

Task 3: Preparing other urban data layers – Catchment Analyser

Description

This exercise introduces the Catchment Analyser tool to produce a single station or multiple stations metric catchment analysis (service area). This exercise requires the Public transport stations dataset and the OS Meridian2 road centre line dataset.

1) Prepare the project

- a) Make the public transport layer visible
- b) Make the OS Meridian2 road centre line visible
- c) Start the Catchment Analyser tool from the Space Syntax Toolkit menu or toolbar

2) Run the catchment analysis for individual origins and all

- a) The aim of this step is to run the catchment analysis for individual stations and for all stations combined (the minimum distance to any station)
- b) For the network layer, select the OS Meridian2 line layer
- c) For the origin layer, select the Public transport point layer
- d) Leave the custom origin names empty, or check and select 'name_of_st'
- e) For the cost bands, type the following distances: 400,800,1200,1600,2000
- f) Ensure the catchment network is ticked
- g) Click on the "..." button to save the catchment network output as a new shapefile.
- h) Ensure the catchment polygon is ticked
- i) Click on the "..." button to save the catchment polygon output as a new shapefile.
- j) If you leave these blank no files are created, only temporary layers that later need to be saved.
- k) Press run
- l) Two layers are created that show these network catchment bands and polygon bands

3) Run the catchment analysis for individual lines

- a) The aim of this step is to run the catchment analysis for individual underground (tube) lines rather than for individual stations
- b) For the network layer, select the OS Meridian2 line layer

- c) For the origin layer, select the Public transport point layer
- d) Click on the custom origin names
- e) Select "lines" in the custom origin name menu
- f) This will do the catchment for groups of stations based on the tube line.
- g) For the cost bands, type the following distances: 400,800,1200,1600,2000
- h) Ensure the catchment network is ticked
- i) Click on the "..." button to save the catchment network output as a new shapefile.
- j) Ensure the catchment polygon is ticked
- k) Click on the "..." button to save the catchment polygon output as a new shapefile.
- l) If you leave these blank no files are created, only temporary layers that later need to be saved.
- m) Press run
- n) Two layers are created that show these network catchment bands and polygon bands

4) Visualise catchment analysis along network

- a) To visualise the catchment analysis for individual stations, double click on the "catchment_network_meridian2" in the layers panel
 - i) Go to 'Style'
 - ii) Under columns, select the "station" you would like to visualise
 - iii) Click ok
 - iv) The map shows the catchment for the selected station as colour gradient.
- b) If you want to visualise the catchment analysis for all the stations, double click again on the "catchment_network_meridian2" under the layers panel
 - i) Go to 'Style'
 - ii) Under columns, select the "min_dist"
 - iii) Click ok
 - iv) The map now shows the catchment from all stations, with the value on each segment being the distance to the nearest station (minimum distance)
- c) If you want to visualise the catchment analysis for individual tube lines, double click again on the "catchment_network" from the line results (step 3) under the layers panel
 - i) Go to 'Style'
 - ii) Under columns, select the "line" you want to visualise (e.g. northern line)
 - iii) Click ok
 - iv) The map shows the catchment analysis from the stations on the specific tube line

5) Visualise catchment analysis polygons

- a) The catchment polygons are not styled and all overlap. To view polygons from specific stations we must filter the layer.
- b) Right click the layer "catchment_areas_meridian2"
- c) Select the 'Filter...' tool
- d) Select the "origin" field in the "Fields" box
- e) To see available Values click the Sample or the All button
- f) Add the 'origin' Field to the Filter expression box at the bottom, by clicking or typing "origin"
- g) Type "=" or use the operator button
- h) Type the station name or double click the name in the Values box
- i) Click OK
- j) The map now shows the polygons from the selected station
- k) Filter for more than one station using the expression: "origin" IN ('station1','station2')
- l) Filter for specific distances adding the distance condition: AND "distance" < 1200