



Travel on e-bikes, e-scooters and mobility devices: How will it change transport trends?

Lightweight electrically powered individual transport modes are becoming more popular. This report shows that the potential mode shift to micromobility could dramatically alter project evaluation for active mode infrastructure. We need more monitoring of its growth so we can better plan our transport networks.

In 2019 and 2020 researchers reviewed the international literature and New Zealand data on e-bikes, e-scooters, and mobility devices. They modelled the likely trend in their use, the effect on 'conventional' transport modes (such as cars and public transport), and they evaluated their potential impacts on wellbeing and liveability factors. When incorporated into transport planning, this and future research on micromobility will better inform project evaluation.

MICROMOBILITY DEVICE DEFINITIONS

The main micromobility modes in New Zealand are e-scooters, e-bikes (including cargo e-bikes) and e-accessible devices such as mobility scooters. The design of micromobility devices continues to mature, with e-mopeds and larger mobility devices beginning to enter the global market.

INTERNATIONAL LITERATURE AND NEW ZEALAND DATA REVIEWS

The researchers reviewed international literature on the growing use of micromobility. They found substantial gaps, especially concerning its impacts and the likely scale and nature of people shifting their transport mode to micromobility.

The researchers conducted a New Zealand data review across five main categories: survey counts; trip data on numbers, purposes and lengths; sales data on device ownership and trends; injury statistics and causes; and people's desire to shift to a micromobility mode.

They identified gaps in the New Zealand data across all five areas, as well as a lack of consistent methodology and strategy for collecting data. The current state of data on micromobility use is not yet adequate by itself to inform transport planning and project evaluation, and a research approach was required to forecast mode shift.

TRANSPORT MODELLING

By modifying existing transport models, the researchers investigated the likely uptake of micromobility modes in different land uses and the impact this will have on other modes such as walking, driving and taking public transport. They looked at:

- 'end-to-end' trips, where a micromobility mode was used for the full length of the trip
- multi-modal 'first/last mile' trips, where micromobility is used for the beginning and/or end section of a journey to connect with public transport.

IMPACT EVALUATION OF MICROMOBILITY DEVICE USE

The researchers then assessed the potential impacts of increased micromobility device use in New Zealand. They related the impacts to each of the five key outcomes of the Ministry of Transport's Transport Outcomes Framework: inclusive access; healthy and safe people; environmental sustainability; economic prosperity; and resilience and security.

Of the 38 impacts identified, the areas of greatest concern were 'inclusive access' and 'healthy and safe people'. The researchers proposed 21 interventions in infrastructure, regulations, funding, education operations and partnerships, to provide the best wellbeing and liveability outcomes.

RESULTS: INCREASED USE OF PUBLIC TRANSPORT AND MICROMOBILITY MODES

The researchers expect that micromobility for end-to-end trips will be between a 3% and 11% share of transport modes for urban trips by 2030, depending on six context factors. These factors include the proximity of routes to 'attractive' destinations and the quality of active mode route infrastructure, including providing safe routes through physically separated cycle lanes.

Based on transport modelling, public transport use will grow by up to an additional 9% by 2030 because of first/last mile micromobility use. Corresponding car trips are expected to decrease by up to 2% for CBD and fringe areas, and 1% or less for other areas. The scale of these changes will vary depending on six identified context factors; for example, users' ability to take their micromobility devices on public transport.

RECOMMENDATIONS FOR FUTURE RESEARCH

Forecasting micromobility use is important for transport project and policy evaluation, and for planning adequate infrastructure to accommodate micromobility modes.

Monitoring is needed to identify current and ongoing levels of micromobility device use on the existing shared path and cycling infrastructure and to track its growth.

Further work is also required on:

- the uptake of new types of micromobility devices outside of New Zealand
- equity considerations with regard to socio-economic, disability and gender factors
- a review of transport models for major New Zealand centres to incorporate transport mode shift to micromobility.



RR 674 – *Mode shift to micromobility*, Waka Kotahi NZ Transport Agency research report. Available at www.nzta.govt.nz/resources/research/reports/674