



Reducing light vehicle travel

The transport sector contributes 39% of total domestic greenhouse gas emissions in Aotearoa New Zealand.

Fortunately, New Zealand now has an emissions reduction plan across a variety of sectors. The plan outlines the actions needed across sectors in the next 15 years, and reducing light vehicle travel (LVT) is one of its targets. But first, decision-makers and policy analysts need updated information on LVT solutions.

In this study, the researchers:

- reviewed literature on effective interventions to reduce LVT
- assessed its relevance to New Zealand urban environments
- assessed the conditions needed for ongoing reduction of LVT here.

Narrative literature review

The researchers searched databases and accessed literature from Waka Kotahi and recent research reviews by WSP New Zealand. Then they created an online map-based database and interactive dashboard so people can easily access information on LTV interventions.

Results

The literature review found 24 relevant studies on effective ways to reduce LVT. These were grouped into six categories:

- incentives
- information and advice
- congestion charging
- infrastructure development and improvements
- car parking
- other interventions.

The relevant studies come from many regions, but most were from Western Europe. They're based on various research approaches, from randomised controlled trials to cohort studies and modelling.

- They differed in the types and combinations of data used, the analyses, and the extent and context of the interventions.
- Measures varied widely across the studies, which made them hard to compare.
- The limited number of relevant studies means we need more evidence, and there's a gap between gathering information and applying it.

Recommendations and lessons

From their findings, the researchers grouped their recommendations into three main categories:

1. How evidence is collated and evaluated

- Develop a mosaic of evidence that shows the many ways to evaluate the full range of interventions in New Zealand.
- Assess the functions of an intervention rather than focusing on hypothesis testing.
- When comparing interventions, consider the purpose: Is the aim for a lot of change for few, or a little change for many?
- Beware of 'effect size' comparisons. Interventions that address the causes of light vehicle use will report smaller changes than targeted interventions (for example, workplace parking changes). However, they have a greater reach across populations, so a greater overall impact.
- Evaluate interventions on the causes of travel behaviour from multiple studies for a 'good enough' conclusion.

2. How evidence is generated

- Fund and publish evaluations by integrating them into transport project planning scope and budgets.
- Allow for evaluation data gathering at appropriate times (ie before an intervention starts and after user behaviour has adapted to changes).
- Aim for comparability when measuring and reporting project evaluations. Comparability and causation are the goals of quality methods and reporting.

- Optimise opportunities from real-world trials and experiments by comparing them with non-intervention sites.
- Facilitate long-term, evolving evaluations of complex changes likely to affect LVT and transport mode shift.
- Gather contextual information on interventions to help compare them with other interventions. This information includes geographical, environmental, economic, socio-cultural and built environment features.
- Recognise that academic research can add value to the wider evidence base and support collaborations between researchers and the transport sector.

3. Further development of the LVT reduction evidence base

- Explore how to combine results from intervention evaluations with causal modelling-based assessments.
- Combine and integrate evidence and intervention types to build a mosaic of evidence.
- Explore how the intervention types might interact with each other and with Tier 1 and 2 urban environments in New Zealand.
- User-test the dashboard to find the most useful filters and information, including how contextual information could be added by using spatial information.
- Explore how different users' needs could be met in a mosaic-type evidence base. For example, how could the diverse evidence be helpful (rather than a hindrance) in the Environment Court and for community engagement?
- Use a more refined ranking. The 'relevance to urban environment' ranking in this report was just 'yes' or 'no'. Future rankings could reflect more in-depth study of city characteristics and the relative maturity of non-vehicle transport cultures and infrastructure.

The researcher's detailed report is relevant to Waka Kotahi, key transport stakeholders (including the research community) and the public. It covers in more detail how to effectively reduce LVT and informs readers on effective policies and interventions for the government's emissions reduction plan.



RR 707: *Reducing light vehicle travel*, Waka Kotahi NZ Transport Agency research report.
Available at www.nzta.govt.nz/resources/research/reports/707