

### 204 Buildings Are People Too

**Tony Anderson, Beca**

Exploiting the analogy; 'buildings are people', Tony will provide his prescription for the lifecycle of the humble building versus the (not so humble) human. With an MRI and diagnosis to extend 'life', give buildings the appropriate (health) care, reducing our world footprint by doing more with the same, for longer.

The analogy of buildings as living beings is not new; a building can breathe, has a skeleton, a heart, sees and provides warmth, security and (has a) purpose; very human-ish features/needs. As we humans age, a developed society provides a health journey of sorts from emergency care to research, investigation, intervention, planning and the ultimate end.

Are there doctors' visits in place for a building, or are we just the emergency room waiting for a leg to break or the lungs to collapse? Why do we not treat important assets with similar care, given their life expectancy and importance at birth? Why do we find it so easy to end the life of a building and discard it, rather than looking at ways to really maximise life, reduce the overall cost to society and repurpose our 'friend'?

This session will consider the importance and challenges of caring for our assets through good information with timely intervention, providing the audience with a better understand of the links between asset knowledge and asset performance, learning to look further into the future and plan a little better.

### 205 Re-imagining the Three Waters Strategy for Dunedin

**Dan Stevens & Zoe Moffat, Beca, Dunedin City Council**

The Dunedin Three Waters Integrated System Planning project is a flagship opportunity to incorporate mana whenua values and key stakeholder expectations (including Otago Regional Council), into strategic planning, in the context of Te Mana o te Wai, a climate change emergency, increasing legislative, regulatory and environmental protection requirements and expectations.

It is fifteen years since Dunedin City Council (DCC) embarked on an integrated Three Waters Strategy for their key infrastructure, and much has changed since then. DCC has recognised the need to update its strategic planning, embracing the opportunity to adopt a more collaborative and inclusive approach with their treaty partners and key stakeholders.

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This paper details how Council will work alongside their treaty partners and key stakeholders including their Regional Council colleagues and a team of recognised industry experts to create a bold, enduring, integrated investment plan for Three Waters.

# Planning Stream

## Concurrent Sessions

### 206 Stormwater Pipe Condition Assessments - if Only Animals Could Talk IPWEA Queensland Best Paper 2020

#### Clarissa Campbell, Moreton Bay Regional Council

Moreton Bay Regional Council has nearly 250,000 stormwater assets valued at around \$2.0 billion. The large majority of these assets are buried underground and form part of a network, making them very difficult to inspect. To combat this, Council utilises CCTV technology to inspect their buried stormwater assets.

In 2015, Council invested in their own van and camera unit to conduct inspections of stormwater pipes and added a second in 2017. The data from these inspections was used to support the creation of a \$5.0 million per annum renewal programme, as well as informing the ongoing maintenance programme.

Council has come across some interesting issues over the years, including:

- A pipe with CCTV before and after a service had been built through it
- Two adjacent networks whose inverts had been corroded away
- A collapsed network that could not be located even with CCTV, ground penetrating radar, potholing, and excavation
- A damaged pipe suspiciously located under a recent road rehabilitation
- Twin box culverts in private property severely blocked by tree roots with no access for 50 metres either side.

Council has also learnt some invaluable lessons since acquiring the vans, including:

- The importance of accurate asset records
- The difficulty with training and retaining CCTV operators
- Ideas for improved inspection techniques and improving the quality of the data
- The common cause of failures in newer pipe networks
- The value of coordinating with other projects and organisations
- The need to budget for future issues not just known issues.

This paper will describe the history of Council's CCTV inspection, renewal, and maintenance programmes, provide a number of examples of interesting projects Council has come across over the years, compare some of the alternative pipe inspection technologies, and discuss some of the lessons learnt; including that stormwater pipes are a favourite hideout for a myriad of animals.

### 207 Digital Twins – the Promise and the Pitfalls

#### Kat Salm, Harrison Grierson

Currently in our industry, digital twins are trendy and data is central. But, as we become immune to the digital buzz and swamped by a tsunami of data, it is essential we bring in a humanities perspective to serve as the critic and conscience for sustainable and impactful decision making.

Digital engineering and digital futures teams are firmly rooted in a mindset that looks to technology and data to solve our problems and bring new value. However, rather than looking to technology alone, what we need to consider in parallel, is how we bring the values, ethics, and humanity back into the process.

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As our industry becomes more diverse, so too should our thinking about how we meaningfully engage in sustainability and wellbeing outcomes.

Bringing in multiple perspectives and voices should cause us to re-evaluate what we do and how we design. As technology converges, so too should our thought frameworks. How do we bring the humanities back into a digital twin future, to help us understand the impacts and outcomes of our designs and decisions?

The environments we build form the canvas for the communities of the future. We need to ask not just “Can we?”, but “Should we?”

### 208 Reconfiguring our Plane During Mid-flight: Leveraging IWM to Bring Sustainable Water Strategies to Life

**Ian Ho & Justine Bennett, GHD**

- Outline current approaches to strategic water planning across North America and Australasia
- Case studies to highlight the success of integrated practices in the areas of water resilience, blue-green infrastructure, circular economy and adaptive pathways planning
- Explores what a more integrated approach to strategic water planning could look like in New Zealand.

Conventional water planning approaches have led to under investment in water assets over the past few decades. These approaches are often characterised by short term, siloed thinking, a focus on population growth and limited consideration of factors such as natural resources, community expectations, and regulatory shifts. With continually aging assets, there is heightened concern about the affordability of rectifying the situation and increasing uncertainty regarding the implications of climate change - a shift in our strategic water planning is necessary. We need a more integrated and adaptive response to these issues.

GHD consulted a range of utilities across Australasia and North America to gauge their awareness and maturity in applying Integrated Water Management (IWM) principles in their strategic water planning. Many are “reconfiguring their planes during mid-flight” to be more agile, resilient and community-centric. This paper highlights the key success factors of selected examples, and how they can be applied in Aotearoa.

### 209A Building a Base for Broader Outcomes

**Claire McCarthy, Height Project Management**

The large infrastructure projects of Aotearoa have significant broader outcomes potential – for innovation in carbon and waste reduction, growing Māori and Pasifika suppliers, and in quality employment. So, in organisations with hundreds of staff, along with contractors, suppliers and multiple stakeholders, how do you convert the potential into practice?

Multi-year, multi-million dollar construction works like KiwiRail’s Auckland Metro Programme span hundreds of people, and multiple systems, processes and priorities. Bringing broader outcomes to life is about cultural change, engaging hearts and minds so all our people are looking for ways to do things differently.

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Here's some of our learnings from the programme:

1. Set targets – even if they're a stretch, they provide a visible line in the sand
2. Establish a baseline – know where you are on carbon, supplier diversity, waste diversion and diversity
3. Act early – this means broader outcomes can be costed and planned for
4. Pick your team – staff, consultants and contractors who genuinely understand broader outcomes
5. Piggyback on value engineering in design – cost savings can equate to embodied carbon savings
6. Create a culture and discipline around reporting – start with simple templates and honest discussion
7. Celebrate the small wins – they may feel modest, but little ripples can lead to generational change.