The Chartered Institute of Logistics and Transport

$15.00

Logistics & Transport NZ

THE OFFICIAL PUBLICATION OF CILT NEW ZEALAND

Volume 19 Issue 1
September 2020

NEW PROCESS, GUIDANCE AND DIRECTION – a summary of recent changes and developments in the RMA field

IAFC scheme extended to support trade links

Port Taranaki – diversifying trade for the future

Electric ships – battery behemoths

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LOGISTICS & TRANSPORT NZ IS THE OFFICIAL JOURNAL OF THE CHARTERED INSTITUTE OF LOGISTICS & TRANSPORT NZ

ON THE COVER

Our resource management legislation is set to be reformed, which will affect the way we deliver our infrastructure – see pages 12–13 (photo is of the Te Rewa Rewa Bridge at New Plymouth)

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In the next edition

The editorial team welcomes expressions of interest for submitting an article for the December 2020 edition of this journal. Contributors should in the first instance contact the editorial convenor, Murray King (email murray.king@xtra.co.nz) to discuss their article.

Deadline for the December edition: Wednesday 4 November 2020

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CILT NZ National Office:
PO Box 1281, Shortland Street, Auckland
Tel: 09 368 4970, Fax: 09 368 4971
ISSN 2703-3236 (Print)
ISSN 2703-3244 (Online)

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Published under contract by:
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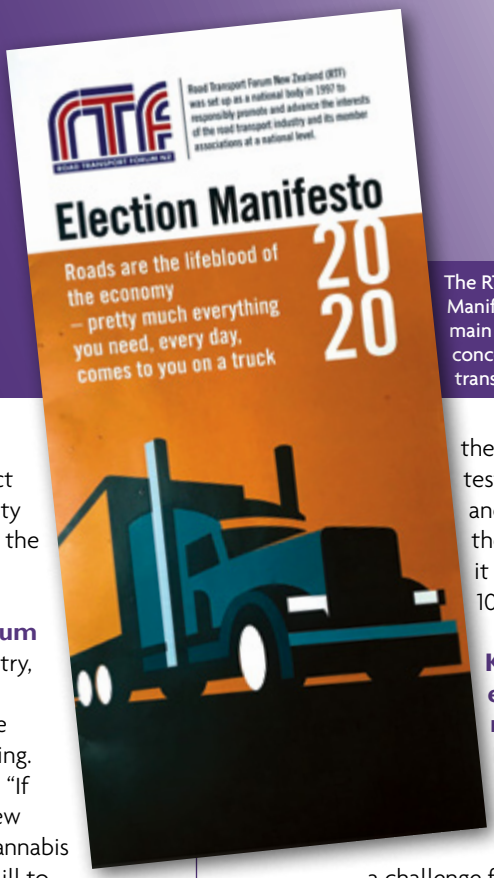
ROAD FREIGHT

Our election wishlist — the Road Transport Forum

By Nick Leggett



The RTF's Election Manifesto outlines four main areas of greatest concern to the road transport industry

ROAD FREIGHT and the wider supply chain will make a massive contribution to New Zealand's bounceback from Covid-19. Pretty much everything you need, every day, comes to you on a truck – something I think people have come to appreciate during the Covid-19 lockdown and the Government's response level changes.

With international tourism off the map, it's our primary products that we will be relying on to generate income – dairy, meat, wood, fruit, wine and fish. It is these high-value food exports that are going to save us from economic ruin, and with 93% of freight going by road, they need to be able to get to ports and airports – and that is done on trucks. Rail lines do not reach into the farmland of New Zealand.

With the general election around the corner (17 October) we have some concerns and questions about how we can be best placed to make our contribution to recovery – we need infrastructure, the right people, and a clear operating environment to do that.

We felt there wasn't a lot of strategy around the response, particularly to the resurgence of Covid-19 that led to our largest city and biggest economic centre being blocked off from the rest of the country. Good logistics were seriously lacking, and we kept questioning why the Government wouldn't reach out to the private sector for help with tasks it clearly has no expertise in.

We had hoped to put spokespeople from the five main political parties on the mat, as it were, for an event prior to the election that people could attend, listen to and question them. CILT had generously agreed to partner with us on that event. But Covid-19 put paid to that.

So, we went the Covid-19 way and asked questions and received answers electronically, which we have put up on our website on a dedicated General Election 2020 page. We sent politicians our Election Manifesto, which outlines four main areas of greatest concern to us where we want to see action – economic recovery from Covid-19; fair conditions for employers and workers that allow freedom of choice and flexibility; investment in green freight; and how the Cannabis Legislation and Control Bill will impact workplace health and safety for an industry that shares the road with the public.

The cannabis referendum

As a safety-sensitive industry, we wanted to know if the parties would consider the cannabis referendum binding. Labour's Phil Twyford said: "If the majority of eligible New Zealanders vote for the Cannabis Legalisation and Control Bill to become law, as the 53rd Government, we would follow their direction and introduce the bill to the House. Through the select committee process, there will be additional opportunities for New Zealanders to provide input on the text of the bill."

The Green's Julie Anne Genter said the bill would allow better control of cannabis issues that already exist in workplace health and safety and on our roads, and that the Government is taking action on drug driving – they introduced the Land Transport (Drug Driving) Amendment Bill, which we support.

New Zealand First would consider the referendum result binding.

National's Chris Bishop said the party opposes legalisation of recreational cannabis as it will not make New Zealand healthier, wealthier, safer or happier. National would respect the referendum outcome if it was a Yes vote and would introduce the bill and send it to a select committee. The bill's progress beyond that would depend on public submissions and Parliament.

ACT's David Seymour said the referendum would not be binding as the legislation has not been through Parliament yet. ACT would take a similar course of action to National if there was a Yes vote. Both ACT and National support the drug driving testing legislation and National said they would pass it in their first 100 days.

Keeping the economy moving

Economic recovery from Covid-19 is going to be a challenge for governments around the world. To keep our economy moving, we believe good roads and infrastructure are a must. We are concerned that while there has been a lot of talk about building roads as a means to boost the New Zealand economy, we don't believe there is the capability to contract and manage such projects within the New Zealand workforce.

With our border closed indefinitely, how are we going to get the people needed to get these projects underway? Many sectors are concerned about not being able to get people with the right expertise into the country to enable their businesses to keep running. It's not just a matter of sending a New Zealander along to take any job; there has to be some consideration of the expertise we need to buy in.

It will be very important for the supply chain moving forward that New Zealand doesn't yo-yo in and out of highly restrictive Covid-19 response levels, so we need to see progress on border management that allows for movement to keep our economy going, and preferably growing.

A lot of businesses are limping along, and it feels like there is no end in sight. We cannot accept that. There must be a transparent Covid-19 recovery plan and there must be consultation with real experts on that plan.

Nick Leggett is the CEO of the Road Transport Forum NZ; you can read the parties' responses to the RTF's questions at www.rtfnz.co.nz/generalelection2020/

AIR CARGO

IAFC scheme extended to support trade links

By Lynne Richardson

All photos courtesy of Freightways

The Government's International Air Freight Capacity Scheme has been extended until the end of November

THE $330 million International Air Freight Capacity (IAFC) Scheme was announced on 1 May 2020 as part of the Government's $12.1 billion Covid-19 support package. It provides financial support for international airfreight carriers to guarantee capacity on key routes, thereby allowing trade links with global markets to be maintained for the export of high-value cargo, and enabling essential items, such as medical supplies and personal protective equipment (PPE), to be imported.

International freight is usually carried in the belly-hold of passenger airlines, but with 95% of flights cancelled once borders closed around the world back in March and April, exporters were faced with few options and rising costs to move product.

Operating passenger aircraft to move freight only is not cost-effective as the bulk of the aircraft space is designed around passenger requirements, with only a small amount in the aircraft belly available for freight. As a result, once the regular flow of international passengers stopped, the cost per kilogram to move freight increased by over 300%, spurring the Government to implement the IAFC Scheme.

The scheme launched in May with an initial schedule of 53 weekly flights from New Zealand to key export destinations. In response to demand from the business community, the schedule has since grown to support 70 weekly flights (as at the beginning of August) – about half of all international flights flown from New Zealand each week.

The support agreements were set to expire at the end of August, but the Government has agreed to extend these until the end of November this year. Airlines and freight carriers currently receiving support from the scheme include Air New Zealand, China Airlines, China Southern, Emirates, Freightways, Qantas and Tasman Cargo.

Cargo capacity crunch

Auckland Airport's most recent cargo monitor report reveals the impact of Covid-19 on cargo capacity. International air cargo data for the first half of the year to June shows that while air freight demand declined by 16% year-on-year, available capacity dropped by 25% – and New Zealand trends are in line with what's happening in the air cargo market around the world.

Scott Tasker, Auckland Airport general manager, aeronautical commercial, says flying product in and out of markets is essential when dealing with high-value, perishable goods or when people want something in a rush. "What we saw with the outbreak of Covid-19 was the urgent need – not just in New Zealand, but globally – to source health, cleaning and PPE products. Some of that capacity has been filled by passenger aircraft carrying cargo only, but clearly there's still not enough cargo space to meet demand."

He says the Government support for airlines through the IAFC Scheme has been vital in keeping air trade connections flowing. "But the usual pattern is for a peak in cargo volumes from around October to January, so without a border reopening or an increase in cargo flights, whether that's freighters or cargo-only passenger aircraft, it will be a challenge to match that demand with capacity. It's possible that a shortage of capacity could be a challenge for exporters getting fresh seasonal produce, such as avocados and cherries, to international markets."

A newcomer to international cargo

Freightways is a newcomer to offering an international airline cargo service. The company's core business is the delivery of express packages and business mail services across New Zealand through well-known brands such as New Zealand Couriers, Post Haste Couriers, DX Mail, Pass The Parcel, Castle Parcels and Sub60.

Its Fieldair Holdings subsidiary supports the operation of a fleet of Boeing 737-400 freight aircraft under a joint venture arrangement with Parcelair, a cargo airline based in Palmerston North which operates nightly dedicated air linehaul services between the North and South Islands.

"We made the decision to tender for the IAFC Scheme because we had freighter aircraft already domiciled in New Zealand, and we knew that the economics of using these same aircraft across the Tasman would provide exporters with more cost-effective access to their Australian markets," says Freightways chief executive officer Mark Troughear.

Freightways general manager Neil Wilson: "We're really happy we've been able to keep businesses thriving"

Freightways was one of the first successful applicants to the IAFC Scheme and was able to step up almost immediately following the closure of New Zealand's border to keep exports and imports moving across the Tasman through its partnership with Parcelair.

Each week, Freightways now provides three Auckland–Christchurch–Melbourne–Auckland services, one Auckland–Christchurch–Sydney–Auckland service, and two Auckland–Sydney–Auckland services, currently making it one of the largest trans-Tasman airfreight operators.

Freightways says there has been strong demand for its trans-Tasman flights, with crayfish, blue cod, flounder and mussels making up a large portion of the 1 million kg per month of Kiwi product landing in Australia's top restaurants and retail outlets.

"It's good to know the Aussies aren't going without," quips Freightways general manager Neil Wilson. "On a more serious note, we're glad we were able to adapt quickly to provide Kiwi export businesses some certainty after freight became near-impossible to move when the borders closed."

And adapt they did.

Cont. on page 5

OBITUARY

CILT farewells Sandy Gibson

By Brian Stocking

Sandy Gibson was made a life member of CILT in 2018 and received the Norman Spencer Memorial Medal in 2008

SADLY, ON 12 June 2020, we had to farewell a very longtime friend and colleague of the shipping and logistics industries. James Alexander Gibson – known to everyone as Sandy – sadly passed away, but will always be remembered for his caring and calmness under pressure, his immense knowledge of the industry, and his supportive and respectful nature with staff and clients alike.

Sandy was a very keen golfer. He started playing from the young age of 12 at Wellington's Miramar Golf Club, which was close to his family home in Seatoun. He also played football for the Seatoun AFC club and was a very skilled goalie. Sandy attended Rongotai College where he proved himself to be an excellent scholar.

Sandy loved the sea from a very early age and would spend all his spare time on boats, ships and tugs, on the wharves at Seatoun and at the Wellington port. At 16 he began his seafaring career as a cadet officer with the Union Steam Ship Company.

Sandy had the rare skill of being able to relate on equal terms with those younger and older than himself and with people from all occupations and walks of life. He was greatly liked and respected, gaining maximum cooperation from those he worked with during his long and distinguished career. He also had an unflagging commitment to successfully complete any undertakings to a very high standard.

His first ship was on the trans-Tasman service with the Union Company before he joined Ellerman Lines in the UK. Once back in New Zealand, he gained his master's ticket. He soon become the managing director of Seabridge Shipping, the NZ agents for some of the major international shipping lines.

After subsequent restructuring, Sandy transferred to Auckland and joined Ports of Auckland where he was instrumental in establishing the port company's new Graduate Cadet Programme in 2008 to 2010. He was then appointed general manager of the port's Axis Intermodal service, looking after the management of the Fergusson Container Terminal.

Sandy was made a life member of CILT in 2018 and received the Norman Spencer Memorial Medal in 2008.

Sandy's farewell was such a special meeting, with so many of his long-term friends from the shipping and logistics industries across the years, which underlines the high respect that was given to Sandy. He was a man that contributed so much to our great industry's history and he will never be forgotten.

Cont. from page 4

Freightways' 737-400 freighters have a capacity of 18 tonnes per aircraft – there is a strong demand for its trans-Tasman flights

A step change in service

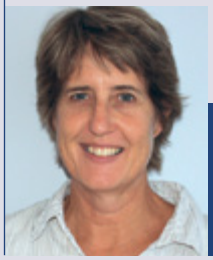
Prior to Covid-19, Freightways via their joint venture business Parcelair operated 50 flights per week between Auckland, Palmerston North and Christchurch using four 737-400 aircraft, moving around 600,000 kg of express package courier freight per week.

In order to ramp up their service, the company purchased over 200 extra air-freight containers, mainly from Singapore, to cope with the extra volumes – it is now moving over 250,000 kg of produce per week. In order to be able to cater for the extra flights, the existing Parcelair fleet is supported with two additional 737-400 aircraft supplied by Airwork, Freightways' 50/50 joint venture partner in Parcelair.

"When we set up the international service, we didn't even have an automated booking system, so the process has been an absolute human effort – from those working through the logistics to our locally-based pilots meeting quarantine restrictions by not leaving the aircraft and flying back on the same rotation," says Neil.

Freightways' ability to mobilise its six 737-400 freighters, each with a capacity of 18 tonnes, has improved costs and given exporters certainty that delicate produce like crayfish will arrive at market when required. "Our fleet was already set up for chilled goods and perishables, and flights are designed to get high-quality seafood to the key Australian fish markets on the same day. Australian product also makes its way back to New Zealand on the return flights. It's a win-win for everyone," adds Neil.

He says the IAFC Scheme been a godsend for Kiwi exporters to get produce to Australia and it has been a natural extension of their operations. "We're really happy we've been able to keep these businesses thriving and, in some cases, provide a more competitive model to what they had pre-Covid."



Lynne Richardson is the editor of FTD and NZ Construction News magazines

AGGREGATES

No roads without rock

By Wayne Scott

Quarry materials are cheap, but as those in logistics and transport well know, the major cost comes in transporting them

SUCCESSIVE GOVERNMENTS have failed to plan where quarried materials will come from for New Zealand's roads and buildings. Unless rapidly addressed, all the promises of infrastructure being key to the Covid-19 response will be delayed, and industry and taxpayers will pay the cost.

Given the bidding war on infrastructure spending, you'd think that whichever majority party or coalition comes into power, we will soon see major infrastructure projects – notably roading – rolling out around the country. These projects are to be our lead response, alongside our primary sector, to our economic crisis.

The reality is we may only see a trickle rather than a flood of such work, whether it's a red or blue coalition. The reason? Because politicians of all persuasions, from central and local government, have only paid lip service to ensuring the rock, stone and sand which form the foundation for all infrastructure can actually be provided. That's despite the mounting costs to both tax and rate payers of failing to plan for quarries.

Sourcing and planning for supplies

Transmission Gully's delays and cost blowouts are the latest example. Despite being talked about since US marines offered to do the job in the Second World War, there's never been a planning exercise which looked at where the huge quantities of necessary rock, aggregate and sand were going to come from. Transmission Gully's 27 km of highway across four lanes will require more than 750,000 tonnes or 20,000 truckloads of construction aggregates.

Sure, there are existing quarries in the Wellington region, but their products are also needed for all existing and new roading projects, along with water and other infrastructure suffering from years of neglect and an expanding housing market in a relatively strong economy – until Covid-19.

A behemoth like Transmission Gully needs multiple sources of supply; only in relatively recent times has one additional quarry been brought into production – a previously disused quarry being reopened.

The project was started under the 2008–17 National-led Government without the necessary planning, and not much has changed under the Labour coalition. Both have failed to get the message that you cannot build anything unless you have sufficient supplies of locally sourced quarry materials.

As a result, taxpayers have ended up paying to cart material from the Taranaki, central North Island, and across Cook Strait. Quarry materials are cheap as chips – perhaps $20–25 per tonne at the gate. But as those of you in logistics and transport well know, the major cost comes in transporting them. One can only shudder at what these distances have meant for taxpayers per truckload, not to mention the totally unnecessary carbon emissions.

Little wonder that Transmission Gully is now a $1 billion plus project (up from $850 million) and its forecast opening this year has now stretched out to September 2021.

Local supplies

The Opotiki Wharf development provides an example of what planning for local rock supply can contribute to a project. A halt was called a couple of years ago when the expected costs blew out towards $150 million, in large part because it was proposed to haul in rock from nearly 100 km away.

The AQA worked with GNS Science, with great support from the Opotiki District Council, and identified potentially five sources of close supply, some existing quarries, and others needing resource consents. This assisted the February announcement by the Government that the project was going ahead, with a price tag not much more than half the earlier highest projection (local rock supply didn't make up all the savings, but was a big contributor).

The AQA has since been supporting a bid for GNS Science to complete a national survey of aggregate resources. We have failed to date to get the necessary $600,000 in funding from the Government; this would identify where the rock resources would come from for the billions of infrastructure spend that both major parties promise if they win office. It would also serve councils well for their infrastructure needs for local roading and water projects, as well as erosion control and other works.

Such planning would also allow areas containing existing and future viable supplies of rock to be protected by exclusion zones, so as to avoid the approval of non-compatible land uses (e.g. housing) close to these nationally important resources. This will not only protect New Zealand's aggregate resources, but avoid resource consent disputes, which quarries and councils often get drawn into with close and sometimes quite distant neighbours.

We wrote a briefing document on these issues and sent it to all MPs. We were disappointed with the lack of response. The most positive response came from Green Party leader and Climate Change Minister James Shaw. He at least may appreciate the carbon savings that planning for local quarries would deliver. CILT members can view the document on the AQA website.

Your industry relies on quarries more than most. I think that when the election dust settles, there is going to be an opportunity for us to work together to press home the case, with whomever is in power, that infrastructure needs rock to make trucks roll.

Wayne Scott is the CEO of the Aggregate and Quarry Association (AQA), the industry association that represents aggregate suppliers across the country – for further information or to contact Wayne, visit www.aqa.org.nz

SUPPLY CHAIN SAFETY

Tough new chain of responsibility laws heading our way?

By Grant Nicholson and Katie Logan

Australia's legislation imposes a positive duty of care, requiring each person in a chain of responsibility to take a proactive approach to ensuring the safety of others in the same chain

AUSTRALIA HAS strengthened its heavy vehicle transport chain of responsibility (COR) requirements and aligned them with workplace health and safety laws. The purpose of this reform was to clarify requirements, encourage a greater focus on proactive risk management in the transport chain, and to provide tougher penalties for non-compliance.

Similar changes may be on the horizon as part of the NZ Government's strategy to improve road safety here too.

The chain of responsibility

In New Zealand, the Land Transport Act 1998 (LTA) imposes a duty on 'every person' in a transport supply chain to ensure the safety of any transport activities. This casts a wide net and means that everyone within a business' transport supply chain – from schedulers and drivers to the management team – is collectively responsible for the safety of the chain's transport operations, and may be legally liable if something goes wrong. This is, however, a toothless tiger with a maximum fine of up to $25,000.

Companies involved in consigning, receiving, loading or packing goods; operating and/or driving a vehicle that moves goods; planning the pickup and/or delivery of goods; and dispatching the vehicle moving goods all have responsibilities under the LTA.

An example of the COR in action is a commercial truck driver getting caught driving over the speed limit, and not having taken his statutory rest breaks. This may have been caused by a delay in the packing or loading of the goods, or an unreasonable delivery window being imposed by the logistics planner, delaying the driver and encouraging speeding and skipping a break in order to make up the lost time.

In this situation, the packer, loader and logistics planner are all potentially liable for breaching the LTA, as they are all part of the chain. In reality, prosecutions are rare.

Developments in the law in Australia

In 2018, amendments to Australia's COR legislation came into force. The law now imposes a positive duty of care, requiring each person in a COR to take a proactive approach to ensuring the safety of others in the same COR. It also allows for tougher penalties against wrongdoers.

Cases under the new Australian law are just now being seen this year. Victorian company N Godfrey Haulage Pty Ltd has been charged by the National Heavy Vehicle Regulator (NHVR) with breaching its fatigue management duties to drivers. The NHVR also charged the company's director with failing to exercise due diligence to ensure the company complied with its duties.

The NHVR is concerned drivers are being put under unacceptable pressure at depots and loading docks, and that the people responsible for this need to be held accountable. We will be watching the outcome of this case with interest.

A move to stronger enforcement

Changes may be on the horizon in New Zealand too, as the Government implements strategies to improve the country's road safety. The Government recently released its 'Road to Zero' road safety strategy for 2020–2030. The report recognises that New Zealand has a poor history of road safety, and that about 25% of road fatalities involve a person driving for work, making vehicle crashes the single largest cause of work-related fatalities.

Work-related road safety is a critical issue for the Government's new strategy. We expect the Government to consider ways to enforce COR (and other road-related health and safety) obligations more heavily over the coming years. Following Australia's lead and expanding the duty of care owed across the COR is an obvious solution.

If you would like advice on how to ensure your business is meeting COR requirements and other road-related health and safety obligations, please contact us.

Grant Nicholson is widely regarded as one of New Zealand's leading health and safety lawyers; he is a partner of the full-service law firm Anthony Harper where co-author Katie Logan is a solicitor, specialising in dispute resolution and litigation

Send us your feedback

The Chartered Institute of Logistics and Transport

CILT NZ wishes to encourage debate about the articles included in this magazine. Do you have an opinion or would like to submit feedback? A selection of commentary (along with the sender's name) will be included in the next edition, subject to space. Email Murray King ✉ murray.king@xtra.co.nz or Lynne Richardson ✉ lrichardson@astonpublishing.co.nz before 4 November, the deadline for the December 2020 edition.

NEW ZEALAND'S PORTS

Port Taranaki — diversifying trade for the future

Port Taranaki – the only deepwater seaport on New Zealand's western seaboard

Reported to Lynne Richardson

IT TOOK great energy and dedication to build a port on the central North Island's unforgiving west coast. From the first discussions more than 150 years ago, there was opposition and criticism – in Taranaki, from other ports and in Government – that the conditions were too harsh and building a port would be too costly.

Many tried to wash it out with the tide, but those few Taranaki locals with the dream held firm, in particular surveyor and politician Frederic Carrington. Carrington was vocal in his quest for the establishment of a port and, in 1881, after many years of lobbying, he got his wish, laying the foundation stone on New Plymouth's new breakwater. The first passengers disembarked on the newly finished breakwater in 1883 and later that year the first commercial cargo, coal for the New Plymouth Gas Company, was landed.

In 1888, the Moturoa Wharf was completed, followed by the Newton King Wharf in the 1920s and Blyde Wharf in the 1970s. All three, as well as the Main Breakwater, have undergone much change – and change of use – over the years.

Thanks to the passion and determination of Carrington and other key supporters of creating a safe harbour in New Plymouth, Port Taranaki, in the western suburb of Moturoa, became a reality, and has developed and grown into a vital asset for not only the region, but also New Zealand.

Owned by the community through sole shareholder the Taranaki Regional Council (TRC), the port is a vital piece of infrastructure for the economic wellbeing of the region.

Supporting the energy industry

The only deepwater seaport on New Zealand's western seaboard, Port Taranaki is best known for its oil and gas capabilities. Taranaki is, after all, the heart of New Zealand's oil and gas industry, and Port Taranaki has been supporting and servicing the growth and development of the energy industry for more than 60 years.

Long-term partners of some of the world's largest energy companies, including Methanex, OMV and Liquigas, bulk liquid trade remains the port's dominant business by volume, with 3.73 million tonnes crossing its world-class Newton King Tanker Terminal (NKTT) during the 2019-20 financial year. This was up from 3.41 million tonnes in 2019, an increase of 9.38%.

"This was in large part due to Methanex, our largest customer, returning to increased production, having been shut for a period of maintenance the previous year, and because of less disruption of supply from the Pohokura gas field," Port Taranaki chief executive Guy Roper says.

The NKTT facility handles a wide range of petrochemical products and bulk liquids. Berths are equipped with sophisticated monitoring, safety and firefighting systems, with frequent audits regularly putting it in the top 10% worldwide for safety standards.

Port Taranaki's support of offshore oil and gas exploration and production also increased in the past year. The port boasts specialist operators of heavy-lift machinery for the movement of equipment and project cargo from land to vessel, and return, as well as powerful tugs and launches, piloted by skilled, experienced operators, refurbished mobile harbour cranes, specialised bunkering facilities, and storage.

"We are supporting OMV in their offshore exploration programme, which seeks to extend the life of the Maui field. Although some exploration work was reduced during the year, overall the increased exploration activity and our continued support at Pohokura saw our offshore revenue increase 32%," Mr Roper says.

Despite the result, it's no secret that the past few years have been challenging for the oil and gas and petrochemical indus-

A bird's eye view of Port Taranaki taken from the former power station chimney


Port Taranaki chief executive Guy Roper

tries in this country. The announcement by the Government in 2018 that no new offshore oil and gas exploration permits would be issued created uncertainty about long-term security of supply.

"The 2018-19 year was one of change and some challenge for our business – a watershed moment where we made operating expenditure decisions to repurpose buildings and land which set us up to be adaptable, flexible and better positioned for the future," Mr Roper says.

"The changing nature of trade, in particular the energy trade, as we move towards a low-emissions environment, means we have to be looking ahead, looking for new customers, and diversifying the product that moves across the berths.

"We are constantly looking for opportunities which, in recent times, have included the importation of wind turbine componentry and live cattle export shipments. We have also worked to further increase our log trade by introducing a logs-on-rail service, developing more berthside storage, and partnering in the installation and operation of an onsite debarker."

Mr Roper says the port's aim is to make trade easy for its customers by adapting and meeting their needs. "We are achieving this through maximising our wide skill base, building our capability further, and increasing the utilisation of our world-class assets, including our berths and laydown areas, our cranes, our marine services and offshore support, and our technical and mechanical departments."

Diversifying trade

As the greater Taranaki region's key transport and logistics asset, Port Taranaki's reputation and flexibility as a multi-use port means there is unlimited potential for growth and development, says the port's head of commercial, Ross Dingle.

"We've got a fantastic and unique asset here. The port's west coast location, world-class assets, land availability, staff experience and skills, and ability to adapt quickly and be flexible to changing needs, make it attractive to a wide range of business and industry, whether that be for transportation and logistics or storage," Mr Dingle says. "It is business that we're capturing and working to develop further this year and beyond."

While bulk liquid trade is the port's dominant business, dry bulk products, including animal feed and fertiliser (710,000 tonnes in 2019-20) and the log trade (801,000 JAS in 2019-20 – the Japanese Agricultural Standard, or JAS, cubic metre is a global industry standard measurement of log volume) continue to be important commodities. Now with a focus on diversification, new trade is increasingly coming through Port Taranaki.

Wind farm componentry for Mercury Energy's Turitea Wind Farm in Manawatu and Tilt Renewables' Waipipi Wind Farm in South Taranaki has this year come across Port Taranaki's berths. The wind turbine componentry shipments began in February when 99 blades for Turitea arrived at Port Taranaki from the Port of Taranto, in Italy. In November, another 84 blades will arrive at the port for Turitea.


Port Taranaki head of commercial Ross Dingle

On the heels of the first Turitea components arriving in port came the first components for the $277 million Waipipi Wind Farm. The first shipment in May docked at Port Taranaki with 11 towers and 30 blades aboard.

A shipment carrying wind turbine nacelle units from Denmark, and two further shipments of hubs, towers and blades from China, have come through Port Taranaki in the past few months. All up, 31 hubs, 31 towers and 93 blades (each 64 m long) have been shipped and stored at Port Taranaki before being moved to the Waipipi site alone.

"Both these projects are very exciting and challenging for Port Taranaki," Mr Dingle says. "The cargo is out of the ordinary for our port, but it's great that our facilities, assets, skills and expertise have been recognised as being of a very high standard and a great fit for this cargo."

The vessels dock at Blyde Wharf, which has heavy lift pads that can support the equipment. A combination of ships' cranes and the port's twin mobile harbour cranes lift components off the ships and onto the heavy haulage vehicles, which transport the components to the port's Eastern Reclamation. "We have 2 ha of land at the Eastern Reclamation, which is perfect for large project cargo storage, such as this," Mr Dingle says.

The componentry is then transported by road along either SH45 or SH44 (New Plymouth's St Aubyn St, Eliot St and Coronation Ave) and SH3 by specialised heavy haulage vehicles from the Eastern Reclamation to their South Taranaki or Manawatu wind farm destinations.

This year, Port Taranaki also began facili-

Cont. on page 10

Dry bulk products, including animal feed and fertiliser, regularly come across Port Taranaki's berths and are stored for customers onsite

The oil and chemical tanker *Songa Fortune* is loaded at Port Taranaki's specialised Newton King Tanker Terminal

Cont. from page 9

tating the shipment of live cattle exports to China, again underscoring its ability to adapt to customer needs. For the live animal exports, cattle are transported by stock trucks from Bulls to Port Taranaki for shipment on specialised animal transportation vessels under Government-regulated conditions.

Forestry sector capabilities

After several years of record growth, log volumes through Port Taranaki dropped 77,000 JAS, or 8.8%, to 801,000 JAS during the past financial year. "The forestry sector was hit particularly hard during the year, suffering early on from depressed prices and then being deemed not essential during the Covid-19 lockdown, resulting in harvesting stopping and trade essentially ceasing," Guy Roper says.

"However, considering the constraints the industry has faced, we are very satisfied with the sector's performance and are continuing to work to extend our hinterland and provide at-port services that enhance exporters' operations."

In addition to increased log storage space berthside on Blyde Wharf, made possible with the removal of a former coolstore building, a log debarker has been installed at the port. In a partnership between Port Taranaki and China Forestry Group New Zealand, the log debarker started operation at the port in June, stripping between 1200 and 1600 JAS of logs a day.

Port Taranaki is the first port in the lower North Island to commission an onsite debarker, and its operation means full log vessels – both below-deck and above-deck – can be loaded at the port and leave directly for international markets in Asia. China Forestry Group New Zealand, which owns the debarker, has leased an area of Port Taranaki's former container transfer site, in conjunction with McCarthy Transport, for the operation.

Port Taranaki withdrew from the container sector, including closing its container transfer site, in November 2017. The move was prompted by changes to the New Zealand supply chain, particularly the introduction of larger international container vessels, the development of inland ports for containerisation of products, and the increased use of rail transport linking regions to ports with international departures. With coastal shipping impacted by these changes, there was reduced incentive for shipping lines to call at Port Taranaki.

The former container transfer site was the perfect spot for the debarker, however. Mr Dingle says that with the debarker operating, up to three log vessels a month are expected to visit the port to load above-deck logs. "The debarker operation has the potential to increase the volume of logs coming to Port Taranaki, which gives us the opportunity to get more shipping through the port – our core business – and makes trade easier for our customers," he adds.

"We are already seeing logs coming from deeper in our hinterland – north from Te Kuiti and towards Rotorua, and south of Taranaki, into Whanganui and further afield. They are logs that would have otherwise gone to another port.

"No fumigation of logs takes place at Port Taranaki, so the debarker means we can now complete a fully loaded vessel here, for a wider range of markets,"

Port Taranaki executive leadership team

Guy Roper	– chief executive
Ross Dingle	– head of commercial
Captain Ashley McDonald	– head of operations
Allan Melhuish	– chief financial officer
Amanda Rooney	– general manager, people & safety
John Maxwell	– general manager, infrastructure

Wind farm componentry for Mercury Energy's Turitea Wind Farm in Manawatu and Tilt Renewables' Waipipi Wind Farm in South Taranaki has this year come across Port Taranaki's berths

Maritime features

The approach by sea to Port Taranaki is safe and easily navigable, with an open roadstead and anchorage in 18–22 m of water. Inside the harbour, the approach fairways provide a swinging basin of up to 418 m, and a maximum port draught of 12.5 m. Vessels can be berthed in most weathers, but ship draughts in excess of 9.5 m depend on tide. Tidal range is 1.7 to 3.9 m. Further information, including berth parameters for Port Taranaki's nine wharves, can be found on the port's website.

Port Taranaki is the first port in the lower North Island to commission an onsite debarker which enables top-deck log loading

Mr Dingle says. "This is more efficient for exporters as they can contemplate fewer multi-port visits, saving time and fuel, which is also better for the environment."

Predominantly, logs are transported to Port Taranaki by road, utilising the state highway network to the port, but during the past year Port Taranaki has also started a logs-on-rail service from Whanganui.

In conjunction with KiwiRail, six wagons of logs a day (Monday to Friday) are railed to New Plymouth as part of the daily freight service. The wagons, which contain about 200 tonnes of logs, are then decoupled and shunted through to Port Taranaki and on to Blyde Wharf, where they are unloaded adjacent to the berth. This service helps ease pressure on the road network and supports the reduction of carbon emissions.

Mr Dingle says the service could be extended to a dedicated once-a-day delivery from Whanganui to Port Taranaki, which would include up to 18 wagons of logs. "The log yards are right beside the rail line and the ship berthing, which means the logs can be easily and efficiently unloaded from the train, stored nearby, and quickly loaded onto the vessel when required. This saves time and money for exporters," he notes.

"We have also installed stronger bollards on Blyde Wharf, enabling two log vessels to berth and load simultaneously, which has added flexibility and improved efficiency for exporters."

Repurposing for diverse trade

Port Taranaki's aim to meet customers' requirements has also led to the repurposing of buildings onsite. The Craig Norgate Store, which was originally built to house milk products, has been repurposed into a bulk dry store for Port Taranaki customer Agrifeeds. To enable the floor to support the product, a 170 mm concrete layer, reinforced with tensioned steel cables, was poured on top of the existing floor.

The turbine hall of the former Contact power station site, of which Port Taranaki bought 18.8 ha in 2012, has been repurposed into dry bulk storage. The purchase of the former power station site, as well as others in the port's vicinity, is seen as securing important strategic assets for the future growth and development of the port area.

This includes Port Taranaki buying and refurbishing the former Chevron tank farm on Centennial Drive, which it leases to BP. The terminal enables larger parcels of petrol and diesel to be shipped in, stored and distributed throughout the region, reducing costs and the number of road tankers coming into Taranaki to deliver fuel.

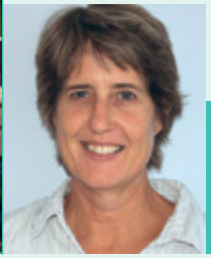
Adding to the port's diverse trade is the cruise ship business, with Port Taranaki welcoming several cruise ships each season. Three are scheduled for the 2020-21 season, Covid-19 travel restrictions dependent, including the 294 m *Queen Elizabeth*, the largest cruise ship to ever visit Taranaki.

"This is an area of our business we have been working hard on expanding. As a deepwater port and having quality berths, we have the capability to accommodate large vessels, and we are eager to promote Taranaki as a world-class destination to visit," Mr Dingle says.

The port continues to investigate trade opportunities and the capacity it holds to accommodate those. Through diversification, coupled with its wide skill base and capabilities, Port Taranaki is well set up to enhance New Zealand's supply chain and make trade easy for customers well into the future.

For further information, visit www.port-taranaki.co.nz

Working to further increase its log trade, Port Taranaki has introduced a logs-on-rail service



Lynne Richardson is the editor of FTD and NZ Construction News magazines

RESOURCE MANAGEMENT

New process, guidance and direction — a summary of recent changes and developments in the RMA field

By Gerard Cleary

The influence of the NPSUD on urban growth and development is likely to be significant – the directions to support intensification have the potential to result in profound changes to the form and functioning of New Zealand's largest cities

IT IS an indisputable fact that infrastructure is a public good; its provision and maintenance contributes significantly to the ongoing economic and social wellbeing of New Zealand. Equally, an approach to urban planning which seeks to align the provision of infrastructure and future development is unquestionably correct.

Long the focus of seemingly ubiquitous criticism, the Resource Management Act 1991 (RMA) provides the regulatory framework for the provision of new infrastructure. Despite universal recognition of the national significance of infrastructure in subordinate planning documents (regional policy statements and district plans), a common refrain of infrastructure providers is that the RMA processes for obtaining approval for new projects are time-consuming, expensive and uncertain.

This article examines implications for the provision of infrastructure arising from the recent enactment of the Covid-19 Recovery (Fast-track Consenting) Act 2020 and the release of the National Policy Statement on Urban Development (NPSUD). In addition, brief reference is made to recommendations contained within the Randerson Report on the proposed reform of the RMA as they relate to mechanisms for approving infrastructure projects.

The Covid-19 Act

The Covid-19 Recovery (Fast-track Consenting) Act 2020, or Covid-19 Act, is a short-term (two-year) measure enacted by the Government in July 2020 with the specific purpose of providing an alternative, more efficient and certain consenting pathway for projects that can boost employment and aid economic recovery.

As legislation goes, it is certainly not without recent precedent, with a number of its features paralleling provisions of legislation enacted to promote rebuilding and recovery in the aftermath of the Canterbury and Kaikoura earthquakes. The principal feature of the act is the adoption of a fast-track consenting process for both 'listed' and 'referred' projects.

There are 17 'listed' projects in Schedule 2 of the act, including projects that are the responsibility of key infrastructure providers such as Waka Kotahi New Zealand Transport Agency (NZTA), Transpower New Zealand and KiwiRail Holdings Ltd (KiwiRail).

'Referred' projects, on the other hand, can only take advantage of the new fast-track consenting process if approved by the Minister for the Environment. Anyone can lodge an application with the minister to refer a project. In deciding whether to approve or decline such an application, the minister may have regard to a range of specified eligibility criteria, including the project's economic benefits and costs, and whether or not the project will generate employment or increase the supply of housing.

Decisions on applications for listed and referred projects are to be made by specially constituted expert consenting panels, to be chaired by a judge or retired judge.

Comparatively speaking, the process for considering an application is significantly more streamlined than the present RMA process. In particular, steps such as notification of applications is precluded, as are appeals on merit to the Environment Court.

Furthermore, for listed projects a panel can only decline approval on very limited grounds, these being inconsistency with either a national policy statement or the Treaty of Waitangi. There is less certainty of outcome for referred projects, with the range of matters the expert panel is required to take into account paralleling the current provisions of the RMA.

Another feature of the Covid-19 Act is the direct enabling of certain work on existing infrastructure that is carried out by a range of agencies, including KiwiRail, NZTA and all local authorities. For example, it is a permitted activity for KiwiRail and NZTA to undertake any work for the operation, maintenance, replacement, or minor upgrade of existing infrastructure, subject to meeting listed performance standards.

Overall, the Covid-19 Act recognises and reinforces the importance of infrastructure and the benefits in providing increased certainty of outcome for projects that will assist with economic recovery. This is particularly the case for listed projects which essentially must be approved.

It remains to be seen whether or not there will be a significant uptake under the act for the referral process, bearing in mind that the minister will undoubtedly be careful to ensure that expert consenting panels are not overloaded with applications that should more properly be processed in the usual RMA manner. Anecdotally, it is understood that no decisions will be made on applications for referral until after the upcoming general election.

National Policy Statement on Urban Development (NPSUD)

The negative effects of a constrained or inadequate supply of appropriately zoned land for urban development purposes are well documented, and include in particular the rise of housing unaffordability as a key issue. Within planning documents prepared under the RMA, land constraints typically restrict the ability to either expand beyond, or intensify within, existing urban boundaries.

To address these inefficiencies, the NPSUD directs local authorities to provide

An artist's impression of the Northern Pathway, a new shared path between Westhaven in central Auckland and Akoranga on the North Shore – the project is one of 17 'listed' projects in Schedule 2 of the Covid-19 Recovery (Fast-track Consenting) Act 2020

at least sufficient development capacity to meet expected demand for housing and business land in the short term (three years), medium term (three to 10 years) and long term (30 years). Development capacity provided must be plan-enabled and infrastructure-ready, the latter meaning that the infrastructure necessary to support development must either already exist or be identified in a local authority's long-term plan or infrastructure strategy.

The NPSUD also mandates the development of Future Development Strategies (FDS) under the Local Government Act 2002. The purpose of an FDS is to promote long-term strategic planning to meet expected demand and to assist the integration of planning decisions under the RMA with infrastructure and funding decisions. Accordingly, each FDS will likely have a very strong influence on the contents of planning documents prepared under the RMA.

Broader spatial planning requirements aside, the NPSUD contains very firm directions to enable intensification within Auckland, Hamilton, Tauranga, Wellington and Christchurch (Tier 1 authorities). Policy 3 of the NPSUD provides that within city centres, Tier 1 authorities must enable building heights and density of urban form to realise as much development capacity as possible.

Building heights of at least six storeys must also be provided within at least a 'walkable catchment' of the edge of city centre and metropolitan centre zones and existing and planned rapid transit stops. Furthermore, the NPSUD requires territorial authorities to remove all minimum car park requirements from their district plans, the rationale being that car parking is land hungry and, as a consequence, is a barrier to intensification.

The influence of the NPSUD on urban growth and development is likely to be significant, requiring as it does that local authorities adopt a more real-world, evidence-based approach towards providing development capacity. Further, the directions to support intensification have the potential to result in profound changes to the form and functioning of New Zealand's largest cities.

Somewhat ironically, given the emphasis elsewhere within the NPSUD on planning decisions aligning infrastructure and development, the directions to support intensification appear to have been made on an assumption or expectation that supporting infrastructure either can or will be provided by local authorities. Funding the necessary infrastructure to support intensification may well come to dominate the annual and long-term plans of local authorities.

The Randerson Report – recommendations on reform of the RMA

The recently released report 'New Directions in Resource Management for New Zealand' (the Randerson Report) is the first all-encompassing review of our resource management system since the enactment of the RMA in 1991, and was conducted by an independent resource management review panel chaired by retired Court of Appeal Judge Tony Randerson QC. The report contains a series of recommendations on reform, the most fundamental being the replacement of the RMA with a National Development and Built Environments Act and a Spatial Planning Act, the latter echoing the NPSUD's approach to planning for urban growth.

The Randerson Report also scrutinises the consenting and approval processes for development, including those provisions of the RMA relevant to the delivery of infrastructure.

In very brief summary, infrastructure is delivered primarily through designations initiated by requiring authorities (ministers of the Crown, local authorities and network utility providers). The first step in the designation process is the lodging of a 'notice of requirement' for a designation with the relevant local authority.

Notices of requirement are subject to an approval process similar in most respects to resource consent applications, and are regularly notified to enable full public scrutiny. If a designation is forthcoming, approval is typically for a default period of five years, within which a further step is required, being the lodgement of an outline plan of works including full construction-ready details of the project.

Broadly speaking, the review panel does not recommend a major overhaul of the designation process, rather it is more a case of finetuning. For example, the panel recommends that the default lapse period for designations be doubled to 10 years to more closely reflect planning and funding cycles.

In addition, the panel recommends that the initial notice of requirement approval stage in the designation process be simplified in terms of matters to be addressed, the corollary being that greater detail of the operational effects associated with a designated project be included within a construction and implementation plan.

The rationale behind this suggested change is that often the requiring authority will not have completed the final design of a project until shortly before construction. Locking in a design at the initial approval stage is therefore regarded by infrastructure providers as restricting design options and potentially losing innovation and better environmental outcomes.

While in principle there is merit in requiring authorities having the ability to obtain a 'high-level' or conceptual designation, there is a fine line in prescribing the level of detail necessary to inform a decision on the appropriateness of a project from the outset. At present, there is insufficient detail in the Randerson Report to provide informed comment as to where that line should be drawn, that detail being left to the drafters of the replacement legislation when the time comes. Given the political will for reform of the RMA, this is expected to be within the term of the next Government.

If you have any queries about this article or other resource management issues, please get in touch.

Partner Gerard Cleary heads the resource management team at law firm Anthony Harper; his experience and expertise covers all aspects of development under the RMA; for further information, visit www.anthonyharper.co.nz

NEW ENERGY

Electric ships – battery behemoths

Reported by Lynne Richardson

The *Ellen* is a landmark pure-electric ferry operating in the Danish part of the Baltic Sea – taking five years to build, it successfully completed its 10-month stretch of sea trials in June this year

WHILE WELLINGTON anticipates what will likely be New Zealand's first all-electric, carbon-free, zero-emissions passenger ferry (see opposite), overseas, electric ships are already in operation.

IDTechEx, a consultancy that provides independent market research, business intelligence and events on emerging technology to clients in over 80 countries, has been monitoring several projects. Their recently released report, 'Electric Leisure & Sea-going Boats and Ships 2021–2040' provides historical data from 2016 and forecasts up to 2040 the number of electric vessels, battery demand (MWh) and market value (US$ billion) broken down by pure electric and hybrid powertrain, as well as by each marine sector – leisure boats, fishing, cruise ships, ferries, offshore support, tugboats and deep-sea.

The report notes that electric ships have some of the largest individual batteries of any electric vehicle sector. Before you read about the vessels below, keep these figures for typical battery capacities for on-road electric vehicles in mind to provide perspective:

- Global weighted-average plug-in car (BEV + PHEV): 37 kWh
- Pure-electric car in the US: 67 kWh
- Pure-electric bus in China: 210 kWh
- Long-haul truck (expected): 600–1000 kWh.

Ellen – 4300 kWh pure-electric ferry

The *Ellen* is a landmark pure-electric ferry operating in the Danish part of the Baltic Sea. Taking five years to build, it successfully completed its 10-month stretch of sea trials in June this year.

The project was partially funded by an EU Horizon 2020 project, costing a total of €21.3 million (NZ$38 million) of which the EU supplied €16 million. The goal of the project was to build a full-scale prototype to demonstrate 100% emissions-free sailing on a regional ferry route with an unprecedented range for a fully-electric ferry. As the project officially came to its end on 1 June, *Ellen* shed its 'experimental' and 'prototype' status and went into full-time operation.

It has a huge 4300 kWh battery supplied by Leclanché enabling 21.4 nautical miles of range. It also has a record-breaking 4 MW charging rate. The energy efficiency of the total electrical system is 85% grid-to-propeller, which is more than twice as high as the efficiency of a typical diesel ferry (tank-to-propeller).

At an average consumption of 1600 kWh per return trip, *Ellen* performs slightly better than had been projected in preliminary studies. The low average energy consumption per trip, in combination with an available battery capacity of more than 3.8 MWh and the fast charging rate, has proven that *Ellen* is a valid commercial alternative to traditional diesel and diesel-electric propelled ferries. It is estimated the ferry will reduce CO2 emissions by 2000 tonnes, NOx by 41.5 tonnes and SO2 by 1.35 tonnes annually.

And passengers love travelling on the *Ellen*. Along with an appreciation of its environmental friendliness, passengers also highly rate the much less noisy and completely smog-free journey.

East By West is set to launch New Zealand's first all-electric, carbon-free, zero-emissions passenger ferry later this year

Stena Jutlandica – 50,000 kWh hybrid ferry

The Swedish ferry operator Stena Line plans to install a 1000 kWh battery system on the *Stena Jutlandica*, which operates between Gothenburg, Sweden, and Frederikshavn, Denmark. However, this is only the first phase of the project (allowing electric operation of bow thrusters and manoeuvring when berthing in port), and a fraction of what will come.

In phase two, a 20,000 kWh battery pack will be connected to the propellers, allowing for a 10-mile pure-electric range. In

A 10,000 kWh lithium-ion battery system is set to be retrofitted to the *AIDAperla*, enabling zero-emissions operation whilst berthing in ports and hybrid operation when out at sea

Photo courtesy of AIDA Cruises

phase three, the battery capacity will be further expanded to a massive 50,000 kWh, enabling roughly 50 nautical miles of pure-electric range (the distance between Gothenburg and Frederikshavn).

Port-Liner – 6720 kWh inland barges

In 2018, Dutch inland waterways barge operator Port-Liner announced it would roll out up to 11 pure-electric inland barges for the ports of Amsterdam, Antwerp and Rotterdam. Each was planned to carry up to four 1680 kWh lithium-ion battery containers, implying a maximum 6720 kWh system. A containerised battery design would lend itself to a battery-swapping business model, helping with the issue of shoreside megawatt charging.

Unfortunately, the original (and ambitious) project was cancelled after €5 million (NZ$9 million) of spending, but scaled-back plans for a flow-battery version are now in place, with the first prototype planned for release later this year.

Project e5 – 4000 kWh pure-electric tanker

The first seagoing pure-electric and autonomous tanker, the e5 project, is being developed for Japan by Asahi Tanker (e5 stands for electrification, environment, evolution, economy and efficiency). Few details are known, but IDTechEx has learned from the company that the 60 m long ship is expected to be launched by 2022 with a 4000 kWh battery enabling an 80 nautical mile range.

Guangzhou tanker – 2400 kWh inland tanker

The first pure-electric container ship in the world was launched in China in November 2017, ironically to transport coal. According to China News, the powertrain is equipped with a mixture of supercapacitors and lithium-ion batteries for a total energy capacity of 2400 kWh. The powertrain reportedly enables a range of 50 nautical miles on a single charge.

The vessel currently travels inland down the Pearl River in Guangdong Province, where new emission-control areas came into force in January 2019. Both shipyards where it operates are equipped with massive charging systems that can reportedly charge the boat's battery pack in just two hours (1.2 MW charging), which is about the time it takes to load and unload the ship.

AIDAperla – 10,000 kWh hybrid cruise ship

Sometime this year, Corvus Energy is due to supply Germany's leading cruise line, AIDA Cruises, with a 10,000 kWh lithium-ion battery system which is to be retrofitted onto the *AIDAperla*, a cruise ship capable of transporting over 4000 people.

The battery will allow zero-emissions operation whilst berthing in ports, and save fuel during hybrid operation when out at sea. This project currently holds the record for the world's largest battery package to be delivered for a cruise vessel.

Meanwhile, back in Wellington

The sustainable future of waterborne passenger transport in New Zealand is set to become a reality on Wellington Harbour later this year when East By West launches its fully-electric ferry. The 19 m long vessel will carry 135 passengers on the Queen's Wharf to Days Bay route at speeds of up to 20 knots. East By West managing director Jeremy Ward says the new vessel will not only be New Zealand's first all-electric, carbon-free, zero-emissions passenger ferry, it will also be the first in the Southern Hemisphere.

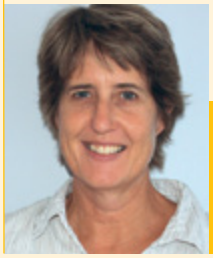
The project has also spawned a new boat building industry in Wellington's Seaview, with East By West taking the initiative to form the Wellington Electric Boat Building Company (WEBB), which is headed by experienced boat builder Fraser Foote. The WEBB warehouse and yard at Gracefield Road, Seaview, employs around a dozen people, and is supported by the project's designers and naval architects SSC Marine, with McKay Electrical providing the electrical engineering expertise.

Fraser Foote says the boat will be powered by two 325 kW electric engines, with the energy coming from 72 lithium-ion batteries totalling 5500 kg in weight. The battery management technology and safety systems are state of the art and very sophisticated. The project is using an initial resilient charger at 300 kW, but there are plans for an ultra-fast charger at 1.1 MW which will allow the ferry to be partially charged in 20 minutes.

Jeremy Ward says the key to the vessel's efficiency is the hull design. "It needs to be quite different from conventional diesel-powered vessels, with a displacement hull made from flat carbon fibre panels, with only the lower hulls requiring moulding. The adoption of full carbon/foam construction is the enabling technology which, when combined with the highly efficient canoe-stern hull form, will reduce resistance and allow the weight (and therefore cost) of the batteries to be minimised. The ferry will cut through the harbour like the proverbial hot knife through butter," he says.

East By West's ferries have been running on Wellington Harbour for nearly 30 years and its commuter services are renowned as a relaxing and stress-free start to the working day, but the new electric ferry will be another step up in service. "The only sound passengers will hear will be the gentle splashing of the sea – we may have to wake passengers up on arrival!" quips Jeremy.

The IDTechEx report 'Electric Leisure & Seagoing Boats and Ships 2021-2040' can be ordered from www.IDTechEx.com/Boats



Lynne Richardson is the editor of FTD and NZ Construction News magazines

RAIL SAFETY

Rail Safety Week 2020 – a short week, but a long message

This year's Rail Safety Week continued the Near Miss Memorials campaign which started in 2019

EVERY DAY on average, somewhere in New Zealand, there is a near-miss on a railway line. This year's Rail Safety Week (10–16 August) might have been curtailed by the return to lockdown in Auckland as a result of a surge in cases of Covid-19, but the event continued the Near Miss Memorials campaign which started in 2019.

The campaign recognises the near-misses suffered daily by train drivers and encourages safe behaviour at level crossings to reduce pedestrian and motorist complacency and risk-taking. KiwiRail, TrackSAFE NZ and other industry partners launched this year's campaign at Wellington Railway Station on Monday 10 August.

KiwiRail group chief executive Greg Miller says that while people might walk or drive away after a near-miss, these split-second decisions can cause long-term effects for everyone. "People are risking their lives, and just one second of inattention at a railway crossing can create a circle of trauma rippling outwards – impacting friends and families, our drivers and the community.

"A freight train weighing 1000 tonnes across 30 wagons can take a kilometre to come to a stop once the brakes are applied. It also takes time for the commuter trains in Auckland and Wellington to stop. Thankfully, there has been a drop in recorded near-misses on last year, but that is no reason to relax," Mr Miller says.

TrackSAFE NZ foundation manager Megan Drayton is calling on people to take greater care when crossing the railway line. "In the last 12 months, KiwiRail recorded more than 300 near-misses across the rail network. Of these, 191 near-misses occurred at public level crossings, and the majority of those crossings had flashing lights and bells or barrier arms.

"This shows us that even with warning signs and protections in place, some motorists and pedestrians are still either being complacent, or taking unnecessary risks."

The main campaign video shares a story of a Wellington-based locomotive engineer who experienced a near-miss that had been caught on camera. It was a chance for people to hear his story and to put themselves into his shoes.

A campaign website (www.nearmisses.co.nz) has been set up where people can explore near-misses at the locations of actual near-misses.

Unfortunately, changes in the Covid-19 alert levels on Wednesday 12 August meant that some Rail Safety Week activities had to be put on hold halfway through the week. "We had only completed one day of the Waka Kotahi NZ Transport Agency rail safety virtual field trip for schools, and other events in Auckland had to be cancelled as well," Ms Drayton says. "While that was disappointing, we hope to be able to run these events later in the year."

A personal account

In December 2018, Jeremy Jefferies was driving a train through the King Country region, when a young mother and baby in a car neared the tracks at a private level crossing running across a driveway.

"She was coming out of the driveway and didn't check before crossing. I thought she

In the last 12 months, KiwiRail has recorded more than 300 near-misses across the rail network, of which 191 occurred at public level crossings, the majority of which had flashing lights and bells or barrier arms

Daniel Timney was returning a customer's truck-and-trailer unit and failed to see a train approaching a level crossing near Mosgiel – the train hit the rear of the trailer

Waikato-based locomotive engineer Jeremy Jefferies has shared his experience of a near-miss for Rail Safety Week

had seen me, but she hadn't, and she pulled out in front of the train," says Jeremy. "I jumped on the horn and activated the train's emergency braking system. The mother panicked and stopped halfway across the tracks in front of me, then reversed back out of my way. I missed her car by mere metres. The only reason I knew I hadn't hit them was because there was no sound of impact."

As they disappeared out of Jeremy's view, he stopped the train and looked back to see if he had blocked them in their driveway. "I walked back towards the car a bit agitated. But when I got to the car, I saw she was in tears with the baby in the back. My mood switched to one of concern, so I made sure they were okay and walked back to the train. I was pretty shaken myself."

Jeremy says that when people take a chance at a level crossing or don't take the necessary precautions, he wishes they would think about the effect a near-miss has on the locomotive engineer in the train. "That person has to deal with the trauma of a near-miss, as well as the pedestrian or vehicle driver. It's a real heart-in-your-mouth scenario. It's someone making a split-second decision and not really thinking about the effect it's going to have on others. You may get across nine times out of ten, but on that tenth time it could cost you your life."

Jeremy says he still sees the mother and child from time to time because their house is by the tracks – it is always a chilling reminder of the incident.

Dunedin-based engineer Daniel Timney has also shared his experience to raise awareness during Rail Safety Week. Daniel had been driving and working with heavy trucks and trailers for more than 20 years. But his experience did not prepare him for an incident on the morning of 3 March this year that could have cost him his life.

Daniel was returning a customer's empty 20 m truck-and-trailer unit to its yard in Mosgiel. He stopped on the left-hand side of the road to let cars pass before moving towards a level railway crossing. "I didn't see anything coming. I started crossing the railway lines, then I heard a train sound its horn from my right. I was committed, so I made the split-second decision to carry on, rather than try to reverse off the tracks."

The train was made up of two locomotives pulling 10 wagons weighing 516 tonnes and stretching 173 m. Two locomotive engineers were on board. When they spotted the truck and trailer on the tracks, they had just passed the Mosgiel Station and were building up speed towards 80 kph. Knowing there was no way to stop in time, they applied the emergency brakes, took cover on the cab floor and braced for impact.

"The train hit the rear of my trailer, which spun it around before hitting a parked car and a power pole," says Daniel. "I'm told the train travelled another half a kilometre down the tracks before coming to a complete stop. I walked down to see if the train driver was all right. Luckily, no one was injured, but it could have been so much worse."

Raising awareness a priority

Megan Drayton says making truck and heavy vehicle drivers aware of the risks at level crossings is always a priority. "While collisions involving trains and heavy vehicles are quite rare, the result can be catastrophic. Over the past few years there has only been a handful of collisions, but sadly, some of these have resulted in fatalities.

"With the weight and size of trains and heavy vehicles, like trucks and buses, the risk of a serious incident or multiple loss of lives is much greater. Even near-misses can create stress and anxiety for the driver and the locomotive engineer. So, we're doing what we can to keep level crossing safety at the forefront of drivers' minds."

Ms Drayton's advice to heavy vehicle drivers is to be alert and aware, stay focused, and know your surroundings and your route. "It goes without saying to always look both ways for trains. Never try to beat a train over a crossing. They are usually travelling faster than they look, and research has proven that as drivers we can't accurately predict the speed of a large moving vehicle."

Daniel still wonders how on earth he didn't see the train. "I perhaps should have waited longer and had a better look up and down the tracks. But you look twice and then focus on what's ahead, not side to side. As big as a train is, you don't always see it, and it's moving faster than you think," he says.

"It was days later when the shock of the incident kicked in and I realised the severity of what had happened, and the expense of it. It has definitely made me more cautious in general when it comes to level crossings, give-way and stop signs, even when I'm driving a car."

Following the incident, the Mosgiel crossing will be resurveyed and a new risk assessment undertaken. Sight lines and vegetation will be reviewed as part of this process.

Rail Safety Week is coordinated by KiwiRail and TrackSAFE NZ in close partnership with Waka Kotahi NZ Transport Agency, NZ Police, Auckland Transport, Transdev Auckland, Greater Wellington Regional Council, Transdev Wellington and many other councils throughout New Zealand.

TECHNOLOGY

Drones in the era of coronavirus

By the International Transport Forum

The need to reduce human contact as a health precaution in the time of Covid-19 has provided a boost to the use of drones

DRONES ARE proving to be versatile and effective tools in the coronavirus epidemic. Yet with drone regulation still in its infancy, their potential is not fully exploited. Drone deployment in the Covid-19 crisis thus offers a learning opportunity for how airspace regulations could be updated to facilitate their use – also beyond emergency response.

The need to reduce human contact as a health precaution in the time of Covid-19 has provided a boost to the use of drones. Since the onset of the coronavirus crisis, drones have been deployed to deliver medical supplies, collect or dispatch lab samples, deliver daily necessities to confined citizens, monitor social distancing, make public announcements, or disinfect public spaces.

The indisputable utility of drones in the current health crisis may well accelerate their deployment and may lead to increased social acceptance for the use of these tools. As some forms of physical distancing and even of confinement will probably stay in place for some time, devices that can carry out specific tasks without human contact may even see continued demand. Positive experiences with drone deliveries and other services they can provide could lead to a permanent shift in attitudes towards drones that may go beyond the immediate use of drones during the crisis.

The regulatory framework for the operation of drones is evolving in most countries. At the time of the Covid-19 outbreak, regulations were still mostly restrictive. Drone use was limited out of concern for potential safety, security, privacy and environmental issues.

Critics also raised issues related to equity (will drone services be only for the well-off?) or employment (will jobs be lost due to automation?), to name some of the most important. Their deployment during the Covid-19 crisis has thus been based on pragmatic interpretation of the rules, administrative exemptions for specific use cases and, in some cases, to fast-track (partial) deregulation.

The practical experience shows that governments should adapt airspace regulation to accommodate and make even better use of drone applications in future emergencies. Lessons learned during the crisis and from examining the use cases that prove to be of societal benefit during the coronavirus crisis may even encourage updates to drone regulation that go beyond the use of drones in times of crisis.

This article provides an overview of practical use cases of drones that have emerged in the era of Covid-19 so far. The focus is on drone applications for the movement of goods, for the monitoring of people's movements, and their regulatory context.

Contact-free delivery

Drone operators around the globe have begun to cater to new demand induced by Covid-19. They deliver supplies, medical and other, with a minimum of human interaction, thus helping to limit the risk of human-to-human transmission of the coronavirus.

Hit first by the virus, China was also among the first countries to use drones in response to Covid-19. In February 2020, a drone successfully transported test samples and medical supplies from a local hospital in Zhejiang province to a nearby disease control centre. Its operator, Antwork, part of the Japanese group Terra Drone, had been the first urban drone delivery company to obtain a licence (in October 2019) from the Civil Aviation Administration of China (CAAC).

Immediately after Wuhan was put under quarantine on 23 January 2020, Antwork offered to provide technical support to authorities with its drones, and received permission contingent on its ability to meet certain health precautions. The operator claims to have more than halved the transport time compared to ground transport and so helped to relieve stress on medical staff. Antwork has since begun assisting other medical institutions in China in a similar fashion.

In April 2020, the IAA, Ireland's aviation authority, approved drone operator Manna Aero to deliver medication and critical supplies to roughly a dozen households under confinement in the rural town of Moneygall. The delivery worked in a 'closed loop' end-to-end system: local doctors prescribed medication after a video consultation, and these were then dropped off at patients' homes by the drones, which can carry up to 4 kg. The operator says it can currently provide up to 100 flights a day, and is looking to expand its service to other towns in Ireland and also the UK. Non-medical products such as groceries can also be delivered.

In Ghana, US-based drone operator Zipline has been supporting the Ghanaian authorities in their fight against Covid-19 since 1 April by providing a 'contactless drone delivery' service that collects coronavirus test samples from 1000 rural health facilities and delivers them to laboratories in Accra and Kumasi. This alternative to long and arduous transport across difficult terrain by vehicle has reduced the transit time of test samples from many hours to less than one hour in some cases. Zipline plans to conduct daily flights of test samples as long as needed.

The rapid implementation of this specific use of drones as the Covid-19 crisis unfolded was facilitated by an existing collaboration between Zipline and the Ghanaian Government. Zipline is operating the world's largest drone delivery network in Ghana, with up to 600 flights per day that deliver vaccines to 2000 hospitals across the country. Zipline, which has had a presence in Rwanda since 2016, had been working in Ghana since April 2019 and airspace regulations had already been adjusted to permit drones to carry out such flights.

In the United States, Zipline has been granted permission by the Federal Aviation Administration (FAA) to deliver medical supplies and personal protective equipment in a contactless manner to a medical centre in Charlotte, North Carolina, in response to Covid-19. This is

the longest-range drone delivery service approved in the US so far.

Major US companies like Amazon and Alphabet (parent of Google) have been exploring the use of drones for some time. Wing, the drone subsidiary of Alphabet, has been running deliveries in the rural town of Christiansburg, Virginia, since October 2019. With the onset of the Covid-19 crisis, enrolment in and orders through Wing have risen sharply. Wing drones deliver pharmacy orders, daily necessities like toilet paper, and take-out meals to local residents, usually within 10 minutes. The service alleviates pressure on traditional last-mile delivery providers and has helped local firms stay in business despite confinement.

Surveillance and enforcement

Surveillance is another increasingly common use case for drones in the Covid-19 crisis. Again, China took the lead and deployed surveillance drones early during the pandemic, with other countries across the world following suit.

In France, the police have used drones to monitor compliance with lockdown measures, especially in public spaces such as parks and beaches. In India, police in Hyderabad have deployed two drones to identify 'sensitive' areas where people are not following lockdown requirements. This information is then used for the targeted deployment of police officers.

In March, Italy's civil aviation authority ENAC exempted local police forces from regulatory restrictions on drone operations after receiving requests from 'many local police units' to monitor the movements of citizens during the pandemic. Authorities have also used loudspeaker-equipped drones as flying public address systems to remind citizens to respect physical distancing requirements in public spaces – for instance, in Italy and in several US states. There, authorities have also used drones for communicating to specific communities difficult to reach by more common means, such as homeless people.

A more advanced, and still experimental, use case has been to install thermal cameras on drones to identify potentially infected citizens by their body temperature. This practice has been reported from China, India, Italy, Oman and Colombia, among others. Its efficacy is contested, however.

The ability of drones to provide a bird's eye view and fly over areas inaccessible by police vehicles, for example, fills an important need from a crowd management perspective. However, privacy concerns have put an end to drone surveillance in some cases. In mid-May, France's constitutional court banned the use of camera-equipped police drones to help contain Covid-19, ruling that this constituted 'a serious and manifestly unlawful infringement of privacy rights'.

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Hygiene applications

Improved hygiene is one of the imperatives imposed on affected societies by the Covid-19 health crisis. Drones have emerged as an effective tool that can sanitise large spaces and help lower the risk of infection for humans.

In China, more than 900 sq km in 20 Chinese provinces have been disinfected using a total of 2600 drones, according to reports. In Korea, drones used in the city of Daegu sprayed an area of 10,000 sq m in around 10 minutes. In India, disinfection with drones was carried out in Delhi and the city of Indore in the province of Madhya Pradesh. In the US, drones have been tested for large-scale disinfection of seats in sports arenas and concert halls.

Regulatory issues

Existing airspace regulations often appear to limit the use of drones in the fight against Covid-19. The case of Italy shows that this does not necessarily only apply to private drone operators. Here, enforcement agencies were also required to obtain waivers first to make use of drones during the pandemic.

In the US, regulation requires operators to prove that the use of drones is necessary to respond to an emergency. Given the resulting delays in deploying drones, the benefits of drones during an emergency cannot be fully exploited. Some US aviation experts worry that waiving regulations in a rush to deploy drones in emergencies may cause unforeseen problems, however. Privacy issues are one concern; a fragmentation of the governance for low-altitude airspace is another. Safety must also be carefully considered where drones transport sensitive or hazardous items.

The drone industry is clearly reckoning that the pandemic provides opportunities to test and assess different use cases for their products. The experiences gained during the crisis may even lead to a faster development of the sector. A Chinese drone manufacturer has claimed that the coronavirus has been 'an excellent catalyst' that 'will fast-track our growth'.

The Small UAV Coalition, a US drone industry association, wrote to the US Secretary of Transportation and the FAA Administrator on 19 May to reiterate a request made originally in March to 'waive the prohibition on commercial [drone] package delivery operations'. Likewise, a group named DroneResponders (itself part of an initiative called Drones for Good set up by a private investor) is promoting drones as an emergency response tool, and specifically use cases and demand scenarios related to Covid-19.

Overall, it appears that even if countries prefer a cautious approach to drones, establishing a regulatory framework for drones now that takes into account concerns beyond safety may help improve emergency responses in the future.

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