



Contents

Introduction	3
Key Considerations for Council	3
Scenarios of COVID-19	3
Impacts on Community Wellbeing	5
Economic wellbeing	7
Environmental wellbeing.....	9
Social and cultural wellbeing	9
Impacts on Greater Wellington Regional Council.....	10
Appendix 1: NZ COVID-19 Alert Levels	13
Appendix 2: Bibliography.....	14

Tables

Table 1: Scenarios and Assumptions	4
Table 2: Predicted short and medium-term impacts of COVID-19	6
Table 3: Wellington Region Employment by Sector	7
Table 4: COVID-19 Impacts on Greater Wellington Activities	12

This paper has been prepared solely for the purpose of discussing the possible impacts of COVID-19 on the Wellington Region. COVID-19 future scenarios were based upon reliable research, however are hypothetical and include many assumptions. The findings and considerations contained in the paper are subject to change and do not represent the official position of the Council. Greater Wellington Regional Council and its officers do not accept responsibility or liability if this paper is used for any other purpose than it was intended.

Introduction

1. The purpose of this briefing paper is to provide early guidance to the Greater Wellington Regional Council regarding the potential impacts of Coronavirus 2019 (COVID-19) on the region, Greater Wellington Operations, and to inform discussions and planning for the 2021-2030 Long Term Plan (LTP).
2. This paper aims to provide a high-level assessment of the most likely impacts that will be seen across the region in the short (2020) and medium-term (2021-2025), however there are many uncertainties. Further information and analysis will be provided in the coming weeks and months, as things evolve.

Key Considerations for Council

- Many of our assumptions about the future have been disrupted by COVID-19. Due to this uncertainty, the use of future scenarios will help us prepare for a variety of possible outcomes.
- Life in the Wellington Region is going to be very different in the short to medium-term, with impacts to population growth, economic vitality, tourism, and the Māori economy. However, there are some factors that may help our region be more resilient than others during this time.
- We now must look towards response and recovery as a region and Greater Wellington needs to consider how it will provide key leadership in this endeavour.
- Some of Greater Wellington's operations and revenues have been significantly impacted by COVID-19, however we are quickly responding to the challenges, and making plans to be as effective as possible under a new normal.
- As we seek to stimulate the economy, we must not lose sight of our longer-term goals and overarching purpose, to promote the social, cultural, environmental and economic wellbeing of our communities.
- In fact, we have a real opportunity here to shift business as usual to reflect a 'climate emergency' approach and support a transition to a low carbon and circular economy.

Scenarios of COVID-19

3. In order to ensure that Greater Wellington Regional Council is prepared for a variety of futures, this paper uses scenarios to explore the different situations we might be faced with in the short-term and the possible impacts we might see. The development of scenarios is a strategic planning tool and does not necessarily reflect the official position of the Council.
4. Three scenarios have been developed based upon a variety of resources, including:
 - NZ Treasury – Economic Scenarios
 - NZ Influenza Pandemic Plan
 - COVID-19 reports from The University of Otago - COVID-19 Research Group
 - NZ COVID-19 Alert System
 - Written Briefing to the Epidemic Response Committee

5. At the time of writing New Zealand has been following the *Eliminate* strategy for six weeks, a period of highly restrictive Alert Level 4 and 3 measures (see **Appendix 1** for description of Alert Levels) that aims to slow or nearly eliminate the number of symptomatic COVID-19 cases in the country.
6. Scenario 1 is a best case scenario. It assumes that NZ’s current effort to “eliminate” COVID-19 cases is largely successful. The implementation of a five week, Level 4 lockdown has slowed or nearly eliminated the number of symptomatic COVID-19 cases in the country. Following the lockdown, NZ transitions into Level 3 measures for 3 weeks and community spread is insignificant and new cases are predominantly due to overseas travel or contact with a known case. Deaths directly caused by the virus are very low. After this time period, the country is able move into Levels 1 to 2 for at least 10 months or until a vaccine is available.
7. Scenario 2 is a mid-point scenario. It assumes that NZ’s elimination strategy is not sustained and there is a resurgence of cases after a short period of Level 3. Under these conditions the country would enforce Level 4 measures for 3 months to flatten the virus peak and spread out the number of cases over a longer time period. After this time period, the country is able move into Levels 1 to 2 for at least 9 months or until a vaccine is available. It is possible for a country to experience a second wave of infection, as we are seeing now in Singapore.
8. Scenario 3 is the worst case scenario. It assumes that elimination and flattening the curve strategies are not ultimately successful, forcing NZ into a prolonged period of fluctuating between Level 3 and 4 measures. Under this scenario, the country is cumulatively in Level 4 for 3 months, Level 3 for 3 months and Levels 1 to 2 for 6 months.
9. While not considered in this paper, future analysis may include scenario alternates that reflect potential conditions that could prevent the Government from implementing Level 3 and 4 measures for long periods of time (as in Scenarios 2 and 3). These could include changes that could occur as a result of the NZ General Election, international developments, or changes in public sentiment.

Table 1: Scenarios and assumptions

Scenario	Scenario 1 – Best case	Scenario 2 – Mid-point	Scenario 3 – Worst case
Description	Assumes that NZ’s elimination strategy is successful following five weeks at Level 4 and 3 weeks at Level 3.	Elimination is not sustained and there is recurrence of cases soon after level 3. Level 4 measures needed for longer period of time.	Elimination and flattening the curve is not successful and NZ fluctuates between Level 3 and 4 measures.
Level 4	5 weeks	3 months	3 months
Level 3	3 weeks	1 month	3 months
Level 1/2	10 months	8 months	6 months
Critical trend	Cases grow slowly or decrease	Rapid increase in cases	Dramatic surge in case

10. Regardless of how the future unfolds, there are certain realities that are highly likely. These are government measures present in all scenarios. Level 1 and 2 conditions are likely to be enforced, without interruption, until a vaccine or treatment is available. The earliest projected date for such vaccine is January 2021, however there is a high likelihood it will take significantly longer. Below are key elements of these measures:
- Entry border measures maximised (borders essentially closed)
 - Contact tracing
 - Intensive testing for COVID-19
 - Stringent self-isolation and quarantine of those with symptoms of virus
 - Restrictions on mass gatherings
 - Physical distancing in public places and on public transport
 - Limits on non-essential travel within New Zealand
 - Employers encouraged to use alternative ways of working
 - Business continuity plans remain activated
 - High-risk populations advised to remain at home.

Impacts on Community Wellbeing

11. While it appears inevitable that there will be ongoing and severe economic impacts from COVID-19, we must ensure that our response is also informed by consideration of the impacts on wider community wellbeing. This broad approach is core to the purpose of local government, to “promote the social, economic, environmental and cultural wellbeing of communities” as outlined in the Local Government Act 2002. This paper assesses the short to medium impacts of COVID-19 against the four aspects of community wellbeing.
12. The estimated impacts discussed in this paper are based on the expected government measures enforced in each scenario. To ensure a consistent approach and terminology, the wellbeing factors identified are based on the Society of Local Government Managers (SOLGM) Community Wellbeing Indicator Framework, with some modifications to reflect the purposes of this paper.
13. The table below gives a summary of the expected impacts across the three scenarios. The arrows show the predicted impact relative to pre-COVID-19 conditions. Following the table is a more detailed consideration of some of the impacts areas.

Table 2: Predicted short to medium-term impacts of COVID-19 scenarios

		Scenario 1	Scenario 2	Scenario 3
Population	International immigration	-	-	--
	Domestic migration	-	--	---
	International students	-	--	---
Economic	International tourism	---	---	---
	Domestic tourism	-		---
	Unemployment	-		---
	Transport demand	-	--	---
	Consumer spending	-	--	---
	Housing construction & sales	-	--	---
	Educational opportunity	-	--	--
Social	Household income	-	--	---
	Health and safety	-	--	---
	Community engagement	-	--	--
	Family wellbeing	-	--	---
	Environmental	Water quality	=	=
Air quality		+	++	+++
Sustainable land use		=	=	=
Climate change		+	++	+++
Resilience		=	++	++
Cultural	Sharing our cultural knowledge	+	=	-
	Cultural competence	-	--	--
	Arts and cultural resources	-	--	--
	Te ao Māori	=	=	--
	Sense of community	+	=	--

		Impact severity		
		Low	Medium	High
Impact type	Negative	-	--	---
	Neutral		=	
	Positive	+	++	+++

Economic wellbeing

14. COVID-19 and the response is already having a negative impact on New Zealand's economy. Modelling released by the Treasury indicates that gross domestic product (GDP) will fall and unemployment will increase over the next year. Under their scenarios, they projected that peaks in the unemployment rate could range from 13% to 26%. The International Monetary Fund (IMF) has also suggested the recovery will be long-term and worse than most of us have experienced.
15. However, the economic impact in the Greater Wellington may be less severe when compared to other regions, due to the proportionally large levels of employment in social services and businesses servicing government (43 percent of the region's jobs are in professional, scientific, and technical services, public administration and safety, health care and social assistance, and education and training). This is due to a combination of factors, including the essential nature of the some of these services, the continued or increasing demand for services, and the ability of many in these sectors to work from home.

Table 3: Wellington region employment by sector

Sectors	FTEs	%
Primary	4,130	1.6
Manufacturing	13,867	5.3
Construction	21,403	8.2
Wholesale and Distribution	16,092	6.2
Retail Trade and Services	44,771	17.2
Business Services	66,779	25.6
Arts and Recreation Services	5,366	2.1
Social Services	88,292	33.9
Total	260,700	

Source: BERL summary tables

16. **Many of the businesses that are hardest hit will be in the region's town and city centres – community centres that are a source of social and cultural wellbeing for many people.** Ongoing social distancing measures and reduced demand will prove highly challenging for several sectors, including retail and hospitality, tourism, arts and recreation services. A return to vibrant community and cultural centres will require the support of local government to ensure that new businesses can quickly get started and that community centres are maintained. It is vital that businesses are kept informed about government programs and support packages that are available to ensure businesses survive.

17. **The Māori economy has previously been strong in the region, but may see sustained impacts from low tourist numbers, impacts on film production, and reduced opportunity for property development.** Historically, economic downturns have had a disproportionately negative impact on Māori compared to non-Māori. Māori in the Wellington region have made significant gains in terms of skills development and education. Nonetheless, a relatively high proportion are still employed in lesser paid occupations. Data continues to show significant numbers of Māori employed in sectors particularly vulnerable to current international economic developments, including the construction and manufacturing industries. Home ownership rates for Māori in the region are declining, with only 28% of Māori home-owners compared to 50% of non-Māori being home-owners. COVID-19 impacts on Māori income and employment may further imbed this difference.
18. **The way we work is likely to see considerable change in the long-term.** It is estimated that 49 percent of New Zealand employees are currently working from home. Having made use of the technology available, businesses and employees may see benefit from working from home and continued to do so to some extent long-term. With fewer people working in central locations this could impact on city centres that will likely have already seen a number of retail and hospitality businesses close in the short term, as fewer people working in offices will reduce the number of potential customers in these centres. Some stores could be forced to close. However, with more people staying close to home it will make having vibrant community centres important. Changes in how we work could have flow on effects to how we move about the region. A change in commuter patterns could see transport services needing to adjust to account for this.
19. **Patterns of travel (how, when and where) are likely to see lasting changes.** Demand for public transport services has been significantly reduced so far, and reductions are likely to continue. As movement restrictions are lifted we may see a reluctance to take public transport for health reasons and a corresponding shift to active modes (which would be desirable) and private car (less desirable). In the long-term if higher levels of working from home are sustained across the region, we would see fewer trips to Wellington City and a potential increase in demand for localised services. Travel patterns, and therefore infrastructure decisions such as the Wellington airport expansion, will also be impacted by a recovering international and domestic tourism sector, recovering aviation sector, and increased reliance on teleconferencing.
20. **Current population projections for the region are likely to be inaccurate as the underlying assumptions no longer stand.** We expect that COVID-19 will cause international migration to slow over the short to medium term. This will be driven by reluctance to be away from home and family during the crisis and ensuing uncertainty, and a suffering aviation sector. Net migration for the region will be almost zero in the short-term, and reduced population growth is expected in the long-term. Regional population growth in 2019 was 1.1% (5,700). Just over half of this was attributable to net migration – both international and interregional. If we assume that net migration is limited to almost 0% throughout the rest of 2020 regardless of scenario, and natural growth (births and deaths) remains steady, then regional growth would slow to roughly 0.5 percent.
21. **The ongoing impact on population will depend on how well Wellington recovers compared to the rest of the country and the world.** With high unemployment and employment opportunities potentially limited, it is unlikely that there will be large movements of people into Wellington to take on work opportunities. However, if Wellington can recover faster than other regions then there is potential that a strong recovering economy could attract more people to the region in the medium term.

Environmental wellbeing

22. **The lockdown has seen some benefits for the environment.** Global air pollution and carbon emissions have dramatically decreased during lockdown, and this trend has been seen in New Zealand and in the Wellington region. In Wellington's central business district, pollutant levels fell by three quarters during the second week of Level 4 lockdown. These reductions are expected to continue in the short-term. The lockdown has created a profound pattern of global disruption to business as usual (BAU), not seen for generations. However we do not necessarily want to return to BAU. We now have a once in a generation opportunity to replace outdated models of 'sustainable growth' with a circular economy concept.
23. **We should consider our recovery effort through a climate emergency lens.** This would mean putting environmental protection and restoration of native ecosystems, integration of Te Ao Maori, and community wellbeing at the forefront of our response. Any short-term emission reductions arising from global lockdown will be irrelevant to help stabilise the climate long-term unless reductions can be made permanent. Instead, our recovery efforts should maintain focus on a shift to a low-carbon, circular economy that supports the wellbeing of our native ecosystems communities and sustainable regenerative land use.
24. **There is evidence that the origins of pandemics is linked to widespread global environmental degradation.** In particular removal of native forests and pristine habitat for native species, together with additional complex factors of standards of living, air pollution levels and how healthy people are in general. In the case of COVID-19 there is a view that this has arisen from the misuse and mistreatment of animals. This is why it is critical that as part of our recovery, we do not lose sight of our longer-term environmental outcomes, as otherwise we may see more pandemics in our future.
25. **But it is not all good news from an environmental perspective.** Social distancing requirements have ceased recycling operations in the Wellington region, which may have an impact on good recycling practices among communities. Pest management and trapping programmes have not been able to operate during lockdown, which could have flow on effects. The biggest ongoing risk to our environment will emerge from our response activities.

Social and cultural wellbeing

26. **During the COVID-19 response, Maori communities have exercised tino rangatiratanga.** This response has been founded on tikanga and is premised on people, the biggest asset to the Maori Economy. Maori leaders, rangatahi and pakeke collectively have committed everything they can to protect their vulnerable communities, particularly kaumatua and mokopuna. They have also ensured that those with health conditions are supported and well during this time. It is this rangatiratanga that should be leveraged as we move into a new future.
27. **The ability of many to access important cultural sites and attend significant events is being impacted.** In the short-term, social distancing is likely to be necessary until a vaccine is available to the public. This will limit the ability to host large social events such as rugby matches, concerts and stage shows, and social activities will likely be limited to small groups. On-line tools could replace some social interactions, which may impact wellbeing. Social activities that do go ahead will move to locations where physical distancing is possible. This will predominantly include outdoor activities where social distancing can occur. Moving into winter with colder temperatures, shorter days and poor weather it will be important to ensure that social connections are maintained. This is particularly true for more vulnerable members of the community.



28. **If cases resurge, and/or lockdown measures are prolonged, health and safety and family wellbeing will be negatively impacted.** Among other reasons, this would be due to an overburdened health care system, higher likelihood of domestic violence, increases in lockdown violations, and a strain on overall mental wellbeing. Due to a variety of causes, health impacts may be highest in Māori whānau, Pacific people, and communities with English as a second language. It has also been difficult for families, partners, and flatmates to be confined with each other for extended periods of time. Families are now concerned about their future due to fears of illness, the loss of a job, and significantly reduced income, among other things. There is an opportunity that families will grow closer together during these times and discover new ways of working together and supporting another.
29. **Community engagement is reduced for now, but innovative new norms around our use of technology and open spaces may provide some recovery.** While social distancing measures are in place, it will be almost impossible for communities to hold in-person public meetings, gatherings, clubs, societies, and other social functions. Due to these limitations, there is a risk of greater disconnection among communities, social isolation and loneliness. However, we are likely to see new norms in how we connect with each other. There will be an opportunity for increased use of online engagement and participation, and growing reliance on our open spaces for group activities. However, with these changes comes a risk to some of our vulnerable communities who do not have access technology or open spaces.
30. **Arts and cultural resources are likely to be significantly impacted in the short-term, and will need support to recover.** Due to restrictions of large gatherings, theatres, live performances, arts festivals, and cultural events will not be possible during social distancing measures. It could be that libraries, museums, movie theatre, and other venues where social distancing must be maintained, remain closed for several months. With rising unemployment and reduced consumer confidence in the long-term, we will need to be deliberate in how we support these activities and services to recover and ensure they are accessible to communities.

Impacts on Greater Wellington Regional Council

31. **It is clear that in the short to medium term, government will play a much greater role in economic activity.** Private sector businesses, despite their best efforts, will struggle to maintain cash flow. Consequently, and given ongoing uncertainty, there will be little appetite for investment in renewal or expansion opportunities. Similarly, families, whānau, and households will face uncertain employment and income prospects. Their appetite for spending will similarly be constrained.
32. **It will be left for government, both central and local, to underpin spending and reinforce confidence in future plans.** Continued spending and operations in the economic and social infrastructure will be critical to enabling a return to some confidence in future opportunities. Consequently, the role of local government is just as critical as that of central government. Front and centre for local government must remain the four wellbeings - the kaupapa remains unchanged. In the medium-term there is likely to be significant changes in the roles of central and local government. There may also be changes to funding sources. The role and activities of government will likely broaden with the level of investment expected to support the economy through the recovery. This may mean that local authorities are given more opportunity to access funding and financing, which may mitigate the need for additional rate increases.
33. **Investment in the built and natural environment is going to be a critical way that local government will support the recovery in the coming months and years.** Local government sets the environment for economic activity, and has closer levels of engagement and stronger relationships with local businesses than central government. Local government will play a significant role in promoting local projects to central government, and Greater Wellington has had a role in ensuring there is regional coordination and collaboration in assessing these projects. It also can help ensure that investments are aligned with the Wellington Regional Growth Framework.



34. **Greater Wellington has already played a leadership role in coordinating the regional list of ‘shovel ready’ projects.** This is the combined list of infrastructure projects which are ready to start within six months the construction industry returns. Greater Wellington has also submitted to Government an environmental enhancement package, aimed at employment creation and acceleration of projects that benefit longer-term environmental goals. It is coordinating a national bid from the regional sector.
35. **The focus of the region also now needs to turn to the medium-term recovery plan.** A clear regional recovery plan, agreed collectively across the region, would provide for the necessary coordination, enable joined-up conversations with Government and other partners and ensure that the value of any investment was maximised. As suggested throughout this paper, recovery should be driven from a wellbeing perspective and not lose sight of longer-term environmental outcomes. There is an opportunity for shared regional coordination on recovery activities via the Civil Defence Emergency Management Group (CDEM). This will be a combined effort of the councils, District Health Boards, Iwi, Police, Fire and Emergency and Ambulance. Recovery will also be supported in the longer-term with the development and implementation of the Wellington Regional Growth Framework which will help guide growth, development and investment for the next 30+ years.
36. **Greater Wellington needs to also respond to the impact on our activities.** The following table describes some of the short and medium-term impacts of COVID-19 on the operations of Greater Wellington. This is a summary level examination of those impacts and is organized by business unit. It also includes a possible list of responses to these impacts. Some of the responses are already underway and others are under consideration. This table was assembled in a short period of time using limited information. For that reason, it should only be used for discussion purposes only, and we will continue to discuss these issues as information evolves.



Table 4 COVID-19 Impacts on GW Business Units

GW Business Unit	Short-term impacts	Medium-term impacts	Possible responses
Environment and Catchment	<ul style="list-style-type: none"> 5 week delay in maintenance and construction projects 5 weeks delay in biodiversity field work Service levels impacted, but highly variable across services Reduced shipping activity at ports Stop of all volunteer activities in parks and bio 	<ul style="list-style-type: none"> Interrupted engagement with landowners and farmers Possible increase in pest animals and plants Continued impact on port activity Pressures to make up for lost time and productivity Continued impact on volunteer availability Parks resources may be strained due to more park visitations after lockdown 	<ul style="list-style-type: none"> Renegotiate contracts Re-budget based on new project time frames Focus efforts on pest animals, as plants go dormant in winter Re-purposing GW vehicles to allow more staff to go into the field
Public Transport	<ul style="list-style-type: none"> Significantly reduced demand Significantly reduces revenue Requirement to reduce loads on services to maintain strict physical distancing (avg. 12 riders per service) Similar operating costs to BAU 	<ul style="list-style-type: none"> Reduced demand and revenue Changes to demand patterns, e.g. more localised travel needs Requirement to reduce loads on services to maintain strict physical distancing (avg. 20 riders per service) Similar operating costs to BAU 	<ul style="list-style-type: none"> Reconsider service levels to better match demand and revenue Explore incentives to stimulate demand Infrastructure improvements to enable social distancing
Regional leadership	<ul style="list-style-type: none"> Moving from COVID-19 response to regional recovers Coordinating regional economic stimulus projects Improvement of air quality and reduction of carbon emissions from transport and industry Delays on Let's Get Wellington Moving projects Regional assumptions are likely to change, which may cause delays in planning processes (the LTP, Regional Growth Framework & the Regional Land Transport Plan) 	<ul style="list-style-type: none"> Development of longer term economic recovery plan Opportunity to lead transition of a low carbon economy through our climate change work, as part of our regional response and recovery Population and growth assumptions need to be revised and agreed with other territorial authorities 	<ul style="list-style-type: none"> Re-assess project mix for LGWM to match new normal Consider roles of regional emergency management and state of the art Emergency Coordination Centre Use a climate change lens on where to apply stimulus funding
Corporate	<ul style="list-style-type: none"> All public consultation and engagement processes online Staff working remotely where possible, but some staff unable for remotely Reduction in non-rate revenue in fourth-quarter of 2019/20 	<ul style="list-style-type: none"> Reduction in non-rate revenue in 2020/21 Higher percentage of staff working remotely Possible reduction in rates revenue due to inability to pay 	<ul style="list-style-type: none"> LTP levels of service must consider possible impacts of COVID on productivity 2020/21 budget to be revised

Appendix 2: Bibliography

- Business and Economic Research Limited. (2020) *Māori economy in the Greater Wellington Region*, BERL report #5885, March 2018.
- COVID-19 Research Group - Health, Environment & Infection Research Unit (HEIRU), The University of Otago. 2020. *Wellington. Potential Worst Case Health Impacts from the COVID-19 Pandemic for New Zealand if Eradication Fails: Report to the NZ Ministry of Health*. Published online (24 March). https://www.health.govt.nz/system/files/documents/publications/report_for_chief_science_advisor_-_health_-_24_march_final.pdf
- CBRE Group (2020). *COVID-19 – New Zealand Economic and Property Market Update*. Published online (20 April). <https://online.flowpaper.com/7bc40775/CBRENZCovid19MarketUpdate/#page=4>.
- Henriques M. 2020. *Will Covid-19 have a lasting impact on the environment?*. British Broadcasting Corporation (28 March). <https://www.bbc.com/future/article/20200326-covid-19-the-impact-of-coronavirus-on-the-environment>
- Hitchcock, J. 2020. *The effects of the Covid-19 recession will hit Māori hardest*. The Spinoff. Published online (8 April). <https://thespinoff.co.nz/atea/08-04-2020/the-effects-of-the-covid-19-recession-will-hit-maori-hardest/>
- King P, Cormack D, McLeod M, Harris R, Gurney J. 2020. *COVID-19 and Māori health – when equity is more than a word*. Te Rōpū Rangahau Hauora a Eru Pōmare, University of Otago; Te Kupenga Hauora Māori, The University of Auckland; Department of Public Health, University of Otago (10 April). <https://blogs.otago.ac.nz/pubhealthexpert/2020/04/10/covid-19-and-maori-health-when-equity-is-more-than-a-word/>.
- Local Government COVID-19 Response Unit (2020) *COVID-19 Financial Implications Report 1 – Initial Analysis*. Published online (14 April). [https://www.dia.govt.nz/diawebsite.nsf/Files/LG-Response-unit/\\$file/Local-Government-Sector-COVID-19-Financial-Implications-Report-1-Initial-Analysis.pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/LG-Response-unit/$file/Local-Government-Sector-COVID-19-Financial-Implications-Report-1-Initial-Analysis.pdf).
- New Zealand Climate Change Commission. (2020). *NZ Climate Commission Advice for Stimulus Package*. Published online (7 April). <https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Climate-Commission-advice-re-stimulus.pdf>
- New Zealand Government. 2020. *COVID-19 Alert Levels Summary*. Published online (16 April). <https://covid19.govt.nz/alert-system/covid-19-alert-system/>
- New Zealand Treasury. 2020. *Treasury Report T2020/973: Economic scenarios*. Published online (13 April). <https://treasury.govt.nz/publications/tr/treasury-report-t2020-973-economic-scenarios-13-april-2020>
- Lees K. 2020. *A sudden stop? Covid-19, containment and the economy*. Newsroom. Published online (3 April). <https://www.newsroom.co.nz/2020/04/03/1114247/a-sudden-stop-covid-19-containment-and-the-economy>.
- Ministry of Health. 2017. *New Zealand Influenza Pandemic Plan: A framework for action* (2nd edn.). Published online. <https://www.health.govt.nz/system/files/documents/publications/influenza-pandemic-plan-framework-action-2nd-edn-aug17.pdf>.
- Society of Local Government Managers. 2019. *Community Well-being Indicator Framework*. Published online. <https://www.solgm.org.nz/CommunityWellbeing>.
- Wannan O. 2020. *Coronavirus: Traffic pollution plummets across the country during lockdown*. Stuff (2 April). <https://www.stuff.co.nz/environment/climate-news/120763215/coronavirus-traffic-pollution-plummets-across-the-country-during-lockdown>.



- Wilkenson B. 2020. *How bad might the lockdown be for jobs and income?*. The NZ Initiative. Published online (3 April). <https://nzinitiative.org.nz/reports-and-media/reports/research-note-how-bad-might-the-lockdown-be-for-jobs-and-income/>.
- Wilson N, Telfar Barnard L, Kvalsvig A, Baker M - COVID-19 Research Group - Health, Environment & Infection Research Unit (HEIRU). 2020. The University of Otago. *Potential Health Impacts from the COVID-19 Pandemic for New Zealand if Eradication Fails: Report to the NZ Ministry of Health*. Published online (23 March). https://www.health.govt.nz/system/files/documents/publications/report_for_moh_-_covid-19_pandemic_nz_final.pdf.
- Written Briefing to the Epidemic Response Committee. 2020. Wellington: All of Government Controller. (30 April). https://www.parliament.nz/resource/en-NZ/52SCEP_EVI_96420_EP18/1b89a81ce848cbeb471631b68c878304e70b3dc2.