

Supplementary material

The usefulness of GPS bicycle tracking data for evaluating the impact of infrastructure change on cycling behaviour

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Section S1: Description of the bicycle traffic counters

MetroCount devices (Perth, Australia) were installed on shared paths on Kurilpa Bridge and Toowong Overpasses in Brisbane and at Cairns sites. These devices are piezoelectric strips, which are metallic strips that generate an electric charge under pressure. They are known for their reliability.¹ They have a two-strip configuration that allows the device to detect that a bicycle, not a pedestrian, has exerted pressure. This configuration also allows for detection of speed and direction of travel. MetroCounts are used across Australia.¹ They have been found to have very good count accuracy on shared paths: a sensitivity of 96% (e.g., the proportion of positive cycling events that are correctly counted) was found when compared with manual video observations.¹

Reference

1. Munro C. Evaluation of automatic cyclist counters. Project number 0030. Brisbane: Queensland Department of Transport & Main Roads; 2013.

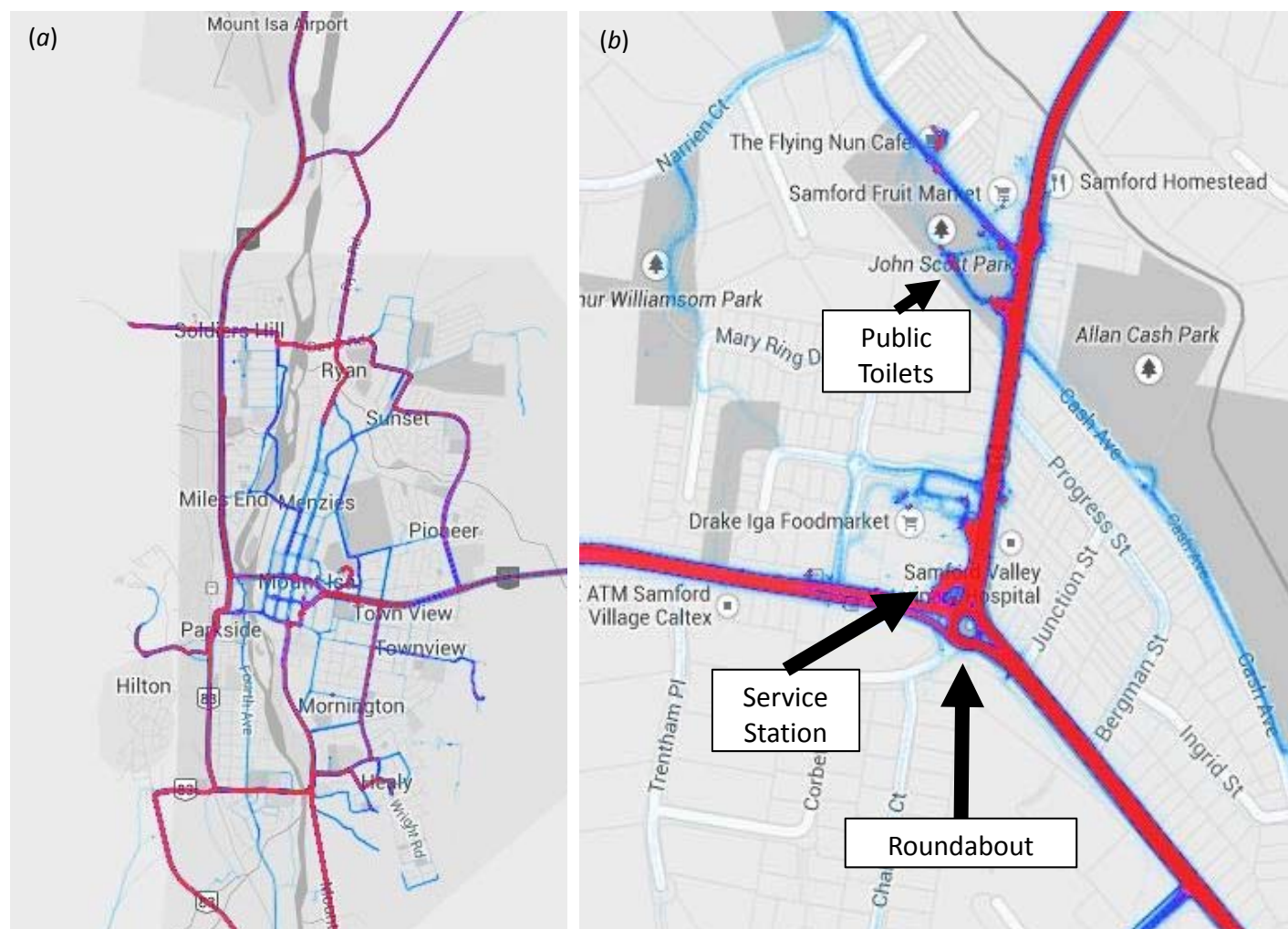


Fig. S1. Heat maps from the GPS tracking system that show cycling activity in 2013. The red lines show the most cycling activity, and the lightest blue lines show the least cycling activity. (a) Cycling activity in the town of Mount Isa, Queensland. (b) Amenities and infrastructure used by cyclists in the town of Samford, Queensland. A custom analysis was computed by the Strava Metro produce for Queensland's Transport and Main Roads. Data license from Strava Inc.



Fig. S2. Heat map (a) and volume map (b) show the intersection of Logan Road and Marshall Road in Brisbane. On the heat map, the red thick line indicates heavy cyclist activity on Logan Road. Blue thick lines indicate less cyclist activity on portions of Logan Road and on Marshall Road. The volume map shows counts of cyclists on the two roads. The count circled in black is an example of a coding error: 23 cyclists were incorrectly coded as travelling on a slip lane (turning left from Logan Road onto Marshall Road). The error can be seen by comparing the volume map with the heat map, which indicates no heavy cycling activity (i.e. no red) in the slip lane (but a red dot indicating cycle activity on the footpath). Data from Strava Inc. were overlaid onto a photograph produced by Queensland Transport and Main Road. A custom analysis was computed by the Strava Metro produce for Queensland’s Transport and Main Roads. Data license from Strava Inc.