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Kaunihera Taiao ki Waitaha

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Tēnā Koutou,

Canterbury Regional Council (Environment Canterbury) Submission: Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system

Thank you for the opportunity to provide comment on the *Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system* consultation. Please find Canterbury Regional Council (Environment Canterbury)'s submission attached.

We welcome this consultation and look forward to more opportunities to engage on this topic further both within this programme and the recently introduced Emergency Management Bill. We provide this feedback with the intent to enhance the reform options to meet the practical needs of local government while lifting the resilience of Aotearoa's critical infrastructure system.

Our submission is reflective of our responsibilities as a regional council – including to provide critical flood protection infrastructure, which provides protection to other infrastructure, including Crown assets.

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Yours sincerely

Peter Scott

Peter Scott

Chair, Environment Canterbury

Encl: Canterbury Regional Council (Environment Canterbury) submission to DCMP on *Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system*

Canterbury Regional Council (Environment Canterbury) submission on *Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system* Discussion Document

Introduction

1. Canterbury Regional Council (Environment Canterbury) welcomes the opportunity to comment on the Strengthening the resilience of *Aotearoa New Zealand's critical infrastructure system* Discussion Document (the Document).

2. We provide our submission in the context of our roles and responsibilities as a regional council, including those under the Resource Management Act 1991, Local Government Act 2002, Civil Defence Emergency Management Act 2002, Land Transport Management Act 2003, and the Climate Change Response (Zero Carbon) Amendment Act 2019.

3. Environment Canterbury is the regional council for the largest geographical region and second most populous region in New Zealand. Our region encompasses substantial diversity, both in terms of our geography and population, which contributes to a wide range of community needs and expectations.

4. Our scope of core services as a regional council, ranges from providing public transport services – primarily within urban areas – to providing resource management regulatory services within the context of our large rural economy. Our main infrastructure assets include river management and flood protection assets. Environment Canterbury manages 59 river control and drainage schemes from Kaikōura to Waitaki, which has a total asset value of $832 million (2022).

5. Environment Canterbury participated through submission on the development of Rautaki Hanganga o Aotearoa 2022-2052, New Zealand's first Infrastructure Strategy upon which the Document builds in relation to critical infrastructure resilience. We are also an active participant in regional emergency management and have similarly supported the development of the Emergency Management Bill recently introduced to Parliament that also addresses critical infrastructure. This submission is informed by our close association with the Canterbury CDEM Group and active participation in response and recovery from regional scale adverse events.

6. In this context, the focus of our submission is on those key issues and matters that are of most relevance to Environment Canterbury's experience, based on the section headings and questions (in bold) posed in the Document.

Flood Protection infrastructure is critical infrastructure

7. Environment Canterbury knows that flood protection infrastructure is primary critical infrastructure, providing the first line of defence and resilience to other secondary infrastructure.

8. The assets, networks, and services provided by Environment Canterbury (and other regional and unitary authorities) for the means of flood protection provide a benefit to the critical infrastructure beyond the rating districts, including to Crown assets. Yet the funding received to these schemes does not reflect this, with protected infrastructure asset owners not contributing funding to schemes, placing the burden of protection for nationally significant assets on a small number of ratepayers.

9. Flood schemes protect not just those living and working near the rivers, but everyone whose access to supplies, power, medical care, schools, workplaces, and family is impacted when major roading and other critical infrastructure is damaged.

10. Interdependencies between flood protection and the safety of other critical infrastructure needs to be better recognised, and better provided for in terms of resourcing.

11. Investment in flood protection assets that contribute wider system resilience is a prerequisite for the efficient functioning of the economy and our communities and is a responsibility that should be shared between regional councils and central government.

12. We acknowledge and support the decision of this discussion document to refer its definition of critical infrastructure to the definition given in the Emergency Management Bill 2023. With the appropriate time and process we know that flood protection infrastructure will be recognised as critical infrastructure and the rest of our submission has been prepared with the assumption that this has happened for ease of understanding.

Overarching Comments

13. Environment Canterbury is in the process of transitioning from a focus on traditional flood protection, land drainage and erosion control to a ‘whole-of-river’ approach to waterways management that reflects the role of infrastructure in delivering on Te Mana o Te Wai and responding to climate change. We strongly advocate for the role of critical infrastructure in achieving Te Mana o Te Wai outcomes being reflected across all infrastructure reforms.

14. Environment Canterbury supports steps to better integrate Te Ao Māori into infrastructure planning and delivery, and actions that will increase and support Māori participation in the infrastructure sector. We question the lack of recognition of Te Ao Māori in the discussion document, and strongly encourage future work in this area to improve on this.

15. Environment Canterbury also believes that relevant national lifelines/lead agencies should be mandated to take leadership roles in the development of nationally consistent shared information resources that are the basis of building a shared understanding of issues fundamental to system resilience. As an example, we recommend that Waka Kotahi is made responsible for leading the development of nationally consistent and timely reporting on state highway and local road restrictions and outages. Waka Kotahi should provide the resources necessary to other road controlling authorities to achieve this by creating the infrastructure and interoperability standards for sharing information, to ensure that all road status information can be aggregated into a single dataset.

Canterbury CDEM Group is developing a regional approach that could help inform a national approach.

16. While Environment Canterbury supports the aim that all critical infrastructure meets standards of resilience, we urge that reforms to the regulatory approach do not become reliant on a single 'one-size-fits-all' approach. National standards and regulations must not come at the cost of ignoring local knowledge or mana whenua concerns, and options proposed by these reforms should be cognise of local contexts (including for example local geography, hazard scape, population trends, or historic underinvestment or marginalisation).

Prelude: What principles would underpin any potential reform and how would reform options be assessed?

Question 1: Does more need to be done to improve the resilience of NZ's critical infrastructure system?

17. In commenting on the Draft New Zealand Infrastructure Strategy, Environment Canterbury strongly emphasised the criticality of resilience to achieving the vision, and enabling our people, places, and businesses to thrive for generations. This was an important lesson learnt in Canterbury following the disruptions caused by the earthquakes. We said this, among other things, would require integrated, long-term thinking, partnership with central government, and ongoing conversations about how infrastructure is funded. Now more than ever this applies to critical infrastructure resilience in addressing the impacts of climate change exacerbation on the natural hazards we already face.

18. We note the proposed changes in the Emergency Management Bill transition lifeline utilities into 'critical infrastructure entities' with additional planning and reporting requirements. This is a necessary but not sufficient step in building system resilience.

19. We believe the emergency management system is not in a position to lead key aspects of resilience in critical infrastructure, particularly the risk reduction aspects of setting policy and providing funding for resilience and risk reduction investment.

20. Funding remains a key consideration. We note that Budget'23 included an additional $6 Billion as part of a National Resilience Plan, including building back better infrastructure following the recent North Island extreme weather events. Pre-event investment in resilience is more cost effective.

Question 2: Have you had direct experience of critical infrastructure failures, and if so, how has this affected you?

21. Regional-scale disruption events in Canterbury in the last decade have included:

- Orari, Hinds, Ashburton, and Selwyn River floods (Mid-Canterbury Floods) May 2021 (SH1 multiple locations, and many alternative routes disrupted, the impact to Ashburton SH1 bridge had significant impacts on freight, fast-moving consumer goods (FMCG), and traveller movements throughout the South Island)
- Rangitata flood December 2019 (rail, SH1 and Arundel bridge out simultaneously, 9 Transpower pylons failed, communications failed for much of South Island below these breaks for 6-12 hours, significant impacts on freight, FMCG, and traveller movements throughout the South Island)
- Kaikōura earthquakes Nov 2016 (Rail, SH1 and Inland Road affected for many months, diversion to SH7, communications – including complete loss of 111 to affected area, telcos passing all traffic over One.nz Aqualink cable).

22. Response to such events is generally coordinated through the Canterbury CDEM Group Emergency Coordination Centre (ECC). The ECC has a Lifelines Utility Coordination function that is responsible for coordinating and liaising with critical infrastructure providers during response. The most significant impacts have generally been to transport networks, and the consequences have often been felt around the South Island:

    - The Kaikōura earthquake resulted in massive increases in travel and freight time for the year that SH1 traffic was diverted through the Shenandoah and Lewis passes.
    - The flood events in Canterbury have impacted the distribution of FMCG elsewhere in the South Island, resulting in shortages and at times empty shelves.

Question 3: How would you expect a resilient critical infrastructure system to perform during adverse events?

23. Environment Canterbury envisages a transition from networks that are static and disrupted, to those that are flexible and adaptive, and continue to function through adversity, and/or can recover quickly. For example, we envision a more resilient transport network hosting fewer single points-of-failure (such as only having one bridge over major rivers) but that will allow for multiple pathways to reach a destination providing flexibility in the event of adverse events.

24. Doing this cost-effectively means considering a full range of dynamic adaptive pathways for critical infrastructure, and not just hard infrastructure solutions or traditional asset approaches.

25. We encourage these reforms, and the sector as a whole, to embrace holistic thinking, innovation, and creativity. By “thinking outside of the (traditional) box” for how we plan, build, operate and pay for infrastructure we can welcome different worldviews, solutions and values and enhance the resilience of the critical infrastructure system as a whole, not just as piecemeal parts.

26. We believe for critical infrastructure to perform to society’s expectations during emergencies we need a strong national infrastructure lead agency that works with critical infrastructure providers across resilience and, with NEMA, on the 4 Rs of

emergency management – risk reduction, readiness, response, and recovery. There are potential benefits to separating the national leadership of critical infrastructure during response from NEMA to another agency to lead, such as MBIE. MBIE has more BAU roles working with critical infrastructure. Then the emergency management system could focus on managing life safety and wellbeing, and MBIE can focus on leading the critical infrastructure response.

Question 4: Would you be willing to pay a higher price for a more resilient and reliable critical infrastructure system?

27. This is a challenging question to answer. In general, investment in risk reduction and resilience pre-event has far greater economic benefits in terms of reducing response costs, the speed of restoration, and the impact of damaged critical infrastructure on impacted communities and economies. If we do not pay in advance for risk reduction and resilience, we will ultimately pay a higher price in recovery to impacts on critical infrastructure. We will also bear increased economic impacts from when the damage occurs, to when it is restored, e.g., the one-year closure of SH1 following the Kaikōura earthquake.

28. In keeping with international research, national scale data from 2018 suggests that, on average, for every one dollar invested in flood protection, $55 is avoided in losses during events.

29. We believe the funding question may better be framed as “Would you be willing to pay a higher price for a resilient and reliable critical infrastructure now, or a much higher price after a disaster to rebuild critical infrastructure?”. We have case studies from critical infrastructure operators in Canterbury that show the benefits of increased upfront expenditure on critical infrastructure, (e.g., Orion substation strengthening pre-Canterbury earthquake sequence 2010-12).

30. However, our communities are already under financial pressure, and there is always a challenge in prioritising funding for pre-event risk reduction, when compared with the challenges of providing funding for current issues.

31. We strongly stress that rate payers cannot solely fund what is needed to ensure the resilience of our critical infrastructure system. The recently released final report of the Future for Local Government Independent Panel noted ‘the current funding and financing approach is not sustainable in the context of complex wellbeing challenges and increasing community expectations…and that …many activities that have been allocated to local government by central government, directly support national-level wellbeing priorities and outcomes, (unfunded mandates) e.g., flood protection to critical infrastructure.

Question 5: The work programme’s objective is to enhance the resilience of New Zealand’s critical infrastructure system to all hazards and threats, with the intent of protecting New Zealand’s wellbeing, and supporting sustainable and inclusive

economic growth. Do you agree with these objectives? If not, what changes would you propose?

32. Environment Canterbury agrees with the objectives stated and that this is an overall goal. However, in regard to the Document's focus on the regulatory regime, with the multiple pieces of legislation that affect the critical infrastructure system we see a key specific objective being, whether through one Act or across many, attaining a high degree of alignment in the regulatory regime at national, regional, and local levels that drives resilience.

Question 6: Do you agree with the proposed criteria for assessing reform options? If not, what changes would you propose?

33. We think the stated criteria relating to resilience enhancement, regulatory burden and certainty, and regulatory system complexity are well reasoned.

34. We would also suggest that an assessment criterion of whether the option helps New Zealand identify and invest in infrastructure of national and strategic importance would be appropriate.

35. Of the suggested criteria the first one, degree of enhancement, will be most challenging to assess. Critical infrastructure has many complexities and interdependencies. Understanding how one resilience project flows through a much wider system of critical infrastructure, and appreciating the economic savings that could be generated post-disaster is important.

Background and context

Question 7: The paper discussed four megatrends: i) climate change, ii) a more complex geopolitical and national security environment, iii) economic fragmentation, and iv) the advent and rapid uptake of new technologies. Do you think these pose significant threats to infrastructure resilience?

36. We agree with all the four identified "megatrends".

37. Climate change will be a major threat to critical infrastructure, both through the exacerbation of existing natural hazards and the cascading of events. The Canterbury Climate Change Risk Assessment (2022) identified 31 risks related to elements of infrastructure. Of these, two are rated as extreme or high in the present day, a number which rises to 18 by 2050 and 27/30 (RCP4.5/8.5) by 2100.

38. Environment Canterbury believes that there are broader economic challenges than just fragmentation. New Zealand in common with other countries shows evidence of significant infrastructure deficits and chronic underinvestment. Achieving sustainable investment levels will be extremely challenging for government – central and local.

Question 8: Are there additional megatrends that are also important that we haven't mentioned? If so, please provide details.

39. We like to stress that, while acknowledging and recognising the challenges posed by the four 'megatrends', the resilience of critical infrastructure should not overlook the continued challenges posed by existing threats. Seismic and other geological risks are, and will continue to be, the largest risks to the well-functioning of critical infrastructure in Canterbury and New Zealand.

40. The statistical likelihood of a large Alpine Fault earthquake (75% within the next 50 years) and the Hikurangi subduction zone earthquake (25% in the next 50 years) put both within the planning window for all current and new infrastructure and must be considered closely when planning for critical infrastructure resilience.

Question 9: Do you think we have described the financial implications of enhancing resilience accurately? If not, what have we missed?

41. A range of possible implications has been described based on application of the beneficiary pays principle. Environment Canterbury supports this provided the national benefits of local/regional investment in resilience are recognised. Care will need to be taken in designing critical infrastructure regulatory reform as it impacts behaviours in relation to unintended consequences for private investment, such as the flight of capital away from the sector seeking higher returns.

42. Achieving 'socially optimal' levels of investment may be beyond the point at which it becomes uneconomic to invest in further resilience. If regulatory reform mandates higher investment, above the economic threshold for business operation and fair investor returns, who should be responsible for paying the difference for the community and government seeking resilience? We believe ultimately the wider community through government funding needs to be responsible for this 'resilience premium'.

Potential barriers to infrastructure resilience

Building a shared understanding of issues fundamental to system resilience

Question 10: How important do you think it is for the resilience of NZ's infrastructure system to have a greater shared understanding of hazards and threats?

43. Environment Canterbury sees this as vital, with shared understanding of the latest science and risks critical in ensuring good decision making. Efficient and effective investment decisions require an evidence-based understanding of risks.

44. We would support a Government agency having responsibility for national risk assessment as well as managing the risk at a system level, particularly setting policy, and working with Treasury on funding for major risk reduction.

Question 11: If you are a critical infrastructure owner or operator, what additional information do you think would best support you to improve your resilience?

45. Infrastructure resilience is supported by improved risk information, understanding of infrastructure criticality and the consequences of failure, and relationships across both similar infrastructure provides and the whole critical infrastructure sector.

46. Much of this already exists and we encourage future thinking to leverage existing networks and practices rather than reinventing the wheel (see points in relation to questions 12 below).

Question 12: What do you think the government should do to enable greater information sharing with and between critical infrastructure owners and operators?

47. Significant information sharing occurs currently through the NZ Lifelines Council, and the CDEM led/supported Lifelines Groups. However, the resourcing and capability of the Lifelines Groups, and the work they prioritise varies significantly across regions. Environment Canterbury supports these collaborations being strengthened and better resourced to turn them into an ongoing capability. By bringing critical infrastructure entities together to share information, manage interdependencies, manage complex risks, and develop general collaborative arrangements across the 4Rs, overall system resilience is enhanced.

48. The establishment of Te Waihanga as New Zealand's Infrastructure Commission is also strongly supported. Having economic assessment tools and methods and expertise to provide thorough and sound advice to government and asset owners on who benefits and who pays is key.

Setting proportionate resilience requirements

Question 13: Would you support the government having the ability to set, and enforce, minimum resilience standards across the entire infrastructure system?

49. This is challenging in several ways. It depends greatly on how the standards that are set drive investment decisions. As discussed above in relation to Q.9, there may be a 'resilience premium' for the community that should be government funded. This may equally apply to local government insofar as there are wider community benefits that

cannot be captured through locally available funding tools. A lot also depends where on the ‘continuum of criticality' across infrastructure assets is regulatory intervention through standards setting justified. Some may be not important enough to warrant a high standard. System-wide risk assessment should be used to distinguish between the parts of the system that warrant resilience standards and those that do not.

50. Government is progressing two separate and significant reform programmes seeking to lift resilience of critical infrastructure – the Document relating to the broader critical infrastructure system, and through the recently introduced Emergency Management Bill (EM Bill). The EM Bill transitions over a two-year period existing lifelines utilities to become ‘critical infrastructure entities’ and introduces for them a requirement to state their planning emergency levels of service (PELOS) as well as new monitoring, evaluation, and annual reporting requirements for PELOS by such entities. The Document recognises this set of proposals as they relate to the lifelines utilities component of the overall critical infrastructure system. However, it is not clear how alignment will be achieved between the proposal in the Document for ‘minimum resilience standards’ across the entire system, and PELOS, which will standardised by regulation under the new Emergency Management Act for lifelines utilities related entities.

51. The potential for coordination risks between the emergency management and broader critical infrastructure system reforms were noted in the 2022 Cabinet paper on Emergency Management Systems Reform Proposals (GOV-22-SUB-0031) leading to the new EM Bill…“*significant coordination risks that could lead to regulatory confusion and unnecessary compliance costs for Government and (critical infrastructure) operators”.* This risk will be of concern to critical infrastructure operators and require careful management.

Question 14: Would you support the government investing in a model to assess the significance of a critical infrastructure asset, and using that as a basis for imposing more stringent resilience requirements?

52. Yes. However, if an asset is recognised as critical to other infrastructural services, and resilience requirements are imposed, it should follow that funding recognises the interdependencies, using the beneficiary pays principle. We encourage criticality assessments to include potential downstream, consequential impacts, and be accompanied by a principles-based funding assessment that includes how to deal with the ‘resilience premium’.

Question 15: What criteria would you use to determine a critical infrastructure asset’s importance?

53. The holistic model in Appendix B of the Discussion Document that considers the infrastructure’s importance against a broader range of societal domains (including

economic, environmental, social, and cultural factors), but remains relatively straightforward to apply, is preferable to simple models, where the assessment focusses on the geographic area and number of citizens affected.

54. In Canterbury, the CDEM Group is coordinating a regional risk assessment using such a holistic method provided by NEMA (DGL 23/22 Risk Assessment: Guidance for CDEM Group Planning). Similarly, the Canterbury Lifelines Group is currently completing its second major vulnerability assessment, and the detailed aspects of infrastructure criticality could be identified as part of that process.

Managing significant national security risks to the critical infrastructure system

Question 16: Do you think there is a need for the government to have greater powers to provide direction or intervene in the management of significant national security threat against a critical infrastructure?

55. Environment Canterbury believes that such direction to critical infrastructure entities should only occur under extreme situations, and potentially should be tied to a national state of emergency under Emergency Management legislation. This activates known and tested procedures and helps ensure costs falling locally and regionally are appropriately funded nationally.

Creating clear accountabilities and accountability mechanisms for critical infrastructure resilience

Question 17: Do you think there is a need for a government agency or agencies to have clear responsibilities for the resilience of NZ's critical infrastructure system?

56. Environment Canterbury supports having a key agency with line of sight across the entire critical infrastructure system and that roles and responsibilities between it and any other 'responsible (national) agencies' (as defined in the EM Bill critical infrastructure proposals) are clear.

57. Whether this is an existing or new agency and the need for further legislation to this effect should be considered as part of the next stage of the critical infrastructure system reform.

58. However, We strongly recommend that this responsibility is not given to NEMA. Based on our experiences, Environment Canterbury cautions that being a regulator can have a cooling effect on open, collaborative conversations and the impact this could have during emergency events. See also paragraph 26.

Question 18: Do you think there is a need for compliance and enforcement mechanisms (e.g., mandatory reporting, penalties, offences) to ensure that critical infrastructure operators are meeting potential minimum standards?

59. Yes, where regulatory interventions are justified to achieve minimum standards, then some means of monitoring them and accountabilities by entity governance/ executive

leadership are appropriate. However, the cost of compliance, identified as a criterion for assessing options in the Document needs to be reasonable and the risk of unintended consequences affecting infrastructure investment also carefully managed.