

WebGIS design

Comparing
ArcGIS Online,
Mango,
and Leaflet Javascript / HTML / CSS

By Nicolas Lopez, for GG5569



Access All Data

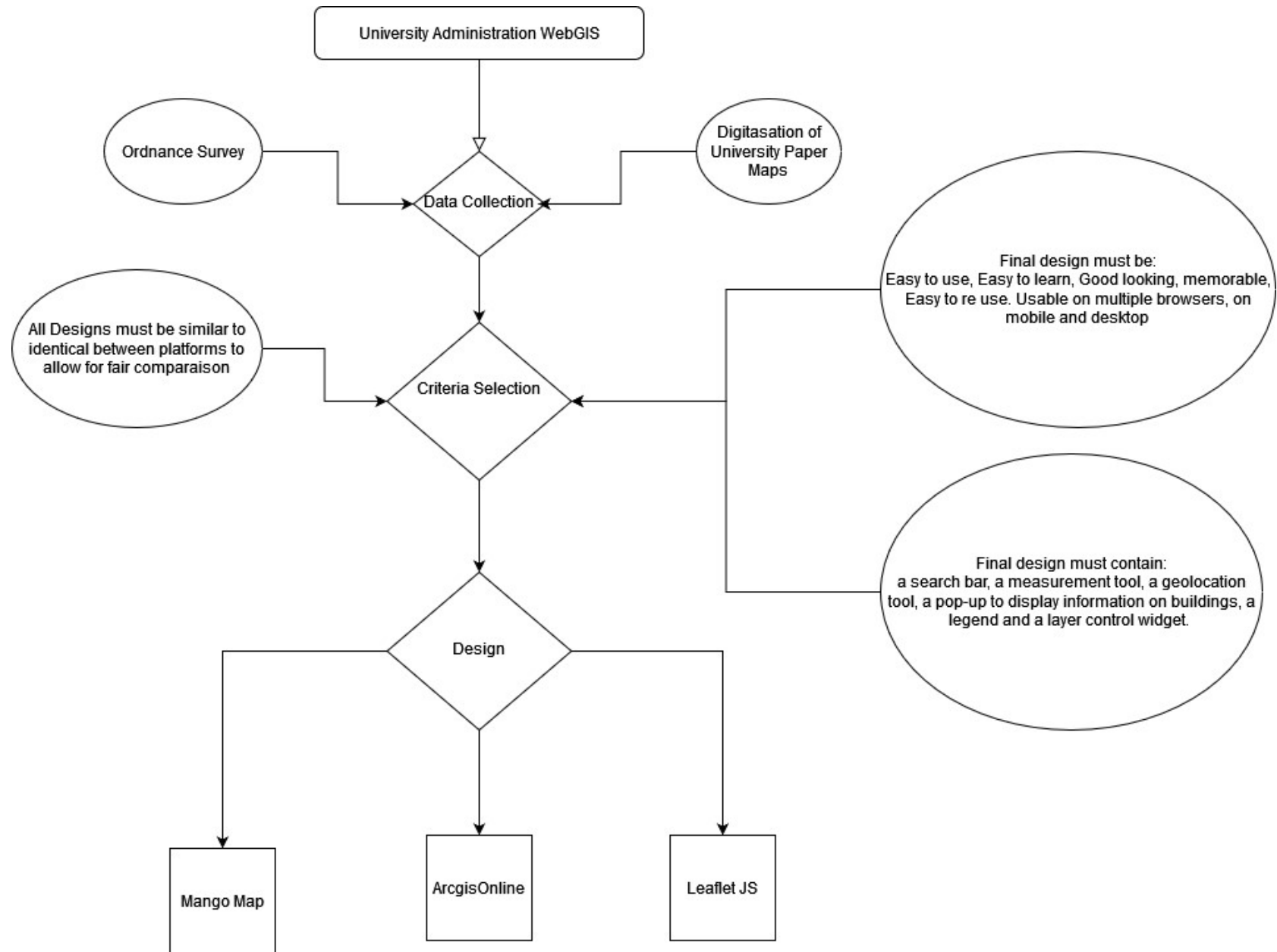
<https://nicolaslopez.me>



Click

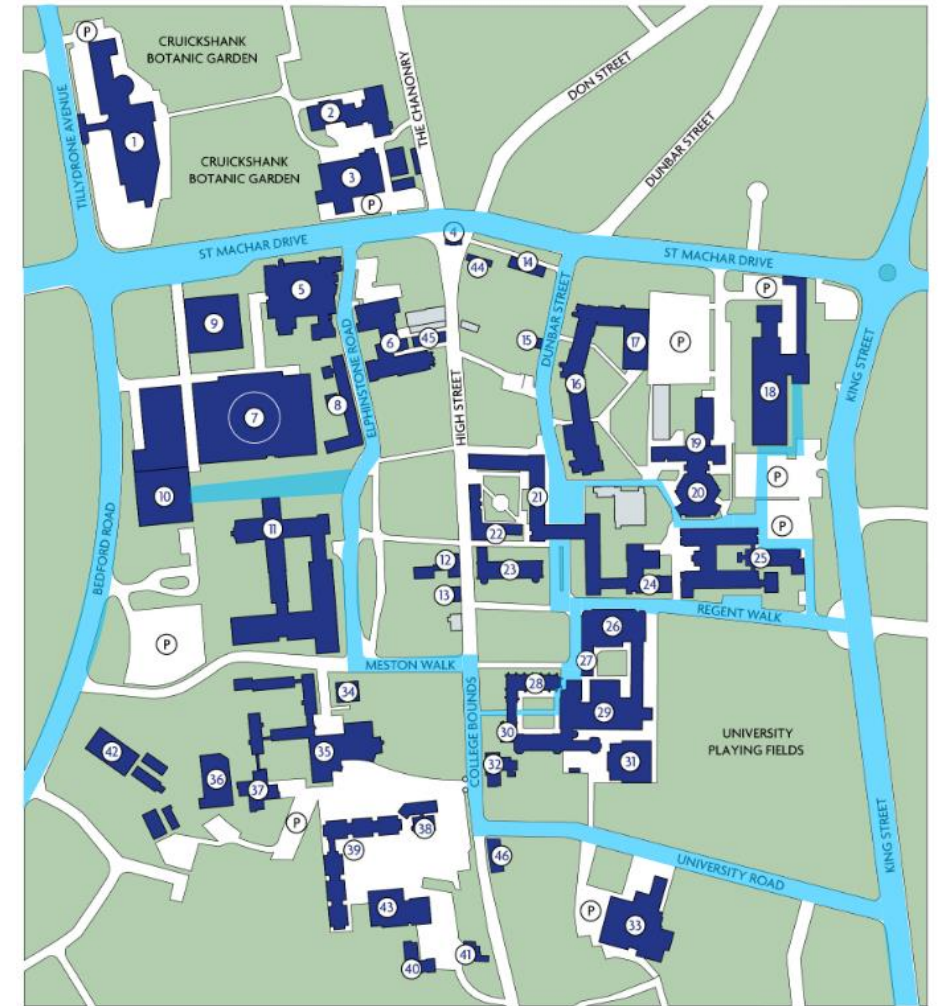
Plan

1. Data.
2. Design.
3. Comparison.
4. Discussion.
5. Conclusion.



Data: University administration

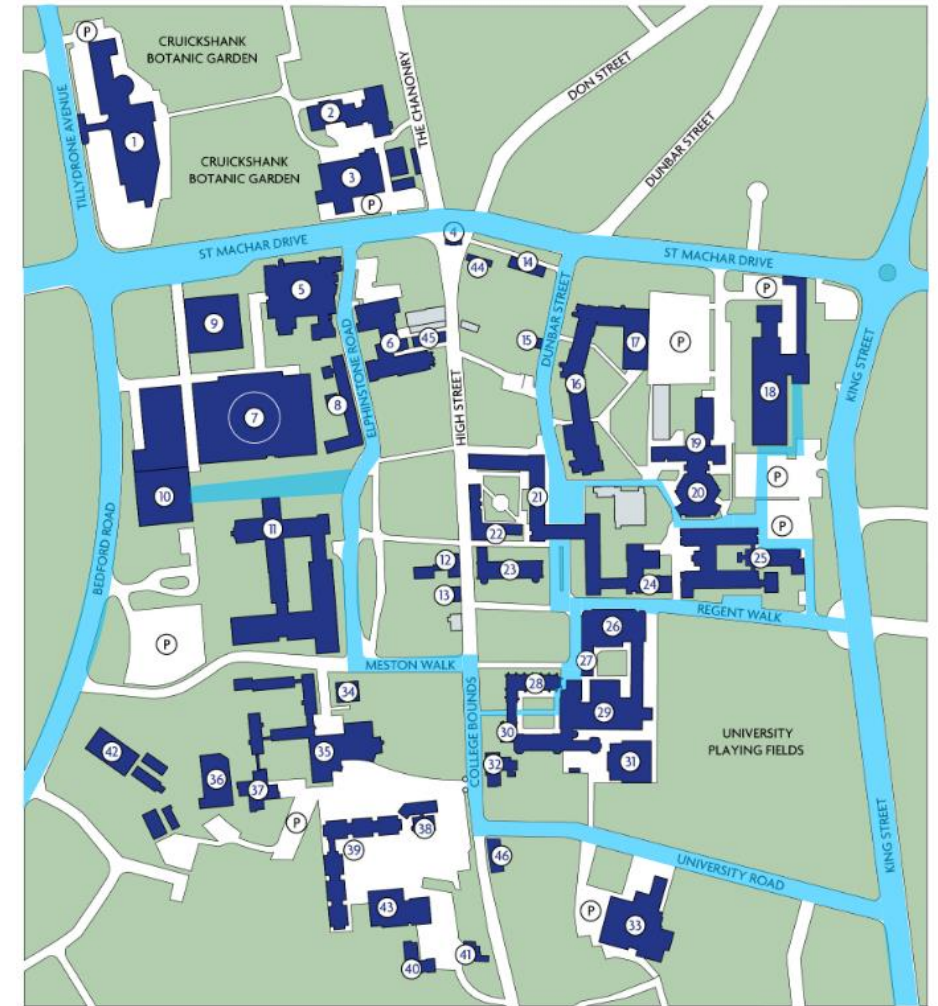
- Theme assigned: University Administration.
- The University of Aberdeen has no WebGIS application.
- Students and staff need to download outdated pdfs of maps for:
 - Building names and locations.
 - Notable sites.
 - School locations.
 - Accessibility!!!
- No data online on:
 - Library occupancy, although data collected and displayed on campus.



Campus map available to download at
<https://www.abdn.ac.uk/about/campus/maps/download.php>

Data: University administration

- Data collected:
 1. Accessibility:
 1. Roads and paths (OS Survey).
 2. Bike parking (OS Survey).
 3. Cycle lanes (OS Survey).
 4. Wheelchair accessible roads (digitised from map available at <https://www.abdn.ac.uk/about/campus/maps/download.php>)
 2. Administration:
 1. Buildings (digitised from map available at <https://www.abdn.ac.uk/about/campus/maps/download.php>):
 1. Notable sites within building.
 2. School location.
 2. Library Occupancy.
- Data was modified and unified within ArcGIS pro and was then exported as shapefiles and GeoJSONs.



Campus map available to download at <https://www.abdn.ac.uk/about/campus/maps/download.php>

Design

- Final design must be:
 - Easy to use,
 - Easy to learn,
 - Good looking,
 - Memorable,
 - Easy to re-use,
 - Usable on multiple browsers, on mobile and desktop.
- Final design must contain:
 - a search bar,
 - a measurement tool,
 - a geolocation tool,
 - a pop-up to display information on buildings,
 - a legend and a layer control widget.

ArcGIS Online <https://nicolaslopez.me/arcgis>

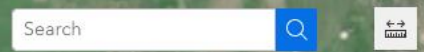




100 m
500 ft



Zoom tools
Home tool
Geolocation tool



Search tool and measure tool

Movable and Scrollable Legend

Legend and layer widget

Legend

Wheelchair accesible roads

Roads

Bike Parking

Pop-up for building information

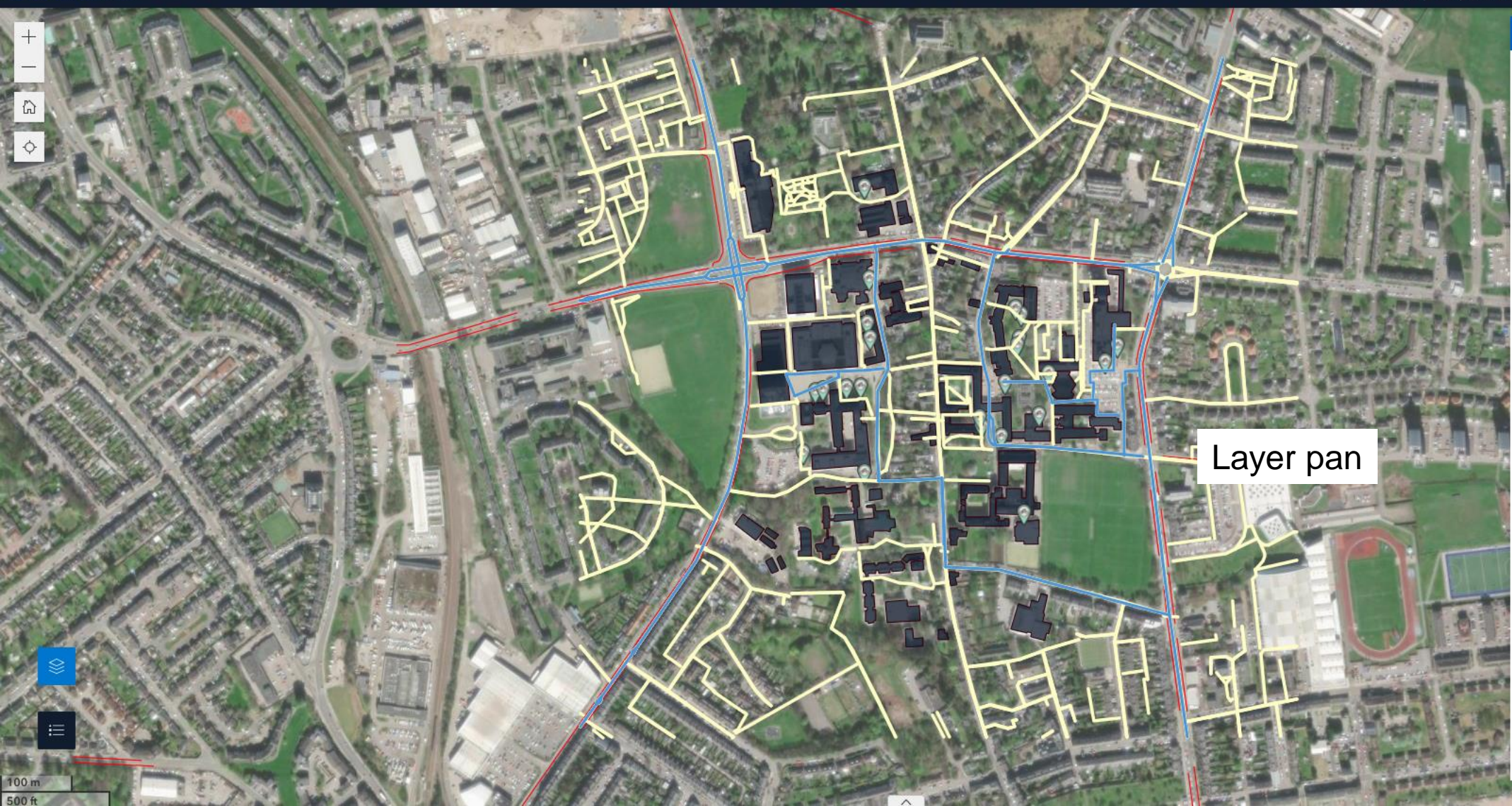
Taylor Building

Zoom to

It hosts Law; Language, Literature, Music and Visual Culture

It contains Food Story Cafe, Taylor Library

Fullscreen tool



Map Layers

- ☒ Wheelchair accessible roads
- ☒ Roads
- ☒ Bike Parking
- ☒ Buildings
- ☒ Bike Lanes

ArcGIS Online

<https://nicolaslopez.me/arccgis>



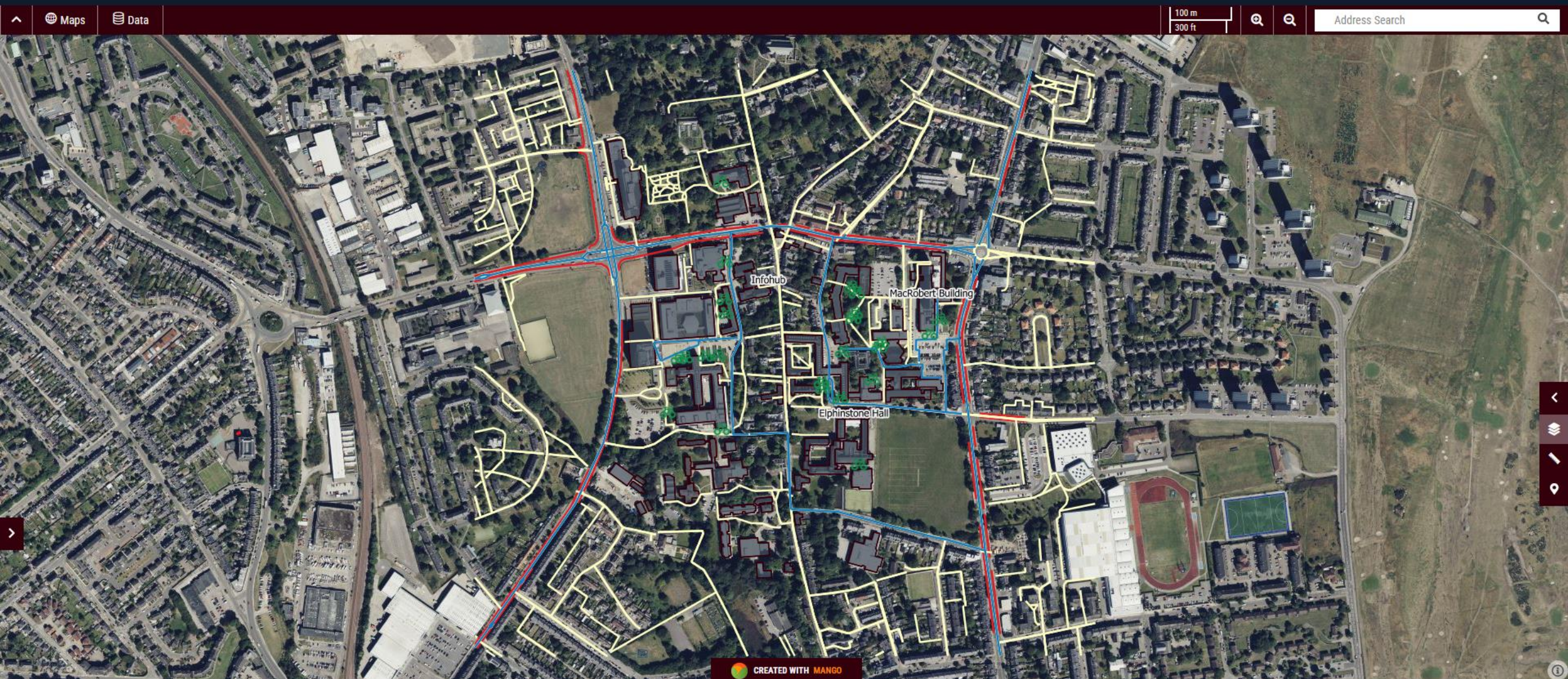
- Experience:
 - Creation:
 - Easy to use and design.
 - Interface user friendly.
 - Need subscriptions (here provided by university).
 - Large catalogue of data and basemaps.
 - Limiting in some design aspect, likely to keep the recognisable Esri icons and designs.
 - Using ArcGIS Experience, you must re-publish any change made.
 - Easy to design for mobile.
 - User:
 - Esri familiar interface.
 - Search tool has shown to not be the most efficient.
 - Easy to use.
 - Recognisable and easy to re-use.
 - Mobile friendly.

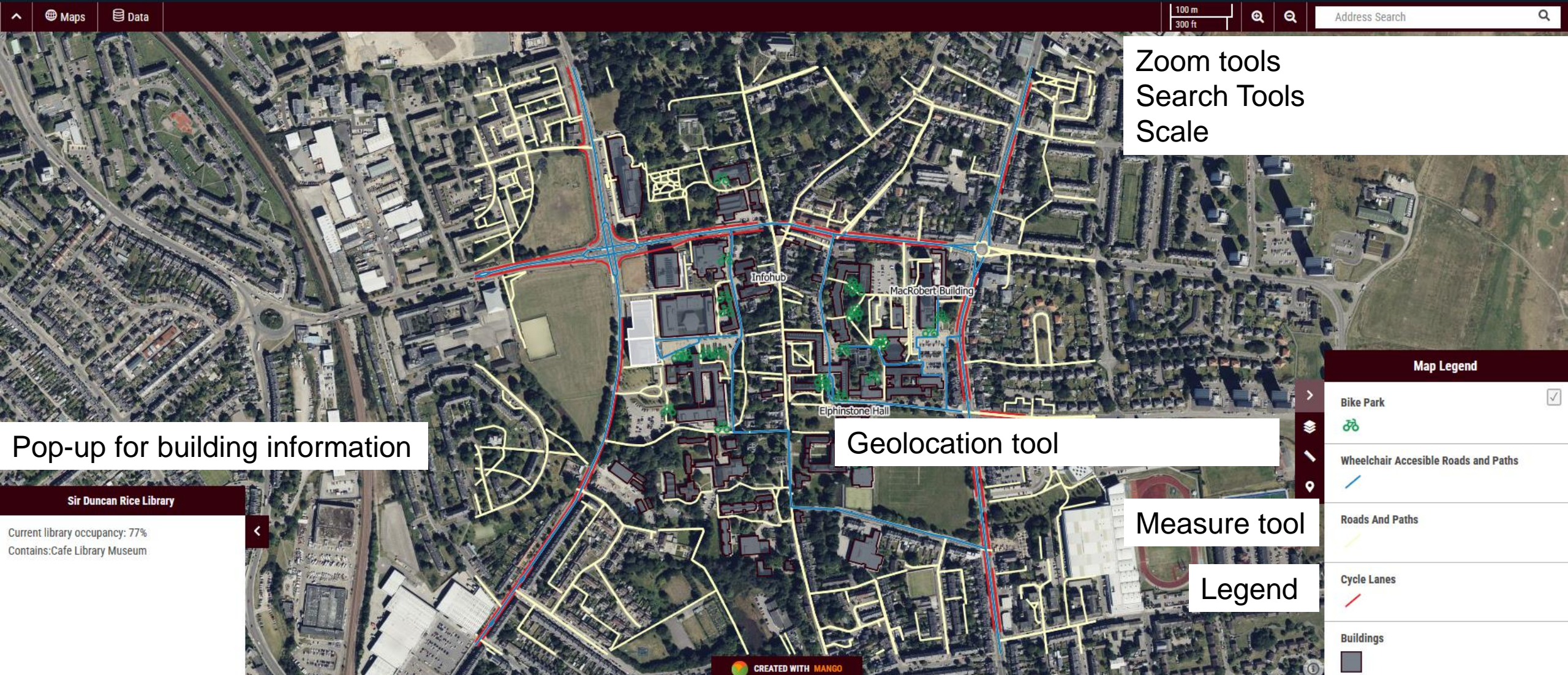
Mango Map <https://nicolaslopez.me/mango>



University of Aberdeen Administration Website

This is a Student project website, not an official website for the University of Aberdeen.
This website was made using Mango Map.





Mango Map

<https://nicolaslopez.me/mango>



- Experience:
 - Creation:
 - Use and design could be better, cannot edit the map directly, always edit through an editing panel.
 - Interface user friendly, sometimes slow.
 - Need subscriptions (here free trial).
 - Limited catalogue of basemap and unable to import a tile layer as a basemap.
 - Very limiting in some design aspect, cannot import icon, change the location of pop ups.
 - Changes are updated instantly.
 - Useful JavaScript options to add conditional pop-ups for example.
 - User:
 - Clear and easy to understand interface.
 - Very useful tool bar on top.
 - Feels very pre-made, not very organic.
 - Mobile friendly.

Leaflet JS <https://nicolaslopez.me/webgis>







Header

Zoom tools
Geolocation tool

Search tool and measure tool

Layer
Control

Hover Information tool

Legend

Hover Legend

Fullscreen tool



Hover Information tool once hovered

Help:

This application provides information for students and staff on the buildings, schools, facilities and the accessibility of the Old Aberdeen Campus. On the top left corner, you can find the zoom in and zoom out buttons, the geolocation button and the layer controls. On the top right corner, you can find the search bar. On the bottom left corner, you can find the map legend by hovering on it. On the bottom right corner, you can find the fullscreen button and the scale.



Leaflet

<https://nicolaslopez.me/webgis>



- Experience:
 - Creation:
 - Difficult to use and design, requires proficiency in html/CSS and JavaScript
 - Little to no-limit in design freedom, immense library of plug-ins.
 - Open source and regularly updated.
 - Design is skill dependant of creator.
 - Time-consuming.
 - Free
 - User:
 - Highly subjective as completely designed by me.
 - Simple but effective, easy to read.
 - Could improve on mobile friendliness, as layer toggles seem to have an animation bug on mobile.
 - Original.

Conclusion

- Although ArcGIS online confirms why it is a leader on the market, with easy-to-use products create a great user-friendly experience; Mango Map is a serious opponent, with an effective design, although limiting during creation, it is very effective on the user-end, where sometimes the Esri design can be inefficient (e.g. pop-ups). Leaflet JS as a JavaScript plug in to create from scratch a webGIS app stands out in the good and bad. Offering a complete freedom, of design in an inexpensive way. This method is difficult to learn, as it is dependent on coding, but also is likely to be more time- consuming.