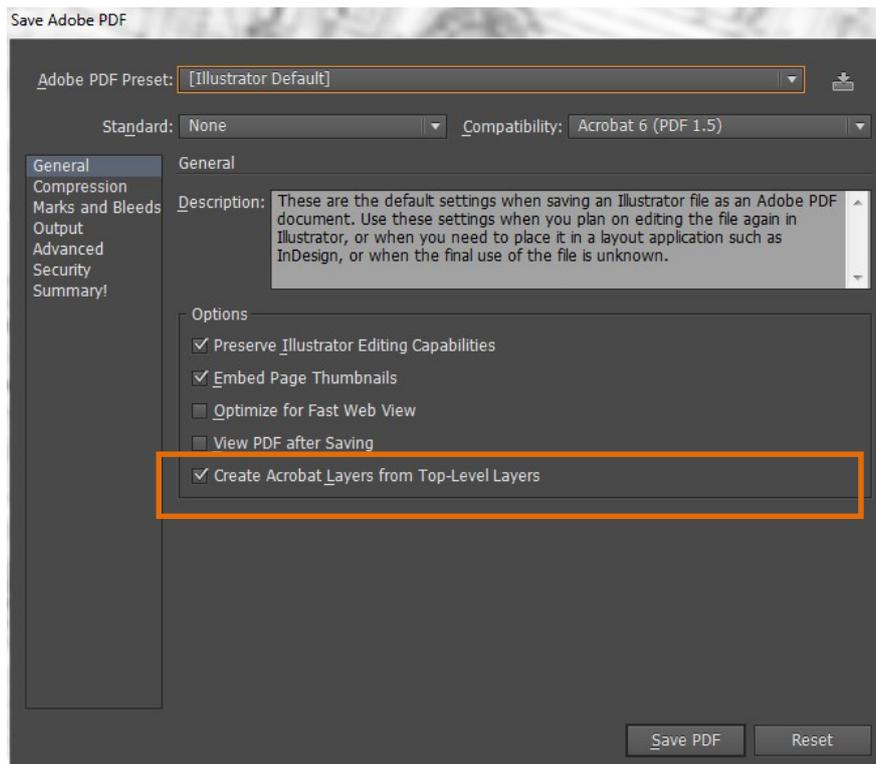


Adobe PDF

1. By saving as an Adobe PDF your file will automatically be compatible with other Adobe programmes such as Adobe Acrobat.
2. Hit **Shift+Ctrl+S** – this will bring up the save window.
3. Select **Adobe PDF**. You will be presented with the window overleaf:

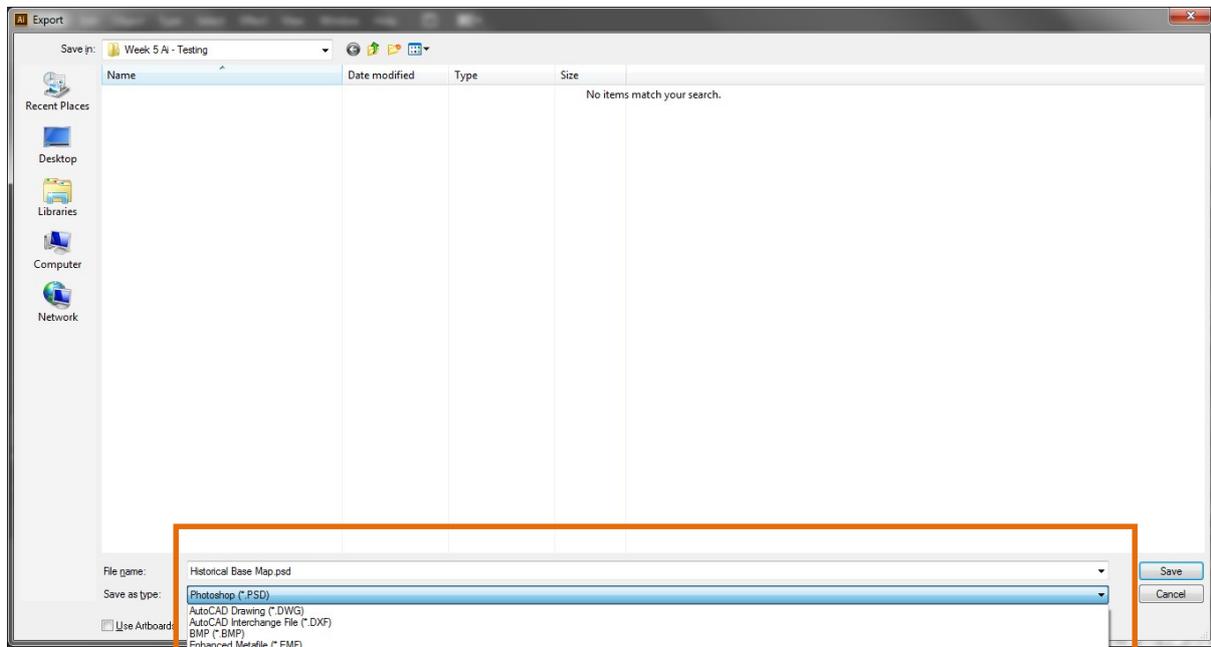


4. Select **High Quality Print** and tick **Preserve Illustrator Editing Capabilities** – if you **don't** you will lose all of your layers and end up with a **Flattened Artwork**.
5. You can also save as **Illustrator Default**. This save setting gives you the additional option to create an **Acrobat Layered** file (shown overleaf) (to learn more about Acrobat please see the Urban Design Toolkit Adobe InDesign and Acrobat Hand-out).



Export your work

4. You have to option to **Export** your Ai Artwork, click **File>Export**. There exist a number of possible **Export** formats – the three most relevant to you are **PSD, JPEG** and **DWG**.

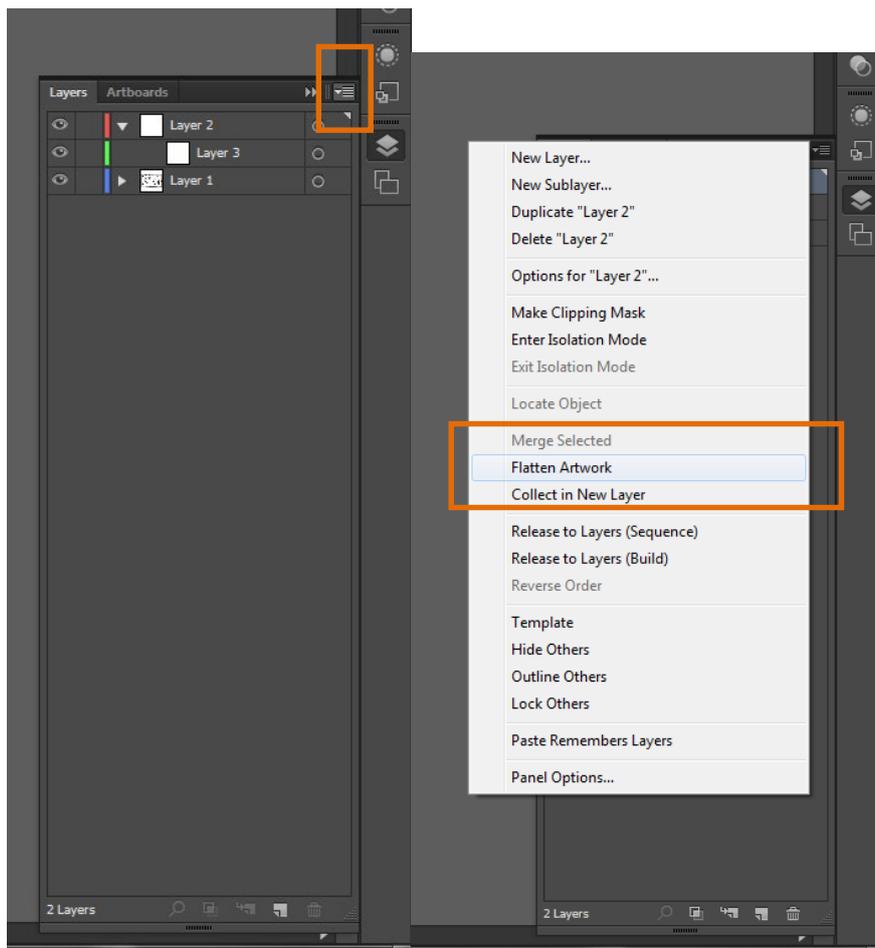


5. Exporting your Illustrator file to one of these formats will make it compatible with that software package (so in this example Photoshop, CAD or as an Image/Picture)

Printing

Save as a **Flattened Artwork** when you are ready to **print** (make sure to save this as a different version than the original). You should save your **Flat** version in one of two formats – **PDF** or **JPEG**.

6. To **Flatten** a file click on the **Expand Options Tab** within the **Layers Panel** then select **Flatten Artwork**.



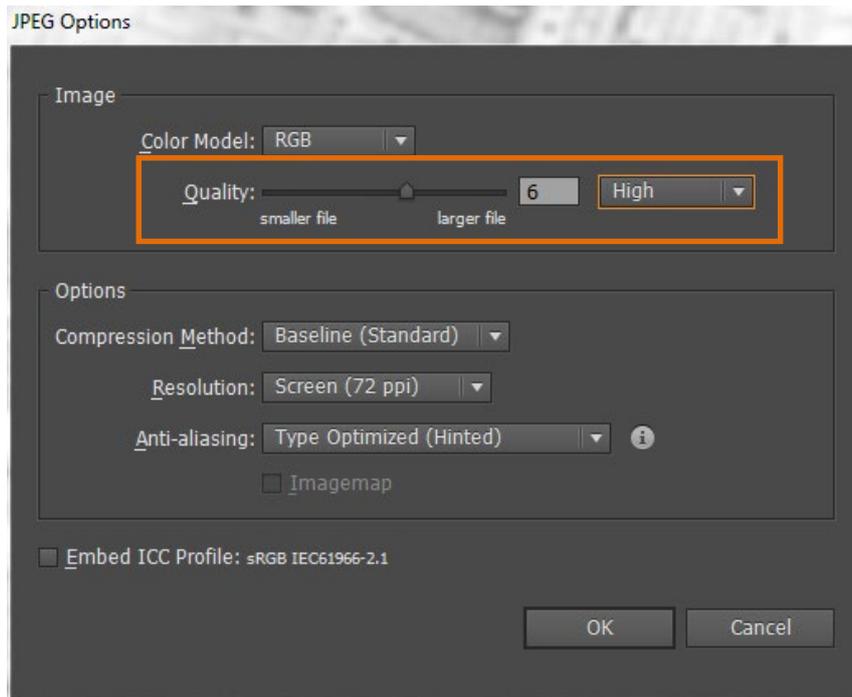
7. Once you have Flattened your work hit Save As **Shift+Ctrl+S**:

PDF

8. Follow the same steps as above except this time **do not tick Preserve Illustrator Editing Capabilities**.

JPEG

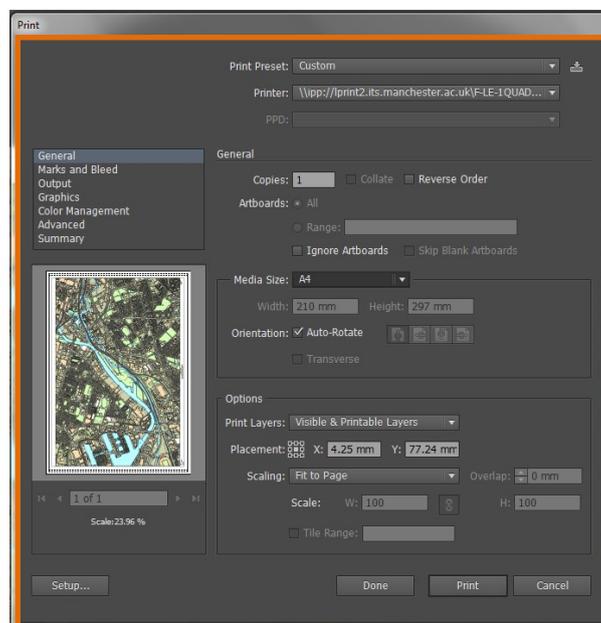
9. If you wish to save as a **Flattened JPEG** click **File>Export** and select **JPEG** (make sure to select **at least High** on the **Quality Option**).



10. Remember – you should only save as a **Flattened file** when you are ready to print.

11. **ALWAYS** keep a backup **Unmerged file** which contains all of your layers/paths.

12. To **Print** select **Ctrl+P**>choose the options shown below>click **Done**¹.



¹ Remember, by selecting **Fit to Page** you are changing the scale of the map. In this case the Map is 1:2500 at A2. It is therefore recommended to include 1:2500 @ A2 alongside your maps as this is the original scale.

FURTHER INFORMATION

Adobe Illustrator CS6 Tools / Options

1. Illustrator Help – Tool / Options

<http://helpx.adobe.com/illustrator/topics.html>

This is the official Adobe Ai Help webpage, it is an excellent resource for those who are new to Ai and it is one I would highly recommend.

You can also search in a bid to find an answer to specific Ai issues (various links from Adobe Support and Community Help will be displayed to assist you).

2. Official Adobe Ai Tutorials

<https://helpx.adobe.com/illustrator/tutorials.html>

Fantastic Official Adobe Ai resource. Highly Recommended. Ignore 'CC' this just means 'Creative Cloud' the latest version of the Adobe Creative Suite

3. Adobe Illustrator YouTube Channel

<https://www.youtube.com/user/AdobeIllustrator>

This is the Official Adobe Ai YouTube Channel - robust resource with video based guidance.

4. Adobe Illustrator Tutorials

<http://adobeillustratortutorials.com/>

Despite the dated look and feel of this webpage, the content will be helpful.