

DRAFT DISTRICT PLAN CLIMATE CHANGE REVIEW

PREPARED FOR HUTT CITY COUNCIL

APRIL 2024



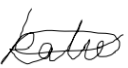


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EXECUTIVE SUMMARY

Hutt City Council, in recognition of actions within the 'Lower Hutt Climate Action Pathway 2022' and 'Interim Carbon Reduction and Climate Resilience Plan for Hutt City Council 2021 – 2031', alongside national climate change response initiatives, has commissioned Boffa Miskell to undertake a review of the non-statutory Draft District Plan in relation to the key directions on climate change. The Draft District Plan Chapters identified by Hutt City Council have been reviewed to assess the extent to which they address the key directions on emissions reduction and climate change adaptation relevant to their purpose and functions.

With global temperatures recently exceeding 1.5°C above pre-industrial levels for a 12-month period for the first time, the Lower Hutt district, along with the rest of the world, is increasingly at risk from the more severe impacts of climate change, requiring urgent reductions in greenhouse gas emissions and interventions to adapt to hazards. Whilst in New Zealand it is recognised that clear climate change policy, financial mechanisms, and political-will often provide the greatest barriers to effective climate change responses, the District Plan can provide an enabling environment to support local climate change action.

Overall, the Draft District Plan chapter content, objectives, policies, and rules that were reviewed were deemed capable of addressing the identified key directions for emissions reduction and climate change adaptation, providing minor additions and amendments are made (where noted) to strengthen the Draft District Plan's recognition of climate change impacts and supports opportunities to reduce emissions and adapt. The common key themes identified across draft chapters include:

- Considering objectives and policies that to promote the uptake and use of active and public transport modes for a well-connected urban form in Lower Hutt
- Recognising the benefits and functions of the natural environment in Lower Hutt, providing for nature-based solutions to climate change adaptation and net-emissions reductions via carbon removals
- Considering objectives and policies that enable growth of renewable electricity generation in Lower Hutt and recognises its benefits to urban connectivity and function.

Table 1: Chapter rating summary for draft District Plan climate change assessment

CHAPTER	EMISSION REDUCTION		CLIMATE CHANGE ADAPTATION	
	CLIMATE IMPACT	DRAFT QUALITY	CLIMATE IMPACT	DRAFT QUALITY
Renewable Electricity Generation	Very High	Moderate	No Impact	Non-Applicable
Infrastructure	Very High	High	Very High	Moderate
Transport	Moderate	Very High	No Impact	Non-Applicable
Three Waters	No Impact	Non-Applicable	High	High
Natural Hazards	No Impact	Non-Applicable	Very High	High
Natural Character	Low	High	High	Moderate
Natural Features and Landscape	High	High	High	High
Subdivision	High	High	High	High
Residential Zones	Very High	Moderate	High	High
Rural Zones	Moderate	High	Moderate	High
Commercial and Mixed-Use Zones	Moderate	Moderate	Low	High
Industrial Zones	Low	High	No Impact	Non-Applicable
Open Space and Recreation Zones	High	Moderate	High	Moderate

CONTENTS

EXECUTIVE SUMMARY	2	RURAL ZONES	38
INTRODUCTION	4	COMMERCIAL AND MIXED-USE ZONES	40
REVIEW APPROACH	5	INDUSTRIAL ZONES	42
RENEWABLE ELECTRICITY GENERATION	11	OPEN SPACE AND RECREATION ZONES	44
INFRASTRUCTURE	14	GLOSSARY	47
TRANSPORT	17	REFERENCES	48
THREE WATERS	19	APPENDIX 1: SCORING CRITERIA	49
NATURAL HAZARDS	22	APPENDIX 2: RATING SUMMARY	50
NATURAL CHARACTER	26		
NATURAL FEATURES AND LANDSCAPE	29		
SUBDIVISION	31		
RESIDENTIAL ZONES	34		

INTRODUCTION

Hutt City Council (HCC) declared a climate emergency in June 2019 in response to the significant physical and transitional risks that climate change presents to its people and places. In line with New Zealand's targets and commitments under the United Nations Paris Agreement 2015 and Climate Change Response Act 2002, HCC has set a goal of reducing greenhouse gas (GHG) emission to net-zero by 2050 and increase its ability to adapt to the adverse impacts of climate change.¹

HCC has developed its 'Carbon Reduction and Resilience Plan 2021-31' and facilitated the development of the 'Lower Hutt Climate Action Pathway' to outline the strategic pathways the council and community will take over the coming decades to transition towards a low emission, climate resilient Lower Hutt.²

PURPOSE

As HCC undertakes a top-to-bottom review of the City of Lower Hutt District Plan, Boffa Miskell has been commissioned to undertake a review of the non-statutory Draft District Plan in relation to the key climate change directions set out by the council and community.

With approximately 40,000 more people expected to live in Lower Hutt over the next three decades, requiring an additional 18,000 homes, the new District Plan, acting as the 'rulebook' for land use and development in Lower Hutt, must sufficiently enable emissions reduction and adaptation activities to occur. This would support a more agile adoption of emissions reduction and adaptation measures, whilst preventing things getting worse (e.g., development in emerging natural hazard areas impacted by the changing climate).

The purpose of this report is to document the findings of the review of the Lower Hutt Draft District Plan chapters in relation to key directions on climate change. The outcomes include:

- An appraisal of relevant draft chapters on the extent to which they are addressing the key directions on climate change
- Identification of any weaknesses or omissions within the chapters regarding the key directions on climate change
- Recommendations of amendments to draft chapter content to rectify any identified weaknesses or omissions.

OUR CHANGING CLIMATE

The impacts and challenges of climate change is here, in Lower Hutt, now. As the century progresses, the effects of climate change will grow.

Globally, human activities, principally through the emission of greenhouse gases, have unequivocally caused global warming of 1.1°C above pre-industrial levels. Widespread and rapid changes in the atmosphere, water, and land continue to occur resulting in more frequent and more intense extreme weather events in every region of the world.³

Deep, rapid, and sustained greenhouse gas emission reductions must be achieved within this decade to limit global warming to 1.5°C or 2°C. However, current national and international climate change mitigation policies and laws continue to fall short of the emission reduction pathways required, making it likely that global warming will exceed 1.5°C during the 21st century and making it far harder to limit warming below 2°C.⁴ Every increment of global warming will continue to intensify hazards across all environments, sectors, and communities.

Climate change modelling shows a future for Lower Hutt that is generally warmer and more volatile. Regardless of actions to reduce emissions today, our environment will continue to warm throughout the 21st century along with other changes in our climate. Warming will continue to drive more intense and frequent extreme rainfalls and rising mean sea-levels, exacerbating flooding and inundation risks to Lower Hutt residence, infrastructure, ecosystems, and cultural heritage.⁵

REVIEW APPROACH

The key directions on climate change that are relevant to the City of Lower Hutt Draft District Plan chapters have been identified from the following sources listed below.

- The Climate Change Response Act 2002
- Aotearoa New Zealand's First Emission Reduction Plan 2022 - 2025
- Aotearoa New Zealand's First National Adaptation Plan 2022 - 2028
- Lower Hutt Climate Action Pathway 2022
- Interim Carbon Reduction and Climate Resilience Plan for Hutt City Council 2021 – 2031

These key climate change directions are reflected in the City of Lower Hutt Draft District Plan Strategic Directions:

- *CC-01 – The urban form and built development in Lower Hutt supports the transition of the city to be carbon neutral by 2050*
- *CC-02 – The risk to people, communities, and property from natural hazards, and from the potential effects of climate change on natural hazards, is avoided or minimised to acceptable levels*

Figure 1 illustrates the international and national alignment of the key climate change directions relevant to Hutt City Council's efforts to reduce greenhouse gas emissions and increase climate resilience.

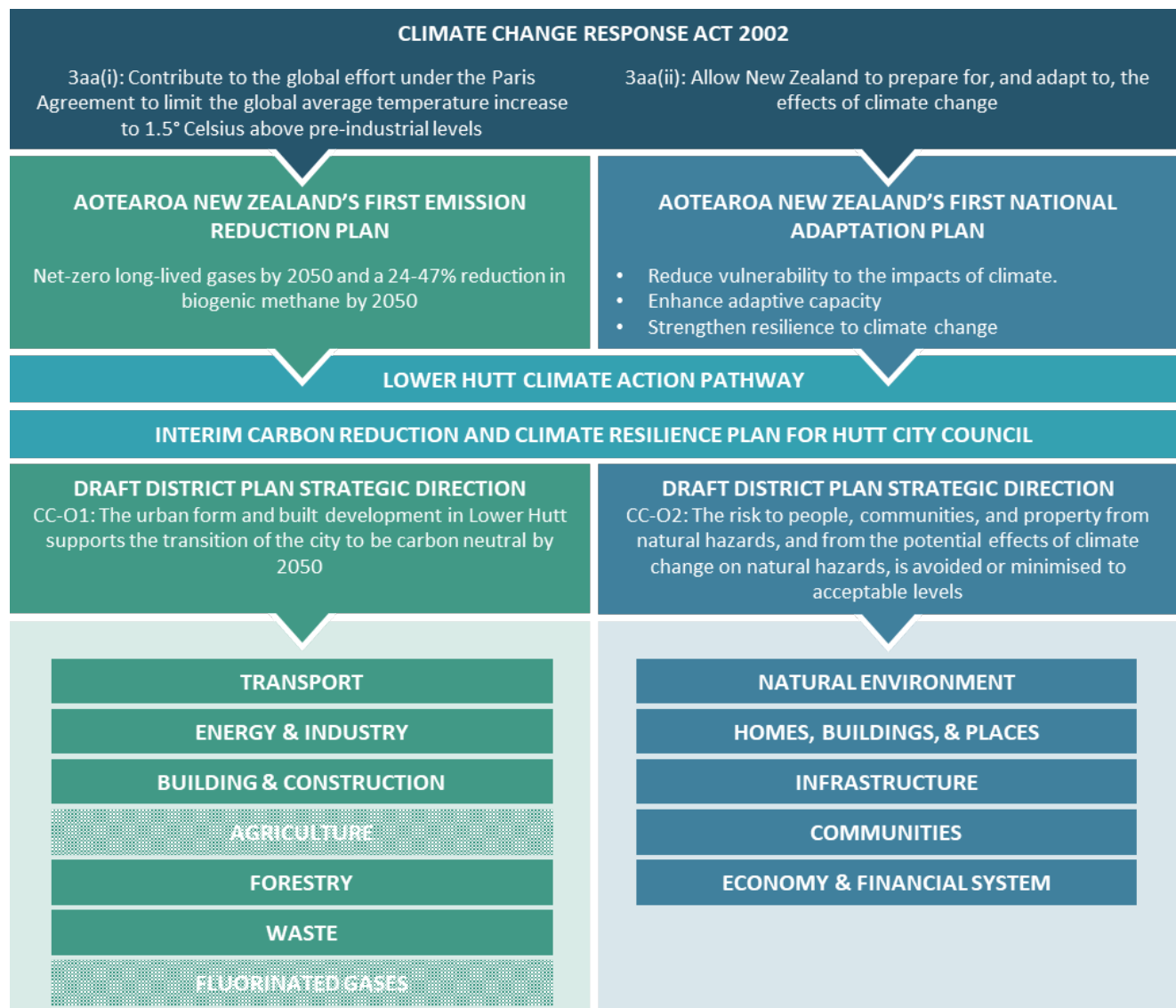


Figure 1: Alignment of Hutt City climate change directions to national and international climate change targets and commitments.

To support future reporting of Hutt City Council performance against national climate change response initiatives (i.e., *Climate Change Response Act 2002 – 5ZW: Minister or Commission may request certain organisations to provide information on climate change adaptation*), the key directions on climate change identified for the assessment of the Draft District Plan have been grouped under the relevant 'Sector Plan' or 'Focus Area' headings of the Aotearoa New Zealand Emissions Reduction Plan and National Adaptation Plan.^{6,7}

The Emissions Reduction Plan and the National Adaptation Plan provide comprehensive oversight of the strategies, policies, and actions New Zealand must take to achieve its climate change commitments. The key directions within the Lower Hutt Climate Action Pathway and HCC Interim Carbon Reduction and Climate Resilience Plan have been cross referenced against these national directions to ensure no local context is overlooked. For the key directions on emissions reduction, both the Agriculture and Fluorinated Gases focus areas listed in the New Zealand Emissions Reduction Plan have been excluded from our identified key directions for assessment in the Lower Hutt Draft District Plan. The targets and directions of these focus areas was deemed not relevant to the Lower Hutt Draft District Plan's function or capabilities.

At the time of undertaking this review of the Lower Hutt Draft District Plan, the Wellington Regional Climate Change Impact Assessment and Adaptation Plan (WRCCIA) is being prepared. Therefore, no information from the WRCCIA has input into this assessment.

REVIEW METHODOLOGY

A consistent methodology will be applied to ensure the climate change performance of each chapter can be compared 'like-for-like', following the below process:

1. Identify the key directions on climate change that are relevant to or could be addressed through the content of the Draft District Plan chapter.
2. Recognising the unique scope and functions of each chapter in the draft District Plan, each chapter will be provided a qualitative rating of:
 - a. It's '*Climate Impact*' for both Emissions Reduction and Climate Change Adaptation. i.e., the degree to which the impacts of climate change adaptation or the transition towards net-zero emissions will affect the purpose, functions, or outcomes of the chapter.
 - b. It's '*Draft Quality*' for both Emissions Reduction and Climate Change Adaptation. i.e., the degree to which the chapter content, objectives, policies, and rules support and enable the identified key directions for climate change.
3. Assess the extent to which the draft chapter is addressing the key climate change directions identified:
 - a. Does the chapter content acknowledge the impacts and influence of climate change upon its subject area (e.g., *Transport*) and its role in addressing the key directions on climate change?
 - b. Do the available objectives align with the intent of the identified primary key climate change directions?
 - c. Do the available policies and rules enable the practical delivery of the identified key climate change directions?
4. Where draft District Plan chapter content, objectives, policies, and/or rules are assessed do not align with the key climate change directions, fail to acknowledge them, or conflict, where deemed appropriate, proposed edits and/or additions will be provided for the Council's consideration.

During the assessment of each chapter, the role the City of Lower Hutt Draft District Plan holds in addressing the identified key directions on climate change will be considered. Where other planning mechanisms or District Plan approaches may address the key climate directions, it will be noted for consideration by Council.

The scoring criteria applied to assess '*Climate Impact*' and '*Draft Quality*' is provided in Appendix 1.

It should also be noted that some additional matters were identified but considered out of scope, based on the review methodology and the chapter topic deemed to be out of scope based on this. These additional matters include:

- Resolving policy conflict between cultural and heritage values and renewable energy generation
- Considering enabling climate change mitigation measures on historic heritage sites or sites and areas of significance to Māori to protect the values of these sites/areas
- Considering the implications of increased wind speeds due to extreme weather events / climate change on building design and management of wind effects on public safety and amenity
- Considering requiring vegetation/tree planting as a tool to reduce the impact of hot days, or alternatively a financial contribution towards local planting (i.e. in reserves or rural areas) to offset GHG emissions from different types of land uses (a formula would likely be required to calculate this).

KEY DIRECTIONS ON EMISSION REDUCTION

Table 2: Key directions on emission reduction relevant to the Lower Hutt Draft District Plan

		Emissions Reduction Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 1: TRANSPORT				
ER1a	Reduce reliance on cars and support people to walk, cycle, and use public transport	✓	✓	✓
ER1b	Support the rapid adoption of low-emissions and electric vehicles	✓	✓	✓
ER1c	Begin work to decarbonise heavy transport and freight	✓		
EMISSIONS REDUCTION DIRECTION 2: ENERGY & INDUSTRY				
ER2a	Use energy efficiently and manage demand for energy	✓	✓	✓
ER2b	Ensure the electricity system is ready to meet future energy demands Including supporting renewable and affordable energy in communities	✓	✓	
ER2c	Reduce our reliance on fossil-fuels and support the switch to low-emission fuels	✓	✓	✓
ER2d	Reduce emissions and energy use in industry by supporting industry to improve energy efficiency, reduce costs, and switch from fossil-fuels to low emissions alternatives	✓		
EMISSIONS REDUCTION DIRECTION 3: BUILDING & CONSTRUCTION				
ER3a	Reduce embodied carbon of construction materials by supporting innovation and regulating to promote the use of low emissions building design and materials.	✓	✓	
ER3b	Accelerate the shift to low-emissions buildings by promoting good examples, providing incentives, and supporting the use of low-emissions practices	✓	✓	
ER3c	Reduce building operational emissions by improving energy efficiency	✓	✓	
ER3d	Shift building and construction energy use from fossil-fuels	✓	✓	✓
EMISSIONS REDUCTION DIRECTION 4: FORESTRY				
ER4a	Support the right mix, level, and location of afforestation	✓	✓	
ER4b	Encourage native forests and other natural ecosystems as long-term carbon sinks	✓	✓	✓
ER4c	Maintain existing forests	✓		✓
ER4d	Grow the forestry and wood processing industry to deliver more value from low-carbon products	✓		
EMISSIONS REDUCTION DIRECTION 5: WASTE				
ER5a	Enable households and businesses to reduce organic waste	✓	✓	
ER5b	Increase the amount of organic waste diverted from landfill	✓	✓	✓
ER5c	Reduce and divert construction and demolition waste to beneficial uses	✓		
ER5d	Explore bans or limits to divert more organic waste from landfill	✓		
ER5e	Increase the capture of gas from landfills	✓	✓	

KEY DIRECTIONS ON CLIMATE CHANGE ADAPTATION

Table 3: Key directions on climate change adaptation relevant to the Lower Hutt Draft District Plan

		National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT				
A1a	Support ecosystems that are healthy and connected, and where biodiversity is thriving	✓	✓	
A1b	Enable robust biosecurity that reduces the risk of new pests and diseases spreading	✓		
A1c	Support working with nature to build resilience	✓	✓	✓
ADAPTATION DIRECTION 2: HOMES, BUILDINGS, & PLACES				
A2a	Homes and buildings are climate resilient, and meet social and cultural needs	✓		
A2b	New and existing places are planned and managed to minimise risks to communities from climate change	✓	✓	
A2c	Māori connections to whenua and places of cultural value are strengthened through partnerships	✓		
A2d	Threats to cultural heritage arising from climate change are understood and impacts minimised	✓		
ADAPTATION DIRECTION 3: INFRASTRUCTURE				
A3a	Reduce the vulnerability of assets exposed to climate change by understand where infrastructure assets and their services are exposed and vulnerable to climate impacts.	✓	✓	✓
A3b	Consider long-term climate impacts when designing and investing in infrastructure to ensure all new infrastructure is fit for a changing climate	✓		
A3c	Consider long-term climate impacts when making decisions to maintain, upgrade, repair or replace existing infrastructure.	✓	✓	
ADAPTATION DIRECTION 4: COMMUNITIES				
A4a	Enable communities to adapt and provide resources to take action relevant to their situation	✓	✓	
A4b	Support vulnerable people and communities by providing them with support, knowledge, and resources	✓		
A4c	Support communities facing climate-related disruption and disasters so response and recovery can improve their wellbeing and social cohesion	✓		
A4d	Understand future climate-related health risks and take steps early to ensure the healthcare system is ready for these shifting demands	✓	✓	
ADAPTATION DIRECTION 5: ECONOMY & FINANCIAL SYSTEM				
A5a	Sectors, businesses, and regional economies can adapt. Participants can identify risks and take action	✓		
A5b	A resilient financial system underpins economic stability and growth. Participants can identify, disclose, and manage climate risks	✓		

An aerial photograph of a rugged coastline. A dark, winding road follows the edge of a steep, forested hillside that meets the ocean. The beach is dark and rocky, with waves crashing against the shore. In the distance, a small town is visible on a flat area near the water. The sky is overcast with soft clouds.

DRAFT DISTRICT PLAN CHAPTER REVIEW

RENEWABLE ELECTRICITY GENERATION

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	Very High	No Impact
DRAFT QUALITY	Moderate	Non-Applicable

The purpose of the Renewable Electricity Generation chapter is to set the objectives, policies, and rules for renewable electricity generation in Lower Hutt.

The role of the District Plan controls for Renewable Electricity Generation are important for enabling the growth of renewable electricity generation in Lower Hutt whilst managing the potential adverse effects these can have on environmental and amenity values. Renewable electricity generation is very highly impacted by Lower Hutt's and New Zealand's transition towards a net-carbon zero future. The urgent requirement to increase New Zealand's generation of low emission, renewable electricity is a key-stone action towards the achievement of wider sector decarbonisation targets. While New Zealand's electricity system relies heavily on renewable sources, energy-related emissions contribute significantly (40.6%) to New Zealand's gross GHG emissions, primarily through road transportation, manufacturing, and construction.⁸ Without major expansion of the renewable electricity system, the ability to decarbonise buildings, transportation, and industry will continue to be constrained.⁹

While the Draft District Plan chapter provides sufficient controls to support the design, development, and operation of renewable electricity generation within Lower Hutt, minor additions are recommended to align with the key directions on emission reduction and acknowledge the critical role of renewable electricity generation in mitigating the more severe impacts of climate change.

No functions of the Renewable Electricity Generation chapter have alignment with key directions on climate change adaptation.

KEY DIRECTION ALIGNMENT

Table 4: The key directions on emission reduction identified as relevant to the Renewable Electricity Generation chapter

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 2: ENERGY & INDUSTRY					
ER2b	Ensure the electricity system is ready to meet future energy demands Including supporting renewable and affordable energy in communities	✓		✓	
ER2c	Reduce our reliance on fossil-fuels and support the switch to low-emission fuels	✓		✓	✓
ER2d	Reduce emissions and energy use in industry by supporting industry to improve energy efficiency, reduce costs, and switch from fossil-fuels to low emissions alternatives	✓			

CHAPTER CONTENT

The Draft Renewable Electricity Generation Chapter acknowledges the positive effects that renewable electricity generation contributes to reducing the physical impacts of climate change and increasing resilience in energy generated locally. However, in the same view that adverse effects recognise the cumulative effects that may arise over time or in combination with other effects, it is recommended that the positive effects acknowledge the cumulative effects that renewable electricity generation can provide in combination with the decarbonisation of transportation, buildings, and industry within the district.

Additional text is recommended in the chapter content to acknowledge the critical role that renewable electricity generation plays in decarbonising New Zealand industries and the significantly increasing demand for additional generation required over the coming years.

OBJECTIVE ALIGNMENT

REG-01 and **REG-02** are deemed sufficient for enabling the development of both small scale and commercial renewable electricity generation, while avoiding or mitigating the potential adverse effects. However, to more strongly align with the key directions on emissions reduction and Draft District Plan Strategic Direction CC-O1, additional text is recommended for **REG-01** to acknowledge the transitional importance:

REG-01	Renewable Electricity Generation
Development of renewable electricity generation that is designed, located, constructed, operated, maintained and upgraded to:	
1. Avoid remedy or mitigate adverse effects on the environment, and 2. Promote the local regional and national benefits of the use and development of renewable energy resources. 3. Support the local and national transition to renewable electricity to meet future energy demands	

POLICIES, RULES, AND STANDARDS

While **REG-P4** recognises that renewable electricity generation has the potential to cause significant adverse effects on amenity, landscape, ecology, cultural, and historic heritage values, so too must decision makers recognise that failure to mitigate or avoid the most severe effects of future climate change (through failing to reduce energy-related GHG emissions) will also cause significant adverse effects on those values. Whilst efforts must be taken to avoid or mitigate adverse effect of renewable electricity generation, it should be noted that a 'do-nothing' approach to renewable electricity generation at any scale is not without its own consequences.

Should the additional benefit of renewable electricity generation be added to **REG-P1** as recommended above, the draft rules listed will be adequate to enabling the key directions on emissions reduction identified, as the benefits to achieving decarbonisation targets will be clearly included in matters for discretion for restricted discretionary or discretionary activities:

REG-P1	Benefits of renewable electricity generation
Recognise the benefits of renewable electricity generation, including:	
1. Maintenance and increase of electricity supply security, 2. Reduction in dependence on imported energy sources, 3. Reduction in greenhouse gas emissions, 4. Enabling the decarbonisation of industrial activities and transport sector, and 5. The reversibility of the adverse effects of some renewable electricity generation technologies.	

Given almost all commercial or community scale renewable electricity generation activities will be restricted discretionary or discretionary, the contribution of renewable electricity generation to national and global efforts to mitigate the most severe effects of climate change should be more actively considered by decision-makers.

The Draft Renewable Electricity Generation Chapter is relatively similar in approach to many other recently reviewed District Plans, including policy and rule framework based on three scales of renewable electricity

generation facilities. The Council may wish to consider alternative policies and rules which may complement or replace the current approach to achieve the objectives more effectively and efficiently. These alternatives include:

- Spatially identifying locations (areas) where different types of community and commercial scale renewable electricity generation activities are appropriate. Includes applying different activity status to provide for or restrict renewable electricity generation activities in these locations. This would support developers in targeting their renewable electricity generation investigation activities in a more cost-effective manner.
- Requiring activities to provide for a minimum amount of on-site renewable electricity generation. Different types and scales of land use activities could have different minimum requirements.
- Providing for battery storage facilities at various scales (domestic/residential/small-scale, commercial and industrial/large/grid-scale).
- Assessing the interaction between zone chapters and Renewable Energy, as there may be opportunities to enable particular activities in more appropriate zones (such as considering green hydrogen in the industrial/mixed use zones).

Lastly, we have identified a few wording matters with the draft provisions that we suggest are clarified or considered further. These matters are:

- Check definitions and rules provide for battery storage as part of renewable electricity generation activities. The recent trend is for generation activities to incorporate some form of battery storage. Definitions and rules need to be clear on whether battery storage is part of a generation activity or treated separately.
- Further consideration of the definition of 'community-scale renewable generation activities' in the Lower Hutt context. It is unclear whether there is a 'whole community which is not connected to the distribution network (off grid)' in Lower Hutt, both now and potentially in the future. Also, it brings into question the certainty and enforceability of the second part of this definition in the Lower Hutt context, in terms of determining "immediate neighbourhood in an urban area" and "some" export back into the distribution network.

INFRASTRUCTURE

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	Very High	Very High
DRAFT QUALITY	High	Moderate

The purpose of the infrastructure chapter is to outline the provisions of the District Plan that relate to infrastructure, including network utilities.

The successful functioning of Lower Hutt and the connecting Wellington Region depends on well located, designed, and maintained infrastructure. Given the role of infrastructure in enabling the everyday activities and functions that provides for a community's social wellbeing, economic wellbeing, and health and safety, Infrastructure is very highly impacted by both emission reduction and adaptation efforts. The planning and placement of infrastructure across the district will dictate whether it is resilient to the current and future impacts of climate change. Furthermore, it will strongly influence how a city functions and the operational emissions required to enable this function.

The draft Infrastructure chapter aligns strongly with several key directions on emission reduction and adaptation. Objectives, policies, and rules within the draft chapter will be important to enabling the achievement of intentions to develop more walking and cycling in Lower Hutt, increasing public transport, and reducing the vulnerability of infrastructure and assets.

KEY DIRECTION ALIGNMENT

Table 5: The key directions on emission reduction and climate change adaptation identified as relevant to the infrastructure chapter

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 1: TRANSPORT					
ER1a	Reduce reliance on cars and support people to walk, cycle, and use public transport	✓		✓	✓
ER1b	Support the rapid adoption of low-emissions and electric vehicles	✓		✓	✓
EMISSIONS REDUCTION DIRECTION 2: ENERGY & INDUSTRY					
ER2b	Ensure the electricity system is ready to meet future energy demands Including supporting renewable and affordable energy in communities	✓		✓	
EMISSIONS REDUCTION DIRECTION 3: BUILDING & CONSTRUCTION					
ER3b	Accelerate the shift to low-emissions buildings by promoting good examples, providing incentives, and supporting the use of low-emissions practices	✓		✓	
ADAPTATION DIRECTION 2: HOMES, BUILDINGS, & PLACES					
A2b	New and existing places are planned and managed to minimise risks to communities from climate change		✓	✓	
ADAPTATION DIRECTION 3: INFRASTRUCTURE					
A3a	Reduce the vulnerability of assets exposed to climate change by understand where infrastructure assets and their services are exposed and vulnerable to climate impacts.		✓	✓	✓
A3b	Consider long-term climate impacts when designing and investing in infrastructure to ensure all new infrastructure is fit for a changing climate		✓		

A3c	Consider long-term climate impacts when making decisions to maintain, upgrade, repair or replace existing infrastructure.		✓	✓	
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CHAPTER CONTENT

The draft Infrastructure chapter acknowledges the important functions infrastructure provides to enable community wellbeing, economic prosperity, and health and safety, which must be safeguarded throughout the transition to a low emission, climate resilient future.

From an emission reduction perspective, the content does recognise that infrastructure can be vulnerable to the effects of new activities being established nearby, placing additional pressures, constraints, and costs on the operation of the infrastructure. This vulnerability may be expanded upon to also identify the additional emissions impact that can result from poorly planned or located activity, such as increased vehicles commuting from greenfield developments.

While national policy statements, particularly the New Zealand Coastal Policy Statement (NZCPS) will seek to limit the vulnerability of infrastructure to climate-related risks such as coastal inundation, it is recommended that the vulnerability of infrastructure to natural hazards and climate-related risks is acknowledged in the chapter content. Specifically, in the ongoing absence of Climate Change Adaptation legislation, the focus of ‘stopping things getting worse’ through the placement or maintenance of infrastructure in emerging hazard zones (e.g., future locations at risk from sea-level rise) would be a beneficial addition to support resilience outcomes.

OBJECTIVE ALIGNMENT

The draft Infrastructure chapter objectives sufficiently address the needs to increase resilience to the impacts of climate change, mitigate any unintended increase in operational emissions, and transition towards low emission functions. **INF-O4** and **INF-O5** are noted as particularly strong in their objectives to ensure resilient and sustainable infrastructure is integrated effectively with housing and transport to increase connectivity within and beyond Lower Hutt.

POLICIES, RULES, AND STANDARDS

The policies and rules within the draft Infrastructure chapter sufficiently enable the key directions on emissions reduction with a recommended minor amendment. In coordinating the provision of infrastructure, **INF-P3** would benefit from the inclusion of coordination with new and emerging technologies or changing user requirements. The rise of new modes of low emission transport (e.g., E-Bikes and E-Scooters) in particular is a good example of where the provision of infrastructure may need to adapt to meet increasing demands in a safe and efficient way alongside other users. This also includes accommodating Electric Vehicle (EV) charging stations/areas. Additionally, ensuring infrastructure is ‘adaptable’ as well as ‘resilient’ to the impacts of natural hazards and climate change will enable infrastructure that can retreat and avoid impacts as well as accommodate and protect against impacts:

INF-P3	Coordinate provision of infrastructure
Enable the efficient coordination of infrastructure planning and delivery by: 1. Ensuring provision and development of infrastructure is integrated with other land use, subdivision, development and urban growth. 2. Ensuring that infrastructure is resilient or adaptable to impacts of natural hazards and climate change. 3. Ensuring that infrastructure is able to adapt to changing user requirements and technologies. 4. Encouraging the co-location of infrastructure, including the utilisation of existing designations and the use of roads as infrastructure corridors. 5. Ensuring the provision and operation of infrastructure that cross jurisdictional boundaries is managed in an integrated manner.	

In connection with **INF-P10** and **INF-P12**, these policies provide the functions to enable the key directions on emission reduction identified, particularly by seeking to improve connectivity and integration between all low emission transport modes for more ‘liveable’ communities.

While the policies and rules within the draft Infrastructure chapter are adequate to enabling the resilience of infrastructure to the impacts of climate change, along with the minor addition to **INF-P3** noted above, additional text is recommended for Infrastructure Policies to enable climate change specific hazards and risks to be considered and adapted to in the development, maintenance, and upgrade of infrastructure within Lower Hutt. It is recommended that **INF-P4** explicitly seek to manage the adverse effects that new or upgraded infrastructure may have on climate change risks. Like adverse effects to natural hazard risks, the placement and design of infrastructure may exacerbate the risk by increasing the population exposed to the risk, increasing the effects of the hazard (e.g., increasing erosion or surface runoff), or prevent the climate change risk being adapted to (e.g., preventing the inland retreat of coastal environments):

INF-P4	Adverse effects of infrastructure
Manage the adverse effects of upgrades to, or the development of new infrastructure, including effects on: 1. Natural and physical resources; 2. Amenity values; 3. Sensitive activities; 4. Natural hazard or climate change risk; 5. The identified values of areas within overlays of the District Plan; 6. The safe and efficient operation of other infrastructure; and 7. The health, well-being and safety of people and communities.	

In relation to the additional text recommended in **INF-P4**, further amendments are recommended for **INF-P13** and **INF-P14** to support the avoidance of increasing climate change risks and adaptability of infrastructure. As stated in the recommended 'Chapter Content' section, in the absence of Climate Change Adaptation legislation informing how at-risk communities may effectively adapt to the impacts of climate change (including managed retreat), the policies and rules to 'stop things getting worse' will be beneficial to ensure infrastructure is not placed in locations which may require retreat in coming years.

The suggested addition of avoiding new infrastructure located within the 1% AEP + 1 sea-level rise zone would provide a strong leadership position for Hutt City in climate change adaptation outcomes, however given the extent of Lower Hutt's exposure to coastal inundation and flood, strict avoidance will likely be impractical in all cases.

INF-P13	New or upgraded infrastructure in natural hazard overlays
Provide for new or upgraded infrastructure in natural hazard overlays where: 1. There is a functional or operational need for the infrastructure to be in that location; 2. Related building, structures or earthworks are of a scale and design that do not significantly increase natural hazard risk or climate change risks in Overland Flow and Stream Corridors. 3. Increases in natural hazard risk or climate change risk in identified high hazard areas and the Overland Flow Overlay are avoided. 4. The infrastructure has the capability to readily adapt to changing hazard conditions, including removal and relocation	

INF-P14	New or upgraded infrastructure in coastal or riparian margins
Provide for new or upgraded infrastructure in coastal and riparian margins where: 1. There is a functional or operational need for the infrastructure to be in that location; and 2. It is located on a bridge or other structure, or is located in legal road; or 3. Related building, structure or earthworks are of a scale and design that will minimise adverse effects on coastal or riparian environments. 4. New infrastructure located in the 1% AEP + 1 metre sea-level rise is avoided or risks remedied 5. The infrastructure has the capability to readily adapt to changing coastal and riparian margin conditions, including removal and relocation	

TRANSPORT

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	Moderate	No Impact
DRAFT QUALITY	Very High	Non-Applicable

The purpose of the Transport chapter is to address the on-site transport facilities and site access, including what facilities are required and design aspects. The chapter also includes provisions for high trip generating activities to address the effects on the capacity of the transport network.

The Transport chapter is moderately impacted by climate change transition actions to reduce emissions towards net-zero given its role in supporting increasing connectivity and active modes of transport, while also managing the impacts of high trip generating activities on these outcomes. Although the Infrastructure chapter provides for the development and upgrade of transport networks that enable increased walking and cycling throughout Lower Hutt and beyond, on-site transport facilities play an important role in safely supporting the public uptake and use of active transport modes through providing suitable parking / storage areas and safe access to these networks.

While the transport network is impacted by climate change adaptation actions itself, the Transport chapter's function has little alignment with key directions on adaptation.

KEY DIRECTION ALIGNMENT

Table 6: The key directions on emission reduction identified as relevant to the Transport chapter

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 1: TRANSPORT					
ER1a	Reduce reliance on cars and support people to walk, cycle, and use public transport	✓		✓	✓

CHAPTER CONTENT

The draft Transport chapter acknowledges that the safety and efficiency of on-site transport facilities and site access makes a significant contribution to the overall safety and efficiency of the Lower Hutt transport network. However, it is recommended that it recognises the key national and district directions to increase active modes of transport, and that the chapter content also states the significant contribution these facilities and site access has for the overall function and user uptake of active transport modes.

Safe pedestrian access or appropriate facilities to park and store bicycles and scooter (and other active transport modes) are often significant enablers for users of active transport routes.

OBJECTIVE ALIGNMENT

No further amendments are recommended for the draft Transport chapter objectives. **TR-01** and **TR-02** both sufficiently seek to provide safe, effective, and efficient on-site transport facilities and sites access, while ensuring the provision of these, along with high trip generating activities, does not compromise the quality and connectivity of active transport modes.

POLICIES, RULES, AND STANDARDS

No further amendments are recommended for the draft Transport chapter policies and rules. **TR-P1** and **TR-P2** both effectively allow for transport related activities to promote and facilitate the uptake of active and public transport modes, reduce resilience on private vehicles, and meet demands of site users. Furthermore **TR-P5** recognises the positive effects resulting from improvements to active transport networks, along with the benefits of integrating with public transport facilities and routes.

The Council may wish to consider their bike parking requirements and design, to ensure it accommodates the shift to electric bicycles and their specific storage and charging requirements across zones. This includes considering what level of bike parking provision is required in residential zones, not just commercial/mixed use zones.

These policies strongly align with the relevant national and district key directions on emissions reduction and provide enabling policies and rules to support the achievement of these in Lower Hutt.

THREE WATERS

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	No Impact	High
DRAFT QUALITY	Non-Applicable	High

The purpose of the Three Waters chapter is to support the functioning of stormwater, wastewater, and potable water supply within Lower Hutt by promoting positive effects and avoiding, remedying, and mitigating adverse effects of urban development on water resources and health.

A well-functioning three waters network is important to the health and wellbeing of Lower Hutt residence, economic growth, and the ecological and cultural values of the Hutt Valley. With extreme rainfall events within the Hutt City District (consistent with the rest of New Zealand) projected to continue to increase in intensity and frequency over the coming decade, Three Waters is highly impacted by climate change and key directions to adapt to these impacts. Increasingly intense and frequent extreme rainfall events, producing larger rainfall depths, will likely increase pressures on stormwater and wastewater infrastructure, with the unprecedented nature of some of these events we are now witnessing presenting risks of overloading existing systems.

While the application of ‘sponge city’ and ‘water-sensitive design’ principles are covered in the draft Three Waters chapter, supporting the achievement of key directions for climate change adaptation, further amendments and additions are required to ensure these outcomes are explicitly fit for future climate conditions.

No functions of the Three Waters chapter have alignment with key directions on emissions reduction.

KEY DIRECTION ALIGNMENT

Table 7: The key directions on climate change adaptation identified as relevant to the Three Waters chapter

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1a	Support ecosystems that are healthy and connected, and where biodiversity is thriving		✓	✓	
ADAPTATION DIRECTION 3: INFRASTRUCTURE					
A3a	Reduce the vulnerability of assets exposed to climate change by understand where infrastructure assets and their services are exposed and vulnerable to climate impacts.		✓	✓	✓
A3b	Consider long-term climate impacts when designing and investing in infrastructure to ensure all new infrastructure is fit for a changing climate		✓		

CHAPTER CONTENT

The draft Three Waters chapter comprehensively outlines the current state of three waters within the Hutt Valley and discusses the vulnerabilities of its communities to hazards generated by stormwater runoff and wastewater contamination during storm events. To address the risks posed by increasing urban development exacerbating runoff flooding, the draft District Plan provides for all future urban developments to be hydraulically neutral in its management of stormwater and include water sensitive design methods.

While the ‘*Wellington Water Regional Standard for Water Services December 2021*’ is used to inform the standards for hydraulic neutrality, it states that all systems shall be designed to accommodate the predicted impacts of climate change, these impacts are not explicitly stated within the draft District Plan chapter.¹⁰

It is recommended, to acknowledge the risks that increasingly intense and frequent extreme rainfall events pose to Lower Hutt Three Waters, further content is added. This should discuss the vulnerability that stormwater systems may face from climate change, presenting the risk of overloading existing stormwater systems, causing flooding in surrounding communities and damaging components of the stormwater infrastructure. In this, it is worth noting that new urban developments shall achieve hydraulic neutrality in extreme rainfall events ranging from a 10% AEP to a 1% AEP and including the impacts of climate change, which Wellington Water guidance accommodates by adjusting estimated rainfall depths by 20%.

Additionally, one thing to note is that the council should ensure the proposed chapter aligns with Greater Wellington Regional Council’s Plan Change 1 to the Natural Resources Plan and avoids duplication.

OBJECTIVE ALIGNMENT

The draft objectives **THW-O2** and **THW-O3** sufficiently address the key directions on climate change adaptation, through the implementation of ‘*Wellington Water Regional Standard for Water Services December 2021*’. However, to strongly align with adaptation directions and acknowledge the function of the chapter in relation to Draft District Plan Strategic Objective **CC-O2**, it is recommended that the inclusion of the impacts of climate change are explicitly stated within the hydraulic neutrality and stormwater management policies.

While these additions may have little impact of the delivery of hydraulic neutrality in design and stormwater management, explicitly including the impacts of climate change will ensure users are aware new subdivisions and urban developments must actively seek to adapt to future climate conditions.

THW-O2	Hydraulic neutrality
There is no increase in offsite stormwater peak flows and peak volumes as a result of subdivision and development in urban areas, including accounting for the impacts of climate change	

THW-O3	Stormwater Management
The quantity and quality of stormwater runoff from new subdivision and development are managed to not increase any flood risk, including accounting for the impacts of climate change , and to maintain or improve the health of freshwater ecosystems.	

POLICIES, RULES, AND STANDARDS

Similar to recommendations for inclusion of climate change in Three Waters objectives, so too is this recommended to be explicitly stated in **THW-P3**. Along with increasing user awareness as discussed above, this will also ensure consistency between the objectives and policies.

THW-P3	Hydraulic neutrality
Require new subdivision and development in urban areas to achieve hydraulic neutrality. Any hydraulic neutral devices shall be designed, constructed, and maintained to manage the volume and rate of discharge of stormwater to the receiving environment so that the rate of offsite stormwater discharge is reduced to be at or below the modelled peak flow and volume for each site, including the effects of climate change , prior to the subdivision or development commencing.	

Additional text is also recommended to be added to **THW-P4** to ensure water sensitive design methods sufficiently consider the impacts of climate change and new urban developments on water bodies and freshwater ecosystems. Approaches that give water bodies space to respond and adapt to increasingly volatile rainfall events will support achievement of key direction on adaptation outcomes.

THW-P4	Water sensitive urban design
Require new subdivision and development in urban areas to incorporate water sensitive design methods and to be designed, constructed, and maintained to: 1. Improve the health and well-being of water bodies and freshwater ecosystems. 2. Avoid or mitigate off-site effects from surface water runoff, including the increase of downstream flood risks; and 3. Accommodate climate change impacts on water bodies and freshwater ecosystem, including increased surface contaminate runoff and flooding during extreme rainfall events. 4. Be in accordance with available guidance and best practice solutions for the management of stormwater quality and quantity from the subdivision or development at the time.	

The Council may wish to consider alternative policies and rules which may complement or replace the current approach to achieve the objectives more effectively and efficiently. These alternatives include:

- Policies, rules, and standards that support the provision of on-site firefighting water supply in areas with limited access to potable water supply during periods of drought and extreme heat.
- Further consideration of on-site potable water supply (further than for gardens and toilets) to reduce demand on the reticulated supply during peak demand and in response to increased periods of drought.

NATURAL HAZARDS

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	No Impact	Very High
DRAFT QUALITY	Non-Applicable	High

The purpose of the Natural Hazard chapter is to address the natural hazards that present the greatest risk to people, buildings, and infrastructure in Lower Hutt through appropriate land use planning measures.

Lower Hutt is highly susceptible to a wide range of natural hazards, with the ability to damage and destroy buildings, property, and lead to a loss of human life. Given the climate-related interactions of many of the natural hazards that present the greatest risk to Lower Hutt, natural hazards are very highly impacted by the effects of climate change and efforts to adapt to these effects. With the substantial degree of vertical land movement (subsidence) experienced across the Hutt City coastline (between -2.16 to -5.26mm/year vertical land movement) intensifying the physical effects of mean sea-level rise, coastal inundation areas are projected to increase.¹¹ Furthermore, with Lower Hutt experiencing increased intensity and frequency of extreme rainfall events due to climate change, flooding events from the stream corridor and overland flowpaths will likely increase along with rainfall induced slope instability hazards.

The draft Natural Hazards chapter includes the impacts of climate change within its hazard overlays suitable for the coming decade which supports the achievement of key directions for climate change adaptation. However minor additions are proposed to ensure these adaptation measures taken to protect buildings, property, and human life do not create cascading risks to other environmental values or exacerbate already at-risk values.

No functions of the Natural Hazards chapter have alignment with key directions on emissions reduction.

KEY DIRECTION ALIGNMENT

Table 8: The key directions on climate change adaptation identified as relevant to the Natural Hazards chapter

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1a	Support ecosystems that are healthy and connected, and where biodiversity is thriving		✓	✓	
A1c	Support working with nature to build resilience		✓	✓	✓
ADAPTATION DIRECTION 2: HOMES, BUILDINGS, & PLACES					
A2a	Homes and buildings are climate resilient, and meet social and cultural needs		✓		
A2b	New and existing places are planned and managed to minimise risks to communities from climate change		✓	✓	
A2d	Threats to cultural heritage arising from climate change are understood and impacts minimised		✓		

CHAPTER CONTENT

The Natural Hazard chapter content provides sufficient information regarding the Natural Hazards that present the greatest risk to Lower Hutt along with their respective hazard rankings. The chapter content does acknowledge the influence of climate change effects such as mean sea-level rise and more intense rainfall events on flooding and coastal inundation hazards within the district, both of which are included in the natural hazard overlays.

Given the substantial degree of vertical land movement (subsidence) experienced across the Hutt City coastline and beyond throughout Greater Wellington, it is recommended that additional content is provided to note the unique challenges Lower Hutt (and Wellington) residents face from mean-sea level rise, comparatively to other parts of New Zealand. With subsiding land and rising mean sea-levels, Lower Hutt is expected to experience the physical effects of coastal inundation sooner than other parts of the country, so should act more proactively relative to other districts and regions to adapt to these impacts on a shorter timeframe.

OBJECTIVE ALIGNMENT

No further amendments are recommended for the draft Natural Hazards chapter objectives. **NH-O1** and **NH-O2** provide sufficient objectives to avoid or reduce the risks to subdivision, use, and development within High Hazard Areas or minimise risk in Low and Medium Hazard Areas. While the strict avoidance of subdivision, use, and development within High Hazard Areas would be preferable from an adaptation perspective, the physical constraint of the Hutt Valley and situation of community infrastructure already within hazard areas likely make strict avoidance impractical and require strong risk reductions.

The employment of built and natural hazard mitigations covered in **NH-O3** and **NH-O4** will support the reduction and minimization of natural hazard risks with minor additions to **NH-O3** along with amending the definition for 'Natural Hazard Mitigation Works'. This addition to **NH-O3** is recommended to ensure mitigation works do not create a bias towards hard engineered mitigation approaches and supports the use of other adaptation approaches as covered in **NH-O4**, the definition of 'Natural Hazard Mitigation Works' should be amended to ensure that works associated, including nature-based approaches, are acknowledged as a mitigation, including the ability for structures to retreat. Policies reflecting these objectives will need to ensure that these mitigations do not create cascading adverse effects on other values.

NH-O3	Planned Natural Hazard Mitigation and Adaptation Works
Risk to people, buildings and infrastructure from flood hazards is reduced through mitigation and adaptation works	

POLICIES, RULES, AND STANDARDS

As noted, to ensure that Natural Hazard objectives are able to effectively reduce the risks to subdivision, use, and development within High Hazard Areas (where avoidance is not practicable) and minimise risks in Low and Medium Hazard Areas, without creating cascading adverse effects on other values, additional text is recommended in **NH-P2** and **NH-P3**:

NH-P2	Levels of risk
Subdivision, use and development manages the natural hazard risk to people, buildings and infrastructure by: 1. Allowing for those buildings and activities that have either low occupancy or low replacement value within the low, medium and high hazard areas of the Natural Hazard Overlays. 2. Requiring buildings and activities to mitigate the risk resulting from the development from natural hazards to people, buildings and infrastructure as far as reasonably practicable in the low hazard and medium hazard areas within the Natural Hazard Overlays where mitigation does not create or exacerbate risks from natural hazards to landscape, cultural, or ecosystem values; and 3. Avoiding subdivision, buildings and activities in the high hazard areas of the Natural Hazard Overlays unless there is an operational need or functional need for the building or activity to be located in this area and the building or activity mitigates the existing risk and future risk from natural hazards to people, buildings and infrastructure and mitigation does not create or exacerbate risks from natural hazards to landscape, cultural, or ecosystem values.	

NH-P4	Natural hazard mitigation
	Enable natural hazard mitigation works undertaken by the Greater Wellington Regional Council, Hutt City Council, Waka Kotahi, KiwiRail or their nominated contractors or agents within Natural Hazard Overlays where these will decrease the existing risk to people, buildings and infrastructure and does not create or increase risks from natural hazards to landscape, cultural, or ecosystem values.

As recognised in the New Zealand National Climate Change Risk Assessment, landscape characteristics, cultural heritage, and indigenous habitats and ecosystems are highly vulnerable to the effects of maladaptation or cascading risks created when adapting to hazards in the built environment.¹² In reference to the natural hazards of coastal inundation and flooding present in Lower Hutt, traditional mitigation measures such as seawalls, flood bunds, and channelisation of tributaries can create new hazards for landscape, cultural, or ecosystem values or exacerbate existing hazards. Implementing this recommended addition in conjunction with **NH-P5** (Green Infrastructure) will support Lower Hutt to conserve its natural environment for increased hazard resilience.

Similar recommended additions are proposed to be further reflected in **NH-P8** and **NH-P9** to ensure that the unintended consequences of activities in hazard zones do not create cascading adverse effects on other values. These additions will also ensure implementation in the chapter rules for restricted discretionary activities.

NH-P8	Additions to existing buildings and structures in the Flood Hazard Overlay
	Additions to existing buildings and structures in the Flood Hazard Overlay are managed as follows: 1. Allow for additions to existing buildings and structure for Less Hazard Sensitive Activities in the Inundation Area of the Flood Hazard Overlay. 2. Provide for additions to existing buildings and structures for less hazard sensitive activities within the Overland Flowpaths and the Stream Corridors of the Flood Hazard Overlay where: a. The risk to people, buildings and infrastructure on site from the 1% Annual Exceedance Probability Flood is minimized due to the incorporation of mitigation measures; b. The existing risk to people, buildings and infrastructure on adjacent properties is reduced or not increased from the 1% Annual Exceedance Probability Flood; c. The existing risk to landscape, cultural, or ecosystem values in adjacent areas is reduced or new risks are not created; and d. The Overland Flowpaths or Stream Corridor remain unimpeded and unobstructed to allow for the conveyancing of flood waters and flood waters are not diverted onto adjacent properties or blocked. 3. Provide for additions to existing buildings for Potentially Hazard Sensitive Activities and Hazard Sensitive Activities in the Inundation Area of the Flood Hazard Overlay, where: a. The risk from the 1% Annual Exceedance Probability Flood to people, and buildings on site are minimised due to the incorporation of mitigation measures; and b. The risk to people, buildings and infrastructure on adjacent properties is reduced or not increased from the 1% Annual Exceedance Probability Flood. c. The existing risk to landscape, cultural, or ecosystem values in adjacent areas is reduced or new risks are not created 4. Only allow additions to buildings that accommodate existing potentially hazard sensitive activities and hazard sensitive activities within the overland flowpaths and stream corridors, where it can be demonstrated that: a. The risk from the 1% Annual Exceedance Probability flood event is low due to either the: i. Proposed mitigation measures; ii. Size of the addition; or iii. Nature of the activities undertaken within the addition; and b. In an overland flowpath, the risk to people and property is minimised from the 1% Annual Exceedance Probability flood event; c. In a stream corridor the existing risk to people and property is not increased or is reduced from the 1% Annual Exceedance Probability flood event; d. The existing risk to landscape, cultural, or ecosystem values in adjacent areas is reduced or new risks are not created; and e. The conveyancing of flood waters through the stream corridor or overland flowpath is still able to occur unimpeded and is not diverted onto adjacent properties.

Subdivision, use and development in the Flood Hazard Overlay are managed as follows:

1. Allow for new buildings, structures, building platforms, and the conversion of existing buildings that will contain Less Hazard Sensitive Activities in the Inundation Areas of the Flood Hazard Overlay.
2. All new buildings and structures, building platforms, and the conversion of existing buildings that will contain Less Hazard Sensitive Activities within the Overland Flowpaths and the Stream Corridors of the Flood Hazard Overlay where:
 - a. The existing risk to people, buildings and infrastructure on site from the 1% Annual Exceedance Probability Flood is reduced or avoided due to the incorporation of mitigation measures;
 - b. The risk to people, buildings and infrastructure on adjacent properties is reduced or avoided from the 1% Annual Exceedance Probability Flood;
 - c. [The existing risk to landscape, cultural, or ecosystem values in adjacent areas is reduced or new risks are not created](#); and
 - d. The Overland Flowpaths or Stream Corridor is unimpeded and unobstructed to allow for the conveyancing of flood waters and flood water is not diverted onto adjacent properties or blocked.
3. Provide for new buildings, building platforms, and the conversion of existing buildings that will contain Potentially Hazard Sensitive Activities and Hazard Sensitive Activities in the Inundation Area of the Flood Hazard Overlay, where:
 - a. The risk from the 1% Annual Exceedance Probability Flood to people and buildings is minimised through either:
 - i. The implementation mitigation measures;
 - ii. The depth of the flood waters within the building; or
 - iii. The type of activity undertaken within the building; and
 - b. The risk to people, buildings and infrastructure on adjacent properties is reduced or not increased from the displacement of floodwaters from 1% Annual Exceedance Probability Flood
 - c. [The existing risk to landscape, cultural, or ecosystem values in adjacent areas is reduced or new risks are not created](#).
4. Only allow for new buildings, building platforms, and the conversion of existing buildings that will contain Potentially Hazard Sensitive Activities and Hazard Sensitive Activities within the Overland Flowpaths of the Flood Hazard Overlay where:
 - a. The risk to people, buildings and infrastructure on site from the 1% Annual Exceedance Probability Flood is minimized due to the incorporation of mitigation measures;
 - b. The risk to people, buildings and infrastructure on adjacent properties is reduced or not increased from the 1% Annual Exceedance Probability Flood;
 - c. [The existing risk to landscape, cultural, or ecosystem values in adjacent areas is reduced or new risks are not created](#); and
 - d. The Overland Flowpaths is unimpeded and unobstructed to allow for the conveyancing of flood waters and flood water is not diverted onto adjacent properties or blocked.
5. Avoid new buildings, building platforms, and the conversion of existing buildings that will contain Potentially Hazard Sensitive Activities and Hazard Sensitive Activities within the Stream Corridors of the Flood Hazard Overlay unless:
 - a. The activity or subdivision has an operational need or functional need to locate within the stream corridor and locating outside of these stream corridor is not a practicable option;
 - b. Mitigation measures are incorporated that reduce or avoid an increase in the existing risk to people and property from the 1% Annual Exceedance Probability Flood;
 - c. People can safely evacuate the property during a 1% Annual Exceedance Probability flood; and
 - d. The conveyancing of flood waters through the stream corridor is still able to occur unimpeded and is not diverted onto adjacent properties.

NATURAL CHARACTER

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	Low	High
DRAFT QUALITY	High	Moderate

The purpose of the Natural Character – Coastal Margins and Riparian Margins Chapter is to protect the wider natural character of risks and lakes and their margins, including coastal margins.

The role of the District Plan controls for Natural Character is important for enabling the resilience of natural character values in the districts coastal and riparian margins to both the effects of climate change and the possible adverse effects that could occur from adaptation activities within these areas. Depending on the exposure of riparian and coastal margins to the effects of climate change, such as mean sea-level rise and changes in fluvial processes, the natural character of these areas has the potential to be highly impacted by climate change and risk being degraded or lost if not adequately managed. While the Draft District Plan chapter (along with NZCPS policies) provides sufficient protections for coastal margins and riparian margins, minor additions are recommended to support adaptation to the expected climate change impacts, particularly enhancement and restorations following flood and inundation events.

The Natural Character Chapter has relevance to the key directions on emissions reduction relating to enhancing carbon sequestration through natural ecosystems and aligns with Lower Hutt community objectives of wetland and dune system restorations. However, without a functioning 'Blue Carbon' system in New Zealand for the foreseeable future, these are assessed as having low tangible impact (in the current market). Although should a 'Blue Carbon' system emerge in the future, the policies and rules within the draft chapter are deemed acceptable/high quality for enabling enhancement and restoration with good protections.

KEY DIRECTION ALIGNMENT

Table 9: The key directions on emission reduction and climate change adaptation identified as relevant to the Natural Character Chapter

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 4: FORESTRY					
ER4b	Encourage native forests and other natural ecosystems as long-term carbon sinks	✓		✓	✓
ER4c	Maintain existing forests	✓			✓
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1a	Support ecosystems that are healthy and connected, and where biodiversity is thriving		✓	✓	
A1c	Support working with nature to build resilience		✓	✓	✓
ADAPTATION DIRECTION 2: HOMES, BUILDINGS, & PLACES					
A2a	Homes and buildings are climate resilient, and meet social and cultural needs		✓		
A2c	Māori connections to whenua and places of cultural value are strengthened through partnerships		✓		
A2d	Threats to cultural heritage arising from climate change are understood and impacts minimised		✓		

CHAPTER CONTENT

It is noted that setbacks from waterbodies and the coast to address natural hazard risks are in the Natural Hazard Chapter, however climate change impacts are not explicitly referenced in this chapter.

Given the substantial degree of vertical land movement (subsidence) experienced across the Hutt City coastline (between -2.16 to -5.26mm/year vertical land movement) intensifying the physical effects of mean sea-level rise, the natural character of particularly the coastal margin will likely be impacted.¹¹ In the face of potential landward retreat of natural character values due to the effects of climate change, to meet the District Plan chapter's purpose it is recommended the chapter acknowledges the need to provide 'space' where able for natural character retreat for values to be maintained/protected. Where 'space' is not provided for, natural character values risk being 'squeezed' between advancing waterbodies and hard infrastructure.

Whilst setbacks to address natural hazard risks are located in the Natural Hazards Chapter, and protection of high, very high, and outstanding natural character within the coastal environment is located in the Coastal Environment Chapter, the protection of wider natural character from the effects of climate change and acknowledging the ability of natural character values to mitigate the impacts of climate change is recommended to be addressed in this chapter.

OBJECTIVE ALIGNMENT

The draft objective for Natural Character does not directly address climate change as a key pressure that the natural character of coastal and riparian margins needs to be preserved and protected from.

Draft objective **NATC-O1** acknowledges the preservation and protection of coastal and riparian margins from key pressures. Due to the sensitivity of these margins to climate change and their role in adaptation, additional text is recommended to ensure that the protection and preservation of the natural character of coastal and riparian margins includes the purpose of adapting to the effects of climate change:

NATC-O1	Natural Character of Coastal Margins and Riparian Margins
The natural character of coastal and riparian margins is preserved and protected from inappropriate subdivision, use and development, the effects of climate change , and enhanced where appropriate	

POLICIES, RULES, AND STANDARDS

The policies do not explicitly include climate change responses in the text. Additional text is recommended to support the delivery of an amended **NATC-O1**.

Retreating coastal and riparian margins caused by the effects of climate change is recommended to be addressed through **NATC-P2**. By altering the wording, **NATC-P2** can support the restoration and enhancement of natural character valued for retreating coastal and riparian margins associated with sea level rise and increased precipitation volumes caused by climate change:

NATC-P2	Restoration and Enhancement within Coastal Margins and Riparian Margins
Provide for: - The restoration and enhancement of natural character within existing, newly established, or retreated coastal margins and riparian margins including: - The replanting of coastal margins and riparian margins with indigenous species; and - The removal of pest plant and animal species. - Restoration or rehabilitation undertaken by Mana Whenua to exercise their responsibilities as kaitiaki to protect, restore and maintain the natural character of coastal margins and riparian margins.	

It is also recommended that policy item **NATC-P4** requires additional text to avoid the effects of maladaptation of the role that the natural character values of riparian and coastal margins have in natural hazard management:

NATC-P4	Appropriate Use and Development within Coastal Margins and Riparian Margins
	Provide for use and development within coastal margins and riparian margins where: 1. The proposed use and development: a. Protects the natural character and integrates with the landform; b. Is of a scale, form and nature that does not detract from the natural character of the coastal margin or riparian margin; and c. Does not limit or prevent public access or customary access to, along or adjacent to waterbodies or the coast; or 2. There is a functional need or operational need for the use or development to be located within the coastal margin or riparian margin and no alternative locations are practicable. 3. <i>It does not reduce the natural hazard management functions of the coastal margin or riparian margin, or exacerbate the risks arising from the effects of climate change</i>

Should the recommended additions be made to NATC-P2 and NATC-P4, the draft Rules listed are sufficient.

NATURAL FEATURES AND LANDSCAPE

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	High	High
DRAFT QUALITY	High	High

The purpose of the Natural Features and Landscapes Chapter is to protect identified Outstanding Natural Features (ONF) and Outstanding Natural Landscapes (ONL), and to manage the effects of subdivision, use, and development on the identified values.

As the outstanding natural features and landscapes in Hutt City are mostly dominated by their natural components (over the influence of human development), with some located in the coastal environment, many of the values that make them exceptional are often highly impacted by the effects of climate change – both from acute climate change events, such as coastal inundation or extreme rainfall degrading or destroying natural features, and chronic climate change effects, such as long-term warming effecting ecosystem form and function. While climate change is not explicitly noted in the chapters objectives, policies, and rules required to effectively adapt and protect ONFL characteristics and values are sufficiently covered within the draft chapter, aligning well with key directions on climate change adaptation.

Although vulnerable to the effects of climate change, the effective protection of natural landscapes and ecosystem values which are commonly present within Lower Hutt's ONFL's, provide opportunities to enhance the natural carbon storage and sequestration functions of these areas. ONFL's outside the coastal environment in particular likely store and continue to sequester a significant amount of carbon within forest biomass and other vegetation and soils. Inside the coastal environment, ONFL's also likely sequester and store significant amounts of 'blue carbon' in coastal and marine ecosystems, however the absence of a functioning 'blue carbon' system in New Zealand make this less quantifiable. Draft objectives, policies, and rules within the Natural Features and Landscape chapter do not actively recognise the carbon sequestration and storage values of ONFL's, however their functions do tend to align with key directions on emissions reduction to protect and enhance.

KEY DIRECTION ALIGNMENT

Table 10: The key directions on emission reduction and climate change adaptation identified as relevant to the Natural Features and Landscapes Chapter

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 4: FORESTRY					
ER4b	Encourage native forests and other natural ecosystems as long-term carbon sinks	✓		✓	✓
ER4c	Maintain existing forests	✓			✓
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1a	Support ecosystems that are healthy and connected, and where biodiversity is thriving		✓	✓	
A1c	Support working with nature to build resilience		✓	✓	✓
ADAPTATION DIRECTION 2: HOMES, BUILDINGS, & PLACES					
A2d	Threats to cultural heritage arising from climate change are understood and impacts minimised		✓		

CHAPTER CONTENT

The draft Natural Features and Landscapes chapter describes the natural components of ONFL’s, along with SCHEDXX detailing the natural science, sensory, and shared and recognised values of ONFL’s in Lower Hutt. However, additional text could be considered for inclusion in the draft chapter of SCHEDXX content to recognise the role of ONFL’s in increasing resilience to the impacts of climate change and providing significant benefits for natural carbon sequestration and storage.

Healthy functioning terrestrial and coastal landscapes commonly provide climate regulating ecosystem services which benefit local communities, including regulating and processing extreme rainfall runoff, stabilizing landscapes, moderating extreme temperatures, and absorbing contaminants. Additionally, these landscapes and features perform a critical function of sequestering carbon from the atmosphere and storing it in vegetation and soils, mitigating New Zealand’s net emissions. Inclusion of these functions of ONFL’s would support a stronger recognition of the key directions identified for emissions reduction and climate change adaptation.

OBJECTIVE ALIGNMENT

No further amendments are recommended for the draft Natural Features and Landscapes chapter objectives. **NFL-O1** provides for a broad and all-encompassing objective to protect ONFL’s.

POLICIES, RULES, AND STANDARDS

Although no climate change adaptation or resilience is explicitly noted within the policies, rules, or standards for Natural Features and Landscapes, the policies, rules, and standards within the draft chapter are sufficient in providing the protections and opportunities to enhance the characteristics that will support climate change resilience in alignment with key directions on climate change adaptation. No further amendments are recommended to enable climate change adaptation key directions.

To recognise the benefits of ONFL’s in the sequestration and storage of carbon in natural environments, a minor addition to **NFL-P3** is recommended. This would support rehabilitation or restoration activities such as strategic indigenous afforestation to increase the carbon sequestration and storage capabilities of Lower Hutt ONFL’s:

NFL-P3	Restoration and Enhancement in Outstanding Natural Features and Landscapes
Provide for:	
1. The restoration or rehabilitation of landscape character values identified in SCHEDXX where: a. It recognises and enhances the landscape character values present; b. It encourages the natural regeneration of indigenous species, while recognising the need for pest management; c. It recognises and enhances the natural carbon sequestration and storage capabilities present; and d. It creates or enhances habitat for indigenous species.	
2. Restoration or rehabilitation undertaken by Mana Whenua to exercise their responsibilities as kaitiaki to protect, restore and maintain areas of outstanding landscape character.	

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SUBDIVISION

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	High	High
DRAFT QUALITY	High	High

The purpose of the Subdivision chapter is to assist the Hutt City Council to carry out its functions under the Resource Management Act 1991 relating to the control of subdivision.

As subdivision can result in significant changes in land use, land characteristics, and cause the location/relocation of an increasing number of properties, structures, and people in certain areas, it is highly impacted by the impacts of climate change and efforts to adapt to these impacts. As noted in the Three Waters chapter, subdivision development often reduces the amount of permeable land available for natural soakage, potentially exacerbating stormwater runoff and flooding risks in surrounding areas. Additionally, as noted in the Natural Hazards chapter, subdivision development within natural hazard overlays has the ability to place more people and properties within harm's way, subsequently increasing the consequence of the risks occurring. In alignment with the key directions on climate change adaptation, these impacts and adaptation requirements are sufficiently addressed throughout the Subdivision chapter and is reflected in the Natural Hazard and Three Waters chapters.

Subdivision location and design can also have significant influences on transportation related emissions. Well considered subdivision design can provide for increased subdivision and community connectivity, reduce needs for private vehicle use, and increase the uptake of active and public transport modes. The Subdivision chapter seeks to sufficiently enable the key directions on emissions reduction relating to active and public transport modes through subdivision design.

KEY DIRECTION ALIGNMENT

Table 11: The key directions on emission reduction and climate change adaptation identified as relevant to the Subdivision Chapter

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 1: TRANSPORT					
ER1a	Reduce reliance on cars and support people to walk, cycle, and use public transport	✓		✓	✓
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1c	Support working with nature to build resilience		✓	✓	✓
ADAPTATION DIRECTION 2: HOMES, BUILDINGS, & PLACES					
A2a	Homes and buildings are climate resilient, and meet social and cultural needs		✓		
A2b	New and existing places are planned and managed to minimise risks to communities from climate change		✓	✓	
A2d	Threats to cultural heritage arising from climate change are understood and impacts minimised		✓		
ADAPTATION DIRECTION 3: INFRASTRUCTURE					
A3b	Consider long-term climate impacts when designing and investing in infrastructure to ensure all new infrastructure is fit for a changing climate		✓		

CHAPTER CONTENT

The draft Subdivision chapter competently details the impacts of subdivision in relation to its abilities to influence the future land uses, community connectivity, and cohesion. It discusses the disbenefits and benefits of a poorly designed subdivision in comparison to a well-designed subdivision and the greenhouse gas emission outcomes of each. This content provides good understanding for the key direction on emissions reduction by reducing reliance on private vehicle use and support people to walk, cycle, and use public transport.

The draft chapter content also acknowledges the role that the establishment and maintenance of esplanade strips contributes to the mitigation of flooding and inundation natural hazards, aligning with the key adaptation direction to work with nature to build resilience. While covered in detail within the Three Waters chapter, additional content is recommended in the Subdivision chapter to recognise the impacts of subdivision development on permeable land and the requirements to achieve hydraulic neutrality to mitigate surface flooding risks. This would provide stronger acknowledgement of the key directions required to adapt to the full range of climate impacts subdivision is exposed to.

OBJECTIVE ALIGNMENT

The draft objectives in the Subdivision chapter adequately support the key directions for emissions reduction and climate change adaptation identified, with the objective **SUB-O1** seeking subdivision that supports social, economic, and cultural wellbeing while safeguarding the life supporting capacity of the environment.

To more strongly reflect the benefits of a well-design subdivision enhancing connectivity, promoting the uptake of active and public transport modes, and reducing reliance on private vehicles, additional text is recommended for inclusion in **SUB-O2**:

SUB-O2	Subdivision design
Subdivision results in development patterns and allotments that: 1. Maintain or enhance Lower Hutt's compact urban form; 2. Are compatible with the purpose, scale and intensity anticipated for the underlying zone; 3. Enable appropriate future use and development of land and buildings; 4. Provide for well-connected communities and promote greater uptake of active and public transport modes; 5. Provide for and protect identified natural environment, historical and cultural values; and 6. Manages the risk from natural hazards, including coastal hazards and climate change hazards.	

POLICIES, RULES, AND STANDARDS

Should the recommended additions to policies within the Three Waters chapter and Natural Hazards chapter be implemented, alongside relevant subdivision policies in the Coastal Environment chapter, there are no further edits recommended for the Subdivision chapter.

Subdivision General policies **SUB-P4** and **SUB-P6** provide for design and layout of subdivision which encourage energy efficiency, increase walking, cycling, and public transport uptake, and integrate effectively within existing transport networks. Although, a stronger and more directive policy approach could be taken by 'requiring' rather than 'encouraging' the consideration of these matters in subdivision design and layout. In 'requiring' consideration of these matters (i.e. imposing rules and standards), care would be required to ensure the provisions were practical and achievable. For example, the orientation, shape, and dimensions of lots could be imposed to increase the opportunities to maximise solar gain for future land use activities, and maximum street block size (length, distance or perimeter) and ensure good connectivity resulting in an increase in active transport modes. However, the steep and variable topography in some areas of Lower Hutt as well as the existing lot and street block pattern in established areas of Lower Hutt, may mean such requirements could be impractical or result in poor outcomes for other considerations, such as streetscape and visual amenity.

Additionally, policy **SUB-P8** requiring the provision of esplanade strips with the co-benefit of managing the risks of adverse effects resulting from natural hazards, taking into account the long-term effects of climate change, supports key directions on climate change adaptation. In addition to policies to achieve hydraulic neutrality and use water sensitive design approaches required within the Three Waters chapter and policies to avoid building and activities in the high hazard areas of the Coastal Hazard Overlays in the Coastal Environment chapter, the key climate change hazards relevant to Lower Hutt subdivision should be able to be effectively adapted to.

RESIDENTIAL ZONES

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	Very High	High
DRAFT QUALITY	Moderate	High

The purpose of the Residential Zones chapters (Large Lot Residential Zone, Medium Density Residential Zone, and High-Density Residential Zone) is to provide for the sufficient mix of residential density and development capacity required to meet expected demand within Lower Hutt over the short, medium, and long term.

Residential development in Lower Hutt has a significant influence on the city's greenhouse gas emissions and is therefore very highly impacted by efforts to transition towards net-zero emissions. Residential development determines how the urban population is distributed across a city, their access to transportation modes within and beyond their city, and their access to local amenities required to live and work. While higher density residential developments provide significant emission reduction benefits compared to medium density and large lot developments in terms of embodied carbon used in construction, operational carbon required to heat and power homes, and vehicle related emissions, the 'right' mix of residential development is required to meet environmental constraints and social demands. In conjunction with objectives and policies in related District Plan chapters including Transport and Subdivision, the Residential Zones chapter aligns sufficiently with key directions on emissions reduction.

Residential development is also influential in exacerbating or responding to climate change risks, and as such is highly impacted by climate change and efforts to adapt to these risks. Depending on the design and location, residential development has the ability to increase direct and cascading climate change risks by altering surface permeability, increasing stormwater runoff and flooding, and increase the exposure to risk by placing more people and properties within hazard areas. However effective Natural Hazard policies that account for the impacts of climate change sufficiently align with key directions on climate change adaptation.

KEY DIRECTION ALIGNMENT

Table 12: The key directions on emission reduction and climate change adaptation identified as relevant to the Residential Zones Chapters

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 1: TRANSPORT					
ER1a	Reduce reliance on cars and support people to walk, cycle, and use public transport	✓		✓	✓
EMISSIONS REDUCTION DIRECTION 3: BUILDING & CONSTRUCTION					
ER3b	Accelerate the shift to low-emissions buildings by promoting good examples, providing incentives, and supporting the use of low-emissions practices	✓		✓	
ER3c	Reduce building operational emissions by improving energy efficiency	✓		✓	
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1c	Support working with nature to build resilience		✓	✓	✓
ADAPTATION DIRECTION 2: HOMES, BUILDINGS, & PLACES					
A2a	Homes and buildings are climate resilient, and meet social and cultural needs		✓		
A2b	New and existing places are planned and managed to minimise risks to communities from climate change		✓	✓	

CHAPTER CONTENT

While not explicitly recognising the impacts and influence that Residential Zones have on emissions reduction key directions, the connection of increasing densities of residents being supported by increasing levels of access to active and public transportation networks, community services, and commercial activities is clear across all residential zone chapters. To support communication of the inherent emissions reduction benefits of certain residential zoning types and associated planned urban form of Lower Hutt that the spatial delineation of the residential zoning anticipates, additional text may be considered for Medium Density and High Density Residential Zones that acknowledge developments are situated and supported by transport and amenities that reduce reliance on personal vehicles, and promote the uptake of walking, cycling, and public transport options.

The draft Large Lot Residential Zone Chapter acknowledges the requirements of large lot developments to work with the topography and environmental constraints, given these zones are primarily located around the valley hills of Lower Hutt. Although, with the Medium and High-Density Residential Zones being located in areas such as the Hutt Valley floor, additional text may be considered for these chapters to recognise the climate change and natural hazard risks that could occur with changing permeable surfaces and reducing natural cover through urban development.

OBJECTIVE ALIGNMENT

The objectives within the residential zone chapters, in conjunction with the objectives within the Three Waters, Transport, Subdivision, Renewable Electricity Generation, and Natural Hazards chapters adequately support the key directions on emissions reduction and climate change adaptation. Objectives within the Natural Hazards chapter in conjunction with objective **LLRZ-O3** provide sufficient alignment with key directions of climate change adaptation.

While recognising **LLRZ-O2** ensures integration with existing and planned infrastructure, albeit with the expectation of greater reliance on private vehicles in many large lot developments, additional text is recommended for **MRZ-O2** and **HRZ-O2** to ensure planned medium and high-density urban environments are well connected and promote increased uptake of active and public transport modes, explicitly referencing their contributions to a 'well-functioning urban environment':

MRZ-O2	Planned urban environment of the Medium Density Residential Zone
Built development in the Medium Density Residential Zone positively contributes to a predominantly residential, well-functioning urban environment that: a. Comprises well-designed buildings and spaces surrounding buildings, sites, streets, and neighbourhoods; b. Has an urban built character that is characterised by a moderate concentration of building densities and forms, including: i. building heights up to (and including) three storeys; or ii. building heights up to (and including) five storeys in identified areas adjacent to identified centres zones; c. Is healthy, safe, attractive, and accessible; d. Provides on-site amenity for residents, as well as residential amenity for adjoining properties and the street; e. Includes opportunities for affordable housing; f. Has good access to commercial activities and community services through active and public transport modes, providing for well-connected low emission communities; g. Is integrated with existing and planned infrastructure; h. Is connected to open space and the natural environment.	
HRZ-O2	Planned urban environment
Built development in the High Density Residential Zone positively contributes to a predominantly residential, well-functioning urban environment that: a. Comprises well-designed buildings and spaces surrounding buildings, sites, streets, and neighbourhoods; b. Has an urban built character that is characterised by a high concentration of building densities and forms, including:	

- i. Building heights up to (and including) six storeys; or
- ii. Buildings of up to 36m in identified areas adjacent to identified centres zones.
- c. Is healthy, safe, attractive, and accessible;
- d. Provides on-site amenity for residents, as well as residential amenity for adjoining properties and the street;
- e. Provides for well-connected communities with access to active and public transport modes
- f. Includes opportunities for affordable housing;
- g. Has a high level of access to commercial activities and community services through active and public transport modes, providing for well-connected low emission communities;
- h. Is integrated with existing and planned infrastructure;
- i. Is connected to open space and the natural environment.

While Residential Zones chapters do not reference improving energy efficiency or supporting the switch to low emission buildings and homes, objective **REG-O2** supports key directions on emissions reduction regarding reducing residential electricity related emissions.

POLICIES, RULES, AND STANDARDS

No further amendments are recommended for the draft Large Lot Residential Zone chapter policies which sufficiently enable adaptation to climate change impacts and emissions reduction.

For Medium and High-Density Residential Zone chapter policies, additional text is recommended for **MRZ-P7** and **HRZ-P7** concerning urban design outcomes to fully enable key directions on climate change adaptation. With consideration of climate change impacts such as increasing hot days and temperature extremes, well designed landscaping within a development can support adaptation to these pressures through improved shading and temperature regulation. In conjunction with **MRZ-P12** and **HRZ-P12** (Stormwater neutrality), these additions would support working with nature to increase resilience and provide liveable higher density developments. Additionally, this would support Residential Zone design outcomes to align with Commercial and Mixed-Use Zones outcomes for accommodating different climatic conditions:

MRZ-P7	Urban design outcomes
Built development is managed to achieve the following outcomes through either meeting permitted activity standards, or a discretionary assessment of proposals when those standards are not met: a. Residential units have appropriately sized and located private outdoor space with a reasonable level of privacy and sunlight given the anticipated urban form of the zone, or alternatively access to public or communal outdoor space where this is of a size and quality and has features to be an adequate substitute. b. Buildings provide a reasonable level of privacy and access to daylight for residential units on the site and for those on neighbouring sites given the anticipated urban form of the zone. c. Developments provide either the required quantity of landscaping, or a lesser amount where it displays creativity and good value in terms of one or more of aesthetic benefits, stormwater management benefits, ecological benefits, and is comfortable for residents in different climatic conditions, particularly shading during high temperatures. d. Storage and service areas (including refuse storage) are of an appropriate size and are integrated into any development in an aesthetic way that does not obscure passive surveillance or detract from engagement with the street, while ensuring they are appropriately located to achieve a non-pungent, functional, and accessible area fit for their purposes. <i>Note: Policy contains further content, however, no additional edits recommended.</i>	
HRZ-P7	Urban design outcomes
Built development is managed to achieve the following outcomes through either meeting permitted activity standards, or a discretionary assessment of proposals when those standards are not met: a. Residential units have appropriately sized and located private outdoor space with a reasonable level of privacy and sunlight given the anticipated urban form of the zone, or alternatively access to public or communal outdoor space where this is of a size and quality and has features to be an adequate substitute. b. Buildings provide a reasonable level of privacy and access to daylight for residential units on the site and for those on neighbouring sites given the anticipated urban form of the zone.	

- c. Developments provide either the required quantity of landscaping, or a lesser amount where it displays creativity and good value in terms of one or more of aesthetic benefits, stormwater management benefits, ecological benefits, and is comfortable for residents in different climatic conditions, particularly shading during high temperatures.
- d. Storage and service areas (including refuse storage) are of an appropriate size and are integrated into any development in an aesthetic way that does not obscure passive surveillance or detract from engagement with the street, while ensuring they are appropriately located to achieve a non-pungent, functional, and accessible area fit for their purposes.

Note: Policy contains further content, however, no additional edits recommended.

Whilst recommended for addition in the residential zone objectives, urban connectivity, and access to active and public transport modes, particularly for medium and high-density residential zones, is sufficiently covered in the relative Transport chapter policy **TR-P5** and Subdivision chapter policies **SUB-P4** and **SUB-P6**. Furthermore, as noted in the objectives, policy **REG-P2** within the Renewable Electricity Generation chapter enabling small-scale renewable electricity generation sufficiently supports Residential Zones to achieve key directions on emissions reduction regarding reducing residential electricity related emissions. Care should be taken not to duplicate or be inconsistent with Building Code matters. For example, the following matters are regulated under the Building Code that may be relevant to climate change:

- Energy efficiency of buildings is addressed by clause H1. This includes:
 - Insulation/thermal performance of the building envelope;
 - Limitation of uncontrollable airflow in buildings;
 - Energy efficiency requirements for hot water systems, artificial lighting, and HVAC systems.
- Solar hot water heater design requirements are addressed by clause G12 (specifically under Acceptable Solution G12/AS2).
- Building ventilation requirements (both natural and mechanical) are addressed by clause G4.
- Natural light requirements are addressed by clause G7.
- Rainfall, as it relates to the sizing of building rainwater disposal systems, is addressed by clause E1.
- Wind, as it relates to building structural stability, is addressed by clause B1.

RURAL ZONES

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	Moderate	Moderate
DRAFT QUALITY	High	High

The purpose of the Rural Zones chapters (General Rural Zone and Rural Lifestyle Zone) is to provide for general rural and small-scale rural activities and maintain rural character and amenity within Lower Hutt.

Although rural operations have a significant influence on greenhouse gas emissions, accounting for almost half of New Zealand's annual emissions inventory (primarily through biogenic methane sources), key directions for agricultural emissions reductions have been excluded from this assessment due to their current focus being scoped towards the pricing of agricultural emissions and acceleration of mitigation technologies. Of the in-scope key directions for emissions reduction, Rural Zones facilitate the forestry activities within Lower Hutt, responsible for a portion of formerly recognised carbon sequestrations in the district, noting that forestry activities are primarily regulated through the NES for Commercial Forestry. Therefore, excluding the impacts of agriculture operations on greenhouse gas emissions, Rural Zones are moderately impacted by emission reduction efforts. With the view of protecting and maintaining primary production operations within rural zones, the objectives and policies sufficiently support the achievement of key directions on emission reduction by providing for afforestation and forestry activities.

While Rural Zones are often located in more exposed environments and lacking hazard mitigation infrastructure often found in urban areas, the low density of people and property, coupled with the ability of rural landscapes to respond more dynamically and recover from extreme weather events makes Rural Zones less physically impacted by the effects of climate change and efforts to adapt. Rural activities provided for in these zones however are more moderately exposed to the adverse effects of climate change, given the strong connection to the land and natural resources. The objectives and policies within this chapter are deemed sufficient to supporting the key directions on adaptation.

KEY DIRECTION ALIGNMENT

Table 13: The key directions on emission reduction and climate change adaptation identified as relevant to the Rural Zones Chapters

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 4: FORESTRY					
ER4a	Support the right mix, level, and location of afforestation	✓		✓	
ER4b	Encourage native forests and other natural ecosystems as long-term carbon sinks	✓		✓	✓
ER4c	Maintain existing forests	✓			✓
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1c	Support working with nature to build resilience		✓	✓	✓

CHAPTER CONTENT

While the Rural Zone chapters do not explicitly recognise the impacts of emission reduction or climate change adaptation on their purpose or functions, given the low to moderate impacts these have in relation to the purpose of the chapters, no further edits are recommended.

OBJECTIVE ALIGNMENT

The objectives within the Rural Lifestyle Zone chapter, in conjunction with the objectives within the Natural Hazards chapter adequately support the key directions on emissions reduction and climate change adaptation. No further edits are recommended for Rural Lifestyle Zone objectives.

Recognising the adverse impacts climate change and adaptation efforts can have on land and natural resources important to rural operations and activities, objective **RLZ-O5** is recommended to also be considered for inclusion in the General Rural Zone chapter with minor amendments:

GRUZ-O5	Natural resources
Land use activities and development in the General Rural Zone support the maintenance and enhancement of water quality and biodiversity or mitigate adverse effects on these values.	

POLICIES, RULES, AND STANDARDS

No further edits or additions are recommended for the Rural Zones chapters to support key directions on emissions reduction and climate change adaptation. Policy **GRUZ-P3** supports the implementation of the additional objective proposed above (**GRUZ-O5**). Additionally, policies **GRUZ-P7** and **RLZ-P2** support and enable primary production and rural activities within these zones which facilitates forestry for the benefits of carbon sequestration and storage. These are deemed sufficient to enabling the key directions identified.

COMMERCIAL AND MIXED-USE ZONES

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	Moderate	Low
DRAFT QUALITY	Moderate	High

The purpose of the Commercial and Mixed-Use Zones chapters (Local Centre Zone, Mixed Use Zone, Metropolitan Zone, and City Centre Zone) provides for commercial and community centre activities that will attract people from across the community, city, and region and anticipates amenity values aligned with a thriving and vibrant city.

By providing for commercial and community activities and amenities that often attract a large number of people from across the community, city, and region, the form and function of Commercial and Mixed-Use Zones will influence transport related emissions. Therefore, the Commercial and Mixed-Use Zones chapters are moderately impacted by efforts to reduce greenhouse gas emissions and transition towards a net-zero future. With objectives supporting the design of Commercial and Mixed-Use Zones that contribute to a 'well-functioning urban environment', additional policies throughout Commercial and Mixed-Use Zone chapters would sufficiently support and enable key directions on emissions reduction.

Similar to Residential Zone chapters, the outcomes of the Commercial and Mixed-Use Zones chapters in their ability to attract people to inhabit locations that are potentially exposed to climate change effects sees it somewhat impacted by climate change adaptation efforts. However, the relevant adaptation key directions are sufficiently covered in the chapters policies in conjunction with the Natural Hazards chapter functions.

KEY DIRECTION ALIGNMENT

Table 14: The key directions on emission reduction and climate change adaptation identified as relevant to the Commercial and Mixed-Use Zones Chapters

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 1: TRANSPORT					
ER1a	Reduce reliance on cars and support people to walk, cycle, and use public transport	✓		✓	✓
EMISSIONS REDUCTION DIRECTION 3: BUILDING & CONSTRUCTION					
ER3b	Accelerate the shift to low-emissions buildings by promoting good examples, providing incentives, and supporting the use of low-emissions practices	✓		✓	
ER3c	Reduce building operational emissions by improving energy efficiency	✓		✓	
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1c	Support working with nature to build resilience		✓	✓	✓
ADAPTATION DIRECTION 2: HOMES, BUILDINGS, & PLACES					
A2b	New and existing places are planned and managed to minimise risks to communities from climate change		✓	✓	

CHAPTER CONTENT

While the Commercial and Mixed-Use Zones chapters do not explicitly recognise the impacts of emission reduction or climate change adaptation on their purpose or functions, given the low to moderate impacts these have in relation to the purpose of the chapters, no further edits are recommended.

OBJECTIVE ALIGNMENT

The objectives within the Commercial and Mixed-Use Zones chapters, in conjunction with the objectives within the Natural Hazards chapter and Infrastructure chapter adequately support the key directions on emissions reduction and climate change adaptation.

In conjunction with Infrastructure objective **INF-O5**, objectives **LCZ-O4**, **MUZ-O4**, **MCZ-O4**, and **CCZ-O4** stating that Commercial and Mixed-Use Zones are to function 'within a well-functioning urban environment' specifically supports key directions by requiring good accessibility by way of public or active transport, supporting reduction in greenhouse gas emissions, and resilience to the current and future effects of climate change. Additionally, while Commercial and Mixed-Use Zones chapters do not reference improving energy efficiency or supporting the switch to low emission buildings, objective **REG-O2** supports key directions on emissions reduction regarding reducing electricity related emissions. No further edits are recommended for Commercial and Mixed-Use Zones objectives.

POLICIES, RULES, AND STANDARDS

To ensure Commercial and Mixed-Use Zones function effectively 'within a well-functioning urban environment' in alignment with key directions on emissions reduction, policies to manage the location and scale of commercial activities which could result in adverse effects on the function of the transport network detailed in **LCZ-P6** are recommended for further inclusion in similar policies **MCZ-P6** and **CCZ-P6**. These additions will ensure Commercial and Mixed-Use Zones that attract higher numbers of people from across the city and wider region will sufficiently support the increased uptake of active and public transport modes:

MCZ-P6	Role in network of commercial and industrial areas
Recognise the Metropolitan Centre as second only to the City Centre as a location for activities that serve the whole city or wider region while also serving the local area, and thus provide for activities at any scale. Metropolitan Centres shall integrate with the function of the transport network, particularly the ability of the public transport and active transport network to effectively service centres from surrounding city areas and wider region.	

CCZ-P6	Role in network of commercial and industrial areas
Recognise the City Centre as the primary location for activities that serve the whole city and wider region. City Centres shall integrate with the function of the wider transport network, particularly the ability of the public transport and active transport network to effectively service centres from surrounding cite areas and wider region	

In regard to key directions on climate change adaptation, no further edits are recommended to chapters policies or rules. Natural Hazard policies and rules in conjunction with Commercial and Mixed-Use Zones design outcome policies **LCZ-P10**, **MUZ-P9**, **MCZ-P10**, and **CCZ-P10**, requiring outdoor spaces to be designed and landscaped to be comfortable for users in different climatic conditions, sufficiently enable achievement of key directions.

INDUSTRIAL ZONES

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	Low	No Impact
DRAFT QUALITY	High	Non-Applicable

The purpose of the Industrial Zones chapters (Light Industrial Zone, General Industrial Zone, and Heavy Industrial Zone) is to provide for a range of commercial activities in Lower Hutt that may not be appropriate in non-industrial zones due to their incompatibility with amenity values, their less efficient use of land, or benefits of co-locating with other industrial and research activities.

While industrial activities and processes have the potential to generate significant amounts of greenhouse gas emissions, many of the national key directions on emissions reductions for industrial activities are beyond the scope and function of the District Plan chapters (i.e., decarbonising heavy transport and freight). As activities that generally attract low levels of visitors, transport related key directions for emissions reductions are of less relevance than residential and commercial zones. Industrial Zones chapter do have the function of supporting the switch to energy efficient, low emission buildings in conjunction with the Renewable Electricity Generation chapter. Although, objectives, policies, and rules to enable this in Industrial Zones are largely contained within the Renewable Electricity Generation chapter, with the Industrial Zones chapters sufficiently supporting this.

No functions of the Industrial Zones chapters have alignment with key directions on climate change adaptation.

KEY DIRECTION ALIGNMENT

Table 15: The key directions on emission reduction identified as relevant to the Industrial Zones Chapters

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 2: ENERGY & INDUSTRY					
ER2d	Reduce emissions and energy use in industry by supporting industry to improve energy efficiency, reduce costs, and switch from fossil-fuels to low emissions alternatives	✓			
EMISSIONS REDUCTION DIRECTION 3: BUILDING & CONSTRUCTION					
ER3b	Accelerate the shift to low-emissions buildings by promoting good examples, providing incentives, and supporting the use of low-emissions practices	✓		✓	
ER3c	Reduce building operational emissions by improving energy efficiency	✓		✓	

CHAPTER CONTENT

Although the Industrial Zones chapters do not explicitly reference climate change or emissions reductions in any capacity, no further edits are recommended for these chapters. Given the low impact of Industrial Zones chapters on key directions on climate change, benefits from increasing renewable electricity generation and adapting to the effects of climate change are sufficiently covered in the Renewable Electricity Generation chapter and Natural Hazards chapter (noting the recommended content additions in these chapters in previous sections).

OBJECTIVE ALIGNMENT

No further edits or additions are recommended for objectives within Industrial Zone chapters to support key directions on emissions reduction.

Objectives **LIZ-O5**, **GIZ-O5**, and **HIZ-O5** seek built industrial development that ‘positively contributes to the industrial part of a well-functioning urban environment’. These objectives specifically support key directions by requiring good accessibility, supporting reduction in greenhouse gas emissions, and resilience to the current and future effects of climate change. In conjunction with objectives **REG-O1** and **REG-O2** supporting renewable electricity generation, these objectives sufficiently support key directions on emission reduction – although this is with the expectation that the processing, storage, and/or distribution of renewable energy or green energy sources is covered within the definition for ‘Industrial Activities’.

POLICIES, RULES, AND STANDARDS

No further edits or additions are recommended for policies, rules, and standards within Industrial Zone chapters to support key directions on emissions reduction.

Given the function of the Industrial Zones chapter providing for the industrial activities to occur, the policies and rules within the Renewable Electricity Generation chapter sufficiently provide to industrial activities developing and maintaining renewable energy sources, supporting emissions reduction.

OPEN SPACE AND RECREATION ZONES

	Emission Reduction	Climate Change Adaptation
CLIMATE IMPACT	High	High
DRAFT QUALITY	Moderate	Moderate

The purpose of the Open Space and Recreation Zones chapters (Natural Open Space Zone, Open Space Zone, and Sports and Active Recreation Zone) is to set specific objectives, policies, and rules for open spaces and recreation areas to provide a range of passive and active recreation opportunities and conservation activities in Lower Hutt.

As many of the Open Space and Recreation Zones across the Hutt City District possess high natural, ecological, and historic values and provide recreational amenity, many areas and values within them are highly impacted by the effects of climate change – both the acute climate change events, such as extreme rainfall damaging natural features and recreation amenities; and the chronic climate change effects, such as long-term warming affecting natural and ecological values. While climate change is not explicitly noted in the chapters, the approaches required to effectively adapt and protect activities in Open Space and Recreation Zones are sufficiently covered within the draft chapter, aligning well with key directions on climate change adaptation.

Although vulnerable to the effects of climate change, the effective management of activities within Open Space and Recreation Zones that conserve and enhance natural and ecological values provide opportunities to enhance the natural carbon storage and sequestration functions of these areas. Particularly within the expansive Natural Open Space Zones, these natural environments likely store and continue to sequester a significant amount of carbon within forest biomass and other vegetation and soils, providing high impact on efforts to reduce net-emissions. While the objectives, policies, and rules within the Open Space and Recreation Zones chapters do not actively recognise the carbon sequestration and storage values of these areas, their functions (in conjunction with reserve and park management plans) do tend to align with key directions on emissions reduction to protect and enhance, with some minor amendments.

KEY DIRECTION ALIGNMENT

Table 16: The key directions on emission reduction and climate change adaptation identified as relevant to the Open Space and Recreation Zones Chapters

		Emissions Reduction Plan	National Adaptation Plan	Lower Hutt Climate Action Pathway	Interim Hutt City Council Plan
EMISSIONS REDUCTION DIRECTION 4: FORESTRY					
ER4b	Encourage native forests and other natural ecosystems as long-term carbon sinks	✓		✓	✓
ER4c	Maintain existing forests	✓			✓
ADAPTATION DIRECTION 1: NATURAL ENVIRONMENT					
A1a	Support ecosystems that are healthy and connected, and where biodiversity is thriving		✓	✓	
A1c	Support working with nature to build resilience		✓	✓	✓

CHAPTER CONTENT

The Open Spaces and Recreation Zones chapters describes the natural and recreational values of these zones in Lower Hutt. However, additional text could be considered for inclusion to recognise the likely impacts of climate change on these values, along with the versatile benefits of these zones for natural carbon sequestration and storage and as nature-based solutions for climate hazards.

Healthy functioning natural ecosystems commonly provide a critical function of sequestering carbon from the atmosphere and storing it in vegetation and soils, mitigating New Zealand's net-emissions. Additionally, many Open Spaces and Recreation Zones can provide effective, resilient, low-cost buffers and storage areas during climate events such as stormwater storage areas during extreme rainfall or natural fire breaks in high risk areas. Inclusion of the nature-based climate change benefits found within Natural Open Spaces Zones and Open Space Zones specifically would support a stronger recognition of the key directions identified for emissions reduction and climate change adaptation – in particular HCC and Lower Hutt Community directions to explore and accelerate reforestation on council-managed land.

OBJECTIVE ALIGNMENT

No further edits or additions are recommended for objectives within Open Space and Recreation Zones chapters to support key directions on emissions reduction or climate change adaptation.

POLICIES, RULES, AND STANDARDS

As controls for afforestation, deforestation, and relevant conservation activities, particularly for Natural Open Space Zones will be detailed within the administering bodies reserve or park management plan / conservation management plan, minor additional text is recommended for inclusion in **NOSZ-P4** within the Natural Open Space Zone chapter to ensure activities strongly consider their effects on natural carbon sequestration and storage functions. Given the scale of Open Space Zones and Sports and Recreation Zones, these additions are likely not relevant for these chapters.

Additionally, in recognition of the versatility of Open Space and Recreation Zones in enabling adaptation to climate change events, such as extreme rainfall or inundation, further edits are recommended to **NOSZ-P4** and **OSZ-P2** acknowledging these capabilities in the potentially compatible activities.

These additions, in conjunction with Natural Hazard chapter policies and controls within reserve management plans concerning the appropriate recreational amenities will enable key directions on emissions reduction and climate change adaptation to be identified.

NOSZ-P4	Potentially compatible activities
Only allow other activities to establish where it can be demonstrated that they are compatible with the purpose, character and amenity values of the zone, having regard to whether: 1. They are consistent with the relevant reserve management plan for the site; 2. The extent to which any adverse effects on the character and amenity of natural open space can be appropriately managed; 3. They are ancillary to or complementary to passive recreation activities; 4. They have a functional or operational need to be located in the zone; 5. They support adaptation to the impacts of climate change; 6. The activity will not limit or constrain the existing or future use of the natural open space, or restrict public access; 7. They enhance the natural carbon sequestration and storage capabilities present; and 8. Any reverse sensitivity effects can be appropriately managed.	

OSZ-P2	Potentially compatible activities
	Only allow activities in the Open Space Zone where it can be demonstrated that: 1. They are consistent with the relevant reserve management plan for the site; 2. The extent to which any adverse effects on the character and amenity of open space can be appropriately managed; 3. They are ancillary to or complementary to active and passive recreation activities; 4. The activity will not limit or constrain the existing or future use of the open space, 5. They have a functional or operational need to be located in the zone; 6. They support adaptation to the impacts of climate change; 7. Any reverse sensitivity effects can be appropriately managed.

GLOSSARY

TERM	DEFINITION
Adaptation	Adaptation refers to the policies, strategies, plans and actions that can help people or natural systems to adjust to the actual or expected climate and its effect, to moderate harm or take advantage of beneficial opportunities. Adaptation can be incremental and temporary in their effect or transformational by changing systems and their functions, depending on the scale and pace of change and what is at stake.
Biomass	Material originating from living organisms. Some forms of biomass in the environment store significant amounts of carbon.
Carbon Sequestration	The process of storing carbon in plants, soils, geologic formations, and the ocean. Carbon sequestration occurs both naturally and as a result of anthropogenic activities and typically refers to the storage of carbon that has the immediate potential to become carbon dioxide gas
Climate	In a narrow sense, climate is usually defined as the average weather -or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities- over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years, as defined by the World Organization (WMO). The relevant quantities are most often surface variables such as temperature, precipitation, and wind.
Climate Change	A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the United Nations Framework Convention on Climate Change (UNFCCC), in its article 1, defines climate change as: ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods’. The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition and climate variability attributable to natural causes.
Emissions Reduction	Emission reduction refers to the policies, strategies, plans, and actions to meet emissions budgets by reducing gross-greenhouse gases released into the atmosphere and increasing removals (e.g., natural carbon sequestration) to reduce the net-greenhouse gases present in the atmosphere.
Exposure	The presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected.
Greenhouse Gases	Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of radiation emitted by the Earth’s surface, by the atmosphere itself, and by clouds. This property causes the greenhouse effect. Water vapour (H ₂ O), carbon dioxide (CO ₂), nitrous oxide (N ₂ O), methane (CH ₄) and ozone (O ₃) are the primary GHGs in the Earth’s atmosphere. Human-made GHGs include sulphur hexafluoride (SF ₆), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs) and perfluorocarbons (PFCs); several of these are also O ₃ -depleting (and are regulated under the Montreal Protocol).
Net Zero GHG Emissions	Condition in which metric-weighted anthropogenic greenhouse gas (GHG) emissions are balanced by metric-weighted anthropogenic GHG removals over a specified period. The quantification of net zero GHG emissions depends on the GHG emission metric chosen to compare emissions and removals of different gases, as well as the time horizon chosen for that metric
Resilience	The capacity of interconnected social, economic and ecological systems to cope with a hazardous event, trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure. Resilience is a positive attribute when it maintains capacity for adaptation, learning and/or transformation

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APPENDIX 1: SCORING CRITERIA

Quality Rating	Emissions Reduction Definition	Adaptation Definition
Very High	Chapter content, objectives, policies, and rules comprehensively address all identified key directions for emissions reduction or significantly exceed key directions in impact areas with the potential to add value in other relevant chapters.	Chapter content, objectives, policies, and rules comprehensively address all identified key directions for climate change adaptation or significantly exceed key directions in impact areas with the potential to add value in other relevant chapters.
High	Chapter content, objectives, policies, and rules satisfy all identified key directions for emissions reduction to an acceptable level in alignment with national and Hutt City targets.	Chapter content, objectives, policies, and rules satisfy all identified key directions for climate change adaptation to an acceptable level in alignment with national and Hutt City goals.
Moderate	Chapter content, objectives, policies, and rules may be capable of addressing identified key directions for emissions reduction with the minor addition or amendment of content.	Chapter content, objectives, policies, and rules may be capable of addressing identified key directions for climate change adaptation with the minor addition or amendment of content.
Low	Chapter content, objectives, policies, and rules fail to address the identified key directions for emissions reductions. Chapter outcomes may support increased GHG emissions or prevent the transition to low or zero emission pathways in future.	Chapter content, objectives, policies, and rules fail to address the identified key directions for climate change adaptation. Chapter outcomes may support increased risk to the impacts of climate change or prevent adaptation pathways to a climate resilient future.
Non-Applicable	No key directions for emissions reductions were identified as relevant to the Chapter content, objectives, policies, and rules	No key directions for climate change adaptation were identified as relevant to the Chapter content, objectives, policies, and rules
Impact Rating	Emissions Reduction Definition	Adaptation Definition
Very High	Extremely likely for the transition toward net-zero emissions to affect the purpose or outcomes of the chapter due to the extreme sensitivity of the chapters focus area to emissions reductions and/or the low capacity of the focus area to transition	Extremely likely for climate change to have the potential to adversely affect the purpose or outcomes of the chapter due to the extreme sensitivity of the chapters focus area to known climate change hazards and/or the low capacity of the focus area to adapt
High	Highly likely for the transition toward net-zero emissions to affect the purpose or outcomes of the chapter due to the high sensitivity of the chapters focus area to emissions reductions and/or the low capacity of the focus area to transition	Highly likely for climate change to have the potential to adversely affect the purpose or outcomes of the chapter due to the high sensitivity of the chapters focus area to known climate change hazards and/or the low capacity of the focus area to adapt
Moderate	Moderately likely for the transition toward net-zero emissions to affect the purpose or outcomes of the chapter due to the moderate sensitivity of the chapters focus area to emissions reductions and/or the moderate capacity of the focus area to transition	Moderately likely for climate change to have the potential to adversely affect the purpose or outcomes of the chapter due to the moderate sensitivity of the chapters focus area to known climate change hazards and/or the moderate capacity of the focus area to adapt
Low	Unlikely for the transition toward net-zero emissions to affect the purpose or outcomes of the chapter due to the low sensitivity of the chapters focus area to emissions reductions and/or the high capacity of the focus area to transition	Unlikely for climate change to have the potential to adversely affect the purpose or outcomes of the chapter due to the low sensitivity of the chapters focus area to known climate change hazards and/or the high capacity of the focus area to adapt
No Impact	The effects of emissions reduction efforts will have no impact or influence on the chapter's purpose or outcomes	The effects of climate change will have no impact or influence on the chapter's purpose or outcomes

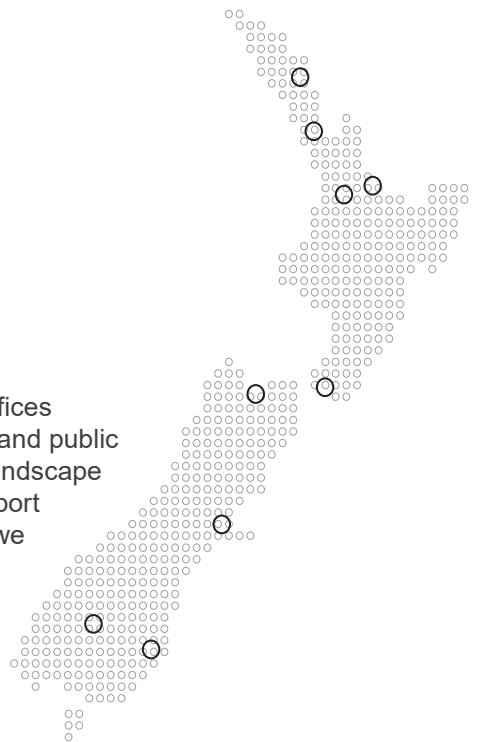
APPENDIX 2: RATING SUMMARY

Table 17: Chapter rating summary for draft District Plan

CHAPTER	EMISSION REDUCTION		CLIMATE CHANGE ADAPTATION	
	CLIMATE IMPACT	DRAFT QUALITY	CLIMATE IMPACT	DRAFT QUALITY
Renewable Electricity Generation	Very High	Moderate	No Impact	Non-Applicable
Infrastructure	Very High	High	Very High	Moderate
Transport	Moderate	Very High	No Impact	Non-Applicable
Three Waters	No Impact	Non-Applicable	High	High
Natural Hazards	No Impact	Non-Applicable	Very High	High
Natural Character	Low	High	High	Moderate
Natural Features and Landscape	High	High	High	High
Subdivision	High	High	High	High
Residential Zones	Very High	Moderate	High	High
Rural Zones	Moderate	High	Moderate	High
Commercial and Mixed-Use Zones	Moderate	Moderate	Low	High
Industrial Zones	Low	High	No Impact	Non-Applicable
Open Space and Recreation Zones	High	Moderate	High	Moderate

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