

Submission on SH1 Fast-Track Application

By Greenpeace Aotearoa and Generation Zero

Introduction

This is a joint submission by Greenpeace Aotearoa, Inc. and Generation Zero on the application by Waka Kotahi NZ Transport Agency and Transpower New Zealand Limited for Stage 1B1 of the Papakura to Drury South State Highway 1 Improvements under the COVID-19 Recovery (Fast-track Consenting) Act 2020.

Greenpeace is a global, independent campaigning organisation that acts to protect and conserve the environment and to promote peace. Greenpeace is one of the world's largest and oldest environmental organisations, operating for half a century, since 1971, and now works in more than 55 countries. The New Zealand branch of Greenpeace (Greenpeace Aotearoa) was founded in 1974 and has grown to represent 35,000 financial donors and many tens of thousands of supporters.

Generation Zero is a rangatahi-led climate justice organisation that mobilises New Zealanders to build people power to campaign for intergenerational climate justice.

Our collective vision is a world where people and nature are thriving - where our homes, schools, business and transport are powered by clean energy from the sun, wind and water; where our food is grown in ways that regenerate the land, store carbon in the soil, clean up rivers and bring back wildlife; where both the ocean and native forests are rebounding and teeming with life. Our vision is an Aotearoa where our children, grandchildren and generations to come can grow up safe from the threat of climate change and live in a fairer society that truly honours Te Tiriti O Waitangi.

We welcome the opportunity to submit on this application, given the impact the proposed project would have on the climate and biodiversity. Addressing the existential crisis of climate change has never been more urgent. Climate change is already taking lives and damaging health, homes, food security, culture and livelihoods. It is already accelerating the extinction of the wildlife and wild places with which we share this Earth. Poor and marginalised communities are already suffering the most, despite being the least responsible for causing this crisis. Government action, or inaction, over the next decade will determine the future for billions of people and the wildlife we share this planet with.

We do not support the application by Waka Kotahi to add a third lane in each direction on the Papakura - Drury section of SH1. While other aspects of the application are supported -

specifically the improved walking/cycling infrastructure and facilitating passenger rail electrification - the substantive part of the project (increasing traffic lanes on SH1) is not supported. Increasing vehicle traffic lanes on SH1 will lead to an increase in greenhouse gas emissions and, through accelerating sprawl, a decrease in indigenous biodiversity and a degradation of some of New Zealand's most important fertile soil. As a result, the project is inconsistent with both the intention of the Fast-Track Consenting Act and legal requirements under the Zero Carbon Act. Therefore, the EPA should reject this part of the application.

Fast-Track Consenting Act

The COVID-19 Recovery (Fast-track Consenting) Act 2020 (from here-on referred to as "the FTA") clearly outlines a preference for projects that will have a positive impact on the climate, as noted in the following articles (in bold) from its Purpose statement:

19 Whether project helps to achieve purpose of Act

In considering, for the purpose of section 18(2), whether a project will help to achieve the purpose of this Act, the Minister may have regard to the following matters, assessed at whatever level of detail the Minister considers appropriate:

- (a) the project's economic benefits and costs for people or industries affected by COVID-19:*
- (b) the project's effect on the social and cultural **well-being of current and future generations**:*
- (c) whether the project would be likely to progress faster by using the processes provided by this Act than would otherwise be the case:*
- (d) whether the project may result in a public benefit by, for example,—*
 - (i) generating employment:*
 - (ii) increasing housing supply:*
 - (iii) contributing to well-functioning urban environments:*
 - (iv) providing infrastructure in order to improve economic, employment, and environmental outcomes, and increase productivity:*
 - (v) improving environmental outcomes for coastal or freshwater quality, air quality, or indigenous biodiversity:*
 - (vi) minimising waste:*
 - (vii) **contributing to New Zealand's efforts to mitigate climate change and transition more quickly to a low-emissions economy (in terms of reducing New Zealand's net emissions of greenhouse gases)**:*
 - (viii) promoting the protection of historic heritage:*
 - (ix) strengthening environmental, economic, and social resilience, in terms of managing the risks from natural hazards and the effects of climate change:*
- (e) **whether there is potential for the project to have significant adverse environmental effects, including greenhouse gas emissions**:*
- (f) any other matter that the Minister considers relevant.*

As is outlined further below, the proposed Papakura to Drury SH1 project would result in an increase in greenhouse gas emissions that is clearly inconsistent with the intention of the FTA.

Zero Carbon Act

The purpose of the Climate Change Response (Zero Carbon) Act 2002 (from here-on referred to as “the ZCA”) is to facilitate the development of policies that contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels.

Lawyers for Climate Action NZ Inc have calculated that, applying the recommendations of the Intergovernmental Panel on Climate Change to New Zealand’s emissions, our total emissions from 2021 to 2030 should be no higher than 485 Mt CO₂e, before adjusting for our fair share.¹ Achieving this requires an urgent step-change in ambition.

Given the Government’s demonstrated reluctance to regulate the agriculture industry, many analysts have noted that the transport sector will need to do much of the heavy lifting to achieve the ambitious target set out in the ZCA.

We note that the Government has yet to release its Emissions Reduction Plan in response to recommendations from the Climate Change Commission. Given that road expansion projects lead to increased vehicle journeys and, therefore, increased emissions, these kinds of projects are becoming inconsistent with the direction of Government policy. It is unreasonable to fast-track a high-emissions project at this time, given it clearly goes against the direction of emerging transport policy in response to climate change commitments.

New Zealand’s fastest-growing source of emissions

Transport is a major source of New Zealand’s emissions and these continue to rise. Transport emissions have risen more than any other emissions source with an increase of approximately 90 percent between 1990 and 2018. This compares with 24 percent for gross emissions across the total economy.²

According to the Ministry of Transport, *“Transport emissions are the fastest growing source of greenhouse gas emissions in New Zealand and account for 21% of all the emissions we produce. Nearly 70% of all transport emissions are from cars, SUVs, utes, vans and light trucks.”*³

¹ <https://www.lawyersforclimateaction.nz/news-events/cc-c-final-advice>

² Ministry of Transport. (2021) Hīkina te Kohupara – Kia mauri ora ai te iwi / Transport Emissions: Pathways to Net Zero by 2050.

³ <https://www.transport.govt.nz/area-of-interest/environment-and-climate-change/clean-cars/>

It is clear that road traffic is the primary source of one of New Zealand's most climate-polluting sectors. In order to achieve our legal obligations under the Paris Climate Agreement and the ZCA, New Zealand must urgently reduce road transport emissions. An immediate halt to all road expansion projects (as we have seen in Wales, for example⁴) can be a key part of reducing road transport emissions. This is explored in the next section.

Road expansion and 'induced demand'

Evidence from the United States, Europe and Japan has found consistently that expanding roading capacity does not ease congestion. In fact, the opposite is true: expanding roading capacity is correlated with *increased* traffic volumes over time and, consequently, increased greenhouse gas emissions. This is due to *induced demand* (also known as *generated traffic*). In summary, increasing road capacity incentivises more and/or longer vehicle trips. Evidence shows consistently that, while initiatives like more traffic lanes may lead to a temporary (months or a few years) decrease in congestion, traffic volumes quickly increase to levels higher than before capacity was added, driving up emissions.

The Victoria Transport Policy Institute⁵ describes *generated traffic* in the following way:

Traffic engineers often compare traffic to a fluid, assuming that a certain volume must flow through the road system. But urban traffic may be more comparable to a gas that expands to fill available space (Jacobsen 1997). Road improvements that reduce travel costs attract trips from other routes, times and modes, and encourage longer and more frequent travel. This is called generated traffic, referring to additional vehicle traffic on a particular road.

Generated traffic reflects the economic "law of demand," which states that consumption of a good increases as its price declines. Roadway improvements that alleviate congestion reduce the generalized cost of driving (i.e., the price), which encourages more vehicle use. Put another way, most urban roads have latent travel demand, additional peak-period vehicle trips that will occur if congestion is relieved. In the short-run generated traffic represents a shift along the demand curve; reduced congestion makes driving cheaper per mile or kilometer in terms of travel time and vehicle operating costs. Over the long run induced travel represents an outward shift in the demand curve as transport systems and land use patterns become more automobile dependent, so people must drive more to maintain a given level of accessibility to goods, services and activities (Lee 1999).

In summary, "Road expansion that reduces congestion in the short term attracts additional peak-period trips until congestion once again reaches a level that limits further growth."

⁴ <https://www.bbc.com/news/uk-wales-politics-57552390>

⁵ Litman, T (2017) Generated Traffic and Induced Travel Implications for Transport Planning. *Victoria Transport Policy Institute*.

Duranton and Turner (2009) analysed 20 years' worth of data on city traffic in the United States and found that vehicle kilometres travelled increase proportionately with the construction of highways.⁶ This is due to “*an increase in driving by current residents; an increase in transportation intensive production activity; and an inflow of new residents.*” This “Fundamental Law Of Road Congestion” has been tested and confirmed by researchers in Japan⁷ and Europe.⁸

Furthermore, in the European study, García-López found that “*the increase in traffic congestion is higher for the cities without tolls and for the cities without subways, which substantiates congestion pricing and public transit as policies against congestion.*”

Induced demand not modelled by Waka Kotahi

In its [Assessment of Effects on the Environment](#), Waka Kotahi states:

This Project will only have a minor impact on operational traffic volumes, so will not result in any significant increase in enabled vehicle emissions from the use of SH1.

As increasing roading capacity is known to increase traffic volumes and emissions (see previous section), a statement like this should not be accepted by planners or the EPA without intense scrutiny of the transport modelling. The project's claim to a low impact on emissions is flawed because the modelling has deficiencies that mean it cannot predict the traffic volumes or emissions. The [Transport Assessment](#) for the project says:

The forecast 2028 and 2038 traffic demands are based on outputs from Auckland Council's Macro Strategic Model (MSM), which in turn uses land use inputs from the Auckland Strategic Planning (ASP) model.

The MSM is a traditional four-step transportation model⁹. The misapplication of four-step models (FSM) to transport decision-making has been studied by numerous researchers. For example: Evans, Burke and Dodson, of the Urban Research Program, Griffith University¹⁰:

In Australian cities transport planners still heavily rely upon complex, quantitative transport models, especially the four-step model (FSM) and its variants... there are

⁶ Duranton, G., & Turner, M. A. (2009). The fundamental law of road congestion: evidence from US cities (No. w15376). *National Bureau of Economic Research*.

⁷ Hsu, W. T., & Zhang, H. (2014). The fundamental law of highway congestion revisited: Evidence from national expressways in Japan. *Journal of Urban Economics*, 81, 65-76.

⁸ García-López, M. (2017). The 'fundamental law of highway congestion' and air pollution in Europe's cities. https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=ITEA2017&paper_id=137

⁹ “The MSM is a traditional four-step transportation model” from a memorandum to AT CEO Shane Ellison and ELT member Jenny Chetwynd on 30 March 2021 and supplied by AT to Heidi O’Callahan on 6 April 2021.

¹⁰ “Clothing the Emperor?: Transport modelling and decision-making in Australian cities” <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.334.6975&rep=rep1&type=pdf>

numerous problems with its use that need to be addressed... Model deficiencies do not allow for, and may actually impede consideration of many of the most important emerging issues within cities, including road pricing, climate change and oil vulnerability, as well as long-held concerns such as land use changes, induced travel, the environment and sustainability.

The failure of FSMs to account for induced traffic weakens their capacity to inform policy makers about the broader economic value and environmental impact of major transport projects.

Many of the problems presented by FSMs have not been resolved for Auckland's MSM model, so its remaining technical deficiencies misinform the assessments for this project. **Specifically, the MSM holds 'land use' and the 'number of trips' people take (through whatever mode) constant in different scenarios.**

Road capacity expansion affects land use and increases the number of trips people make, so holding these variables constant means the comparisons of travel time and traffic volumes between the 'without project' and 'with project' scenarios are inaccurate. In turn, this affects most of the 'benefits' considered in the multicriteria assessment and business case, including travel times, safety throughout the entire city network, agglomeration and economic benefits, congestion and emissions.

Auckland Transport acknowledges the limitations¹¹:

Modelling VKT [Vehicle Kilometres Travelled] is not without its limitations. For example, the relationship between land use and travel demand is bidirectional despite its unidirectional representation in the four-step model. Transport infrastructure shapes land use and the new land use pattern subsequently feeds back into the demand for travel, however this effect is difficult to model well.

For this project, the only reason the model shows a "minor impact on operational traffic volumes" is that **the model forces the land use and number of trips people take to remain constant (in spite of both strong evidence and acknowledgement that these variables are not constant in practice)**, preventing it from correctly representing the well known effects of widening highways - increased traffic volumes and altered land use (accelerated sprawl).

Ministry for the Environment advice

The Ministry for the Environment appears to have taken induced demand into account when recommending which projects to include (and exclude) in the Fast-Track Consenting Bill. Documents released to Greenpeace under the Official Information Act, and subsequently [reported by Stuff](#), show that MfE explicitly advised the Environment Minister to not include the Papakura to Drury SH1 project in the Fast-Track Bill, with the assessment that *"This is a*

¹¹ Memorandum to Shane Ellison and Strategic General Manager Jenny Chetwynd on 30 March 2021.

significant roading project and has significant environmental risks.” MfE recommended that the Minister “Agree that this project should not be listed in the legislation.”

In comments to the media, the Minister defended the decision to include the Papakura to Drury SH1 project in the FTA by stating that the project was “going to be built anyway”. Prior to the FTA, the project needed consent under the RMA. As this had not been obtained, the Minister’s statement was, at best, unfounded. We note that this is not reasonable grounds for the EPA to approve the project. Indeed, it would render the whole consenting process pointless.

Electric vehicles won’t be sufficient to mitigate effects of induced demand

In its [Assessment of Effects on the Environment](#), Waka Kotahi states:

It is noted that the emissions associated with the use of SH1 will be influenced by multiple factors, including the uptake of electric vehicles and other strategic system level interventions to decarbonise New Zealand’s land transport system (which will be determined in light of the forthcoming emissions budgets and Emissions Reductions Plan due to be finalised by Government by the end of 2021).

New Zealand has lagged behind the rest of the world both in terms of legislating for vehicle fuel efficiency standards as well as incentivising the roll-out of electric vehicles. According to the Ministry for the Environment¹²:

Road vehicles are our main source of CO₂ emissions. We have the highest rate of car ownership in the OECD, which, combined with relatively high CO₂ emissions per kilometre of newly registered vehicles, means that New Zealand is among the highest OECD countries for emissions of CO₂ per capita from on-road transport.

Even accounting for the recently-introduced “feebate” scheme (the roll out of which has now been delayed, according to a recent [Beehive press release](#)), the adoption of electric vehicles will not happen quickly enough to achieve the necessary reductions in transport emissions. Total road transport emissions are a product of vehicle kilometres travelled (VKT) and average vehicle CO₂ emissions per kilometre. Therefore, reducing VKT is critical for reducing total CO₂ emissions.

Modelling from the United States supports this conclusion. In its report, *Driving Down Emissions*, Smart Growth America¹³ concludes:

Despite an aggressive effort to promote electric vehicle adoption, and higher fuel efficiency standards, multiple states have determined that they will not be able to reach

¹² MfE <https://environment.govt.nz/assets/Publications/Files/environment-aotearoa-2019.pdf>

¹³ <https://smartgrowthamerica.org/resources/driving-down-emissions/>

ambitious climate targets through vehicle electrification alone. Modeling consistently shows that rapid emissions reductions depend on taking fewer, shorter car trips and shifting trips from cars to transit, walking, and biking.

While electrification has a place, reducing road transport emissions also includes shifting journeys away from private motor vehicles towards public transport, walking, cycling and other active modes. The solutions also involve reducing the length of journeys through improving proximity - which requires halting investment in the roading that supports sprawl. Mode-shifting also frees up space on existing motorways, helping to ease congestion and improve journey times for people who have no choice but to drive, such as some tradespeople and people with certain access needs. If the goal of the Papakura to Drury South SH1 project is to “*improve the capacity and functionality of SH1*”, evidence shows that improving public and active transport is more likely to achieve this than adding new motorway lanes.

Furthermore, the impacts of the Covid-19 pandemic call into question whether said capacity and functionality improvements are still needed. Page 4 of the Traffic Assessment states:

However, traffic flows since completion of the SCI project cannot be considered to be representative, due to the ongoing effects of the COVID-19 pandemic. The pandemic has clearly affected economic activity and travel behaviour during 2020, to the extent that there is limited value in setting out existing travel times within this report. That is to say, travel times from previous years, with a previous layout, are not now relevant, but we cannot yet collect meaningful new data due to the altered travel behaviours during the pandemic.

Public and active transport proposals do not offset the impact of increased road traffic

In its [Assessment of Effects on the Environment](#), Waka Kotahi states:

The Project supports New Zealand’s efforts to mitigate climate change and transition to a low-emissions economy by:

- *Unlocking opportunities for passenger rail electrification, and future proofing for the 3rd and 4th main lines at Drury interchange by replacement of the NIMT bridges*
- *Providing a new SUP, connecting to the existing path at Papakura Interchange and into local walking and cycling infrastructure, which will be a key enabler in unlocking mode choices for users. There will also be improvements in connections across the motorway as two existing narrow bridges will be replaced with wider ones which will have full walking and cycling facilities and two new SUP footbridges crossing the NIMT and SH1 at Papakura Interchange*
- *Future proofing for the provision of public transport through the provision of wide shoulders on SH1.*

While introducing better active transport infrastructure and facilitating passenger rail electrification are likely to contribute positively to reducing greenhouse gas emissions, this does not offset the increase in greenhouse gas emissions that will occur from adding a third lane of traffic in each direction to SH1. The inclusion of measures to improve public and active transport in the project is no rationale for allowing emissions from road traffic to increase.

The EPA should not accept the argument that wide shoulders will future-proof SH1 for public transport. Firstly, Auckland Transport has no plans to put bus lanes on this stretch of motorway. Given that there is already a rail line here, bus lanes are not currently required and are unlikely to be needed in future. Secondly, it is not appropriate to design for shoulders to be used for public transport. Public transport needs lanes, not shoulders, as shoulders are needed for breakdowns. Public transport priority is ineffective if it isn't congestion-free, i.e. shielded from the effects of problems in the general traffic network such as breakdowns. Thirdly, there is a risk that the extra width will simply be converted to new general or heavy vehicle lanes in future, exacerbating greenhouse gas emissions.

Conclusion

According to analysis by the OECD, urban sprawl is a major contributor to New Zealand's high transport emissions ("significantly higher than in many other developed countries") and this has been directly driven by land use and transport policies.¹⁴ It is clear that political decisions on which types of transport projects to fund and fast-track directly contribute to New Zealand's high per capita greenhouse gas emissions.

The EPA should reject Waka Kotahi's application to build a third lane of traffic in each direction of the Papakura-Drury stretch of SH1 because it will increase greenhouse gas emissions due to increased road traffic from induced demand, and it will accelerate sprawl which in turn impacts biodiversity. This is inconsistent with the intention of the FTA and will stymie efforts to meet New Zealand's legal obligations under the Paris Climate Agreement and the Zero Carbon Act.

Other aspects of the application are likely to have a positive impact on the climate, such as the improved walking/cycling infrastructure and facilitating electrification of the passenger rail line. However, these aspects of the project do not offset the impact of increased greenhouse gas emissions caused by induced demand from adding new traffic lanes to SH1. We recommend that Waka Kotahi modify the application to only build those components of the project that contribute to modeshift to sustainable travel options, as it is only these components that they can be confident will lead to a reduction in road transport emissions.

¹⁴ OECD (2020) *Decarbonising Urban Mobility with Land Use and Transport Policies: The Case of Auckland, New Zealand*. Organisation for Economic Cooperation and Development. https://www.oecd-ilibrary.org/environment/decarbonising-urban-mobility-with-land-use-and-transport-policies-the-case-of-auckland-new-zealand_095848a3-en

Contact Information

Amanda Larsson
Head of Campaigns
Greenpeace Aotearoa

Postal address: Private Bag 92507, Victoria Street West, Auckland 1142

Physical address: 11 Akiraho Street, Mt Eden, Auckland

Phone: 09-630 6317

Email: alarsson@greenpeace.org