



The Bulletin Kaikōura earthquake update

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DRIVE SAFELY OVER THE WEEKEND

Expect larger traffic volumes on State Highway 1 (SH1) and other roads for Waitangi break. Depending on your journey plans, you may drive

through roadworks – possibly in scorching hot days or wet and windy weather. All these factors add to travel times and emphasise the importance of driving to the conditions.

Summer is roadworks season

SH1 continues to have a number of earthquake rebuild work sites. Wherever you drive this weekend, you'll likely see some summer roadworks. While many work sites will be pulled back or packed away over the long weekend to help holiday traffic flow, some crew will still be working - sometimes in very hot conditions and often within inches of moving vehicles.

This is where temporary speed limits can save lives. Drivers who ignore these limits not only put themselves and other road users in danger, but also endanger the lives of our road crew who regularly report near misses. Everyone has family and friends to get home to at night. Please play your part and stick to speed limits.

Hot weather can mean surface problems

Recent hot temperatures have been causing 'bleeding seal' or sticky surfaces on roads where the bitumen melts and rises above the chip seal road surface.

Crew travel up and down the roads laying small chip on top of affected areas to help absorb the bitumen. This could mean you drive through short sections where there a restricted speed limit but no crew in sight. If crew have been through laying fresh chip it may still be bedding in and speeding on this loose surface will flick gravel and bitumen up to damage your vehicle and other vehicles. You can also slip and lose control.

Cold, wet weather can mean more slippery surfaces

Despite crews working hard to keep on top of melting surfaces, cooler wet weather dries the sticky black mess into a smooth slippery driving surface. This can be dangerous for speeding drivers who need to brake suddenly so drive carefully on black patches in wet or dry weather.

Plan ahead: check travel times and SH1 road status before you start your journey through www.nzta.govt.nz/p2c or phone **0800 4 HIGHWAYS** (0800 44 44 49).



This weekly bulletin provides the latest information about the rebuild of road and rail networks damaged by the Kaikōura earthquake in November 2016. The bulletin is produced by the North Canterbury Transport Infrastructure Recovery (NCTIR) - an alliance representing the NZ Transport Agency and KiwiRail, on behalf of Government.



LONG WEEKEND DRIVING TIPS

- If you see a black road surface ahead – slow down, follow posted speed signs, and drive to the conditions.
- Expect extra traffic and allow plenty of time to get to your destination this weekend, especially if you're catching a ferry.
- Drive prepared with water and food. Plan to take regular breaks.



OUR PEOPLE ALONG THE CORRIDOR

When travelling through Kaikōura or along the alternate route (via Lewis Pass) over Waitangi weekend, spare a thought for the men and women

standing for long hours in hot temperatures.

Husband and wife Jill and Ray Taylor will be doing just this along the stretch of work sites south of Kaikōura between Peketa and Goose Bay. The two Spray Marks employees have been on the job for the past seven months.

They and the rest of their traffic management team have an important role. Not only are they keeping the travelling public safe, they also need to look after the crews working around traffic who can be vulnerable.

Their message for the traffic lining up at the stop/go signs is simple. 'Stay calm, be patient and observe the speed restrictions. There are a lot of people on the road and we're all trying to get somewhere at the end of the day,' says Ray.

While it can be frustrating passing through road works, Jill believes patience is key. 'I like to think that if I'm standing out in the hot sun and managing to be happy and smiley then it's going to have a flow on effect for other drivers - they too will wave and smile back and I'll help to make their journey just that little bit easier,' says Jill.

During the summer months hot weather is a challenge which comes hand in hand with the role. Covering up and keeping cool with fresh water is essential.

'The heat can also make drivers frustrated so we will talk to them and reassure them the wait time will only be a couple of minutes,' says Ray.

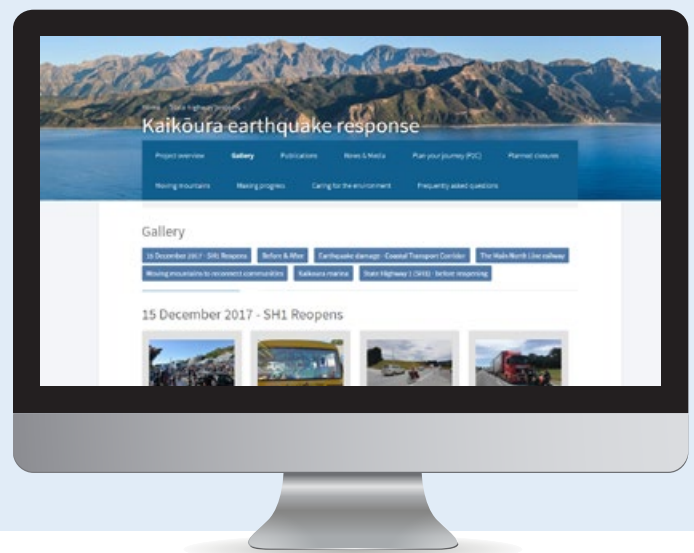
Despite the heat, the pair says the coastal experience is worth it. 'We saw whales and dolphins the other day - it's just amazing,' says Jill.



FAQ

Q: Where can I find videos and photos which show the work NCTIR has done?

A: You can find all our videos and a selection of photos at www.nzta.govt.nz/projects/Kaikōura-earthquake-response/gallery. You will also find more information about the recovery and rebuild programme as well as view previous copies of The Bulletin at this site.



WHILE YOU WERE SLEEPING...



You may not notice, but every night while State Highway 1 is closed the road around Ohau Point and Ohau Stream is slowly being built up millimetre by millimetre. By day it's a busy state highway, but by night numerous machines have taken over - turning the normally busy road into an even busier construction site.

By 10pm when darkness would normally cover the coastal highway, the site is bathed in light from numerous portable lighting towers, with trucks backing up and dropping off structural fill. A team of graders smooth the material out, slowly raising the level of the road.

Over the next few months the road around Ohau Point will swell another five metres as the road is built up 250 millimetres each night. For project manager Clark Butcher the challenge is ensuring the road is ready for traffic by 7am the next morning when SH1 reopens.

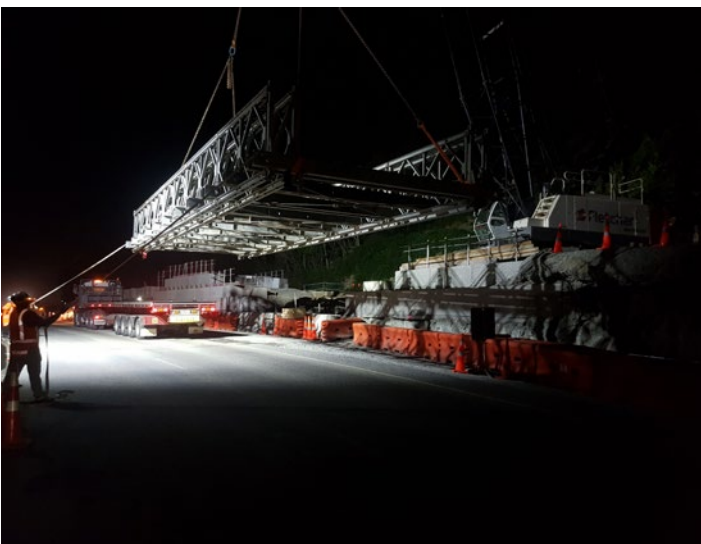
'There is a great deal of skill in time management to have the route ready for traffic. Between 5.30am and 7am our crews are tidying up the night's work, packing up the site and getting machinery off the road in time for it to reopen,' he says.

Each night a crew of 51 work on the 1900 metre stretch from south of the Ohau Point seawall to north of the Ohau Stream section around the Site 7 landslide.

'It's a logistical exercise. You're working at night under the cover of darkness and you need to be on your game to make sure you're not only doing your job but also keeping each other safe,' says Clark.

A seawall between five and ten metres high will stretch around the famous landmark of Ohau Point once complete. The coastal edge of the road will be sectioned off as a shared access path for cyclists and pedestrians with an up close view of the seal colony below.

'It will be a spectacular scenic ride that's for sure,' says Clark. Like many of NCTIR's team members, Clark is also looking forward to sharing the route with his young family. 'When my boys are bigger I'll take them for a drive around the coast or a cycle ride and I'll point out the seawall and say 'I helped to build that'. It will be a very proud moment.'



FACTS TO PONDER ON YOUR JOURNEY



Mangamaunu



Irongate



Half Moon Bay



Ohau Stream



Waipapa Bay



Mangamaunu Slip 1B



Half Moon Bay



Ohau Point



Okiwi Bay

Slips 1 - 9 BETWEEN MANGAMAUNU AND WAIPAPA BAY

There were 10 major slips north of Kaikōura.

Site 1: Mangamaunu

- SH1 and the railway have been moved seaward, away from the cliff face. You are travelling on what was beach!

Site 2: Irongate

- The fastest seven span 144 metre long bridge built in New Zealand's history - built in just 14 weeks!

Small rail fences along the coastal corridor

- Purpose built fences and rockfall retention structures with remote monitoring can be seen along the Main North Line railway. These operate day and night to detect any material dislodged from slope faces that could fall onto tracks.

Site 3,4,5 Half Moon Bay:

- Six rail and road debris bridges have been constructed (the last one to be finished this month). These allow debris flows to run underneath the road/rail without disrupting traffic or trains.
- The earthquake also lifted new rocks in the bay. These 'new' rocks are whiter, and sometimes covered in algae.

Site 6: Ohau Point

- This is where the most complex and largest landslide fell.
- At its peak 14 abseilers worked on this site. The abseilers working to stabilise the cliff face have a camp at the top of the slip, some 300m up, which includes a helicopter landing pad.
- This is where the Ohau New Zealand Fur Seal Sanctuary and breeding colony is - seal handlers working with construction crews moved seals more than 11,000 times in 2017.

Site 7: Paparoa south

- 241,000m³ of slip material removed.
- One large rock has been blasted and the other will be blasted this year.
- The seawall being built will be 600 metres long averaging 4-5 metres high.

Site 8: Okiwi Bay

- The earthquake raised the beach by 3 metres and the beach has doubled in size exposing a rocky shoreline.
- This slip is the one that looks the most man-managed of all - with earthworks having created visible 'terraces'.

Site 9: Waipapa Bay

- 11,000m³ of slip material removed.
- A piece of coastline rose about 5.5 metres during the earthquake.
- The Papatea fault line is clearly visible from the road and runs along the shore. It has created a lagoon.



BRIDGE BACK IN ACTION

On Sunday 28 January at 5.00am, trains were stopped for a 40-hour window so a new permanent bridge could be brought into action at Tirohanga, north of Clarence. The works to connect the three span Bridge 129 included installing and aligning 800m of rail track.

In addition, within this 40-hour timeframe more than 1000m³ of fill was used to build up the rail embankments leading to the new bridge.

A temporary bridge had been built at this location, replacing the existing severely damaged bridge so the rail line could be reopened. Structures Delivery Manager David Wyeth says leading up to the pre-approved 40-hour period, crews were working hard to complete all bridge concrete work and ensuring sleepers and track were laid ready to be connected.

On the Friday before the 40-hour timeframe, the 600 metres of rail embankment were completed. By Monday afternoon sleepers were laid, followed by rail, welding, ballast (stones), and then levelling.

Tamping to settle the ballast will be carried out within the next week. 'It's been awesome seeing it come together,' says Mike Smith of Titan Contracting, who is assisting KiwiRail in the project. The 40 hours of project work was a huge success.

Site Engineer Miki Schmidt says, 'We stuck to our programme to ensure no delays. Sunday at 6.00am works started, and by Monday at 8.00pm, the rail switchover had occurred. There is still some fine tuning to be done, but the track is ready for trains to go over the new alignment, and we are very happy with the work the crews were able to accomplish.' The first train used the new embankment alignment and bridge at 9.30pm Monday evening.





TRUCK DRIVERS PLEASED TO HAVE TWO TRAVEL OPTIONS AGAIN

Keeping South Islanders stocked with everyday goods – from groceries to cars – was tough last year. Truck drivers were down to one route between the Picton ferries and Christchurch via the challenging, windy and narrow alpine Lewis Pass.

As truck drivers can only be on the road for a maximum of 13 hours before taking at least a 10 hour break, they could no longer complete a return day trip between Christchurch and Picton.

Having to reorganise business models - including hiring extra drivers - to meet daily demand was tough and costly for many business owners. So it's no surprise the freight industry has been one the most enthusiastic since the re-opening of the shorter coastal SH1 road.

NZ Trucking Association CEO Dave Boyce says while industry praise the \$60m improvement programme - which saw extra passing bays, pull-over areas and widening of the more narrow parts on the alternate route via Lewis Pass - ultimately it is still a longer and more challenging drive than SH1.

He says drivers now have two options again. And while there is still plenty of ongoing work to complete on SH1 with delays and less reliable travel times, 'day to day the crews on the ground are very helpful to drivers, and we particularly want to acknowledge the stop/go operators.'

NCTIR journey manager Tresca Forrester says the volume of freight drivers returning to SH1 has continued to steadily increase since it reopened, removing a lot of that traffic during the day from the alternate route.

While SH1 still closes in two sections each night 8.30pm to 7am and is susceptible to being closed in large weather events, freight will continue to use the alternate route for overnight travel and deliveries at this time.



Dave Boyce, CEO of NZ Trucking Association cutting the ribbon at the launch of the Safety MAN Safety Truck last year as part of an ongoing road safety programme.

THIS TIME LAST YEAR

The Whales Back dip slip on the Inland Road (Route 70) meant in order to remove slip material we had to divert the road. Eventually the road will be moved back to its original route.





MOULD YOUR OWN MOUNTAINS

Head along to the Kaikōura Museum and have a go in the Augmented Reality Sandbox set up by the NCTIR visualisation team. Part of the exhibit 'New Normal - the Kaikōura Earthquake Exhibition' the sandbox lets you experiment with the impacts of changing landscapes.

You can mould your own mountains in the sand and watch the landscape come to life with real-time augmented topographic contour lines and an elevation colour map.

You even have the power to make it rain - holding out your hand with spread fingers creates a virtual raincloud and adds water to the simulation - and the water flow simulation creates rivers and lakes of the runoff.

This 3D visualisation tool is created using a basic box of sand, a 3D camera, powerful simulation and visualisation software, and a data projector.

Pop along to create mountains and make it rain.



Footnote: The exhibit was built by Aurecon using Augmented reality Sandbox technology developed by the UC David Keck Centre for Active Visualisation in the Earth Sciences (KeckCAVES, www.keckcaves.org), supported by the National Science Foundation under Grant No. DRL 1114663. For more information, please visit arsandbox.ucdavis.edu

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