Australasian Transport Research Forum 2022 Proceedings
28-30 September, Adelaide, Australia
Publication website: http://www.atrf.info

NIMBYs, YIMBYs & green bridges: Local attitudes towards large-scale active transport infrastructure from the Gold Coast, Australia

Madison Bland[1] and Matthew I. Burke[2]

[1]Cities Research Institute, Griffith University, Edmund Rice Dr, Southport QLD

[2] Cities Research Institute, Griffith University, 170 Kessels Rd, Nathan QLD

Email for correspondence: madison.bland@griffithuni.edu.au

Abstract

Dedicated and connected active transport infrastructure encourages walking and cycling, supporting space-efficient, low-cost and non-polluting mobility. In the Australian-context, larger-scale active transport infrastructure, such as green bridges, are being built to improve fragmented walking and cycling networks. Previous attempts at delivering such infrastructure have been the source of resistant, Not-in-my-backyard (NIMBY) attitudes among local communities that can stymie projects. To better understand such sentiments, this cross-sectional study investigates community attitudes towards both existing and future green bridge implementations on the Gold Coast. A mixed-methods approach was employed, including an online questionnaire (408 respondents) which is the focus of this paper. The results identify differences in mostly positive attitudes towards both the current HOTA green bridge and future bridges nearby. Support for future green bridges decreases with proximity to the landing itself. Those aged over 70 years, who own their property, and reside in detached dwellings, were the most opposed to future green bridges. The findings provide both conceptual and practical learnings of NIMBY and Yes-in-my-backyard (YIMBY) attitudes with respect to green bridges. The findings can aid decision-makers and active transport practitioners understand local stakeholder sentiment to better inform green bridge infrastructure planning and implementation processes.

1. Introduction

Active transport, in the form of walking and cycling, supports space-efficient, low-cost, healthy and non-polluting travel (Buehler and Pucher 2012; Rabl and de Nazelle 2012; Giles-Corti et al. 2016). To support a greater share of active transport trips and harness the corresponding benefits, cities have sought to implement safer and more connected active transport infrastructure (Dunning and Nurse 2021). Through increasing public investments by state and local governments, Australian cities are slowly expanding current walking and cycling networks (BCC 2018; SoQ 2019; GoWA 2022). Despite the strategic interest, the share of active transport trips in Australia remains low and like in other car-dependent societies, the combination of built environment and cultural factors that promote automobile use are difficult to overcome (Faherty and Morrissey 2014). Cities advancing cycling and walking networks have shifted to how they navigate such practical and political sensitivities (Pucher and Buehler 2017; Nello-Deakin 2020; Beck et al. 2022).

Cultural and political issues can arise when resistant community movements emerge, such as those founded in Not-in-my-backyard (NIMBY) attitudes towards road space reallocation projects, especially for new bicycle infrastructure (Ferster et al. 2021; McDougall and Doucet 2021). For cities pursuing active transport strategies, localised NIMBYism can delay and even prevent the delivery of projects (Wild et al. 2018). Such negative sentiments have been built on long-term cultural, political and behavioural experiences with automobility and the policies necessary to support this *modus operandi* (Walks 2015; Wilson and Mitra 2020).

Within the Australian context, these oppositional attitudes may become increasingly problematic as cities look to invest in more expansive active transport projects. Large-scale walking and cycling infrastructure, such as ‘green bridges’ (i.e., pedestrian and cyclist-only bridges) are rolling out across the country, including in Brisbane (i.e. the Kangaroo Point Green Bridge, the Queens Wharf bridge) and Perth (the Causeway Pedestrian and Cycling Bridge). There has been substantial research on the accessibility and economic benefits of green bridges (i.e. see BCC 2019) but there remains little research in Australia of the public sentiment towards them. In car-dependent urban environments, responding to NIMBY outcry and drawing on Yes-in-my-backyard (YIMBY) support can offer decision-makers critical information as they pursue active transport infrastructure implementations.

This paper briefly outlines a survey on attitudes towards green bridges on the Gold Coast. First, the paper provides the survey methods (2.0 Approach & Methods). The results (3.0 Results) focus only on the quantitative questionnaire data collected. The paper then discusses the research findings (4.0 Discussion) including the study’s limitations and directions for further research.

2. Approach & methods

This paper is the first part of an ongoing longitudinal study design being undertaken within the Gold Coast, Australia. As the first survey in a series, the data reported here is mostly cross-sectional in nature, although one quasi-longitudinal series of questions were asked about the three stages of development of the HOTA bridge. A quantitative online questionnaire was used, framed to explicitly identify the community attitudes towards existing and future dedicated active transport infrastructure projects in the case study location. For the purposes of this research, active transport was defined as non-motorised transport inclusive of walking, cycling and electrically assisted riding (i.e., e-bikes). All other forms of micromobility (i.e., e-scooters) were not considered, though researchers acknowledge the ability of these modes to use green bridges and other active transport infrastructure.

2.1 The study setting: Gold Coast, Australia

The study area is set across four core coastal neighbourhoods within the Gold Coast, Australia’s sixth largest city. Due to spatial factors, the Gold Coast’s dispersed linear form, combined with the fragmentation of its land use patterns by water, has created a high reliance on the motor-vehicle to support mobility, accounting for 75.2% (National average = 68.4%) of commuter trips (ABS 2016). The local government is seeking to enhance the usability of active transport options by prioritising the delivery of green bridges to remove physical network barriers (CoGC 2017). Guided by the outcomes of the local government’s investigations, the study area was delimited to the neighbourhoods of: Chevron Island; the Isle of Capri; and, adjacent parts of Surfers Paradise, Bundall and Southport. This area encompasses the existing Home of the Arts (HOTA) Green Bridge, completed in 2021 and a suite of potential future sites, including a proposed Chevron Island-Surfers Paradise green bridge link.

2.2 Data collection

An online survey was administered through Sawtooth Software's Discover survey tool (Sawtooth Solutions, Provo, Utah, USA, 2022). Between 9 February 2022 and 9 March 2022, approximately 5,000 copies of promotional materials, containing a QR code to the online survey, were distributed in residential letterboxes across the study area. The questionnaire sought responses on participants' weekly travel behaviours, relationship to their local area, perceptions of the HOTA green bridge, support for future green bridge implementation, as well as standard demographic information. Questions seeking participants' attitudes towards the green bridges used a 5-point Likert Scale (i.e.: "extremely negative", "somewhat negative", "neither positive nor negative", "somewhat positive" and "extremely positive").

2.3 Data analysis

The survey data was initially analysed using descriptive statistics. Comparisons across sociodemographic data were subsequently performed using independent *t*-tests and one-way ANOVA with Tukey's HSD post hoc test of multiple comparisons. *SPSS* statistics software was used (version 28.0, IBM, Armonk, NY, USA)

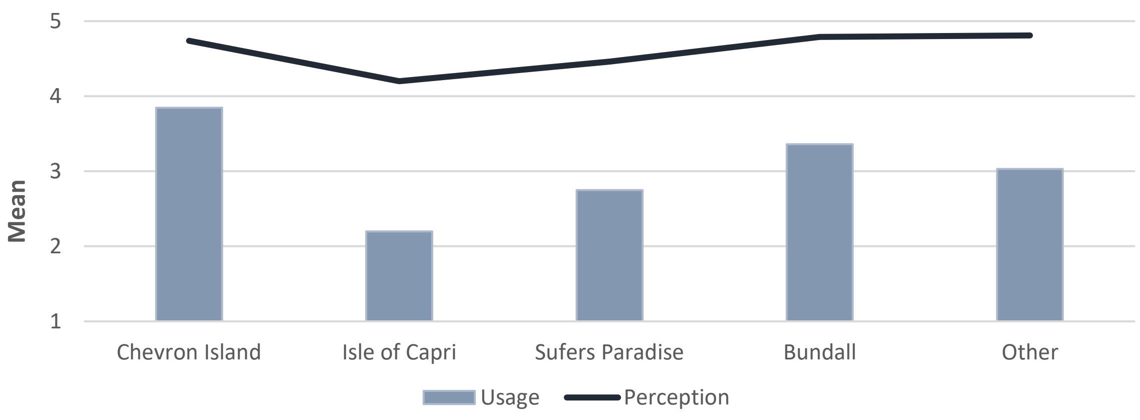
3. Results

A total of 408 respondents completed the online survey. The observed response rate was approximately 8.2% and the median response duration was 10 minutes 38 seconds.

3.1 Change in perceptions of the HOTA Green Bridge over time

Respondents were asked for their retrospective attitudes towards the HOTA Green Bridge across three implementation phases (pre-, during and post-implementation). Such a quasi-longitudinal approach is limited, as it relies on respondent recall of their past attitudes. However, the outcomes suggest attitudes increased in positivity from the initial project announcement ($M = 4.33$, $SD = 1.02$) to post-implementation ($M = 4.54$, $SD = 0.95$) with a dip in support during the construction phase ($M = 4.16$, $SD = 1.08$). One-way ANOVA tests revealed differences between perceptions of the HOTA green bridge across the four localities. There was a significant effect on perceptions by respondents' location [$F(3, 308) = 4.59$, $p = 0.004$]. Post hoc tests identified the Isle of Capri's mean score ($M = 3.99$, $SD = 1.08$) was significantly lower than both Chevron Island ($M = 4.48$, $SD = 0.81$) and Bundall ($M = 4.56$, $SD = 0.74$). However, the mean perception scores from respondents residing in Surfers Paradise ($M = 4.26$, $SD = 0.90$) did not significantly differ from the other three local areas.

Figure 1: HOTA Green Bridge current perceptions vs. usage[1] by respondent locality (N = 407)



[1] Usage: 1 = Never; 2 = Once a year or <; 3 = Once a month or <; 4 = Once a week or <; 5 = Once a day or <

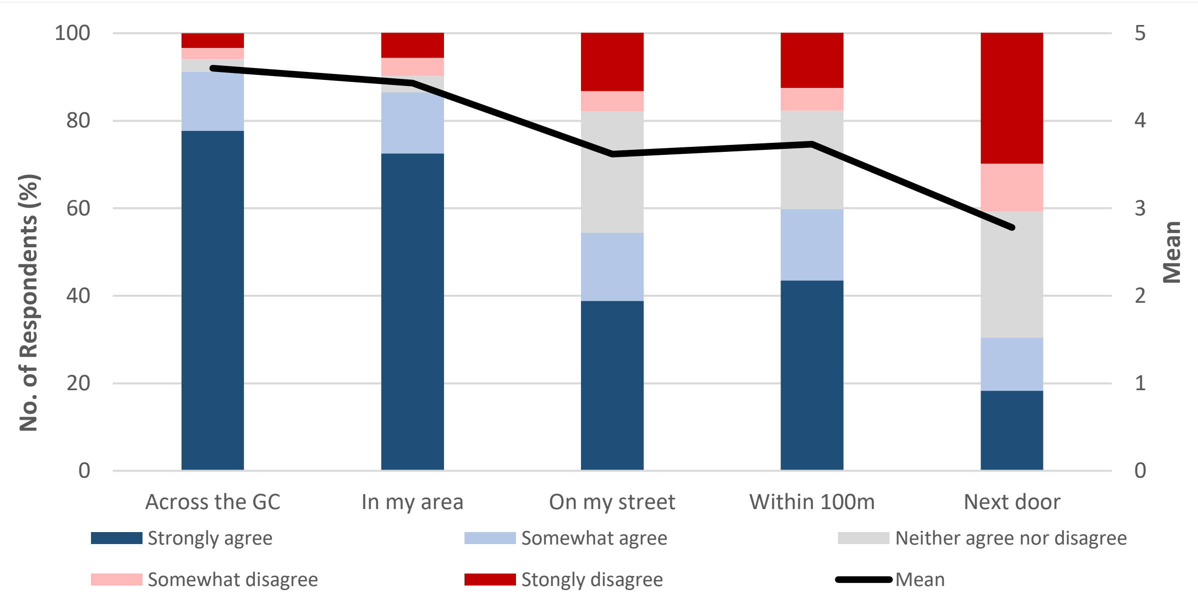
3.2 Current perceptions of the HOTA Green Bridge

Figure 1 plots the mean scores of respondents' use and current perceptions of the HOTA Green Bridge, by residential location. A two-way ANOVA was subsequently performed to analyse the effect of frequency of use and location on the respondents' current views of the HOTA green bridge. There was a statistically significant interaction between usage and location on current perceptions of the green bridge ($F(15,383) = 2.11$, $p = 0.009$). In addition, there was a significant main effect of usage on perception ($F(4,383 = 5.91$, $p = <0.001$). Applying the Tukey HSD test for post hoc comparison, respondents who never used the bridge ($M = 3.73$, $SD = 1.38$) held a less positive view than those using the bridge once a year ($M = 4.27$, $SD = 1.04$), who in turn were less positive than those using it once a week ($M = 4.88$, $SD = 0.46$) and once a day ($M = 4.97$, $SD = 0.16$), respectively. In contrast, there was no significant main effect of location on current views of the HOTA green bridge ($F(4,383 = 2.024$, $p = 0.09$).

3.3 Community perceptions of future green bridges

The descriptive results for respondents' level of support for future green bridges by their proximity to the landings are present in Figure 2. Survey respondents were asked to indicate their level of agreeance for hypothetical future green bridge implementations at increasing proximities to where they currently reside. There was a statistically significant effect of proximity on respondents support for future green bridges ($F(1,403) = 5423.49$, $p = <0.001$). This relationship was negatively correlated, where the majority agreed with future green bridges implemented across the Gold Coast ($M = 4.60$, $SD = 0.93$). In contrast, a lower mean score was recorded for future green bridges located on one's street ($M = 3.62$, $SD = 1.38$) and the lowest for implementations next door ($M = 2.78$, $SD = 1.45$). The results indicate a declining willingness to support future green bridges when implemented closer to respondents' homes. Further, there was a greater spread of attitudes (degree of agreeance) towards future green bridges next to their place of residence (Some level of agreement 30.4%; Neutral 28.9%; Some level of disagreement 40.8%).

Figure 2: Local perceptions of future green bridges at differing implementation proximities (N = 405)



The dependent variable 'next door' was used as a proxy measure for the effect of in-my-backyard-ism exhibited by respondents' perceptions of future green bridges adjacent to their place of residence. This analysis was undertaken for each independent demographic variable where Table 1 only reports the significant results from the respective statistical testing.

Table 1. Summary of statistical analysis results

Variable	Description – Levels of support	Statistical Results
Age	• Oldest group (70yrs+) significantly < youngest (18-29yrs) • Means of all other age groups were not significantly different.	$F(5, 399) = 2.58$ $p = 0.026$
Dwelling-type	• Residents of detached & semi-detached housing significantly < those residing in flats/apartments.	$F(2, 400) = 15.73$ $p = <0.001$
Tenure-type	• Respondents renting significantly > those owning property outright or with a mortgage.	$F(2, 391) = 4.62$ $p = 0.010$
Location	• Isle of Capri residents significantly < Surfers Paradise and Other. • Bundall and Chevron Island were not significantly different.	$F(4, 399) = 4.69$ $p = 0.001$
Years in area	• Residents 10yrs+ significantly < than all other groups. • Number of years within the study area decreased with support levels.	$F(4, 361) = 10.74$, $p = <0.001$
Dwelling-type * Tenure-type	• Two-way ANOVA revealed a significant interaction between the effects of respondents' dwelling-type and tenure-type. • Both had a statistically significant effect on levels of agreeance. • Respondents renting semi-detached dwellings more inclined to support. • Respondents owning a separate house with mortgage = least supportive.	$F(4, 385) = 3.78$, $p = 0.005$

4. Discussion

Framed within the existing literature on community resistance towards both transport infrastructure and bike facilities (Legacy 2016; Wild et al. 2018), the study contributes empirical findings for understanding community attitudes towards large-scale active transport projects. The main contributions of the study are furthering conceptual understandings of community perceptions, as well as applied contributions relevant to the Gold Coast context. These contributions provide pragmatic insights for active transport decision-makers implementing such projects in similar geographical and social contexts to the Gold Coast study area.

4.1 Local perceptions of HOTA green bridge implementation

The retrospective responses for residents' change in perceptions over time indicated an increase in support for the HOTA Green Bridge once implemented and operational. Levels of support were, however, localised between the four study localities and attitudes correlated with levels of green bridge use (exposure). This was clearest for respondents of the Isle of Capri, geographically severed by the waterways and without direct active transport links to both the HOTA precinct and Chevron Island. Not surprisingly, residents lacking direct access to a facility, like the HOTA green bridge, have lower levels of support towards it.

The overall positive trend in the pre- and post-implementation level of support for the HOTA green bridge confirms the relationship first identified by others (Crane et al. 2016; Ferster et al. 2021). But this study also identified a dip in perceptions during the construction phase, which is important for practitioners to be aware of. Interestingly, while works occurred on Chevron Island and at the HOTA Precinct (located in Bundall), respondents of both these localities who would benefit from the project were more supportive during the construction phase than those from other locations.

4.2 Determinants of YIMBY and NIMBY to future green bridges

The study identified a decline in support for future projects the closer green bridge implementations were located to respondents' place of residence. This finding is mostly in-line with the literature on geographical discounting and the proximity of other active transport infrastructure influencing negative or NIMBY attitudes (Karimi and Brown 2017; Brown and Glanz 2018). These findings also align with the existing discourse surrounding hyperlocal resistance and its emergence (Krizek 2012; Wild et al. 2018). Despite overall positive perceptions of future green bridges across the Gold Coast and in their general area, support diminishes for such implementations on a respondent's street and directly next door.

The contextual elements also point towards YIMBY-NIMBY dogmas existing across a spectrum underpinned by demographic and situational factors. Table 2 summarises the findings, identifying the characteristics associated with increased or decreased levels of support. Inferences can be made between these characteristics and the traits associated with NIMBYism (those more disagreeable) and YIMBYism (those more agreeable). Specifically, it reinforces previous findings that property owners are more likely than renters to exhibit NIMBY sentiments towards changes to their immediate environment (Lake 1993; Wild et al. 2018; McNee and Pojani 2021), showing the same applies in the green bridge case. The study furthers this by identifying a correlation between property tenure and dwelling typology as contributing to respondents' level of support for a green bridge. This is in line with Stehlin's (2015) findings that younger cohorts (i.e.,18-29 years) display a greater propensity to support such public projects compared to older cohorts (70 years and over).

Table 2: Characteristics of respondents to future green bridge implementations next door

Less Supportive Characteristics (NIMBYs)	More Supportive Characteristics (YIMBYs)
• 70 years old and over	• Between 18-29 years
• Reside in separate-detached & semi-detached housing	• Reside in flats or apartments
• Owners (outright & with a mortgage)	• Rent their dwelling
• Located in the Isle of Capri	• Located in Surfers Paradise or outside the study area
• Lived in their area for more than 10 years	

The study also offers practical learnings for practitioners and decision-makers tasked with increasing cycling and walking transport mode share. Identifying those individuals and groups likely to support active transport projects can assist the implementation process, including cultivating positive sentiment (Ferster et al. 2021). Inversely, failing to anticipate negative perceptions that swell toward vocal, NIMBY opposition, can lead to 'bikelash' situations (Field et al. 2018; Wild et al. 2018). Such negativity concentrates in subsets of the community. Understanding this better can assist in mitigating hyperlocal resistance and allow future green bridge implementations to be deployed where they are economically viable and have broader public support.

Limitations of the study include the common problems of interpretation of Likert scales (see Harpe, 2015; Beck et al. 2022), as well as it being a single cross-sectional questionnaire. Regarding the former, using ordinal data as interval data was enabled by a 5-point Likert scale with anchored values (Harpe 2015). For the latter, there is an opportunity for the study to be repeated at future time intervals to ascertain the long-term perceptions during and post-construction of the planned green bridges. This future undertaking would also address the quasi-longitudinal findings for the HOTA green bridge implementation to remove any impact of recall bias. We are seeking to do this should new green bridge constructions occur in roughly the intended timescales of the city authorities. Future reporting of such a longitudinal study can also be supplemented by findings from qualitative data collected as part of ongoing semi-structured interviews.

5. References

ABS (Australian Bureau of Statistics) (2016) *Gold Coast – General Community Profile: 2016 Census Community Profiles*, ABS website, accessed 3 May 2022.

BCC (Brisbane City Council) (2018) *Transport Plan for Brisbane – Implementation Plan 2018*, BCC website, accessed 3 May 2022.

— (2019) *Kangaroo Point Pedestrian Bridge – Preliminary Business Case Key Findings*, Brisbane City Council, accessed 3 May 2022.

Beck B, Thorpe A, Timperio A, Giles-Corti B, William C, Leeuw E, Christian H, Corbenh K, Stevenson M, Backhouse M, Ivers R, Hayek R, Raven R, Bolton S, Ameratunga S, Shilton T and Zapata-Diomedi B (2022) 'Active transport research priorities for Australia', *Journal of Transport & Health*, 24(1):101288.

Brown G and Glanz H (2018) 'Identifying potential NIMBY and YIMBY effects in general land use planning and zoning', *Applied Geography*, 99(1):1-11.

Buehler R and Pucher J (2012) 'Cycling to work in 90 large American cities: new evidence on the role of bike paths and lanes', *Transportation*, 39(1):409-432.

CoGC (City of Gold Coast) (2017) *Gold Coast Active Transport Plan 2017-2027*, CoGC Council website, accessed 29 April 2022.

Crane M, Rissel C, Greaves S, Standen C and Wen LM (2016) 'Neighbourhood expectations and engagement with new cycling infrastructure in Sydney, Australia: Findings from a mixed method before-and-after study', *Journal of Transport & Health*, 3(1):48-60.

Dunning R and Nurse A (2021) 'The surprising availability of cycling and walking infrastructure through COVID-19', *Town Planning Review*, 92(2):149-155.

Faherty TR and Morrissey JE (2014) 'Challenges to active transport in a car-dependent urban environment: A case study of Auckland, New Zealand', *International Journal of Environmental Science and Technology*, 11(8):2369-2386.

Ferster C, Laberee K, Nelson T, Thigpen C, Simeone M. and Winter M (2021) 'From advocacy to acceptance: Social media discussions of protected bike lane installations', *Urban Studies*, 58(5):941-958.

Field A, Wild K, Woodward A, Macmillan A and Mackie H (2018) 'Encountering bikelash: Experiences and lessons from New Zealand communities', *Journal of Transport & Health*, 11(1):130-140.

Giles-Corti B, Vernez-Moudon A, Reis R, Turrell G, Dannenberg AL, Badland H, Foster S, Lowe M, Sallis JF, Stevenson M and Owen N (2016) 'City planning and population health: A global challenge', *The Lancet*, 388(10062):2912-2924.

GoWA (Government of Western Australia) (2022) *WA State Budget 2022-23 – Building METRONET and our transport future*, GoWA website, accessed 6 May 2022.

Harpe SE (2015) 'How to analyze Likert and other rating scale data', *Currents in Pharmacy Teaching and Learning*, 7(1):836-850.

Karimi A and Brown G (2017) 'Assessing multiple approaches for modelling land-use conflict potential from participatory mapping data', *Land Use Policy*, 67(1):253-267.

Krizek KJ (2012) 'Cycling, Urban Form and Cities: What Do We Know and How Should We Respond?', in Parkin J (ed) *Cycling and Sustainability,* Emerald Publishing Group, Bingley, UK.

Lake RW (1993) 'Planners' Alchemy Transforming NIMBY to YIMBY: Rethinking NIMBY', *Journal of the American Planning Association,* 59(1):87-93.

Legacy C (2016) 'Transforming transport planning in the postpolitical era', *Urban Studies,* 53(14):3108–3124.

McDougall E and Doucet B (2021) 'Polarized oaths: 'selling' cycling in city and suburb', *Royal Butch Geographical Society,* 113(2):179-193.

McNee G and Pojani D (2021) 'NIMBYism as a barrier to housing and social mix in San Francisco', *Journal of Housing and the Built Environment,* 37(1):553-573.

Nello-Deakin S (2020) 'Environmental determinants of cycling: Not seeing the forest for the trees?', *Journal of Transport Geography,* 85(1):102704.

Pucher J and Buehler R (2017), 'Cycling towards a more sustainable transport future', *Transport Reviews,* 37(6):689-694.

Rabl A and de Nazelle A (2012) 'Benefits of shift from car to active transport', *Transport Policy,* 19(1):121-131.

SoQ (State of Queensland) (2019), *Queensland Walking Strategy 2019-2029* (Walking: for everyone, every day), Department of Transport and Main Roads website, accessed 4 May 2022.

Stehlin J (2015) 'Cycles of Investment: Bicycle Infrastructure, Gentrification, and the Restructuring of the San Francisco', *Environment and Planning A: Economy and Space,* 47(1):121-137.

Walks A (2015) 'Stopping the 'War on the Car': Neoliberalism, Fordism, and the Politics of Automobility in Toronto', *Mobilities,* 10(3):402–422.

Wild K, Woodward A, Field A and Macmillan A (2018) 'Beyond 'bikelash': engaging with community opposition to cycle lanes', *Mobilities,* 13(4):505-519.

Wilson A and Mitra R (2020) 'Implementing cycling infrastructure in a politicized space: Lessons from Toronto, Canada', *Journal of Transport Geography,* 86(1):102760.