

The key of presented diploma thesis is to find a way to take shape of roads into account when performing network analysis. Methods of mathematical representation of shape of lines are discussed; the curvature is chose for later use. Then the relation between road's curvature and speed is discussed – the model for setting the speed is suggested. Important part of the thesis is focused on implementation in GIS. Designed model is implemented by Python in the ArcGIS for Desktop. Due to testing on specific examples, it was confirmed, that the taking the shape characteristics into account provides high précising of network analysis.