I hereby give notice that an ordinary meeting of the Youth Advisory Panel will be held on:

Date: Monday, 9 July 2018  
Time: 5:30pm  
Meeting Room: Council Chamber  
Venue: Auckland Town Hall  
Ground Floor  
301-305 Queen Street  
Auckland

Te Rōpū Kaitohutohu Take Taiohi /  
Youth Advisory Panel

OPEN AGENDA

MEMBERSHIP

Chairperson: Veisinia Maka  
Deputy Chairperson: Damian Piluua  

Liaison Councillor: Cr Fa'anana Efeso Collins  
Chief Liaison Councillor: Cr Dr Cathy Casey

(Quorum 9 members)

Michelle Judge  
Governance Advisor

3 July 2018

Contact Telephone: (09) 977 6739  
Email: Michelle.Judge@aucklandcouncil.govt.nz  
Website: www.aucklandcouncil.govt.nz

Note: The reports contained within this agenda are for consideration and should not be construed as Council policy unless and until adopted. Should Members require further information relating to any reports, please contact the relevant manager, Chairperson or Deputy Chairperson.
TERMS OF REFERENCE
(Excerpt – full terms of reference available as a separate document)

The terms of reference set out the purpose, role and protocols of the Panel. Panel members abide by the Code of Conduct for members of Auckland Council advisory panels.

Purpose
As one of council’s engagement mechanisms with diverse communities, the demographic advisory panels provide advice to the governing body and council staff within the remit of the Auckland Plan on the following areas:
- Auckland Council’s regional policies, plans and strategies
- Regional and strategic matters including those that Council-Controlled Organisations deal with any matter of particular interest or concern to diverse communities.

Outcomes
The panel’s advice will contribute to improving the outcomes of diverse communities and social cohesion as set out in the Auckland Plan. The panel will advise through their agreed strategic agenda and detailed work programme.

Strategic agenda and work programme
The panel must develop a work programme and set a strategic agenda for the term. The agendas should be focused and integrated across the panels for collaborative input into shared agendas, particularly on the Auckland Plan, the Long-term Plan and annual plans. The panel should advise on council’s organisational strategies relevant to diverse communities.

The governing body and council staff should work with the panel for the development of their strategic agendas and work programme. An appropriate committee will approve the panel’s work programme and any subsequent major changes to it.

Submissions
The panel must not make formal submissions to Auckland Council on council strategies, policies and plans, for example, the annual plan. In its advisory role to the council, the panel may have input to submissions made by the council to external organisations but do not make independent submissions, except as agreed with the council. This does not prevent individual members being party to submissions outside their role as panel members.

Review
The form and functioning of the panels may be reviewed prior to or after, the end of the panel’s term in September 2019.
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1 Apologies

At the close of the agenda no apologies had been received.

2 Declaration of Interest

Members are reminded of the need to be vigilant to stand aside from decision making when a conflict arises between their role as a member and any private or other external interest they might have.

3 Confirmation of Minutes

That the Youth Advisory Panel:

a) confirm the ordinary minutes of its meeting, held on Monday, 9 April 2018, as a true and correct record.
Lifewise presentation: youth homelessness

File No.: CP2018/11295

Te take mō te pūrongo / Purpose of the report
1. To update the Youth Advisory Panel on Lifewise’s work on youth homelessness.

Whakarāpopototanga matua / Executive summary
2. Victoria Hearn from the Service Design & Development – Youth Housing unit at Lifewise, will give a presentation to the Youth Advisory Panel.

Ngā tūtohunga / Recommendation/s
That the Youth Advisory Panel:
a) receive the presentation from Lifewise.

Ngā tāpirihanga / Attachments
There are no attachments for this report.

Ngā kaihaina / Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Michelle Judge - Governance Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authoriser</td>
<td>Mara Bebich – Lead Officer</td>
</tr>
</tbody>
</table>
Te take mō te pūrongo / Purpose of the report

1. To provide background information to inform the discussion with the Youth Advisory Panel on the development of the regional, cross-sectoral homelessness plan.

Whakarāpopototanga matua / Executive summary

2. Auckland Council’s agreed definition of homelessness includes people living without shelter (e.g. rough sleeping or in cars), in temporary accommodation (e.g. emergency and transitional accommodation), sharing temporarily (e.g. couch surfing) and in uninhabitable dwellings (e.g. garages).

3. In 2017 Auckland Council agreed their position that homelessness should be “rare, brief and non-recurring”, and that their role should be to strengthen levers to “improve, end and prevent” homelessness. This included leading the development of a regional, cross-sectoral plan (ENV/2017/118).

4. Development of the plan involved collaboration with central government agencies, non-government agencies, philanthropics and other key groups. Research with people at risk and with lived experience of homelessness is underway. It also involved engagement with local boards and advisory panels representing communities who are affected by homelessness.

5. During the meetings with panels, views will be sought on the experience of homelessness, the causes, and how the plan can address the needs of these communities.

6. Three workshops with a broader group of stakeholders are planned for August 2018. These workshops will focus on building consensus around the plan and developing the annual action plan. Further engagement will also be undertaken with a range of forums and networks, including Auckland Council advisory panels.

Ngā tūtohunga / Recommendation/s

That the Youth Advisory Panel:

a) provide feedback on the development of the regional, cross sectoral homelessness plan at the July 2018 meeting.

b) nominate a representative to attend the August engagement events to provide a population-specific voice.

Ngā tāpirihanga / Attachments

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<td>Memo: Kia Whai Whare Tātou Kātoa: Regional, cross-sectoral homelessness plan for Auckland</td>
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</table>

Ngā kaihaina / Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Kimberley Howell - Policy Analyst</th>
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<tbody>
<tr>
<td>Authoriser</td>
<td>Mara Bebich – Lead Officer</td>
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</tbody>
</table>
Memo

25 June 2018

To: Youth Advisory Panel
From: Debbie Edwards, Senior Policy Manager Social Policy and Bylaws, Community and Social Policy

Subject: Kia Whai Whare Tātou Kātoa: Regional, cross-sectoral homelessness plan for Auckland

Purpose

This memo provides background information for the meeting with the panel during July 2018. This meeting will include discussion on the experience of homelessness in the youth community, and how the development of a regional, cross-sectoral plan can address these needs.

Background

The 2013 census counted 20,296\(^1\) homeless people\(^2\) in Auckland - an increase of 26 percent since 2006. Conservative projections estimate current homelessness at about 24,000, reaching 26,522 by 2021. It is an Auckland-wide issue, and is affecting working households. Nationally, 52 percent of homeless adults nationally were working, studying or both.

Homelessness is broader than rough sleeping. The Statistics New Zealand definition (adopted by Auckland Council) includes people living without shelter (e.g. rough sleeping and in vehicles), in temporary accommodation (e.g. emergency accommodation, shelters, and motels), sharing temporarily\(^3\) and living in uninhabitable dwellings (e.g. garages and sheds).

The same analysis found nationally:
- Children and young people are particularly affected: 51 percent of the national homeless population was under 24 years old (24 percent under 15, and 27 percent between 15 – 24 years)
- Sole parents with dependent children were the largest affected family type, at 43 percent
- 52 percent of homeless adults nationally were working, studying or both

The rapid growth of Auckland’s population is outstripping growth in housing supply. Housing affordability (for rent and purchase) is declining and there is significant unmet demand for social, affordable and emergency housing. There are other personal, social and system level factors that also contribute. It is clear that homelessness has a complex set of determinants, and requires a coordinated cross-sectoral solution.

In 2017, Auckland Council sought advice on its position and role in relation to homelessness. It was resolved that homelessness in Auckland should be “rare, brief and non-recurring” and that the council should strengthen the established levers available to “improve, end and prevent homelessness” (ENV/2017/118). The decision included a mandate to provide strategic leadership and inter-sectoral coordination to develop a regional, cross-sectoral homelessness plan (the plan).

The committee report and accompanying research paper can be accessed at: http://infocouncil.aucklandcouncil.govt.nz/Open/2017/08/ENV_20170808_AGN_6831_AT-PDF

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\(^1\) Analysis conducted by the University of Otago

\(^2\) University of Otago uses the term severe housing deprivation to define homelessness and aligns with the Statistics New Zealand definition

\(^3\) Not including those in long-term, overcrowded households
Developing a regional, cross-sectoral homelessness plan

Auckland Council has commenced work to lead and facilitate development of this plan, acting as the backbone agency in a collective impact approach. It is envisaged that the plan will be collectively owned and implemented by key government agencies, NGOs and other stakeholders. The key deliverables from this policy project will be:

- regional, cross-sectoral plan - this will set out a shared vision, objectives, priorities and principles for collaboration over the medium-long term
- annual action plan – this will identify collaborative, regional actions that aim to prevent, end and reduce the harm from homelessness
- monitoring and reporting framework – this will provide a framework for tracking progress against outcomes and implementation of the action plan.

The process for developing the plan includes the following:

1. **Research with people at risk and with lived experience of homelessness, and frontline service providers**: this project will map the pathways into and out of the different forms of homelessness, focusing on single mothers with children as a priority group. It will help to identify opportunities for intervention, placing those directly affected at the centre of this project.

2. **Sector system mapping**: the council is working with the key stakeholders to compile an inventory of initiatives that contribute to addressing homelessness. This system model includes:
   - policies, legislation, regulation, and targets
   - coordination, collaboration and engagement mechanisms
   - funding, accountability and governance mechanisms
   - the evidence base, and ongoing planning processes
   - interventions (or services) delivered across the continuum of homelessness to prevent, end and minimise harm from homelessness.

   Analysis of this system mapping data will help to identify strengths and synergies, gaps, opportunities for collaboration and potential solutions.

3. **Establishing a cross-sectoral leadership group**: this group will include representatives of central government and non-government agencies, Māori (mana whenua and mataawa), and leaders in the sector. This group will be key partners in the development and implementation of the plan. Sector leaders attended their first workshop on 31 May 2018.

4. **Engagement events with stakeholders**: three workshops with a broader group of stakeholders are planned for August 2018. These workshops will focus on building consensus around the plan and developing the annual action plan. Further engagement will also be undertaken with a range of forums and networks, including Auckland Council advisory panels.

5. **Authorisation and implementation**: it is envisaged that partners will seek approval through their respective channels. For Auckland Council, this will require reporting back to Environment and Community Committee later this year. An Auckland Council implementation plan, setting out how council will align with, and contribute to the regional, cross-sectoral plan, will be developed early in 2019. This will include agreed local board initiatives.

6. **Identification of opportunities for seed projects**: during the development of the plan, Auckland Council will work with partners to identify immediate opportunities to progress initiatives.
The key steps and indicative timeframe are summarised below:

<table>
<thead>
<tr>
<th>Indicative timeframe</th>
<th>Action</th>
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<tbody>
<tr>
<td>May – June, 2018</td>
<td>Research with people at risk and with lived experience</td>
</tr>
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<td></td>
<td>System mapping with key stakeholders</td>
</tr>
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<td></td>
<td>Workshops with local boards</td>
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<tr>
<td>31 May 2018</td>
<td>Sector leaders’ group workshop to develop plan (first draft)</td>
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<tr>
<td>July 2018</td>
<td>Engagement with council advisory panels</td>
</tr>
<tr>
<td>August 2018</td>
<td>Stakeholder workshops</td>
</tr>
<tr>
<td>November 2018</td>
<td>Plan and action plan presented to Environment and Community Committee (and partner governance) for approval</td>
</tr>
<tr>
<td>March - April 2019</td>
<td>Auckland Council implementation plan presented (1) to local boards with actions and then (2) to the Environment and Community Committee</td>
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</table>

Engagement with Council Advisory Panels

The 2017 committee decision was presented to the youth advisory panel in November 2017. The panel offered their perspective on youth homelessness and stated an interest in being informed and involved in the policy work.

The panel identified drivers of homelessness which included:
- Housing precariousness as a result of high housing costs on low student allowances and accommodation supplements
- A lack of affordable housing
- Perceived quick and hard line approach taken by Housing New Zealand on evictions
- Debt, particularly the implications for a society when young people enter the labour market with high levels of student debt combined with high costs.

As part of the process for developing the regional, cross-sectoral plan we are meeting with council advisory panels. In particular we’d like to hear your views on homelessness for young people, building on earlier discussion with the panel in November 2017:

- What changes have you noticed?
- Who is most affected, and why?
- What are the main triggers for homelessness?
- What initiatives are you aware of?
- What more needs to be done to:
  - Prevent homelessness
  - To help people to move out of homelessness?

A representative from each of the advisory panel’s will also be invited to participate in the August stakeholder engagement workshops.
Te take mō te pūrongo / Purpose of the report
1. To seek input into the development of an Auckland Climate Action Plan, addressing both mitigation (emissions reduction) and preparing for the impacts of climate change (adaptation).

Whakarāpopototanga matua / Executive summary

Background
2. In February 2018, the Environment and Community Committee committed Council to leading the development of an integrated climate change action plan, addressing both the rising emissions in the region and the impacts of our changing climate (ENV/2018/11) (Attachment A). Development of the plan is being facilitated by Auckland Council, working with public, private and voluntary sectors and drawing in expertise as appropriate.

3. The integrated climate action plan builds on learning from Low Carbon Auckland: Auckland’s Energy Resilience and Low Carbon Action Plan but will look to deliver a major step change to incorporate new and emerging national and international priorities (e.g. the Paris Agreement, recommendations of the national Adaptation Technical Group and New Zealand government’s intention to set a target of net zero emissions by 2050).

4. The plan will also build on new evidence to inform decision making, such as the NIWA climate projections report for Auckland (Attachment B), and our updated greenhouse gas emissions inventory, both released late last year.

Consideration
5. Youth will be disproportionately impacted by climate change, whether the direct and increasing impacts of climate change (such as heat and flooding) in their lifetimes or the impacts of policy decisions, such as the shift to a low carbon economy and the implications for changing skills, jobs and lifestyles.

6. Youth participation is therefore key to the development of an equitable and fair climate action plan across generations. Views are sought at all stages, from developing initial visions and goals through to actions and implementation.

7. At the workshop, climate impacts and emissions will be presented to support addressing the questions presented and drawing on the evidence reports provided as attachments to this note.

Next steps
8. A summary of the process is provided below with engagement points highlighted for discussion at the Panel.

Discussion questions
9. What would be the key priorities and/or issues the Panel would want to see addressed in relation to climate change?

10. How can we best involve the Panel and communities in the development of the climate action plan?
### Key stages

<table>
<thead>
<tr>
<th>Stage 1: Initiation and Research</th>
<th>High level action summary</th>
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<tr>
<td>Jan-May 2018</td>
<td>• Approach signed off by Environment and Community Committee in February 2018</td>
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<td></td>
<td>• Review of Low Carbon Auckland</td>
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<td></td>
<td>• Climate risk and vulnerability assessment based on projections</td>
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<td></td>
<td>• Identification of current state, gaps and best practice in relation to mitigation and adaptation</td>
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<tr>
<td></td>
<td>• Cross-council strategy and policy review</td>
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<td></td>
<td>• Stakeholder analysis</td>
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<tr>
<th>Stage 2: Action identification</th>
<th>High level action summary</th>
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<tr>
<td>June – Aug 2018</td>
<td>• Advisory Panel workshops / papers</td>
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<td>• Communication strategy for broader public engagement</td>
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<td>• Local Board workshops</td>
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<td></td>
<td>• Mana whenua engagement (integrated throughout)</td>
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<td></td>
<td>• Environment and Committee workshop on risks and vulnerabilities and priorities identified to date</td>
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<td>• Stakeholder workshops</td>
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<tr>
<td>Sept – Dec 2018</td>
<td>• Environment and Community Committee workshop on prioritisation criteria and identified actions</td>
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<td>• Cost benefit and total value analysis</td>
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<td></td>
<td>• Review all actions against prioritisation criteria</td>
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<td>• Draft plan</td>
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<tr>
<th>Stage 4: Consultation and approvals</th>
<th>High level action summary</th>
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<tbody>
<tr>
<td>Jan – Mar 2019</td>
<td>• Consultation draft to Environment and Community Committee</td>
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<td></td>
<td>• Consultation (linking to other plans, approach tbc)</td>
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<td></td>
<td>• Updates to action plan and consultation report</td>
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<td></td>
<td>• Adoption of updated plan by council and partners</td>
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### Ngā tūtohunga / Recommendation/s

That the Youth Advisory Panel:

a) receive the presentation on the Auckland Climate Action Plan.

b) provide feedback on the development of the Auckland Climate Action Plan at the July 2018 meeting.

### Ngā tāpirihanga / Attachments

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<td>B</td>
<td>NIWA Climate Projections Report for Auckland</td>
<td>23</td>
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</tbody>
</table>

### Ngā kaihaina / Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Sarah Anderson – Principal Specialist Sustainability and Climate Resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authoriser</td>
<td>Mara Bebich – Lead Officer</td>
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</tbody>
</table>
Te take mō te pūrongo / Purpose of the report

Whakarāpopototanga matua / Executive summary

3. Low Carbon Auckland focuses on meeting the emissions reduction target of the Auckland Plan (40 per cent by 2040) and guides the first stage of transforming to a low carbon, energy resilient future. To date, it has delivered actions across five main areas: transport, energy, the built environment, waste, and agriculture/forestry (http://tinyurl.com/LowCarbAkl17).

4. Given the progress made and the focus on emissions reductions, there are only relatively small improvements that can be made under the current Low Carbon Auckland. An updated and refreshed plan will enable Auckland to make genuine progress towards emission reduction and climate resilience.

5. Through our membership of C40 Cities (AUC/2015/197), Auckland Council is committed to developing an adaptation strategy for the region to prepare for the impacts of climate change. It is proposed that this is incorporated into the review and update of Low Carbon Auckland, instead of being approached as a separate task. This will establish a coordinated approach to climate change, in line with international best practice, not just emissions reduction.

6. A full review and update is therefore timely to:
   - incorporate an adaptation strategy for the region and a robust monitoring framework;
   - identify and prioritise current programmes that will deliver the greatest impact in addressing climate change and will ensure value for money for current and future Aucklanders;
   - reflect new commitments made by Auckland since 2014 and incorporate emerging national and international priorities (e.g. the Paris Agreement and New Zealand government’s intention to set a target of net zero emissions by 2050);
   - address new evidence to inform decision making, such as the NIWA climate projections report for Auckland and our updated greenhouse gas emissions inventory, both released late last year.

7. The review and update will be facilitated by Auckland Council, working with public, private and voluntary sectors and drawing in expertise as appropriate to enable learning from sectoral experts and developing opportunities for co-financing and resourcing of actions.

8. An Independent Advisory Group is proposed to support the process and development of the updated plan. The panel will consist of nationally recognised climate change leaders and experts to provide insight, check and challenge throughout and ensure that we deliver the best outcomes and value for Aucklanders.

Ngā tūtohunga / Recommendation/s
That the Environment and Community Committee:

a) approve the approach for the review and update of Low Carbon Auckland, as shown in the table at paragraph 33 of the report, to include both a mitigation and adaptation strategy for the region

b) agree that the update of Low Carbon Auckland be presented to the Environment and Community Committee for decision by December 2018

c) agree to the creation of an Independent Advisory Group, to provide on-going guidance, challenge and evaluation of the review and update of Low Carbon Auckland

d) delegate the decision on the membership of the Independent Advisory Group to the Chair and Deputy Chair of the Environment and Community Committee.

Horopaki / Context


10. Low Carbon Auckland has delivered multiple outcomes and provides a guide to support Auckland’s transformation into a successful, energy resilient, low carbon city through actions in five main areas; transport, energy, the built environment, waste and agriculture and forestry.

11. Of the 101 actions identified:
   • 21 per cent are now completed
   • 30 per cent have either stalled or are undeliverable in their current format due to either a lack of ownership or a shift in priorities and understanding
   • the remaining actions (50 per cent) are rated as ‘in progress’, however many of these are behind schedule (26 per cent).

12. Since 2009, Auckland’s population and Gross Domestic Product have increased. CO₂ emissions have also increased but the CO₂ increase per person has slightly declined. This is a small but positive trend and the proposed update will refresh momentum and improve governance, collaboration and the mandate for action.

13. In addition, the Government has stated a commitment to enacting a Zero Carbon Act, with a target of becoming a carbon-neutral economy by 2050 (net zero emissions). This has been further defined within Government’s 100-day plan for climate change with a view for a Zero Carbon Bill to be presented to the House of Representatives in October 2018.

Preparing for climate impacts (adaptation)

14. In August 2017 the Environment and Community Committee was presented with an initial summary of activity to prepare for climate change. Many successes were highlighted but it also demonstrated that climate change considerations are not universally integrated into council and wider council family activities and decisions, particularly as they relate to the long-term stresses that climate change will bring.

15. To better address these considerations, Auckland Council, Watercare, Auckland Transport, Panuku and the three Auckland-area District Health Boards jointly commissioned the
National Institute of Water and Atmospheric Research (NIWA) to provide insights into how Auckland’s climate is likely to change.

16. The insights will deliver the best available evidence to support decision making and underpin a broader risk and vulnerabilities assessment for the region. The report was launched with a media briefing on 6th December with representation from the Chief Sustainability Office, CDEM, Healthy Waters, Engineering and Technical Services and NIWA’s Chief Scientist.

C40 Cities

17. Auckland’s membership of the C40 Cities Climate Leadership Group (AUC/2015/197) commits us to global leadership and innovation in climate adaptation and mitigation. It also enables the region to benefit from C40’s research, best practice and resources.

18. International best practice, now integrated into C40 participation standards, recommends combining adaptation and mitigation activities into climate action plans to maximise efficiencies and opportunities for cities and regions.

Tātaritanga me ngā tohutohu / Analysis and advice

19. Staff have identified three options for the review and update of Low Carbon Auckland. The options are:

1) Status quo (i.e. Low Carbon Auckland remains and no adaptation strategy is developed)

2) Review and update Low Carbon Auckland and develop a separate adaptation strategy (current commitment)

3) Integrate an adaptation strategy into the review and update of Low Carbon Auckland

<table>
<thead>
<tr>
<th>Option</th>
<th>Benefits</th>
<th>Risks</th>
</tr>
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</table>
| 1.) Status quo | • No additional resource requirement for plan development.  
• Onus all of council and council-controlled organisations to embed climate-related work into business as usual, in order to meet existing requirements. | • Increasing climate-associated costs, such as maintenance and repair, through inadequate joined-up decision making.  
• Given new evidence and progress to date, Low Carbon Auckland will not deliver the required level of emissions reductions.  
• May leave council open to substantial future costs and risks of litigation through not addressing the implications of climate change despite known impacts.  
• Failure to meet commitments including C40 and LGNZ Leaders Declaration.  
• Does not address appetite across stakeholders to improve joint working in this area and missed opportunities to identify potential co-financing across sectors. |
| 2.) Refresh Low Carbon Auckland and develop a separate adaptation strategy | • Clear delineation between mitigation and adaptation.  
• Known Low Carbon Auckland brand maintained.  
• Adaptation strategy addresses identified gaps of Low Carbon Auckland. | • Increased number of ‘climate change’ strategies overall and lack of joined up approach, potentially weakening each and leading to stakeholder fatigue.  
• High risk of duplication between strategies, leading to confusion.  
• Reduced opportunities to build a clear business case and prioritisation criteria for actions that demonstrate multiple benefits and value for money.  
• Greater resource requirement, both financially and with regards to staff time. |
| 3.) Integrate an adaptation | • A more collaborative and joined-up approach, enabling clearer | • Potential loss of recognised Low Carbon Auckland brand, as adopted by council in |

1 http://www.knowledgeauckland.org.nz/publication/?mid=1748&DocumentType=1&
20. Option 3 is recommended as it enables:
   - prioritisation of actions across multiple outcomes and embeds value for money approach
   - greater scope for innovation and collaboration to address challenges and opportunities
   - identification of opportunities for co-financing of actions
   - streamlining of processes to reduce stakeholder fatigue and save money.

**Ngā whakaaweawe ā-rohe me ngā tirohanga a te poari ā-rohe / Local impacts and local board views**

21. The update will require local insights and engagement with local boards throughout to reflect the diversity of the Auckland region. In some cases, local solutions will be required and these will be worked through with Local Boards.

22. Working with Local Board Advisors, staff propose that local board views are sought at key stages throughout the process, including through workshops held in June. These workshops will build on and complement broader Local Board engagement such as through the Sustainability Initiatives team, Parks and CDEM.

**Tauākī whakaaweawe Māori / Māori impact statement**

23. Climate change will affect areas over which Māori have kaitiakitanga; impacting ecosystems, shaping community vulnerability and resilience and linking to economic outcomes. Increasing water scarcity and temperatures will impact Māori communities and businesses, including fisheries and forestry. Cultural sites may also be at risk from rising seas and coastal inundation.

24. Given the diverse climate sensitivities that exist for Māori across Auckland and New Zealand there is a clear need to know more about the implications (and risks) of a variable and changing climate on different iwi/hapū/whānau.

25. The review and update will integrate learning from the Māori Working Group established through Low Carbon Auckland. Māori stakeholders will be engaged throughout the process to increase awareness and promote and integrate mātauranga Māori across the plan from inception through to delivery.

**Ngā ritenga ā-pūtea / Financial implications**

26. Financial costs for option 2 (separate approaches) are estimated at $220,000.
27. Financial costs for option 3 will mainly be for stakeholder engagement and workshop facilitation. This is estimated at $140,000 (excluding staff time).

28. Option 3’s coordinated approach represents a saving to council and partners of around $80,000.

29. Identified cost will cover governance, workshops and facilitation, consultancy for evaluation and modelling work, design and edits. It is anticipated that costs will be met through current operating budgets and partner contributions, including C40 Cities. A similar partnership funding approach was used to co-commission the NIWA climate projections.

30. Many actions identified through the updated plan will result in implementation costs. These costs may or may not be able to be found within existing budgets and could form part of Annual Plan and prioritisation discussions. To support this:
   • a full review of financing opportunities and models will be undertaken
   • all actions will have an associated cost benefit analysis to assess and demonstrate value in the short to long term
   • all actions will outline associated implementation costs.

31. Costs associated with the independent Advisory Panel are included in the costs of both options 2 and 3.

Ngā raru tūpono / Risks

32. Risks are discussed as part of options appraisal and so are not repeated here.

Ngā koringa ā-muri / Next steps

33. The indicative key steps in the review and update of Low Carbon Auckland are provided in Table 1 with a view for completion by December 2018:

<table>
<thead>
<tr>
<th>Key stages</th>
<th>High level action summary</th>
</tr>
</thead>
</table>
| Stage 1: Initiation and Research | Proposed approach to committee  
• Establishment of Steering Group and Informal Advisory Group  
• Review of Low Carbon Auckland  
• Climate risk and vulnerability assessment based on projections  
• Identification of current state, gaps and best practice in relation to mitigation and adaptation  
• Cross-council strategy and policy review  
• Stakeholder analysis |
| Stage 2: Action identification | Committee workshop on risks and vulnerabilities  
• Communication strategy for broader public engagement  
• Local Board workshops  
• Mana whenua engagement (integrated throughout)  
• Stakeholder workshops |
| Stage 3: Prioritisation | Committee workshop on prioritisation criteria and identified actions  
• Cost benefit and total value analysis  
• Review all actions against prioritisation criteria  
• Draft plan |
| Stage 4: Consultation and approvals | Consultation draft to committee  
• Consultation (linking to other plans, approach tbc)  
• Updates to action plan and consultation report  
• Adoption of updated plan by council and partners |
34. In addition, establishing an Independent Advisory Group is proposed, consisting of high level experts in climate change and policy from across New Zealand. This group will provide greater surety in Auckland’s approach whilst providing a strong academic and business link regionally and nationally, supporting implementation of the plan.

35. If the recommendations in this report are approved, it is proposed that membership of the group will be agreed by the Chair and Deputy Chair of the Environment and Community Committee.

Ngā tāpirihanga / Attachments
There are no attachments for this report.

Ngā kaihaina / Signatories

<table>
<thead>
<tr>
<th>Authors</th>
<th>Sarah Anderson - Principal Specialist Sustainability and Climate Resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorisers</td>
<td>Dean Kimpton - Chief Operating Officer</td>
</tr>
</tbody>
</table>
Auckland Region climate change projections and impacts: Summary Report

Warming of the climate is unequivocal, with temperature increases already influencing the intensity and frequency of many extreme events across the globe.

Auckland Council and Council Controlled Organisations commissioned the National Institute of Water and Atmospheric Research [NIWA] to provide climate change projections, including high-resolution maps for the Auckland Region.

This work will help support greater resilience and sustainable decision-making under a changing climate. This summary presents some of the key findings of the full technical report and some of the potential impacts and opportunities for the Auckland Region.

Four future emissions scenarios, called Representative Concentration Pathways (RCPs), capture climate model uncertainty. Highlights are shown here for the “Business as usual” scenario (RCP8.5) where emissions continue unabated, and for a “Mid-range” scenario (RCP4.5) where future emissions stabilise.

Many different models are run using each RCP, and model outcomes can vary significantly. While the average of these outcomes is often treated as the most likely result, all outcomes within the range are plausible. More details on uncertainty estimates can be found on Page 6 and in the full technical report.
TEMPERATURE

Auckland Region mean annual temperature increased by about 1.6 °C over the past century. All climate change scenarios indicate temperatures will continue to warm across Auckland in the future. Mean annual and mean maximum temperatures are expected to increase through the 21st century. The frequency of warm extremes will rise, and the number of cold nights and frosts (days with minimum temperatures below 0 °C) will decline.

POTENTIAL IMPACTS FROM TEMPERATURE INCREASE

- Elevated mean temperatures through the year may extend warm season tourism and leisure opportunities.
- Increased potential for heat stress and other health impacts on people and on livestock. Greater energy needs for cooling.
- Changes to the diversity of crops able to be grown in Auckland, harvest times, and food security.
- Increased risks may arise to our health, ecosystems and biosecurity from new/emerging pests, diseases and invasive species.
- Considerable geographic variation for temperature changes is expected (and strongest for west Auckland).

**AVERAGE ANNUAL TEMPERATURE TREND**

<table>
<thead>
<tr>
<th>HISTORICAL BASELINE (1981-2010)</th>
<th>2040</th>
<th>2090</th>
<th>2110</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.5 °C present day average</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>°C</td>
<td>15</td>
<td>16</td>
<td>17</td>
</tr>
</tbody>
</table>

**ANNUAL NUMBER OF HOT DAYS (>25 °C)**

<table>
<thead>
<tr>
<th>HISTORICAL BASELINE (1981-2010)</th>
<th>2040</th>
<th>2090</th>
<th>2110</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 hot days average per year</td>
<td>40</td>
<td>75</td>
<td>90</td>
</tr>
</tbody>
</table>

- Business as usual (RCP8.5)
- Mid-range (RCP4.5)

**TYPICAL NUMBER OF CURRENT HOT DAYS**

For Auckland, approximately 20 hot days (>25 °C) occur each year on average based on observations between 1981-2010 (above).

Up to four times as many hot days per year across Auckland are expected by the end of the 21st century. The relative increase in days depends on the climate change scenario and location (right).

See Section 3 in the full technical report for more details about Auckland climate change temperature projections.
RAINFALL
Seasonal rainfall patterns and extremes are expected to change for the Auckland region. Impacts on a wide range of natural environments, ecosystems and our urban areas are anticipated. Extreme rainfall intensity is likely to increase because a warmer atmosphere can hold more moisture. There is elevated risk of earlier and longer dry spells, with increased potential for development of drought.

POTENTIAL IMPACTS FROM RAINFALL CHANGES
- Challenges to water availability for urban, agricultural and industrial use will arise.
- Increased rainfall intensity will adversely impact the performance of all infrastructure (e.g. stormwater drainage networks).
- Periods of low river flow may become longer and overall flows may decrease.
- High river flows (and floods) may become larger, placing communities and businesses in low-lying areas at greater risk.
- Periods of lower rainfall, along with warmer temperatures and stronger winds, will increase fire hazard.

See Section 4 in the full technical report for more details about Auckland climate change rainfall projections.
SOIL MOISTURE
Auckland’s soil moisture is projected to decline in the future from increased evaporation and changing rainfall patterns. The entire region is likely to become more drought prone, which can stress vegetation and soil microbial activity. These effects can also potentially compromise the functionality of our soils. Significant implications may arise for land stability, sedimentation, food security, ecosystems and climate change resilience.

POTENTIAL IMPACTS FROM REDUCED SOIL MOISTURE

- Natural and engineered slopes may destabilise and be subject to more frequent slips.
- Minimum stream flows are likely to decline, causing increased incidence of water shortages.
- Need for irrigation to support horticulture, agriculture and livestock management is likely to increase.
- Elevated stress is likely on native forests, indigenous wetlands as well as other types of plant and animal life.
- Reduced rainfall coupled with increased soil moisture deficit may lead to landscape degradation and increased erosion.

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Central Auckland currently experiences about 360 mm of PED per year (above). PED increases across all of Auckland are likely by the end of the 21st century. The strongest impacts (including increased drought) are expected for Waiheke Island, Clevedon, Helensville and the South Kaipara area [see both RCPs, right].

See Section 4 in the full technical report for more details about Auckland climate change soil moisture projections.
MARINE AND COASTAL CHANGE

Sea level around Auckland has risen in the recent past, and this trend is expected to continue and possibly accelerate in the coming decades. Present high tide levels will be exceeded more frequently under a regime of continued sea level rise. Ocean acidification, loss of coastal habitats and marine ecosystems, and damage to dwellings are likely. Maintenance of developed coastal fortifications and structures is also expected to increase.

POTENTIAL IMPACTS FROM MARINE AND COASTAL CHANGE

- Exacerbated coastal erosion, particularly for unstable cliffs, including frequent landslides.
- Amplified risk of damaging storm surge and flood impacts during extreme weather events (like ex-tropical cyclones).
- Increased frequency of inundation in low-lying coastal areas and saltwater incursions into lowland freshwater sources.
- Possible introduction of new pests or biosecurity threats due to elevated ocean temperature and current changes.
- Altered marine ecosystems, with diminished recreational and economic benefits, due to increased ocean acidification.

![Observed Sea Level Change vs. Future Sea Level Trend](image)

**OBSERVED SEA LEVEL CHANGE**

<table>
<thead>
<tr>
<th>Period</th>
<th>Sea Level Rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1911-1930</td>
<td>-0.18 cm below baseline in early 1900s</td>
</tr>
<tr>
<td>1931-1960</td>
<td></td>
</tr>
<tr>
<td>1961-1985</td>
<td></td>
</tr>
</tbody>
</table>

**MODERN BASELINE (1986-2005)**

- +30 cm above baseline

**FUTURE SEA LEVEL TREND**

<table>
<thead>
<tr>
<th>Year</th>
<th>Business as usual (RCP8.5)</th>
<th>Mid-range (RCP4.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2050</td>
<td>+200 cm</td>
<td>+150 cm</td>
</tr>
<tr>
<td>2100</td>
<td>+150 cm</td>
<td>+100 cm</td>
</tr>
<tr>
<td>2150</td>
<td>+100 cm</td>
<td>+50 cm</td>
</tr>
<tr>
<td>2200</td>
<td>+50 cm</td>
<td>+0 cm</td>
</tr>
</tbody>
</table>

**COASTAL SENSITIVITY TO EROSION**

Auckland’s coastline has a wide range of sensitivity to coastal change due to varying elevation, wave exposure, and sediment supply.

Erosion sensitivity under sea level rise is higher for Auckland’s east coast (above). Greater sensitivity to inundation is anticipated for areas near estuaries where tidal ranges will be amplified (right).

See Section B in the full technical report for more details about Auckland region coastal, marine and oceanic climate changes.
CLIMATE MODEL SELECTION AND UNCERTAINTY

Dozens of global climate models are used to produce future climate change scenarios under different greenhouse gas concentrations. NIWA scientists have evaluated these models and carefully selected six to produce detailed results for New Zealand. The six models were chosen because they effectively captured elements of the Southern Hemisphere climate and atmospheric circulation that are important to New Zealand.

CLIMATE MODEL UNCERTAINTY SOURCES

- Alternate trajectories for future global greenhouse gas emissions (eg. different RCPs).
- Differences between climate model simulations.
- Simplification of some complex climate processes in the models.
- Inherent natural climate variability that is not captured by model simulations.

RANGE OF UNCERTAINTY FOR PROJECTED CHANGES (example for 2081-2100)

**IDENTIFYING CLIMATE CHANGE TRENDS USING MULTIPLE MODELS**

Different climate models may produce outcomes that are in agreement, or significantly different, depending on the RCP and the climate variable that has been analysed (see annual temperature and rainfall, above).

Assessment of a collection of climate model outcomes can help capture a range of model uncertainty. That approach has been used by NIWA for New Zealand, and it lessens the reliance on interpreting future possibilities from only one model.

Climate scientists often run a wide range of models for future periods using different RCPs. This offers an opportunity to interrogate a suite of simulations. From that set of model outputs, common trends can be seen for many climate variables.

While some trends are clear, others may not be. When a majority of models trend in the same direction, it provides increased confidence in the projected change.

See the full technical report for more information about the uncertainty spread for different variables in the Auckland climate change projections.
INTERDEPENDENCIES

As climate change will continue to affect the Earth, impacts from changes that occur outside of the region are likely. Expanding international trade and increased immigration will undoubtedly place more strain on resources and the capability to deal with climate changes. On a regional scale, for example, potential shifts in hydroelectricity generation from the Waikato Region could also impact on water resource availability for Auckland. Expected changes for Northland may also elevate regional biosecurity and health risks. In addition, climate change impacts on other New Zealand regions and abroad will have implications for Auckland’s food security.

NEXT STEPS

The climate projections are part of a larger programme being delivered by Auckland Council and partners to address critical impacts from the changing climate. The projections will also underpin further work to better understand the array of risks and opportunities that will emerge for our communities, infrastructure, economy and environment.

ACCESS TO THE FULL TECHNICAL REPORT

To access the full report and for more information about how Auckland Council, the wider council family and District Health Boards are already addressing climate change visit: http://www.knowledgeauckland.org.nz

A video summarising the findings of the full technical report can be found at http://www.knowledgeauckland.org.nz

This report was commissioned by Auckland Council and Council Controlled Organisations, and supported by Auckland’s three District Health Boards.

Acknowledgement: Contributions from many Auckland Council and Council Controlled Organisation employees improved this document and the full technical report.

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Panel members' update

File No.: CP2018/12099

Te take mō te pūrongo / Purpose of the report
1. To update the Youth Advisory Panel on members’ activities.

Whakarāpopototanga matua / Executive summary
2. Youth Advisory Panel members will provide updates on their recent work and activities.

Ngā tūtohunga / Recommendation/s
That the Youth Advisory Panel:
a) note the panel members’ updates.

Ngā tāpirihanga / Attachments
There are no attachments for this report.

Ngā kaihaina / Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Michelle Judge – Governance Advisor</th>
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<tbody>
<tr>
<td>Authoriser</td>
<td>Mara Bebich – Lead Officer</td>
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