About BikeDNA

This report was automatically generated by BikeDNA (Bicycle Data & Network Assessment) by converting Jupyter notebooks into pdf. BikeDNA is a tool for assessing the quality of OpenStreetMap (OSM) and other bicycle infrastructure data sets in a reproducible way. It provides planners, researchers, data maintainers, cycling advocates, and others who work with bicycle networks a detailed, informed overview of data quality in a given area.

BikeDNA is maintained at https://github.com/anerv/BikeDNA by Ane Rahbek Vierø, Anastassia Vybornova, and Michael Szell. It is available under the AGPL 3.0 license.

A fair amount of research projects on OpenStreetMap and other forms of volunteered geographic information (VGI) have already been conducted, but few focus explicitly on bicycle infrastructure. Doing so is important because paths and tracks for cyclists and pedestrians often are mapped last and are more likely to have errors (Barron et al., 2014, Neis et al. 2012). Moreover, the spatial distribution of dips in data quality in crowdsourced data are often not random but correlate with population density and other characteristics of the mapped area (Forghani and Delavar, 2014), which requires a critical stance towards the data we use for our research and planning, despite the overall high quality of OSM.

Data quality covers a wide range of aspects. The conceptualization of data quality used here refers to *fitness-for-purpose* (Barron et al., 2014) - this means that data quality is interpreted as whether or not the data fulfils the user needs, rather than any universal definition of quality. To particularly support network-based research and planning, BikeDNA provides insights into the topological structure of the bicycle network apart from data coverage.

The purpose is not to give any final assessment of the data quality, but to highlight aspects that might be relevant for assessing whether the data for a given area is fit for use. While BikeDNA can make use of a reference dataset to compare with OSM, if one is available, BikeDNA cannot give any final assessment of the quality of a refernece data compared to OSM. However, OSM data on bicycle infrastructure is often at a comparable or higher quality than governmental datasets, and the interpretation of differences between the two requires adequate local knowledge.