**Komiti Taiao ā-Hapori Hoki / Environment and Community Committee**

**OPEN ATTACHMENTS**

**ADDITIONAL ATTACHMENTS UNDER SEPARATE COVER**

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<td>Summary of Environment and Community Committee Information - updates, memos and briefings - 9 April 2019</td>
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<td>B.</td>
<td>20190327_Workshop - Water Strategy Regional Stakeholder Event</td>
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<td>C.</td>
<td>20190326_email - Waste Minimisation and Innovation Fund - small grants round opening soon</td>
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<td>D.</td>
<td>20190312_Workshop - Aucklands Climate Action Plan</td>
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<td>E.</td>
<td>20190314_Workshop - Sports Facilities Investment Plan Working Party</td>
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<tr>
<td>F.</td>
<td>20190308_Update on kauri dieback National Pest Management Plan</td>
</tr>
</tbody>
</table>

**Note:** The attachments contained within this document are for consideration and should not be construed as Council policy unless and until adopted. Should Councillors require further information relating to any reports, please contact the relevant manager, Chairperson or Deputy Chairperson.
Komiti Taiao ā-Hapori Hoki / Environment and Community Committee
MINUTES

Minutes of a Water Strategy Regional Stakeholder Event held in the Reception Lounge on Wednesday, 27 March 2019 at 9.30am

Attendees

Deputy Chairperson
Cr Alf Filipaina

Members
Cr Josephine Bartley
Cr Dr Cathy Casey
Cr Ross Clow
Cr Richard Hills
Cr Mike Lee
Cr Daniel Newman
Cr Desley Simpson, JP

From 9.35am until 11.20am

APOLOGIES

IMSB Member Renata Blair
IMSB Member James Brown
Cr Bill Cashmore
Cr Fa’anana Efeso Collins
Cr Linda Cooper
Cr Chris Darby
Mayor Hon Phil Goff, JP
Cr Penny Hulse
Cr Sharon Stewart
Cr Wayne Walker
Cr John Watson
Cr Paul Young

Council business
Council business
Council business
Council business
Council business

ITEM | TOPIC | Who | Time
---|---|---|---
1. | Apologies | Cr Alf Filipaina | 9.30am

The apologies were noted.
2. **Declarations of Interest**

The Chairperson will call for declarations of interest

Cr Clow declared that he was a member of the Forest and Bird Society

<table>
<thead>
<tr>
<th>Time</th>
<th>Organisation</th>
<th>Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30am</td>
<td>Water New Zealand</td>
<td>John Pfahlert, Chief Executive</td>
</tr>
<tr>
<td>9:45am</td>
<td>Forest and Bird Society</td>
<td>Nick Beveridge, Regional Manager, Auckland/Northland</td>
</tr>
<tr>
<td>10:00am</td>
<td>Property Council New Zealand</td>
<td>Martin Coopper, Vice President</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jane Budge, Senior Advocacy Advisor</td>
</tr>
<tr>
<td>10:15am</td>
<td>Salvation Army – did not attend</td>
<td></td>
</tr>
<tr>
<td>10:30am</td>
<td>University of Auckland PowerPoint presentation.</td>
<td>Amy Malcolm, Manager, Strategic Relations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Professor Gillian Lewis, Associate Dean – Sustainability,</td>
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<tr>
<td></td>
<td></td>
<td>Faculty of Science</td>
</tr>
<tr>
<td>10:45am</td>
<td>IAG – Withdrawn</td>
<td></td>
</tr>
<tr>
<td>11:00am</td>
<td>Auckland Regional Public Health Service PowerPoint</td>
<td>Dr David Sinclair, Public Health Medicine Specialist</td>
</tr>
<tr>
<td></td>
<td>presentation.</td>
<td></td>
</tr>
<tr>
<td>11:15am</td>
<td>Beef + Lamb New Zealand PowerPoint presentation.</td>
<td>Richard Parkes, Environment Capability Manager – North</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Island</td>
</tr>
<tr>
<td>11:30am</td>
<td>National Institute of Water and Atmospheric</td>
<td>Jonathan Moores, Group Manager, Urban Aquatic Environments</td>
</tr>
<tr>
<td></td>
<td>Research</td>
<td></td>
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<tr>
<td>11:45am</td>
<td>Environmental Defence Society</td>
<td>Gary Taylor, Chairman &amp; Executive Director</td>
</tr>
<tr>
<td>12:00pm</td>
<td>Pukekohe Vegetable Growers Association</td>
<td>Kylie Faulkner, Vice President (Sutherland Produce)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lucy Deverall, (HortNZ)</td>
</tr>
</tbody>
</table>

3. **TIMETABLE**

The following regional stakeholders provided their views on the topics raised in "Our Water Future: a discussion document".

The event closed at 12.06pm.
The University of Auckland

Feedback on Our Water Future Discussion Document
March 27 2019

Professor Gillian Lewis, Associate Dean – Sustainability, Faculty of Science
Amy Malcolm, Manager, Strategic Relations, Office of the Vice-Chancellor
Where is the research about making water cleaner and healthier?

Research published in 2018
water AND environment*
Local research institutions
Dimensions and Scopus

Data sourced by Research Services team
Libraries and Learning Services
University of Auckland
University of Auckland Total = 49

- 06 Biological Sciences: 21
- 25 Environmental Sciences: 15
- 09 Engineering: 14
- 04 Earth Sciences: 9
- 03 Chemical Sciences: 7
- 11 Medical and Health Sciences: 2
- 13 Education: 2
- 02 Physical Sciences: 1
- 07 Agricultural and Veterinary Sciences: 1
- 14 Economics: 1
- 16 Studies in Human Society: 1
- 17 Psychology and Cognitive Sciences: 2

AUT Total = 14

- 06 Biological Sciences: 8

2018 publications including Water AND environment*
Sourced from Dimensions Analytics database
2018 publications including Water AND environment

Sourced from Dimensions Analytics database
2018 Water AND Environment* Publications by subject area (Scopus)

Direct comparisons of publications by the research institutions in 2018 by subject area. (sourced from Scopus)
Examples of researchers and what they are studying?

Prof Garry Brierley: River morphology, and management, catchment rehabilitation and conservation.

Prof Gillian Lewis: Microbiological water quality, stream ecosystems; facilitating community water quality projects.

Dr Lokesh Pahye: Managing contaminants in water and water systems, water and waste treatment, water reuse.

Dr Marama Muru-Lanning: Co-governance of waterways and Māori research associations in water management.

Prof Basil Sharp: Rights based governance in water resource allocation.

Prof James Wright: Green chemistry for novel solutions to water and waste treatment.

Prof Margaret Brimble: Novel peptides as antifouling agents and biocides in water.
What do the University of Auckland’s researchers think about the Our Water Future Discussion Document?

Is the Council focusing on the right things?

Do they agree with the four priority issues?

Do they agree with the principles and processes?
Attachment B

Item 10

- Agree with the use of a systems approach (water ridge to reef) and the recognition of water as central to the planning process and the city into the future.

- Support the view that the various aspects of water (wastewater, drinking water, stormwater, water in culture, for amenity and recreation and water as part of our future resilience) cannot been seen in isolation or managed separately. Integration of planning and action must recognise the overlapping and intermingling currents of our water resources, uses and engagement.

- Support the document’s recognition of the major future changes in climate particularly with respect to rainfall frequency and intensity, change in normal seasonal patterns across the region, potential increase in significant storms, increasing ecological fragility, increasing pressure and intensity of urban development, infrastructure development and renewal needs and a changing cultural mix and social expectations.
• The climate challenge dictates the need for a new flexible approach, relying on new knowledge and technologies, new approaches and new understandings at all levels.

• There is a risk of lack of integration across the big issues if the Council Family and other key organisations, such as the ADHB, aren’t aligned.

• Suggest a re-ordering of priorities. Rather than a focus on clean up of contamination in water – look to stopping or at least reducing ongoing contamination of waters by decontaminating stormwater – not at discharge but at source. For example, transport and growth strategies need to have water as a central consideration.
• The University of Auckland welcomes the opportunity to align research with Council and to work together to address the enormous challenges we face regarding our water future.

• Suggest the starting point is to work together to identify the barriers that are slowing progress and new technologies that could help.

• Interested in a partnership that can provide long term views and strategies that can sit beside the obvious short term consultancies and contracts.
Public Health Service role in Drinking Water

• Auditor and regulator for main drinking water suppliers (including Watercare) and water carriers
• Drinking Water Assessment Unit assesses compliance with Drinking Water Standards for NZ
• Undergoing major reforms following Havelock North
• Regulator for 1080

• Havelock North
  – >5000 people ill with campylobacter (>40%)
  – Contamination of insecure ground water by sheep faeces during storm
  – No treatment or disinfection
  – Inadequate management, operations, maintenance, monitoring by councils
  – Inadequate monitoring by DWAU and MoH
  – Inadequate regulatory
Coastal and Recreational Water Quality

- Partner in Safeswim
- Working group with Healthy Waters, Watercare, RIMU and ARPHS
- Involved in response to overflows
- Coastal contaminants (eg metals, anti-fouling paint, PFOAs)
Public Health Involvement in water issues

- Wastewater/Sewage
  - Strategic links with Watercare and Healthy Waters
  - Supporting on-site programme at Auckland Council
  - Advisory role on coastal villages
- Stormwater
  - Links with Healthy Waters
  - Previously involved in road run-off issues (eg Mangere Inlet)
- Source water protection (RMA-NES)
  - Through AUP and RMA process
- Groundwater protection and management
  - Natural and human sources of contamination
  - Groundwater extraction and allocation
- Promotion of drinking water
  - Wai Auckland and Healthy Auckland Together
Public Health involvement in water issues

- Notifiable Disease Surveillance, investigation and control
Water issues and challenges

[Diagram of the DPSEEA framework developed by the World Health Organisation]

DPSEEA framework developed by the World Health Organisation
Proposed Auckland Water Strategy Framework

Te mauri of te wai

- Recognising connections across many aspects of complex water systems
- Ecological, human, cultural, historical, social values and wellbeing as important as technical and commercial
- Support approach of Te Mauri o te Wai
- Already substantial human impact
  - Need for restoration, recovery, protection, stewardship
- Intended development
  - ARPHS supports compact urban development within existing footprint using water-sensitive design
  - Infrastructure ...
- Recognise funding issues
ARPHS generally supports the framework

The framework should be strong enough to provide:

- A tool to work through competing demands
- A mechanism to recognise and monitor the cumulative effects on a wider catchment area
The national water context
ARPHS’ further recommendations

• Should come with an implementation plan and monitoring framework
• Include a focus on equity
  – Current and inter-generational
Item 10

Questions?

- Contact: Dr David Sinclair (DSinclair@adhb.govt.nz)
- ARPHS submission will be available via: www.arphs.health.nz (choose resources/letters/submissions)

Thank You
Item 10

Attachment B
Environment Strategy 2018-22

OUR VISION:
World-leading stewards of the natural environment and sustainable communities
He kaitiakitanga mo te taiao

CLEANER WATER
Goal: Sheep and beef farmers actively manage their properties to improve freshwater. New Zealanders can gather food from and swim in freshwater surrounding our farms.

CARBON NEUTRAL
Goal: Farmers continue reducing carbon emissions, moving towards a carbon neutral sheep and beef sector by 2050.

THRIVING BIODIVERSITY
Goal: Sheep and beef farms provide habitats that support biodiversity and protect our native species.

HEALTHY PRODUCTIVE SOILS
Goal: Land use is closely matched to soil potential and capability. Farmers are working to improve soil health, carbon content and productivity while minimising soil loss.

by farmers, for farmers
Drivers for change

- Market access and customer requirements
- Social license
- Changing regulations
- Declining water quality
Attachment B

Item 10

Farmer have told us

- Number of different Farm Environment Plan templates
- Lots going on in the environment space
- Not getting recognition
- Want farm plans to be useful business tool
- On going support
Priority Foundations

1. Farm Environment Plan

2. Catchment Community Programme
Farm Environment Plan

Process not prescription
—one size doesn’t fit all

Farms are:
• Heterogeneous
• Complex
• Dynamic
• Socio ecosystems
Supporting continuous improvement
Documenting the journey—EMS
Attachment B

MAPPLNG THE JOURNEY
And telling the story
Catchment Communities Programme

Supporting change

Connected thriving communities

Support farmer leader

Communities find their own “why”
Reframing the conversation
Restoring farmer pride

Appreciative Inquiry
Asset Based
Look at what we've got!
Deficit Focused
Leading catchments

Farmer pride
Taking back ownership
Farmer leaders

0800 BEEFLAMB (0800 233 352)  |  WWW.BEEFLAMBZN.COM  |  BY FARMERS. FOR FARMERS
CATCHMENT ACTION CYCLE

THE PROCESS OF PLANNING AND ACTING

Why are we coming together?

What's all the great stuff we have going on?

What's our vision for the future?

Where are we going?

What actions are we going to take?

How are we going to tell our story?
Attachment B

Item 10
Delivery Ready Workshops

- Farm Environment Planning
- Water Quality
- Carbon
  - Catchment Groups
  - Soil
  - Biodiversity
  - Environment 101
Introduction:
Hello, my name is Kylie Faulkner and I am a 3rd generation Commercial Vegetable Grower from Bombay. I am also the Vice-President of the Pukekohe Vegetable Growers Association (or the PVGA as it is often referred to). I am here today representing the PVGA and its 250+ members.

The PVGA celebrated its 100th anniversary last year. What started out as a small group of growers in the Pukekohe Area has grown to a large association stretching from Warkworth in the North to the Southern Waikato. The majority of our members are inter-generational growers – 3 to 4 generations of families passing on their passion, knowledge and pride in growing food from the land.

We have an active executive committee of around 20 growers who are all volunteers. Our focus as a group is on sustainability, health and safety of our employees and customers and compliance.

We are actively involved in representing growers’ interests and want to see practical, cost effective land management systems developed for our members.

We all have the same goal – to still be farming off our land in 100 years’ time, to still be providing New Zealanders with fresh and healthy food.

Commercial Vegetable Production and water use:

Commercial Vegetable Production is complex and has many factors to consider – the land owner, the lease holder, land swapping, crop rotation, geographic spread, food security and soil health.

Crop rotation is critical practice for most vegetable production. It is part of an integrated approach for pest and disease control by preventing a build-up of disease and helps maintain soil health.

Access to water is also critical. Irrigation water is used for soil health and to manage nutrients and to grow the plants and vegetables. Water is also used for washing of vegetables for safe consumption. Food safety is high on the agenda and to meet industry standards water must be of high quality.
Growers in the area predominantly use ground water. However, some still use surface water and the impacts of climate change are unknown but will likely require an increase in surface water use.

Such factors need to be taken into account when setting minimum standards and setting allocations of water quality and quantity. Regulations and actions need to be relevant to and realistic for commercial vegetable production activities – to ensure vegetable production contributes to water quality improvement, but also so that vegetable production can continue to meet domestic food demands.

The Water Strategy:
The “Our Water Future” Discussion document talks of the 5 water values that have been decided to be used to underpin the proposed vision. PVGA seeks to ensure that Commercial Vegetable Production is adequately considered in these values.

PVGA support the intent to provide for water storage. Water storage and the availability of clean, good quality water is paramount in growing fresh vegetables. A commercial vegetable grower needs the ability to be able to store water on farm for future use. The strategy also needs to make provision for the possibility of managed aquifer recharge as future water management tool.

We see that the discussion document identifies the need to support net benefits in a catchment approach. We support this idea but would like to ensure there are practical methods to allow for the unique and complex risk management practices of commercial vegetable production (such as crop rotation, geographic, irrigation etc).

Planning is also vital when it comes to the building of infrastructure as this has a huge effect on the re-charge of underground aquifers which growers rely on. Careful consideration needs to be taken on the urban development of Pukekohe/Franklin as we are the “Food bowl of New Zealand”.

Commercial Vegetable Production in the Franklin area feeds the domestic fresh produce supply. The Deloitte report, New Zealand’s Food Story – The Pukekohe Hub published in August 2018 highlights how important our area is, for the nation and fresh vegetable consumption.

Although the Pukekohe hub is seen as a small area – it contributes 26% of the nation’s value of production in vegetables. At a certain time of year, it is the only producer of carrots and potatoes nationwide. The bulk of the Pukekohe hub’s produce goes to Auckland. In other words, we feed Auckland and New Zealand.

The discussion document talks about things that are already happening to assist in improvement. There are a few actions that PVGA think are worth including.
The New Zealand GAP Programme (Good Agricultural Practice) ensures the safe and sustainable production of fruit and vegetables in New Zealand. To be NZ GAP certified, growers must demonstrate their commitment and ability to meet sustainable and responsible practices.

NZGAP covers Food Safety, Environmental and Social practices. It is a moving and living target – continuous improvement and add-ons to the programme are happening all the time. Growers must be NZGAP certified to meet many customers regulations (such as supermarkets, markets and processors).

NZGAP also applies the industry approved codes of practice on sediment and erosion control, vegetable washing and nutrient management.

Continuous improvement to our growing is something we take very seriously. Along with written codes of practice we are actively involved in research projects. A fine example of this is the Franklin Sustainability Project which was started after major floods hit Pukekohe in 1996.

More recently we have been involved in the Rootzone Reality Project and the Don’t Muddy the Waters Project.

These are PROACTIVE projects and information gathered is used for learning and greater understanding of environmental and land management practices.

In May we will be holding another Erosion and Sediment Control Education day which the Council, HortNZ and the PVGA are involved in.

As growers we are on a continuous learning curve. We want to improve practices and protect and our land and waterways.

Thank you for your time.
Maea Petherick

To: Environment and Community committee; Res Local Boards; Independent Maori Statutory Board
Subject: FW: Waste Minimisation and Innovation Fund - small grants round opening soon

Kia ora koutou katoa,

The next round of the Waste Minimisation and Innovation Fund (WMIF) will be open from Monday 1 April 2019 until Tuesday 30 April 2019. This round will accept grant applications requesting between $250 and $5,000.

If you are aware of anyone who has a great idea for a project, activity or event that supports waste minimisation in Auckland then please pass this information on to them, or provide them with my contact details at the bottom of this email. Please note that a separate email has been sent out to all contacts on the fund database to advise them of the funding round.

Funding workshops are available upon request should any organisations or communities within Auckland (or internal council teams) have interest in receiving in-depth information on the application and assessment process. Support and guidance is also available to applicants and grant recipients by phone, email, and face-to-face engagement should it be required.

Further information and guidelines for the WMIF can be found on the Auckland Council website here.

Get in touch
For further information or for any queries, please use the contact details below:
Email aucklandwastefund@aucklandcouncil.govt.nz
Phone 021 734 399

Ngā mihi | kind regards,

Samantha Arumugam
Waste Planning Advisor(Initiatives)
Waste Solutions | Infrastructure & Environmental Services
Mob: 021 734 399 | E samantha.arumugam@aucklandcouncil.govt.nz
Auckland Council, Level 1 N,Bledisloe House, 24 wellesley Street,Auckland
Visit our website: www.aucklandcouncil.govt.nz

MAKE THE MOST OF WASTE
.co.nz
Komiti Taiao ā-Hapori Hoki / Environment and Community Committee
Auckland’s Climate Action Plan

WORKSHOP MINUTES

Minutes of a meeting of the workshop held in Reception Lounge, Level 2, Auckland Town Hall at 3.26pm

PRESENT

Chairperson
Cr Penny Hulse
Cr Alf Filipaina
Cr Josephine Bartley
IMSB Member Renata Blair
Cr Dr Cathy Casey
Deputy Mayor Bill Cashmore
Cr Ross Clow
Cr Fa’anana Efeso Collins
Cr Linda Cooper, JP
Cr Chris Darby
Cr Hon Christine Fletcher, QSO
Mayor Hon Phil Goff, JP
Cr Richard Hills
Cr Mike Lee
Cr Daniel Newman, JP
Cr Greg Sayers
Cr Desley Simpson, JP
Cr Sharon Stewart, QSM
Cr Sir John Walker, KNZM, CBE
Cr Wayne Walker
Cr John Watson
Cr Paul Young

APOLOGIES

Local Boards Chairs
Julia Parfitt
Angela Dalton
Tracey Mulholland
Shane Henderson

Hibiscus and Bays
Manurewa
Whau
Henderson-Massey
Note: No decisions or resolutions may be made by a Workshop or Working Party, unless the Governing Body or Committee resolution establishing the working party, specifically instructs such action.
**Purpose of workshop:**

- Through engagement and research to date, twelve priority areas of focus have been identified that need to be socialised, prioritised and confirmed prior to next steps in plan development and resourcing.

**Workshop notes:**

**Item: Auckland’s Climate Change Risk Assessment**

- Discussion on delivery of Auckland’s Climate Action Plan, RIMU have utilised the NIWA climate projections for the Auckland region to undertake a climate change risk assessment, addressing social, environmental and infrastructure risks amongst others. A number of technical reports that will be released at the climate symposium on 20th March. Provided an overview of key findings from the reports in advance of their release.

**Item: Auckland’s Climate Action Plan**

- Provided an overview of the development of the climate action plan, emerging priorities and flagship actions and links to evidence emerging from the assessments and emissions modelling.

**Item: Auckland’s Climate Symposium on the 18th to 20th of March 2019**

- Discussion on the three-day symposium that will be held in March, including a conference, flagship action development and a number of parallel sessions. The symposium will bring together leaders and decision makers from across the region and more widely including local and central government, business and voluntary sectors.

The briefing/workshop closed at 4.44pm.
Auckland Climate Change Risk Assessment

Nancy Golubiewski, Jennifer Joynt, Nick Talbot, Mario Fernandez, Craig Bishop, Todd Landers, Megan Carbones, Melissa Foley, Jamie Boyle, Chad Hu and Kyle Balderston

Research and Evaluation Unit (RIMU)

Workshop with Councillors and Local Board members
12 March 2019
Summary of NIWA projections for Auckland

How will Auckland’s climate change?

**INCREASING TEMPERATURES**
The average annual temperature in Auckland has increased by about 1.6°C over the past century and is expected to increase through the 21st century.

**INCREASE IN EXTREME WEATHER**
Seasonal rainfall patterns will change with wetter autumns and drier springs. Increasing extreme rainfall intensity is likely because warmer air holds more moisture.

**INCREASING CHANCE OF DROUGHT**
Longer dry spells will mean increased potential for drought conditions. Moisture in our soil is expected to decline due to increased evaporation and changing rainfall patterns.

**SEA LEVEL RISE & OCEANIC CHANGE**
Sea levels around Auckland have risen. This is expected to continue and potentially accelerate.
Change will happen on our watch

<table>
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<th>Time period</th>
<th>Range</th>
<th>Years away</th>
<th>Horizon</th>
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<tr>
<td>2040</td>
<td>2031-2050</td>
<td>~10</td>
<td>everyone</td>
</tr>
<tr>
<td>2090</td>
<td>2081-2100</td>
<td>~60</td>
<td>children</td>
</tr>
<tr>
<td>2110</td>
<td>2101-2120</td>
<td>~80</td>
<td>babies</td>
</tr>
</tbody>
</table>

*2060: ~40 years

‘For every five-year delay in strong action on climate change, the ocean could rise an additional eight inches by the year 2300’ (Chris Mooney, The Washington Post)
First, a word...

- Risk: A situation involving exposure to danger
  - The possibility that something unpleasant or unwelcome will happen.
  - A person or thing regarded as a threat or likely source of danger.
  - A possibility of harm or damage against which something is insured.
  - The possibility of financial loss.

- Origin: Mid 17th century: from French risque (noun), risquer (verb), from Italian risco ‘danger’ and rischiare ‘run into danger’.

- Oxford English Dictionary
From...
To...
Auckland Climate Change Risk Assessment

Social
1. Development of the Auckland heat vulnerability index
2. Air quality connection to climate change
3. Social vulnerability to multidimensional impacts

Natural Environment
4. Impacts and risks for marine and freshwater ecosystems
5. Impacts and risks for terrestrial ecosystems

Water, water everywhere
6. Flooding risk
7. Sea level rise regional inventory
8. Sea level rise local inventory
Society
1. Auckland’s Heat Vulnerability Index
## Indicators

<table>
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<tr>
<th>Variable</th>
<th>Data source</th>
<th>Variable definition</th>
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<tbody>
<tr>
<td>IMD</td>
<td>University of Auckland database</td>
<td>Ranked value reflecting 26 indicators of deprivation</td>
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<tr>
<td>One Head household</td>
<td>2013 Census</td>
<td>Percent of population in 1 head household - proxy for social isolation</td>
</tr>
<tr>
<td>Rental tenure</td>
<td>2013 Census</td>
<td>Percent of population in property not owned, or held in a family trust with rent paid</td>
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<tr>
<td>Over 65 years</td>
<td>2013 Census</td>
<td>Percent of population over 65 years</td>
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<tr>
<td>Under 5 years</td>
<td>2013 Census</td>
<td>Percent of population under 5 years</td>
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<tr>
<td>No English language</td>
<td>2013 Census</td>
<td>Percent of population not able to speak English (not including those too young to speak)</td>
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<tr>
<td>Burden rent (IMP)</td>
<td>HES</td>
<td>Ratio between average rent and average household income per CAU. (Burden rent = 33% or more income paid in rent)</td>
</tr>
<tr>
<td>Māori ethnicity</td>
<td>2013 Census</td>
<td>Percent of population identifying as Māori ethnicity - proxy for heat susceptible health conditions inc. diabetes, renal disease, cardiovascular disease</td>
</tr>
<tr>
<td>Pacific ethnicity</td>
<td>2013 Census</td>
<td>Percent of population identifying as Pacific ethnicity-proxy for heat susceptible health conditions inc. diabetes, renal disease, cardiovascular disease</td>
</tr>
<tr>
<td>Non-green space</td>
<td>New Zealand Land Cover Database (LCDB)</td>
<td>Percentage area classified as either Built-up Area (settlement); Gravel or Rock; Landslide; Sand or Gravel; Mine or Dump; Transport Infrastructure per CAU</td>
</tr>
</tbody>
</table>
Heat vulnerability index for Auckland of all ranked scores
Item 10

Attachment D

Hot day projections 2040,2090,2110
Heat vulnerability and land cover
Employment in occupations vulnerable to heat events and HVI most at risk

Regional statistics for vulnerable occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number of employment</th>
<th>% of total employment in Auckland</th>
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<tbody>
<tr>
<td>Farm, Forestry &amp; Garden Workers</td>
<td>7,396</td>
<td>0.9%</td>
</tr>
<tr>
<td>Construction &amp; Mining Labourers</td>
<td>8,235</td>
<td>1.0%</td>
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Auckland Council
2. Air quality connection to climate change

- Climate Change, Air Quality and Health - Conceptual Model

AUCKLAND

# 3. Social Vulnerability

## Impact Index and Adaptive Capacity Index

<table>
<thead>
<tr>
<th>Index</th>
<th>Indicators</th>
<th>Functional relationship</th>
</tr>
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<tbody>
<tr>
<td><strong>Exposure</strong></td>
<td>Coatal inundation - 1 meter sea level rise</td>
<td>Vulnerability T as indicator T</td>
</tr>
<tr>
<td></td>
<td>Dry days &lt; 1 mm</td>
<td>Vulnerability T as indicator T</td>
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<td>Total precipitation percentage change</td>
<td>Vulnerability T as indicator T</td>
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<td>Heavy rainfall days &gt; 25 mm</td>
<td>Vulnerability T as indicator T</td>
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<td>Hot days &gt; 25</td>
<td>Vulnerability T as indicator T</td>
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<td>Mean temperature</td>
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<td>Mean wind speed</td>
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<td>Relative humidity</td>
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<tr>
<td><strong>Sensitivity</strong></td>
<td>Deprivation index</td>
<td>Vulnerability T as deprivation index T</td>
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<tr>
<td></td>
<td>Unemployment rate*</td>
<td>Vulnerability T as unemployment T</td>
</tr>
<tr>
<td></td>
<td>Ratio of population under 15 and over 65 of age to the population between 15 and 64 years of age*</td>
<td>Vulnerability T as rate of dependency T</td>
</tr>
<tr>
<td></td>
<td>Percentage of populated area relative to CAU area</td>
<td>Vulnerability T as % of populated area T</td>
</tr>
<tr>
<td></td>
<td>Percentage of single-headed households*</td>
<td>Vulnerability T as % of single-headed households T</td>
</tr>
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<td></td>
<td>Road density (Ratio of km of road per km² of populated area)</td>
<td>Vulnerability T as ratio T</td>
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<tr>
<td><strong>Adaptive Capacity</strong></td>
<td>Average household income*</td>
<td>Vulnerability T as income T</td>
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<td></td>
<td>Housing stress (ratio of rent payments to household income)*</td>
<td>Vulnerability T as housing stress T</td>
</tr>
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<td></td>
<td>Percentage of population that are owner-occupiers of house*</td>
<td>Vulnerability T as % of owning house T</td>
</tr>
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<td></td>
<td>Percentage of area on crops production**</td>
<td>Vulnerability T as % on crops production T</td>
</tr>
<tr>
<td></td>
<td>Percentage of area on grass production**</td>
<td>Vulnerability T as % on grass production T</td>
</tr>
<tr>
<td></td>
<td>Percentage of forest cover to area of CAU **</td>
<td>Vulnerability T as % of forest cover T</td>
</tr>
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</table>

## 4. Terrestrial Ecosystems

<table>
<thead>
<tr>
<th>Ecosystem type (&amp; number of risk factors)</th>
<th>More than 10% of ecosystem extent is vulnerable to inundation in a 100-year flood</th>
<th>Coastal location I (&gt;10% within 50m of coast)</th>
<th>Coastal location II (&gt;30% within 500m of coast)</th>
<th>Restricted distribution (&lt;200 ha ecosystem extent in the region)</th>
<th>Ecosystem at climatic limits in Auckland region</th>
<th>Climate change specifically identified as a threat for this ecosystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal turf (4)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Oioi restiad-rushland and reedland (4)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Lakeshore turf (3)</td>
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<td>Spinifex-pingao grassland &amp; sedgeland (3)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Shore bind weed-knobby club rush gravelfield &amp; stonefield (3)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Iceplant-glasswort herbfield &amp; loamfield (3)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Kauri-towai-rata montane podocarp forest (3)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Pohutukawa-puriri broadleaf forest (3)</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Pohutukawa scrub &amp; forest (2)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Pohutukawa treeland, flaxland &amp; rockland (2)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Rimu-towai forest (3)</td>
<td>Yes</td>
<td>Yes</td>
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<td>Manuka gumland (2)</td>
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<td>Oioi-knobby club rush sedgeland (2)</td>
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<td>Yes</td>
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<tr>
<td>Kansuka scrub &amp; forest (1)</td>
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<td>Flaxland (1)</td>
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<td>Machaerina sedgeland (1)</td>
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<td>Raupo reedland (1)</td>
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<td>Hebe-wharariki flaxland (1)</td>
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<td>Kahikatea forest (1)</td>
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<th>Seabird</th>
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<th>Pests</th>
<th>Severe weather</th>
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<tr>
<td>Morus serrator</td>
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<td>Black petrel</td>
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<tr>
<td>Procellaria papuanus</td>
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<tr>
<td>Black shag</td>
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</tr>
<tr>
<td>P. carbo</td>
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<td>L. buleri</td>
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<td>Black-winged petrel *</td>
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<td>P. nigripennis</td>
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<td>Hydroprogne caspia</td>
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<td>Cook's petrel</td>
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<td>Flesh-footed shearwater</td>
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<td>Puffinus carneipes</td>
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<td>P. guayra</td>
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<td>P. aurorosella</td>
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<td>Eudyptula minor</td>
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<td>Fregata macrana</td>
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<td>Pied shag</td>
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<td>Phalacrocorax varius</td>
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<tr>
<td>L. scapulatus</td>
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<td>Sooty shearwater</td>
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<td>P. griseus</td>
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<td>Larus dominicanus</td>
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<td>Sternula albifrons</td>
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<tr>
<td>White-faced storm petrel</td>
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<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Pelegrina marina</td>
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<tr>
<td>White-fronted tern</td>
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<td>Moderate</td>
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<tr>
<td>Sula atrilata</td>
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### 5. Marine and freshwater ecosystems

<table>
<thead>
<tr>
<th>Habitat/species</th>
<th>Water temperature</th>
<th>Extreme rainfall</th>
<th>Nutrients</th>
<th>Ocean acidification</th>
<th>Sea level rise</th>
<th>Water circulation</th>
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<tr>
<td>Intertidal mud flats</td>
<td>High</td>
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<td>Low</td>
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<td>High</td>
<td>Moderate</td>
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<tr>
<td>Intertidal rocky reef</td>
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<td>High</td>
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<td>High</td>
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<td>Moderate</td>
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<td>Mangroves</td>
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<td>Freshwater soft bottom</td>
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<td>Freshwater fish</td>
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<td>Freshwater invertebrates</td>
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</table>

*Note: The table represents the stressors and impacts of various marine and freshwater ecosystems.*
Water, water everywhere…
6. Flooding risk index: hazard, exposure, vulnerability
7. Sea Level Rise: Regional Inventory

[Diagram showing future sea level trends and observed sea level changes]
Attachment D

Item 10
8. Sea Level Rise: Local assessments
Known quantities...
Committee Direction

- Approved review and update of Low Carbon Auckland, including adding climate resilience (Feb 2018)
- Workshopped and inputted into framework (July, Sep 2018)
- Endorsed requirement to develop a climate plan consistent with Paris Agreement aspiration of 1.5°C maximum temperature rise (Nov 2018)
What is Auckland’s Climate Action Plan?

Auckland’s Climate Action Plan will set a path to rapidly reduce greenhouse gas emissions to keep within 1.5 degrees of warming while ensuring Auckland is prepared for the impacts of climate change.
Nexus with Other Plans and Strategies
Attachment D

Item 10

Approach & Timeline

- Insights
  - Local Boards
  - Youth
  - Advisory Panels
  - Environment & Community Ctee
  - Mana Whenua
  - Central Government
  - Independent Advisory Group
  - C40 Cities
  - Working Group

- Evidence
  - Including:
    - Literature Review
    - Global Cities Climate Action Review
    - Risks and Vulnerabilities Assessment
    - Emissions modelling to net zero
    - MWKF report on mana whenua perspectives on climate change

- Initial Climate Plan Framework
  - Comprising:
    - Outcomes
    - Four Domains
    - Levers
    - Must Haves

- Subject Matter Expert Workshops
  - Unpacking actions and levers
  - Establishing soft and aggressive targets

- Prioritisation and Consolidation
  - Discussion with technical insight groups, e.g., Working Group, Independent Advisory Group, Central Government
  - Modelling

- Auckland Climate Symposium
  - Focussing on:
    - Key Topics
    - Idea Refinement
    - Leadership & Organisational Engagement

- Climate Plan Key Focus Areas

- Develop Draft Plan
  - Consolidation of actions, symposium outputs, engagement activities and evidence
  - Drafting of content
  - Committee workshop

- Consultation Draft to Committee

- Public Consultation

- Final plan

ClimateAKL.co.nz online engagement platform

Feb 2018 to Nov/Dec 2018 to March 2019 to June & July to tbc
Workshops

Workshop sessions:

Day 1  Climate Smart Communities
Day 2  Healthy and Resilient Buildings, Places and Spaces
Day 3  Climate Ready Systems and Infrastructure
Day 4  A Prosperous Economic Future

Sectors represented:

- Central government
- Auckland Council and CCO’s
- Health
- Energy
- Transport
- Water
- Construction & Development
- Business
- Universities
- Not for Profit
Crowdsourcing ideas and actions

"Unless we address climate change urgently and with every effort possible, nothing else will be of any long term consequence"
Climate Projections and Risks

How will Auckland’s climate change?

INCREASING TEMPERATURES
The average annual temperature in Auckland has increased by about 1.6 °C over the past century and is expected to increase through the 21st century.

INCREASE IN EXTREME WEATHER
Seasonal rainfall patterns will change with wetter autumns and drier springs. Increasing extreme rainfall intensity is likely because warmer air holds more moisture.

INCREASING CHANCE OF DROUGHT
Longer dry spells will mean increased potential for drought conditions. Moisture in our soil is expected to decline due to increased evaporation and changing rainfall patterns.

SEA LEVEL RISE & OCEANIC CHANGE
Sea levels around Auckland have risen. This is expected to continue and potentially accelerate.
Illustrative decarbonisation pathway
<table>
<thead>
<tr>
<th>Action ref</th>
<th>Action name</th>
<th>Applicable sector</th>
<th>Comments and assumptions</th>
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<tbody>
<tr>
<td>SE01</td>
<td>Building code stipulates new residential buildings to be zero emissions</td>
<td>I.1 Stationary Energy (Residential)</td>
<td>100% LED lighting from 2020, Lighting occupancy controls from 2030, High-range energy efficient appliances from 2020, 50% Electricity-fueled heat pumps from 2020, 80% from 2030, 90% from 2050, 100% High efficiency chillers from 2020, 50% improved insulation from 2020, 80% from 2030</td>
</tr>
<tr>
<td>SE02</td>
<td>Building code stipulates new commercial buildings to be zero emissions</td>
<td>I.2 Stationary Energy (Commercial)</td>
<td>100% LED lighting with occupancy controls and daylighting from 2020, 100% High efficiency and Energy Star rated appliances from 2020, 50% Electricity-fueled heat pumps from 2020, 80% from 2030, 100% from 2050, 100% High efficiency chillers from 2020, 50% improved insulation from 2020, 80% from 2030</td>
</tr>
<tr>
<td>SE03</td>
<td>Replace natural gas boilers with heat pumps for heating in existing buildings</td>
<td>I.3 - I.8 Stationary Energy (Industrial)</td>
<td>5% switch to heat pumps by 2020, 20% switch by 2030, 50% switch by 2050, for residential and commercial</td>
</tr>
<tr>
<td>SE04</td>
<td>Retrofit building envelope, lighting and appliances in existing residential buildings</td>
<td>I.1 Stationary Energy (Residential)</td>
<td>Lighting: 50% switch to LEDs by 2020, 100% switch + occupancy controls by 2030. Appliances: 50% mid-range energy efficient by 2020, 50% mid-range energy efficient + 50% high-range energy efficient by 2030, 100% high-range energy efficient by 2050. Building envelope: 5% switch to advanced insulation and double glazing by 2020, 20% switch by 2030, 50% switch by 2050</td>
</tr>
<tr>
<td>SE05</td>
<td>Retrofit building envelope, lighting and appliances in existing commercial buildings</td>
<td>I.2 Stationary Energy (Commercial)</td>
<td>Lighting: 50% switch to LEDs by 2020, 100% switch + occupancy controls by 2030. Appliances: 50% High efficiency and Energy Star rated appliances from 2020, 100% from 2030. Building envelope: 5% switch to advanced insulation and double glazing by 2020, 20% switch by 2030, 50% switch by 2050</td>
</tr>
<tr>
<td>SE06</td>
<td>Adopt district heating and cooling systems</td>
<td>I.3 - I.8 Stationary Energy (Industrial)</td>
<td>2% adoption in 2020, 10% adoption by 2030, for residential and commercial</td>
</tr>
<tr>
<td>SE07</td>
<td>Install solar PV on residential buildings</td>
<td>I.1 Stationary Energy (Residential)</td>
<td>Current uptake rate of solar is 0.70%, average installed capacity 3.31kW (<a href="http://www.emi.ea.govt.nz/energy">www.emi.ea.govt.nz/energy</a>). Assume 2% uptake by 2020, 20% by 2030, 50% by 2050, 3.3 kW systems.</td>
</tr>
<tr>
<td>Action ref</td>
<td>Action name</td>
<td>Applicable sector</td>
<td>Comments and assumptions</td>
</tr>
<tr>
<td>------------</td>
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<td>---------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SE08</td>
<td>Install solar PV on commercial buildings</td>
<td>1.2 Stationary Energy (Commercial)</td>
<td>Current uptake rate of solar is 0.24%, average installed capacity 10.63kW (<a href="http://www.emi.ea.govt.nz/r/nikef">www.emi.ea.govt.nz/r/nikef</a>). Assume 2% uptake by 2020, 20% by 2030, 50% by 2050, 10 kW systems.</td>
</tr>
<tr>
<td>SE09</td>
<td>Retrofit existing Council buildings to improve energy efficiency</td>
<td>1.2 Stationary Energy (Commercial)</td>
<td>Lighting: 50% switch to LEDs by 2020, 100% switch + occupancy controls by 2030. Appliances: 50% High efficiency and Energy Star rated appliances from 2020, 100% from 2030. Building envelope: 25% switch to advanced insulation and double glazing by 2020, 60% switch by 2030, 100% switch by 2050.</td>
</tr>
<tr>
<td>SE10</td>
<td>Build new Council buildings to high sustainability standards</td>
<td>1.2 Stationary Energy (Commercial)</td>
<td>100% LED lighting from 2020, Lighting occupancy controls from 2030, High-range energy efficient appliances from 2020, 100% Electricity-fueled heat pumps from 2020, 100% High efficiency chillers from 2020, 100% Advanced insulation and double-glazed windows from 2020.</td>
</tr>
<tr>
<td>SE11</td>
<td>Install energy efficient street lighting</td>
<td>1.2 Stationary Energy (Commercial)</td>
<td>50% switch to LEDs by 2020, 100% switch by 2030.</td>
</tr>
<tr>
<td>SE12</td>
<td>Install municipal solar PV (on buildings or land)</td>
<td>1.2 Stationary Energy (Commercial)</td>
<td>1 MW by 2020, 5 MW by 2030, 20 MW by 2050.</td>
</tr>
<tr>
<td>SE13</td>
<td>Grid decarbonisation</td>
<td>1.3 - 1.8 Stationary Energy (Industrial)</td>
<td>Coal switched to solar by 2020 (2.38%), Half of gas switched to solar/wind by 2030 (6.4%), All gas switched to solar/wind by 2050 (12.8%).</td>
</tr>
<tr>
<td>TR01</td>
<td>Switch to electric and zero emissions vehicles</td>
<td>II. Transportation</td>
<td>20% of passenger vehicles switch to electric by 2030, 80% by 2050.</td>
</tr>
<tr>
<td>TR02</td>
<td>Mode shift to public and active transport modes</td>
<td>II. Transportation</td>
<td>9.3% bus, 3.1% commuter rail, 2.3% ferryboat, 0.9% bicycle, 4.1% walk in 2030, 15.4% bus, 5.1% commuter rail, 4% ferryboat, 0.9% bicycle, 4.1% walk in 2050.</td>
</tr>
<tr>
<td>Action ref</td>
<td>Action name</td>
<td>Applicable sector</td>
<td>Comments and assumptions</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>TR03</td>
<td>Increase fuel efficiency of vehicles</td>
<td>II. Transportation</td>
<td>2% by 2020, 10% by 2030, 20% by 2050 (for all modes except rail and ferry)</td>
</tr>
<tr>
<td>TR04</td>
<td>Increase transit oriented development</td>
<td>II. Transportation</td>
<td>5% of new houses are in Transit-Oriented Developments, this reduces their trips by 5%</td>
</tr>
<tr>
<td>WA01</td>
<td>Electricity demand currently imported by WWTPs is met by internal generation</td>
<td>III. Waste</td>
<td>Uptake of 10% by 2020, 50% by 2030 and 100% by 2050</td>
</tr>
<tr>
<td>WA02</td>
<td>Organic waste to heat... wood waste to incineration</td>
<td>III. Waste</td>
<td>Increase proportion of wood waste incinerated by 5% by 2020, 10% by 2030 and 20% by 2050</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increase proportion of wood waste digested by 5% by 2020, 10% by 2030 and 20% by 2050</td>
</tr>
<tr>
<td>WA03</td>
<td>Reduce generation and increase recycling rates of paper waste</td>
<td>III. Waste</td>
<td>Increase proportion of recycling by 5% and decrease generation of waste in both recycling and landfill by 5% by 2020, 20% by 2030, 50% by 2050</td>
</tr>
<tr>
<td>WA04</td>
<td>Reduce generation and increase recycling rates of plastic waste</td>
<td>III. Waste</td>
<td>Increase proportion of recycling by 5% and decrease generation of waste in both recycling and landfill by 5% by 2020, 20% by 2030, 50% by 2050</td>
</tr>
<tr>
<td>WA05</td>
<td>Collect organic food waste for anaerobic digestion</td>
<td>III. Waste</td>
<td>Increase proportion of food waste digested by 5% by 2020, 10% by 2030 and 20% by 2050. Decrease generation of food waste by 5% by 2020, 10% by 2030 and 20% by 2050.</td>
</tr>
<tr>
<td>IP01</td>
<td>Waste heat recovery</td>
<td>IV. Industrial Processes and Product Use</td>
<td>Reduction in greenhouse gas emissions due to waste heat recovery – 0% in 2020, 5% in 2030, 25% in 2050.</td>
</tr>
<tr>
<td>IP02</td>
<td>High temperature pumps</td>
<td>IV. Industrial Processes and Product Use</td>
<td>Reduction in greenhouse gas emissions due to uptake – 0% in 2020, 4% in 2030, 15% in 2050.</td>
</tr>
<tr>
<td>Action ref</td>
<td>Action name</td>
<td>Applicable sector</td>
<td>Comments and assumptions</td>
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<tr>
<td>-----------</td>
<td>-------------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IP03</td>
<td>Best practice technology</td>
<td>IV. Industrial Processes and Product Use</td>
<td>Reduction in greenhouse gas emissions due to uptake – 0% in 2020, 4% in 2030, 16% in 2050.</td>
</tr>
<tr>
<td>IP04</td>
<td>Fuel switching to wood/biofuels</td>
<td>IV. Industrial Processes and Product Use</td>
<td>Reduction in greenhouse gas emissions due to uptake – 0% in 2020, 4% in 2030, 8% in 2050.</td>
</tr>
<tr>
<td>IP05</td>
<td>Fuel switching of gas to electricity</td>
<td>IV. Industrial Processes and Product Use</td>
<td>Reduction in greenhouse gas emissions due to uptake – 0% in 2020, 10% in 2030, 34% in 2050.</td>
</tr>
<tr>
<td>IP06</td>
<td>Fuel switching to biochar by NZ Steel</td>
<td>IV. Industrial Processes and Product Use</td>
<td>Reduction in greenhouse gas emissions due to uptake – 0% in 2020, 4% in 2030, 8% in 2050.</td>
</tr>
<tr>
<td>IP07</td>
<td>Fuel switching to hydrogen by NZ Steel</td>
<td>IV. Industrial Processes and Product Use</td>
<td>Reduction in greenhouse gas emissions due to uptake – 0% in 2020, 5% in 2030, 30% in 2050.</td>
</tr>
<tr>
<td>AF01</td>
<td>Ecological corridor carbon sequestration</td>
<td>V. Agriculture, Forestry, and Land Use</td>
<td>Planting 19,000+ softwood trees in temperature climate, consistent with planting all ecological corridors as planned.</td>
</tr>
<tr>
<td>AF02</td>
<td>Reduction in agricultural energy use</td>
<td>V. Agriculture, Forestry, and Land Use</td>
<td>40% reduction in energy intensity in the agricultural sector</td>
</tr>
</tbody>
</table>
Bringing together all the insights and evidence......
Proposed 10 focused areas for climate action

A: Building the foundations for action
Decisions are based on sound evidence and knowledge and we have the underpinning capacity, resources and leadership across the region for effective climate action

B: Enhance ecosystem services and connectivity
A healthy and connected natural environment that provides benefits for all

C: Deliver climate compatible development and infrastructure
All new development and infrastructure is fit for the future and enables low impact lifestyles

D: Shift to greater uptake of decentralised renewable energy
Energy supply is clean and secure with benefits for all

E: Transition of existing buildings and places
Current buildings and spaces are revitalised to be healthy, low impact and multi-functional

F: Delivering clean, efficient and accessible mobility options
People and goods have convenient and equitable access to healthy and efficient ways of getting around

G: Future proof communities and empower individual action
Individuals and the communities in which they live are resilient to climate change and play a leading role in the transition to zero carbon

H: Enable a just transition to a zero carbon, climate resilient economy
Tamaki Mākaurau is an exemplar in climate-smart innovation, maximising opportunities from the zero carbon transition

I: Grow a low carbon, resilient food system
A strong and resilient rural economy provides all Aucklanders access to low carbon, fresh and healthy food

J: Youth and intergenerational equity
### Attachment D

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Establish pathways for democratic participation in climate decision making</td>
</tr>
<tr>
<td>A2</td>
<td>Secure long-term and active commitment from climate leaders and establish regular fora for raising awareness</td>
</tr>
<tr>
<td>A3</td>
<td>Develop and use mechanisms and frameworks to ensure Mātauranga and Kaupapa Māori directly inform climate actions and decisions</td>
</tr>
<tr>
<td>A4</td>
<td>Embed climate change assessments into decision making processes and reporting as standard procedure</td>
</tr>
<tr>
<td>A5</td>
<td>Establish and maintain a platform to provide open and accessible data and information to support citizen science, innovation and research</td>
</tr>
<tr>
<td>A6</td>
<td>Establish long-term and wide-reaching communication and engagement to raise awareness and support individuals and communities in taking climate action</td>
</tr>
<tr>
<td>A7</td>
<td>Regularly review and update climate change evidence and build capacity of decision makers.</td>
</tr>
<tr>
<td>A8</td>
<td>Establish strong governance for climate action in Auckland and advocate for clear and supportive policy and enabling legislation from central government</td>
</tr>
<tr>
<td>A9</td>
<td>Ensure regional policies and strategies are in place that support delivery of climate compatible development and infrastructure and do not conflict.</td>
</tr>
</tbody>
</table>
B: Enhance ecosystem services and connectivity

A healthy and connected natural environment that provides benefits for all

B4: Establish a voluntary carbon market scheme across sectors

B5: Apply circular economic principles to land use and land use changes and establish land management approaches to create, preserve and enhance healthy, viable soil

B6: Enhance the potential of coastal and marine ecosystems to sequester carbon

B1: Optimize and prioritize green and blue infrastructure and assets at Auckland’s coastal and urban areas

B2: Grow and protect our urban forest to reduce emissions and build resilience

B3: Assess climate change impacts on biodiversity and biosecurity and take action to protect vulnerable areas and/or species
C: Deliver climate-compatible development and infrastructure

All new development and infrastructure is fit for the future and enables low impact lifestyles

- **C1:** Accelerate the uptake of sustainable design and construction
- **C2:** Build climate resilience and health benefits into all rapid transport projects to deliver more than emissions reductions
- **C3:** Ensure infrastructure is climate-proof and resilient to the impacts of a changing climate.
- **C4:** Undertake climate compatibility assessments as standard for all new developments and infrastructure.
- **C5:** Plan for a quality compact urban form that supports low carbon, resilient development
- **C6:** Identify and deliver alternative water supply options for the region to address climate change and population growth
- **C7:** Establish an integrated, circular water management framework to improve efficiency and reduce waste
- **C8:** Ensure zoning reflects climate risks and policy interventions are in place to mitigate them
D: Shift to decentralised renewable energy

Energy supply is clean and secure with benefits for all

- D1: Identify and deliver decentralised local and regional renewable energy solutions [D1-Sub-Actions]
- D3: Leverage publicly-owned property and land to foster innovation in renewable energy development [D3-Sub-Actions]
- D4: Deliver Auckland's hydrogen pilot project and identify opportunities for diversification and scale [D4-Sub-Actions]
- D5: Waste Minimisation - C40 wording [D5-Sub-Actions]
- D6: Establish shore power at Ports of Auckland to reduce emissions from ships at berth [D6-Sub-Actions]
E: Transition existing buildings and places
Current buildings and spaces are revitalised to be healthy, low impact and multi-functional

E1: Deliver targeted commercial, industrial and residential building retrofit schemes across the region
G1 - Sub Actions

E2: Increase the productive potential of new and existing roofs and walls
G2 - Sub Actions

E3: Optimise public spaces to deliver multiple functions and benefits.
G3 - Sub Actions

E4: Establish and rapidly scale low carbon, resilient precincts across the region
G4 - Sub Actions

Gaps?
E - Sub Actions
Marae, urupa and whai tapu that will be exposed to flooding and other impacts (pg 1) (interrelated with G2, G2 & G3)
F: Deliver clean, efficient and accessible mobility options

People and goods have convenient and equitable access to healthy and efficient ways of getting around

- F1: Undertake widespread conversion of vehicles to zero and low emissions.
- F2: Improve freight systems and efficiency
- F3: Rapidly improve and connect cycling and active transport infrastructure and facilities
- F4: Assess zoning-based road pricing with a range of charge rates that are influenced by a vehicle’s emissions rating
- F5: Rapidly increase public transport access, frequency and efficiency
G: Future proof community and empower individual action Individuals and the communities in which they live are resilient to climate change and playing a leading role in the transition to zero carbon

G1: Work with communities and individuals to build resilience in areas highlighted as at risk from climate impacts

G2: Develop and implement pathways to address the implications of climate change on our changing coastline

G3: Provide funding, legal and technical advice to support community-led initiatives that reduce emissions, build resilience and ensure a just transition

G4: Pro-actively plan for climate-related migration

Deliver the Waste Management and Minimisation Plan and our commitment to the C40 Advancing Towards Zero Waste Declaration (where does this one belong?)
**H: Ensure a just transition to a zero-carbon, resilient economy:** Tamaki Makaurau is an exemplar in climate smart innovation with businesses minimising risks and maximising opportunities from the transition to zero carbon and climate resilience.

<table>
<thead>
<tr>
<th>H1: Establish a climate innovation system</th>
<th>H4: Leverage public sector and large business supply chains to deliver on climate outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2: Accelerate the business transition to zero carbon and build resilience</td>
<td>H5: Establish and implement a circular economy roadmap for Auckland</td>
</tr>
<tr>
<td>H3: Establish sector-based programmes to grow low carbon and climate resilience skills</td>
<td>H6: Collaborate with Central Government to reduce process heat emissions</td>
</tr>
</tbody>
</table>
I: Grow a low carbon, secure food system

All have access to low carbon, fresh and healthy food now and into the future with our rural economy as a exemplar of resilience and the transition to zero carbon

11. Support primary industries and small business to increase food security and build economic and climate resilience

12. Protect and enhance soil and establish regenerative land use management approaches for all productive land to increase food security and carbon sequestration

13. Reduce waste and maximise value of surplus food

14. Increase demand for local, seasonal and low carbon food

15. Establish a cross-sector food policy council to advise policy makers on food policy development

Attachment D

Item 10
J: Ensure intergenerational equity

Future leaders and decision-makers of Tamaki Makaurau are empowered by actions taken today and all generations are supported to collaborate in taking climate action.

Draft actions developed by wananga 7th – 9th March
Auckland’s Climate Symposium
What’s coming up

- Climate Symposium – 18th-20th March
- Climate Change Risk Assessment – 20th March
- On-going action development with stakeholders – March-May
- Report to Committee on engagement process – April
- Committee tour and workshop – May
- Draft for consultation to Committee – June
- Consultation – July/August
- Final Plan - September
[Sports Facilities Investment Plan working party

WORKSHOP MINUTES

Minutes of a meeting of the briefing held in Room 1, Level 26, 135 Albert Street, Auckland at 12.10pm

PRESENT

Cr A Filipaina
Cr J Bartley
Cr J Watson
Cr W Walker

from 12.15pm
from 12.42pm

APOLOGIES

Chairperson
Cr P Hulse
Cr D Simpson
Cr C Fletcher, QSO

Note: No decisions or resolutions may be made by a Workshop or Working Party, unless the Governing Body or Committee resolution establishing the working party, specifically instructs such action.
**Purpose of workshop:**
- Seek political guidance and visibility on the proposed funding allocations for 2018/2019, prior to the final Investment Plan and Guidelines being in place. The $120M, 10 year fund was approved through the LTP to invest and partner with organisations who are developing significant sport and recreation facilities.

**Declarations of Interest**
- There were no declarations of interest.

**Workshop notes:**

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed funding approach for 2019/2019, prior to final investment plan and guidelines in place.</td>
</tr>
</tbody>
</table>

The workshop closed at 12.49pm.
Sport and Recreation Facilities Investment Fund
Attachment E

Item 10

Overview

- $120M, 10-year fund was approved through the LTP to invest in and partner with organisations who are developing significant sport and recreation facilities.

- Fund guided by Sport and Recreation Investment Plan and Facility Partnership Policy

- $5M available for 2018/2019

- Targeted approach for 2018/2019
Background

- The fund will support the development of regional and sub regional facilities and address the shortfall in facilities
- Auckland has a shortfall of sports facilities to meet the current population as well as accommodate growth in future population.
- The fund will:
  - Be responsive to population growth, changing preferences
  - Have a flexible implementation model using partnerships, PPP’s or fully council funded
  - Leverage external investment
Investment Fund Guidelines

- Outcomes, principles and investment framework aligned to Sport Investment Plan and Facility Partnership Policy
- Fund Guidelines being developed and will be reported to June Committee
- Two staged contestable process
  - Expression of Interest (EOI) - needs assessment and strategic assessment completed - aligned to Sports Sector: Facilities Priorities Plan
  - Business Case and Cost Benefit Analysis completed – scaled to level of investment requested
- Two stage decision making by Environment and Community Committee
Sport and Recreation Investment Plan

- Draft Plan approved for consultation in December
- Local Board and Sector consultation on draft plan happening now
- Open for Public Consultation on draft plan 18 March – 8 April
- Plan revised
- Final Plan to June Committee for adoption
Funding Approach for 2018/2019

- Targeted approach to allocate $5M funding for 2018/2019
- *Existing projects, strategically aligned, meet target outcomes areas, ready to be delivered, shortfall in funding*
- Focus on: (from Investment Plan)
  - communities with low sport participation rates
  - increasing participation in emerging and ethnically diverse sports
  - sustaining popular sports with high participation rates.
- Strategic assessment completed for each project using Auckland Sport Sector: Facilities Priorities Plan assessment criteria
Attachment E

Item 10

Next Steps

- Finalise projects and funding gaps for 2018/2019
- Recommendations for 2018/2019 Funding allocation to April Committee
- Investment Plan and Fund Guidelines – June Committee
- Expressions of Interest for 2019/2020 submitted July 2019
Memorandum

8 March 2019

To: Environment and Community Committee

Subject: Update on kauri dieback National Pest Management Plan

From: Barry Potter, Director Infrastructure and Environmental Service
      Phil Brown, Biosecurity Manager

Purpose

1. To provide an update on:
   - Auckland Council’s kauri dieback management programme since last reported to committee; and

Summary

- Adoption of a Natural Environment Targeted Rate in 2018 has allowed council to increase investment in kauri dieback management. Key elements that have been progressed since then include track upgrades, surveillance, phosphite treatment and work on local parks.

- Central government is currently leading the development of a national pest management plan for kauri dieback, which will have a range of implications for Auckland Council as follows:
  - a signalled shift towards a model of multi-party shared decision-making which may affect council’s decision-making role. For example, rules within the proposed plan may affect council’s decision-making powers as a land manager by potentially requiring council’s to comply with specified track standards.
  - may affect council’s role as a regulator by impacting on the rules and controls within the Regional Pest Management Plan and Unitary Plan
  - may have funding implications, both for Auckland Council activities and for Auckland landowners

- Auckland Council staff have been working closely with the Ministry for Primary Industries, and other agencies, on the development of this national plan and have been advocating for consideration of local specific implications and the potential impact for Auckland within the plan.

- Initial public consultation on the proposed plan occurred in late 2018.

- A further round of public consultation on the National Pest Management Plan began on 16 February 2019 and the first public meetings in Auckland are on 10 March 2019.

Context/Background

2. Since confirmation of the Natural Environment Targeted Rate, and increased investment for kauri dieback management, council has been expanding its kauri protection programme while working with the national programme to develop an improved national approach.

3. As described in previous reports to the Environment and Community Committee (CP2017/26950 and CP2017/26950), central government is leading the development
of a National Pest Management Plan for kauri dieback, under the Biosecurity Act. The creation of a national plan will enable greater consistency throughout kauri lands and across regional borders.

4. A new management agency is to be set up to lead implementation of the National Pest Management Plan. The nature of this agency has not yet been finalised.

5. Council staff have been involved in ongoing discussions with central government and other parties, on the design of the national plan and the roles of council and other agencies in the plan’s implementation.

6. The Ministry for Primary Industries has led two rounds of public consultation. Auckland Council and the Ministry have also undertaken joint engagement with mana whenua in the Auckland region. A summary of consultation feedback is available on the kauri dieback website: https://www.kauridieback.co.nz/consultation/

Discussion

Developments in Auckland Council’s kauri dieback management since April 2018

7. The adoption of a Natural Environment Targeted Rate in 2018 has allowed council to increase investment in kauri dieback management. Key elements that have been progressed have been reported to the Environment and Community Committee in October 2018 and February 2019. Specifically:

- A new kauri dieback team has been established within council’s Biosecurity group to enhance council’s capacity to resource kauri dieback management

- Fourteen local parks/reserves in the Kaipātiki local board area have been closed or have had track closures to prevent the spread of kauri dieback

- Two tracks on Waiheke Island were temporarily closed, as was one track in the Clevedon Scenic Reserve. In both areas detailed investigations are underway to determine appropriate mitigation measures so that they can be safely re-opened

- Staff have reviewed tracks in 350 local parks with kauri ecosystems in the region

- Staff are currently making recommendations to 11 local boards about which tracks should be upgraded or closed

- Four tracks around and including Kitekite Track have been upgraded to a high standard and opened on 26 December 2018

- A programme for further regional park track upgrades in 2019/20 is underway with additional tracks to be re-opened by Easter.

- Staff are currently consulting with the public on options for longer-term track upgrades in the Waitākere Ranges.

- Aerial surveillance is underway in the Rodney District to complete the northern survey which commenced in 2018.

- Staff are in the final stage of an RFP evaluation, before finalising contracts that will survey south of the bridge, as well as Waitākere local parks, and Hauraki Gulf islands.

- Large-scale phosphite treatment of kauri trees in the Waitākere Ranges has been extended. Results from preliminary trials are promising. National Pest Management Plan

2
National Pest Management Plan Implications

8. The creation of the National Pest Management Plan will have a range of implications for Auckland Council. There remains some uncertainty as to shape and scope as details are not yet finalised. However, staff have summarised the issues which currently appear to be of most importance for council in the following paragraphs.

Governance and decisions on priorities – proposed regional committees

9. The draft implementation plan signals the establishment of regional management committees. It is anticipated that council would be a participant on such a committee. Other participants may include mana whenua, the new kauri dieback management agency, Department of Conservation, and representatives of community and industry.

10. It is not yet clear what decision-making mandate the regional committee will have. However, there is a clearly signalled shift towards a model of multi-party shared decision-making. It is not yet clear what will happen if there is misalignment between council’s views and those of other parties.

National Pest Management Plan implications (Council as land manager)

11. There is potential for rules within the National Pest Management Plan to affect council’s autonomy in decisions as a land manager.

12. Of note, all tracks in kauri forest that are open to the public will likely be required to reach a specified standard within three years of the plan coming into effect. Council would not be forced to close tracks but could be prosecuted for non-compliance with the rule if sub-standard tracks remained open.

13. The natural environment targeted rate provides for most high use tracks to be upgraded to the standard within the three-year period. However, there may still be some tracks which are unable to meet the standard within three years, and therefore will need to be closed.

14. Further, there may be instances where council would otherwise choose to protect tracks through other methods (e.g. enhanced hygiene stations). The National Pest Management Plan may force council to instead invest in track upgrades if we want them to remain open. This would have cost implications and may come at the expense of other activities.

15. As the new management agency has yet to be established, it is not yet clear how strictly such provisions may be enforced.

National Pest Management Plan implications (Council’s regulatory role)

16. Kauri dieback is also included as a pest in Auckland’s proposed Regional Pest Management Plan, which is due for adoption as an operative plan at the March 2019 Environment and Community Committee.

17. The Biosecurity Act requires that a Regional Pest Management Plan is not inconsistent with a National Pest Management Plan for the same species.

18. Once the National Pest Management Plan comes into effect, council will need to consider whether the regional plan is inconsistent with the national plan. If there are inconsistencies, these may be addressed through a partial plan review under s1000 of the Biosecurity Act. Currently, there do not appear to be major areas of misalignment between the two forthcoming plans.

19. Some proposed rules in the National Pest Management Plan also cover similar activities to those covered by the Unitary Plan (e.g. earthworks rules). This potentially creates a dual consenting situation, where applicants would need to apply to two separate agencies for consent.
National Pest Management Plan funding (Council perspectives)

20. It is not yet clear how the costs of implementing the National Pest Management Plan will be shared among agencies.

21. Some aspects of funding are likely to remain the same as they have been in the past. For instance, central government currently funds signage, and this is likely to continue under the new management agency. Similarly, council is likely to continue to be responsible for funding its own track infrastructure.

22. Funding of other elements such as communication, pig control, and the division of funding is less clear. For instance, communications materials may be funded both by council and the central management agency. However, the division of this funding is not yet clear. Similarly, Council already invests in some pig control which limits the spread of the disease, but this may not be enough to meet the National Plan’s requirements. It is not yet clear whether the management agency will fund additional pig control, or whether that cost may fall on councils.

23. Council has an interest in how central government funds are allocated among regions. Other regional councils have previously invested less in kauri dieback management than Auckland Council has. There is therefore a risk of central government funds being allocated more to other regions to make up this shortfall. Auckland Council would therefore be disadvantaged for its more proactive approach.

24. Staff are working closely alongside the Ministry for Primary Industries and other regional councils to ensure this risk is recognised and mitigated.

National Pest Management Plan funding (Land occupier perspectives)

25. There may also be cost implications for Auckland land owners to comply with rules in the proposed national plan. Of note, many areas of kauri forest will be required to be fenced to exclude livestock. This is likely to be a manageable cost to Auckland Council as a land manager as most areas are already fenced. However, the costs to private farmers within the region may be substantial.

26. It is likely that central government will subsidise 50 per cent of fencing costs. Council could choose to provide further subsidies, but this would need to be evaluated against other planned investment. There is a risk to the entire programme that fencing costs may drain much of the available funding at both national and regional levels if this rule is enforced widely.

Public Consultation on the proposed National Pest Management Plan for Kauri

27. A further round of public consultation on the National Pest Management Plan is scheduled to begin on 18 February 2019, with the first meetings in Auckland from Sunday 10 March 2019. Dates and locations of Auckland events are shown in Table 1. Consultation material can be found at www.kauriedieback.co.nz/consultation

Table 1. National Pest Management Plan for Kauri – Auckland Engagement Schedule

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atataki Visitor Centre</td>
<td>Sunday 10 March</td>
<td>7 - 9:30pm</td>
</tr>
<tr>
<td>Te Atatu Peninsula Community Centre</td>
<td>Sunday 10 March</td>
<td>7 - 9:30pm</td>
</tr>
<tr>
<td>Orewa Arts and Event Centre</td>
<td>Monday 11 March</td>
<td>7 - 9:30pm</td>
</tr>
<tr>
<td>Glenfield Community Centre</td>
<td>Monday 11 March</td>
<td>6 - 8:00pm</td>
</tr>
<tr>
<td>Clevedon Community Hall</td>
<td>Tuesday 12 March</td>
<td>7 - 9:30pm</td>
</tr>
</tbody>
</table>

28. MPI and council staff will undertake further direct mana whenua engagement on the shape of the National Pest Management Plan and management agency. Auckland Council and the Department of Conservation also expect to have joint engagement
with mana whenua on how the National Plan might best be implemented in the Auckland region.

Next steps/implementation

29. The National Pest Management Plan is expected to become operative in September 2019. The new agency to lead the plan’s implementation is expected to be established by then, with recruitment beginning in May 2019.

30. Council staff will continue to work with the Ministry for Primary Industries on the development and implementation of this plan and will provide an update to the committee once the plan becomes operative.

Key Contact: Phil Brown, Manager Biosecurity