

THE FUTURE OF TRANSPORT IN AOTEAROA NEW ZEALAND:

Who should pay for what?

Analysis of an online conversation using Pol.is

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1. Executive Summary

The transport system in Aotearoa New Zealand is under pressure to respond to current challenges and to anticipate future needs. Te Mānatu Waka Ministry of Transport is considering how the transport revenue system also needs to change to meet these needs.

These changes could have a significant impact on future generations. To make the right decisions, it is important to understand what people want for the future, and what they think is a fair approach to funding and financing the system in order to achieve those goals. The Ministry is taking an innovative approach to engaging stakeholders and the public on these complex issues.

As a first step, the Ministry contracted Koi Tū: The Centre for Informed Futures to undertake a pilot engagement process using Pol.is, an open-source digital tool designed to gather open-ended feedback from large groups of people in an interactive manner. This report describes the results of a Pol.is online conversation on the topic “who should pay for what?” with regard to the future transport system.

The Pol.is tool allows participants to express their views by responding to short statements about an issue and adding their own statements for others to ‘vote’ on (agree, disagree or pass). In doing so, they are contributing to an evolving conversation that seeks to find areas of common ground, while also identifying differences of opinion. By combining qualitative and quantitative methodologies, Pol.is is well suited to opinion mapping and refining points of consensus. The visual representation that the software provides aims to ensure that participants can see all voices represented, and discern areas of agreement and disagreement amongst the groups.

The process

Background information on the project, including details of the current transport system and how it is funded, was provided on a dedicated website which also served as a portal to the Pol.is tool.

Four hypothetical perspectives on what the future transport system should focus on, and ways to fund both its maintenance and its evolution, were provided to stimulate participants’ thinking around the broad question “who should pay for what?” A set of starting (“seed”) statements for the Pol.is was developed based on these perspectives.

The Ministry invited a range of stakeholders via email to engage with one another on the Pol.is platform. The conversation opened on 4 October 2022 for participants to respond to the seed statements and add their own statements. Calls to join the conversation also went out from Koi Tū accounts via Twitter and LinkedIn.

People could participate at any time in the life cycle of the conversation. During the process, a moderation team collated and themed the participant statements and added statements into the survey that represented novel ideas, perspectives or rationale.

Participants were able to submit their own ideas and proposals for other participants to consider until 4 November 2022. The Pol.is closed on 11 November 2022.

Participants

To register for the Pol.is, participants filled out a brief questionnaire asking about usual modes of transport, the type of area where they lived (i.e. inner-city, suburban, regional town, rural), age bracket, and gender.

The engagement did not attempt to achieve representativeness in the participant sample; rather it focused on stakeholder groups, many of whom would have knowledge of or interest in how the transport system is evolving. The majority (93%) of participants were between 26 and 64 years of age (fairly evenly spread between 26-39 and 40-64 year brackets) and 60% were male.

With regard to transport modes, about a quarter of participants (24%) regularly used a bicycle, scooter or other personal transport mode, and walking was a regular transport mode for 19%. While it is likely that most people use private vehicles to some extent, only 48% of respondents signalled that cars were their 'main' mode of transport. Most (82%) live in suburban or urban areas of New Zealand.

A total of 436 people voted on (agreed or disagreed with, or passed on) at least one of the 106 statements that were moderated into the 'discussion'. On average, each participant considered and voted on 65 statements. In total, 28,350 votes were cast and 197 people submitted 685 statements. The number of statements was moderated down to a more manageable number that didn't include duplications.

Opinion groups

Three distinct opinion groups formed over the course of the Pol.is process. They differed in opinion over:

- Pricing of externalities
- Contribution by cyclists and drivers of EVs to the revenue system
- Involvement of the private sector in funding transport infrastructure

The demographics and transport habits of the opinion groups highlighted some divisions in terms of cohort age, whether they lived in urban/suburban or regional/rural areas, and the extent of private car utilisation vs. cycling or other active transport modes. These differences were reflected in attitudes towards change, fairness, and how the system should be funded.

It is important to note that the group participating in the Pol.is conversation is unlikely to be representative of the New Zealand population as a whole. The participants were essentially 'self-selected' and comfortable engaging on transport issues via a digital platform. The opinions generated will therefore reflect a particular group of people. Some of the differences between the groups point to issues that require broader and more in-depth engagement to untangle, using different approaches and formats such as, for example, deliberative workshops or citizen assemblies.

Key findings

On basic principles, the participants overwhelmingly viewed the transport system as a public good that should enable goods and people to move efficiently and safely. There was also a high level of agreement that it should promote well-being, fairness and equity.

What should the future transport system focus on?

Across the three opinion groups, there was agreement around changes to make the transport system more sustainable and affordable. In particular:

- funding priorities need to shift from a focus on roads and private vehicles to more environmentally sustainable forms of transport (88% agreement); and
- urban density should be increased to make public transport and active forms of transport (walking and cycling) more affordable and attractive (92% agreement).

How should it be paid for?

There was agreement around the use innovative mechanisms such as congestion charging and pricing externalities (e.g. pollution pricing) to encourage people out of cars and into other forms of environmentally sustainable transport (88% agreement). Parking levies were also perceived to be an effective way to raise revenue and change travel behaviour.

Opinions were split on the utility of value capture as a revenue source for transport infrastructure. However a large majority (84%) agreed that businesses that generate a lot of transport, such as malls, airports and stadiums, should help pay for the transport infrastructure they require.

There were distinct differences between groups over introducing a wealth tax and funding public and active transport from this source. This was clearly supported by group A and not by group C, with opinions in group B being mixed.

Principles: What is fair?

Fairness principles put forward by participants revolved around:

- Addressing disadvantage and inequities
- Fairness in pricing – who should pay more, or less, for the system?
- Safety and privacy

There was strong consensus that RUC should proportionately reflect externalities imposed by different types of vehicles. For example, the road damage caused by larger, heavier vehicles should be reflected in a higher RUC.

Recommendations and next steps

1. Further exploring areas of uncertainty and contentious issues: The public/private funding debate, value capture, and issues of privacy relating to GPS tracking require more nuanced deliberation supported by expert input.
2. Understanding consequences: The Pol.is demonstrated high consensus on a number of principles and goals. These should be tested with a broader representative participant sample. In addition, more focus on consequences of proposals would be useful in the next phase.
3. Scenarios for the future: Road issues dominated this conversation, likely because road transport currently structures our social-economic worlds. Getting people to imagine future different possibilities in the next phase will be important.

2. Introduction

New Zealanders' expectations about the purpose and function of the transport system are changing in response to a range of pressures including climate change, population growth, and economic and housing realities. The system is already starting to evolve to address these challenges, but has much further to go. It is becoming increasingly clear that the current mix of funding, financing and revenue also needs to change to meet the costs of large new infrastructure projects with wider intergenerational benefits.

Te Mānatu Waka Ministry of Transport wants to enable New Zealand to move with confidence and certainty towards a new, or renewed, transport revenue system that will be fit for purpose for the next 30 to 50 years. Because transport expenditures are a major share of household, business and government spending, it is important to understand what people think about how funds should be raised and allocated, and what a “fair” funding system might look like.

Essentially we are asking “who should pay for what?” to enable a transport system that is fit for the future and supports the wellbeing of all New Zealanders. This means thinking not just about cars, but motorbikes, trucks, buses, trains, walking and cycling, and newer forms of transport like e-scooters and car-sharing services. We also need to understand the role that pricing and other tools can play to discourage harmful travel modes or to encourage sustainable travel behaviours.

In asking these questions, we acknowledge that any change to the revenue system is a major undertaking that will affect all New Zealanders. Thus, everyone should have the opportunity to consider the complexity of the issues and express their views. This project is a first step in trying to enable that process of engagement.

Equity/fairness issues

Transportation policy and planning decisions have significant equity impacts. They affect the allocation of public resources, people's quality of life and economic opportunities, and external costs that the transport system imposes on different communities and sectors.

Equity debates consider the fairness of transportation funding, such as how fuel taxes and road user charges impact on people, and the degree to which different vehicles pay their share of roadway costs. But other questions arise around what is fair, such as:

- How should the transport system serve non-drivers?
- How should external costs (eg. congestion, crash risk, pollution) be considered in planning decisions?

It is important to know what people think about these issues. Do they want transportation planning to reflect equity goals? And if so, how does that translate to policy decisions, noting that a decision may seem equitable when evaluated one way, but not if evaluated another? These are all considerations that can be tested through novel engagement processes.

To address this complex topic, Te Mānatu Waka Ministry of Transport is taking an innovative approach to engaging stakeholders and the public, by trialling an online interactive survey tool called [Pol.is](#), which is designed to draw on the collective intelligence of large groups and identify areas of consensus as the conversation evolves.

Pol.is inherently focuses attention on major differences of opinion and on areas of common ground. This Pol.is conversation sought to draw out principles of what a fair funding model might look like.

In this analysis, we sought to understand:

- What people indicated they wanted out of the transport system
- Ideas on how it should be paid for
- Principles upon which a fair system should be based

While this report focuses primarily on highly agreed statements, the [Pol.is Technical Report](#) includes levels of agreement, disagreement, passing and the number of votes for every statement moderated into the discussion.

3. What is Pol.is?

3.1 Background

Pol.is is an interactive online tool used to gather and help make sense of open-ended feedback from large groups of people. It can provide rich knowledge about group support for ideas in a way that helps the participants themselves identify common ground.

Pol.is conversations begin from a set of short seed statements (up to 140-characters) that help to frame the discussion by offering a range of possible perspectives on the question at hand. Participants 'vote' on the statements by agreeing or disagreeing (or passing) and can add their own short statements for others to vote on. Because statements must be very short, the emphasis is on voting rather than writing, which lowers the barriers to entry into the conversation.

Statements are presented to participants in a semi-random order so that all statements can be considered on their own merit. Slight priority is given to newer statements, which tend to reflect refinement or nuanced reasoning as the conversation evolves. It is assumed that not all participants will consider all statements. People could participate at any time in the life cycle of the conversation.

Pol.is records the sentiments of participants, producing a visualisation of clusters of support for various positions. The graphical representation of voting patterns shows participants how their opinions compare with those of others. Participants who vote similarly on multiple statements are grouped together to form an 'opinion group' using Principal Component Analysis (PCA). Participants can explore what agreements or disagreements define each group, the differences between the groups, as well as areas that are agreed across groups.

Participants are encouraged to return to the Pol.is forum regularly over multiple weeks to review emerging patterns, vote on new statements and add their own ideas, perspectives, and proposals for all other participants to consider. These features promote greater learning and ownership amongst participants.

3.2 The Future Transport Pol.is project

This Pol.is project was initiated by Te Mānatu Waka Ministry of Transport as part of a long-term programme of work to engage with communities, industries, and other stakeholders about the [Future of the Transport Revenue System](#). The Ministry wants to gather New Zealanders' views and ideas on principles, funding, and future choices in the land transport system. Using Pol.is for this purpose allows a richer understanding of the different viewpoints and areas of agreement, while also identifying points of contention and uncertainty.

The initial focus of recruitment for this Pol.is forum was on stakeholder groups, who were contacted via email and asked to spread the word to their members. Broader invitations to join the conversation were made via LinkedIn and Twitter, and via a few transport centred blogs or social media channels.

A total of 437 people voted on (agreed or disagreed with, or passed on) at least one of the 106 statements that were moderated into the 'discussion'. In total, 29,019 votes were cast and 197 people submitted 685 statements. On average, each participant considered and voted on 66 statements. Over 40% of participants added their own statements, providing 2.3 statements on average per contributor. The large number of statements proposed by the participants indicates high engagement in the process. The number of statements was moderated down to a more manageable number that didn't include duplications.

Figure 1 shows the number of people engaging in the conversation, from the time of first voting. Note that participants continued to join the conversation up until the Pol.is was closed, though the biggest jump in new participants occurred in the first two weeks of the recruitment campaign.

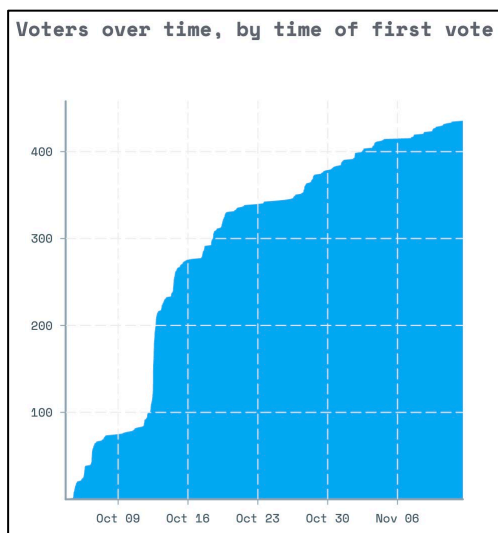


Figure 1 – number of new voters over time

The Pol.is project was run by [Koi Tū: The Centre for Informed Futures](#) at the University of Auckland, with support from [PEP Public Engagement Projects](#). This work is part of a portfolio of deliberative processes being developed by the [Complex Conversations](#) team at Koi Tū. This Pol.is conversation will help to frame and inform a set of deliberative workshops to both test the methodology and refine our understanding of how groups of New Zealanders can come to consensus on complex issues around transport infrastructure planning and funding.

Details of the Pol.is moderation, participant instructions, and privacy policies can be found in [Appendix 1](#).

4. Framing the conversation

In considering the way we will pay for transport in New Zealand in the future, this Pol.is conversation asked the broad question: “who should pay for what?” Within this frame, questions were presented to participants to think about (via the [project website](#)). Some of the key questions are:

- How will we pay to maintain and improve the transport network if road vehicles travel less, and less revenue is collected from fuel excise duty (FED) and road user charges (RUC)?
- How should the transport system balance the promotion of well-being, safety, access and connectivity, alongside environmental and economic outcomes?
- How should we pay for the major investments needed to transition to a lower emissions transport system (e.g., EV charging infrastructure, more public transport, bike lanes)?
- How do we ensure that we are meeting the needs of all who use our transport system – including businesses, people who live in smaller towns and rural areas, people who are on lower incomes, or people with disabilities?
- Should we make more use of pricing tools (e.g., tolls, congestion and pollution charges) to encourage people and companies to make different travel choices?
- If we are encouraging more use of public transport, walking and cycling, what should those users pay towards its upkeep? As newer transport forms become more available, eg e-bikes, scooters, should these make a contribution?
- How should other costs that vehicles impose on the system (such as congestion and pollution, and vehicles’ use of scarce land) be accounted for? Should these ‘externalities’ be something that drivers should pay for?
- How should the benefits and costs of new transport infrastructure be shared across society?

As with any complex policy issue, people have different perspectives about what the goals should be, the principles that should underpin these goals and what actions we should take to achieve them. The Pol.is conversation was initially framed around four hypothetical perspectives on these issues, to catalyse participants’ thinking. The perspectives are outlined in [Appendix 2](#), and were available to participants on the [project website](#). A set of 21 seed statements that reflected these perspectives were input into the Pol.is survey to get the conversation started (see [Appendix 3](#)), after which participants added their own statements for others to vote on.

5. Who participated?

To participate in the Pol.is, respondents registered by providing an email address and filling out a brief questionnaire asking about usual modes of transport, the type of area where they lived (i.e. inner-city, suburban, regional town, rural), age bracket, and gender.

The engagement did not attempt to achieve representativeness in the participant sample; rather it focused on stakeholder groups, many of whom would have knowledge of or interest in how the transport system is evolving.

Overall, the participants were ~60% male, 35% female, and 5% gender diverse or not specified. The largest participant age groups (comprising 84.5% of the participant pool) were those between 40 and 64 (n = 211), and between 26 and 39 (n = 197) years of age. Another 8.3% were under 25 and 6.2% were over 60 years of age.

With regard to transport modes, about a quarter of participants (24%) regularly use a bicycle, scooter or other personal transport mode, and walking was noted as a regular transport mode for 19%. While it is likely that most people use private vehicles to some extent, only 48% of respondents signalled that cars were their 'main' mode of transport. Their cars are mostly petrol-fueled, and most do not use a vehicle for their work. 53% of participants are from suburban NZ, with another 29% being inner-city urban.

Details of the participant demographics are listed in [Appendix 4](#).

6. Opinion groups

Once voting began, a number of opinion groups quickly emerged. These groups changed over time. By the end of the first week, two groups had formed from four smaller ones. A third group re-emerged after week two and these three opinion groups remained through the rest of the process. At the end of the Pol.is, group A had 219 participants, group B had 146, and group C had 45 participants (see [Appendix 5](#)).

Group A had the highest percentage of younger participants (54.3% aged under 40, compared with 45.4% for group B and 31.1% for group C). They were the group that least used private cars as their main mode of transport (32.2% compared with 68.9% in group C), and the largest group of cyclists and public transport users. They were also least likely to live in a rural area or regional town. Based on these characteristics, it is perhaps unsurprising that this group most favoured mode shift – moving away from funding of roads and encouraging active modes and public transport. They were also largely against the privatisation of the transport system and supported funding models that encourage transport solutions that help the environment and promoted safety and equity in access. On the whole, they support radical changes the transport funding system to promote environmental and social gains.

Group B represents a mixed demographic between the other two groups. At 6.2%, they have the lowest proportion of public transport users, but the highest proportion of walkers (21.4%) and of women (40%). Interestingly, they also have the highest proportion of diesel vehicle drivers (16%). They are between the other two groups with regard to the proportion residing in regional or rural areas. The group was largely in favour of privatisation of the transport system but were not against new funding mechanisms that can help promote mode shift to sustainable forms of transport. Aside from the privatisation issue, there is otherwise broad overlap with group A.

Group C is the smallest group, which emerged after the first 2 weeks of the Pol.is process. They represent by far the highest proportion of older participants (24.4% over 65, compared with >5% in other groups) and of private car users. They are also the group least likely to drive an electric vehicle and most likely to operate a vehicle as part of their job. This group differed from the others in attitudes towards the contributions of cyclists and EV users, etc. to funding the transport system. They were opposed to special treatment for these users and felt they should

pay their share, and were less supportive of pricing externalities. Opinions within the group were split with regard to privatisation.

Statements that define these groups in relation to each other are shown in [Appendix 6](#).

7. Key findings

Participants were in agreement about general principles for the transport system, in that it should (a) enable goods and people to move efficiently and safely; and (b) promote well-being, fairness and equity. The vast majority viewed the transport system as a public good.

As expected, the Pol.is conversation evolved over time. Nonetheless, a number of consensus statements emerged early on and retained very high support throughout the conversation. These revolved around:

1. shifting the focus of funding priorities from private vehicles to more environmentally sustainable forms of transport;
2. using innovative mechanisms such as congestion charges and pollution pricing to encourage mode shift; and
3. increasing urban density to make public transport and active forms of transport (walking and cycling) more affordable and attractive.

These statements consistently achieved at least 89% agreement among those who voted on them. An additional ‘consensus’ statement that emerged (with 81% agreement) was:

5. the transport revenue system should not make transport unaffordable for poorer people or people living in rural and provincial areas.

The statements with the highest overall agreement at the end of the conversation are listed in Table 1.

Table 1: Statements with the highest consensus across the groups

ID	Statement	Overall votes %agree%disagree%pass (# of votes)	Lowest %agree (all groups)
83	Road user charges should reflect the damage that large vehicles do to the roads, with heavier vehicles paying a proportionate share.	94%1%3%(291)	≥87%
10	Increase urban density to make public transport and active forms (walking and cycling) of transport more affordable and attractive.	92%3%3%(338)	≥75%
1	The transport system should enable goods and people to move efficiently and safely.	90%1%7%(330)	≥86%
119	The transport system is a public good.	90%1%7%(242)	≥84%
11	Disadvantaged groups must be given opportunities to participate in decision-making about future transport systems and how they will be funded.	87%3%8%(334)	≥83%

7.1 What should the future transport system focus on?

A key part of the question “who should pay for what” revolves around the “what” needs to be paid for. There was a strong focus on a more sustainable system in which private car travel was de-emphasised, and public transport (buses and rail) and active modes take priority. There was also a high level of agreement around urban planning changes to reduce the need for transport and to make the alternative modes more attractive and affordable.

Consensus statements relating to “what” should be funded or encouraged for the future transport system are Table 2.

Table 2: Statements relating to what the transport system should focus on

ID	Statement	Support overall (# votes)	Support by group (# votes)
10	Increase urban density to make public transport and active forms of transport (walking and cycling) more affordable and attractive.	92% agree (338)	A - 97% (188) B - 90% (110) C - 75% (40)
7	Funding priorities need to shift from a focus on roads and private vehicles to more environmentally sustainable forms of transport.	88% agree (360)	A - 98% (197) B - 82% (120) C - 55% (43)
312	The transport infrastructure most in need of funding is that which we have starved of meaningful funding over recent decades: walk, cycle, rail, bus.	87% agree (160)	A - 97% (83) B - 94% (39) C - 57% (38)
267	We need to stop investing so much in roads and get more people moving on trains and light rail.	79% agree (166)	A - 96% (89) B - 78% (41) C - 38% (36)
325	Transport funding should support infrastructure that means people need to travel less.	78% agree (157)	A - 86% (84) B - 81% (37) C - 58% (36)

7.2 How should transport be paid for in the future?

Among the participants, there was agreement around pricing externalities and using funding mechanisms that also drive behaviour change. This includes using congestion charges and pollution pricing to encourage people out of cars and into other forms of environmentally sustainable transport. While this ‘nudge’ strategy is not necessarily a revenue-generating mechanism, participants thought that local authorities should be able to raise revenue with parking charges, congestion charging and enforcement, to invest in transport.

Participants were unsure or had mixed opinions about the utility of value capture as a revenue source for transport infrastructure. There was between 52 and 78% agreement (67% overall) that new roads should be funded from financial contribution from developers. However a large majority (84%) agreed that businesses that generate a lot of transport, such as malls, airports and stadiums, should help pay for the transport infrastructure they require.

There were distinct differences between groups over introducing a wealth tax and funding public and active transport from this source. This was clearly supported by group A and not by group C, with opinions in group B being mixed. Consensus statements related to funding are listed in Table 3.

Table 3: Statements on funding

ID#	Statement	Support overall (# votes)	Support by group (# votes)
8	Use innovative mechanisms such as congestion charges and pollution pricing to encourage people out of cars and into other forms of environmentally sustainable transport	88% agree (346)	A - 95% (188) B - 91% (115) C - 48% (43)
84	Local authorities should be able to raise revenue with parking charges, congestion charging and enforcement, to invest it in transport.	87% agree (295)	A - 92% (175) B - 92% (77) C - 62% (43)
256	Businesses that generate lots of transport, such as malls, airports and stadiums should help pay for the transport infrastructure they need.	84% agree (205)	A - 90% (114) B - 92% (53) C - 57% (38)
74	Parking levies are an effective way to raise revenue and change travel behaviour.	83% agree (289)	A - 89% (176) B - 78% (71) C - 66% (42)
132	Vehicle air pollution levy should be added to the direct road pricing cost.	77% agree (256)	A - 92% (148) B - 75% (66) C - 28% (42)
199	New roads should be funded from financial contribution from developers	67% agree (273)	A - 66% (165) B - 78% (66) C - 52% (42)
28	Introduce a wealth tax, to make the ultra-rich pay their fair share & fund public/active transport.	65% agree (361)	A - 81% (200) B - 52% (116) C - 31% (45)

7.3 Principles – What is fair?

An important part of this conversation was to understand what people perceive is fair when paying for transport infrastructure and services. Preferences relate to people’s values and thoughts about societal/common goods. As mentioned, there was overwhelming support for the idea that the transport system is itself a common good. On the question of intergenerational fairness, 88% of respondents agreed with the statement that it is “better to pay a fair share for transport now rather than leave more debt for future generations.” This statement was a late entry into the survey so had fewer votes overall (n = 111), but showed high consensus across groups (agreement from 92% of group A (63 voters), 73% of group B (23 voters), and 92% of group C (25 voters)).

Addressing disadvantage/inequity

Participants agreed strongly that the transport system should promote well-being, fairness and equity (89% agreement overall; ranging from 75% in group C to 95% in group A). This relates to the idea that the revenue system should not make transport unaffordable for poorer people or people living in rural and provincial areas, a statement also garnering high consensus across the opinion groups (81% agreement overall, with highest support [88%] from group C). There was support for focusing transport capital investment in places without functioning public transport and micro-mobility networks.

Other points of consensus on principles of fairness are that:

- The funding system should enable the design of transport systems that are accessible to everyone, all the time (not just able-bodied people travelling at peak times)
- Disadvantaged groups must be given opportunities to participate in decision-making about future transport systems and how they will be funded.

A majority of participants (69%) disagreed that public transport must be funded by the region it services, and did not support the statement that “It’s unfair for Southland/Northland to pay for Auckland’s public transport.”

Fairness in pricing – who should pay more, or less, for the system?

Participants agreed on pricing of externalities – including the damage done to roads, the impact on public safety, and emissions. For example, they agreed that road user charges should reflect the damage that large vehicles do to the roads, with heavier vehicles paying a proportionate share. They were also supportive of congestion charging, and wanted the revenue from this to be reinvested in the transport system. They did not support the involvement of private entities for collecting this revenue for this reason.

There was disagreement about whether it was fair for commercial vehicles to pay more because they benefit financially from the transport system (58% agreement overall, ranging from 37 to 67% agreement among the three opinion groups)

With regard to EVs, a majority felt that EV operators need to “pay their share” via RUC. This is something that was supported by 100% of group C; the overall agreement was 67%. An overall majority wanted to see E-bikes be considered for incentives and subsidies, though group C had mixed opinions on this.

Safety and privacy

Participants contributed numerous statements pertaining to safety, and a 72% majority felt it should be prioritised over efficiency.

Several statements were put forward about privacy issues relating to tracking road/transport user for the purpose of user-pays revenue gathering. However, interestingly, these statements did not garner significant agreement and had significant numbers of “pass” responses, suggesting a mix of opinion and some uncertainty around this topic.

Consensus statements relating to fairness principles, including addressing disadvantage and inequities, fairness in pricing, and safety and privacy, are shown in Table 4.

Table 4: Statements reflecting fairness principles

ID	Statement	Support overall (# votes)	Support by group (# votes)
Addressing disadvantage/inequity			
682	Our funding system should enable the design of transport systems that are accessible to everyone, all the time. Not just able bodied people travelling at peak times	90% agree (64)	A - 97% (35) B - 78% (14) C - 86% (15)
2	The transport revenue system should not make transport unaffordable for poorer people or people living in rural and provincial areas	81% agree (339)	A - 81% (187) B - 78% (110) C - 88% (42)

11	Disadvantaged groups must be given opportunities to participate in decision-making about future transport systems and how they will be funded	87% agree (334)	A - 89% (186) B - 83% (108) C - 87% (40)
417	It's better to pay a fair share for transport now rather than leave more debt for future generations.	88% agree (111)	A - 92% (63) B - 73% (23) C - 92% (25)
537	We should focus transport capital investment to bring up to standard places without functioning public transport and micro-mobility networks	82% agree (62)	A - 83% (37) B - 69% (13) C - 91% (12)
Fairness in pricing			
83	Road user charges should reflect the damage that large vehicles do to the roads, with heavier vehicles paying a proportionate share.	94% agree (291)	A - 97% (176) B - 93% (75) C - 87% (40)
112	Electric Vehicles need to pay their share and have road user charges	69% agree (307)	A - 61% (180) B - 61% (86) C - 100% (41)
30	The income from congestion charging should not be collected by private entities - it should be fully reinvested in the transport network	87% agree (155)	A - 89% (83) B - 81% (37) C - 88% (35)
Safety and privacy			
115	Safety should be prioritised over efficiency in all cases (i.e. efficiency improvements should only be done if they can be done safely)	72% agree (247)	A - 78% (144) B - 66% (60) C - 58% (43)
114	Motor vehicles are the key risk to pedestrians and cyclists, so motor vehicle drivers should pay for this sort of safety improvement	75% agree (263)	A - 94% (148) B - 66% (72) C - 25% (43)
30	Any revenue gained from road safety enforcement (eg speed cameras) should be directly reinvested into road safety improvements.	67% agree (344)	A - 59% (194) B - 80% (106) C - 70% (44)
369	Retaining our privacy is an important value. Even if we have user-pays systems, they shouldn't track our movements.	52% agree (111)	A - 53% (62) B - 52% (21) C - 50% (28)

7.4 Areas of uncertainty and disagreement

The Pol.is process uncovered a large number of statements that garnered the agreement of a significant majority of respondents. However, participants also 'passed' on a significant number of statements. This may point to areas of uncertainty due to lack of clarity in the statement or lack of knowledge of the topic. Some topic areas identified indicate where further information and communication may be necessary to fully engage the public in the discussion. Examples of statements that were passed on by $\geq 30\%$ of participants are shown below in Table 5.

Table 5 - Statements "passed" on by $\geq 30\%$ of participants

ID#	Statement	Overall votes %agree%disagree%pass (# of votes)
316	The Public Finance Act should be re-written to remove unnecessary funding restriction that has starved transport investment since the 80s.	46%8%44%(150)

122	Annual vehicle fixed licence fees should cover the fixed costs of providing roads.	21%33%44%(221)
5	Waka Kotahi (NZTA) should be allowed to borrow more against its own assets to pay for roading maintenance and upgrades	38%24%37%(327)
43	ETS revenue should pay for lower emission transport	57%9%32%(285)
448	Funding local roads through Council rates drives regional inequality, as poorer areas lack the needed funds for transport improvements.	57%11%31%(114)
117	Funding for modal options from RUC should be clear so people can see the link.	54%7%38%(225)
575	Shifting the cost burden onto the commercial fleet, will result in increased cost of delivered goods and services increasing household costs	43%25%30%(78)
685	Do not overinvest in EV yet, there will be new technologies to come along that could be better.	44%22%32%(58)

There were a number of issues where opinions were split both between and within groups, and on which a significant proportion passed on. These represent issues that require further information sharing and deliberation to identify and refine points of consensus (if possible) to help inform policy decision-making.

For example, the statements that touched on privacy, and separately, on value capture, elicited quite mixed responses even within groups, as illustrated in Table 6.

Table 6 – Contentious statements

ID#	Statement	Overall votes %agree%disagree%pass (# of votes)	Votes by group %agree%disagree%pass (# of votes)
Privacy			
369	Retaining our privacy is an important value. Even if we have user pays systems they shouldn't track our movements.	52%25%22%(111)	A – 53%24%22%(62) B – 52%19%28%(21) C – 50%32%17%(28)
439	Preserving privacy is important, so when we build systems to monitor transport use we shouldn't track individual users	50%23%26%(143)	A – 53%20%25%(78) B – 39%30%30%(33) C – 53%21%25%(32)
Value capture			
12	If new transport projects mean property values increase, those who benefit should contribute funds to that project	52% agree (374)	A – 61% (207) B – 42% (123) C – 36% (44)
193	The government should compensate a loss in property value if a transport project causes a decrease	19% agree (250)	A – 15% (156) B – 27% (55) C – 25% (39)

8. Recommendations and next steps

The Pol.is tool has provided a rich forum for ideas to be presented on the future of the transport system. Participants voting on preferences and providing new ideas over a four-week period led the formation of consensus groups around key issues.

It should be noted that before preferences can be expressed, they must be formed, and this often comes through participation in this type of discussion. We would expect that over time, if the same statements were repeated, some engaged participants might change their mind on matters that they have previously answered (i.e. changing their answer from disagree to agree, or *vice versa*) or answer when they previously passed. Pol.is as it is currently configured does not give the option to reconsider the same statement more than once. It does, however, allow participants (or moderators) to add statements that might clarify confusing or contentious points by including a justification or reasoning within the statement text. This shows the beginning of a form of deliberation that may be useful for setting up further engagement, for example in mini-public forums. We will consider the areas of uncertainty when providing information for these activities.

There were some fundamental issues that a significant number of people passed on, and many of these also showed substantial disagreement among those who voted. While the passed-on statements may signify areas where a different approach to information provision may be needed in the next phase, topics on which contention remains high provide points to focus further deliberation in other engagement fora. For example, there appeared to be an entrenched divide around private sector involvement in transport funding. Bringing more evidence and reasoning to the debate may clarify positions and determine whether perceptions on this issue are able to be shifted.

Another key issue that arose relatively late in the Pol.is conversation was around privacy, which might be impacted by GPS tracking of road system users for the purposes of distance-based charging. Interestingly, there was not a strong reaction to these statements, and opinions for and against were somewhat split. It is possible that the participant sample was skewed towards groups knowledgeable about this technology and/or comfortable in a digital environment where many of our actions are 'tracked'. This is an important topic to explore in further deliberations.

It should be noted that the attitudes and perceptions of the opinion groups reflect somewhat predictable divisions among stakeholder groups in terms of age, lifestyle/location and transport habits, and this outcome was partially determined by a recruitment strategy that focused on stakeholder groups. However, the Pol.is participants as a whole do not necessarily reflect the makeup of the New Zealand population as a whole, and it is therefore essential to broaden the dialogue in the next phase.

Recommendations following on from this Pol.is conversation:

1. **Focus on areas of uncertainty:** There are a number of topics that appear to require clarity for participants to engage meaningfully. Some statements represent misunderstandings by the participants. A deliberative process would need to address these areas of uncertainty.
2. **Further exploring contentious issues:** The public/private funding debate and issues of privacy relating to tracking travel for the purpose of distance-based charging require

more nuanced deliberation supported by expert input. A further point of disagreement relates to value capture – how it can contribute and whether this is fair approach.

3. Understanding consequences: The Pol.is demonstrated high consensus about a number of principles and goals. These should be tested with a broader representative participant sample. In addition, more focus on consequences of proposals would be useful in the next phase.
4. Scenarios for the future: Road issues dominated this conversation, probably because road transport currently structures our social-economic worlds. Getting people to imagine future different possibilities in the next phase will be important.
5. Implications for further engagement: It is important to ensure that a broader cross-section of the population be included in the next stage, and that the process be designed to support dialogue and deliberation across the divides that our media and traditional political structures (government and stakeholder groups) help maintain.

9. Appendices

Appendix 1 – Pol.is moderation policies and instructions

The participation instructions, statement moderation policy, and privacy policy used for the polis are listed below. This information was available to participants on the survey website.

Instructions

- Answer a statement by clicking ‘agree,’ ‘disagree,’ or ‘pass/unsure.’ The next statement will automatically appear.
- If you can’t bring yourself to categorically agree or disagree with a statement, the challenge is to write and submit a ‘better’ one!
- To add a statement, fill out the ‘share your perspective’ box and click submit.
- Click on opinion groups or the ‘majority opinion’ button to explore areas of agreement and difference. Note that the opinion groups will not be shown to start with but will be displayed once enough people have voted on enough statements.
- You don’t need to ‘vote’ on all the statements at one time – Pol.is will only present you with statements you haven’t considered
- More detailed instructions are available [here](#).

Statements and moderation

- You cannot reply directly to a statement
- Statements should be about a standalone idea that improves existing statements, or presents new perspectives, experiences, issues, or proposals.
- Statements can be a maximum of 140 characters, so be concise.
- Statements should not include multiple ideas.
- Statements must be on topic, clear and should not name people, be offensive or be duplicates of other published statements.
- The moderation team will aim to accept, or decline submitted statements within 72 hours.

Voters and statements are anonymous

- Participants cannot see who has submitted a statement or how any individual has voted.
- The moderators cannot see who has submit a statement or how any individual has voted.
- The reports that Pol.is generates do not identify anyone.
- The Pol.is is on a member-only page of the dashboard.
- The project team will not identify individuals when it analyses the data and reports findings.

Appendix 2 – Framing perspectives

These hypothetical perspectives were proposed to catalyse thinking about ways of funding a transport system that will undergo significant change over the next 30 years. They are not exhaustive, nor do they represent government policy statements. The seed statements derived from these perspectives are listed in [Appendix 3](#).

Perspective 1: Building off what we already have

- What will the future look like? Roads will continue to account for most movement of people and freight.
- How will we pay for it? Continue to focus on user-pays via FED and RUC, with revenue going back primarily into the roading system. This includes charges EVs, scooters and bikes to use the system.
- The argument is that people pay for the distance travelled, meaning that those who use the roads more, pay more. Those users have a fair expectation for decent roads. The system is quite simple, efficient and well understood. A more complex system could cost more to administer, however, the current system may not meet the funding needs for large infrastructure projects that might be needed in the future.

Perspective 2: Focus on sustainability

- What will the future look like? Focus on shifting to more sustainable forms of transport to reduce carbon emissions, pollution, and harm to human health. Construction of new roads could be cut back and funds transferred to supporting other modes, with equity and environmental outcomes.
- How will we pay for it? Using innovative funding mechanisms that will help motivate the behaviour change required.
 - Road pricing via tolls, congestion charges and pay-as-you-drive schemes
 - Pollution pricing in “low emissions zones” – charging a fee for high-emissions vehicles in the zone
 - Taxing the increase in property values from proximity to infrastructure improvements such as public transport hubs.
- The argument strongly considers external costs of transport on people and the environment. Funding mechanisms can drive mode shift, improve safety and protect the environment.

Perspective 3: Societal and cultural considerations

- What will the future look like? A transport system that provides equal opportunities for people to participate in society. The needs of all groups, like Māori, Pasifika, disabled people, young people etc. are a central focus.
- How will we pay for it? Using funds that come from town-planning and similar developmental projects, as they are linked to gaining economic benefit from all groups fairly engaging in society.
 - Funding mechanisms need to recognise the social costs of transport as well as economic costs.
 - If new transport projects mean property values increase, those who benefit should contribute funds to that project
- The argument strongly considers the needs and expectations of diverse people, cultures, abilities and socioeconomic status. An inclusive system serves all people as

fairly as possible, valuing social cohesion and access to society as much as economic activity and success.

Perspective 4: A market solution

- What will the future look like? A transport system that uses a mixture of privatisation and public/private partnerships to collect revenue and inject expertise into an agile system that responds to change and uses innovative technology.
- How will we pay for it? Funding will come from private companies gaining ownership over parts of the system.
 - There will be innovative technologies like GPS technologies, and other revenue streams.
 - Reducing tax burden with private competition in public transport, car sharing and personal transport.
- The argument strongly considers the fact that the market is good at responding to change when there is competition. Innovation and disruption are assisted by privatisation. On projects that need larger amounts of capital to get off the ground, private ownership can help fund, and push projects over the line.

Appendix 3 – Seed statements

The following ‘seed’ statements were prepared by the project team to give early participants some statements to vote on at the start of the Pol.is.

ID#	Statement
0	The best way of reducing disadvantage is through the welfare system, for example by providing higher levels of subsidy for transport for lower income people
1	Privatisation costs you more: you pay more as a taxpayer and as a user of the service
2	Make much greater use of public/private partnerships to inject private sector money and expertise into the transport system
3	Allow more private competition in the provision of public transport, car share initiatives, and personal transport to reduce the tax burden
4	Allow the private sector to collect revenue using tolls and other innovative technologies (e.g. GPS technologies)
5	The use of market mechanisms to raise revenue for the transport system would promote the principles of efficiency, fairness, property rights
6	If we are serious about how to raise revenue for the future transport system, then we should get the private sector much more involved
7	If new transport projects mean property values increase, those who benefit should contribute funds to that project
8	Disadvantaged groups must be given opportunities to participate in decision-making about future transport systems and how they will be funded
9	Increase urban density to make public transport and active forms (walking and cycling) of transport more affordable and attractive
10	Construction of new roads should be cut-back and associated funds used to support a shift to public transport and active modes (modal shift)
11	Use innovative mechanisms such as congestion charges and pollution pricing to encourage people out of cars and into other forms of environmentally sustainable transport
12	Funding priorities need to shift from a focus on roads and private vehicles to more environmentally sustainable forms of transport
13	Charge all vehicles that use the roading system Road User Charges, including electric vehicles and bikes
14	Waka Kotahi (NZTA) should be allowed to borrow more against its own assets to pay for roading maintenance and upgrades
15	New forms of transport that contribute to the public good should be funded from general taxation, not petrol taxes and road user charges
16	The current transport system should continue to be paid for by road users through Fuel Excise Duty and Road User Charges
17	The transport revenue system should not make transport unaffordable for poorer people or people living in rural and provincial areas
18	The transport system should enable goods and people to move efficiently and safely
19	The transport system should also promote well-being, fairness and equity
20	The best way of reducing disadvantage is through the welfare system, for example by providing higher levels of subsidy for transport for lower income people

Appendix 4 – Participant demographics

What type of transport do you use MOST often? (Outside of any travel you may do for work)	Percent	Sum
Private car	44%	215
Motorcycle or moped	2%	9
Other private vehicle (eg. van, ute, motorhome)	0%	2
Bicycle, scooter or other personal transport	24%	117
Public transport (eg. bus, train, ferry)	12%	57
Taxi, shuttle or rideshare (eg. Uber, Lyft)	0%	0
Walking	19%	92
None of these options	0%	2
Total Responses		494
How is this vehicle powered?	Percent	Sum
Petrol	68%	151
Diesel	12%	26
Electric / hybrid	21%	46
None of these options	0%	0
Total Responses		223
Do you operate a vehicle as part of your job?	Percent	Sum
Yes - a car, van, ute, motorbike or other light vehicle	14%	68
Yes - a truck, tanker or other heavy goods/service vehicle	0%	2
Yes - a taxi, bus, train or other passenger vehicle	1%	3
Yes - an emergency services vehicle	0%	0
Yes - a tractor, forklift, 4x4 or other specialist vehicle which typically does not travel on public roads	1%	4
Yes - another vehicle not mentioned above	1%	7
No - I do not operate a vehicle for my job	83%	405
Total Responses		489
Which of these best describes the area where you live?	Percent	Sum
An inner-city area of New Zealand	29%	140
A suburban area of a New Zealand city	53%	256
A regional town in New Zealand	11%	54
A rural area of New Zealand	6%	28
I am not currently living in New Zealand	2%	8
Total Responses		486
What is your age?	Percent	Sum
Age 16-25	8%	40
Age 26-39	41%	197
Age 40-64	44%	211
Age 65+	6%	30
Prefer not to say	1%	5
Total Responses		483
What is your gender?	Percent	Sum
Female	34%	164
Male	61%	294

Gender diverse	2%	8
Prefer not to say	4%	17
Total Responses		483

Appendix 5 – Opinion group demographics

Age	All Polis participants	Group A	Group B	Group C
16-25	8.28%	10.2%	7.6%	4.4%
26-39	40.79%	44.1%	37.9%	26.7%
40-64	43.69%	40.0%	49.7%	44.4%
65+	6.21%	4.1%	4.8%	24.4%
Prefer not to say	1.04%	1.6%	0.0%	0.0%
Gender				
Female	33.95%	28.6%	40.0%	31.1%
Male	60.87%	65.3%	57.2%	66.7%
Gender diverse	1.66%	2.0%	1.4%	0.0%
Prefer not to say	3.52%	4.1%	1.4%	2.2%
Main type of transport				
Private Car	43.52%	32.2%	49.7%	68.9%
Motorcycle/Moped	1.82%	1.6%	2.1%	2.2%
Other Private vehicle	0.40%	0.0%	0.0%	2.2%
Bicycle, scooter or personal transport	23.68%	33.1%	20.7%	2.2%
Public transport	11.54%	14.7%	6.2%	11.1%
Taxi, shuttle or rideshare	0%	0.0%	0.0%	0.0%
Walking	18.62%	18.4%	21.4%	13.3%
None of these options	0.40%	0.0%	0.0%	0.0%
How is this vehicle powered?				
Petrol	67.71%	71.1%	61.3%	75.8%
Diesel	11.66%	6.0%	16.0%	12.1%
Electric/Hybrid	20.63%	22.9%	22.7%	12.1%
Do you operate a vehicle as part of your job?				
Yes - a car, van, ute, motorbike or other light vehicle	13.91%	10.6%	15.9%	24.4%
Yes - a truck, tanker or other heavy goods/service vehicle	0.41%	0.0%	0.7%	0.0%
Yes - a taxi, bus, train or other passenger vehicle	0.61%	0.8%	0.0%	0.0%
Yes - an emergency services vehicle	0.0%	0.0%	0.0%	0.0%
Yes - a tractor, forklift, 4x4 or other specialist vehicle which typically does not travel on public roads	0.82%	0.0%	2.1%	2.2%
Yes - another vehicle not mentioned above	1.43%	1.2%	1.4%	0.0%
No - I do not operate a vehicle for my job	82.82%	87.3%	80.0%	73.3%
Which of these best describes the area where you live?				
An inner-city area of New Zealand	28.81%	31.4%	27.6%	24.4%
A suburban area of a New Zealand city	52.67%	57.6%	52.4%	37.8%
A regional town in New Zealand	11.11%	7.3%	12.4%	17.8%
A rural area of New Zealand	5.76%	2.0%	7.6%	17.8%
I am not currently living in New Zealand	1.65%	1.6%	0.0%	2.2%
Totals	505	245	145	45

Appendix 6 – Opinion group views

Participants who vote similarly over a range of statements are placed into a group of like-minded voters representing opinion groups.

The tables below reflect the top three statements that constitute an opinion group. They will have either a large percentage of agreement or disagreement with a particular statement.

X% / Y% / Z% (n) where X% is the percentage of respondents who agreed with the statement, Y% is the percentage of respondents who disagreed with the statement, Z% is the percentage of respondents who passed on the statement and (n) is the number of respondents.

Statements that categorise Group A

ID	Statement	Group A	Group B	Group C
9	Construction of new roads should be cut-back and associated funds used to support a shift to public transport and active modes (modal shift)	97%0%2%(198)	74%16%8%(118)	34%47%18%(44)
17	Make much greater use of public/private partnerships to inject private sector money and expertise into the transport system	5%81%13%(207)	63%17%18%(132)	36%43%20%(44)
6	Charge all vehicles that use the roading system Road User Charges, including electric vehicles and bikes	6%84%9%(209)	36%49%14%(125)	77%11%11%(44)

Statements that categorise Group B

ID	Statement	Group A	Group B	Group C
17	Make much greater use of public/private partnerships to inject private sector money and expertise into the transport system	5%81%13%(207)	63%17%18%(132)	36%43%20%(44)
16	Allow more private competition in the provision of public transport, car share initiatives, and personal transport to reduce the tax burden	5%77%17%(198)	56%17%25%(130)	37%35%26%(45)
30	Any revenue gained from road safety enforcement (eg speed cameras) should be directly reinvested into road safety improvements.	59%24%16%(194)	80%10%9%(106)	70%15%13%(44)

Statements that categorise Group C

ID	Statement	Group A	Group B	Group C
88	All road users including cycles and micro-mobility modes should share the costs of maintaining and building roads	4%88%7%(165)	19%62%18%(66)	71%16%11%(42)
5	Charge all vehicles that use the roading system Road User Charges, including electric vehicles and bikes	6%84%9%(209)	36%49%14%(125)	77%11%11%(44)
214	Cycleways, bus lanes and pedestrian crossings are only required due to the presence of motorists, therefore motorists should pay for them.	86%5%8%(117)	57%21%21%(61)	10%82%7%(39)



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