TRANSPORTATION GROUP NEW ZEALAND

1 About the Transport Group

Since 1956, the Transportation Group is among the largest Technical Interest Groups of Engineering New Zealand, with around 1,500 members. As New Zealand's largest voice for the Land Transport sector, our membership embodies Transport Engineering and Multi-disciplinary expertise. We are part of an international knowledge exchange, including the Chartered Institute of Highway and Transport (CIHT), UK. Through this submission, we bring:

- Privileged Sector insights
- A unique, coherent view across the multiple fields that encompass transport service and infrastructure design and delivery
- A perspective motivated by the betterment of the New Zealand society, environment and economy
- A capacity to support the recommendations made, and willingness to collaborate with Te Waihanga and other agencies.
- Capability to support sector development, including training and qualifications

I, [redacted] make this submission as the chair of the Transportation Group whilst acknowledging this submission is not exhaustive to the full contribution of this professional organisation.

2 Background: the time is right for changes

I understand that there are changing infrastructure priorities for New Zealand, and that Te Waihanga has attempted to make sense of this and provide some direction. It is difficult to compare the different infrastructure sectors, given the differing impacts each have on the economy – in terms of both consequence and immediacy – and differences in characteristics. This leaves a lot of room for interpretation and opinion. Yet the National Infrastructure Plan (NIP) does provide good direction and instils sentiments of confidence and leadership.

In clarifying the scope of the NIP, it does not include detailed implementation plans for how certain outcomes will be achieved. In some cases – such as to how to go about closing the Land Transport funding gap – it acknowledges the need for further work. The NIP would need to be satisfied that certain sought outcomes are feasible.

The purpose of this submission is to share insights into what this could look like and add support adding further confidence.

I will touch on various concepts which have operated overseas, and where there is basis of success. These are concepts which the Transport Group have been aware of and following for some years and face certain hurdles in implementing in New Zealand.

However, the NIP provides a catalyst. The time is right. The NIP makes a good case for change. New Zealand spends more on a transport system comparative to other nations yet does not attract the benefits.

I also understand the state of urgency and the need for immediate and significant change. The circumstances behind this include:

- That New Zealand spends more per capita in transport and gets less out of it. Indicators (e.g. road safety) suggest New Zealand's road network is under-performing.

- The productivity measure of economic output is forecasting further decline, bringing into question the ability for New Zealand to finance a transport system which can perform.

- Other social measures which can increase participation in the economy, and which currently lag behind international comparators.

The NIP recognises these circumstances and furthermore the potential to improve the economic outlook through a well-developed plan. For land transport, the need to close the funding gap (recommendation 5) is prioritised, however also recognising no immediate or obvious ways to do this.

The view of the Transport Group is that infrastructure design, development, management, maintenance and disposal must always be evidence led and not driven by ideology.

Key drivers and decided outcomes for the social good must be technical parameters, driven through regulation, and agreed on a bipartisan basis. They must endure. An example would be the MoT Outcomes Framework from 2021. This (or similar) will foster a more stable pipeline and subsequent ability to induce investor and sector confidence, user confidence and ability to stage; thus, achieving incremental benefits from a spread capital outflow.

2.1 The Land Transport key issues presented

The NIP identifies five key issues for the Land Transport Sector:

2.1.1 Pricing and Governance

I see the centralised funding model as an asset if geared properly, but there is existing perceived 'safety' in NLTF versus alternative funding resources among some of the sector.

Closing the funding gap is a priority in the NIP, without a worked solution at this stage. The Transport Group has knowledge and suggestions for progressing this enquiry.

2.1.2 Improved coordination

There is huge scope for staging as part of longer-term localised investment plans. This can deliver incremental benefits and tactical outcomes – although difficult to achieve in a fluctuating infrastructure policy environment. Maintenance is a key focus – so should be demand management

2.1.3 Policy certainty

I would welcome a decoupling of transport outcomes and GPS – deferring this to a bipartisan exercise led by technical specialists. There must be an enduring strategy geared towards the economy.

2.1.4 Investment planning

As well as the need for certainty, there is low hanging fruit such as Optimisation, enforcement and demand management measures which can be implemented whilst a longer-term solution comes into focus.

2.1.5 Better project appraisal

The role of transport is to support the economy, society and environment. The ways of achieving better outcomes for New Zealand need to be better understood, measured and evaluated.

I welcome the repurposing of some tools and methods towards supporting enhanced appraisal focused on better outcomes. This submission will provide specific examples of what this could look like.

3 There are many opportunities

There are numerous circumstances and opportunities within the industry to supporting the realisation of better coordinated transport infrastructure outcomes in New Zealand

3.1 The role of transport in supporting economic management.

The MoT have identified transport's role in economic management[1], including key outcomes from the UK Eddington transport study, 2008. The **outcomes of a stronger system are more deliverable** within a stable delivery environment – such as the one Te Waihanga is tasked to deliver.

3.2 There is significant 'low hanging fruit' to be harvested.

Whilst the NIP rightly identifies maintenance as a key response, others might include:

- Measures to reduce maintenance costs
- Demand management, including via land use outcomes
- Enforcement / other outcomes to 'channel' desired behaviour outcomes
- System optimisation. This includes better results out of traffic management systems, intelligent systems, public transport resource allocation, network management (e.g. One Network Framework)
- Steering the course through more enduring strategies

3.3 The possibility to make the transport system work for the economy, including:

- A means for transport to fulfil its primary function and achieve an increasing state of self-financing
- The adoption of a 'Decide and Provide' appraisal method can be tuned to this purpose, with a view to developing access
- The use of Triple Access Planning can deliver this outcome
- The improved delivery of staged infrastructure, and incremental benefits, to grow with the economy
- Potential untapped capabilities within land use planning powers and frameworks
- The possibility of enhancing economic participation

3.4 Towards a different direction

[1] https://www.transport.govt.nz/assets/Uploads/Report/edt-Contribution-of-transport-to-economic-development.pdf

These opportunities should be developed into a **strategy** – encompassing agreed outcomes framework, a new approach (explained below) and a benefits realisation framework.

This would be a report which would sits outside of the NIP, given a more specialised angle. It may even be developed by another agency (e.g. Ministry of Transport or NZTA).

Developing such a strategy will depend upon:

- Instruments / plans for the delivery of a bipartisan approach, including **changes to legal and regulatory systems**
- **Political will**
- Cross-sector **collaboration** – with international examples of access as a 'shared principle.'
- Development of the sector – **change management**, updating qualifications
- **Managing trade-offs**, e.g. that land use planning outcomes are finite from the perspective of development costs; hypothecation of revenue raised from parking and road user charges, etc.

Developing such a strategy will also strengthen confidence where it has been weakened as a direct consequence of wildly fluctuating policy. This has swung from the extremes of market saturated in non-progressed Business Case development, to the current change in economic management focussed on austerity and supporting inflation control.

A crucial outcome for the development of pipelines and strategies must be to inspire confidence and development in the Land Transport Sector.

4 General Feedback

The draft NIP is well communicated and presented, with the key conclusions linking to core themes. It communicates broader challenges clearly and opens the door to furthering these conversations.

The NIP makes clear the challenges, and also outcomes such as ability to grow financial capacity to deliver through economic growth (p38). Should this be stated as an implicit goal? There are broader economic considerations, such as the ability of NZ to sustain its historic purchasing power parity and low cost of debt servicing – and where there are visible indicators that these should not be taken for granted, for example stalled productivity. If economic performance can be attributed in part to infrastructure, then I suggest a stated outcome of the NIP should go as far as to state the gearing of infrastructure and services for the purpose of managing economic and productivity outcomes.

Regarding the understanding of the Land Transport Sector – some of the nuisances are explained, including that transport is also a service and that it contains economic sectors within its own right. However, the broader role of support in supporting economic development might be explained further – albeit noting that Land Transport is but one sector in the report, hence the prior recommendation of developing separately.

The historic drivers of transport investment (p134) feel incomplete, and this can have consequences in setting out solutions (i.e. learning from history). One omission is that transport has largely been financed and developed through convenience. Access has been developed via privately funded subdivision road networks, and this convenience has driven supply-led demand. The power of supply-led demand can be used in pursuit of alternative outcomes.

Transport also has more possible outcomes than associated with other sectors. There are more products and substitutes, each interacting with the environment in different ways. Demand is also driven by cultural norms with a feedback mechanism into decision making. Some appraisal and forecasting tools are also developed in bias of car-based outcomes – partly because the mathematics underpinning 'traditional' car-based modelling are convenient and not necessarily as successful in simulating or predicting alternative

transport modes.[2] One can argue that building and maintaining the car-based 'primary regime,' is unaffordable for New Zealand, (before externalities are even accounted for), but some of the forces supporting this regime can be made to work for an alternative future.

Alternative transport regimes can be scaled on a massive spectrum, from the use of information campaigns (Travel Planning), to mixing information and services – such as a staged approach to investment on an intended Mass Rapid Transit corridor. In the UK, delivery of 'packages' followed the 'new realism' to transport – mixing different modes together to manage freight and passenger transport in the right way, at the right scale.

There further needs to be understanding of changing societal indicators and preferences for supply. Current demand is biased by what is available. The NIP recognises that further economic development can occur within an established network, with smaller, more incremental investments. Whilst this is correct, attention needs to be paid to a systems change. For example, the Auckland motorway is established, but many would likely choose not to use it, were an attractive alternative available.

Furthermore, the value of increasing participation – for example the CEBR report (2021) into how the US could achieve this – and the prize of $2.4tn added to GDP over a decade of implementation. This, and several other prizes, are only available through regime change. Infrastructure should be viewed as layered, with multiple 'soft' measures with the occasional 'hard' one.

Henceforth, more engagement with the nuisance of land transportation can help bring bigger rewards into focus.

5 Key concepts for further information

Advances in technology and construction methods – for example, using more recycled material in construction – has likely potential. However, most of this submission is based at the start of the infrastructure lifecycle – planning.

5.1 Certainty

The keys to developing **certainty** include:

- A consistent definition of outcomes and success factors. The MoT outcome framework from 2021 is an example, but this could be replaced with anything bipartisan. However, it would likely resemble the MoT framework.
- A 'Decide and Provide' framework. If consensus is achieved on outcomes, then the planning becomes more framed around risk and uncertainty management. Scenario planning – including natural hazards and societal preference (e.g. towards either physical or Digital access, Lyons et. al (2014) for MoT) – can also significantly reduce risks of investment under performance
- Triple Access Planning and other strategies where integration and staging can add certainty

5.2 Triple Access Planning

Is a key concept, combining physical access, land use planning and digital access into one strategy.

Implementation can include tools and outcomes such as:

[2] See https://nzta.govt.nz/assets/resources/research/reports/729/RR-729-feasibility-of-modelling-impacts-of-working-from-home-on-travel-and-land-use.pdf

- Enhanced planning powers – such as 'Standards Access Management' arrangements used in the UK[3] - powers that control and monitor Travel Demand Management outcomes of new developments – largely successful.
- Incorporating digital planning into physical planning, including in strategies towards increasing economic participation in access challenged areas[4]

This framework has roots in New Zealand from 2014. For further reading, please refer to this publication by the CIHT.

5.3 Decide and Provide

New Zealand has to date applied a "Predict and Provide" approach to transport planning; this is based on extrapolating growth trends and has led in part to us having among the highest levels of car dependency in the world. Trend extrapolation without changing a societal regime – such as car dominance – is easy. Problem statements are usually framed around a lack of capacity.

"Decide and Provide" is different. It considers first the sought outcomes of a transport objective and considers how to achieve these. Problem statements should be broader and focussed on elements where transport can be a solution – such as supporting city-shaping outcomes or increasing economic participation. Decide and Provide is a basis to apply an outcomes framework, often based on supply-led demand.

Decide and Provide also includes **scenario planning**, which is largely practiced around the developments of Regional Land Trasport Plans. If done well, it can develop programmes which are tested across multiple outcomes – including natural disasters. Furthermore, it can employ participatory methods of certain specialists associated with key areas of uncertainty and develop tools such as *compatibility matrices* which highlight synergies of different components. This approach is often more successful than entering values into models.

I also note my opinion that many of the tools used historically tend to have unused or under-used capabilities in supporting an alternative regime, especially modelling and analytics tools. Much of the transition to a new approach need not require new tools but should require that existing ones be used more effectively.

5.4 Optimisation

The management of outcomes to be efficient. In transport terms, this is commonly referred to in the context of operational management, and can take many forms from Intelligent Traffic Systems, managed motorways, low subsidised public transport networks. Optimal outcomes can also be achieved through transit-oriented development and other systems-based planning which designs for flexible or adaptive operations. The future of transport is increasingly intelligent and managed; optimisation will grow in importance.

The sought outcomes are usually level of service or operating cost based. Optimisation should form a 'Do minimum' state which precedes larger investment.

If certain views are held that it is not practiced enough / to a desired standard, it is easy to conclude that this forms a starting point.

However, optimisation usually relies on highly trained specialists an application. Increasing the capacity of the industry may be a priority. If resourced properly, enhanced optimisation is an activity that can occur at any point of the economic cycle.

[3] In conjunction with Town and County Planning Act s106

https://www.ciht.org.uk/news/the-triple-access-planning-for-uncertain-futures-a-handbook-for-practitioners-is-now-available/

Furthermore, changes in policy directive can impact on the criteria for optimisation. For example, in optimising a public transport system, there is no defined trade-off between providing directness and coverage.

5.5 How it fits together

Figure 1 shows a concept of cause and effect, starting with the above concepts. A similar appraisal process to the five case treasury framework can operate here, (similar to the Infrastructure Commission Te Waihanga principles for investment). The outcomes would include:

- Better value for money and investment quality assurance – though a Do minimum built on optimisation and demand management strategies
- Staging – including demand management, services and core infrastructure
- Outcomes framed around Triple Access Planning – integrated, timely and impactful

The Figure 1 concept could be applied to a Mass Rapid Transit concept, demanding more out of the earlier intervention stages, and achieving greater coordination with other infrastructure sectors.

The natural consequences of good planning include uncertainty management and benefits realisation. However, if the cascade of interventions are better applied, then better practice will close the funding gap:

- From the bottom up – better planning practice provides more 'control' and certainty, required to calibrate programmes better
- From the top down – an outcomes framework geared towards economic performance will grow the economy and financing capabilities.

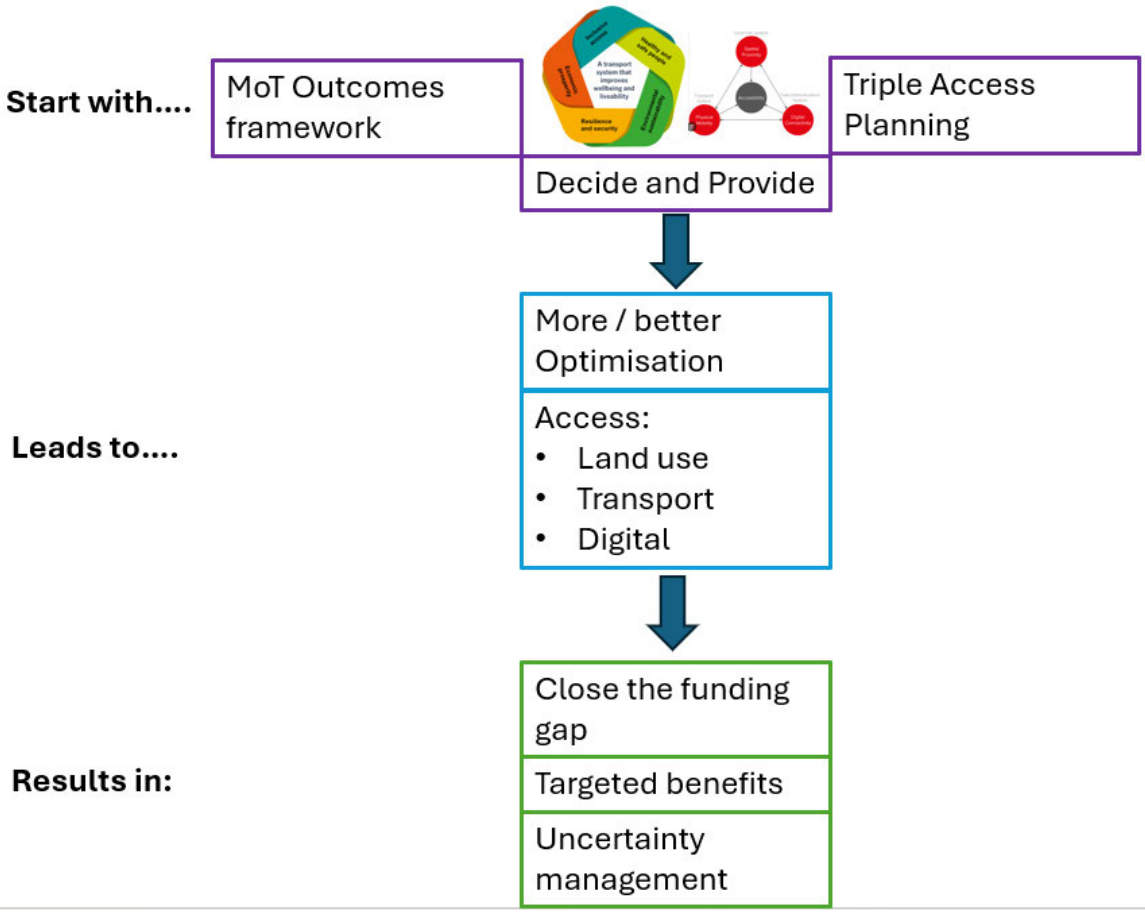

Figure 1: Concept appraisal philosophy and outcomes

6 Conclusions

6.1 Encouraging

The NIP is encouraging. The submission focuses on solidifying a transport foundation and carrying forward. As it's recommendations, The NIP includes:

a. Establish affordable and sustainable funding
b. Clear the way for infrastructure
c. Start with maintenance
d. Right size new investment

I would recommend changing point c to:

Start with maintenance **and optimisation**

6.2 Consensus

The delivery of a more enduring outcomes framework for transport will unlock:

- Investment confidence
- Certainty and sector development and training
- User / customer confidence
- Staged infrastructure possibilities, and incremental benefits
- Resilient programming – including options for economic cycle low points
- Ability to make transport and access work for the economy

6.3 Repurpose

There is no need to throw the baby out with the bathwater.

Many analytical methods are not being used to their full potential. Four Stage models, for example, can be more useful in developing public transport, whereas presently they are often used on a 'predict and provide' basis. Whilst change management is necessary in the sector, there are many tools and methods which can be repurposed – adding a layer of certainty to within a change management situation.

6.4 Regime change

Prioritise planning for access to support the economy, and consider transport needs more holistically.

Instead of a motorway that costs $1bn, an at-grade single carriageway freight bypass and public transport service for commuters would cost much less up front, spread the cost and contribute to a strategy which can support a sustainable growth model.

Regime change is not about different mode selection but removing ideologies and focussing on outcomes.

6.5 Partnerships

A common outcomes framework, Triple Access Planning, scenario planning, shared principles - all require consensus. The public will need to understand it and buy into it.

The coming together of digital, land use and transport in a single strategy would require new partnerships entirely.

Partnerships could be framed around a common purpose – potentially like the Covid 19 response which kept infection levels among the lowest in the world. The NIP is a catalyst and conveys the urgency.

6.6 Selling it

The ability for an alternative, and the potential reward is currently missing from the story. TG wishes to work with you to realise a better future for our sector and its contribution to New Zealand. There is significant evidence into the merits of the concepts shared here, and recommended they form a basis to a strategy for making transport more effective and self-financing.

Transport makes a huge contribution to the economy, and as a sector in its own right. Gearing it towards productive outcomes could be taken as far as to be a stated objective and recommendation.