Wellington Regional Growth Framework

Constraints Mapping Report

August 2020

Introduction

Ka ora te wai	***If the water is healthy***
Ka ora te whenua	***the land will be nourished***
Ka ora te whenua	***If the land is nourished***
Ka ora te tangata	***the people will be provided for***

Mo te iti - mo te rahi ***For the little - for the large***

This report represents the project partner's current thinking around the incorporation of constraints into the Wellington Regional Growth Framework (the Framework).

The region is characterized by major natural features, including the:

- Tararua, Remutaka, Akatarawa and Aorangi ranges,
- Te Whanganui a Tara Wellington Harbour and Te Awarua-o-Porirua Harbour,
- Te Awa Kairangi/Hutt River Valley,
- Rolling hill country in the Wairarapa,
- River flats, valleys, plains and terraces surrounding the Ruamāhanga River and Manawatu River,
- Foxtangi Dunes and Hokio Beach South Dune fields,
- Ko te Waewae Kāpiti o Tara Rāua ko Rāngitane, Matiu, Mākaro, Mokopuna and Mana islands,
- Taupō swamp complex, and
- Large water bodies, including the Wairarapa Moana, Lake Onoke and Lake Horowhenua.

It is the ancestral home to generations of Māori tribes. There are eight iwi partners within the area covered by the Framework, four of whom have reached Treaty settlement with the Crown. There are a number of outstanding Waitangi Tribunal claims that relate to public land within the region.

The region's geology, tectonic setting and climate mean that it is prone to hazards. Many existing urban areas are located on flood plains, steep hillsides, reclaimed land, active earthquake faults and coastal areas. Some regional hazards, such as drought, wildfire, coastal flooding, fluvial/pluvial flooding and severe wind, will be exacerbated by a warming climate.

Land is both valued and used for a range of reasons. Large areas of the region are subject to environmental protections which limit urban development. These include regional park and forest park land along the central mountain ranges.

Our relationship with land is interconnected with our histories, communities, economy and the natural environment. Te ao Māori provides holistic ways of thinking about the environment, and kaupapa principles which are part of our thinking in developing this report, include:

- Ki uta ki tai (connectedness): managing natural and physical resources in a holistic manner, recognising they are interconnected and reliant upon one another.
- Wairuatanga (identity): recognition and respect for mauri and the intrinsic values of natural and physical features, and including the connections between natural processes and human cultures.
- Kaitiakitanga (guardianship): recognition that we all have a part to play as guardians to maintain and enhance our natural and physical resources for current and future generations.
- Tō mātou whakapono (judgement based on knowledge) – recognition that our actions will be considered and justified by using the best available information and good judgement.
- Mahitahi (partnership) – partnership between iwi (mana whenua) and the community, based on a commitment of active engagement, good faith and a commonality of purpose.

When planning for new regional urban development, it is important to recognise both the constraints and different values that are attributed to areas of land and whether these should pose limits to the urban footprint.

'Constraints based thinking' is just one lens for considering how to interact with our environment. The Framework includes looking at spatial opportunities for new development within the region.

Te Ao Māori

He wa to nga mea katoa—to Papa, to Rangi. Kaore he mea e taea te ki no Papa anake, no Rangi anake

Everything has a space of its own—of the earth (Papa) and of heaven (Rangi). There is nothing of which it can be said it belongs to the earth alone, or to the heavens above.[1]

The Māori worldview (te ao Māori) recognises the holistic and interconnected relationships between people and te taiao (the environment).

Some key concepts that underpin Māori relationships with te taiao include:

- mauri (life force)
- kaitiakitanga (guardianship)
- whakapapa (genealogy)
- whanaungatanga (kinship, working together)
- rangatiratanga (right to exercise authority)
- mana (authority, status, spiritual power)
- wairua (spirit, soul)
- tapu (scared)
- noa (common),
- taonga (treasure)
- mahinga kai (food gathering)
- rāhui (temporary prohibition)
- taniwha (powerful spiritual beings)

Mana whenua relationships with land and water

Māori values in the Wellington Region, in relation to te taiao, are summarised in the s32 Māori values report for the Proposed Natural Resources Plan (PNRP)[2] as follows:

While Māori values are held in common by all iwi, mana whenua express these specifically through their own lens of whakapapa (genealogy), history, traditions, location, kawa (principles) and tikanga (practices). Each [iwi and or hapū] have their own distinct identity formed through a longstanding relationship with place.

The relationships of mana whenua with their ancestral water and land are based in a Māori cosmology that describes a shared genealogy as the basis for what is a familial relationship between te ira tangata (mankind) and te taiao (the environment). The elements making up the environment are embodied in the form of ngā atua, ancestral deities whose individual attributes and dynamic relationships are readily observable and play out in the day-to-day interactions of land and water, wind and sky.

Māori relationship with the environment is governed by the direct identification of the physical world as being fundamental to and synonymous with human identity and well-being. This is reflected in the direct association of individual hapū and iwi with specific rivers, mountains and other natural features as entities that define and support their existence.

The relationship of tangata whenua with land and water is adversely affected by the inappropriate use and/or degradation of natural and physical resources.

Mauri is the life force that exists in all things in the natural world, including people. Mauri comprises both physical and spiritual qualities and can be harmed by pollutants and by development which diminishes the natural character, life-supporting capacity and ecosystem health.

Kaitiakitanga is the responsibility of mana whenua to sustain the familial relationship with the environment. This is done by maintaining, enhancing and restoring natural and physical resources including cultural rituals and practices for current and future generations.

This report seeks to identify constraints and values which place a restriction on the spatial extent of urban development. This will include a recognition of mana whenua values and relationships with land and water.

[1] Journal of Polynesian Society: *Tetahi wahi o te whakaakonga i roto i te whare-wānanga na nepia Pohuhu,* Vol 32, No.125 (1923).

[2] http://www.gw.govt.nz/assets/Plans--Publications/Regional-Plan-Review/Proposed-Plan/Section-32-report-Maori-values.PDF

Contents

Purpose

This document is intended to be reflective of the views of the project partners at this point in time.

The purpose of this report is to:

1. Identify, for the purposes of spatial planning, areas of the region where new urban development should not occur due to constraints and protections that are present.

2. Identify, for the purposes of spatial planning, areas of the region where constraints and values require care to be taken as new urban development occurs.

3. Recognise constraints and values that already inform land use decision making.

4. Highlight data deficiencies (research and mapping).

Limitations

This report is intended for spatial planning purposes only. This report is not intended as a substitute to local level assessments of constraints and values.

The identification of constraints and values included in this report has been informed by current knowledge, existing land protections, established policy, proposed policy with legal effect and the project kaupapa.

Not all land use considerations are included in this report; it is focused on the key constraints/values which may limit urban development at the regional scale[3].

The mapping in this report is based on the existing information and GIS data available to the Framework. We have used the best available data held by Greater Wellington Regional Council (GWRC) and local councils. For some constraints, mapping data is unavailable, incomplete or reliant on emerging policy with legal effect.

Four partner iwi have not yet reached Treaty settlement with the Crown, and it is noted that there a number of outstanding Waitangi Tribunal claims that relate to public land within the region that are not identified in this report.

The mapping is not intended to identify specific properties covered by existing constraints or values, but to look at the high level spatial distribution of constraints and values across the region.

We are aware that there are a number of existing communities located within areas that are subject to significant constraints and risk. In developing this report, the project partners recognise that there are future discussions to be had with vulnerable communities in areas where retreat or significant investment towards adaptation may become necessary. Decision making within these areas is complex and should be made locally, with appropriate consideration and mitigation of risks.

Future report updates

Environmental management is a continuously evolving field; with

- The policy cycle and regular update of planning policy instruments,
- Evolving national policy direction,
- New research which improves our understanding of risk and interconnections,
- Increasing reflection and incorporation of mātauranga māori into planning policy,
- Data sharing developments between project partners.
- Technological innovations which change the way we interact with the environment.

It is therefore anticipated that this report will be updated over time, as the Framework is updated and reviewed.

[3] For the purpose of the Framework and this Constraints Report, the region includes the territorial authorities of Masterton, Carterton, South Wairarapa, Upper Hutt, Lower Hutt, Wellington, Porirua, Kāpiti Coast and Horowhenua.

Spatial planning context

This Constraints Mapping report forms part of the development of a spatial plan, the Framework, for the region.

We have reviewed the constraints mapping and categorisation work carried out by other spatial plans around the country.

Similar to Hamilton to Auckland (H2A), and Urban Form and Transport Initiative (UFTI) in Tauranga constraints approach, this report establishes definitions for categorising constraints to determine areas that should be protected from new urban development in the long term and areas where development should be allowed only with appropriate consideration and mitigation of present constraints.

Queenstown's spatial plan and constraints mapping has taken an approach which groups special areas and constraints into three broad categories (environment/natural values, cultural values and hazards). This is then used to assess the implications for urban development and guide the identification of 'no-go' areas.

The general approach taken by each of these spatial plans is summarised in Figure 1.

Figure 1: Categorization of constraints within three other spatial plans

H2A	UFTI	Queenstown
• **Wāhi toitū:** the places with enduring presence that should be protected from development in perpetuity. Examples include rivers, places of significance to mana whenua and the conservation estate. • **Wāhi toiora:** the places where change or development should only occur with greatest care. Examples include places subject to flooding and other hazards.	• **No go areas:** areas that should not be considered for development. • **Go carefully areas:** areas where additional consideration is required if development is contemplated. This includes areas which would likely include risk reduction and mitigation of any natural hazard susceptibility. • **Blue/green areas:** spatial layers that form the basis of an environmental and recreational network, and will assist in the enhancement of that network in future planning.	• Special areas and constraints are grouped into three categories (environment/natural values, cultural values, hazards) and mapped. •These maps are used to analyse the implications for urban development in each area. •This is used to provide a values based assessment of spatial urban development implications and identify no-go areas.

Our approach

Categorisation

Constraints and values are categorised in this report under the following headings:

- **Wāhi Toitū:** areas with enduring presence that, for the purposes of spatial planning, are to be protected from new urban development.

- **Wāhi Toiora:** areas where, for the purposes of spatial planning, potential urban development must be carefully managed with appropriate consideration and mitigation of risks.

The Wāhi Toitū category relates specifically to additional urban development; capturing both greenfield development and infill/intensified urban development.

The Wāhi Toiora category relates to both areas of existing and potential additional urban development.

Mapping

High level mapping is included in this report to provide a better understanding of the spatial distribution of constraints and values throughout the region.

These maps are based on GIS layer data that was obtained from a wide variety of sources, including local and central government, Crown Research Institutes (CRIs), and other bodies such as the QEII Trust. It is believed to be the best available data and is currently hosted at GWRC on behalf of this project.

Individual GIS layers have been grouped by category (Wāhi Toitū, Wāhi Toiora) and by sub-categories (cultural, environmental, hazards and other). Maps have been prepared at the level of these sub-categories. These layer groups have then been aggregated upwards to create two composite maps for the Wāhi Toiora and Wāhi Toitū categories.

For the Wāhi Toitū composite map, layer aggregation has been made using the following methods:

- Yes/no ("One or more constraints present" versus "No constraints present");

For the Wāhi Toiora composite map, layer aggregation has been made using the following methods:

- Yes/no ("One or more constraints present" versus "No constraints present"); Count of constraints by overlay;

All GIS data was originally sourced as vector layers (point, line, or polygon). Point and line data was buffered at 50m radius to convert to polygons.

After initial map creation, vector data has been converted to a raster grid format at 50 m cell size for ease of aggregation. This makes processing faster but implies some loss of spatial resolution from the original data. The nominal mapping scale is 1:40,000 which is suitable for a regional-level overview. Original data is available in all cases (See Appendix A).

Wāhi Toitū

This category identifies areas with enduring presence that are to be protected from new urban development. These are listed and then explained in this section of this report.

Wāhi Toitū

- Sites with significant mana whenua values
- Ngā Whenua Rāhui
- Existing environmental protections
- Recreation land
- Known well defined earthquake fault rupture and deformation zones
- Areas subject to significant hazards associated with sea level rise
- Drinking water protection areas
- Highly productive land
- Significant infrastructure

The Wāhi Toitū category relates specifically to additional urban development; capturing both greenfield development and brownfield/intensified urban development.

Kaitiakitanga, and the recognition that we all have a part to play as guardians to maintain and enhance our natural and physical resources for current and future generations, is a key value informing the identification of values and constraints within this category. Ki uta ki tai (interconnectedness), wairuatanga (identity), tō mātou whakapono (judgement based on knowledge), mahitahi (partnership) and whenua tūhono (connecting whānau and whenua) are also important concepts for determining areas of the region as Wāhi Toitū.

Sites with significant mana whenua values

Te Upoko o Te Ika a Māui is the ancestral home to generations of Māori tribes, each with distinctive histories and values that contribute to our region's rich cultural heritage.

This report recognises that the entire region is a cultural landscape; with the areas of interest for the eight partner iwi overlapping to cover the extent of the region.

Four of the eight iwi partners, within the area covered by the Framework, have reached Treaty settlement with the Crown. The relationship of mana whenua with the land is interconnected with identity and well-being. These relationships can be adversely affected by environmental degradation and loss of physical access.

European settlement resulted in the alienation of the majority of Māori land within the region by 1864. The current day urban footprint extends over many sites of significance to mana whenua (including pā and kāinga). As a result, many mana whenua sites are now inaccessible or unusable to iwi for their traditional purpose.

Sites and areas with significant mana whenua values can include wāhi tapu, wāhi tūpuna, statutory acknowledgement areas, areas with customary rights, historic sites, cultural landscapes, taonga and other culturally important sites and areas. Public identification of these sites can be a matter of great sensitivity. Some are recorded in public documents, however this mapping for the region as a whole is incomplete.

Physical and natural elements which play a strong part in wairuatanga, such the central mountainous spine, key lakes, islands and harbours, are places which are likely to possess enduring presence for mana whenua.

Undeveloped sites of significance could be protected from new urban development if this reflects mana whenua aspirations[4]. The Framework will involve a project to progress conversations with mana whenua to identify any additional Wāhi Toitū areas with significant cultural values that should be protected

[4] Uniform protection could impose barriers to mana whenua in developing their own land.

from new urban development. These will be included in updates to this report and the Framework.

Ngā Whenua Rāhui

The Department of Conservation supports the protection of indigenous biodiversity on Māori owned land through its Ngā Whenua Rāhui fund. Landowners retain rangatiratanga (ownership and control) of their land, and the land is protected from development by 25 year Kawenata (covenants).

Areas covered by active Ngā Whenua Rāhui Kawenata (covenants) are protected from urban development, and are therefore appropriate for inclusion in the Wāhi Toitū category for the duration of the kawenata.

Existing environmental protections

The natural environment is highly valued and enjoyed by communities for various cultural, social, and economic reasons. It is interconnected with our regional identities, wellbeing and livelihoods. As detailed above, mana whenua have a special relationship with te taiao and the environment plays an important role in whakapapa, wairuatanga and kaitiakitanga.

The intrinsic value of our natural environment and physical landscape is reflected in many existing environmental protections.

Park land

Large areas of the region are already protected from urban development by environmental protections and policy. This includes Department of Conservation land, QEII Trust sites, Regional Parks and Regional Forest parks. Many of these areas have great cultural significance.

These areas are also important ecological corridors and native habitat, provide quality regional water supply catchments and are important as the 'lungs of the region'. The significant natural, cultural, recreation, scenic and economic value of these areas should continue to be protected from new urban development.

Wetlands

Wetlands have a number of ecological and cultural values; as habitat for indigenous species, mahinga kai, wildlife corridors, a natural nutrient filtration system, natural water storage and carbon sequestration.

As detailed in the Foundation Report[5], less than 3% of the region's natural freshwater wetlands remain. There are already existing protections for natural wetlands, and emerging national policy direction is expected to strengthen these protections. Remaining natural wetlands should therefore be protected from urban development.

Significant indigenous biodiversity

Tangata whenua have a special relationship with our indigenous biodiversity. Indigenous biodiversity also contributes to our regional identity, and our social and economic wellbeing.

New Zealand is a global hotspot for biodiversity, however many native species are threatened or at risk. Threats to our native species include habitat loss, competition by exotic and invasive species and degradation through human activities. Many of our land-based native ecosystems cannot survive without active management.

Some areas of locally, regionally and nationally significant indigenous biodiversity areas are already protected from urban development.

Emerging policy direction may require additional protections, identification and mapping requirements for Significant Natural Areas. Future updates to the Framework will be able to take these into account.

Sites with significant landscape values

Some landscapes and natural features within the region are protected and highly valued for their outstanding natural and character values. This includes outstanding water bodies, outstanding landscapes, outstanding natural features, regionally significant geological features, areas of high natural coastal character and regionally significant features. These landscapes are exceptional or iconic and dominated by natural elements and processes.

[5] https://wrgf.co.nz/wp-content/uploads/2020/04/1190-GWRC-Framework-Report-APRIL-2020-02-1.pdf

These are areas that lie outside of the conservation estate, but still possess outstanding value at a district, regional or national level. These areas should continue to be protected from new urban development.

Recreation land

Recreation land provides important spaces for sport, recreation and leisure activities. It contributes to the amenity and identity of places within the region, as well as to the wellbeing and health of our communities. Recreation land includes local open spaces, parks and gardens which are currently identified in operative district plans[6].

Known well defined earthquake fault rupture and deformation zones[7]

The region lies over the meeting point of two tectonic plates; with the subduction interface between the Pacific and Australian plates located approximately 25km below Wellington.

There are 14 active faults in and around the region which could produce destructive earthquakes; including the Wellington, Ōhāriu and Wairarapa faults.

All regional urban centres are subject to earthquake hazards. Parts of Wellington, Lower Hutt, Upper Hutt and Porirua cities, and the Waikanae centre, are built directly over active fault rupture zones. Some key pieces of regional infrastructure, including bulk water supply pipelines and main transport routes, also cross over active fault rupture zones.

Where there is certainty around the location of a fault rupture and deformation zone, councils have begun to introduce rules to restrict new development (typically within 20m either side of an active fault). Due to the significant risk to human life and property, known earthquake fault rupture and deformation zones should be protected from new urban development.

Areas at risk from significant coastal hazards due to sea level rise

Anthropogenic greenhouse gas emissions are changing the climate system. One effect of this is sea level rise, due to thermal expansion of ocean waters and the melting of land-based ice. In addition, the region is experiencing tectonic subsidence at rates similar to the locally measured rise in sea level. Together, this ongoing relative rise in sea level will exacerbate regional coastal hazards that already occur in the region; such as shoreline erosion, storm-tide flooding, impeded drainage (at river mouths and stormwater outfalls) and raised water tables leading to extended pluvial (surface), stormwater and alluvial flooding.

Many parts of our urban areas are situated in low-lying coastal areas, vulnerable to these effects and the impacts of sea level rise. Planning and hazard mapping related to these areas is developing; including community based adaptation and planning approaches.

The Framework will include a project to encourage and progress local adaptation to coastal hazards and sea level rise planning programmes. The Regional Policy Statement sets out a mandate to avoid inappropriate development in high hazard areas[8] and, in light of the expected climate change and sea level rise impacts in the region, this should influence the patterns and locations of future urban development represented in updates of this report.

Drinking water protection areas

Te Mana o te Wai encompasses integrated and holistic health and wellbeing of a freshwater body. When Te Mana o te Wai is upheld, the water body will sustain the full range of environmental, social, cultural and economic values held by iwi and the community.

Safe and reliable drinking water is also important for regional health and prosperity. Over 144 million litres of water is supplied to urban parts of the region every day[9].

Areas of the region where freshwater is sufficiently unpolluted (so as to be suitable for use as drinking water) are limited. Our drinking water comes from

[6] If an area of land is no longer required for reserve purposes and is re-zoned, then it is not intended to be captured in future updates of this document.

[7] Mapping was unavailable for the whole region, so instead known active faults are represented in Figure 5. Further detailed site investigations are required to improve mapping.

[8] The region is prone to many natural hazards. In this report, most are under Wāhi Toiora. High hazard areas associated with any natural hazards may be represented within Wāhi Toitū in future updates of this report.

[9] https://www.wellingtonwater.co.nz/your-water/drinking-water/where-does-it-come-from/

catchments which are located upstream of development and protected to reduce pollution.

These include current and future potable water collection management areas and surface water protection areas. These areas will continue to be protected from new urban development.

Highly productive land

Food production is important for regional health and prosperity, providing economic and employment benefits, and resilience against supply chain disruptions.

Areas of the region where primary production is possible is limited by a number of factors; including climate, soil type, drainage, erodibility, topography, the availability of water, water and transport infrastructure, access to labour and markets and the size of land parcels.

Some of the region's most productive land is already part of the urban footprint. Through development, the productive potential of this land has been lost. Some remaining areas of highly productive land are at risk from urban expansion and lifestyle block development.

Emerging national direction indicates that regional and district councils will need to protect the availability of highly productive land for primary production uses and future generations. This may include buffer transition areas to manage reverse sensitivities. We anticipate these areas will be largely protected from future urban development[10], and represented in future updates of this report.

Significant Infrastructure

The successful functioning of the region depends on significant infrastructure, including the national electricity transmission network. There are already protections in place restricting new development within the National Grid Yard (the area immediately beneath and next to national grid lines and support structures).

The roading network, airports, port, rail network, telecommunications facilities, the stormwater systems and other utilities form part of national and regional networks that enable communities to provide for their wellbeing and safety. The Regional Policy Statement sets out a mandate to avoid inappropriate development alongside regionally significant infrastructure.

Future versions of this report may identify additional national and regional infrastructure of significance requiring protection from urban development.

Wāhi Toitū Mapping

The following maps show the Wāhi Toitū areas spatially across the region.

[10] Proposed NPS-HPL still under development.

Figure 2: Culture and Heritage

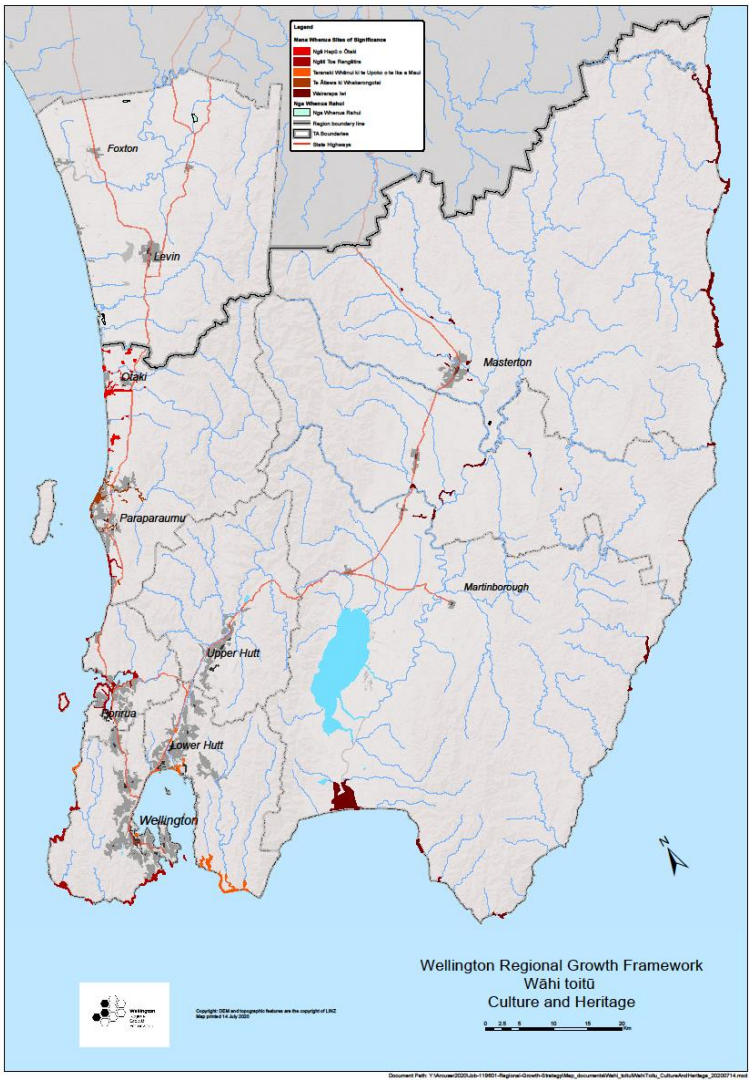


Figure 3: Environmental protections

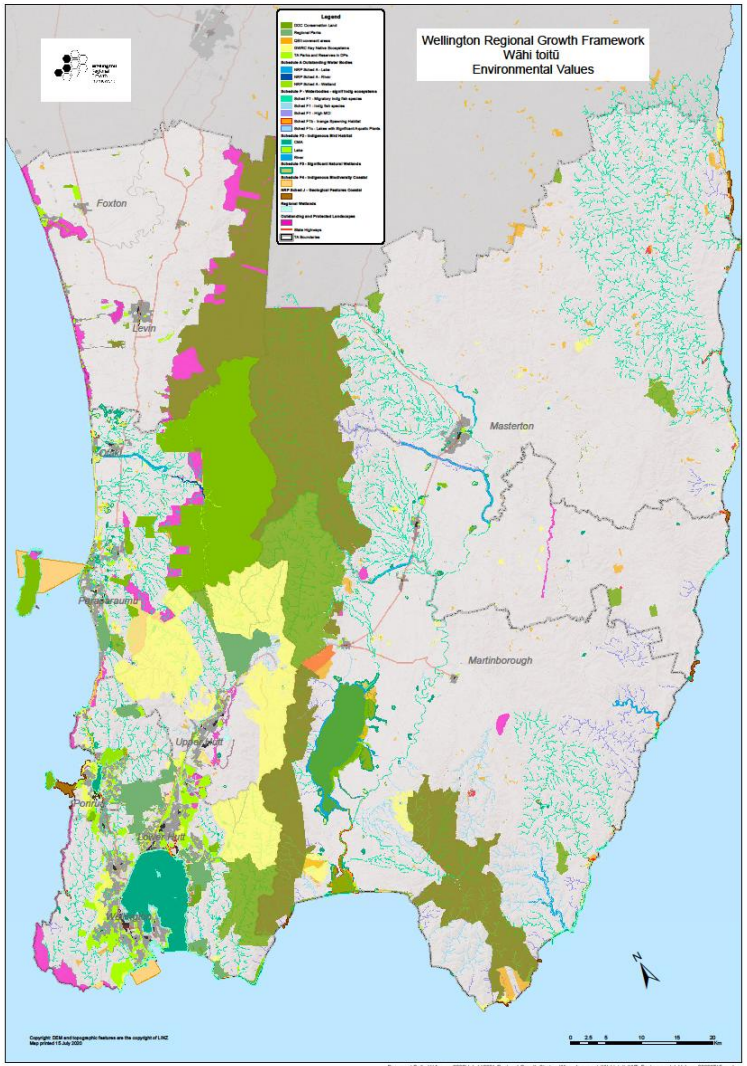


Figure 4: National Grid and Drinking Water Collection Areas

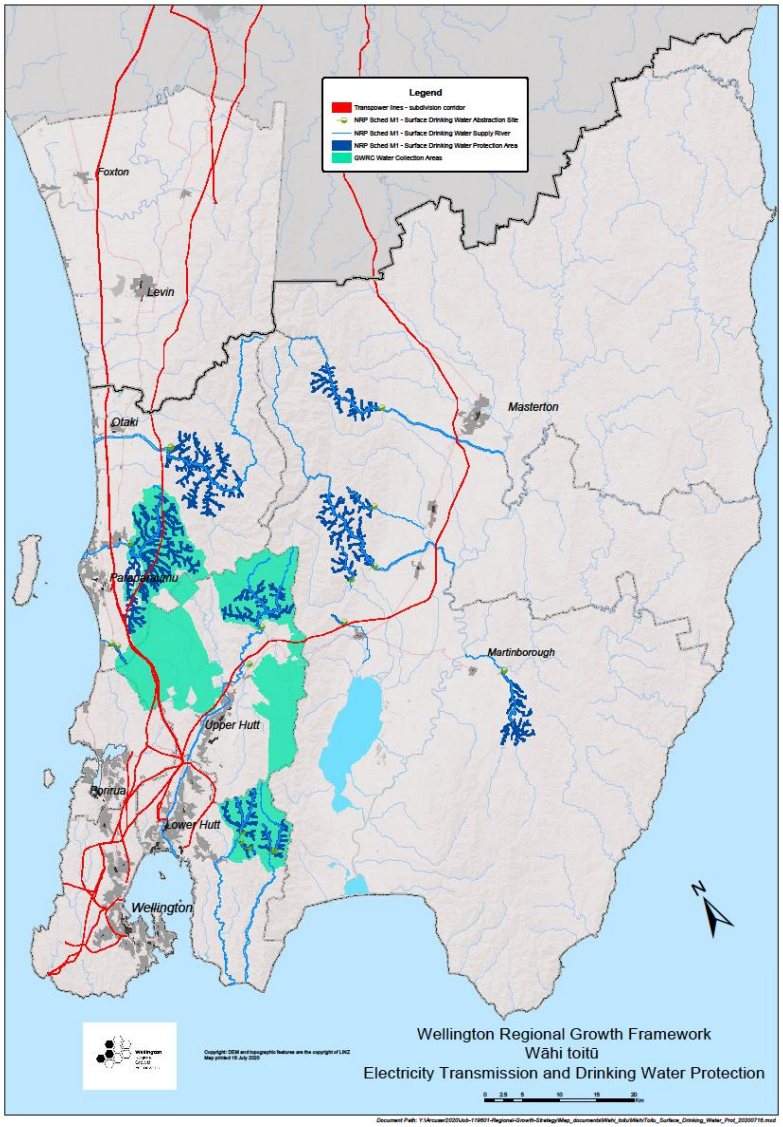


Figure 5: Known Active Faults

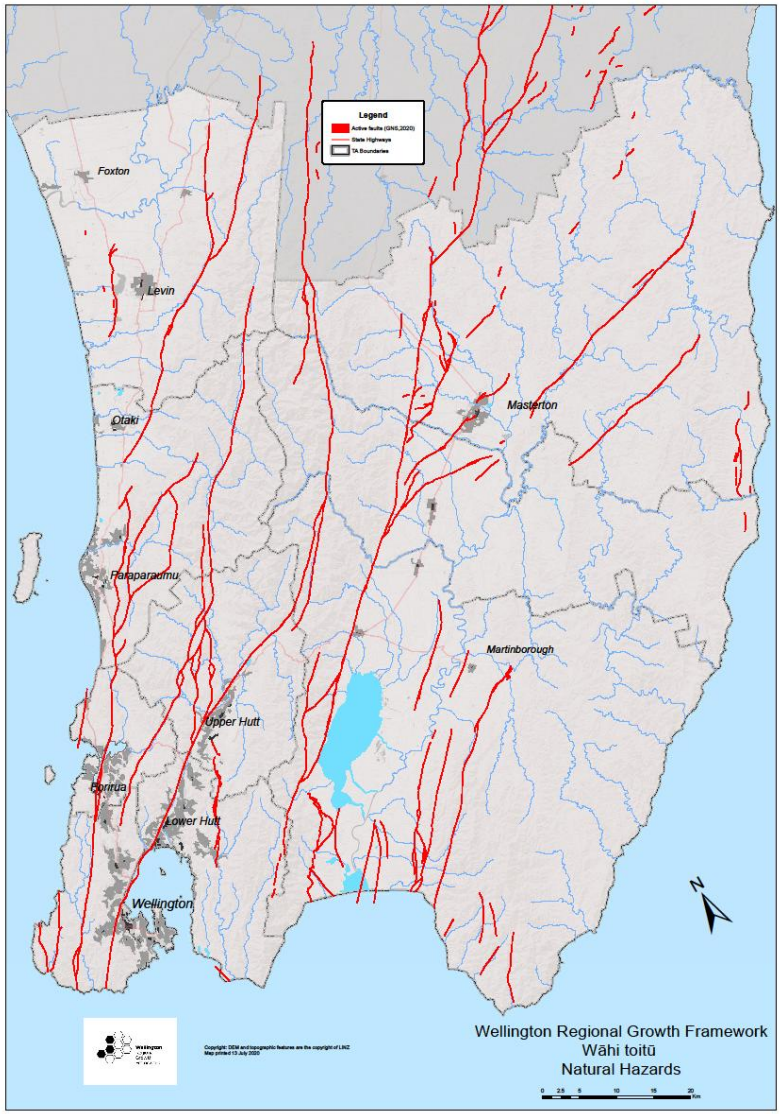
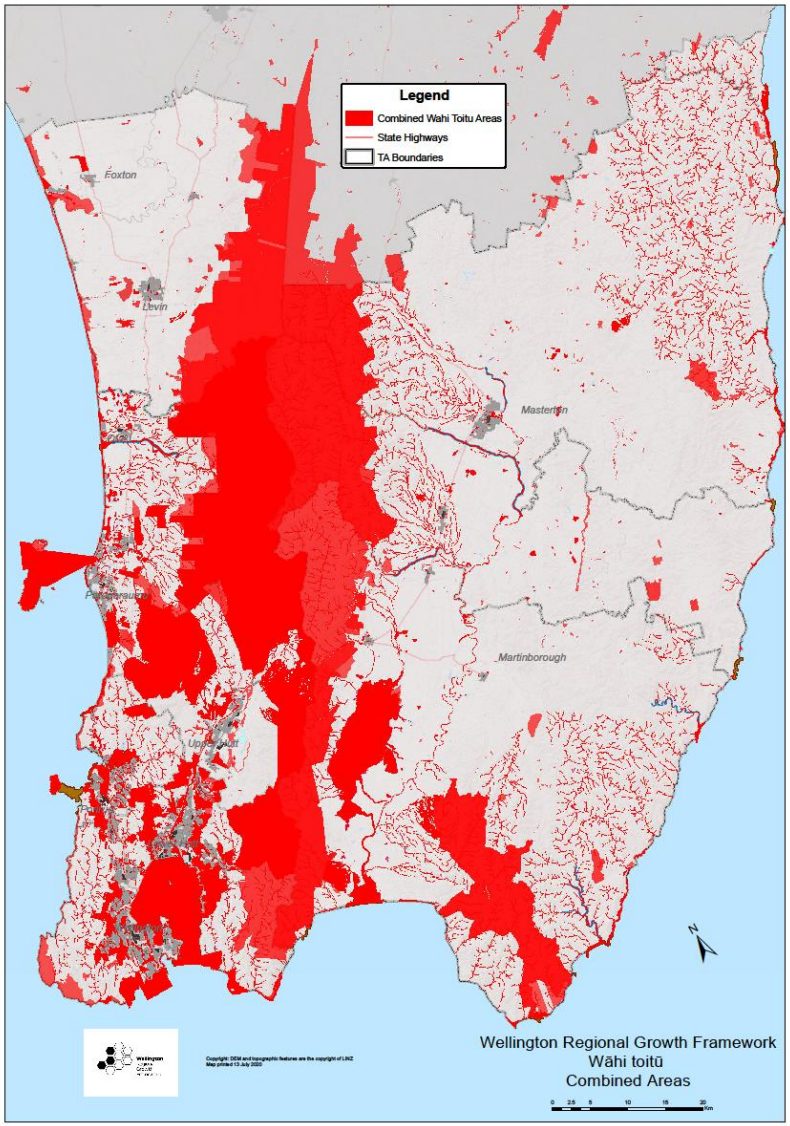


Figure 6: combined Wāhi Toitū areas



Wāhi Toiora

This category identifies constraints and values which can significantly constrain urban development. Careful management of urban development is required in these areas, with appropriate consideration and mitigation of risks. These are listed below and then explained in this section of the report.

Wāhi Toiora

- Statutory acknowledgement areas
- Historical and cultural heritage
- Water quality limits and stream health
- Ecological sites
- Special amenity landscapes
- Environmental buffer areas
- Coastal marine areas and riparian margins
- Natural hazards
- Climate change risks
- Potable groundwater supply protection areas
- High quality soils
- Contaminated land
- Erosion prone land
- Electricity transmission corridor buffers
- Renewable energy generation infrastructure and mineral resources

The Wāhi Toiora category relates to both areas of existing and potential additional urban development. Kaitiakitanga, and the recognition that we all have a part to play as guardians to maintain and enhance our natural and physical resources for current and future generations, is a key value informing the identification of values and constraints within this category.

Ki uta ki tai (interconnectedness), wairuatanga (identity), tō mātou whakapono (judgement based on knowledge), mahitahi (partnership) and whenua tūhono (connecting whānau and whenua) are also important concepts for determining areas of the region as Wāhi Toiora.

Statutory Acknowledgement areas

Statutory Acknowledgement areas are areas of crown land (or water bodies) over which iwi have a special spiritual, historical or traditional relationship that has been recognised by the Crown in Treaty of Waitangi settlement processes. Statutory acknowledgment areas can include land, geographical features, lakes, wetlands and coastal marine areas.

The purpose of each Acknowledgement area is set out in each specific Claim Settlement Act. They aim to improve decision making processes under the Resource Management Act. Appropriate regard for statutory acknowledgements must be given for any urban development within these areas.

Historic and cultural heritage

Historic heritage includes places with significant historical, physical and cultural values that contribute to the character and identity of places within our region. These include a range of archaeological sites, buildings, structures, historic sites, cultural sites, coastal sites, historic areas, notable trees and Māori heritage. The intent of heritage protections is to protect these places for future generations.

Historic sites are varied; it may be appropriate to use or develop some, but not others. Careful management of urban development is therefore required in any of these places.

Mana whenua may not wish all cultural heritage sites to be included in the Wāhi Toitū category. Some areas with significant cultural heritage value may therefore be Wāhi Toiora. The Framework will involve a project to progress conversations with mana whenua to identify any additional Wāhi Toiora areas where urban development must be carefully managed to protect cultural values.

Water quality limits and stream health

Te Mana o te Wai encompasses integrated and holistic health and wellbeing of a freshwater body. When Te Mana o te Wai is upheld, the water body will sustain the full range of environmental, social, cultural and economic values held by iwi and the community.

Freshwater supports life, and is treasured for a range of reasons; including its inherent values as natural habitat, for recreation purposes, Māori customary uses, cultural identity and mahinga kai, for economic and commercial uses, for public health and wellbeing, and for drinking water, waste removal and transportation purposes.

Water quality and ecosystem health is declining in some parts of the region, including in our urban waterways. A warming climate will change rainfall patterns, and increase the intensity of droughts in some areas where there is already a high demand for water. Most of our rivers and streams are fully allocated in terms of water take; with public water supply the largest user, followed by irrigation.

New urban development can provide an opportunity to retain and enhance freshwater stream habitats. In the past, however, regional urban development has frequently resulted in stream reclamation. Changes to national policy direction will largely prohibit stream reclamation. This will significantly impact the style of future development in the region, particularly on steeper topographies.

National policy direction requires that freshwater quality be maintained or improved and contaminant discharge limits set; including those that run off urban developments. The region is in the process of setting discharge limits, through the whaitua process. This will constrain development, and require a reduction in contaminant load from most existing urban catchments. New development within the existing urban footprint provides an opportunity to reduce contaminant loads through the implementation of water sensitive urban design.

All greenfield development adds to the contaminant load. Contaminant discharges will be required to be minimised from greenfield development through water sensitive urban design. This will necessitate a new "style" of greenfield development for the region. Greenfield development will be limited within some catchments due to degradation of the existing environment. We would expect emerging whaitua management and stream protections to be represented in future updates of this report.

Environmental buffer areas

Urban development impacts not only the land it is built upon, but also surrounding areas; by generating pollution and discharges (to air, noise, water, rubbish), as well as changing the landform and water catchment characteristics. Urban development on land adjacent to environmental protection areas may therefore require careful management to control 'edge effects.

Ecological sites

While significant indigenous biodiversity is captured as Wāhi Toitū, some ecological sites have lower levels of protection and will fall under the Wāhi Toiora category. Levels of protection depends on the ecological values present. For example, modified ecosystems typically possess a lower ecological and biodiversity value than pristine environments. However, these ecological sites still have value to the region and have potential to be restored over time. There are a range of ecological sites within the region which are identified, managed and protected by different regulations.

Special amenity landscapes

Special amenity landscapes are distinctive, widely recognised and valued by the community. These areas may be modified by human activity, but contribute to local amenity and the quality of the environment. Some development within special amenity landscapes will be appropriate, so long as landscape values are appropriately considered and harm mitigated.

Coastal marine areas and riparian margins

The coastal marine area and riparian margins are valued for public access, recreation and Māori customary uses. There are a number of existing controls that restrict urban development within these areas. Any urban development within these areas needs to be carefully considered, with appropriate consideration and mitigation of the value of these areas for public and cultural use.

Natural hazards

The region is prone to a wide range of natural hazards, including; seismic hazards (earthquakes, liquefaction, subsidence, ground shaking, fault rupture, tsunami), mass movement hazards (landslides, rockfall, mud and debris flows), weather hazards (severe wind, drought, intense rainfall, wildfires) flood hazards (river, surface and stormwater flooding), coastal hazards (storm surge, inundation and sea level rise) and erosion hazards (river, soil and coastal erosion).

A number of our urban areas are subject to these natural hazards due to their location on flood plains, steep hillsides, reclaimed land, faults and low-lying coastal areas.

Regional, City and District Plans are increasingly turning their attention to managing the impacts from natural hazards and are developing risk and community-based decision-making approaches to managing current and future effects of natural disasters. The Framework acknowledges that there will be a mix of planning responses and mitigation measures necessary to manage the effects from natural hazards and this will be influenced by local environmental and development needs. However, careful management of urban development in hazard prone areas is required.

Climate change risks

Long term changes in the climate will exacerbate most of the natural hazards already present in the region; including drought, wildfire, coastal flooding, fluvial/pluvial flooding and severe wind.

Urban development in areas subject to increasing risks from natural hazards will need to be carefully managed; with due consideration given to longer term (i.e. 100 year) planning horizons, that take into consideration how changes in the climate may in turn lead to evolving changes in natural hazard impacts and how social, environmental and economic risks might be avoided, mitigated or managed.

Potable groundwater supply protection areas

Safe and reliable drinking water is important for regional health and prosperity. Many areas of the region are dependent on groundwater for drinking water supplies. This includes town water supplies; with ground water bores and aquifers in the Wairarapa, Kāpiti Coast, Hutt Valley and Horowhenua. The Waiwhetu Aquifer in the Hutt Valley provides 40% of the annual water supply for the Wellington region[11].

Some urban activities can affect groundwater quality, while others have no effect. Urban development within groundwater protection areas and aquifer recharge zones are therefore carefully managed to protect the quality of community drinking groundwater supplies.

High quality soils

High quality soils, suitable for food production are limited geographically. Some of the regions highest quality soils have already been built upon; locking up this resource within the urban footprint.

Soil with a Land Use Classification (LUC) of 1, 2 or 3 comprises our best and most versatile soils. Remaining areas of LUC 1-3 are important for our region's future; both for primary production employment and food security reasons. Undeveloped areas of LUC 1-3 are found mostly in the Wairarapa, Horowhenua and the Kāpiti Coast.

This report notes the distinction between high class soils and highly productive land. Not all high class soils will be highly productive; as other factors including climate, drainage and access to water infrastructure, labour, markets and transport routes may impact productive use potential.

Careful management of urban development on LUC 1-3 soils will safeguard the region's food producing capacity for future generations.

Contaminated land

Regional council's hold records of sites where hazardous substances have been used, stored or disposed of in the past. Not all of these sites are known.

Where there is risk of land contamination, existing regulations require an assessment of the land prior to any urban development to ensure it is safe for human use.

Erosion prone land

The topography of the region has meant that urban development has unavoidably been necessary on steep and hilly terrain. Underlying geology and slope geomorphology strongly influences slope stability and the susceptibility of soils to erosion.

Slopes over 20 degrees are in general more prone to erosion and failure, and the region has many developed areas on slopes which exceed 20 degrees. Careful management of large scale earthworks,

[11] https://www.wellingtonwater.co.nz/your-water/drinking-water/where-does-it-come-from/wellington-region-water-supply/

vegetation removal and development is required in these areas.

Renewable energy generation infrastructure

Electricity provision is a vital for our health and wellbeing. It powers and heats our homes and workplaces, runs our appliances and powers some of our transport. Electricity consumption is responsible for a third of our regional greenhouse gas emissions, and demand is anticipated to increase significantly[12]. Electrification of our economy will be essential to meeting our climate change commitments. To meet rising electricity demand, a 68% increase in renewable electricity generation will be required nationally by 2050[13].

The region is largely dependent on external generation sources for electricity. Regional renewable electricity generation (over 10MW) includes the 'Mill Creek' and 'West Wind' wind farms and the Mangahao hydro power station. Careful management of urban development around renewable electricity plants can ensure their continued operation. We anticipate that future updates of this report may identify regional renewable energy resources that should be protected from urban development to ensure the availability for future renewable electricity generation and improve our regional energy resilience.

Electricity transmission corridor buffers

Activities and subdivision close to high voltage national grid transmission lines needs to be carefully managed in consultation with Transpower to ensure safety and prevent reverse sensitivity effects on the national grid. This includes urban activities.

Wāhi Toiora Mapping

The following maps show the Wāhi Toiora areas spatially across the region.

Note: The mapping in Figure 12 does not indicate the level or severity of risk, but the number (more or fewer) constraints present within each area.

[12] https://www.gw.govt.nz/assets/Climate-change/GHG-Summary-Report-Wellington2019WRFinal.pdf
[13] Whakamana i te Mauri Hiko

Figure 7: Culture and Heritage

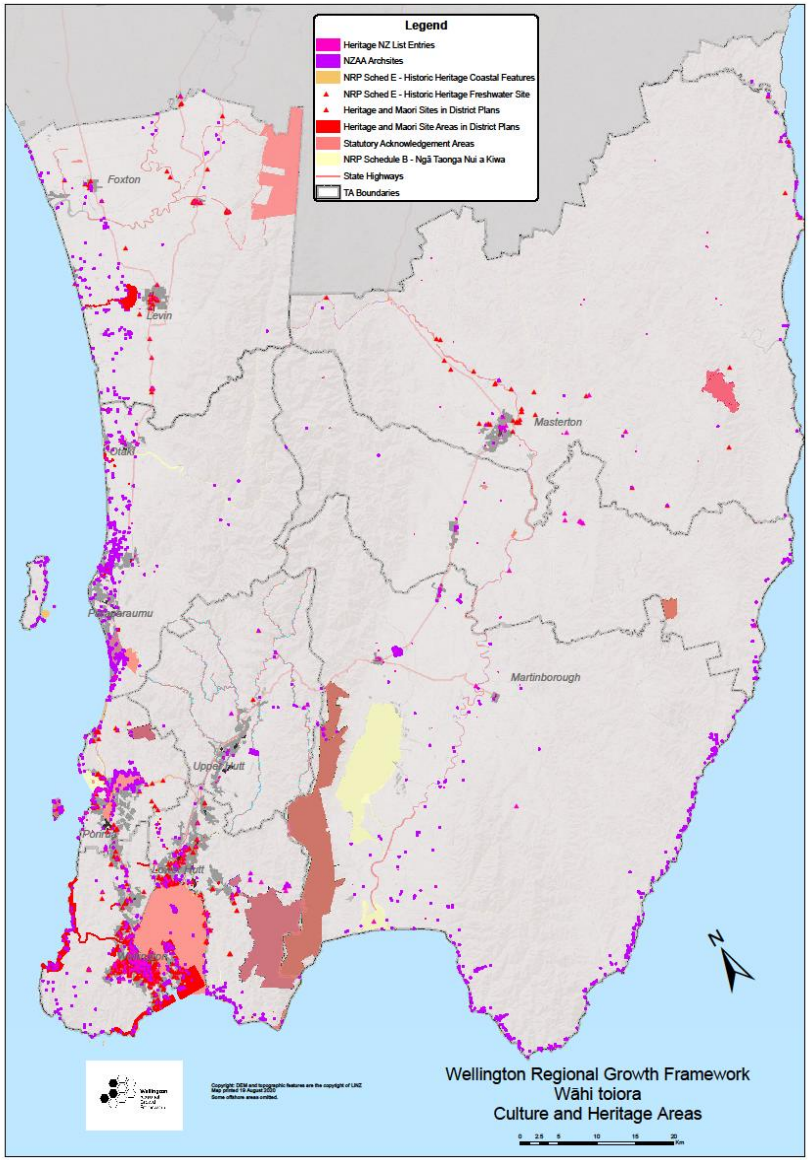


Figure 8: Groundwater Protection and Electricity Generation

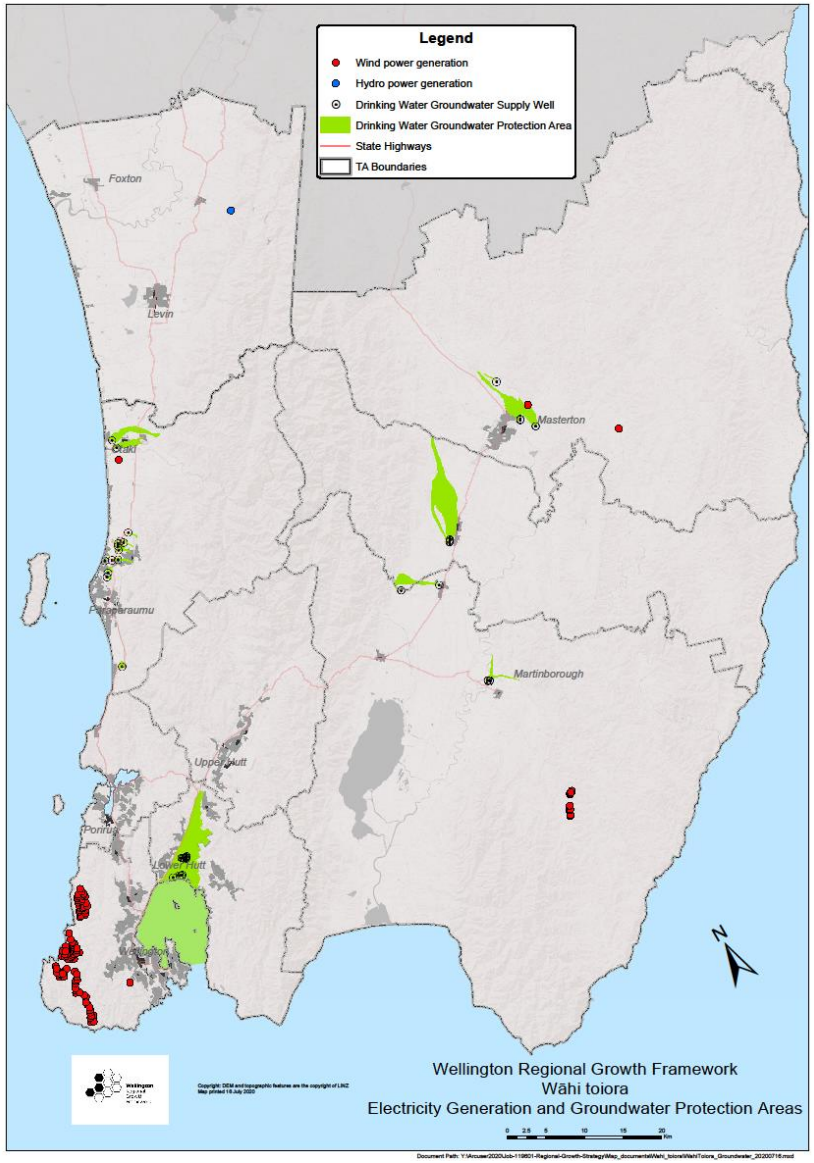


Figure 9: Natural Hazards and Contaminated Land

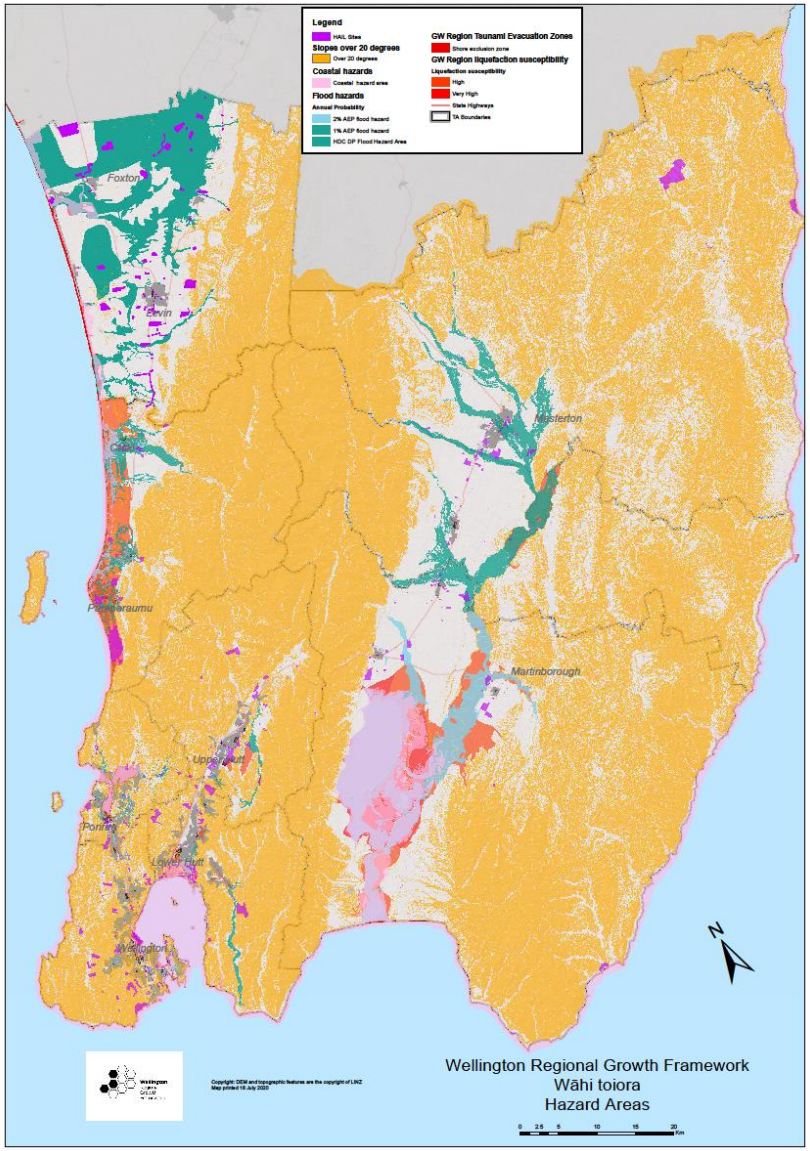


Figure 10: Environmental Protections

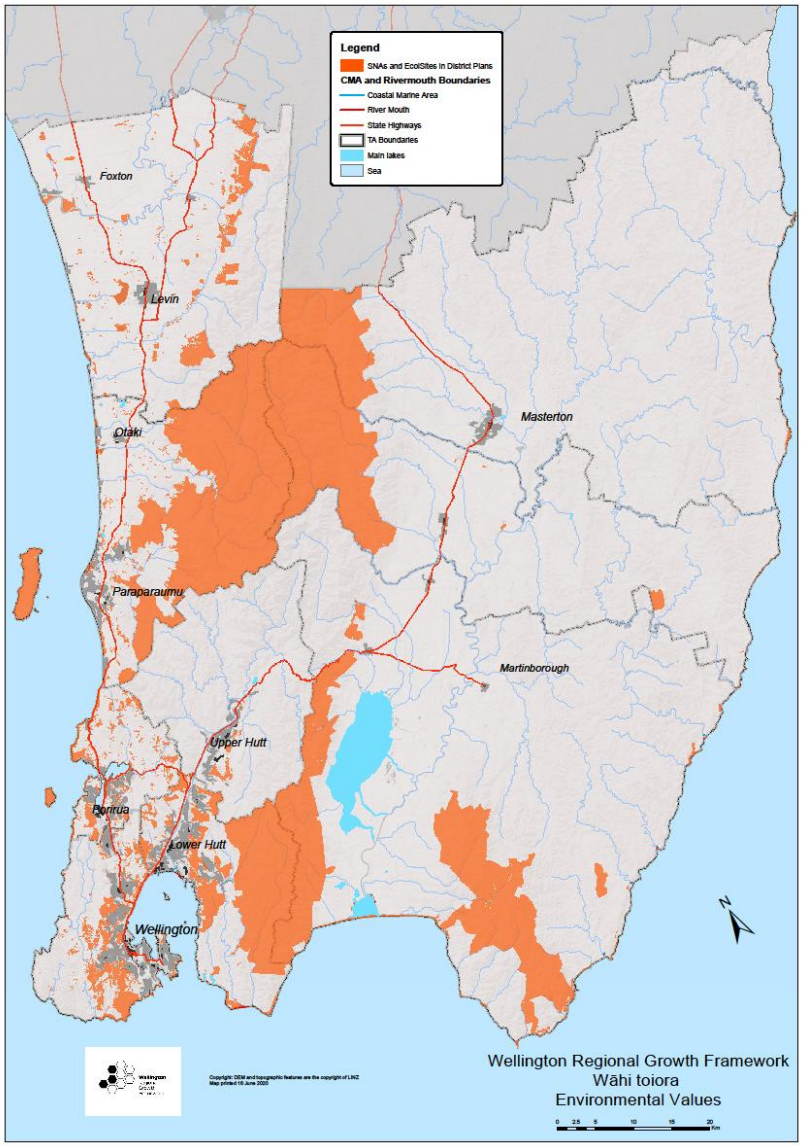


Figure 11: High Quality Soils (land use capability 1-3)

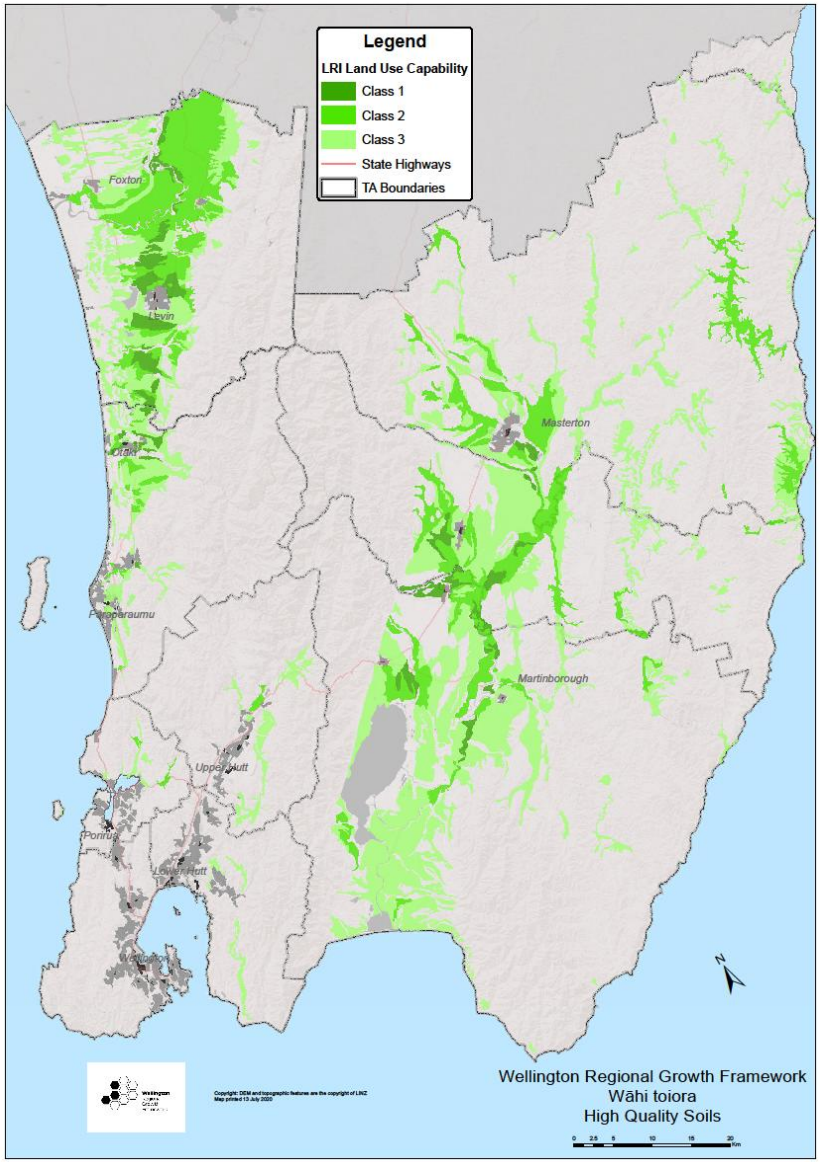
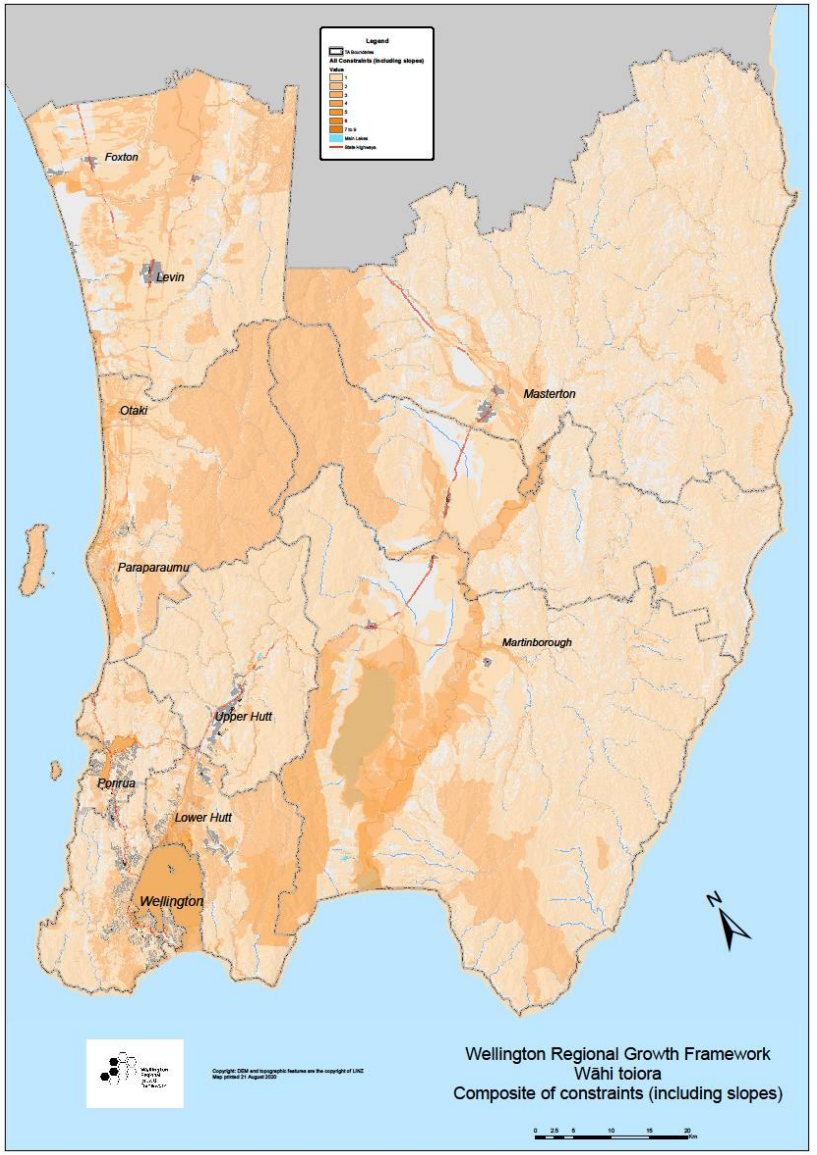


Figure 12: Combined Wāhi Toiora mapping



Spatial implications for urban development

Key spatial elements: Wāhi Toitū[14]

- A significant central part of the region comprises Wāhi Toitū; land with enduring presence which should be protected from new urban development for the purposes of the spatial plan.
- Key environmental protections (regional park, Indigenous biodiversity and forest etc) are centred along this mountainous central spine.
- Surface drinking water supply protections are also largely centred within this central area.
- While the entire region is interconnected with cultural histories, culture and identity, the sites of significance to mana whenua that are protected from urban development are limited to small areas of the region; particularly along the coast, lakes and rivers.
- Almost all urban centres contain existing development above active fault lines.
- Freshwater sites with significant indigenous biodiversity value are located throughout most of the region.
- Most national grid transmission assets are located on the western side of the region.

Key spatial elements: Wahi Toiora

- Most of the region is subject to constraints and values which could constrain urban development. Management of development in these areas, with appropriate consideration and mitigation of risks, is required.
- While not all mana whenua have reached settlement with the Crown, there are many areas subject to statutory acknowledgement.
- The region's highest quality soils are located in Horowhenua and the Wairarapa.
- Most electricity generation assets are located in the southwest of the region.
- Potable groundwater supplies with protection are located in the Wairarapa, the Hutt Valley and Kāpiti Coast. Potable groundwater is also important in Horowhenua[15].
- The region is subject to a wide range of hazards[16]. Ground shaking earthquake hazards affect the entire region[17]. Significant portions of the region also have steep topography.
- River flooding is a significant hazard for the Wairarapa and Horowhenua.
- There are hazards affecting the entire regional coastline.
- There are pockets of potential land contamination throughout the region.
- Heritage and archaeological sites are particularly concentrated within the existing urban footprint and along the coast and rivers.
- There are a large number of ecological sites and significant natural areas throughout the region. While some are located within regional parks and forest parks, others surround exiting urban areas.

What does this mean for new urban development?

Identified Wāhi Toitū areas provide clear boundaries to urban expansion along the central mountain corridor between the Wairarapa and the rest of the region .

There are a large number of constraints and values which require appropriate consideration and mitigation; most land within the region falls under the Wāhi Toiora category. Future development will therefore necessarily be located within areas subject to some degree of risk.

[14] Mapping of some elements (HPL, SNAs, SLR, Significant infrastructure) will become more available in the future as policy develops and regional approaches develop.

[15] No mapping available.

[16] Note: The mapping above does not show all areas which are subject to natural hazards. Weather hazards have not been mapped, and there are some hazards where we don't have a regional dataset for (i.e. ground shaking).

[17] Regional scale mapping not available.

Appendix A – GIS data sources

Wahi toitu[18]				
Values	**Layer Name**	**Area covered**	**Notes**	**Data Source**
Culture and Heritage	GW NRP Schedule C - Mana Whenua Sites of Significance.lyr	GW Region	Sites with significant mana whenua values, including wāhi tapu. No data for HDC area.	https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/2
Culture and Heritage	Ngā Whenua Rāhui sites	Whole study area.	Ngā Whenua Rāhui sites. From DOC and NZ Gazette.	https://www.doc.govt.nz/get-involved/funding/nga-whenua-rahui/our-work/. Also file Data\Mana_Whenua_Values\NgaWhenuaRahui.shp at GWRC.
Environmental Values	DoC estate reserves covenants.lyr	Whole study area.	All DOC land.	https://doc-deptconservation.opendata.arcgis.com/
Environmental Values	QEII Sites	Whole study area.	All sites in study area.	Sourced from https://qeiinationaltrust.org.nz/
Environmental Values	Regional parks and forest parks	GW Region	All Regional Parks in GW Region.	https://mapping.gw.govt.nz/arcgis/rest/services/GW/Parks_P/MapServer/20
Environmental Values	GWRC Key Native Ecosystems	GW Region	Biodiversity Key Native Ecosystems	https://mapping.gw.govt.nz/arcgis/rest/services/GW/Our_Environment_P/MapServer/11
Environmental Values	TA Parks and Reserves – HDC Open Space Zoning Areas in DP	Horowhenua DC area	Recreation land and local parks identified in District Plans	File DP_OP_ZONING.shp supplied by HDC, also visible in http://mapit.horowhenua.govt.nz/HDCGPGISNZ/
Environmental Values	TA Parks and Reserves – UHCC Playgrounds in DP	UHCC area	Recreation land and local parks identified in District Plans	File Data\Parks_and_Reserves\UHCC_Playgrounds_from_DP_2020.shp at GWRC. See also http://apps.geocirrus.com/UHCC/Index.html?viewer=UHCC_Public
Environmental Values	TA Parks and Reserves – UHCC Parks in DP	UHCC area	Recreation land and local parks identified in District Plans	File Data\Parks_and_Reserves\UHCC_Parks_from_DP_2020.shp. See also http://apps.geocirrus.com/UHCC/Index.html?viewer=UHCC_Public
Environmental Values	TA Parks and Reserves – HCC Recreation Areas in DP, 2007	HCC area	Recreation land and local parks identified in District Plans	File Data\Parks_and_Reserves\HCC_DP_2007_Recreation_Areas.shp from HCC. See also https://maps.huttcity.govt.nz/portal/apps/webappviewer/index.html?id=769c6bc31ca74d44b6513f8112458525
Environmental Values	TA Parks and Reserves – Wairarapa DP	Wairarapa	Recreation land and local parks identified in District Plans	See https://data-wairarapa.opendata.arcgis.com/

[18] Best available data provided by the project partners for this report. Porirua City Council mapping now also available here: https://eplan.poriruacity.govt.nz/districtplan

Environmental Values	TA Parks and Reserves – KCDC Proposed DP 2018	KCDC	Recreation land and local parks identified in District Plans	File Data\Parks_and_Reserves\KCDC_PDP_2018_Open_Space_Zones.shp. See also a4ff3e5b57https://publicgis.kcdc.govt.nz/LocalMaps/Viewer/?map=5ae02ac59d174d1ed55d8b
Environmental Values	TA Parks and Reserves - WCC	WCC	Recreation land and local parks identified in District Plans	File Data\Parks_and_Reserves\WCC_Parks_Reserves_May2020.shp. See also https://data-wcc.opendata.arcgis.com/datasets/wcc-parks-and-reserves
Environmental Values	TA Parks and Reserves - PCC	PCC	Recreation land and local parks identified in District Plans	File Data\Parks_and_Reserves\PCC_Reserves_2020.shp. See also http://gis.pcc.govt.nz/pccinvoker/PCCGIS-data.aspx
Environmental Values	Areas of regionally significant indigenous biodiversity	GW Region	PNRP Schedule F	https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/11
Environmental Values	Sites with significant regional environmental and landscape values	GW Region	PNRP Schedule A - Outstanding Waterbodies	https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/0
Environmental Values	Sites with significant regional environmental and landscape values	GW Region	PNRP Schedule J - Significant Geol Features	https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/26
Environmental Values	Sites with significant regional environmental and landscape values	HDC area	Horizons One Plan Schedule G	TBD
Environmental Values	Sites with significant regional environmental and landscape values	UHCC area	Outstanding and Protected Landscapes – UHCC Ridgelines (50m buffer)	Feature Class Data\Landscape_areas\Landscape_Areas.gdb\UHCC_Protected_Ridgelines_buff_50m. See also http://apps.geocirrus.com/UHCC/Index.html?viewer=UHCC_Public
Environmental Values	Sites with significant regional environmental and landscape values	PCC area	Outstanding and Protected Landscapes – PCC Ridgelines (50m buffer)	See feature class Data\Landscape_areas\Landscape_Areas.gdb\PCC_Protected_Ridgelines_buff_50m. See also https://gis.poriruacity.govt.nz/Html5Viewer292/?viewer=PublicViewer
Environmental Values	Sites with significant regional environmental and landscape values	HDC area	Outstanding and Protected Landscapes – HDC data from DP	See Data\District_Plans\HDC\DP_OP_ONFL.shp, supplied by HDC, also visible in http://mapit.horowhenua.govt.nz/HDCGPGISNZ/
Environmental Values	Sites with significant regional environmental and landscape values	WCC area	Outstanding and Protected Landscapes – WCC area (draft)	See Data\Landscape_areas\WCC_Draft_ONLF_2020.shp, sourced from WCC Draft DP 2020. See also https://wcc.maps.arcgis.com/apps/MapSeries/index.html?appid=28e822b5e41c44bc85fd8ca2d6d04d25 for WCC "Backyard Taonga" maps
Environmental Values	Sites with significant regional environmental and landscape values	WCC area	Ridgelines Hilltops Overlay – WCC area	See https://data-wcc.opendata.arcgis.com/datasets/ridgelines-hilltops-overlay
Environmental Values	Sites with significant regional environmental and landscape values	WCC area	Outstanding Natural Features – WCC area	See https://gis.wcc.govt.nz/arcgis/rest/services/CDPP/BackyardTaonga/MapServer

Environmental Values	Sites with significant regional environmental and landscape values	WCC area	Special Amenity Landscapes – WCC area	See https://gis.wcc.govt.nz/arcgis/rest/services/CDPP/BackyardTaonga/MapServer
Environmental Values	Sites with significant regional environmental and landscape values	PCC area	Outstanding and Protected Landscapes – PCC area (draft)	See Data\Landscape_areas\PCC_DP_ONFL_Areas_20200625.shp, see also http://pcc.maps.arcgis.com/apps/MapSeries/index.html?appid=ac8e53d3d0dc40e3960a681a7d55d3db for PCC draft DP data, 2020
Environmental Values	Sites with significant regional environmental and landscape values	KCDC area	Outstanding and Protected Landscapes – KCDC area (draft)	See Data\Landscape_areas\KCDC_DP2018_AppealsPartD_ONFL.shp, see also https://publicgis.kcdc.govt.nz/arcgis/rest/services/DP2018/DP2018AppealsPartDNaturalFeatures/MapServer
Environmental Values	Sites with significant regional environmental and landscape values	HCC area	Outstanding and Protected Landscapes – HCC area from DP	See GW feature class gwsde_nztm.SDEADMIN.HCC_Landscape_Protection_Areas. See also https://maps.huttcity.govt.nz/portal/apps/webappviewer/index.html?id=769c6bc31ca74d44b6513f8112458525
Environmental Values	Sites with significant regional environmental and landscape values	Wairarapa area	Outstanding and Protected Landscapes – Wairarapa area from DP	See Data\District_Plans\Wairarapa\Wai_DP_Outstanding_Landscapes.shp. See also https://gis.mstn.govt.nz/WairarapaMaps/
Environmental Values	Sites with significant regional environmental and landscape values	Wairarapa area	Outstanding and Protected Landscapes – Wairarapa area from DP	See Data\District_Plans\Wairarapa\Wai_OutstandingNatFeatures.shp. See also https://gis.mstn.govt.nz/WairarapaMaps/
Environmental Values	Sites with significant regional environmental and landscape values	UHCC area	Outstanding and Protected Landscapes – UHCC from DP	See Data\Landscape_areas\UHCC_DP_Landscape_Areas_20200623.shp. See also http://apps.geocirrus.com/UHCC/Index.html?viewer=UHCC_Public
Environmental Values	Wetlands	GW Region	GWRC Scientific Wetlands database (with 50m buffers)	Based on feature class in GWRC SDE database, see gwsde_nztm.SDEADMIN.Wetlands_Scientific_2019
Surface Drinking Water and Electricity Transmission	Current and Future Potable Water Collection Mgt Areas and S/W protection areas, and Transpower lines subdivision corridors.	GW Region	PNRP Schedule M1 - drinking water protection sites and rivers (with 50m buffers).	See https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/31 and https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/32
Surface Drinking Water and Electricity Transmission	Current and Future Potable Water Collection Mgt Areas and S/W protection areas, and Transpower lines subdivision corridors.	GW Region	PNRP Schedule M1 - drinking water protection areas.	See https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/33

Surface Drinking Water and Electricity Transmission	Current and Future Potable Water Collection Mgt Areas and S/W protection areas, and Transpower lines subdivision corridors.	Whole study area.	Subdivision corridor around Transpower lines.	See Data\Powerlines\PowerLines.gdb\Transpower_Powerlines_37m_buffs. Sourced from https://data-transpower.opendata.arcgis.com/ See also https://www.transpower.co.nz/keeping-you-connected/landowners-and-developers/development-near-national-grid
Surface Drinking Water and Electricity Transmission	Current and Future Potable Water Collection Mgt Areas and S/W protection areas, and Transpower lines subdivision corridors.	GW Region	GWRC Water Collection Areas	See feature class gwsde_nztm.SDEADMIN.GWRC_Water_Collection_Area. See also https://mapping.gw.govt.nz/arcgis/rest/services/GW/Parks_P/MapServer/19

Wahi Toiora[19]

Values	Layer Name	Area covered	Notes	Data Source
Culture and Heritage	Statutory acknowledgement areas	GW Region	Statutory acknowledgement areas between the Crown and iwi.	Extents sourced from documents at https://www.govt.nz/assets/Documents for the following iwi : Ngāti Toa Rangātira; Taranaki Whānui ki Te Upoko o Te Ika; Rangitāne o Wairarapa; Ngāti Kahungunu ki Wairarapa; Rangitane o Manawatu. n.b. the settlement with Ngāti Kahungunu is not yet finalised.
Culture and Heritage	Ngā Taonga Nui a Kiwa	GW Region	Schedule B of the PNRP	https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/1
Culture and Heritage	Sites with significant historic heritage value - Heritage NZ List Entries	Whole study area.		See Data\Heritage\WRGF2020_Heritage_and_ArchSites.gdb\HNZ_List_Entries_40m_buffs, also https://www.heritage.org.nz/the-list/about-the-list
Culture and Heritage	Sites with significant historic heritage value - NZ Archaeological Assn Sites	Whole study area.		See feature class NZAA_Archsites_40m_buffs_and_polys; received on subscription from NZAA at www.archsite.org.nz NZAA Archsites locations in Horowhenua added from map at http://www.archsite.org.nz/
Culture and Heritage	Sites with significant historic heritage value – GWRC PNRP Sched E	GW Region	Schedule E of the PNRP - Historic Heritage Freshwater Site	gwsde_nztm.SDEADMIN.NRP_ScheduleE5_HistoricHeritageFreshwater
Culture and Heritage	Sites with significant historic heritage value – GWRC PNRP Sched E	GW Region	Schedule E of the PNRP - Historic Heritage Coastal Features	gwsde_nztm.SDEADMIN.NRP_ScheduleE_HistoricHeritageCoastal

[19] Best available data provided by the project partners for this report. Porirua City Council mapping now also available: https://eplan.poriruacity.govt.nz/districtplan

Culture and Heritage	Heritage Sites in District Plans	Horowhenua DC area	HDC Historic Heritage Sites from DP	DP_OP_HISTORIC_HERITAGE_FEATURE.shp from HDC; see also http://mapit.horowhenua.govt.nz/HDCGPGISNZ/
Culture and Heritage	Heritage Sites in District Plans	UHCC area	UHCC Heritage Sites from DP	Feature class UHCC_District_Plan_Heritage_Layer47, see also http://apps.geocirrus.com/UHCC/Index.html?viewer=UHCC_Public
Culture and Heritage	Heritage Sites in District Plans	PCC area	PCC Heritage Sites from draft DP, 2020	Feature class PCC_Historic_Heritage_Draft_DP_2019 from PCC, see also http://pcc.maps.arcgis.com/apps/MapSeries/index.html?appid=ac8e53d3d0dc40e3960a681a7d55d3db for PCC draft DP data, 2020
Culture and Heritage	Heritage Sites in District Plans	KCDC area	KCDC Wahi Tapu sites from Draft DP, 2018	See KCDC_Waahi_Tapu_Draft_DP_2018.shp, see also https://publicgis.kcdc.govt.nz/arcgis/rest/services/DP2018/DP2018AppealsPartBPlanFeatures/MapServer/9
Culture and Heritage	Heritage Sites in District Plans	Wairarapa	Wairarapa DP : Tangata Whenua & Waahi Tapu Sites.	See https://gis.mstn.govt.nz/arcgis/rest/services/ResourceManagementAndPlanning/SpecialFeatures/MapServer/3 and https://gis.mstn.govt.nz/WairarapaViewer/?map=25092c1c467841908f7854a3ecc1fa41
Culture and Heritage	Heritage Sites in District Plans	WCC area	Maori sites in WCC DP (with 40m buffers)	See https://data-wcc.opendata.arcgis.com/
Culture and Heritage	Heritage Sites in District Plans	WCC area	WCC Maori Precincts in District Plan	See https://data-wcc.opendata.arcgis.com/
Culture and Heritage	Heritage Sites in District Plans	WCC area	WCC Maori Tracks in District Plan	See https://data-wcc.opendata.arcgis.com/datasets/maori-tracks
Culture and Heritage	Heritage Sites in District Plans	WCC area	Heritage areas	See https://data-wcc.opendata.arcgis.com/
Culture and Heritage	Heritage Sites in District Plans	WCC area	Heritage buildings	See https://data-wcc.opendata.arcgis.com/
Culture and Heritage	Heritage Sites in District Plans	WCC area	Heritage objects	See https://data-wcc.opendata.arcgis.com/
Culture and Heritage	Heritage Sites in District Plans	WCC area	Notable (heritage) trees	See https://data-wcc.opendata.arcgis.com/
Culture and Heritage	Heritage Sites in District Plans	HCC area	Community Iwi Activity Area in DP	See file Community_Iwi_Activity_Area.shp, supplied by HCC
Culture and Heritage	Heritage Sites in District Plans	HCC area	Operative HCC DP Cultural Sites points (with 50m buffers)	See file DPcultural_site_buffer50m.shp, supplied by HCC
Culture and Heritage	Heritage Sites in District Plans	HCC area	Heritage buildings	See file HCC District Plan - Heritage buildings.shp, supplied by HCC
Environmental Protections	Significant Natural Areas (SNAs) and EcolSites in District Plans	Wairarapa TAs	SNAs for Wairarapa DP.	See file Wai_DP_SNAs.shp. See also https://gis.mstn.govt.nz/WairarapaViewer/?map=25092c1c467841908f7854a3ecc1fa41

Environmental Protections	Significant Natural Areas (SNAs) and EcolSites in District Plans	WCC	WCC draft SNAs	See file Data\Ecol_sites\WCC_Draft_SNAs_2019.shp sourced from WCC Draft DP 2020. See also https://wcc.maps.arcgis.com/apps/MapSeries/index.html?appid=28e822b5e41c44bc85fd8ca2d6d04d25 for WCC "Backyard Taonga" maps
Environmental Protections	Significant Natural Areas (SNAs) and EcolSites in District Plans	HDC area	Known biodiversity sites in HDC area.	See Data\Horizons\Known Biodiversity Sites HDC.shp. Supplied by Horizons RC.
Environmental Protections	Significant Natural Areas (SNAs) and EcolSites in District Plans	HCC area	HCC SNRs on public land, 1990's	See \Data\Ecol_sites\HCC_SNRs_on_Public_Land.shp
Environmental Protections	Significant Natural Areas (SNAs) and EcolSites in District Plans	PCC area	PCC SNAs in draft DP, 2019	See Data\Ecol_sites\PCC_SNAs_Draft_2020.shp. See also http://pcc.maps.arcgis.com/apps/MapSeries/index.html?appid=ac8e53d3d0dc40e3960a681a7d55d3db for PCC draft DP data, 2020
Environmental Protections	Significant Natural Areas (SNAs) and EcolSites in District Plans	KCDC area	KCDC Ecolsites in draft DP, 2018	See file \Data\Ecol_sites\KCDC_DP2018_AppealsPartD_EcoSites.shp. See also https://publicgis.kcdc.govt.nz/arcgis/rest/services/DP2018/DP2018AppealsPartDNaturalFeatures/MapServer/5
Environmental Protections	Significant Natural Areas (SNAs) and EcolSites in District Plans	UHCC area	Sites with high ecological values - UHCC DP 2004	See file \Data\Ecol_sites\UHCC_Eco_Sites_June2020.shp.
Environmental Values	Coastal Marine Area, Riparian Margins.	GW Region	Public access and the protection of protected customary rights	https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/40
Hazards	High Risk Natural Hazard Areas - Coastal	GW Region	1% AEP storm surge with 1.2m SLR hazard, based off NIWA models (2020)	See feature class Data\NIWA_Feb_2020\Wellington_poly_no_simplify_AEP1pct.gdb\wlg_aep1pct_120
Hazards	High Risk Natural Hazard Areas - Coastal	HDC area	HDC Coastal Hazard Zone	See file DP_OP_COASTAL_HAZARD_AREA.shp supplied by HDC, also visible in http://mapit.horowhenua.govt.nz/HDCGPGISNZ/
Hazards	High Risk Natural Hazard Areas - Flood	GW Region	Combined flood hazards for the Wellington Region for >=1%AEP	See https://mapping.gw.govt.nz/arcgis/rest/services/GW/Flood_Hazards_Areas/MapServer See also https://mapping.gw.govt.nz/GW/Floods
Hazards	High Risk Natural Hazard Areas - Flood	HDC area	HDC flood zone from District Plan	See DP_OP_FLOOD_HAZARD_AREA.shp. See also http://mapit.horowhenua.govt.nz/HDCGPGISNZ/
Hazards	High Risk Natural Hazard Areas - Tsunami	GW Region	GWRC Regional Tsunami Hazard Zones - Red Zone	See https://mapping.gw.govt.nz/arcgis/rest/services/GW/Emergencies_P/MapServer/23 See also https://gwrc.maps.arcgis.com/apps/InformationLookup/index.html?appid=d2bb919b21ed49d7bc5d2c7a37c9d37a
Hazards	High Risk Natural Hazard Areas - Tsunami	HDC area	Horizons Regional Tsunami Hazard Zones - Red Zone	https://services1.arcgis.com/VuN78wcRdq1Oj69W/ArcGIS/rest/services/TsunamiEvacuationZones2016/FeatureServer
Hazards	High Risk Natural Hazard Areas - Earthquake related hazards	GW Region	Liquefaction data from GNS report - High/Very High zones only	https://mapping.gw.govt.nz/arcgis/rest/services/GW/Emergencies_P/MapServer/10

Hazards	Slope angles > 20 degrees	Whole study area.	Slopes derived from DEM data (GW Region) and LINZ 20m contours (HDC area)	See \Data\Elevation\GWRC_LIDAR_DEM.gdb\Slopes_from_DEM_5m_2013, also https://mapping.gw.govt.nz/arcgis/rest/services/GW/The_Region_P/MapServer/49
Hazards	Contaminated land/HAIL sites	GW Region	GWRC SLUR	https://mapping.gw.govt.nz/arcgis/rest/services/GW/Our_Environment_P/MapServer/39
Hazards	Contaminated land/HAIL sites	HDC area	Horizons SARS dataset	See feature class Horizons_SARS_Pot_Contaminated_Land_Parcels_June2020 at GWRC. Sourced by parcel matching SARS list data provided by Horizons RC for HDC area.
High Quality Soils	Land Use Capability Classes 1, 2 and 3 soils	Whole study area.	S-Map and LRI	See GW feature class gwsde_nztm.SDEADMIN.LRI. Also available at https://lris.scinfo.org.nz/layer/48076-nzlri-land-use-capability/
Electricity Generation and Groundwater Protection Areas	Groundwater drinking water supply protection wells and areas	GW Region	GWRC PNRP Schedule M2 maps. Also added Hutt Aquifer Protection Area.	See https://mapping.gw.govt.nz/arcgis/rest/services/GW/NaturalResourcesPlan2019_P/MapServer/39 See also https://mapping.gw.govt.nz/GW/GWpublicMap_Mobile/?webmap=be70fd453e6c4e5c8fa6d8d67a8adc44 Hutt Aquifer data from feature class gwsde_nztm.SDEADMIN.NRP_HuttAquiferProtectionZones
Electricity Generation and Groundwater Protection Areas	Renewable energy generation infrastructure	Whole study area.	Wind power sites (buffered at 50m) plus location of Mangahao Hydro power station.	Edited copy of data sourced from https://data.linz.govt.nz/layer/50378-nz-windmill-points-topo-150k/ with 50m buffers saved as file \Data\Misc\nz-windmill-points-topo-150k.shp

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