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What New Zealanders think is a fair way to pay for infrastructure: Survey insights

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Contact

Judy Kavanagh | Director, Inquiries
Email: judy.kavanagh@tewaihanga.govt.nz
Website: tewaihanga.govt.nz
LinkedIn: tewaihanga

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Summary

We surveyed New Zealanders about what's a fair way to pay for infrastructure

New Zealand faces infrastructure challenges including population growth, increasing expectations of service quality, and the need to adapt to climate change. We need to rethink how to prioritise, fund, and deliver infrastructure. But doing things differently may mean that who bears the costs of infrastructure will be different, raising questions about what's fair.

To understand public perceptions, we asked a representative sample of 3002 New Zealanders whether it's fairer that what a household pays for **roads**, mains (drinking) **water**, and **electricity** should differ based on **what the household uses**, on **what the household's income is**, or on **the cost of supplying the service** to where the household is located. We also asked whether it's fair to charge more at times of **peak demand**.

Highest support for usage as a fair way of charging for infrastructure

Nearly three-quarters of respondents thought it was fair that the amount households pay for electricity (74%) and water (72%) should differ by how much a household uses. Just over one-third (34%) of respondents thought this was a fair way to pay for roads, but this was still considered fairer than other potential ways of charging. However, no way of paying for roads presented in the survey was considered fair by a majority of respondents. This may be due to the complexity of road funding mechanisms, the perception of roads as a public good for all, and/or individuals' perceived lack of control over their road usage compared to other utilities.

What people think is fair varies by age, gender, and ethnicity

Younger generations (under 30) were more likely to agree it is fair that what households pay for services should be based on income, cost to supply and time of use, while older generations (aged 60 plus) were less likely to agree. While most people in all age groups agreed on the fairness of usage-based charging for electricity and water, younger people (under 30) were more likely to think it's a fairer way to pay for roads than older people (60 plus). Those identifying as Māori and/or Pacific people were more likely to agree that income-based charges are fairer. Overall, women tended to have lower agreement about the fairness of pricing based on cost to supply, usage, and time of use, than men. Men tended to view usage-based charging for roads as fairer than women.

Demand management tools were not perceived as fair by many, but congestion charging was perceived as fairer by Aucklanders

Respondents generally opposed time-of-use pricing as a fair way to manage demand for infrastructure (47% thought it unfair as a means to manage demand for electricity, 59% thought it unfair as a way of managing demand for water during shortages, and 65% thought it an unfair way of managing congestion on roads). Only one-quarter (25%) of respondents thought that it was fair to charge for roads based on time of use; however, the picture is different when we examined regional variations. Nearly one-third (31%) of Aucklanders agreed that time-of-use charging was a fair way to manage congestion, compared to only one-fifth of non-Auckland respondents (22%). This may be because the pervasiveness of traffic jams in Auckland has made residents more aware of the challenges posed by congested roads and, therefore, more open to exploring solutions.

Perceptions of fairness appeared to be self-interested, but there were also signs of altruism

Lower-income households were more likely to agree income-based charging was fair, while higher-income households were less likely to agree. Households receiving the Winter Energy Payment[1] were more likely than other respondents to think it's fair that what households pay for electricity should be based on income (25%). Almost one-quarter (24%) of all respondents and nearly one-third of respondents aged 20 to 29 (30%) were willing to pay more to off-set the bills of lower-income households.

Most respondents did not think it was fair for households to shoulder higher costs to supply

Most survey respondents did not think it would be fair to charge based on the cost of supplying electricity (55%), water (57%) or roads (60%). Rural residents (who would likely face higher costs of supplying infrastructure services) were more likely to agree it would be unfair for households to pay based on the cost of supplying electricity, water, or roads to their area, compared to respondents living in large cities.

Key points for decision-makers

Harness the finding that most people think volumetric water charging is fair

Reform of our water infrastructure in some shape or form is inevitable and necessary. Decision-makers have the opportunity to harness the broad support for use-based charging as a fair means of paying for water and adopt volumetric charging where it is not already in place. This would first require the introduction of water metering in areas where this is not already present. Volumetric water charging is the best way of conserving scarce water resources, identifying and remedying leaks, and helping water service providers defer or avoid new capital spending.

Aucklanders' agreement about the fairness of congestion charging for road use at peak times is comparable to pre-implementation support in cities where it's been successfully introduced

Despite most respondents (65%) not viewing congestion charging as a fair way of charging for road use at peak times, Aucklanders were more likely to think it was fair (31%) than those from elsewhere (22%). This is comparable to the levels of public acceptance of time-of-use charging in other cities before congestion charging was introduced. Based on the experience of cities overseas, where support increased after the introduction of congestion charging, decision-makers should be encouraged that proposals to introduce congestion charging on Auckland roads will likely gain public acceptance.

Most people think it's not fair to charge based on the cost to supply infrastructure

An enduring theme in infrastructure policy is that the cost of supplying infrastructure should not be a barrier to access, especially for people living in rural areas. There are big questions about the circumstances in which subsidising the cost of supplying infrastructure is justified, and at what level.

[1] For those who are eligible, the Winter Energy Payment is an extra payment to help with the cost of heating over the winter months. https://www.workandincome.govt.nz/products/a-z-benefits/winter-energy-payment.html

Decision-makers need to understand and navigate different views about what's fair to meet the infrastructure challenges ahead

In designing policies to meet the infrastructure challenges we face, decision-makers need to be able to navigate views about what New Zealanders think is fair. Regularly undertaking representative surveys of this type is valuable, and a useful extension to public consultation processes.

Contents

Figures

1. Fairness matters when it comes to paying for infrastructure

Concerns about fairness are at the heart of many current debates about infrastructure and who should pay as the examples below suggest.

- Whether it would be fair for Wellingtonians to pay for the water they use, regardless of household circumstances and incomes.[2] [3]
- The implications for fairness of the new high usage 'excess water charge' in Christchurch.[4] [5]
- Whether charging to deal with congestion on roads in Auckland would be fair to those on low incomes or who have no alternative route or option other than to travel at peak times.[6] There are also similar debates happening in Tauranga[7] and Christchurch.[8]
- Who should cover the cost of providing infrastructure services to rural or remote areas, such as Stewart Island.[9]
- Who should pay for rebuilding infrastructure to service small populations in remote communities after damage from extreme weather events, such as in Marlborough[10] [11] or Cyclone Gabrielle.[12]

In each case, a range of views and perspectives about what's fair have been expressed publicly. But perspectives about what's fair differ, and formal council and central government agency consultation processes may not be reflective of the views of the population served.[13]

This paper reports on what 3002 New Zealanders think is fair when it comes to paying for everyday infrastructure: roads, mains (drinking) water, and electricity. We did not require respondents to make trade-offs in their answers or consider the consequences of their views, we were simply interested in people's 'gut' or 'unconstrained' view of what they thought was fair. That said, we quickly realised in pre-testing that the survey was asking respondents to think about questions they hadn't thought much about before.

All results are statistically significant (at the 95% confidence interval) unless otherwise stated. More detail about the survey and how the questions were asked is provided in Appendix A.

[2] https://www.thepost.co.nz/a/nz-news/350086318/action-water-use-urgently-needed-what-system-fairest
[3] https://www.thepost.co.nz/a/nz-news/350082536/meters-still-reducing-water-use-kapiti-10-years
[4] https://www.stuff.co.nz/the-press/news/130397497/new-charge-for-christchurchs-heaviest-water-users-unfair-as-thousands-exempt
[5] https://www.thepress.co.nz/nz-news/350015704/excess-water-charge-fight-goes-ombudsman
[6] https://www.transport.govt.nz/assets/Uploads/Report/AucklandRoadPricingEvaluationStudy.pdf
[7] https://www.sunlive.co.nz/news/327433-people-fuming-over-congestion-charges.html
[8] https://www.nzherald.co.nz/nz/opinion-road-tolls-congestion-charges-what-is-the-christchurch-city-council-thinking/7BZFCWTJBISEM7HRU5XCRCPXJQ/
[9] https://www.stuff.co.nz/southland-times/southland-top-stories/132443154/insane-25-electricity-price-hike-confirmed-on-stewart-island-as-steering-group-considers-solar-farm
[10] https://www.rnz.co.nz/news/ldr/497710/survey-leaves-council-no-closer-to-sticky-question-of-who-pays-for-sounds-road-repairs
[11] https://www.marlborough.govt.nz/your-council/latest-news-notices-and-media-releases/all-news-notices-and-media-releases?item=id%3A2nde8nmmg1cxbyaj3uar
[12] https://www.sciencemediacentre.co.nz/2023/02/16/building-back-better-after-cyclone-gabrielle-expert-reaction/
[13] See, for example, https://oag.parliament.nz/1998/public-consultation/part4.htm, which talks to the issue of 'squeaky wheel syndrome' where a minority group tends to dominate public consultation processes at the cost of the 'silent majority'.

2. Survey findings

2.1. What people think is a fair way to pay across three types of infrastructure

We were interested to know if people have a consistent view of what's a fair way to pay for infrastructure services or if it varies across three types of infrastructure (electricity, mains (drinking) water, roads). We also wondered if what people think is fair is influenced by current charging practices (i.e. status quo or familiarity bias).

For electricity, water, and roads we asked whether it was fair that the amount households pay should differ based on:

- what it costs to supply the infrastructure to the household
- how much the household uses
- the household's income.

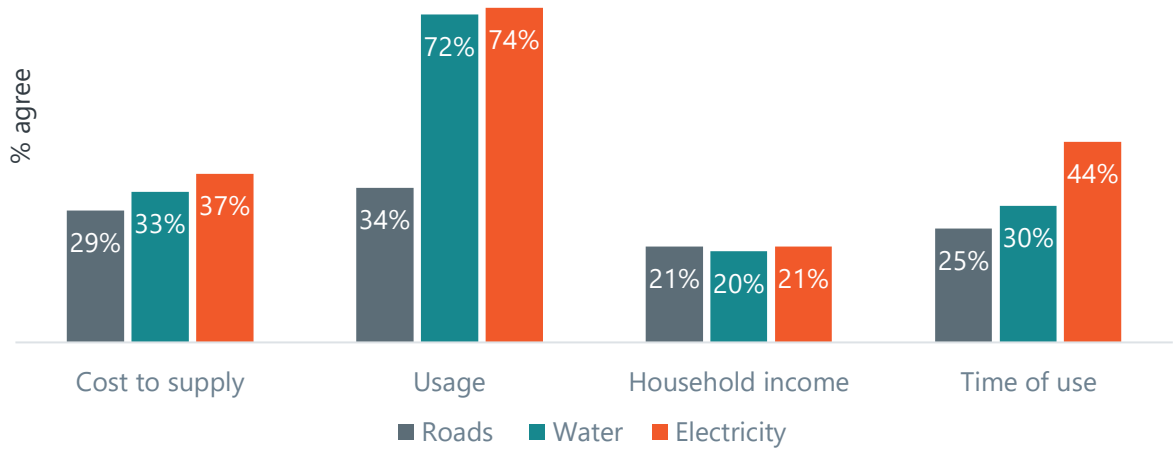
These represent different underlying conceptions of fairness. However, it was possible for people to consider all three charging mechanisms to be fair, or conversely to find none of them a fair way of charging for infrastructure.

2.1.1. Highest support for usage as a fair way of charging for infrastructure

Nearly three-quarters of respondents thought it was fair that the amount households pay for electricity (74%) and water (72%) should differ by how much a household uses. Just over one-third (34%) of respondents thought this was a fair way to pay for roads, but this was still higher than for the other potential ways of charging presented in the survey (**Figure 1**). A higher proportion of Aucklanders (38%) thought that usage was a fair way to pay for roads compared to one-third (32%) of the rest of the country.

Roughly one-third of respondents thought it was fair that households should pay based on the cost to supply electricity (37%), water (33%), or roads (29%). Only one-fifth thought it was fair that households should pay for roads (21%), water (20%), or electricity (21%) based on household income.

Figure 1: Percentage of respondents who agree it is fair that what households pay for roads, water, and electricity should differ based on cost to supply, usage, household income, and time of use



2.1.2. What people think is fair varies by age, gender, and ethnicity

Younger generations (under 30) were more likely to agree it is fair that what households pay for services should be based on income, cost to supply and time of use, while older generations (aged 60 plus) were less likely to agree.

While most people in all age groups agreed on the fairness of usage-based charging for electricity and water, younger people (under 30) were more likely to think it's a fairer way to pay for roads than older people (60 plus).

Those who identified as Asian were more likely to view cost to supply and time of use as fairer, while those identifying as Māori and/or Pacific people were more likely to agree that income-based charges are fairer.

Views of fairness are similar for both men and women, but overall women tended to have lower agreement about the fairness of pricing based on cost to supply, usage, and time of use, whilst men had higher agreement. Men tended to view usage-based charging for roads as fairer, whereas women tended to view usage-based charging for electricity and water as fairer.

2.1.3. How respondents currently pay for water did not appear to influence their views about what would be a fair way

The status quo does not seem to have influenced what respondents thought was a fair way of paying for water.

How households are charged for mains (drinking) water depends on where the household is located. Some councils like Auckland, Tauranga, and Kāpiti Coast charge by use (called volumetric charging) or a mix of volumetric and fixed charges.[14] But other councils fund the supply of mains water through general rates which are paid by house owners (and indirectly by renters), so the amount paid varies depending on the characteristics of the property. In some cases, councils fund water supply to specific groups of house owners through targeted rates.

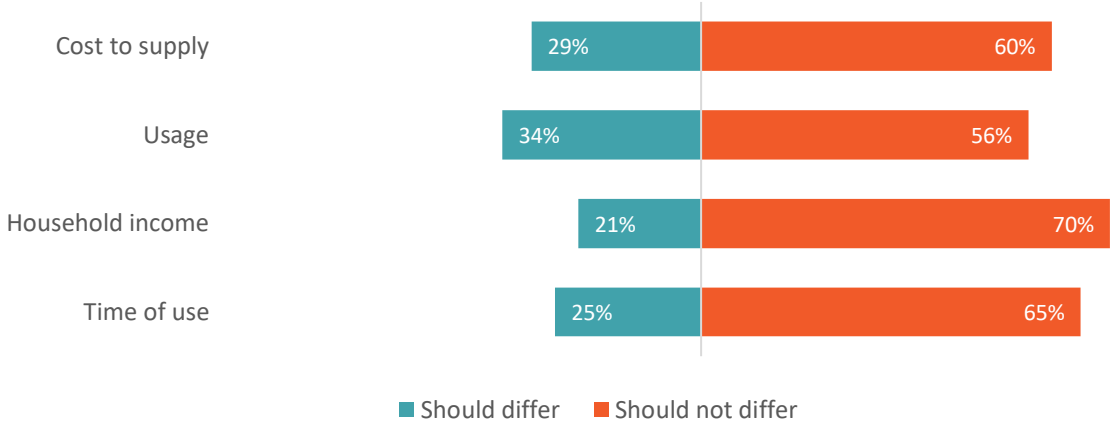
The regions in our survey don't align with council boundaries in all cases[15] and so we couldn't compare the views of respondents who currently have volumetric water charging with those who don't. However, with this caveat, the survey did reveal support for usage-based charges as a fair way of charging for mains water, even from areas of the country that do not have volumetric charging.

[14] Christchurch residents only pay an 'excess' usage charge.
[15] For example, Wellington in the survey includes the Kāpiti Coast and South Wairarapa District councils which have volumetric charging, as well as Wellington City, Hutt City, and Upper Hutt City councils which do not.

2.1.4. No suggested way of paying for roads was considered fair by a majority of respondents

Although road usage was considered the fairest way of paying for roads (34%), no means of paying for roads presented in our survey was considered fair by a majority of respondents (**Figure 2**).

Figure 2: Percentage of respondents who agree it is fair that what households pay for roads should differ, or should not differ, based on cost to supply, usage, household income, and time of use



Households contribute to the National Land Transport Fund through Fuel Excise Duties (FED) and Road User Charges (RUC), both of which can be thought of as use-based charges because the amount you pay varies by how much you drive.[16] Households also contribute to the cost of roads through council rates which are paid by house owners (and indirectly by renters) and vary based on the characteristics and value of properties. Large roading projects are increasingly funded by central government from general taxation, which households pay through income taxes and GST.

Did the complex mix of funding mechanisms for roads contribute to this finding? We think it is more likely that respondents perceived roads to be inherently different from electricity and water, especially with respect to paying based on usage. As one respondent commented: '*I found it unusual to put water and electricity use/supply in the same context with the use of a road*'. People aren't excluded from using roads[17] and so they are often viewed as a 'public' good to be funded collectively (for example, through taxation) rather than as a 'private' good which can be wired or piped to homes (where usage can be measured and charged for). Respondents may also think that households have more control over their water and electricity usage than road usage, especially if they rely on private vehicles and have limited public transport options.

2.2. Do people think it's fair to charge more at times of high demand?

At times, infrastructure networks must manage high levels of demand (for example, rush hour for transport, dinner time for electricity) and the costs of meeting this peak demand can be very high. Pricing is one way to manage demand and we were therefore keen to explore respondents' views about the fairness of charging more for infrastructure services when demand is high.

[16] Noting that for FED this is more complicated as fuel use is also influenced by vehicle fuel efficiency.
[17] However, at its extreme, congestion can effectively exclude people from using a road.

2.2.1. Time-of-use charging practices in New Zealand

Peak load, or 'ripple control', is a means of reducing demand for electricity at peak times, to avoid overloading the electricity system or forcing power stations to operate at inefficient levels. Some electricity retailers use time-of-use pricing plans which charge customers different rates for electricity depending on the time of day, providing incentives for customers to shift their electricity consumption to off-peak times.[18]

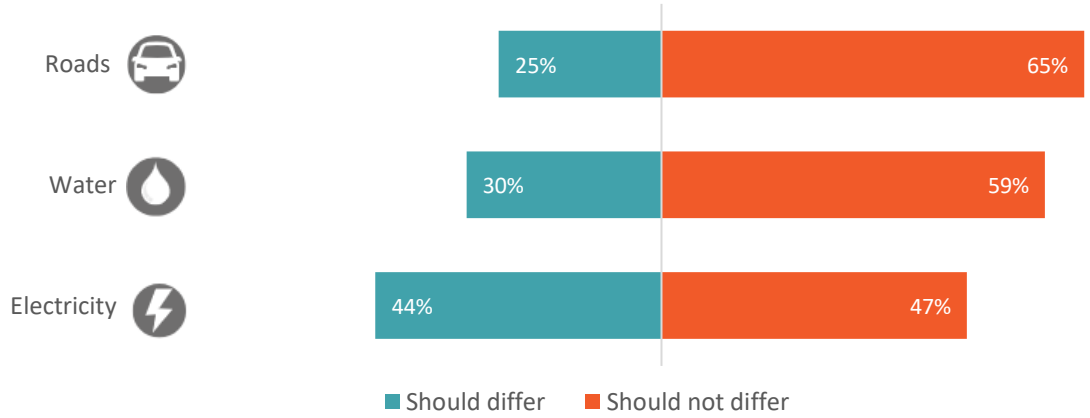
Volumetric charging for water is a proven way of reducing the demand for water, and delaying or halting the need for new capacity, but water can still be in short supply through the summer months. However, charging more for water is not used to reduce demand in periods of short supply, even for areas of the country that have volumetric water charging. When there is a threatened water shortage, councils typically rely on non-price means of rationing water use, such as limiting the times gardens can be watered or banning the use of outdoor hoses over the summer.[19]

Roading authorities in many other countries have adopted congestion charges. This encourages households to drive less at these times by changing their time of travel, their route, or the way they travel. These charges can cover narrow areas or entire roading networks and can be a flat fee (for example, to enter or leave a specific area), or vary depending on likely levels of congestion (for example, higher charges during rush hours, and low or zero prices at other times). New Zealand does have some toll roads but not congestion charging. Congestion charging would require legislative change to introduce.

2.2.2. Did respondents think charging based on time of use was fair?

One-quarter (25%) of respondents thought that it was fair to charge for roads based on time of use. More saw this as a fair way to charge for electricity (44%) but a similar percentage (47%) still said it was not fair. For water, the question was framed around the availability of water and managing use when it was in short supply, for example, in the summer months. One-third (30%) of respondents thought it was fair to pay for water based on when it was used (**Figure 3**).

Figure 3: Percentage of respondents who agree it is fair that what households pay for roads, water, and electricity should differ, or should not differ, based on time of use



[18] Peak times are often considered 7am to11am and 5pm to 9pm. Prices outside of these times tend to be discounted, for example, Meridian's EV Plans offer discounted electricity from 9pm to 7am every night. Flick's Off Peak power plan allows savings of between 21% and 55% (based on meter configuration, network area, and load group) of peak power price when used off peak. Electric Kiwi offers an hour of free off-peak power.

[19] Water restriction levels are a set of rules that are implemented by councils to reduce water usage during times of drought or other water shortages. These levels are typically based on the severity of the water shortage and may vary from region to region. Auckland uses a five-level water restriction approach to manage water usage during times of shortages.

It is reasonable to assume that familiarity with demand-management tools like peak-load pricing for electricity might contribute to people thinking it's a fair method of charging for electricity. Unfamiliarity with the use of these tools for water and roads might explain why most respondents did not think that pricing to manage demand of these is fair. Other plausible explanations include:

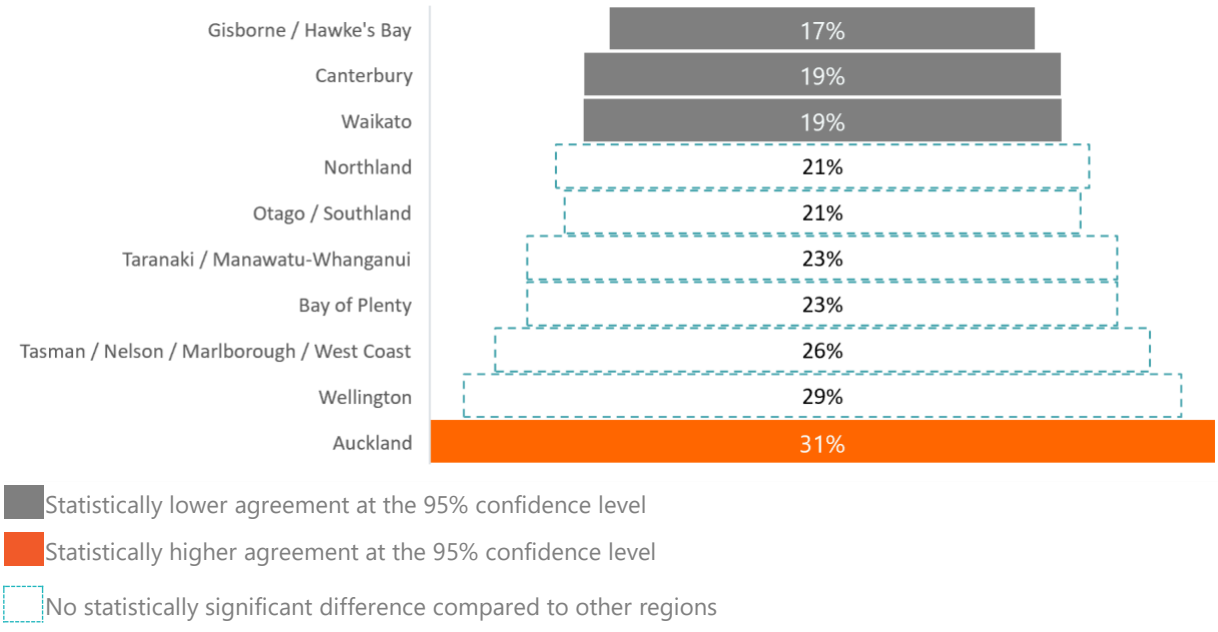
- beliefs about rights to water, regardless of constraints on available supply
- not perceiving there to be a demand management problem to fix, for example, if respondents do not experience congestion on their local roads
- concern that implementation of demand management would unfairly benefit particular groups of people at the expense of others
- beliefs that charging more at times of high use is just another 'revenue-generating scheme'.

The way the questions were framed in the survey could also have been a factor. Our questions were framed around charging *more* at peak times. Alternatively, we could have asked about charging *lower* rates at off-peak times, which is the framing typically used by electricity retailers and public transport operators, for example, discounted off-peak transport fares.

2.2.3. Are people more likely to think congestion charging for road use at peak times is fair in areas where there is a congestion problem?

Nationally, only one-quarter (25%) of respondents thought that the amount paid for roads should differ by when they are used. However, there were some differences by region (**Figure 4**). While nearly one-third (31%) of Aucklanders considered time-of-use road pricing to be fair, only one-fifth (22%) of non-Aucklanders thought the same. In particular, Gisborne/Hawke's Bay (17%), Canterbury (19%) and Waikato (19%) residents were less likely to agree that it is fair that what households pay for roads should differ based on when they use them.

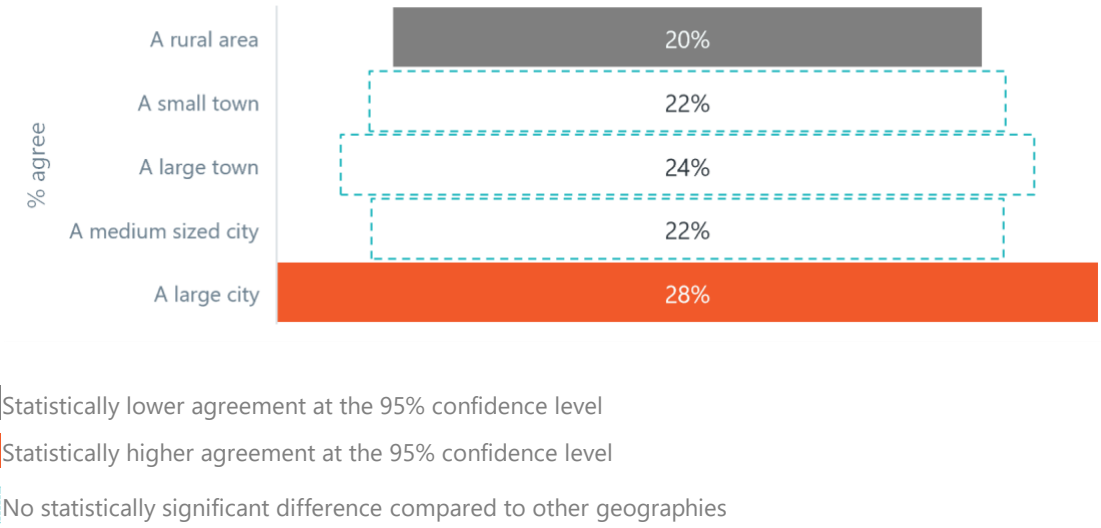
Figure 4: Percentage of respondents who agree it is fair that what households pay for roads should differ based on time of use (by region)



There were also marked differences according to whether the respondent lived in a large city, a medium-sized city, a large town, or a rural area (**Figure 5**), with 28% of those in large cities agreeing it was fair that what households pay for roads should differ based on when roads are used, compared to only 20% of respondents in rural areas. Overall, the results suggest that people are more likely to think

congestion charging is fair in large cities, that is, areas where there is more likely to be a congestion problem.

Figure 5: Percentage of respondents who agree it is fair that what households pay for roads should differ based on time of use (by rurality/city size)



2.3. Self-interest and altruism in survey responses

2.3.1. Little support for the fairness of charging based on household income

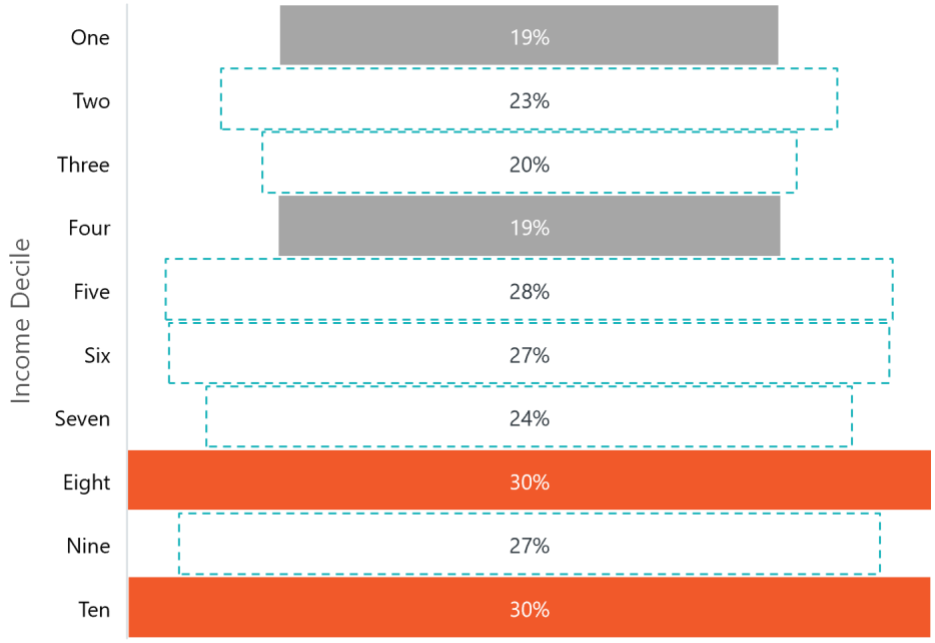
Around 70% of respondents thought it was unfair that what households pay for electricity, water, and roads should differ based on household income. However, respondents from lower income households were more likely to say that it would be fairer if what households pay differed based on household income. Similarly, households receiving the Winter Energy Payment were more likely to say it was fair that what households pay for electricity should be based on income (25%).

2.3.2. Greater support for the fairness of congestion charging for road use at peak times from respondents on higher incomes

One of the main concerns with time-of-use road charging is that it would increase the financial burden on lower-income households, whereas those on higher incomes are more likely to be able to pay a congestion charge and may also have greater ability to avoid the charge (for example, have more flexibility in working hours and/or ability to work from home to avoid travelling at peak times).

These concerns appear to be reflected in the survey results (**Figure 6**). Respondents in higher-income deciles were more likely to consider time-of-use charging a fair way to pay for roads than respondents in lower-income deciles (19% for respondents from decile one households, compared to 30% for respondents from decile 10 households).

Figure 6: Percentage of respondents who agree it is fair that what households pay for roads should differ based on time of use (by income decile)

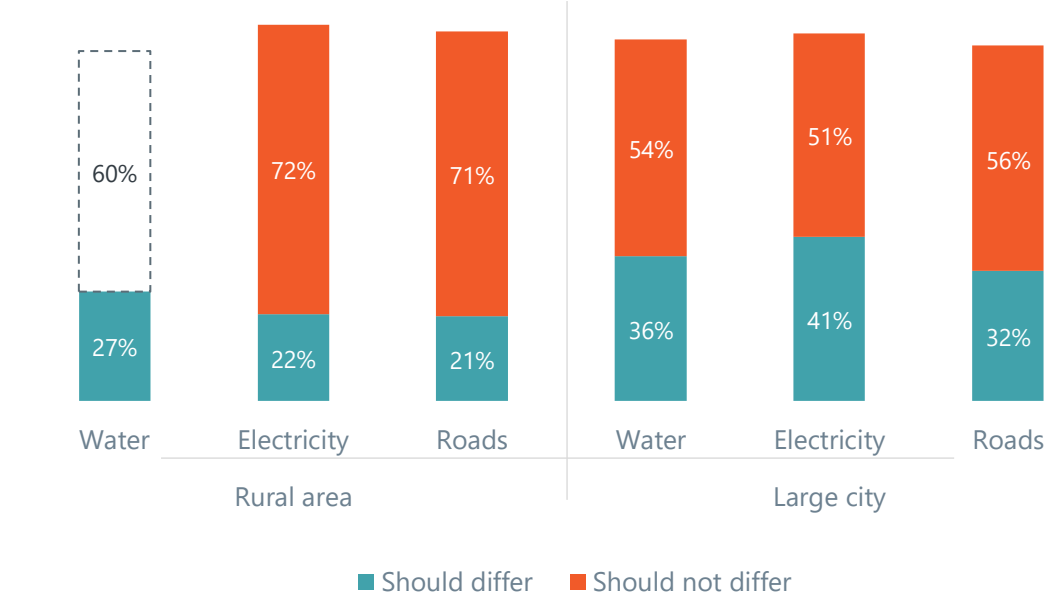


2.3.3. Few respondents thought it was fair to charge households based on the cost to supply infrastructure

Overall, most survey respondents (electricity (55%), water (57%), roads (60%)) did not think it would be fair to charge for infrastructure based on the cost of supplying services to households. Rural dwellers exhibited statistically higher disagreement with the fairness of cost-based charging across all services except water, where no significant difference from the average was observed. The opposite trend was seen for respondents living in large cities, where statistically higher agreement with the fairness of cost-based charging was found across all services (**Figure 7**).

It is possible that respondents living in rural areas recognised that it costs more to supply and maintain infrastructure in areas that are remote, and that the fixed costs of providing infrastructure must be spread across fewer people. In particular, the cost of building and maintaining roads is expensive for those living in rural and remote areas of the country where many kilometres of roads must be built and maintained from a small rating base. Rural people may also have to travel long distances regularly, and therefore pay more FED and RUC, which also contribute to funding for roads.

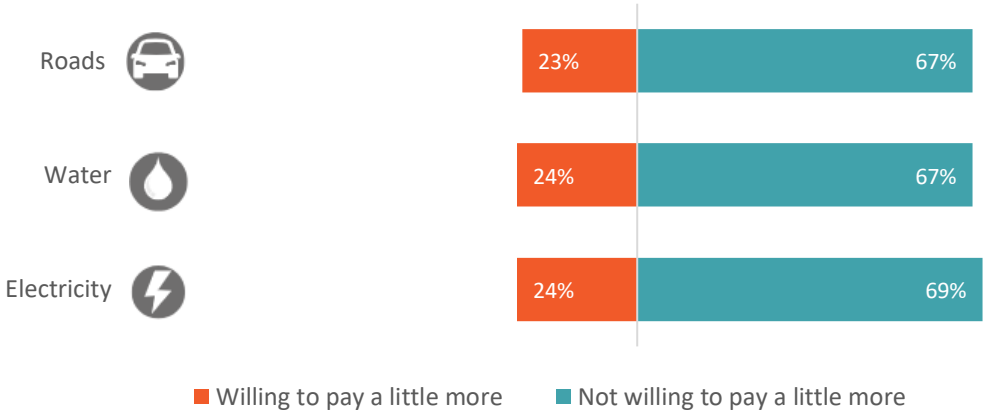
Figure 7: Percentage of respondents who agree it is fair that what households pay for water, electricity, and roads should differ, or should not differ, based on cost to supply (rural and large city compared to the average)



2.3.4. Some evidence of altruism

There are social retailing electricity services in New Zealand which are designed to help low-income and vulnerable customers access affordable electricity.[20] We were keen to explore how many respondents would be prepared to pay a little more for infrastructure services so that a low-income household could pay a little less. Nearly one-quarter (23% to 24%) of respondents said they would be willing to pay a little more across all three infrastructure services so lower income households could pay a little less (**Figure 8**). Support was higher among 20 to 29-year-olds (30%) and lower among those aged 50 to 59 years (20%).

Figure 8: Percentage of respondents who are willing to pay a little more for roads, water, and electricity so that lower-income households can pay a little less



[20] For example, Pulse Energy's 'Pay it Forward Programme' allows Pulse customers to gift $2 or more per month to a fund that Pulse uses to give credit to its customers who are struggling to pay their energy bills. As of 2023, 2400 Pulse customers were contributing to the programme and Pulse matches their contributions dollar for dollar.

3. Key points for decision-makers

The findings from this survey provide insights about New Zealanders' views on fairness that can inform and help decision-makers navigate current issues in infrastructure.

3.1. Most people think volumetric water charging is fair

3.1.1. Future reform of our water infrastructure is inevitable and necessary

Our survey found that nearly three-quarters (72%) of respondents thought it was fair that the amount households pay for water should differ based on how much water is used.

We suggest, consistent with our recommendation in the *New Zealand Infrastructure Strategy*, that decision-makers harness the broad support for use-based charging as a fair means of paying for water and adopt volumetric charging, where it is not already in place, as a part of future water reform.[21] This could be done alongside a fixed charge to manage water infrastructure assets and for stormwater, and the discretion to have lower charges for some households.

Charging households based on how much they use an infrastructure service has a range of benefits that have been well documented.

- Households that have their consumption measured and charged for tend to use less water on average. Water metering and volumetric water charging in Tauranga saw a 30% reduction in peak demand,[22] while the introduction of excess water charges in Christchurch saw water use decrease by more than 10%.[23] Water service providers who meter water use and use volumetric charging are also more effective at identifying and fixing leaks.
- Lower consumption can help water service providers defer or avoid new capital spending, thereby saving households money. For example, bringing in volumetric water charging on the Kāpiti Coast meant that that the council could postpone building a new dam by about 40 years, even though the population of the district is growing.[24] In Tauranga, the introduction of water metering and volumetric water charging enabled a proposed water scheme to be delayed by at least 10 years.[25]
- Metering and charging for water use can also lead to a more accurate allocation of costs and, in many cases, lower bills for many users. In the case of the Kāpiti Coast, three-quarters of ratepayers[26] ended up paying less for their water after the introduction of metering and volumetric charging, as they were no longer subsidising heavier users.

3.1.2. Most respondents thought it was fair for water charges to differ based on use… but not time of use

Most survey respondents said that paying more for water when there was a shortage would not be fair. As water entities do not currently charge higher prices to manage demand when water is in short supply, our respondents may just be unfamiliar with pricing as a means of conserving water. It is also

[21] *Rautaki Hanganga o Aotearoa* the New Zealand Infrastructure Strategy recommends improving water pricing and provision (Recommendation 12).
[22] https://www.waternz.org.nz/documents/other/101029_tauranga_on_metering.pdf
[23] https://newsline.ccc.govt.nz/news/story/excess-water-your-questions-answered
https://www.rnz.co.nz/news/national/485029/christchurch-water-use-decreases-by-10-percent-after-excess-charges-introduced
[24] https://media.umbraco.io/te-waihanga-30-year-strategy/q1ciuzff/providing-and-paying-for-infrastructure-whats-fair.pdf
[25] https://www.waternz.org.nz/documents/other/101029_tauranga_on_metering.pdf
[26] https://media.umbraco.io/te-waihanga-30-year-strategy/q1ciuzff/providing-and-paying-for-infrastructure-whats-fair.pdf

possible, however, that non-price mechanisms for rationing water – such as restricted use over the summer – are preferred and quantity rationing will continue to be a publicly accepted means of water management.

3.2. Aucklanders think congestion charging for road use at peak times is fair at rates comparable to pre-implementation support in cities where congestion charging has been introduced

3.2.1. The case for congestion charging

There are many benefits from introducing congestion charging for roads, the most obvious being less congestion and reduced travel times. The introduction of congestion charging in Stockholm, Sweden saw queuing times fall by between 33% to 50% at peak times. But freer flowing traffic was not just beneficial to people travelling in cars, bus passengers also enjoyed shorter trip times and more reliable services. Less congestion and lower-traffic volumes can also have environmental and health benefits, such as reduced greenhouse gas emissions and other air pollution emissions. Depending on the design of the charge, the revenue raised can be used to fund more extensive or frequent public transport services.[27]

3.2.2. Be encouraged by the support for time-of-use charging of roads in Auckland

At first blush it appears that there is not great support for time-of-use charging as a fair means of dealing with congestion on roads, with only one-quarter (25%) of respondents agreeing it was fair. However, there was more support among Aucklanders, with 31% of respondents agreeing that it would be fair for households to pay more to use roads at high demand periods than at other times.

Overseas experience suggests that public acceptance of congestion charging is related to experiencing the benefits once it's in place. A report by WSP, titled *Congestion Charging: Policy and Global Lessons Learned*[28] looked at public acceptance before and after implementation of congestion charging schemes in different European cities and found a consistent increase in the level of acceptance over time in all cities. For example, as Stockholmers experienced the benefits of shorter travel times and less congestion, their acceptance of the charge increased:

> *First, self-interest variables are obviously important. All else equal, individuals get more positive the less charges they pay (or expect to pay), the more time gains they get, the higher they value travel time savings, and the more satisfied they are with public transport. Individuals also become more positive if revenues are used in a way they appreciate, which can be viewed as a form of self-interest (Eliasson & Jonsson, 2011; Hamilton & Eliasson, 2012; Hårsman & Quigley, 2010; Schade & Schlag, 2003a).* [29]

Figure 9 presents data from WSP about public acceptance of congestion charging in four European cities before and after the implementation of congestion charging, alongside data from our survey showing Aucklanders' support for time-of-use pricing as a fair way of dealing with congestion.

While the percentages are based on different data and therefore cannot be directly compared, **Figure 9** shows that our survey found support among Aucklanders for time-of-use pricing as a fair way of dealing

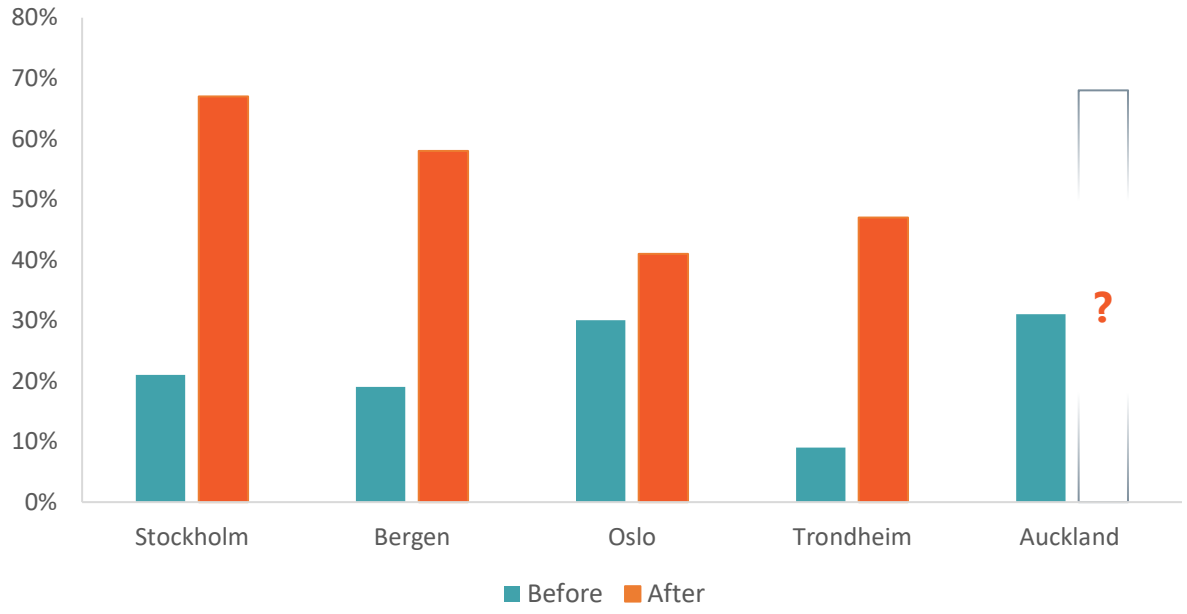
[27] 'Congestion Charging in Stockholm', Te Waihanga podcast, August 2022. https://tewaihanga.govt.nz/watch-listen/podcasts/congestion-charging-in-stockholm

[28] WSP. Congestion Charging: Policy and Global Lessons Learned. Published March 2018. Accessed November 2023. https://www.google.com/congestion-charing-policy-and-global-lessons-learned

[29] Eliasson (2014) The Stockholm congestion pricing syndrome: How congestion charges went from unthinkable to uncontroversial. Accessed November 2023. https://www.transportportal.se/swopec/CTS2014-1.pdf

with congestion was similar to levels of public acceptance of time-of-use charging in other cities before a congestion charge was put in place.

Figure 9: Public acceptance of congestion charging in overseas cities before and after introduction, and Aucklanders' agreement that time-of-use charging is a fair way to manage congestion



Source: WSP and New Zealand Infrastructure Commission

3.2.3. Adopt congestion charging in Auckland and consider it in other cities

The *New Zealand Infrastructure Strategy* recommends removing legislative barriers to implementing congestion charging, implementing congestion charging in Auckland, progressing planning for congestion pricing schemes in other cities, and identifying other urban areas where congestion pricing may be beneficial.[30] Based on the experience of cities overseas, where support increased after the introduction of congestion charging, decision-makers can feel confident that proposals to introduce congestion charging on busy Auckland roads are likely to gain public acceptance. However, the design and implementation of congestion charges will be crucial, including transparency about how the revenues collected will be used to benefit Aucklanders.

3.3. Most people think it's not fair to charge based on the cost to supply infrastructure

Most (55% to 60%) survey respondents did not think it was fair for households to pay for services based on the cost to supply. There is an enduring theme in infrastructure policy that everyone should have access to services – even in rural and remote areas where the cost of supply is higher or where the population is too small to meet the costs. This can be seen in initiatives such as the Rural Broadband Initiative, Rural Capacity Upgrades, and Remote Users Scheme.

However, there are big questions for the future about when such subsidies are appropriate and for whom, and who should pay. Over time the pattern of settlement across New Zealand has changed. Should areas with few people and declining population continue to be serviced by infrastructure when a subsidy is required? And who should pay for this? Similarly, who should pay for infrastructure to support new areas of (greenfield) development? Or to rebuild infrastructure in the event of damage from

[30] Recommendation 21 in *Rautaki Hanganga o Aotearoa* the New Zealand Infrastructure Strategy.

earthquakes or storms? With respect to weather events, these are predicted to be more intense and extreme in the coming years, so questions about who pays for rebuilding infrastructure, or whether it should be rebuilt at all, will need to be addressed.

3.4. Decision-makers need to understand and navigate different views about what's fair to meet the infrastructure challenges ahead

New Zealand has some tough challenges ahead. There are ways forward, but it will require us to do things differently and that might mean changing who pays for infrastructure. In designing policies, decision-makers need to navigate views about what New Zealanders think is fair, especially when there are diverse perspectives across age, gender, and ethnicity.

This paper reports on what a representative sample of New Zealanders said was fair when it comes to paying for our roads, water, and electricity. It aims to inform decision-makers about these views and how they might work with different views in meeting the infrastructure challenges New Zealand faces. In meeting those challenges it's valuable for decision-makers, and those who advise them, to regularly undertake representative surveys to better understand what the New Zealand public thinks is fair. Such surveys are a useful extension to public consultation processes, which, for various reasons, are not always representative.[31]

[31] See, for example, https://oag.parliament.nz/1998/public-consultation/part4.htm, which talks to the issue of 'squeaky wheel syndrome' where a minority group tends to dominate public consultation processes at the cost of the 'silent majority'.

Appendix A: Asking New Zealanders what they think is fair

Te Waihanga commissioned Kantar Public to survey New Zealanders about what they think is fair when it comes to paying for electricity, mains (drinking) water, and roads. The survey was conducted online between 13 June and 11 July 2023. The total sample was 3002 New Zealanders aged 18 years or over and was representative by age, gender, ethnicity, and region. All of the findings presented within this report are statistically significant at the 95% confidence interval (with a margin of error of +/- 1.8%) unless otherwise stated.

The survey asked whether it's fairer that what households pay should differ by usage, on the cost to supply the infrastructure, or on household income. These approaches are all currently used in various settings to pay for infrastructure and could all be seen as 'fair' in different contexts, and by different people. We also wanted to know if New Zealanders think it's fair that what households pay should vary by when they use the infrastructure (for example, peak versus off-peak times).

We did not define what 'fair' meant. What people think is fair is subjective, and we hoped to glean how people conceive of fairness through their responses to the questions. We were keen to know if people are consistent in their views about what's fair across the three different types of infrastructure, and whether there are differences between New Zealanders according to age, income, or where they live.

We quickly realised in pre-testing that the survey was asking respondents to think about questions they hadn't thought much about before. This led us to produce a video that explains how people currently pay for infrastructure services.

In phrasing the survey questions, it was important to provide some context but not be leading. For example, we prefaced a question about paying for the cost of supplying water by explaining:

> *The cost of supplying piped (mains) water to households varies based on many factors. These include the location (for example, bottom or top of a hill), distance from a water treatment plant (such as where water is made safe for drinking), distance from water source to the water treatment plant, and the amount of treatment required.*

Respondents were then asked to choose the statement they thought was fairer:

1. *The amount households pay **should differ** based on the cost to supply piped (mains) water to the household – so households where it costs more to supply should pay more than households where it costs less.*
2. *The amount households pay **should not differ** based on the cost to supply piped (mains) water to the household.*
3. *I'm not sure / don't have an opinion.*

We specifically did not require respondents to make trade-offs in their answers. While politicians and decision-makers are required to make trade-offs, we were more interested in people's 'gut' or 'unconstrained' view of what's fair. Similarly, we did not ask respondents whether the cost or price was fair, but rather what would be a fair way of distributing total costs of a service between households.

Regularly undertaking representative surveys of this type is valuable and can complement public consultation processes.