

Although the standard OSM basemap is free to use, an API key is required for any of the following: Cycle Map, TF Landscape, TF Outdoors, TF Transport Dark, Transportation, Veloroad.

ORS Tools provides access to the openrouteservice.org service, a sister project of OpenStreetMap in the field of routing and traffic. The plugin adds tools for building routes and isochrones to QGIS. The tool set includes routing, isochrones and matrix calculations, either interactive in the map canvas or from point files within the processing framework. Extensive attributes are set for output files, incl. duration, length and start/end locations.

You can build the shortest route for multiple locations, calculate travel times and see alternative travel options. You can work with routes for cars, bicycles, pedestrians. ORS Tools also takes into account data on elevation changes and has additional presets for calculating routes in the mountains.

Another useful plugin for route optimization is this TravelTime Plugin in QGIS. The TravelTime QGIS plugin is a powerful tool that allows you to create isochrone maps to analyze where you can travel within a time limit. You can use this within your geospatial analysis to determine where to locate new facilities, for urban transport planning and much more. This plugin adds a toolbar and processing algorithms allowing to query the TravelTime platform API directly from QGIS. The TravelTime platform API allows to obtain polygons based on actual travel time using several transport modes rather, allowing for much more accurate results than simple distance calculations.

Conclusions: The results of the study allow us to conclude on the effectiveness of the application of geographic information systems technology to solve the problems of interactive spatial modeling of optimal routes based on vector spatial network models. The optimization of routes of transport networks can have a positive impact on the situation both locally and regionally and globally. The most important plug-ins can be successfully used for operational planning and optimization of technological transport routes in order to improve the environmental and economic performance of enterprises in the field of production, trade, utilities, etc. The reviewed plug-ins with the help of GIS-packages allow to be significantly more accurate models, more operatively update and navigate with maps that are updated in real time.

References

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