

9. Climate Change Integrated Work Programme—Land Transport

(Clr Hook) (Report prepared by Steve Murrin & Kaye McIlveney)

E320-003-001

Purpose

1. To consider how climate change may impact on Council's land transport activities.

Context

2. This report is the fourth report in the Climate Change Integrated Work Programme (the Programme) series. It details how climate change is incorporated into the decisions made in the management of the land transport activities.
3. The Programme aims to inventory the data and information Council needs to make climate change related decisions. It will assess each Activity Group as to the impacts that climate change may have on that activity and will ensure that climate change is being properly taken into account when relevant and that the staff have the data/information they need to assess the impacts of climate change.

Climate changes expected

4. The current advice from the Ministry for Environment has been reported on previously. It can be accessed here. <https://mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region-0>

Council's land transport function

5. Marlborough District Council is a road controlling authority under the Land Transport Act 1998. Council also has powers over roads under the Local Government Act 1974.
6. Council controls all roads within Marlborough except for state highways. Council is also responsible for other transport related services, including community road safety, cycleways, a passenger transport service and a total mobility scheme.
7. Roads are Council's largest infrastructure asset. Expenditure of around \$22M (including depreciation) and a further \$15.2M of capital is incurred annually to upgrade and maintain our roads. This will rise with climate change.
8. Council contracts much of its land transport function to NZTA, under the name Marlborough Roads.
9. Council is also a member of the regional transport committee which has obligations under the Land Transport Management Act 2003 to produce a number of significant documents, plans and strategies, relating to the land transport function. A brief description of how climate change has been dealt with in those documents follows.
10. The land transport system is also recognised as lifeline infrastructure in the event of emergency. This places priority on maintaining the system and ensuring it is resilient to natural hazards and other emergencies. Climate change will increase the challenges and costs of doing so.

Regional Land Transport Plans

11. Marlborough's Regional Land Transport Plan was adopted in 2015 and reviewed in 2018. The vision is of an efficient and resilient network that is well able to bounce back from unplanned events.
12. One of the key problems identified in the Plan is susceptibility of the network to the impacts of climate change. Marlborough's decisions on where to expend its land transport budget is framed to address this and other key problems.

13. Marlborough also has a Regional Public Transport Plan adopted in 2018. One of the aims for such a plan is environmental sustainability and to reduce greenhouse gas emissions from private motor vehicles.

Infrastructure Strategy

14. Council's Infrastructure Strategy identifies climate change, together with large earthquakes, as a key challenge for land transport.
15. It describes a resilience plan for earthquakes and flood risks—
- Stage 1 – reduce risk through maintenance, taking into account future conditions in all design of roading renewals and upgrades;
 - Stage 2 – implement emergency management plans when events occur
 - Stage 3 – recovery after an event, following set processes, to return the network to its existing level of service
16. The Infrastructure Strategy is implemented through the Roothing Asset Management Plan. Below is a summary of items relevant to Climate Change:

Effects of climate change on Marlborough's roads

Change to the climate	Effect of roading network	Management action
Increased frequency & intensity of storms & extreme rainfall events	<p>Slips, damage to bridges, and roads inundated causes disruption to the network affecting movement around the region</p> <p>This occurs mainly in the Sounds</p> <p>The 2016 earthquakes caused land instability making the roading network even more susceptible to high frequency storm events.</p> <p>Council has 369 bridges many of which are timber and will be required to be replaced over time. With bigger or more frequent flood flows, more resources are needed to maintain them.</p>	<p>Invest in protecting the network from slips and flooding</p> <p>Annual inspection of bridges to keep waterways and culverts clear</p> <p>Annual inspection of the condition of walls and structures within the road corridor</p> <p>Upgrade of culverts when replaced</p> <p>Readiness to react to slips by having consented spoil disposal sites and areas where slip material can be temporarily stored prior to permanent placement</p> <p>Weight and speed limits are placed on some of the timber bridges until they can be scheduled for replacement</p>
Sea level rise	<p>Inundation and erosion of roads especially at king tides which will grow worse with increasing sea levels and northerly storms</p> <p>Queen Charlotte Drive has a small stretch of road that is inundated by the sea during king tides</p> <p>French Pass settlement road is being eroded by the sea</p>	<p>Options will include</p> <ul style="list-style-type: none"> • moving the road inland • raising the roadway • abandonment of the road (if other options exist, such as alternate routes or sea access, that outweigh the costs of remedial work on the road)

Change to the climate	Effect of roading network	Management action
	It is expected that some roads in the Sounds that will eventually be impacted by sea level rise	<ul style="list-style-type: none"> Further investigation with more detailed data will enable more accurate future planning
Increased frequency and severity of droughts	Marlborough has around 630km of unsealed roads which will cause increased dust nuisance due to drought	<p>The budget for maintenance of unsealed roads has increased</p> <p>New more environmentally friendly technologies for dust suppression being used and further investigated</p> <p>Sealing some roads may be an option</p>
Temperature changes—warmer & colder	<p>Stress on road pavements requiring increased maintenance</p> <p>Warmer temperatures make the pavement bleed</p> <p>Colder temperatures (frost) chips the pavement</p>	New materials that cope with temperature extremes are being investigated

Council mitigation work

- Council has a particular focus on promoting walking and cycling within Marlborough. This is directed through a number of strategies and programmes. There are a number of drivers for this focus one of which is to reduce the reliance of private motor vehicles and reduce emissions.
- Street lighting has been converted to more efficient LED lights (4500 light bulbs throughout the district). They use less power and require less maintenance.

WHAT ELSE—do we follow the guidance of NZTA as detailed below?

NZTA's climate change work

- NZTA provides a leadership role to local road controlling authorities. It has a significant climate change project and provides standards, guidelines and specifications to address climate change mitigation and adaptation of road infrastructure projects.
- This work has two streams; mitigation and adaptation, both of which Council can and does draw upon.
- Mitigation work currently being undertaken by NZTA nationally includes—
 - promoting resource efficiency initiatives, such as reducing the consumption of virgin raw materials and extending the useful life of our roads. This will not only reduce materials production and freight and shipping related emissions, but will also reduce construction and operational costs;
 - promoting cycling and active transport, investing in new urban cycleways and information on cycling resources and research;
 - investing in public and alternative transport, such as electrification of rail and the provision of new or upgraded bus infrastructure and services;
 - promoting the uptake of electric vehicles, such as enabling the efficient and effective provision of charging infrastructure;

- investing in new technologies, with Councils, to accelerate uptake of energy-efficient street lighting;
- developing and using sustainability rating tools to incentivise the uptake of low emissions infrastructure design and construction methods;
- researching and monitoring to understand what best practice climate change mitigation looks like as well as commissioning work in New Zealand to better understand the nature, extent and ways to mitigate the impact of climate change.

22. Adaptation work currently being undertaken by NZTA nationally includes—

- a Resilience project to ensure that the state highway network can withstand disruptions, absorb disturbances, perform effectively in a crisis, adapt to changing conditions and recover quickly from disturbances;
- specific project-based adaptation work to address concerns around resilience and climate change vulnerability;
- a coastal effects assessment guide which contains a framework to assess environmental effects including climate change on and from coastal systems that may influence the maintenance, renewal, construction or management of roading assets;
- a Social Resilience project to better understand the impacts of the road network on social resilience by assessing the impacts on communities affected by road closures (for example due to rockfall or flooding). This will inform investment decisions incorporating not only economic but also social factors.

Conclusions

23. Council will continue to focus on ensuring it has an efficient and resilient roading network that can adapt to the changes to come and to promoting mitigation such as promoting walking, cycling, public transport and other low carbon transport options.

Next steps

24. A report on Water—quality and quantity will be presented to the next Planning, Finance & Community Committee.

RECOMMENDED

That Council receive this report.