Web route planning applications have become common tools for cyclists. Although there is a relatively large number of such applications, they do not give a user enough options to choose a route according to his or her own preferences. Therefore, the aim of this thesis is to find a way to use known routing algorithms to create more individualized routes. To maintain the demands on the speed of route search, it is advisable to use heuristic algorithms that preprocess a routing graph. Furthermore, it is necessary to preprocess the routing graph for each combination of preferences in order to quickly find an optimal route with respect to entered preferences. As a proof of concept, a web application was created that uses one of the suitable heuristic algorithms (Contraction Hierarchies) to find optimal routes. The application also provides an interactive map editor and map search. The evaluation of the application showed that the proposed concept is functional, i.e., it is possible to find the required route according to the specified preferences in an acceptable time frame.