



Opinion

Bridget Burdett CEngNZ is the new Vice Chair of the Engineering New Zealand Transportation Group. She has a Masters of Engineering in Transportation, and a Doctorate in Psychology. Bridget is a Principal Researcher at transportation consultancy MRCagney.

Diversity in motion

BRIDGET BURDETT CEngNZ

How can greater diversity in transportation engineering help create a more inclusive world?

There's a roundabout near my home in suburban Hamilton where I was almost knocked off my bike on my way to work last year. I was turning right, and as I prepared to exit, a driver failed to give way and sped past, causing me to slam on my brakes and stop. They continued on, seemingly oblivious. A driver in the adjacent turning lane, waiting for me to proceed, stared at me wide eyed and we took a moment to breathe before continuing on our day.

That roundabout and its lane configuration mightn't appear to have much to do with diversity and inclusion in transportation engineering but there's more to this story than an inattentive driver. There were two approach lanes only because the turning lane was added to mitigate against "adverse effects on traffic" as part of a nearby building development's resource consent conditions. The traffic effects were calculated with a traffic simulation model, based on current and projected motor vehicle flows through the intersection. But in transport engineering we need to consider the effects of such decisions on other people – particularly pedestrians and cyclists, whose risk is markedly increased at double-lane roundabouts.

That's where diversity comes in. If the profession is dominated by people who have the freedom and wherewithal to drive everywhere, it's difficult to see the impact of those decisions on what used to be called "inferior modes". Although there's increasing recognition of design

for pedestrians and cyclists, it's not enough to overcome decades of industry habit. Design tools such as intersection modelling allow for pedestrian volumes in theory but we need better data and more comprehensive tools. Information about pedestrians can help decision makers consider the social and psychological impact of environments that do not feel safe – and therefore, do not attract many walking and cycling trips.

While we do not have good data about gender and ethnic diversity in the industry, transportation engineering is traditionally Pākehā- and male-dominated. Many professionals already recognise gender diversity is important, most notably for engineers through Engineering New Zealand's Diversity Agenda, which aims to get 20 percent more women in engineering and architecture roles by 2021.

More specifically in the built environment, groups such as Women in Urbanisation promote diversity of voice because cities planned by, and for, women are more inclusive, healthier, happier places. Data from the Ministry of Transport's Household Travel Survey shows women make shorter and more complicated trips than men. They're more likely to walk and use public transport, and more likely to combine transporting children with trips to work, shopping, and other activities. Overall, women's different experiences of transport mean their values and decisions as professionals are likely to be different from men's. Current transport engineering and planning tools fail to recognise such differences.

Ethnic diversity is important too.

There is rapidly increasing awareness in New Zealand of the range of cultures that make up our towns, cities, and rural areas but the push towards ethnic voices being part of decision making is not as strong as that for women. A news article earlier this year highlighted the insensitivity of a high-speed, high-volume State Highway 1 alongside a marae, where people gather to be together, to celebrate, and also to grieve. Planning rules that work to manage effects of new developments are not always easily applied in retrospect.

Beyond gender and ethnic diversity, there's always potential to expand what we mean by inclusion. In transport, people with a disability are particularly disadvantaged by design that doesn't include them. Roundabouts with two approach lanes, for example, are difficult for any pedestrian to negotiate, and can be a complete barrier to someone who has a vision impairment or cannot walk quickly. Design tools and processes that allow for universal access are available but do not have as high a profile as similar tools and processes that support other investment objectives, such as road safety.

The Transportation Group of Engineering New Zealand recognises a lack of diversity in the profession is reflected in everyday decision making. As an industry group with influence we want to do more but for us, diversity is about more than workforce statistics. The Transportation Group is active in seeking opportunities to engage with other professionals, including land use planners and urban designers, to promote diversity of voice in the profession. ■