Built Environment and Active Transport to School (BEATS) Rural Study Data in Annotated Maps

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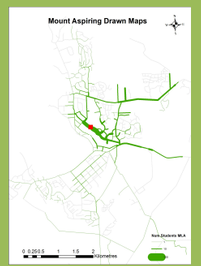
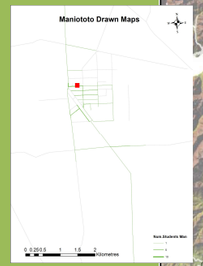
Introduction

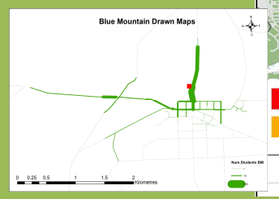
Active transport to school (ATS) is walking or using bikes to travel to school, reducing reliance on energy-consuming motorised transport. The Built Environment and Active Transport to School (BEATS) Study seeks to understand this phenomenon, its geographic and social aspects amongst other factors. Influences of the local built and natural environment in these school commuting decisions is particularly important. This has been the focus of spatial analysis and visualisation research within BEATS. Having previously studied these aspects for the 12 Dunedin city schools, we now turn our attention to 11 out of the 15 rural Otago schools, fundamentally different in built environment and transport infrastructure aspects. The visualisation of commute route density, transport mode and safety aspects as flow maps is covered here.

The Maps

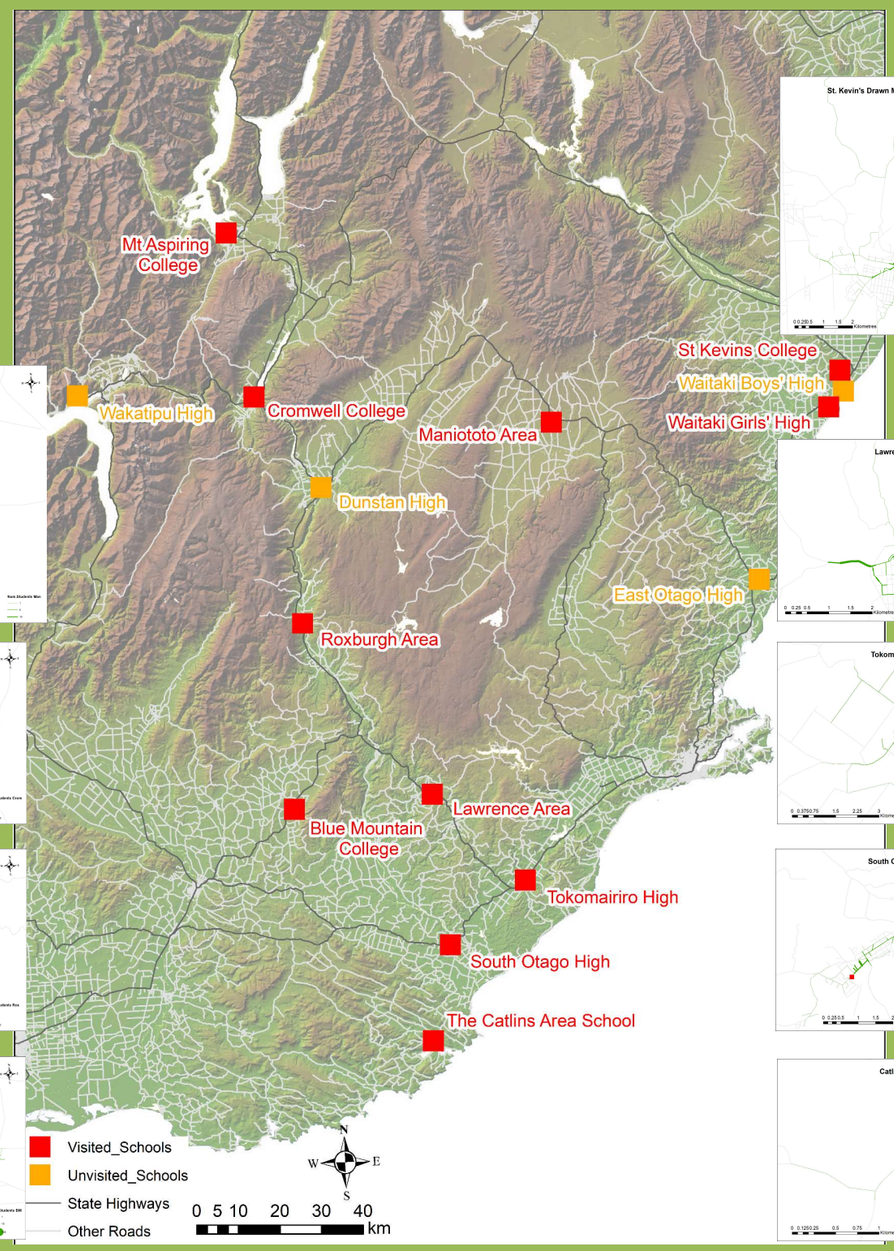
In the first phase of BEATS, a drawn map data collection activity was run for to collect route, transport mode, and non-safety factors (natural, traffic, built environment, social, drivers / pedestrians, intersections / crossings) for all 12 schools in Dunedin city. In the rural context, exactly 195 maps have been drawn using an expanded protocol that allows for alternative routes, weather-dependent routes and return routes, as well as additional annotation categories (aesthetics, weather, destinations / facilities).

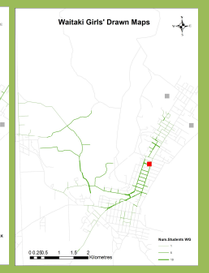




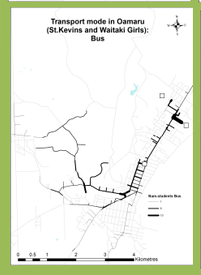


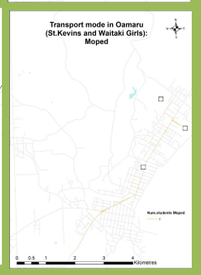
These maps are selections of safe and unsafe segments of routes. In general, many more routes were deemed safe (e.g. Wanaka and aesthetic aspects). Also highlighted is an unsafe driver zone in Roxburgh.

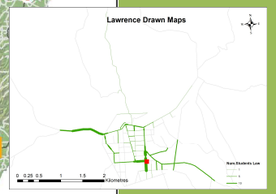


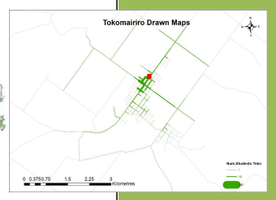


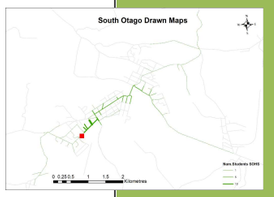
The following maps demonstrate route patterns by transport mode in Oamaru (St. Kevin's College and Waitaki Girls' High School) – walking, biking, by car, by bus and even moped. As expected, the active transport modes have a more localised and constrained spatial pattern.

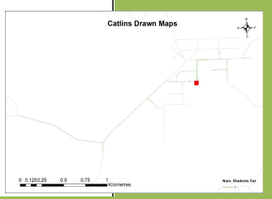












We can map other aspects of the data such as type of route – this map of Tapanui (Blue Mountain College) combines the main route to school with return and alternative route information.

Concluding Thoughts

Drawn maps offer a geographic perspective, revealing perceptions and aspects of the built and natural environment that can affect a decision to walk or bike to school. For instance as well as flow maps revealing the routes travelled and patterns of transport mode use, we have seen dominant and localised identification of traffic blackspots and more positively, landscape aesthetics. Evidence such as this is valuable decision support for councils, schools and students.

Acknowledgements

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100m Hypsometric Raster from Geographx (Roger Smith).

The BEATS Study is a collaboration between the University of Otago, the Dunedin Secondary Schools' Partnership and Dunedin City Council.

BEATS Study: www.otago.ac.nz/beats

Active Living Laboratory: www.otago.ac.nz/active-living