This paper contributes to the body of literature on the built environment and non-motorized travel behaviors by examining the role of land use in cyclist route choice. Using data from a sample of cyclists in Montréal, Québec, Canada who responded to a web-based survey, the routes for those who were traveling for work or school purposes and used cycling facilities were examined and these actual taken routes were compared with the corresponding shortest-path routes with respect to the adjacent land use. By using a variety of geospatial analysis tools, different methods to quantify land use, including area- and count-based measures, were examined. A series of statistical tests and models revealed that commuter cyclists prefer to ride through areas that are generally less busy and have lower potentials for conflicts. This includes routes that have adjacent residential as well as resource and industry uses and paths that are near water.