# TECHNICAL COMMITTEE AGENDA

# WEDNESDAY 18 OCTOBER 2017

## 10:30 am Council Chamber
## 70 Stafford Street, Dunedin

**Membership**

| | |
|---|---|
| Cr Andrew Noone | *(Chairperson)* |
| Cr Ella Lawton | *(Deputy Chairperson)* |
| Cr Graeme Bell | |
| Cr Doug Brown | |
| Cr Michael Deaker | |
| Cr Carmen Hope | |
| Cr Trevor Kempton | |
| Cr Michael Laws | |
| Cr Sam Neill | |
| Cr Gretchen Robertson | |
| Cr Bryan Scott | |
| Cr Stephen Woodhead | |

**Disclaimer**

Please note that there is an embargo on agenda items until 8:30 am on Monday 16 October 2017. Reports and recommendations contained in this agenda are not to be considered as Council policy until adopted.

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## 1. APOLOGIES

Cr Doug Brown

## 2. LEAVE OF ABSENCE

Cr Michael Deaker

## 3. ATTENDANCE

## 4. CONFIRMATION OF AGENDA

## 5. CONFLICT OF INTEREST

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

## 6. PUBLIC FORUM

## 7. PRESENTATIONS

## 8. CONFIRMATION OF MINUTES

**Recommendation**

*That the minutes of the meeting held on 13 September 2017 be received and confirmed as a true and accurate record.*

**Attachments**

1. Minutes Technical Committee - 13 September 2017 **[8.1.1]**

# OTAGO REGIONAL COUNCIL

## Minutes of a meeting of the Technical Committee held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday, 13 September 2017, commencing at 1:31pm.

**Membership:**
Cr Andrew Noone (Chairperson)
Cr Ella Lawton (Deputy Chairperson)
Cr Graeme Bell
Cr Doug Brown
Cr Michael Deaker
Cr Carmen Hope
Cr Trevor Kempton
Cr Michael Laws
Cr Sam Neill
Cr Gretchen Robertson
Cr Bryan Scott
Cr Stephen Woodhead

**Apologies:**
Cr Woodhead
The apology was adopted on the motion of Crs Noone and Neill. ***Carried***

**Leave of Absence:** Nil

**In attendance:**
Peter Bodeker (CEO)
Nick Donnelly (DCS)
Gavin Palmer (DEHS)
Tanya Winter (DPPRM)
Sian Sutton (DSHE)
Scott MacLean (DEMO)
Sally Giddens (DP&C)
Lauren McDonald (Committee Secretary)
Rachael Brown
Jean-Luc Payan
Dean Olsen

*Cr Hope was absent from the room.*

**CONFIRMATION OF AGENDA**
The agenda was confirmed as listed.

**CONFLICT OF INTEREST**
No conflicts of interest were advised.

**PUBLIC FORUM**
No public forum was held.

**MINUTES**
Minutes of the meeting held on 2 August 2017, having been circulated were adopted on the motion of Crs Lawton and Robertson. ***Carried***

**ACTIONS**
Status report of resolutions of the Technical Committee.
No current actions to be reported.

*Cr Hope entered the room at 1:33pm.*

## PART A RECOMMENDATIONS

Item 1
2017/1019 **Genetic analysis of *Lindavia intermedia*, the diatom the causes lake snow**, DEHS, 29/08/2017

The covering report summarised the background to the Landcare Research report undertaking genetic analyses, key findings and the intended future research work. The full technical report by Landcare Research entitled "*Lindavia intermedia, the causative organism of New Zealand lake snow: relationship between New Zealand, North American and European populations according to molecular and morphological data"* was circulated separately with the agenda.

Dr Olsen summarised the ORC covering report and confirmed that there was strong evidence that *Lindavia intermedia* was an exotic invasive species, not native to New Zealand. He confirmed the priority work programme (as detailed in appendix A of the report) remained unchanged and that ORC would support the Landcare Research work programme to develop technologies for effective sampling and monitoring of lake snow. The emphasis of the work programme is to understand the drivers of lake snow, with a focus on long term management.

Mr MacLean advised he would report back to the next Regulatory Committee on the discussions held with the MPI lead Freshwater Biosecurity steering group, on proposed research for combating the incursion.

In response to a question, Dr Palmer confirmed that an expert panel workshop could reconvene once the MPI steering group advised of control methods for the panel to discuss.

Ms Sutton confirmed a community information session would be held on 4 October 2017, and communications would be held with interested community stakeholders in regard to stopping the spread of lake snow (*Lindavia intermedia*) in the region's high value lakes.

It was requested for information to be placed on the ORC website including reports to ensure all information held is shared with the community.

Moved Cr Robertson
Seconded Cr Hope

1. *The report "Lindavia intermedia, the causative organism of New Zealand lake snow: relationships between New Zealand, North American and European populations according to molecular and morphological data" is received and noted.*
2. *The actions being taken by Otago Regional Council in response to the findings in that report are noted.*

3. *That Council will continue to work collaboratively with stakeholders and interested parties to develop feasible methods of managing the effects of lake snow on water quality*
4. *That staff shall provide a regular report back through the Regulatory Committee on Lindavia intermedia work programmes.*

***Motion carried***

## PART B ITEMS FOR NOTING

Item 2
2017/0989 **Director's report on progress**, DEHS, 25/08/2017
The report provided information on the heavy rainfall event of 21 and 22 July 2017; Clean Water Package 2017 – National Proposed Swimmability Targets; Leith Flood Protection Scheme engineering works.

Dr Palmer advised a report back on the July flood event would be provided once the river gauging information was received, which is expected in October. Flood bank integrity work was underway to look at long term structure and that the report information would be provided to the community before the end of the 2017 calendar year. He advised that the environmental monitoring and operations, engineering hazards and science and stakeholder engagement directorates would work together in sharing out the information to the community.

A workshop briefing by staff on flood protection and land drainage asset management was requested.

Discussion was held on flood prone areas such as Henley, Outram, Dukes Road North.
Mr Bodeker advised working collaboratively with DCC on this including discussion in regard to storm water and wastewater and septic tank issues in Outram. It was confirmed that a workshop would be held to discuss options.

A concern was raised on the timeliness of receipt of government and external reports released to elected members.

It was requested that the MfE and MPI NPS Freshwater management implementation review reports to be provided to the next Policy Committee meeting with recommendations and commentary on the report conclusions.

A request was made to ensure government and external reports being released are advised to elected members in a timely manner.

Moved Cr Neill
Seconded Cr Scott

*That this report is noted.*

***Motion carried***

The meeting was declared closed at 2:43pm.

**Chairperson**

## 9. ACTIONS

Status report on the resolutions of the Technical Committee.

**Attachments**

Nil

# 10. MATTERS FOR COUNCIL DECISION

## 10.1. Director's Report on Progress

**Prepared for:** Technical Committee
**Activity:** Governance Report
**Prepared by:** Dr Jean-Luc Payan, Manager Natural Hazards
Dr Dean Olsen, Manager Resource Science
Chris Valentine, Manager Engineering
**Date:** 2 October 2017

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### 1. 21 and 22 July 2017 Heavy Rainfall Event

Data preparation for the reporting on the heavy rainfall event that occurred between 21 and 22 July is progressing. Debris marks surveys on the Taieri Plain, Waitaki Plain (between Pukeuri and the Waitaki River) and on some sections of the Water of Leith have been completed. The report being prepared by NIWA on the weather conditions that resulted in the heavy rainfall event will be finalised in October. An extensive cross section survey on the Taieri River between Outram and the sea, and the Silver Stream is underway.

The survey information will help understanding how the event affected the river form (morphology), sediment transport and erosion. Satellite images (Figure 1) are also being used to map the flood extent on the Taieri Plain in addition to ground observations.

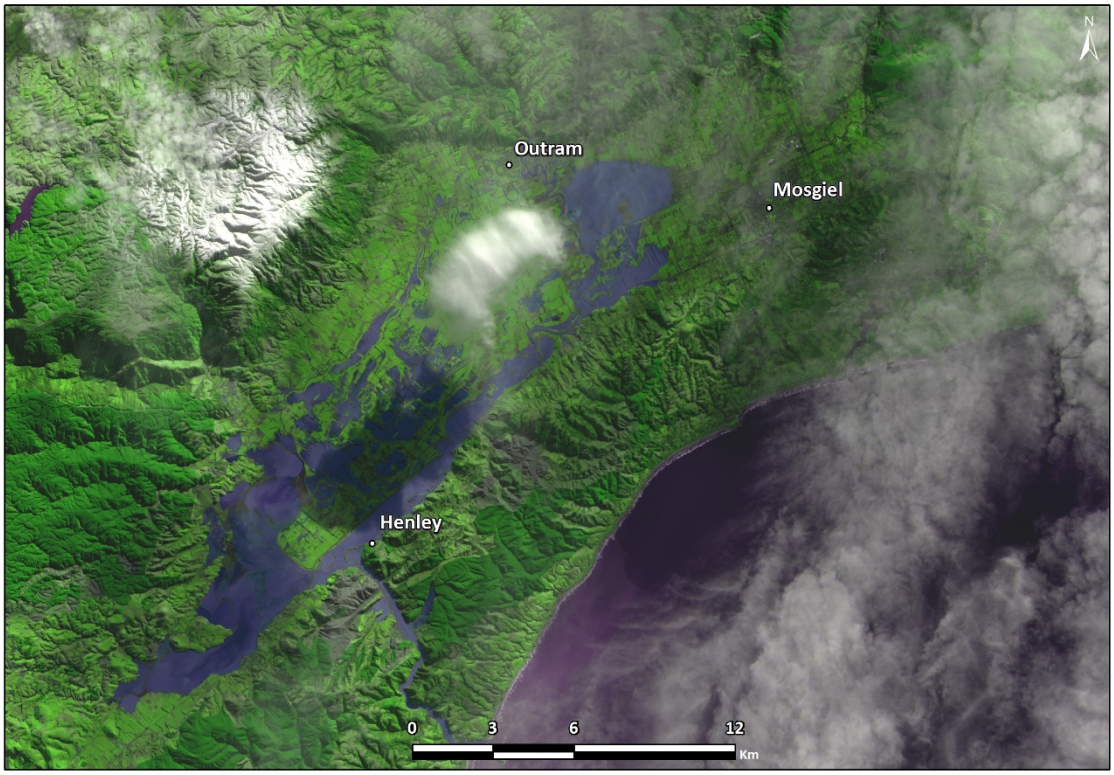


**Figure 1:** **Sentinel 2 satellite image (23 July 2017, 10:30 am) showing the extent of flooding (dark blue) on the West Taieri and in the Lower Taieri Flood Protection Scheme ponding areas (top right side of the image).**

Tonkin and Taylor have completed flood-bank inspections at Taieri, Clutha, and Alexandra. This work is part of flood-bank structural integrity assessment, fieldwork is continuing with detailed assessment of key structures scheduled in October. Initial feedback on flood-bank condition has generally been positive. The final report is due from Tonkin and Taylor in December.

The community issues resulting from the July event are still being received. These are now generally drainage focused due to the recent rain events.

**2. Southern Alpine Lakes**

I have met with my counterparts at Environment Canterbury and Environment Southland to establish a process for closer coordination between us on scientific research and information for the southern alpine lakes. We have agreed that such coordination is desirable and that we should continue to work together with the following objectives:

1. To represent the interest of the participating regional councils with respect to the great southern lakes, to the public and to central government.
2. To coordinate, fund and manage research and/or restorative activities common to the great southern lakes and their headwaters on behalf of the participating regional councils.
3. To secure external funding, where appropriate, to undertake the agreed activities.

The initial focus is identification of research that should be jointly promoted or lead by the three councils.

**3. Climate Change and Sea Level Rise**

I am working as part of a subgroup of the Regional Council Resource Managers' Group (RMG), to prepare a think piece on sea level rise on behalf of the group. We are working with Local Government New Zealand (LGNZ) to see how this can be aligned with relevant workstreams of LGNZ (Appendix). I have been invited by LGNZ to contribute to one of those workstreams to do with the effects of climate change on local government infrastructure.

On a related matter, the NZ Sea Rise Programme has been successful in receiving funding from the Ministry for Business, Innovation and Employment (MBIE) Endeavour Fund ($7.1M over five years)[1]. The programme will be led by the Research Trust of Victoria University of Wellington with participation by many researchers including GNS Science and the School of Surveying at the University of Otago. The programme will amongst other things, establish local sea level projections that include the effect of land movement on relative sea level. This aligns well with ORC's programme of sea level monitoring and modelling of sea level rise effects on South Dunedin.

[1] http://www.mbie.govt.nz/info-services/science-innovation/investment-funding/current-funding/2017-endeavour-round/successful-proposals

## 4. Leith Flood Protection Scheme

Engineering works on the Union to Leith Footbridge stage of the Scheme are progressing. The majority of the right bank wall extension has been completed (Figure 2).

**Figure 2: Leith Flood Protection Scheme works underway on right bank between Union Street and Leith Footbridge on 9 October 2017.**

Left bank widening upstream of the University of Otago ITS building is nearly complete. Significant temporary works have been undertaken in this location to ensure the stability of the bank and University assets and maintain a safe work space for the construction of the new left bank wall (Figure 3). The stability of the ITS building is not affected.

**Figure 3: Leith Flood Protection Scheme works underway on left bank between Union Street and Leith Footbridge on 9 October 2017.**

As previously advised to committee, some of the construction works will extend beyond the planned completion date due to the discovery of asbestos, the weather events in April and July and other factors. Whilst the contractor anticipates that there will still be some siteworks continuing into early 2018, most of the works will be completed by the end of this calendar year with the remainder of the works happening on the river bed near the downstream end of the site. Parts of the site will be handed back and site fencing removed as packages of work are completed later this year. Staff are continuing to liaise closely with University of Otago Property Services so as to minimise disruption to students, staff and visitors and with University communications staff to ensure that the University community has regular updates.

Investigations for the Dundas Street stage of the Scheme are continuing. Construction of the hydraulic physical model is progressing with initial results expected in October (Figure 4). Value engineering has continued with a risk based approach applied to the hydraulic design. Because of the time required to complete this it is likely that commencement of construction will be deferred to late 2018.

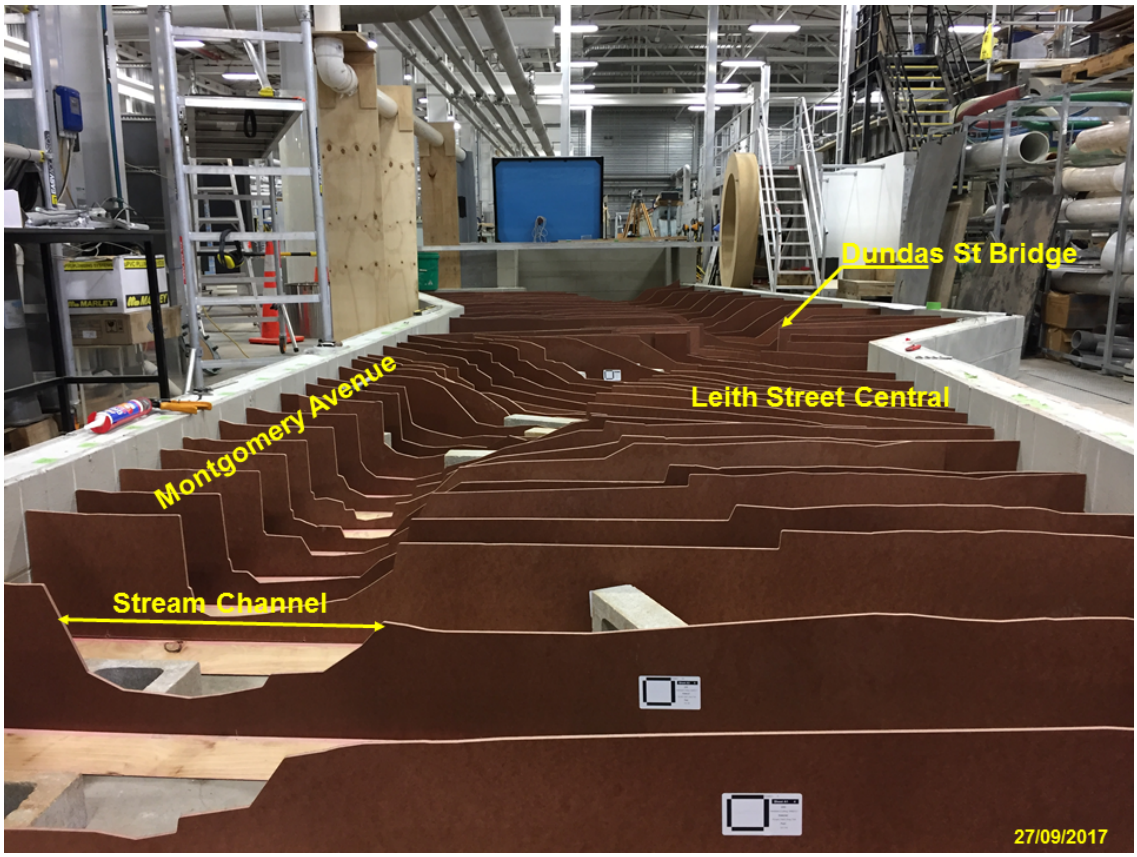


**Figure 4:** **1:25 scale physical model of the Dundas Street section of the Water of Leith being constructed at the University of Auckland Department of Civil and Environmental Engineering. The model is viewed looking upstream.**

## 5. Robson Lagoon Improvements

The applications for long-term consents to improve Robson Lagoon drainage infrastructure (Lower Clutha Flood Protection and Drainage Scheme) are being finalised. The applications seek to maintain the existing land drainage regime whilst improving the way lagoon levels are managed (Figure 5).

Design and construction contract documentation is being prepared for an automatically controlled weir that will replace the existing manually controlled gate. The weir will be installed at the location of the existing gate. Whilst automation has some operational risks; it is likely to be more effective than the alternative of a fixed weir. The weir controls the relative proportions of water that flows through the diversion channel at the west of the lagoon and the lagoon itself. Subject to favourable weather and consents approvals the weir will be operational by April 2018. Landholders have been informed of progress.

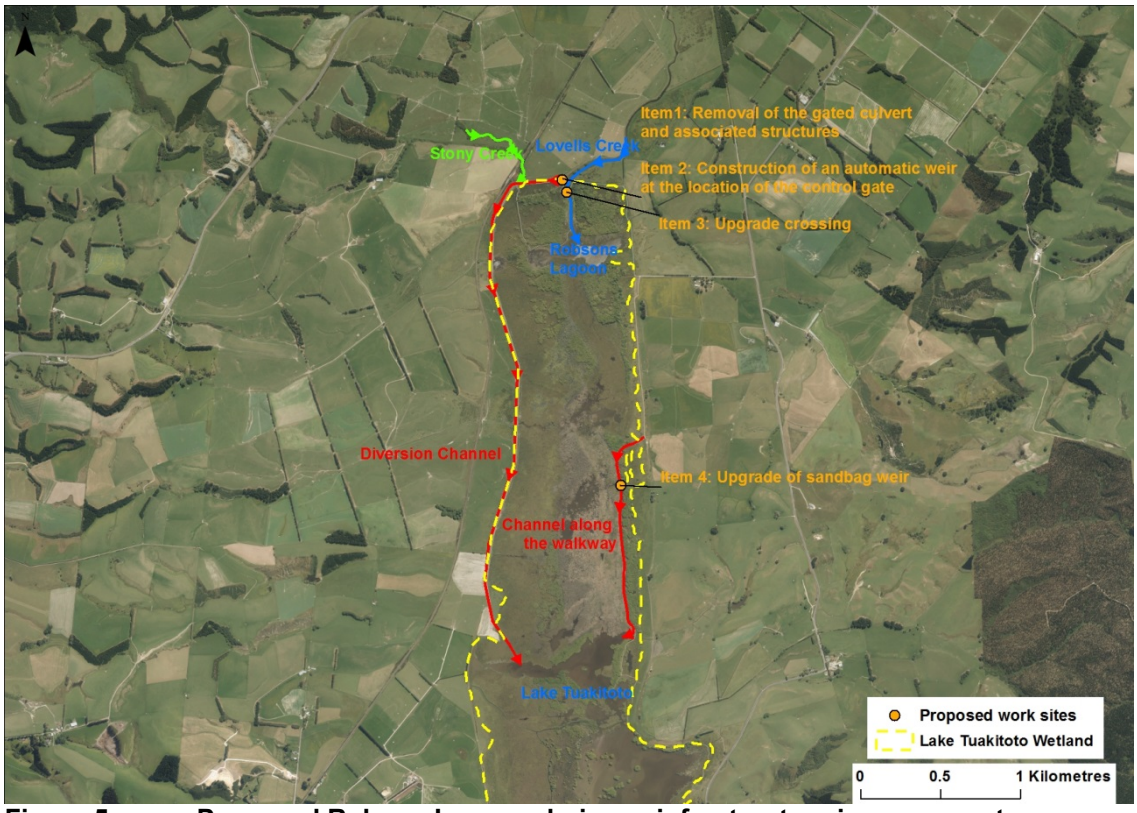


**Figure 5: Proposed Robson Lagoon drainage infrastructure improvements.**

## 6. Urban Water Management

I participated in the Resource Managers' Group workshop on 7 September which observed and discussed some of the urban water management initiatives being led by Auckland Council. These included restoration of Oakley Creek (Figure 6) and the incorporation of "rain gardens" into new housing areas (Figure 7). The Oakley Creek works involve altering the stream channel form and alignment, its margins and the surrounding landscape. This will reduce flood hazard, improve ecosystem habitat (terrestrial and aquatic), improve water quality and public access and amenity. It is evident that much can be learned from Auckland and elsewhere about these sorts of initiatives.


**Figure 6:** **Restoration of Oakley Creek, Auckland. Restoration works underway in one section (top) and about to commence on another section (bottom).**

**Figure 7: The incorporation of "rain gardens" into a new housing area in Auckland.**

## 7. Recommendation

*a) That this report is noted.*

**Endorsed by:** Gavin Palmer
**Director Engineering, Hazards & Science**

**Attachments**

1. Climate change on a page **[10.1.1]**

# Climate change project on a page.

**We are. LGNZ.**

**Climate change will affect us all during our lifetimes. Between 1990 and 2015, New Zealand's net carbon emissions have risen by 64%.**

All local authorities (city, regional, district and unitary councils) are at the frontline of climate change adaptation and have a role to play in mitigation. Action on climate change requires proactive collaboration between central and local government.

**PROJECT OUTCOMES SOUGHT:**

1. An evidence base to support a comprehensive framework for risk reduction and/or retreat.
2. A local government view on emission reduction targets and how to achieve these for New Zealand.
3. A central government/local government working party on climate change adaptation.

## CLIMATE CHANGE ACTION

Climate change action has three components:

1. **Actions to reduce emissions (mitigation).**
2. **Planning and actions at the national and local level to support public safety and effective adaptation.**
3. **Limiting or removing pressure on systems affected by climate change.**

## A COLLABORATIVE APPROACH

The Local Government Position Statement on Climate Change calls for action by both local government and central government.

**Local government will:**

1. Collaborate to improve the effectiveness of land use, service delivery and planning.
2. Incorporate climate change implications into urban development, infrastructure and land-use decisions.
3. Take an all hazard approach to managing risks, and build in the effects of climate change to inform decision making.
4. Factor in the impacts of climate change on water security.

**What local government requires of central government**

1. A national campaign to raise awareness of climate change.
2. An explicit mandate under the Local Government Act to consider how decisions affect climate change outcomes.
3. A clear statement on responsibilities for adaptation actions, including fiscal responsibility.
4. A collaborative and joint response to climate change, including a clear pathway to a low carbon economy.

## KEY WORKSTREAMS

SEP | OCT | NOV | DEC | 2018 JAN | FEB | MAR | APR | MAY | JUN

**Adaptation**

- Natural hazards decision making legal toolkit.
- Report on challenges faced by local authorities in providing water services in low lying areas of New Zealand.
- Overview of at risk local government infrastructure and assets in low lying parts of New Zealand, and quantification of replacement of value.
- Review of the state, value and management of river control, flood protection and drainage schemes managed by regional authorities.

**Mitigation**

- Case studies on Metro Sector actions to reduce emissions.
- Sector position on mitigation options for local government to take, including response to Productivity Commission's issues paper.

## SUPPORTING WORK

The Local Government Position Statement on Climate Change and Local Government Leaders Climate Change Declaration outline local government's acknowledgement of the important and urgent need to address climate change. LGNZ has also produced a catalogue that sets out local government's climate change roles and responsibilities.

LGNZ has endorsed the Parliamentary Commissioner for the Environment's call for a cross-party response to climate change and the establishment of an independent Climate Change Commission.
The sector will contribute to the Productivity Commission's inquiry into New Zealand's transition to a low-emissions economy.

## 10.2. Air Quality Research Opportunities

**Prepared for:** Technical Committee
**Activity:** Environmental - Air Management Planning
**Prepared by:** Deborah Mills, Environmental Scientist
**Date:** 31 August 2017

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### 1. Précis

A national air quality research strategy provides high-level direction to the air quality research community as to the needs and requirements of Councils and other relevant agencies involved in air quality management. The Otago Regional Council is actively involved in the ongoing development and implementation of this national strategy through its participation in the air quality special interest group (SIG). The research strategy was first developed through the SIG in 2012 and continues to evolve as council research needs change.

This paper describes the development and implementation of the national research strategy along with the alignment of ORC's own research needs within the strategy. Council research projects will be further developed through the Long-Term Plan process as an outcome of the new air quality strategy.

### 2. Introduction

In 2012, regional councils participated in a series of National Air Quality Working Group (NAQWG) workshops and surveys in an effort to define and prioritise research needs. This process was enabled through an Envirolink grant[1] and facilitated by an external consultant. The resulting work was the publication of the first *Research Strategy for Air Quality Management - 2012*[2], a comprehensive document detailing the background, context, and research priorities of the air quality management community.

It was recognised during this process that much of the research agenda is driven by the National Environmental Standards for Air Quality (NESAQ) and that the upcoming review of the standards may necessitate a change to the strategy's future direction. ORC will continue to be involved in its development through our participation in the National Air Quality Working Group's research committee.

From the outset, one of the strategy's goals was to provide a prioritised list of tangible research needs and outline possible projects. While some projects may be more relevant to some Councils than others, overall, the proposed body of research was designed to enable all Councils to benefit from research outcomes.

Initially, individual members of NAQWG developed and prioritised research questions within their own councils; the ORC's questions were formulated within the executive team at the time. Through facilitation these were refined to approximately 20 high-priority, nationally-driven topics. The strategy's summary document (circulated separately), produced in 2013, highlights these questions. ORC's current research priorities are closely aligned with several of the issues listed. This is discussed in the next section.

### 3. National Air Quality Strategy High Priority Topics

[1] Envirolink Project No: 1103-HBRC162

[2] Fenton, T and Kelly J, Alchemists Ltd, *Research Strategy for Air Quality Management – 2012*, Prepared for the National Air Quality Working Group, August 2012

The areas of research which were highly ranked by ORC and are reflected in the national priority list of topics are:

**i.** Quantifying the effectiveness of management responses:
Relying on one point of monitoring data may be too coarse to reflect the effectiveness of management responses in the shorter-term. Other metrics need to be developed to quantify whether, and how, effective our air quality management strategies are.

**ii.** Identify or create technological solutions to improve air quality:
The development of new domestic solid-fuel burner technology is seen as the key to reliably lowering emissions.

**iii.** Are MfE-compliant burners delivering the reductions predicted relative to older burners in real life?
We need to know how burners emit in the real world, not just the laboratory.

**iv.** Developing affordable monitoring methods:
Monitoring PM and other contaminants is a relatively expensive exercise. In order to monitor sufficiently to understand health-related exposure, more affordable monitors are required.

**v.** How can we influence perceptions and behaviour of householders to improve air quality?
While longer-term answers such as new technology are being developed and moved into the market, behaviour change is seen as an area which may yield some improvement to air quality. The question is how best to influence that change.

**vi.** Are there broader infrastructure/energy related solutions that may be more effective than current national/regional air quality management regimes?
This topic acknowledges that there may be a larger structural issue that needs to be addressed within government. Concerns about electricity pricing structures, housing quality and energy delivery are included.

**vii.** Can technological advances in emission controls achieve emission reductions while still allowing domestic burning to continue?
This topic relates to low-cost, reliable “add-on” emission reduction devices that would allow the current technology of wood burners to continue operating.

**viii.** Are current evaluation methods (inventories, modelling, etc.) the most cost effective and reliable way to understand the relationship between emissions and concentrations?
Much of the emission-reduction work that is undertaken relies on assumptions about the ratio of emissions to concentrations; this relationship could be better defined for better outcomes.

All of the research questions are designed to progress policy. All of the topics are still relevant nationally and locally and progress is being made in several of these areas.

## 4. Recent Research into Air Quality

Many councils have undertaken research pertinent to their own interests during the intervening years since the strategy was developed. ORC has completed numerous

spatial air quality studies[1], commissioned work on the potential of geo-engineering as a solution[2] and on source apportionment studies[3], and reviewed overseas research on ultra-low emission burners and emission controls[4]. Most recently, an emissions inventory[5] and home heating survey[6] were completed to assist with air quality management planning.

New Zealand-wide, several major research projects have come from the strategy; these projects have been beneficial to the whole of the NZ air quality community. They include:

**i.** NIWA's review of wood smoke emissions: this round-up of all the real-life wood burner emission studies done in NZ helps quantify what emission factors should be used in emission inventories.

**ii.** NIWA's work on low-cost monitors: continuing development of these monitors is a response to the need for air quality monitoring to be more affordable.

**iii.** ECAN's behaviour change project: this development of a programme is designed to influence people to change their behaviour related to solid-fuel burning. Ultimately, it is to be rolled out to councils.

**iv.** ECAN's Canterbury Method 1 for testing real-life wood burner emissions: this is a development of a testing procedure that simulates more of a real-life solid-fuel burning situation so that a truer impact of wood smoke emissions can be estimated for air management purposes.

**v.** National Environmental Monitoring Standards (NEMS): work begun to develop a consensus standard for monitoring PM so that robust nationwide comparisons of air quality can be made with confidence.

**vi.** MfE's Cost-Benefit Analysis Model: development of a model so that councils can estimate the costs of various management scenarios.

Research outputs from all of these efforts are, and will continue to be, beneficial to the ORC for its air quality management programme. Continued efforts are still needed to keep moving several of these projects forward.

## 5. Current Strategic Thinking

In July, the NAQWG representative presented the group's updated research priorities at the SIG research strategy workshop. A recent survey of Councils noted that technological solutions and developing effective behaviour change programmes are still high priorities; newly included topics include understanding the link between $PM_{2.5}$ and health, and science communication.

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[1] ORC Report Numbers: 2009/296 (Mosgiel), 2011/0769 (Balclutha), 2011/1131 (Milton and Palmerston), 2013/0597 (Queenstown and Lawrence), 2014/0824 (Arrowtown and Wanaka), 2015/0810 (Alexandra and Cromwell), 2015/1078 (Clyde)

[2] ORC Report Number 2016/1145: *Technology-based solutions for air quality management: A Discussion Document*

[3] ORC Report Number 2011/0956: *Air quality Source Apportionment Study in Central Dunedin*

[4] Environet Ltd, *Domestic home heating technologies – review of existing and emerging technologies promoting low emissions*, Prepared for the Otago Regional Council, 2016

ORC Report Number 2016/1145: *Air Emissions Inventory for select Otago towns*

[5] ORC Report Number 2016/1145: *Air Emissions Inventory for select Otago towns*

[6] KeyResearch, *Home Heat Survey – ORC Home Heating*, Prepared for the Otago Regional Council, 2016

The top 20 research topics of national interest are shown below in descending order of priority:

1. PM2.5 and health effects
2. Meteorological influences on PM concentrations
3. Affordable monitoring methods
4. Laboratory versus real-life emissions from wood burners
5. Completing the national environmental monitoring standards (NEMS)
6. Toxicity issues, e.g. arsenic
7. Source-dependent impacts on PM concentrations
8. Pooling council resources
9. Communication programmes
10. Identifying and filling PM2.5 information gaps
11. Behaviour change programme development
12. Technological solutions
13. Better quantification of anthropogenic emissions
14. Secondary particulates
15. Personal exposure rates
16. Monitoring targets, e.g. black carbon
17. Assessing effectiveness of behaviour change programmes
18. How to use Big Data in air quality management
19. Understanding contribution of natural sources
20. Quantifying the co-benefits of improving air quality

Of these topics, ORC is particularly interested in the areas of technology (Topics 4 and 12) and health (Topic 1). Understanding the effects of air pollution on human health in our communities and the ability to significantly lower emissions from domestic heating are long-standing central issues in Otago air quality management. While these issues are aligned with the forthcoming air quality strategy, they are independent of its adoption.

### 5.1. Technology

Developments in wood burner and emission-control technology are seen as part of a long-term solution for our air quality issues. These innovations are designed to significantly reduce emissions while still allowing the use of solid-fuel heating.

The ‘next generation’ of wood burner is being designed to eliminate the influence of uncontrollable variables on emissions, e.g. wood moisture content, firebox loading, and will be increasingly efficient. Since much of that research is being done overseas, translational efforts for adaptation to a New Zealand context is still needed.

The opportunities to further that work include:

1. Cultivating links with overseas researchers to enable us to be early adopters of new, proven technology.

2. Developing a better understanding of the differences in wood burner testing regimes between New Zealand and European Union countries. This could help us understand equivalency issues between overseas test results and our own national requirements as they relate to emission rates.

3. Advancing the development of robust protocols for NZ-wide ‘real-life’ wood burner testing. This will help councils throughout the country that may want to take part in testing and will assist in building a national database of emission results for new burners.

4. Understanding the effectiveness of emission-control devices in the New Zealand context. This involves field testing add-on devices such as the Oekotube.

### 5.2. Health

Air quality standards and guidelines are underpinned by public health considerations which are based primarily on numerous large overseas epidemiological studies. The few health studies done in New Zealand are focussed mainly on Christchurch. However, due to challenges with small sample sizes, there are very few studies of small-town air quality and health. The Otago study[1], done in 2007, was one of the first of its kind. Undertaken with the limited data available at the time, it did indicate a relationship between $PM_{10}$ levels and respiratory health.

In the interest of developing a robust methodology for assessing the effects of air pollution on public health in small towns, we have initiated joint, preliminary discussions with the University of Otago's Medical School in Public Health (Wellington) and Greater Wellington Regional Council. The results of any such work would significantly enhance our understanding of the effect of high $PM_{10}$ levels in Otago towns.

ORC should champion these, and other similar ideas, through the appropriate national forums such as the National Air Quality Working Group. Where possible, project development and sponsorship should be a collaborative exercise. Coordination between research needs, research providers and regional councils' planning processes also need to be taken into consideration, particularly in light of competing resources at most Councils.

On a more local level, more active collaborations with other councils with similar air quality issues, e.g. South Island councils, should be pursued.

## 6. Recommendation

*a) That this report be noted.*

*b) That the ideas presented in this report are endorsed for consideration for inclusion into the 2018/28 Draft Long-Term Plan.*

**Endorsed by:** Gavin Palmer
**Director Engineering, Hazards & Science**

**Attachments**
Nil

[1] Otago Regional Council, *Health effects of ambient air quality in Otago, New Zealand*, 2007

## 11. MATTERS FOR NOTING

## 12. NOTICES OF MOTION

## 13. CLOSURE