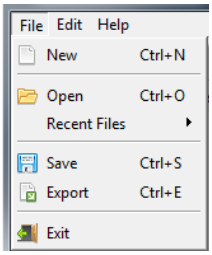
# URBAN CALCULATOR

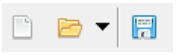
## Short HOW-TO 2025

# INSTRUCTIONS FOR URBAN CALCULATOR

**Urban Calculator currently only runs on Windows.**

## BASIC INTERFACE




- Start a New project. Use **New** button or command  (or Ctrl+N)
    - Choose **Non-Motorised** (or **Motorised**)
- Open existing file. Use **Open** button or command (or Ctrl+O)
- Save your project. Use **Save** button or command (or Ctrl+S). Saves as **.ucmap** for the Map window and as **.ucanalysis** for the Analysis windows.
- Zoom: Scroll Mouse wheel or Use **Zoom** button 
- Pan: Press Mouse wheel or Use **Pan** button 

## DRAW-EDIT

- Add Line: Use **Draw** button  (or D)
- **Link lines:** When you add a line a series of Unlink points are added (green circles) where the new line crosses existing lines. Use **Link** button  (or L) to remove the Unlinks and link lines. **Otherwise, the program will understand all new connections as bridges or tunnels**. As a rule of thumb, when the lines represent street segments that cross at a regular level intersection **Link** them. When the lines represent street segments that do not intersect but are in different levels (e.g. bridges, underpasses, tunnels, overpasses) leave them unlinked.
- Snap to Line/Points. Snapping is enabled by default. Use **Ctrl** to disable Snap.
- Delete line/s: First select with **Select** button  (or S), then **Delete** with Keyboard
- Move line: Use **Move** button 
- Move endpoint: Use **Move** button.  Hover over the endpoint and click to move.
- Move area: Box select area, then use Move button 

**ADD LAYERS** (if you want more information (e.g. water, green areas, buildings, attractions) to help you with you design) 

- Switch layers on and off. Use **Layers** button. You can select different layers (e.g. buildings, water, parks and green areas, local markets)

ADD BACKGROUND IMAGE (to help you tracing your project)

- click the icon on the Layers panel  or right-click on the Layers menu. After importing the image (.jpg), you can adjust its position and size using your mouse. You can remove the Background image using 

ADD STUDY AREA (to re-visualise centrality analysis results and see variations of centrality in a smaller area)

- show "study areas view"  from top menu bar (if it is not ON by default). You will get Study areas menu.
- Add study area by clicking  and give it a name. You will see a rectangle appearing on the map view – adjust its size accordingly to you area of interest.
- You can remove study areas  , add few more  , zoom to study area  or rename them  .
- If you have a study area of interest, you should always add it **BEFORE** you start running any kind of analysis.

ANALYSE

- Use **Analyze map**  button. Select analysis and scales. You can select more than one analyses at once.
- If you want some of the background layers to be visible in the analysis/export view, then they must be switched ON in a map view (normally it is building layer, water, motorized map/non-motorized background network and/or railways)
- Once the analysis is finished, you can change between three visualization themes – go to main menu bar -> Analysis -> Themes. Choose between Spectral, Blue-Grey or Red-Grey.

  TIP: *Spectral theme normally works best for all the accessibility and proximity analyses, density analysis and angular integration. For betweenness centrality, spectral may work best for zoomed-in areas, and Blue-Grey or Red-Grey for zoomed-out visualizations.*

- **Visualizing analysis of study areas**: When in the analysis view, in the study areas panel, you can switch between Full map view or study area view. In the full map view, the analysis is visualized for the full map. In the study area view, analysis is only visualized within the selected study area, and the rest of the map will turn grey. Since centrality analyses are visualized with relative ranges, while all other analyses in absolute ranges, the difference between full map view and study area view is only visible in the visualization of centrality analysis.

STREET INFO

- Use the **Street info**  button and click on an existing street to get more information. See its spatial properties in **'Info'** and its Built density profile on the Spacematrix graph in **'Built density'**

SELECT AND SYNC VIEW between analysis windows

- In the **'Edit'** drop down menu select the **Copy viewport parameters**  button to copy a view from one window.
- In the same menu select the **Apply viewport parameters**  button to paste the selected view to another window.
  Synching views between analysis windows helps when Exporting before-after analyses (see next).

EXPORT ANALYSIS to PDF

- Use **Export** button  (or Ctrl+E). Select where to save the pdf. You can choose more than one analyses to combine (max 3). Use this option when you want to export before-after analyses to compare or if you want to compare analyses in different scales or in different zooms (zoom in area, zoom out in the context or city). Select your before-after exports wisely to showcase the impacts of your design interventions best.
- You can also export full map view or study area view – make sure you selected the relevant option in the Study area menu before exporting.

EXPORT ANALYSIS RESULTS IN GIS FORMAT

- Use **Export** button (or Ctrl+E). Select **GeoJSN** format and choose where to save it. This format can be further opened in regular GIS software (QGIS or ArcGIS). Be aware that coordinate system should be corrected in QGIS after the export.