

Reimagining Infrastructure: Breaking the Bias

March 2022



Reimagining Infrastructure: **Breaking the Bias**

To mark International Women's Day, Tonkin + Taylor's Penny Kneebone, Nicole Neal, Alan Gregory, Katherine Cowper-Heays, Barbara Daxenberger and Lindy Andrews consider what we'd gain by reimagining infrastructure and breaking the bias across Australasia and the Pacific.

For generations urban design and transport infrastructure in New Zealand and Australia has been gender blind and unresponsive to the needs of more than half of the population. Transforming transport infrastructure through this lens has the potential to positively impact families, communities, health and wellbeing, employment opportunities, the environment and economies. In the Pacific, breaking the bias will have benefits for better infrastructure that responds to increasing climate hazard risks. As an industry, we can break the bias, and there is a compelling need and social licence to act.



Transport Infrastructure in New Zealand and Australia

The source of the transport bias

Since the early 1960s, our urban centres have been dominated by an increasing demand for private motor vehicles and urban transport design has followed a “predict and provide” model. Because the “predict” part has been based on aggregated data (rather than sex-disaggregated data), the “provide” part has inevitably been gender blind. And because more than 70% of the transport professionals in New Zealand and Australia are male, the needs of women have not been inherent in the planning and design process. We have a real opportunity to correct this historical bias in our transport infrastructure design by taking a more conscious approach to data collection, consultation, and design.



Men and women travel differently

The transport and mobility needs of women are very different from those of men. Many women work part-time, and many - particularly in lower socio-economic areas - work in more than one part-time job. Women frequently have roles as caregivers, for children or other relatives. This means women often travel at different times to different locations, between suburbs for example, rather than from suburb to CBD, and often with multiple stops (e.g., for family, children, elderly relatives). By contrast, men have historically had a more linear journey pattern - A to B - with little or no deviation. More than two thirds of road users at peak hours are men alone in their cars (*Gender Differences in Commuting Behaviour, Sanchez & Gonzalez, 2016*). Women tend to travel outside of the times when men commute, and to different locations.

Long tail of decisions

Transport infrastructure involves long-term investment in long-lived systems. After three generations, our transport systems remain dominated by a “male labour work pattern”: that is, personal travel to support a traditional 9 to 5 workday, with two distinct traffic peaks for the morning and evening commute.

But the makeup of our workforce has shifted and our transport systems simply aren't equitable for men and women's needs. Our workplaces and travel patterns have changed and continue to evolve. In 2019, women made up 48% of the New Zealand workforce (Stats NZ) and 47% in Australia (of that, 26% full-time and 21% part-time (*Gender workplace statistics at a glance, 2021. WGEA*)).

Disproportionate investment

Because of the way that we evaluate and fund road infrastructure, the time impact on for “traditional” commuters (that is, A to B, 9 to 5, often solo males), is given more value/weight than the time associated with more complex travel patterns (often women). Globally, demand modelling is focussed on just two peak hours per day, resulting in a huge oversupply of vehicle-dominated infrastructure to cater for the movement and storage of cars driven from A to B and around 80% of infrastructure being designed to service 20% of the people who need to use it. In short, the needs of 80% of users are largely given little consideration or remain unmet.

Safety

There is huge opportunity to improve personal safety in transport infrastructure for women. Research shows more than

half of both Australian and New Zealand women report feeling unsafe using public transport, with some 75% reporting harassment or unwanted attention (*Women in Urbanism, 2019*). On both sides of the Tasman, many Muslims, particularly veiled women, report experiencing violence and harassment. For the Rainbow Community, media reports and anecdotal evidence also suggest substantial potential for harassment or attack.

“For many people, having to catch poor-quality public transport is an inconvenience - for LGBTQI+ people it can be incredibly dangerous. Low-frequency services leave LGBTQI+ people vulnerable to attack or harassment while waiting for transport”. (mrcagney, 2022)

Factors contributing to compromised safety for women using transport infrastructure are varied, including:

- When businesses are closed for redevelopment or in response to natural hazard resilience measures such as earthquake strengthening, or with COVID-19, passive surveillance has been compromised, leaving large areas of visual void.

- Our car parks and transport centres are often remote and dark, and access is often via poorly lit underpasses and alleys with no active or passive surveillance.
- There can be a lack of controlled crossing facilities at high demand locations.
- Women often bear disproportionate levels of childcare and drop-off responsibilities which are exacerbated by children being unable to mobilise independently. There is a need for segregated infrastructure to allow children to walk or cycle safely to school.
- There can be low reliability in some parts of the public transport network, and lack of consideration given to intermodal connections.

None of this is OK. We are failing women through gender and cultural blindness in our urban development and infrastructure design. There is a compelling need and social licence to act.

Our opportunity to reimagine transport infrastructure: breaking the bias

We have the opportunity to make genuine, sustainable change. So how do we reimagine infrastructure and break the bias? By engaging women from the outset. By listening and gaining a deep understanding of their infrastructure needs, worries and aspirations. By really

understanding what our infrastructure needs to be, to deliver for them. Collectively, we move to drive change by embracing diversity and making provision for the dimensions of diversity (indigenous, immigrant and disabled women and the Rainbow Communities) who we know are at greater risk from poorly designed, sub-optimal infrastructure.

International Women's Day should serve as a much-needed conduit for conversation, to prompt global action on this long-standing problem. We can reimagine infrastructure and we can break the bias. We can start with making these things our norm:

- Actively seek to increase the number and cultural/religious diversity of women in the professions of infrastructure planning, design, and development.
- Improve sex-disaggregated data gathering, including via apps such as Spark's Beyond Binary Code <https://www.spark.co.nz/online/beyondbinarycode/>
- Engage with a culturally diverse group of women at concept stage and throughout the design process.
- Audit infrastructure and designs from the perspective of women and embed these perspectives in *Safety in Design and Crime Prevention Through Environmental Design deliverables*.

- Discard the traditional, largely male-centric CBD commuter model and concentrate on the movement of **people**.
- Move away from the hub and spoke urban centre design, towards a multi-node, decentralised design with an integrated multimodal approach.
- Better understand how new technologies will impact on the mobility of women.
- Develop "20-minute neighbourhoods"
- Audit current infrastructure to understand how it can be utilised differently. Small changes, such as improved lighting, removal of structures and plants to open sight lines, active surveillance and separated walking and cycling infrastructure are proven to reduce perceived and actual risk.
- As employers, develop flexible approaches to attract and retain women that allow for our current infrastructure shortcomings - hybrid working, working from home, job sharing, mothers' rooms, reduced hours contracts, and flexi-time.
- Consider the allied infrastructure that supports those activities, for example car parking for specific demographics at public transport nodes.

Resilient infrastructure in the Pacific

So far, this paper has its own bias - toward transport infrastructure in Australia and New Zealand and our “First World problems”. For the indigenous women of developing Pacific Island nations, the picture is more complex.

Gender bias in the Pacific exists in the context of unique challenges Pacific nations face. Many Small Island Developing States have a high reliance on aid due to small and struggling economies, and are challenged by geographic isolation, small population, limited economic opportunities, and vulnerability to natural hazards. Pacific women face bias from low political representation, poor working conditions, high rates of violence, declining access to customary land rights, and culturally enforced inequality. For example, the cultural expectation that women are responsible for providing food can limit their ability to participate in other important activities or decision-making. In some cases, collecting clean drinking water can leave little time for anything else.



Pacific nations are vulnerable to climate change, and climate hazards can exacerbate existing inequalities and further disadvantage women. Increasing climate hazards mean an increasing frequency and severity of extreme weather such as storm surges and inundation, drought, deluge, and extreme heat. The direct and indirect consequences of climate hazards include devastating storm damage to communities and infrastructure, salinization of drinking water, increased disease and public health concerns, declining fish and shellfish populations, and damage to agriculture from invasive pests, drought, and storm damage.

The risks from climate change demand that governments and donors rethink their approach to infrastructure and pursue a range of measures to improve resilience. This includes strengthening physical defences, rethinking transportation, addressing waste management, strengthening communications infrastructure, reviewing policy and governance. Pacific nations have an opportunity to break the gender bias and reimagine their infrastructure, as they adapt to living with the existential threat of climate change.

There are many examples in climate adaptation where equality in decision-making has led to more purposeful, holistic, and sustainable outcomes. When reimagining infrastructure in the Pacific we must ensure that we learn from these successes.

Women play an important role in supporting increased resilience of communities. Their unique traditional knowledge can provide insight into appropriate infrastructure design. Their roles as communicators and caregivers mean they can influence others, for example in adopting renewable technology or sustainable farming practices.

If we understand the differences between gender roles, we can avoid disadvantaging women's voices. Gender differences are unique to each culture and community, and it is often (though not always) women who need extra considerations. It might be as simple as adjusting meeting times to accommodate domestic duties, or even holding a separate meeting for women in cultures where the male is the household representative.



Inequitable infrastructure is by no means just a “woman’s problem” – it is a gender sensitive, culturally diverse problem with recognised economic impacts, and it is a sustainability problem for communities. As an industry, we have an opportunity to break the bias, and to tackle this problem head-on **now**, for our collective future. Because working together, we can create and sustain a better world.

The Australia We Want

https://www.communitycouncil.com.au/sites/default/files/Australia-we-want-Second-Report_ONLINE.pdf

2015 Pacific Gender and Climate Change toolkit. Tools for practitioners (draft).

<https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2015/Toolkit%20booklet%20pages.pdf>

GSDRC (2008) Helpdesk Research Report: Gender in the Pacific Islands.

<https://gsdrc.org/publications/gender-issues-in-the-pacific-islands/>

Gender Equality and Sustainable Infrastructure, OECD, March 2019

<https://www.oecd.org/gov/gender-mainstreaming/gender-equality-and-sustainable-infrastructure-7-march-2019.pdf>

Toolkit for Gender-Sensitive Placemaking: Improving the Safety of Women and Girls on Public Transport

https://www.latrobe.edu.au/_data/assets/pdf_file/0006/1298895/Placemaking-Case-Study-in-Darebin-Council.pdf

Inequalities in sustainable transport use in Aotearoa New Zealand: gender, intersectionality, and commuting using sustainable modes

<https://ourarchive.otago.ac.nz/handle/10523/10688>

City with a female face: how modern Vienna was shaped by women

<https://www.theguardian.com/cities/2019/may/14/city-with-a-female-face-how-modern-vienna-was-shaped-by-women>

