

Helsinki Region Travel Time Matrix 2013

DESCRIPTION

The data consists of travel time and distance information of the routes in Helsinki Metropolitan Region that have been calculated from all SYKE YKR grid cells (n = 13231) to all YKR grid cells (n = 13231) by walking, public transportation and car.

Data has been produced by the MetropAccess Project at the Department of Geosciences and Geography, the University of Helsinki (2010-2016). The work has been funded by the KatuMetro research programme and the University of Helsinki.

The data may be used freely. See licensing and citation information at the bottom of this page. We do not take any responsibility for any mistakes, errors or other deficiencies in the data.

DOWNLOAD THE DATA

The data have been divided into 13231 text files according to destinations of the routes. The datafiles have been organized into subfolders that contain multiple (approx. 4-150) Travel Time Matrix result files. Individual folders consist of all the Travel Time Matrices that have same first four digits in their filename (e.g. 5785xxx).

In order to visualize the data on a map, the result tables can be joined with the YKR-grid shapefile. The data can be joined by using the field 'from_id' in the text files and the field 'YKR_ID' in MetropAccess-YKR-grid shapefile as a common key.

Download all the result files in a single zip-package from this link:

[HelsinkiRegion_TravelTimeMatrix2013.zip](#)

Download the grid shapefile from this link:

[MetropAccess_YKR_grid.zip](#)

If you are only interested in specific destinations, you can check the approximate locations of the YKR_ID-numbers, and the name of the associated data folder from [this map](#).

Note! The column names of the dataset have been modified in December 2015. The original dataset ("MetropAccess-Travel Time Matrix") with old column names is available [here](#).

DATA STRUCTURE

The data have been divided into 13230 text files according to destinations of the routes. One file includes the routes from all YKR grid cells to a particular destination grid cell. All files have been named according to the destination grid cell code and each file includes 13230 rows.

NODATA values are described with value -1.

Each file consists of 9 attribute fields: 1) from_id, 2) to_id, 3) walk_t, 4) walk_d, 5) pt_m_tt, 6) pt_m_t, 7) pt_m_d, 8) car_m_t, 9) car_m_d. The fields are separated by semicolon in the result files.

Abbreviations in the field names:

pt = public transport

car = private car

walk = walking

m= midday

t = time

tt = total time

d = distance

Note! [Helsinki Region Travel Time Matrix 2015](#) has in addition the following columns for rush hour results: pt_r_tt, pt_r_t, pt_r_d, car_r_t, ja car_r_d (r=rush hour). This information is not available for the 2013 data.

All fields in the Helsinki Region Travel Time Matrix 2013 are explained below:

from_id:	ID number of the origin grid cell
to_id:	ID number of the destination grid cell
walk_t:	Travel time from origin to destination by walking
walk_d:	Distance in meters of the walking route
pt_m_tt:	Travel time from origin to destination by public transportation; whole travel chain has been taken into account including the waiting time at home
pt_m_t:	Travel time from origin to destination by public transportation; whole travel chain has been taken into account excluding the waiting time at home
pt_m_d:	Distance in meters of the public transportation route
car_m_t:	Travel time from origin to destination by private car; the whole travel chain has been taken into account
car_m_d:	Distance in meters of the private car route

METHODS

The routes by car have been calculated in ArcGIS 10.1 software by using the OD Cost Matrix tool in Network Analyst toolkit (see [MetropAccess-Digiroad tool](#) for more details). [MetropAccess-Digiroad data](#) (modified from the original Digiroad data provided by Finnish Transport Agency) has been used as Network Dataset in which the travel times of the road segments are made more realistic by adding crossroad impedances for different road classes. The “noon impedance” (i.e. travel times outside rush hour) has been used as impedance in the calculations.

The whole travel chain (“door-to-door approach”) is taken into account in the calculations: 1) walking time from the real origin to the nearest network location based on Euclidean distance), 2) average walking time from the origin to the parking lot, 3) travel time from parking lot to destination, 4) average time for searching a parking lot, 5) walking time from parking lot to nearest network location of the destination and 6) walking time from network location to the real destination (based on Euclidean distance).

The routes by public transport have been calculated by using the [MetropAccess-Reititin](#) tool which also takes into account the whole travel chains from the origin to the destination:

e.g. 1) possible waiting at home before leaving, 2) walking from home to the transit stop, 3) waiting at the transit stop, 4) travel time to next transit stop, 5) transport mode change, 6) travel time to next transit stop and 7) walking to the destination. Schedules on Friday 8.4.2013 at 12 am were used in the calculations.

The routes by walking were also calculated using the [MetropAccess-Reititin](#) by disabling all motorized transport modes in the calculation. Thus, all routes are based on the Open Street Map geometry. The walking speed has been adjusted to 70 meters per minute, which is the default speed in the HSL Journey Planner (also in the calculations by public transportation).

CITATION PRACTICES

If you use Helsinki Region-Travel Time Matrix 2015 dataset or related tools in your work, we encourage you to cite properly to our work.

Data/Tools description:

Toivonen, T., M. Salonen, H. Tenkanen, P. Saarsalmi, T. Jaakkola & J. Järvi (2014). Joukkoliikenteellä, autolla ja kävellen: [Avoin saavutettavuusaineisto pääkaupunkiseudulla](#). Terra 126: 3, 127-136.

DOI name for the dataset:

Toivonen, T., M. Salonen, H. Tenkanen, P. Saarsalmi, T. Jaakkola & J. Järvi (2014). Helsinki Region Travel Time Matrix 2014. DOI: 10.13140/RG.2.1.2159.3683

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If the datasets are being used extensively in scientific research, we welcome the opportunity for co-authorship of papers. Please contact project leader to discuss about the matter.