ATTRIBUTES OF A SUCCESSFUL TRANSPORT SYSTEM

In order for the View to provide a sound basis for planning and investment decision making over the medium to long term, it is considered important that it is grounded in a clear, agreed understanding of the transport system New Zealand needs to be successful into the future.

An enduring framework is needed to describe the key attributes of the system and track progress on how the transport system is delivering the outcomes that New Zealand and customers demand. The framework should cover all elements of the system and clearly reflect what customers seek and need from the transport system.

The framework should include the core elements of the transport system. It should also enable consideration of how transport can support New Zealand to respond to broader challenges and opportunities.

The framework will need to integrate with existing measurement and reporting tools, and should identify areas where there are gaps in our understanding and evidence.

To be enduring, the description of the transport system needs to be agreed by all parties involved in developing Version 2.0 of the View. The following key attributes suggest how we can describe a successful transport system that provides for and enables well-being for all New Zealanders. This list (and the following descriptions), provided for further discussion, reflects the Transport Agency’s current level of understanding of each attribute based on the available evidential base, our strategic direction and customer expectations.

- Safe
- Connected
- Accessible
- Resilient
- Responsible
- Financially sustainable
- Positive customer experience
- Integrated with land use
- Agile/adaptable

Safe
Transport users should be able to utilise any available type of transport or transport service with confidence that the system is safe and that they will be free of accidents. A safer system takes into account the many different mode and service choices that may be used to undertake a journey, to ensure a safer system for all. At the broadest level safety refers to people feeling safe as they move around their communities including the most vulnerable groups such as children walking, scootering or cycling to school. It includes the personal safety of people that use public transport, including the safety of the bus stops, train stations and footpaths they use to access public transport.

Despite significant progress over the last 30 years, New Zealand still lags behind many other countries in road safety. The risk of death or serious injury is twice that of similar OECD countries: 'The level of death and injury suffered by young people on the roads is especially high. Many lives are ruined or lost in preventable crashes. While road crashes have a large economic impact – the annual social cost of crashes is estimated to be $4.17 billion, the figures do not show the social and emotional impact of these crashes on families, the wider community and the health system. The government’s road safety strategy (2010-2020), Safer Journeys, has a vision of a safe road system increasingly free of death and serious injury, with a range of interventions founded on the Safe System approach. This approach focuses on safe roads and roadides, safe speeds, safe vehicles and safe road use. While there was a positive start to the strategy with the lowest road toll since 1950 in 2013, deaths and serious injuries have subsequently increased.

Some forms of transport carry higher levels of risk than others. Motorcycling remains the riskiest transport mode, with the risk of being killed or injured in a road crash 21 times higher for a motorcyclist than a car driver (over the same distance travelled). Cycling is another vulnerable mode with cyclists making up 3% of all on-road deaths and 9% of serious injuries yet only making up 2% of total time travelled.
In 2015 there were 16 deaths and 10 serious injuries in rail related incidents. While rail related deaths and injuries are reducing, safety issues for cars, cyclists and pedestrians at level crossings remain an issue, particularly in Wellington and Auckland with increasing numbers of commuter train movements.

Expected growth in rail traffic, particularly in Auckland, is likely to increase the risk of deaths and serious injuries at rail crossings. Kiwiflax is working with the sector to clarify divers risks and identify potential interventions to reduce the risk.

Connected

A connected system enables people and goods to be moved where they need to go in a timely and seamless manner. It delivers reliable journeys, connects key destinations, enables efficient switching between modes and influences the need to travel. A connected transport system has networks in the right places and delivers appropriate levels of service. It brings together information, infrastructure and services to provide seamless end to end journeys for people using a variety of modes and it increases access and proximity to opportunities.

Good connectivity for New Zealanders includes:

- networks that provide appropriate connections to key hubs and locations
- a choice of transport modes, particularly in urban growth areas
- certainty about the reliability and availability of services and infrastructure, and
- real time and reliable information about transport services and network availability.

Efficient commuting services will be increasingly important within our major urban centres, and the standard and reliability of transport networks within rural and provincial areas will be critical to supporting their economies.

Our economy relies on good transport links. Primary production centres need efficient connections to international markets and major centres, while the service sector relies on the transport connections with customers. Tourists are seeking safe and reliable routes between arrival points and tourist attractions.

A connected transport system involves integration with information and technology. With the introduction of smart technologies people now expect real time, personalised and connected information that enables them to make the best transport choice for their needs. They also increasingly expect integrated ticketing and payment options. Transport connectivity can now deliver reliable, real-time and customised information to help customers manage their transport needs on-the-go, when they want it, seamlessly.

The information and data available from smart and connected infrastructure and vehicles, combined with real time, can be used to improve system performance.

Levels of accessibility tend to be higher in areas with close proximity to jobs, education, amenities and services (as trips can be made by walking or cycling), and in areas that have access to a range of transport choices.

Resilient

Resilience refers to the transport system’s ability to enable communities to withstand and absorb the impacts of unplanned disruptive events, perform effectively during a disruption, and respond and recover quickly. It involves managing the risk and consequences of events, as well as pro-actively planning for future challenges. The transport system needs to continue to perform during unexpected disruptive events and minimise the impacts on people and communities. This is especially important for strategic networks that carry people and freight, support tourism, and that link regions to core markets and services. Transport system service providers need to work in an integrated manner to enable journeys and services to continue during these events. This will allow New Zealanders to undertake their journeys in a timely and safe manner; and have seamless options and centralised information available to them during unforeseen events.

Our natural and physical environment directly influences the resilience of the transport system. New Zealand is located at the boundaries of two tectonic plates and is susceptible to earthquake and volcanic events. With growing impacts of climate change, we expect to see many areas of the country experiencing increased disruptions from weather extremes and sea level rise. Disruptions of physical and digital assets would reduce the transport system’s ability to keep New Zealand connected and moving.

New Zealanders and visitors want a transport experience that is safe and reliable and increasingly resilient to hazards and disruptions. Meeting these expectations will be challenging as our physical environment continues to experience disruption through climate change or other natural phenomena.

Many transport corridors with resilience gaps provide key routes through regional development areas, or connect them with neighbouring regions and key markets. Recent research has indicated that around 20% of the state highway network has been rated as performing below expected Customer Levels of Service (CLoS) for resilience. While there are resilience issues on some of our key strategic routes, the main CLoS gaps occur on regional routes or lower classification roads. Improving resilience of the transport system in these regions will contribute to enhanced economic growth and social cohesion.

System resilience can be enhanced, where possible, by designing infrastructure that can be adapted for other uses should conditions change. It also involves considering whether infrastructure should be relocated or re-designed to cope with changes in the external environment such as the emerging impacts of climate change and sea level rise.

An integrated approach to resilience will achieve the optimal, most effective and best value for money solutions for the diversity of contexts across the country. Key elements of this approach are described in the following diagram.

Responsible

A responsible system minimises and reduces harm caused by transport on individuals, communities and the environment. There is a growing expectation that the negative impacts of the transport system will be mitigated and managed. It is important to ensure that transport networks are built, maintained and used in ways that minimise harmful effects on people, other species, habitats and ecosystems.

At an individual level the transport system can result in noise levels and air pollution that can negatively impact on health and well-being. The absence of viable active transport choices can also contribute to poor health outcomes.

For communities, poor integration of transport infrastructure with land use can result in severe issues (whereby the transport system creates barriers (both physical and psychological) to economic growth between areas and communities), low quality public spaces and loss of amenities.

Adverse environmental impacts can include carbon emissions contributing to climate change, potential for increased water run-off and reduction in water quality, and impacts on habitats and ecosystems.

Transport is responsible for 18% of New Zealand’s total greenhouse gas emissions and land transport represents about 45% of total national level carbon emissions.

There are a range of opportunities for the transport system to play its role in New Zealand reducing greenhouse gas emissions. These include:

- encouraging the use of more fuel-efficient vehicles, including freight vehicles (e.g. 50% electric vehicles) and shifting heavy freight to rail;
- enabling the use of new vehicle and network technologies that offer emissions reduction benefits (e.g. autonomous vehicles, electric vehicles);
- advancing demand management approaches that incentivise modal shift to more energy efficient transit options (e.g. public transport, walking and cycling; ride-share);
- shaping more efficient, integrated land transport networks and associated patterns of land use.
Making land transport more resilient to natural disaster and shocks

The range of responses to resilience risk is being broadened over the next 30 years, and includes:

• Integrated land use planning that reduces the need to travel long distances by private vehicle to access jobs, education and other services.

• Optimising materials selection, use and re-use in network construction and maintenance.

The way transport infrastructure is designed, built and managed can also significantly reduce greenhouse gas emissions. It can also improve the amenity of rural and urban landscapes, and bring people closer to each other and the natural environment.

Positive Customer Experience

Customers are telling us they want a transport system that is responsive to changing technologies and innovations, and appropriate to the environment they live in. An agile system is one that can anticipate and respond in a timely manner to changes in customer needs and the environment.

The world is experiencing increasingly rapid changes in technology, with the potential to impact how we travel and live. However there are still many questions as to how emerging technology will be used and the impact this will have on the transport system. Agility is required to help manage increasing levels of uncertainty regarding transport demand, and the changing nature of transport services and how they will be delivered in the future.

An agile transport system, and in particular the related regulatory settings, must support innovation and the emergence of new ideas and services, while ensuring that appropriate safeguards and standards are in place.

Reference List