In her 1963 book ‘Tomorrow is Now’, Eleanor Roosevelt wrote “It is today that we must create the world of the future”. Before that decade was out, the Boeing 747 was revolutionising mass air transport and man had walked on the moon.

Fifteen years into the 21st century, the world is on the cusp of a fundamental change in mobility and transportation. These changes will be wrought primarily by advances in technology and will happen with, or without, government intervention.

The Ministry of Transport is taking a whole of system, long-term view of the future of transport to help in our role as the Government’s adviser on transport.

We want to share some of our thinking on possible visions for the future. The visions we are sharing are not predictions about what will happen, just what could happen.

Fundamentally, this work is about starting a discussion about the sort of transport system we as New Zealanders want in the long-term. This is a discussion that matters to us all – we hope these visions are the spark to ignite the debate.

To paraphrase Eleanor Roosevelt, it is today that we must create the transport system of the future.

**What is our transport future?**

In her 1963 book ‘Tomorrow is Now’, Eleanor Roosevelt wrote “We face the future fortified with the lessons we have learned from the past”. Before thinking about where we could go in the future, it is important to look back at how far we have come.

Think about the generation of New Zealanders born to European settlers in the late 1800s – our grandparents and great grandparents. Someone born during that period would have grown up with the horse and cart as the primary mode of transport.

**We’ve seen technology transform transport**

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Think about the generation of New Zealanders born to European settlers in the late 1800s – our grandparents and great grandparents. Someone born during that period would have grown up with the horse and cart as the primary mode of transport.
The first internal combustion engine powered cars came to New Zealand in 1898. A young person in the early 1900s may possibly have seen a few cars about, but could have hardly imagined that within their lifetime they would become commonplace.

When cars were becoming more common, in the mid 1930’s, commercial flight was in its infancy. Very few people would have flown in an aircraft. Back then, people probably could not have imagined flying would become common, let alone that man would land on the moon in little more than a generation.

This generation saw the unimaginable become reality. Life brings similar changes for us too – haven’t we all seen things once unimaginable become reality?

A popular culture example is the Star Trek communicator – the flip-phone type device used for voice communication in the popular 1960s television series. Back in the real world, flip-phone use peaked in the mid-late 2000s. These days, almost everyone has a smartphone with them which can be used for FaceTime and Skype calls. While this is not quite ‘beam me up’ territory, the immediacy it offers is like being next to the person you are talking to.

We obviously can’t predict the future with certainty, but we do already have a sense of what is possible.

**In the future personal choice will rule**

We imagine a future more tailored to individual needs than today, where you will make very different choices to the ones we make today – because you can.

Through a combination of ‘turn up and go’ frequent public transport and on-demand services, you will no longer need to look to see when a bus, train or taxi will be available. In fact, you will not be able to, as there will be no need for bus stops, bus timetables or parking.

And you will no longer worry about clearing the garage for the car because you will not own a car. It just won’t make sense any more.

Mobility will be transformed like food supply over recent decades. Our forebears once grew their own food and choice was limited. Today we generally buy what we want, when we want it, at the supermarket. It’s clearly more convenient, and we have greater choice.

In the future, there will be a flexible transport system, with a range of vehicles of various sizes that will drive themselves. They will be available to take you to your destination when you require them.

You will make choices about what sort of travel experience you want – the luxury or leisure trip, for example – or whether you will travel with other people, and if so, how many.

You won’t need to park the car, releasing precious urban space for other uses. It will be more convenient, cheaper and you’ll have greater choice than you would by owning your own vehicle.
Many New Zealanders love their cars. So for some people the concept of not owning a vehicle is almost too much to imagine. But our grandchildren will be quite comfortable with not owning a vehicle – it will be the norm.

Just pause and think for a moment what a difference such a future might make to the way cities like Auckland might operate. And think what it might mean for how we can most sensibly address the challenge of future growth. For example, the International Transport Forum estimates we might only need a vehicle fleet 30 percent the size of today’s fleet.

**There will be simplicity within complexity**

There will be a proliferation of choice about how to travel. But while having an array of services to choose from sounds great, complexity might not be desirable or fit easily with daily life.

Smarter applications and services will help solve this problem. Just as Google already watches our searches and suggests what we might want to look at next, technology will be available that can work out our travel choices. It will be like having a virtual butler, there to make our lives simple.

**We’ll pay for transport as a service**

As well as using new, very different types of transport, we will pay for it in new, very different ways.

Like mobile phone services, some people will choose to ‘pay as you go’. Others will opt for transport packages that provide them with a certain level of transport service for a defined period.

You will buy these services from private providers, using variable prices to help manage supply and demand – the same approach businesses have always followed.

The network access and use charge will be included in the price of the service, just like energy or telecommunications services.

**Freight demand will grow substantially**

How might the freight and logistics system operate in the future? As for personal transport, a collection of innovations could work together.

Freight vehicles, just like other vehicles, could be self-driving and drive together in platoons – saving space, energy use and the need for extra infrastructure. These vehicles will improve productivity hugely. Trials with platooned trucks, for example, show up to 25 percent savings in fuel.

The challenge with these road trains is they will probably require dedicated freight lanes. We think New Zealand has unique opportunities in this space.
The rail network, outside of Auckland and Wellington, already provides a separated corridor that could be transformed into a high-speed freight network. The space already allocated means we can potentially be an early mover when the right technology comes along. Imagine platooned trucks, not guided by a physical set of rails, but by a system that allows them to operate safety on narrow concrete pads on dedicated freight corridors. Imagine the productivity gains for our supply chains, and the avoided costs, by not having to extend the road network to accommodate these systems.

We are not advocating we close rail transport in New Zealand, but there may be whole new ways we could utilise existing rail networks and corridors.

**We’ll make better use of our ‘vertical space’**

The movement of freight could also be transformed by new airships. These are already under development and being trialled. Projections show they could have a payload of 500 tonnes and a range of 10,000 km, with speeds in excess of 200 km/h. These airships don’t have the same issues as aircraft with ground infrastructure and they have they capacity to potentially go anywhere.

We could also better use the airspace over cities for short distance deliveries. Unmanned aerial vehicles are already commonplace and their potential role is widely discussed.

Imagine the benefits for freight companies, who can avoid costly delays in cities by flying over the top of them. Consumers will also benefit by getting goods faster.

Imagine how this might impact on future freight and logistics options, for example the need and role of existing sea ports and the ability to transport time-sensitive freight.

The role of unmanned aerial vehicles also has significant scope in agriculture, surveying and search and rescue – to name just a few possibilities.

This brings us back to shared mobility and the role of autonomous vehicles. These vehicles may well be designed to be re-deployed off-peak to manage last mile delivery to central city areas. Just imagine how these things might alter the current challenges we have in addressing the last mile delivery of freight.

**Artificial intelligence will change the role of government**

All these changes will mean the government needs to play a quite different role in the future.

Today we have regulatory frameworks that manage access and use within the transport system. This will change in the future. The system will have ‘complete’ information and will effectively be able to self-regulate and not allow infringement. For example:

- the overloaded truck will not move until some of its load is removed
- the self-driving car will take itself to the garage when a fault is detected
- no car will drive over the speed limit
Imagine a future where there will be no need for day-to-day enforcement of transport users, and no penalties for users. The role of the government, as a regulator, will shift to focus almost exclusively on the service providers of the system.

**How do you see the future of transport?**

That’s a brief overview of what the future of transport could hold. Each story on the Futures section of the Ministry of Transport website looks into a different part of our transport system in more detail. We encourage you to read these and give us your feedback.

Many of these things could well be some decades away. But the ‘green shoots’ of some of them are already here, or nearly here.

The Ministry of Transport wants to be ambitious and aspirational in our pursuit of these possibilities. We are trying the see future possibilities and make things happen – to ensure our transport system helps New Zealand thrive.

What do you imagine is possible?

Find out more about transport futures at www.transport.govt.nz/futures

*This vision is not presented as the views of industry or government policy. It is the Ministry of Transport’s intention to stimulate wider debate and generate ideas on the possible future of New Zealand’s transport system.*