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Latest planning workaround still lacking cohesion

After two decades of house price increases outstripping incomes, it looks as though the government has got its head around the drivers of weak housing supply and what to do about it

The response, as set out in a discussion document for feedback by May 19, is to establish empowered public urban development agencies to buy land, plan development, deliver infrastructure and oversee residential (and commercial) construction.

It might not seem like it at first glance, but the proposals set out by the government in *Urban Development Authorities: Discussion Document*, are very significant.

The best thing about this proposed legislation is that it enables a complete workaround of the Resource Management Act 1991 (RMA) and Local Government Act 2002 (LGA).

And isn't it about time.

These two acts, along with the Land Transport Management Act (LTMA), are the reason our cities can't grow and the reason why house prices have turned Auckland into one of the world's most expensive cities.

The RMA establishes the environmental regulations around growth, including whether cities can grow up or out.

The LGA governs the funding councils need to deliver the infrastructure which supports this growth. The LTMA governs how much money is available for transport investment and where it can be spent.

The way that these three Acts work currently is suboptimal, to say the least.

The RMA not only allows but actually empowers "Nimbyism" on the basis of environmental protection. The LGA incentivises councils to oppose growth in order to avoid infrastructure costs.

The LTMA rewards projects with low capital cost, immediate-term impact, not expensive long-term growth projects like road designa-

tions for housing.

Successive governments, not understanding the disincentives to growth created by poorly integrated planning statute, have blamed councils for opposing development.

Rule revision

They have never, however, considered changing the funding rules for councils to incentivise them to "go for growth".

At the same time a number of councils have refused to look beyond their own financial statements to see what rising house prices are doing to the wider economy.

A preference to avoid rates increases to established residents has prevented investment in services to allow the arrival of new residents.

This has strengthened the balance sheet of existing property owners, providing the opportunity for reinvestment in capital-gains free property.

The next generation can only look on in horror at the inflationary impact this has had on house prices. As rents rise to reflect the new value of land, New Zealand risks becoming a high cost, uncompetitive economy dependent upon unproductive property price inflation to support wealth creation.

Urban development agencies (UDAs) can't come soon enough.

By breaking the monopoly councils hold on land supply, urban development agencies will be able to override the RMA's district and regional plans.

By providing for some (as yet unclear) new funding powers, UDAs will finally crack restrictions on new revenue streams, get infrastructure debt off council balance sheets and encourage investment.

The fact of the matter is that we need UDAs because New Zealand's wider planning statute – the RMA, LGA and LTMA – are a disintegrated shambles

Providing the ability to aggregate land, including by forced acquisition under the Public Works Act, will enable scale, mitigate land banking and speed up housing supply.

This really is very important legislation.

However, it is also yet another stitch-up of the planning framework. One has to question what sort of statutory environment we're working in which sees councils oppose, rather than support, development.

One has to wonder whether it makes any sense for the real costs of growth – basic transport, water and community infrastructure – to sit with local councils when the benefit of growth – income, business and sales tax – flow to central government.

How can we expect local councils, who are accountable to local constituents, to act in the best interests of their wider areas and populations when it comes to managing growth?

Isn't providing for growth and employment an inherently "regional" activity and, if so,

why are regional councils largely environmental, and not social and economic, agents?

Statutory shambles

The fact of the matter is that we need UDAs because New Zealand's wider planning statute – the RMA, LGA and LTMA – are a disintegrated shambles.

UDAs will prove a useful patchwork, but only until the next problem comes along.

Like changes which established the Environmental Protection Authority, streamlined consents for projects of national significance, Minister Smith's contentious RM2 reforms and a quarter-century of other changes, the proposals for UDAs are another band-aid.

The whole framework must be substantively revised. We need to think about who makes decisions about growth management – is it a local council, a regional council or the government?

That same power has to "want" growth and it needs to have access to the resources to provide for growth.

Clarity must be given to the provision of all essential services. That means DHBs, the Ministry of Education, the NZ Transport Agency and other government departments must be at the growth decision-making table.

Their investment programmes must be aligned and politicians need to understand the repercussions of deferral of any one service.

UDAs are a truly important step forward, but 26 years of RMA revisions suggest they will, once more, be a step too short.

Hamish Glenn is Senior Policy Advisor at Infrastructure New Zealand



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More effort needed to meet environmental targets, experts lament

Several of New Zealand's leading environmental scientists have suggested positive courses of governmental action following a damning OECD report

The OECD's recent report on New Zealand's environmental performance warned that the country's growth is starting to show environmental limits, including increased greenhouse gas emissions, freshwater contamination and threats to biodiversity.

The third OECD *Environmental Performance Review of New Zealand* made 50 recommendations and noted the country has the largest share of greenhouse gas emissions from agriculture in the OECD.

The report also considered sustainable urban development and recommended improving the housing stock through incentives for insulation and modern heating in rental buildings.

"The OECD *Environmental Performance Review of New Zealand* gives us another 'fail' grade, especially regarding our greenhouse gas emissions," says Massey University Centre for Ener-

gy Research Director Professor Ralph Sims. "It follows the recent country review by the International Energy Agency (IEA) that gave a similar grade."

Sims notes that:

- emissions continue to rise – six per cent since 2010, whereas the OECD average dropped by five per cent
- car ownership is the highest in the OECD, as are road transport emissions per person
- there is no strategic plan to reduce emissions to meet New Zealand's target under the Paris Climate Agreement
- the Emissions Trading Scheme (ETS) has been ineffective and cannot solve the problem without the implementation of other policies
- agriculture will have to play a part
- many local councils are valiantly trying to reduce their local emissions by various means but with little guidance from government.



"Surely by now the government must have received the message, loud and clear, that we are NOT doing our fair share to prevent the global temperature rising above a level where we will all be worse off, and that the costs of climate impacts (for example, sea level

rise in South Dunedin and more extreme weather events) will soon become highly significant issues as will the need for investments in adaptation to become more resilient to future climate impacts."

Sims notes that "many practical solutions" for achieving zero emissions by mid-century (starting from now) were presented in the 2016 Royal Society's report *Transition to a low-carbon economy for New Zealand* after a comprehensive study by the panel of authors and many reviewers.

Most of these recommendations have been reinforced:

- in this OECD report, for example, introduce vehicle fuel efficiency standards and strengthen the building code
- in the IEA analysis – for example, providing heat for industry from geothermal, solar and bioenergy sources instead of coal and gas)
- and most recently by the independent analysis undertaken



- greenhouse gas emission mitigation measures to complement the Emissions Trading Scheme
- assess vulnerability of all major economic sectors to develop specific strategies for climate change adaptation
- help local communities mainstream climate resilience into land-use planning.

There have been “more than enough” reports on New Zealand’s mitigation opportunities but lack of progress, Sims insists. “It is now time to get on with cost-effectively reducing our greenhouse gas emissions and reaping the co-benefits - starting from now.”

Economic emphasis

New Zealand Freshwater Sciences Society President and Otago University freshwater scientist Dr Marc Schallenberg believes that overall the OECD report reflects an economy that consists largely of resource-extractive, primary industries and which exports high volumes of low-value-added commodities. “In terms of our performance in the realm of freshwaters, the report discusses some innovative approaches that New Zealand has adopted.”

These include the Taupo nitrogen cap and trading scheme, the collaborative Waikato River Authority which aims to restore the health of the Waikato River, the Land and Water Forum collaborative stakeholder group set up by government to advise on water policy, as well as the widespread reliance on the OVERSEER farm-scale nutrient leaching model to help manage diffuse nutrient pollution to waterways.

“The report discusses the links between increasing nitrate pollution in surface waters and aquifers and the increase in high-intensity dairy farming,” Schallenberg adds.

“It also mentions increasing levels of pathogenic faecal organisms in our waters due to high-intensity agriculture and links faecal contamination of our waters with our extremely high rates of gastrointestinal disease.”

The report states that to improve water quality in New Zealand, substantial changes in land use management will be required because the country’s typically intensive, pasture-based farming systems are currently the key sources of these pollutants to waters.

“The government should take note that the report points out some contradictions between policies like, on the one hand, the

National Policy Statement for Freshwater Management which aims to maintain or improve water quality and, on the other, central government’s \$400M irrigation investment fund.”

As irrigation leads to agricultural intensification, the report states that irrigation projects should focus on increasing water use efficiency rather than promoting more intensification of agriculture and associated water pollution.

“Furthermore, it suggests that irrigation funding should be contingent on providing demonstrable environmental outcomes,” Schallenberg remarks. “It is suggested that this contingency should enable fruitful collaborations between the agricultural sector, research institutes and universities to foster technological improvements to raise irrigation efficiency and add value to current agricultural production.”

The OECD Environment Directorate proposes a number of economic instruments which it suggests could help New Zealand reduce its environmental footprint by making better use of its resources.

“It recommends putting a price on water, which could result in more efficient allocation of scarce water resources, but to do this

“It is now time to get on with cost-effectively reducing our greenhouse gas emissions and reaping the co-benefits – starting from now”

the report acknowledges that the issue of Maori claims on water needs to be addressed,” Schallenberg admits.

The report also recommends that pollution charges be instigated, which could be used to more efficiently allocate the water pollution footprint and to strategically refinance clean-up funds, giving some relief to taxpayers.

“It also encourages the use of natural capital accounting, whereby ecosystem services are given realistic dollar values and these values are then employed in cost-benefit analyses applied to polluting activities and industries.”

The OECD recognises New Zealand’s serious decline in native freshwater species (especially fish) highlighting problems with

pollution, habitat loss and the serious negative impacts of some non-native invasive species on our native freshwater biodiversity.

“While we have developed significant expertise in terrestrial pest control, unfortunately, our abilities to control freshwater pests have been far less effective,” Schallenberg concludes.

Meaningful outcomes

The author of the *Last Line of Defence* report on environmental governance, Dr Marie Brown, believes one of the report’s strengths is that it focuses on the meaningful outcomes of policy, rather than “cheerleading” for good intentions alone.

“It raises concerns about the slow implementation of the National Policy Statement (NPS) on Freshwater Management, the heel-dragging related to the promulgation of the NPS Biodiversity and the need for better resourcing for compliance monitoring and enforcement of environmental law,” she notes. “All very timely observations.”

A consistent theme of the report is that it highlights over and over the absence of long-term strategies to safeguard the environment – whether in respect of climate change, biodiversity loss or any other significant pressure.

“The test for New Zealand will be how to retain the strengths of our system (public participation for example) while rising to these ever more pressing challenges in the most strategic and effective way: this will demand long-term strategy as above, but also a critical examination of local government funding models, the information basis upon which we make decisions and the long overdue review of our aging environmental legislation among other things.”

Valuable scorecard

All in all, says the director of the University of Otago’s New Zealand Centre for Sustainable Cities, Professor Philippa Howden-Chapman, the report is a “valuable and enlightened” scorecard of New Zealand’s performance in this area relative to the rest of the OECD.

She notes that the OECD identified the *Warm Up New Zealand* programme, which offers subsidies to help households improve their insulation and heating, as one of New Zealand’s flagship programmes,

“The programme clearly improves energy efficiency and protects the occupants’ health, particularly the very young and old,” Howden-Chapman says.

by Vivid Economics from the UK for the cross-party parliamentary members of GLOBE-NZ that provides several scenarios as to how New Zealand might best meet zero net emissions.

In addition, he says, due to their concerns at the slow progress to date by government, Generation Zero is developing a draft “NZ Carbon Act” that, if implemented, would help enable the country to achieve a future low-carbon economy. “At the current rate of progress, we will never be world leading, but at least we might be able to keep up with other countries.”

Sims believes the next steps for climate change mitigation in New Zealand should be to:

- develop a strategic plan to achieve the 2030 climate mitigation target
- design and put into action a comprehensive package of

The report's authors note that while the programme has retrofitted 300,000 homes – around 20 per cent of the housing stock – an estimated 30 per cent, mostly rental housing, remains uninsulated.

The OECD team also observes that the 2016 Residential Tenancies Amendment Act introduced requirements for floor and roof insulation in residential properties.

"They do not directly raise the perverse consequences of the current government curtailing the programme next year, when the retrofitted insulation programme has only half been completed, but encourage ongoing support of the programme," Howden-Chapman adds.

"They highlight the fact that because of our minimal insulation standards, we are already having to retrofit insulation in houses built up until 2000, despite the first thermal insulation requirements being introduced in 1978."

This is because New Zealand's standards are much less stringent than those of many other OECD countries. "They recommend the use of policy instruments, such as the incentives Wellington City Council uses to encourage earthquake strengthening, to be used to raise the quality of rental properties."

With regard to urban development, the OECD notes that New Zealand, despite being one of the most urbanised countries in the world, has no policy statement for urban development.

In fact, Howden-Chapman believes there "a number of areas" where New Zealand is an outlier, compared to the rest of the OECD, in making necessary improvements to the urban environment.

"For example, the National Environment Standards on Air Quality do not include maximum concentrations for PM_{2.5}. Diesel, which is most likely to produce these fine particles, increasingly recognised as harmful to cardiovascular and respiratory health, unlike petrol, is subject to road user charges, but not excise tax."

In addition, New Zealand's high level of land transport spending is heavily tilted to roads; with only 10 per cent of the revenue from petrol tax and road user charges used to fund public transport, cycling and walking infrastructure.

"However, the ACTIVE evaluation of the model communities, undertaken by the NZ Centre for Sustainable Cities centred at the University of Otago, Wellington, has shown that this latter



"They highlight the fact that because of our minimal insulation standards, we are already having to retrofit insulation in houses built up until 2000, despite the first thermal insulation requirements being introduced in 1978"

infrastructure relatively increases by 30 per cent walking and cycling, which is associated with lower rates of diabetes, compared to unfunded neighbouring regions."

She maintains denser land use is needed to reduce carbon emissions, whereas investing in roads, which as in Auckland do not have road tolls or congestion charges, encourages urban sprawl.

"The OECD suggests that betterment taxes should be used to capture some of the added value to land from rezoning," Howden-Chapman remarks.

"Moreover, they recommend that increasing the supply of housing should not be to the advantage of vested interests at the expense of more compact urban form."

They also recommend that there should be an expansion of efforts to reduce the health risks associated with poor indoor air quality, substandard housing and unsafe heating.

"I think these enlightened recom-

mendations highlight the need for urban developments where transport, housing and public amenities are planned in concert with heightened consciousness of the effects of spatial inequalities."

Mixed performance

Biological Heritage National Science Challenge Director Dr Andrea Byrom mentions the report's several red flags and warning signals that are "well worth" heeding. "If this was a report card, we'd probably get about a C+."

Not surprisingly, she says, the impact of agricultural intensification on New Zealand's environment receives a great deal of attention in this report: both in terms of its impact on greenhouse gas production as well as the implications it has for the protection of native biodiversity on private land.

"The lack of adoption of a National Policy Statement on Biodiversity and our inability to legislate with 'teeth' to protect biodiversity on private land is noted as a weakness, as is New Zealand's large number of native biota under threat from invasive pests," Byrom notes.

And while a large proportion – 32 per cent – of the country's land area is under some form of protection compared to other OECD countries, not all ecosystem types are represented.

"Not coincidentally, these under-represented ecosystems fall within some of our most productive land, which, to come full circle, has a pretty big impact on our climate change statistics such as an increase in greenhouse gas emissions."

In terms of environmental

governance, regulation and democracy, Byrom believes New Zealand has some work to do, with the effectiveness of the Resource Management Act, participation in environmental management by Māori, and national monitoring and reporting initiatives all coming under the spotlight.

"And as we've heard a lot in the media recently, we have work to do around management of our freshwater ecosystems, in developing meaningful indicators of freshwater ecosystem 'health', and in mitigating nutrient runoff which contributes to eutrophication of freshwater systems.

Ultimately, Byrom says, the OECD 'report card' points to the need to take a much more integrated and future-focussed approach to environmental management. "While New Zealand's R&D expenditure is pleasingly at the higher end of public R&D budget going to the environment, overall our expenditure on R&D remains stubbornly low at 1.2 per cent - half the OECD average, according to the report," she reveals. "At that level of expenditure, we will simply fail to make headway on some of our most pressing environmental problems."

On a more positive note, the report identifies several opportunities for New Zealand to be a world leader in the transformation to a green, low-carbon economy. "Integrating biodiversity protection more strongly into current and future legislation, and adoption of economic instruments to promote innovation, are just two tools that could be used to ensure that our environment and our economy are more tightly interwoven in future."

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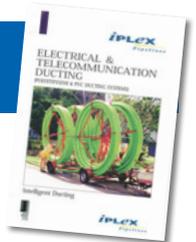
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Situation bad and getting worse, latest report reveals

The Ministry for the Environment and Statistics New Zealand's latest national report makes very dismal reading

Our fresh water 2017 measures the quality of New Zealand's waterways, including water quality, biodiversity and cultural health.

Nitrogen levels at over half of monitored river sites are getting worse, according to the report, and 72 per cent of the 29 native fish species monitored are either threatened with or at risk of extinction.

The data compiled in the MfE report conclusively confirms that the overall quality of the freshwater environment is declining rapidly, University of Canterbury, Director, Waterways Centre for Freshwater Management Professor Jenny Webster-Brown says.

"This is consistent with all recent reports and research on our freshwater systems ... there is little evidence to the contrary," she observes.

"In the last 10 years we have begun to address the problem through policy changes and law amendments, but a greater investment of time, funding and effort is needed in action and innovation before we will be able to halt and, if possible, reverse this trend.

"Consistent, rigorous monitor-

ing data is vital to understand the freshwater environment's response to pressure but, on its own, will simply continue to chart the decline of water quality, quantity and ecosystem health."

The report highlights the ongoing and escalating problem of nitrogen leaching from land into the waterways, Webster-Brown notes.

"This compares with apparently improved control of phosphorous, from the same source, likely due to more fencing and planting of riparian strips on agricultural streams."

She concedes that nitrogen control is a "more difficult" problem to solve, particularly with the legacy of high nitrate in groundwater in agricultural regions of New Zealand, but says this should act as an even greater incentive to find/fund solutions and ways to manage high nitrate concentrations (for example, in drinking water) in the meantime.

"The report also highlights the poor state of urban streams, something which is easily overlooked in the rush to blame dairy farmers for all of our freshwater problems.

"It is vital that we also invest in, and otherwise provide incentives for, actions that will protect our freshwaters and change this scenario for the better"

"There are already solutions available for preventing contamination of urban streams, a problem shared by all cities, and yet we still cling to the same systems of stormwater control and choice of problematic building materials that have led to these issues ... and over-use urban water supplies that would otherwise recharge these systems."

Remove obstacles

Webster-Brown says obstacles to uptake of sustainable urban water technologies need to be identified and removed.

"So, by all means, collect more data to address the data gaps identified in the report ... this is essential.

"However, it is vital that we also invest in, and otherwise provide incentives for, actions that will protect our freshwaters and change this scenario for the better."

Human activities have affected groundwater quality at about 40 per cent of long-term monitoring sites across New Zealand, GNS Science Division Director – Environment and Materials Dr Chris Daughney adds.

"At these sites, the main sign of human impact is in the form of nitrate concentrations that are above the natural baseline – the concentrations that can be expected in the absence of human impact."

"At many of these sites the observed nitrate concentrations are not far above the natural baseline, but at some sites (about five per cent of the total number of long-term monitoring sites), the nitrate concentrations are much higher than baseline and can even exceed the drinking water standard."

GNS Science used its in-house expertise to evaluate the age of the groundwater and found that for groundwaters that were recharged prior to about 1880 the nitrate concentrations tend to be low and at baseline levels.

However, the nitrate concentrations increased slightly in some parts of the country for groundwaters that were recharged from about 1880 to about 1955, while the nitrate concentrations in some monitoring sites have exceeded baseline by a significant margin in groundwaters recharged since about 1955.

"Through this work, we have inferred that the increase in nitrate concentration from baseline to slight elevation around 1880 corresponds with the start of the meat export industry in New Zealand, whereas the transition to even higher nitrate concentrations at some sites after 1955 corresponds with the onset of industrialised agriculture."

Ultimately, improving understanding of water resources in terms of quality and volume requires more monitoring and scientific investigation.

"The fact is that groundwater resources are very important for

New Zealand, but they remain poorly understood," Daughney believes.

For example, he explains that 3D geological models of aquifer systems are important for groundwater management to identify how much groundwater is likely to exist in the aquifer, where the groundwater is found and what flow paths it might take through the aquifer.

"So far, we only have such 3D geological models for about 30 per cent of New Zealand's aquifers," Daughney notes. "And that's just one type of information we need to more effectively understand our groundwater system."

Agricultural avoidance

Meanwhile Massey University Freshwater Ecologist Dr Mike Joy believes *Our fresh water 2017* features some "really obvious" attempts shift focus away from agricultural impacts.

"Once again waterways in urban catchments are given the same prominence as pastoral even though urban make up less than one per cent of river length and pastoral are 40 per cent."

He analysed some of the key findings to demonstrate some of

the biases, observing that when it comes to nitrogen levels the report says 55 per cent of sites are getting worse and 28 per cent getting better.

"But that's for all sites," Joy notes. "If, as would be logical, you look at landcover classes separately, looking at pasture sites showed 72 per cent got worse and 28 per cent better."

Phosphorus is a "non-issue" because the algae can in most cases get all the phosphorus they need to cause problems from the sediment where levels are high, so don't need it from water which is where it is measured.

"For E. coli, the report inexplicably switches from the 20-year record for other parameters to 10 years, and as would be expected after removing most of the data then 52 per cent of sites have no trend because of this lack of data."

However, 60 per cent of pasture catchments got worse and 40 per cent better - for urban one site got worse. "This sounds a bit different to the 22 times higher in urban and 9.5 in urban reported."

A number of similar issues arise in the detail of the main report, Joy argues, apparently from "a lack" of freshwater ecological knowledge.

He cites the section on nitrogen, which features figures that used the banding from the National Policy Statement.

This approach is flawed for two reasons, he maintains. "As far as I'm aware the limits are still subject to public submissions so could and should be changed, and nitrate toxicity is a red herring because we know that fish or invertebrates cannot die twice."

Joy says "much lower levels" of nitrate are well known to have algal blooms that cause fish deaths through oxygen depletion, so the amount of nitrogen that is toxic to them is a non-issue and only occurs in laboratory experiments and not real life.

"The ANZECC guideline level is around 0.5 mg/l about one tenth of the toxic limit, thus using these toxic limits is disingenuous."

Similarly, he says the section on algal blooms starts with the statement that 83 per cent of the length of rivers is not expected to have prolonged algal blooms.

"This statement misses the point because just one day of a bloom is just as lethal to fish and other life as any longer length of time - once again they can't die more than once."

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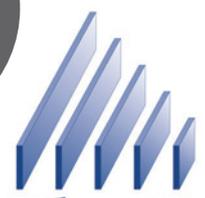
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Political participation key to successful resource management

Another year, another round of Resource Management Act reform – and it's an election year, which means more arguments from political parties on what needs changing

As a Resource Management Act (RMA) practitioner, I have become somewhat immune to the ongoing reform debate on the legislation.

What I have learned over the years is that the RMA or its equivalent will be around in some shape or form in perpetuity.

There will be continued debate around where the legislation sits on the continuum of enhancing economic growth or providing protection to the environment, but fundamentally the legislation will stay in place.

We need it to do so to maintain a well-functioning society which confers and protects property rights of current and future generations within a sustainable physical and economic environment. To not have such legislation and protections would be suicidal.

What I am most interested in with the RMA is the implementation of the legislation, and more particularly the developing practice of my planning profession and that of the allied professions.

During my career, which started at the very tail end of the Town and Country Planning Act 1953, through the 1977 legislation and subsequently the RMA 1991, I have seen huge changes in the practice and process of planning.

Foremost has been the huge increase in the numbers of practitioners, and their influence on policy and development processes.

The number of planning professionals has more than doubled from when I was president of the New Zealand Planning Institute in the mid-1990s, and has increased much more significantly since I first gained my qualifications in the seventies. I am proud of that fact.

Property policy

Some may view this growth as a negative, but for me it clearly demonstrates the growing public interest in how peoples' property rights and broader property interests in the physical environment are translated into policy and subsequently into practice. The plan-



ning profession's role (and related professions) has been to provide a conduit to this expression.

However, one area of concern, which I have held for some time, has been a declining role of elected officials in setting policy.

As the interpretation of the RMA has become more complex through the development of the law, exacerbated by the regular changes to the legislation, the role of local politicians in setting policy has diminished hugely.

I don't believe this is healthy, but admit to being in a minority in expressing this view. My concern is the longer term negative impact on our local democracy, where there is a rightful expectation by citizens that policy should be formulated by the people they elect, rather than professionals.

Citizens can judge the product

“We have generally good laws, but in the case of the RMA too much reform has likely led to citizens becoming more and more reliant on professionals to participate”

of policy every three years and cast judgement. It is much more difficult to express this view if decision makers are not accountable to the ballot box.

In recent times, legislative interventions have seen the

establishment of the central government-appointed Hearings Panels for both Auckland and the Christchurch Unitary/District Plans.

Both processes have led to highly credible outcomes, but my point is that up until recent times this policy setting was determined by elected local politicians, not appointed persons predominantly from the professions.

We likewise see appointed commissioners deliberating on District Plan policy processes throughout the rest of New Zealand. And these appointments are made by local body politicians!

I need to note that I am not opposed to commissioners hearing resource consents applications. This practice has worked well.

Such change has been driven, in part by the need for greater process efficiency, for which I

have sympathy. In the past, the processes to get to the courts has been too slow.

This is not the case with the Environment Court today, although arguably the cost being represented at the court is prohibitively expensive for most people.

Clearer channels

I also see a need to review the number of approval channels for projects. The current situation is now littered with options.

While I understand why the government established Boards of Inquiry, Special Housing Areas and Independent Panels for Auckland and Christchurch, all as an alternative to processes leading to the Environment Court, I now believe it is time to rethink. In particular we need to look at 're-joining' some of these processes back under the Environment Court umbrella.

Certainly, I hear and see negative reaction in Auckland to approvals granted under the SHA legislation, proposals which would have struggled to gain approval under normal RMA processes.

I am privy to an approval where consent was granted to a housing development which completely reverses the flow of storm water

from one river catchment to another, with significant impacts on neighbours who had little or no rights to object. I have little doubt that such issues would have been resolved under normal RMA processes.

So back to the big picture. We are fortunate in our country to have a relatively good economy, functioning institutions, and governance which looks to protect our rights as citizens to participate in a democratic society.

We have generally good laws, but in the case of the RMA too much reform has likely led to citizens becoming more and more reliant on professionals like myself to participate.

The distancing of elected officials from policy decision-making will only further exacerbate this process. I do not agree that this is the right direction. Now is the time to reassess.

Leigh Auton is a Local Government Commissioner and a Director of Auton & Associates with 35 years' local government experience, a chairman/director/trustee on several boards and provides consulting advice to public and private sector companies

Depth of tourism infrastructure needs revealed



The full extent of the infrastructure investment needed so communities can keep up with unprecedented tourism growth has been highlighted through a recent survey of local government.

The tourism boom New Zealand is currently experiencing is putting pressure on infrastructure used by both international visitors and local communities.

The March 2017 research involving 47 councils revealed there are over 680 mixed-use infrastructure projects with a value of around \$1.38 billion that are in development in one form or another.

Councils across the country were asked to identify infrastructure projects needed to support sustainable tourism growth.

Local Government New Zealand President Lawrence Yule says it is well beyond the resources of local communities to fund these projects, which include the development and ongoing operation of toilets, wastewater systems, car parks, access roads and wifi, and that a new funding mechanism is needed.

"The arguments for a new, sustainable way of funding infrastructure for tourism are undeniable," Yule maintains.

"We just need to get on with it now and these figures provided by just over half of our councils further illustrate the scale at which we need to act.

He adds that there is "much that could be done" to protect and enhance the visitor experience, and provide some relief for our communities, many of which have a small ratepayer base.

"If we don't act and with the right level of investment, we will be in no position to cope with the forecast growth of tourism – 4.5 million annual visitors by 2025. 'Just in time' infrastructure can mean 'just too late'."

There are calls for relief from many parts of New Zealand. Auckland mayor Phil Goff has proposed an accommodation levy for his city, while Queenstown Lakes mayor Jim Boulton sees the need for a visitor levy for the district.

Yule says it is "understood" the government is looking at ways to address the need. "We are confident there will be a solution, we just need to ensure it is the right one," he assures.

Accommodation and border levies contributing to a co-investment fund between central and local government and the tourism industry is a preferred model.

"Co-funding, with contributions from central government, councils and the industry, in a way that allows for maintenance and operational costs, is required," Yule insists. "Whatever option is settled on it needs to be well supported by all parties if we are to see a durable solution."

GST from international visitors alone rose to \$1.5 billion in the year to March 2016, up from \$950 million in the 2015 year.



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Putting the pieces back together again

Building the Main North Line took 84 years by some reckonings, but KiwiRail is determined that rebuilding it after the damage wrought by the Kaikoura earthquake will take much less time

The original construction was an on-again, off-again affair, with the prospect of a link first raised in April 1861.

It was finally completed on December 15, 1945, after wrangles about the route it should follow, and halts in construction during World War I and when the Great Depression hit.

The reconstruction, while massive in scale, will be measured in months, not decades.

The line is a crucial link in KiwiRail's network that provides just-in-time services, shifting freight from the North Island via the Interislander ferries to Christchurch and on through to South Island customers.

Before the quake, KiwiRail was moving one million tonnes of freight over the line each year.

KiwiRail Chief Executive Peter Reidy is committed to getting the line open as soon as possible, seeing it as vital to the company's role as a trusted Kiwi-owned logistics partner growing New Zealand.

"We need to do that to keep New Zealand moving and help grow the economy."

The need for speed means that KiwiRail will look for fixes in some parts of the line to allow freight-only rail services to start as soon as possible.

"KiwiRail will use the latest technology in slip identification and movement to allow our train

drivers to safely navigate areas where slope hazards remain.

"While there will be time delays on the route once opened, it will offer a reliable, cost-effective service with fewer emissions for our customers while taking heavy vehicles off the roads.

"Every tonne of freight moved by rail delivers a 66 per cent reduction in emissions for our customers, and the country."

The amount of damage caused by the 7.8 magnitude quake which struck just after midnight on November 14 last year is massive.

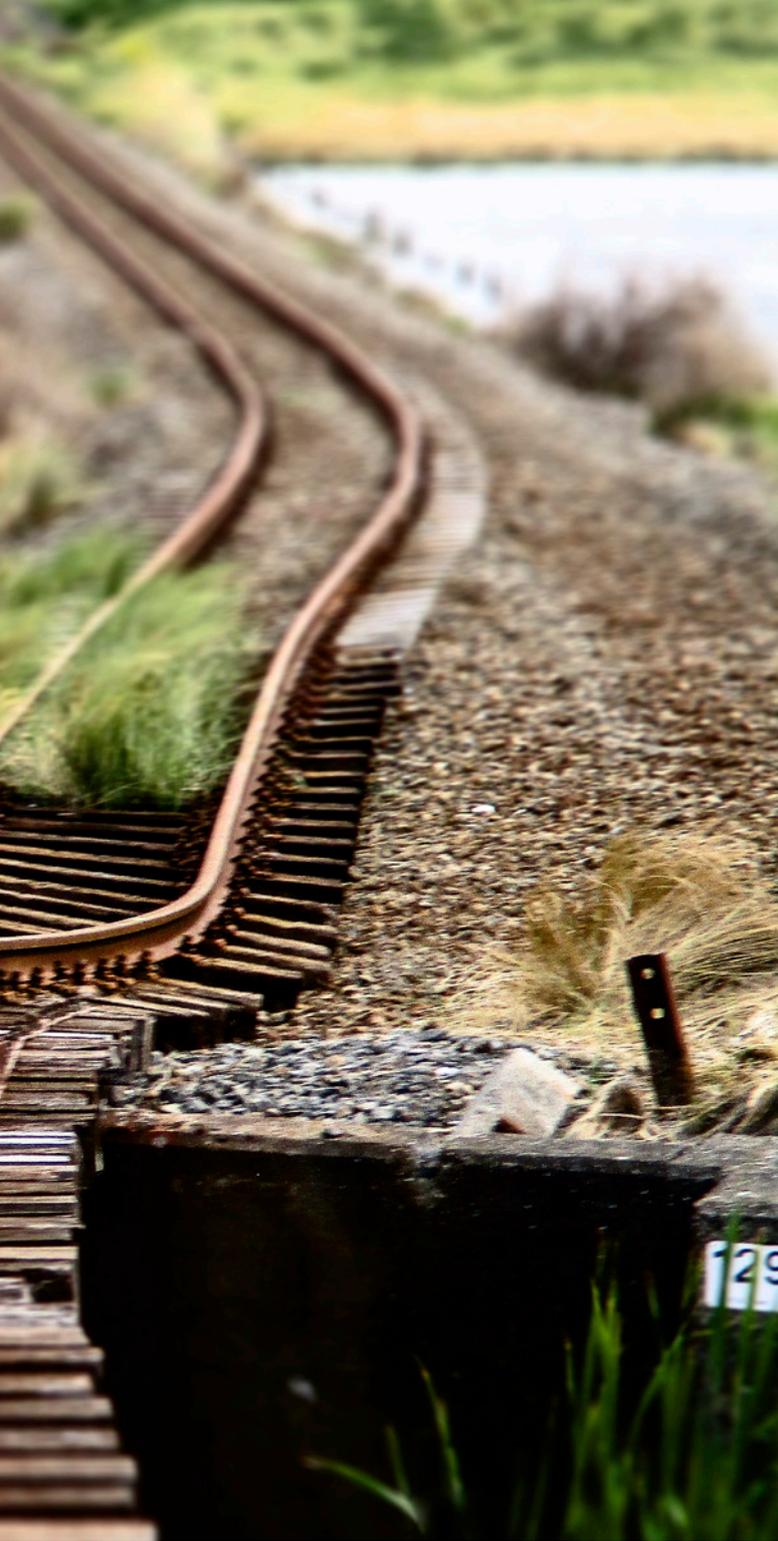
Slips have torn up the track. Bridges have been damaged, some so badly they need to be demolished and rebuilt.

Tunnels need repairs. Communications systems have been destroyed, and some crucial parts of that infrastructure will need to be shifted to new sites.

Enormous effort

Detailed assessment and the development of plans for the work is nearly complete, but the job is enormous.

Group General Manager Network Services Todd Moyle says more than 100 KiwiRail staff, consultants and contractors are working at pace on the line, inspecting and redesigning replacement bridges and tunnel repairs plus commencing fixing twisted track and damage earthworks.



“Rebuilding the Main North Line after such a significant earthquake is no easy task, but we are more than up for that challenge”

long, 5.1m high and 3.5m wide with the rail and sleepers sitting on top.

The rest of the bridge is made up of three steel plate girders (SPG), which are shorter than the trusses (one SPG at the north end and two at the south end).

It is supported on 13 reinforced concrete caisson piers, four of which were underpinned with reinforced concrete piers in 1976.

Additionally, the two southern spans and piers supporting them were rebuilt in 2011, including replacing the timber piers with reinforced concrete ones as part of KiwiRail’s goal of eliminating timber bridge piers from the rail network.

The damage suffered by the bridge in the earthquake was major. The trusses are supported on cast iron bearings, half of which are fixed and half sliding. These have incurred major damage, meaning they all require replacement.

There has been other damage to the bridge including, but not limited to, damage to the tops of the piers as well as to the bridge approaches and the northern abutment.

KiwiRail has elected to repair the bridge rather than demolish and replace it.

Working with an existing structure always has challenges and the Clarence Bridge is no exception.

The size of the truss spans and their location over such an active waterway means that a very well planned sequence of works is needed, in particular to replace the bearings.

Scaffolding works are currently underway to allow for the installation of initial steelworks to hold the bridge spans in place and prevent any further, and potentially catastrophic, damage to the bridge. Further, more extensive repairs will then follow.

Slippery slope

One of the more complex slip sites affecting the Main North Line is the major slip at the 213.5km MNL, just north of Ohau Point and Ohau Stream.

Known as Primary Slip Site 7, it consists of four chutes, three of which reach all the way down to rail and road level.

The height of the site makes this specifically challenging. The ridge line to which the slip damage reaches back is over 300m high and boulders of up to over 100 tonnes, the size of a locomotive, have reached the rail and road – and in some cases bounced into the sea.

The current proposed solution involves realigning the rail and road away from the toe of the slip so that space can be created to build a large catch bund to prevent rockfall and slip material reaching the transport corridor in future.

This involves several stages:

- initial sluicing by helicopter to remove loose material
- abseilers working on the cliff to scale down rocks using mechanical or explosive means to make the slope stable enough to approach from the bottom
- bringing excavators under controlled conditions up onto the slope to create a bench, which is widened to remove loose material from above back to bare rock
- helicopter sluicing is used to assist removal of loose material on the upper slopes.
- excavated material is moved by side casting to the outside and down to the bottom of the slip, where it is loaded onto trucks for removal
- the bund will then be constructed and the realigned rail and road built in front of it

The realigned railway also needs to connect back into Tunnel 19 – the tunnel that takes the Main North Line in behind Ohau Point, thus avoiding the majority of the most significant slip site affecting the transport corridor.

Given these extremely difficult and testing conditions, Moyle says KiwiRail is “very conscious” of the environment its teams are operating in.

“There is continuing seismic activity in the area and so the safety of our work crews is our number-one priority.

“The scale of this project is unlike anything we have seen in New Zealand in railway terms for generations,” he admits.

“But the skill of our workforce, the technology we can employ and the partnerships we have in the North Canterbury Transport Infrastructure Recovery alliance (NCTIR) with NZ Transport Agency and other alliance members are really paying off in these early stages.”

There are over 700 rail sites that needed work on the line. About 100 – mostly minor – have already been completed, but the big work still remains.

“We’re about to get into the crunchy sites,” says Moyle.

“We’ve got surveyors out in the field at numerous sites, numerous geo-tech drill rigs have been testing the ground to prepare for the major earthworks we will need to carry out, and we’ve completed laser scanning of several of our tunnels to determine the work that will need to be done on them.”

Typical of the “crunchy” sites is the Clarence Railway Bridge located at the northern end of the major slips north of Kaikoura, in railway terms at the 225.308km – 225.792km Main North Line.

Known as Bridge 120 MNL, it’s a 150-span bridge 478m long, designed and built circa 1939.

The main feature of the bridge is 12 steel truss spans, each 36.6m

“That makes a final completion date difficult to commit to, but there is no doubt that despite the size of the project, we are working to schedule.”

KiwiRail is a key player in the NCTIR set up by the government in December. Along with KiwiRail, the organisation includes the NZ Transport Agency, Fulton Hogan, Downer, Higgins and HEB Construction.

“The alliance will be the lead delivery agency to repair the transport infrastructure damaged during the earthquake,” Transport Minister Simon Bridges said, announcing its establishment last year.

“These organisations have been heavily involved in the emergency response to date and will be able to keep momentum to help Kaikoura and North Canterbury to recover as quickly as possible.”

Skills seconded

Demonstrating KiwiRail’s commitment to the task, Civil Engineering Professional Head Daniel Headifen has been seconded to NCTIR to oversee the rail design projects and be part of NCTIR’s management team.

“The biggest challenge is the sheer scale of the number of different sites that have to be worked on simultaneously,” he explains.

“For rail, the infrastructure types include communication towers, signals, railway track and formation, embankments, bridges, tunnels, culverts and seawalls as well as large slopes above the railway line.

“The level of damage goes from large numbers of track misalignments, buckles, small ground slumps and cracked concrete structures to huge 100,000-cubic-metre slips, fault lines that have ruptured the ground by several metres, bridges that have had spans knocked off their piers and track that has been thrown dozens of metres through the air.

“These have all needed re-sourcing for site inspections and assessments and now for detailed design and construction.”

KiwiRail has brought its ability to react quickly and flexibly to the situation. “Our operational teams were out on the ground as soon as the earthquake happened,” he recalls.

“In the Wellington metro area we had several teams out doing night works at the time of the earthquakes, so as soon as they could determine the environment



was safe they began assessing infrastructure immediately.”

Experience in previous emergencies, such as the big floods in Whanganui and Taranaki in 2015, mean KiwiRail was able to use tools in the field for aiding quick assessments of assets.

“We then compiled that data back in a central hub – what we called the EQ Recovery Room. With our staff’s detailed knowledge of the network we built up a pretty quick picture of the level of damage that we had sustained.”

The task was complicated by the isolated areas KiwiRail had to send people into and the lack of communications.

“Many of the damaged areas have poor cell phone coverage and KiwiRail’s own communication network suffered damage from the quake that put parts of it offline.

“So we pulled together all the satellite phones the company had, and also issued our staff with personal locator beacons before we sent them out in teams.”

“The biggest challenge is the sheer scale of the number of different sites that have to be worked on simultaneously”

Local knowledge

The teams also used local locomotive drivers alongside the network teams as they have “really good knowledge” of the patch.

Headifen sees NCTIR as an important part of the recovery plan. “The four big contractors involved bring a massive amount of resources – something that when pooled together is greater than the sum of its parts. And the job needs that massive amount of resource.

“It also allows us to get our various in-house and consultant design teams all located, as much as possible, in the same room so that they can connect up over all the different multidisciplinary

issues that are faced.”

A large number of the damage sites are shared for both rail and road so need consideration not just from all the different rail assets point of view, but from the roading ones too.

He describes the work so far as “very fast-paced and with a decent number of challenges and pressures.

“We know that time is critical on this job. There are mountains to move and we have to do it safely for all our people involved so that they go home in the same state that they came to work in.”

He says “while most of us have been involved in jobs that have sites as big as this one, not many



Local KiwiRail track teams out of Blenheim, Kaikoura and Mina, and KiwiRail teams from around the country are working round the clock alongside local contractors

Along with the big jobs, smaller teams of five with diggers are working on fixing the kinks and bends that the quake put into the line



- if any - could say that they have been with all of them together and the speed that this has had to unfold.

“To put several hundred people together working on what will be well over 1,000 damage sites, some of them of a huge scale, as quick as has happened has been a massive challenge.”

Before Christmas there would have been more than 200 people working on rail and road projects, and that has now ramped up even more.

“Normally, to put such a work force on the ground takes years of planning – here it started within hours of the earthquake once the scale of damage started to materialise.”

Signal success

Typical of the scope of the work being carried out by the teams under Headifen are the signals and telecom projects headed up by KiwiRail’s Nathan Strawbridge, who has been seconded to NCTIR.

He says the biggest challenge he faces is delivering to the timeframe. “That means making sure we are on top of procurement and supply of equipment,” Strawbridge explains.

“We also have to make sure that we are keeping the public safe in the meantime.”

It’s an ambitious task, he admits. “The environment is dramatically changing along that corridor day-to-day.

“Part of the reconstruction work will involve temporary level crossings, and that raises its own concerns.

“That means potential interaction between road and rail that we didn’t have before the earthquake.”

Strawbridge says that while there are 10 projects on his agenda that does not give a true picture of the scope of the task.

“There are between 50 and 100 snags in signals and telecoms – issues that need to be resolved before the line can be reopened.”

Strawbridge adds that so far KiwiRail has provided all the expertise in signals and telecoms for the reconstruction in-house, though resources are also being drawn from outside the company into NCTIR to gear up for the bigger coming works.

One advantage he has is that he is not starting from scratch. “We already have ‘as-built’ drawings that will enable reinstatement.

“Design is not so much of an issue for us. It’s not a complete rebuild but there will be checks and balances.

“We still have to apply a bit of rigour to it, but it’s nothing like designing a new bridge from scratch,” he admits.

Along with the big jobs, smaller teams of five with diggers are working on fixing the kinks and bends that the quake put into the line.

The track work is vital to getting the line open again, Moyle stresses. “It is not the same scale as the big bridge or earthworks sites but

it is crucial.”

“We’re utilising our local KiwiRail track teams out of Blenheim, Kaikoura and Mina, alongside local contractors, plus mobilising KiwiRail teams from around the country.

“For example, a team from Dunedin has been doing great work with our Blenheim guys around Grassmere, and as far south as Clarence.

“We need to schedule the track work carefully so it is coordinated with the big projects like the bridges and the tunnels.

It also needs to be synchronised with our overall approach, which is to work from the north and south towards Kaikoura fixing the tracks.”

Already KiwiRail has reopened the line between Spring Creek and Lake Grassmere.

“Rebuilding the Main North Line after such a significant earthquake is no easy task, but we are more than up for that challenge,” Moyle stresses.

UDAs useful – but not the legendary speeding bullet

The government clearly believes that Urban Development Authorities (UDAs) can make a positive contribution to the New Zealand landscape, according to Ross Pennington, Brian Clayton and Luke Hinchey

This, they say, is evident in the political risks it has taken in the policy design. First, there is the obvious challenge to property rights through the proposed application of the compulsory purchase provisions in the Public Works Act (PWA), although it is important to note that these can be exercised only by the minister, not by the UDA directly.

Then there are the suggestions that:

- land acquisition within a UDA project might be exempt from the Overseas Investment Act on the basis that overseas developers would hold the land only briefly
- central government should be able to override local government opposition to projects which are in the national interest.

Neither of these proposals features in the body of the consultation document. On the contrary, it proposes that, to ensure a collaborative approach between local and central government, all territorial authorities (TAs) within an affected area should have a right of veto over whether a project proceeds.

Instead they are raised as

questions for public feedback in the document's concluding pages. But the government will know that they each have the potential to be highly controversial.

So, is the political risk worth taking, particularly in an election year? This will depend entirely upon the workability of the scheme, and the evidence points both ways.

Doubtless it will create new opportunities. But whether they will favour the over-stretched local construction industry or overseas players, and the extent to which UDAs will be able to accelerate development and unblock financial bottlenecks, remains to be seen.

UDA design basics

- UDAs can only be used for regionally or nationally significant developments. These can be commercial only, although the government can require "public good" outcomes as a condition for approval and these might include affordable housing.
- UDAs must be publicly controlled – e.g. central government and crown entities, publicly owned limited liability companies, councils and council controlled organisations (CCOs). They may act as regulator only, working in partnership with private developers or landowners.
- The UDA will be the resource consenting authority. In making decisions, it will prioritise the strategic objectives of the project above the principles in Part 2 of the Resource Management Act (RMA).
- Where the UDA is both the

“It is clear that one of the government’s aims was to find a way to let territorial authorities escape their statutory debt limitations, but the proposal as it stands cannot solve the territorial authorities’ accounting problem”

consent applicant and the consent authority, compliance and enforcement powers will rest with the relevant TA and the UDA will be required to delegate its decision-making function to independent commissioners. UDAs will not have building consent powers.

- Special powers will be conferred as required to:
 - assemble coherent parcels of land, generally through standard market transactions, although with the PWA as back up should the minister agree to use it on the UDA's behalf. The UDA will have the ability to offset the price by offering the landowner an equity stake. Where the land is being compulsorily acquired, we expect this option will be popular as the land value will be calculated on an "as is" basis
 - override existing planning documents - although this power can be exercised only with the minister's consent and only if the minister judges the public benefit is sufficient to justify it
 - powers to stop, move, build or alter infrastructure and to require network utility providers to do the same. Should they refuse or fail to comply within a reasonable time, the UDA can intervene and do the work itself
 - funding powers, including to levy development contribu-

tions and to impose targeted infrastructure charges, although these would have to be collected by the relevant TA and funnelled to the UDA, if it is servicing the debt, or to a privately-owned vehicle established to own the asset.

Anchors which may slow the UDA boat

The purpose of the UDAs is to speed progress and a number of "sails" have been attached to the boat to achieve this.

Chief among these are the streamlined consents processes, all of which must be completed within specific timeframes.

On the other hand, heavy consultation requirements have been built into the structure. This is not a criticism. New Zealand is a property-owning democracy and this must be reflected in all instruments of government.

But there are several steps which must be cleared before a project can proceed, each of which could be time-consuming and problematic:

- central and local government work together to identify a development opportunity
- officials engage with affected or interested parties
- central and local government decide whether to establish the project
- a formal public consultation is

held on the proposed strategic objectives for the project, the location, the development powers to be conferred and the proposed UDA. This will be led by the mayor, if initiated at local government level, or by independent commissioners if central government is the initiator

- a recommendation is made to the minister that the plan be approved, approved with amendments or rejected. The minister's decision is final and is not subject to merits appeals in the Environment Court.

Existing zoning restrictions and "Nimbyist" obstructionism are born of some sort of constituency - incumbent owners with vested interests who are also taxpayers, ratepayers and voters.

It is difficult to see how this influence can be circumvented. In fact, by creating new layers of interface, the UDAs could make

things worse, embroiling ministers and mayors in intractable local disputes.

Another possible anchor is funding. The funding arrangements are the least developed aspect of the package, coming across almost as an "add-on".

It is clear that one of the government's aims was to find a way to let TAs escape their statutory debt limitations, but the proposal as it stands cannot solve the TA's accounting problem.

Some of these issues are unavoidable. Others might be a matter for submission. Submissions close on 19 May.

The 19 May deadline will push any new legislation beyond the 2017 election, and beyond the final report from the Productivity Commission on a fundamental rewrite of planning law. There is a possibility that the UDA initiative will be rolled up into this wider reform.



Ross Pennington, Brian Clayton and Luke Hinchey are partners at Chapman Tripp; Ross specialising in finance, Brian in construction and major projects and Luke in environment planning and resource management

Top tips for tendering as a combined team

Ten points make the most of conjoined tendering environments, according to Donna Smithies and Caroline Boot of specialist tender writing company Plan A

The recent news that Downer EDI has acquired Hawkins Group is the latest in several mergers and acquisitions amongst civil contracting companies in the last few years.

The reasons are different each time, but they're often focused on greater efficiency and growth, or diversification into new service offerings, market sectors or regions.

In the case of a family-owned company, a merger or sale could provide further capital to grow the business, or it may simply be the 'right time' to sell up.

So, what does this mean when you've joined forces and are bidding for a contract under the new company banner?

Assuming your prospective client is following good procurement practice, they'll be doing their research. If you were previously an established supplier in the market, they'll be confident they know you well.

You may have delivered contracts for them through your previous company, and your relationship with them may have been strong. Worryingly, all that can change once you're part of a bigger organisation.

From a client perspective, mergers and acquisitions can often be a good thing. For example, they might take advantage of the situation to negotiate a more favourable contract with the new company.

However, they may equally have concerns or questions such as: "Are they too big now? Who exactly am I buying from? Will their prices increase? Will their service levels drop? Am I no longer as important a client as I once was? What if my main contacts are no longer there?"

The good news is that tendering gives you (the new company) a chance to help answer some of those unknowns.

Your tender document can help to reinforce your strengths, demonstrate the added value you can offer, and give a strong message to the client of being easy to do business with.

We have put together a 10-point plan to help you to achieve that:

1 APPOINT A REALLY STRONG BID MANAGER. Consider engaging someone independent so they don't favour one company's methods or standards over the other and cause friction amongst the bid team. Make sure your bid manager has exceptional project management skills, is able to coordinate input from multiple stakeholders, is an expert negotiator and isn't put off by strong personalities. If this is the first bid you're tackling since the takeover or merge there might be egos and resistance that threaten to derail the process, not to mention confusion about the 'correct way' to run the bid programme. A good bid manager will take control of the situation to avoid this.

2 CREATE A COMBINED BID TEAM. If possible, take this opportunity to bring together key people from all contributing companies during the bid process. This can help to align the team's thinking and build strong synergy between your companies. If you can demonstrate a cohesive and focused team in your bid document, you'll also give the client confidence you can collaborate successfully on their project.

3 HOLD A STRATEGY SESSION. This is the critical first step in your tendering programme, especially if you're bidding to a new market or region. Invite all relevant parties and encourage everyone to contribute. Make sure you all agree on what service or product you're offering. Ask the questions – What value can you bring (that others can't)? What makes you different to your competitors now you're a new company? How will you approach this opportunity?

4 WRITE YOUR EXECUTIVE SUMMARY FIRST. No part of the tender document is more powerful than the executive summary or covering letter. It sets the tone, highlighting key messages and differentiators. Make sure you get it signed off before launching into developing the rest of the document content.

5 DO YOUR HOMEWORK ON THE CLIENT, especially if they're in a new market you're not familiar with, or you're tendering to supply a service or product you didn't offer with your previous company. Even if you've worked with your client for many years, consider the questions they might have about you, now that you're part of a bigger organisation. What must you emphasise in your tender document to keep or gain their confidence?

6 GET BUY-IN FROM SENIOR MANAGEMENT RIGHT AT THE START. The last thing you want is mixed messages from above, especially late in the process. If senior managers are unclear about your tendering approach or the solution you're proposing, the time to voice those concerns is at the start.

7 ASSIGN TASKS AND RESPONSIBILITIES. The importance of clear communication and division of work is a no-brainer. In order to avoid confusion and gaps in content, make sure that tasks are clearly scoped, and that each person responsible for

input knows exactly what is expected of them and by when. This is particularly important if some sections of the bid are assigned to several people. Don't assume that someone else has it in hand if you're not working on it.

8 HIGHLIGHT THE ADVANTAGES YOU BRING AS A BIGGER COMPANY. Dispel a potential belief that 'big is bad' by focusing on the value you offer – greater reach worldwide and access to new and specialist skills or more varied experience, or perhaps local presence and knowledge through an established regional office.

9 FOCUS ON THE CLIENT. This rule is a given. It's tempting to describe your new company in intimate detail "just in case they don't know what we do!" Instead, think about the client's problem and what they're trying to solve. Focus on the benefits your solution will give them. They will likely have questions about your company too, but they're really only interested in what you can do for them!

10 BE CONSISTENT. The danger of multiple parties contributing to a bid is that writing styles, terminology and even the quality of content are often different. Don't leave this for the bid manager to do, but assign bid editing and document control to one person – preferably someone with a strong eye for detail. No-one wants to see the wrong company name in the tender document by mistake!

There's no doubt that mergers and acquisitions can be a time of excitement, uncertainty, optimism and fear of the unknown for everyone involved. For many it provides new opportunities, for others it's a time to evaluate their career.

However, when it comes to successful tendering, the same approach and principles apply no matter which company name adorns your letterhead – do your homework, stick to the plan, focus on your client, and highlight the benefits you bring.



Donna Smithies and Caroline Boot are key members of the team at Plan A, a specialist tender writing company with customers in a wide range of sectors in Australasia and around the world. With a background in sales and marketing, Donna has spent many years crafting client-focused messages and content for tender responses and sales communications. Caroline has added to her years of experience in writing tender responses, by training and assessing tender evaluators in best practice procurement methods.

For more information about Plan A, and resources about tendering, see plana.co.nz.

Knowing the unknowable – how to prevent disaster

We live in an era of dramatic, improbable events that adversely affect the economy, the environment, the fate of household name companies and people's welfare and health, observes software marketing professional Gordon McKeown

Or at least they seem improbable until they hurl themselves violently upon us from the shadows of our agreeable ignorance. Strangely, with hindsight they often appear inevitable.

Bloated, failed banks that blight the economic landscape, exploding oil rigs that kill crews and devastate ecosystems, and aviation and rail crashes that kill hundreds of passengers.

How did food companies slide into the ethical morass of horsemeat in the lasagne? Did VW's board of directors really want proscribed levels of nitrogen oxide in the exhaust emissions? Hardly.

As these calamities pile up on our news desks, one begins to realise that situational awareness must involve a greater effort than many are capable of and often that battle is simply lost.

So what are we doing about corporate carelessness? Are those businesses that have the potential to wreak devastation on their staff, the public, the economy, the environment and themselves doing anything to change their habits and reduce the likelihood of future calamities?

Is there a category of organisations that works harder than others to anticipate and avoid the painful impact of unpredictable situations and events? It seems that there might be.

Some, not all but some, organisations are implementing a management style known variously as operational risk, enterprise risk or governance, risk and compliance.

According to research analyst, Gartner, the critical capabilities for risk management are:

- the ability to assess and document risks (preferably in a *risk register* – a big list of undesirable events, their potential causes and consequences and plans to mitigate them)
- incident reporting tools that let staff easily raise the alarm at the earliest sign that something is wrong; real-time monitoring of *lead indicators* (i.e. danger



signs) which can be anything from a gearbox vibration level to the fact that an important meeting was skipped

- response automation tools that execute pre-planned activities when a risk threshold is breached (for example, software that escalates the gearbox vibration level to the attention of the CEO, grounds the vehicle affected and issues instructions to the maintenance and repair team)
- and, lastly, the ability to quantify, analyse and report on risk so that the board and senior management has visibility of their risk exposure today (*Are all the lights green? If not, why not?*)

In other words, the subcategory of organisations that take risk seriously make great efforts to model and simulate the *what-ifs*, they provide staff with easy tools for raising alarms and expressing

Bloated, failed banks that blight the economic landscape, exploding oil rigs that kill crews and devastate ecosystems, and aviation and rail crashes that kill hundreds of passengers

concerns, they monitor continuously for early warning signs and they are geared up to automatically respond to trouble.

If that sounds like a whole different culture from the one you inhabit in your work, it might well be.

Risk management software and systems may be part of the answer, but certainly the concept of *maturity* is fundamental: behaving like a grown-up and being responsible for your actions, or lack of action.

Leaders must make the effort to ensure that they have visibility of emerging risks: it's no longer acceptable to be told about a problem after the fact and respond with public, pious regret.

Leaders must provide simple reporting tools for staff to raise concerns early on the slippery slope, and they need to be proactive in assessing and modelling risks.

Perhaps being proactive about risk means never feeling comfortable again. But then surely that degree of bother is preferable to causing harm and ending up on the front pages or worse? Maybe we all need to grow up a bit and get used to it.

Electric vehicles making slow but steady progress

More than 3,000 electric vehicles may be registered in New Zealand, but the country still has a long way to go to catch world leader Norway

More than 500 electric vehicles (EV) have been registered in New Zealand this year, bringing the total number to 3,005 – more than half way to the government’s 2017 target.

“While 1,513 EVs were registered in New Zealand in 2016, in Australia only about 220 EVs were,” Transport Minister Simon Bridges says.

“We’re also seeing more new

models coming onto the market and an increased interest from EV manufacturers – with both Hyundai Ioniq and Tesla, for example, recently announcing their entry into New Zealand.”

There’s also been a big increase in the models and quantity of used EVs being brought into New Zealand, he notes. “This means more EVs, at a range of prices, giving



Driving an electric vehicle in New Zealand produces 80 per cent fewer carbon emissions than a petrol engine

more choice to New Zealanders when they decide to step up on this.”

Infrastructure and charging stations are ever-expanding across the country to support the growing number of EVs on New Zealand roads.

There are now about 50 fast chargers available throughout the length of the country, with more

Sub Surface Detection had another great year helping clients identify and protect their underground assets

Highlights from 2016 included:

Advancing our GIS Consulting Department. Driven by Abhi and his master’s degree in GIS, we have been able to create some great mapping and 3D models, applying UAV/ Drone applications which are becoming very popular with clients because of the detail shown in the deliverables. When combined with our survey of underground assets, this is a very valuable tool for clients for both project planning and asset recording.

Check out 3D model link:

<https://www.youtube.com/watch?v=GBsirkZ4BUJ>

We now have in-house GPS for providing high quality mapping deliverables

in which we completed for Bartley Consultants a GPR/EMI and GPS survey of a large stretch of East Coast Rd, North Shore, resulting in a high precision GPS survey of all utilities detected in an “as-built” CAD drawing and map book of utilities overlaid on an aerial map of the site.

With 4 new staff in 2016 we continue to focus training to a very high standard of survey, working to the AS 5488-2013 of Subsurface Utility Information (SUI) with our technicians striving for quality Level B of this standard.

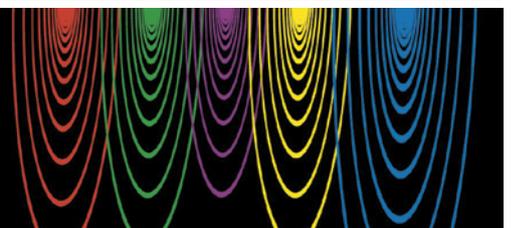


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coming, giving EV drivers greater confidence on longer journeys.

"Electric vehicles are the future," Bridges believes. "A move from petrol and diesel to low-emission transport is a natural evolution."

Driving an electric vehicle in New Zealand produces 80 per cent fewer carbon emissions than a petrol or diesel car due to New Zealand's abundant renewable electricity.

The government announced a wide-ranging package of measures to encourage the uptake of EVs in New Zealand in 2016.

The Electric Vehicle Programme's target is to double the fleet each year, reaching 64,000 EV registrations by the end of 2021.

However, much more needs to be done if New Zealand is to be half as successful as Norway, which announced in March that electric or hybrid cars represented half of the country's new registrations this year.

According to figures from Norway's Road Traffic Information Council, sales of electric cars accounted for 17.6 per cent of new vehicle registrations in January and hybrid cars accounted for 33.8 per cent, for a combined 51.4 per cent.

Norway already has the highest per capita number of all-electric cars in the world, and the experiment shows every sign of accelerating.

The milestone is also particularly significant as a large proportion of Norway's funds rely on the country's petroleum industry.

"The transport sector is the biggest challenge for climate policy in the decade ahead," Climate and Environment Minister Vidar Helgesen says.

"We need to reduce (CO2) emissions by at least 40 per cent by 2030 and ... this requires the electrification of the car fleet."

The New Zealand government would be well advised to follow Norway's example if it is committed to electric vehicles as it claims.

Last year, the Norwegian government agreed on a proposal to ban the sale of new gasoline and diesel-powered cars starting in 2025.

It also aims to reduce carbon dioxide emissions of new cars to 85 grams per kilometre by 2020 - a goal it has almost achieved.

The figure stood at 88 grams in February compared to 133 grams when the decision was taken five years ago.

Norway registered its 100,000th electric car in December and has also become the first country in the world to commit to zero deforestation.

Keeping one step ahead of autonomous car hackers

Google's recent decision to disconnect its fleet of self-driving cars from the internet unless absolutely necessary dramatically underlines their vulnerability to hacking



The move has been made possible by the fact that onboard computers can remain autonomous even when connections to cloud servers are down, enhancing both safety and cyber security.

It is not possible to disconnect from the outside world entirely, however, as autonomous vehicles must communicate with other traffic and infrastructure to provide advance warning of traffic lights, roadworks and potential dangers.

Google's cars will now communicate with the outside world only when they truly need to so there will not be a continuous internet connectivity. This helps to significantly reduce the attack surface area.

Driverless cars are particularly vulnerable to criminals as their components are all connected on a central system, giving hackers multiple routes to break into the system and assume control of key functions.

They can, for example, infiltrate one channel such as an internet connection to take control of critical functions such as steering and braking.

Several large carmakers including Fiat Chrysler and Nissan have fallen prey to cyberattacks, and the risk of hacking will only increase as vehicles contain ever more connected technology.

A cyberattack on a Jeep in 2015 graphically illustrated the ease with which hackers can gain access to the vehicle's main functions, in that case after infiltrating the car's connected radio.

Google's move comes as no surprise to Emmanuel Law, principal security consultant at Aura Information Security, New Zealand's leading cybersecurity firm.

"Never underestimate the complexity of modern vehicles, which have anywhere from 70-100 Electronic Control Units or ECUs and 150 million lines of code," he says.

"To put the amount of vehicle code in context, comparative lines of code range from less than 2 million in the Mars Curiosity Rover, about 30 million

in the F-35 fighter jet, and 50 million-plus in the Hadron Collider."

It also helps to understand the anatomy of an autonomous vehicle, which includes infotainment, door control unit, collision detection, engine air/fuel ratio, seat control and the ABS braking system.

"This is all connected to the Controller Area Network," Law explains.

Hacking this complex system can be summarised in three major steps. "First is the initial compromise of a component with remote capability, followed by the establishment of network connectivity with an ECU or electronic control unit," Law notes. "Then the hacker deciphers the targeted ECU protocol and sends malicious commands."

A recent classic car hacking targeted none other than Tesla, the virtual Rolls Royce of the driverless car world, again through the infotainment system.

"The hackers started the attack by creating a malicious 'Tesla Guest' WiFi spot," Law recalls.

They then injected a malicious web page to exploit the car's infotainment system and gain initial control.

"Finally, they overwrote the gateway firmware between the infotainment unit and the CAN Bus. This allowed them to send brake commands to the respective ECU."

Once the problem was discovered, Tesla's response was swift and effective: the firm issued a patch over the air within 10 days as an initial response, then strengthened the underlying design by code-signing on the firmware and further isolating the browser within the infotainment system.

Ultimately, however, the impact of these insecurities depends on the adversary's motivation; be it theft, malware attacks, surveillance and espionage or terrorism.

"Car manufacturers can overcome the potential problem by installing security by design, defence in depth, engaging with the security community and encouraging incident response."

Drinking water inquiry highlights the need to talk

The two and a half weeks of the Havelock North drinking water contamination inquiry hearings proved enthralling for Water New Zealand's Technical Manager Noel Roberts



He also reviewed the many submissions presented as evidence to help ensure greater dissemination of the issues in the water industry and help inform Water New Zealand's submission for the second part of the inquiry.

The first stage of the inquiry is nearing completion and it's already clear that Havelock North's water contamination was most likely caused by sheep faeces getting into the Brookvale Road Bore 1 through the Mangateretere pond about 90 metres away via the groundwater.

It has been identified with dye trace testing that the water from the pond to the bore travelling via this route only takes 1.2 days.

The issues covered in this first stage were around root cause; responsibility of the various agencies; prior knowledge of risks; failures; facts; responses; and pre-planning.

Stage two of the inquiry will focus on what, if any, changes are required to reduce the likelihood of a similar contamination event occurring in New Zealand. No firm dates have been set for stage two at the time of writing this article.

While the questions around who is to blame are entirely relevant and understandable, particularly in light of the three deaths and approximately 5500 cases of campylobacter, it's what's going to happen over the next couple of months that will be key for the water sector.

So far the evidence has clearly pointed to system issues in Havelock North causing an outbreak that could have happened in many other parts of the country.

That's why putting the spotlight on system failings will be key to ensuring that history does not repeat itself.

Instead of sheeting the blame to any one of the agencies involved, we all need to take a close look at the system of delivering safe drinking water to our communities and how our own roles contribute to success or failure of the system.

During the inquiry it became very clear that a lack of communication, and the often vexed relationships between agencies, had a big impact on the way drinking water was supplied to the Havelock North community as well as how the authorities responded when the crisis unfolded.

Closer coordination

One clear outcome that the Havelock North inquiry has pointed to has been the need for much more coordination and discussion between regional councils, district councils, district health boards, drinking water assessors and water utilities.

The inquiry highlighted shortcomings amongst all agencies and put that alongside systemic issues resulting in the classic "Swiss Cheese Model" of system failure.

"The big challenge now is to ensure that everyone in the system accepts their share of responsibility, both for their own failures and to ensure this does not occur again"

One salient fact about Havelock was this lack of real information sharing; each authority managed its own part of the system (catchment, infrastructure, public health).

But how was one agency responsible for supplying drinking water from the Brookvale Road Bore 1 into the town's taps to know if there was a breach in an aquifer 90 metres away? And how, other than in hindsight, was an aquifer breach to be discovered?

Then once it was revealed that there was a possible contamination, how could we ensure that any outbreak was minimised through getting information such as boil water notices to the community in the most timely manner?

Whether it's appropriate to have chlorine added on a mandatory basis along with other treatment

options to water supplies was also raised. Another issue the inquiry highlighted was the need to retain intellectual knowledge in the water sector.

How do we ensure that appropriate knowledge is passed on to staff so that staff are aware of past events and that staff turnover and loss of knowledge doesn't result in history repeating itself?

The big challenge now is to ensure that everyone in the system accepts their share of responsibility, both for their own failures and to ensure this does not occur again.

How do we ensure that proper discussion, co-ordination and true information sharing exists between all the authorities? Does that need to happen through legislation change? If so, how? Or is there a more acceptable and effective option?

It is important not to ignore the question of resourcing and the impact this has on the delivery of water to communities.

While the big question of water governance is outside the terms of reference for this inquiry, systemic and resource issues will inevitably be part of the core of the next stage.

This could help offset the big discussion in the sector about what changes are required to the existing system and what is the appropriate level of regulator control.

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Flexibility focus following Canterbury quakes

Improving water network resilience has been a big focus for Water New Zealand, Chief Executive John Pfahlert reports

An important work that's just been released is a report entitled **Underground Utilities – Seismic Assessment and Design Guidelines**, produced by Opus International in association with GNS Science and funded by the Ministry of Business Innovation and Employment.

The report focusses on the Canterbury quakes and sets out to understand why some utilities were significantly damaged while others remained unscathed.

The earthquakes caused extensive damage to 300 kilometres of sewer pipes and 124 kilometres of water mains. The cost to rebuild all horizontal infrastructure was estimated, in mid-2013, at just over \$3.3 billion.

This included roads, three waters and the Land Drainage Recovery Programme (LDRP). The LDRP alone was estimated to cover over \$1 billion in a multi-decade programme.

The report concludes that investing in improving infrastructure resilience not only demonstrates a legacy of leadership, but also provides economic growth and job creation along with more liveable communities.

Electricity company Orion spent an estimated \$6 million on seismic strengthening, which saved \$30-50 million in direct asset replacement costs following the Canterbury earthquakes. The balance would have been even more pronounced if societal benefits had also been taken into account.

The guidelines aim to help improve the ability of underground utility networks to function and operate following a major earthquake.

Specifically, they set out to enable practitioners to:

- assess the vulnerability of existing underground utilities to seismic events
- identify and prioritise measures to improve the resilience of existing networks
- design and install new utilities that have an acceptable level of resilience to earthquakes.

“Investing in improving infrastructure resilience not only demonstrates a legacy of leadership, but also provides economic growth and job creation along with more liveable communities”

Since 2002 local authorities have been required to prepare and adopt a strategy that identifies the significant infrastructure issues facing them as well as the options and implications for managing those issues.

The aim of the legislation is for all local councils to create 30-year strategies around water supply, sewerage treatment and disposal of sewage, stormwater drainage and flood protection and controls.

Key findings

Some of the findings from the Canterbury quakes incorporated into the guidelines include:

- the earthquake motion and the way the ground responds has far more influence on damage than shaking and other forces resulting directly from earthquakes.
- axial forces along pipes cause the majority of damage. Most of the damage occurs at pipe joints. Bending and other transverse loading tend only to cause damage in brittle pipes.
- all utility materials sustained damage in the earthquakes but modern flexible pipe material generally suffered a lot less damage than older, more brittle pipe materials
- larger pipelines typically sustain

less damage than smaller pipelines. Service pipe connections sustain the most damage. Even modern PE service pipes sustained significant damage in the earthquake. This was attributed to failure at mechanical couplings where inserts had not been used.

- gravity pipes located in areas where liquefaction or lateral spread occurred experienced significant differential ground deformation, causing their grade to be reduced and dips to occur. This affected all pipe materials.
- the performance of the ground influences the ability of the system to remain in service. Experience in Christchurch was that if the ground liquefied then the wastewater system blocked regardless of the amount of damage sustained. This is because of sand and silt entering through gully traps and manholes even where pipelines were undamaged.
- the time it takes to restore service is affected by both the amount of damage incurred and by the ground conditions. Ground conditions affect ground stability and liquefaction during aftershocks, which hinders access for repair and inspection.
- the quantum of damage sustained to non-critical pipes often controlled the time it took to restore service. For example, the lifting of the boil water notice on the potable water system was largely governed by the time it took to repair the multitude of small leaks that occurred on service connections rather than the condition of the larger pipelines that the services were connected to.
- alternative means of providing service, such as the provision of portable toilets, can be used but they take time to install and the public can only tolerate them for so long.
- restoration of service involves several phases. It may take many years to fully restore service to the pre-earthquake

condition. Priorities and needs change as restoration progresses through these phases.

The report says improving the resilience of existing systems can be achieved by reducing exposure to hazards, increasing the speed and effectiveness of response, increasing the flexibility of the system to adapt and improving the robustness of utilities.

It says that through a combination of response planning, renewals prioritisation and capital expenditure works, the resilience of existing systems can be improved significantly. In many cases this does not involve significant capital expenditure.

In order to provide an acceptable level of resilience, the report says utility companies and local authorities should focus on:

- locating utilities to avoid areas of poor ground performance, to avoid consequential damage to other utilities and features and to improve the ease of repair
- providing redundancy in the system
- providing robust utilities.

The guidelines specify increasing levels of design sophistication based on the importance level of the utility.

For instance, most utilities will not require any further specific design but utilities in the two most important categories will require the equivalent static design method and finite element modelling.

For more information go to the Water New Zealand website. www.waternz.org.nz

John Pfahlert is Chief Executive of Water New Zealand, a national not-for-profit sector organisation comprising approximately 1500 corporate and individual members in New Zealand and overseas that focuses on the sustainable management and promotion of the water environment encompassing the 3 waters – fresh, waste and storm waters

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