

KAIKOURA EARTHQUAKE UPDATE

KAIKOURA EARTHQUAKE UPDATE - no. 26

21 July 2017

This weekly bulletin provides the latest information about the rebuild of road and rail networks damaged by the Kaikoura 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. We're keen to hear your questions about our work, or any feedback on this bulletin. Drop us a line via email at info@nctir.com or give us a call on **0800 NCTIREQ** (0800 628 4737) – we'd like to hear from you.

MILESTONE: WORK TEAMS SET TO FINISH CONSTRUCTION-ONLY ACCESS TRACK AROUND OHAU POINT

Teams working to the north and south of the significant slip at Ohau Point are expected to meet very soon. This will enable access for the construction crews along the entire stretch of the coastal corridor north of Kaikoura.

'Earthwork teams have been working hard to clear the huge volume of material on the southern side of the point and doing a fantastic job,' says earthworks south project manager Doug Dold.

To the north it has been somewhat more challenging. The upper slope is severely fractured and requires netting and the lower slope requires heavy scaling.

'On the north side helicopter teams and abseilers have been installing a layer of steel mesh over the slip face to make this area safe,' says earthworks north project manager Mike Reilly.

From now until the end of September, teams will be installing a significant number of bolt anchors to lock 4500 m² of two types of mesh drapes into place at the site.

Mike says, 'this is the safest and quickest way to protect the area from rockfall and the next phase of repairs is to reopen Ohau Point to construction traffic only.'

The loose and fractured rock has slowed down the drilling process, with numerous anchors being installed in a triangle shape over which the mesh is draped. The mesh wire is similar to a knight's chainmail, linked together with rings.

Rockfall specialist Mat Avery from Hiway GeoStabilization says his team has only been able to remove boulders as far as 30 metres down off the ridge line on the northern side of Ohau Point. With this mesh in place abseilers will now be able to work under the protective nets to clear rocks closer to the old SH1 road level that have been inaccessible until now.

Abseilers have had a base at the site since January when helicopters dropped the first crew at the top of the ridge, far back past the landslide.

The site is so isolated abseilers have to be helicoptered in although Mat says on a good day it's all worthwhile. 'There's a stunning view at the top of Ohau, it has to be the best worksite in New Zealand,' says Mat. Mat adds this has to be the biggest worksite of its kind using rock mesh in New Zealand.

Meanwhile below the slip, work continues building the seawalls behind which the new road will be built.



WE ARE MAKING PROGRESS AT OHAU POINT

3D image of Ohau Point immediately following the November 2016 earthquake

Location of Ohau Point

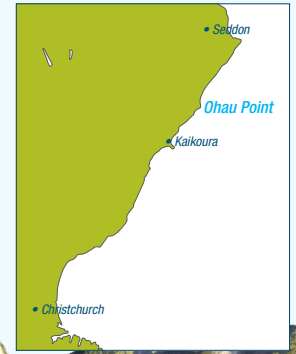


Photo showing the extent of work done to date on the road south of Ohau Point.



The south side of Ohau Point has been slliced, scaled and an access track is being built around the outside of the point for construction traffic.



Photo showing the north side of Ohau Point and the extensive work done to clear the slips. The abseiler's base can be seen at the top of the hill.



Abseilers working to secure rock mesh netting high up on the north face of Ohau Point.



A slip stops a car from going any further at Ohau Point around 1920
 Photo credit: Kaikoura Historical Society

RECONNECTING COMMUNITIES - BY PROJECT DIRECTOR DAVID LOE

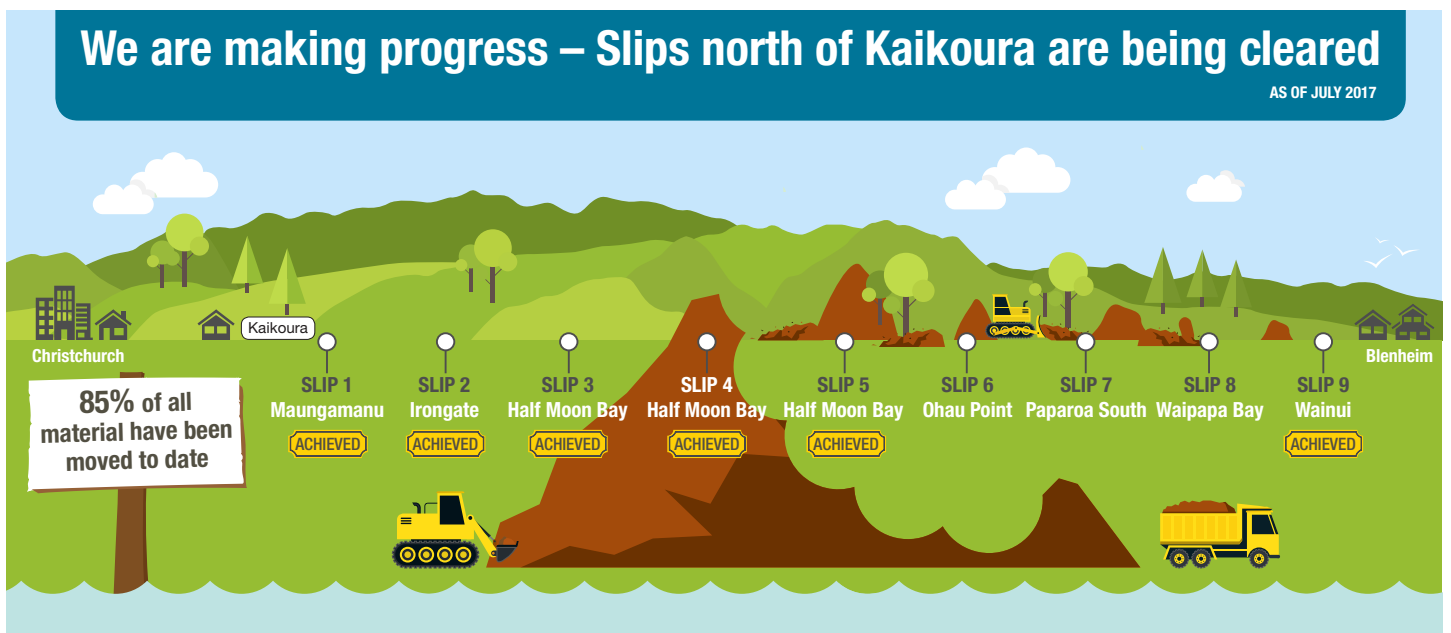
With six of the nine major slips north of Kaikoura now cleared (see information graphic below) and not much left to go on the final three, we're close to reaching a number of milestones in the coming months as we rebuild the rail and road transport networks.

The work done on these slopes, as well as slips south of Kaikoura on State Highway 1 - sluicing, scaling and the installation of protective mesh - has proved highly effective during the first two months of winter. This gives me great confidence that we are making good progress to reconnect communities.

The work our geotechnical and design teams have done using innovative, state-of-the-art technology is impressive and is at a scale never seen before in New Zealand. The challenging conditions in which our teams on the ground have been working these last few months is a credit to their commitment to our goal of reopening the road by Christmas this year. Never mind achieving a date milestone, the most pleasing aspect of the work is doing it without injury. The machine operators, abseilers and geotechnical engineers have performed their work almost faultlessly so far.

This week I have also had the opportunity to talk with some of the KiwiRail locomotive engineers who will be driving work trains on the Main North Line. They have been impressed by the work achieved to date and I was pleased to share information about some of the finer details of the work with them.

We look forward to keeping you up to date on future progress on our work to move mountains and reconnect communities affected by the November 2016 earthquake.



LOOKING AFTER SEALS IS PART OF THE 'BIG JOB' OF REBUILDING SH1 AND RAILWAY ON THE KAIKOURA COAST

November's earthquake created an unprecedented situation when two massive landslides came down at Ohau Point, placing the Ohau New Zealand Fur Seal Sanctuary and breeding colony at the centre of 'the red zone' north of Kaikoura.

As part of the earthquake recovery efforts, NCTIR has been working closely with the Department of Conservation (DOC) to ensure the seals are looked after in these most unusual circumstances.

NCTIR's environmental team includes marine mammal experts, who move seals away from unstable slips and construction work on a daily basis.

For the most part, the seal team's work involves shepherding seals on the ground - not unlike moving sheep. They are also trained and permitted to catch and carry pups and juveniles that hide amongst rocks.

About 3150 seals have been moved over the last six months, including 1780 pups, since NCTIR's seals management programme was started in February. Around 670 pups have been picked up by hand and carried to safer ground (sometimes the same pup!). Electric fences are also used to keep seals away from construction work and rockfall areas.

One of the challenges for the seal management programme is that some areas under the landslides have been too dangerous for humans to work under. In these areas, seals are able to be herded using low-flying helicopters.

The aim has been for seal management to be integrated into relevant construction work plans. Construction crews are also able to phone a 'seal hotline' and request for expert marine mammal assistance.

Overall, Kaikoura's seals are proving to be resourceful and resilient to the resulting effects of the earthquake. Although their habitat has been changed, they seem to be adapting well and have already started to colonise new areas to the north and south of their former breeding site at Ohau Point.

DOC continues to provide advice and monitor impacts on the seal colony as the transport rebuild progresses. Catching sight of seals basking on the rocks and swimming in local bays has long been a signature experience for locals and tourists alike as they travel along SH1 on the Kaikoura coast - all signs and indications are that this won't change.



Seal facts

- Seals should never be approached. Although some are remarkably photogenic, keep at least 20m away. They can be territorial and may bite.
- New Zealand fur seals are native to both New Zealand and Australia.
- Kekeno (fur seals) are a taonga species to Ngai Tahu under the Ngai Tahu Claims Settlement Act.
- They are listed as 'non-threatened' under the New Zealand Threat Status process and as 'least concern' under the International Union for Conservation of Nature.
- The Ohau New Zealand Fur Seal Sanctuary is protected under the Kaikoura (Te Tai o Marokura) Marine Management Act.

We are making progress and respect the environment

AS OF JULY 2017



SH1 SOUTH OF KAIKOURA - ROAD REALIGNMENT FIRST STAGE COMPLETE

The 300-metre temporary road realignment around landslide 29A near Rosy Morn has been completed ahead of schedule although the final sealing will be done when the weather warms up in spring.

This bush-covered slope came down during two storms (Cyclones Cook and Debbie) which passed along the Kaikoura coast in April.

Initial approaches to clear the material and reinstate the road were changed in favour of constructing a new 300m section of road around the base of the slip. Above the road and rail, rock fences have been installed and the exposed slip face will be replanted.

A seawall will eventually be built to protect the new road realignments (currently in design) which will be routed further away from the end of the landslide.



FLOW CHANNEL SAFETY BRIDGES

Three bridges have been designed and installed at the base of an earthquake damaged hill between Half Moon Bay and Ohau Point, north of Kaikoura.

These rail bridges are designed to allow for potential material from high on the slopes above to divert under the structures and 'flow out' underneath.

Great progress has been made in short time frames in some challenging weather conditions.

The massive construction project involves 12 huge piles of 1200mm diameter with steel casing being hammered down to bedrock using vibration pile drivers.

Each concrete deck is supported by two concrete abutments, spanning 12m and weighing 100 tonne.

To allow work trains to pass, temporary backfilling of the abutments and temporary rail formation will be installed.

In the meantime the 4.6 x 12m steel cages for the bridge decks are being built off-site in Kaikoura and will be installed at a later date. The cages weigh 16 tonne and will be transported to site where a precast bed will be set up and bridge decks then installed.

There will also be three road bridges constructed downstream of the rail bridges. Piling work for these has started.



RAIL SAFETY MESSAGE

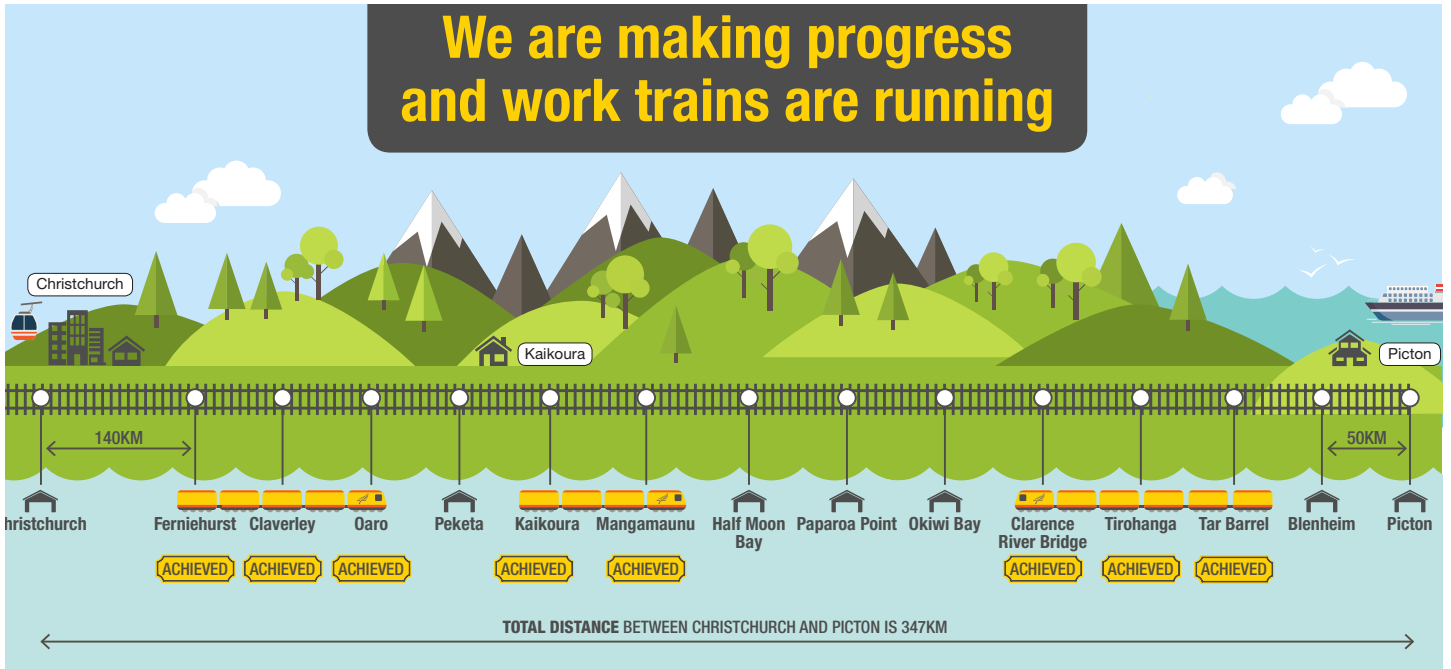
With work trains are now operating on the Main North Line please remember to stay off railway tracks, and cross only at level crossings.

Obey the signs and signals and always look both ways for trains. They are deceptively quiet and they can't stop in a hurry or swerve to avoid anything on the tracks.

- Stay off railway tracks
- Always slow down as you're approaching a level crossing, and be prepared to stop
- Look out for trains, and obey signs and signals
- Only cross the railway at approved railway level crossing points.



We are making progress and work trains are running



COASTGUARD RAMP COMPLETE IN KAIKOURA

The Coastguard ramp at Kaikoura Harbour is now fully operational, a milestone that was celebrated as part of a visit to Kaikoura this week by Minister of Civil Defence Nathan Guy and Minister of Finance Steven Joyce (pictured with Stuart Smith Kaikoura MP and Neil Scascia from NCTIR).

The November 2016 earthquake shunted the seabed at Kaikoura up by two metres, damaging the ramp and making it unusable, except at high tide.

'The Coastguard ramp restoration was paid for under the Government's \$5.7m funding to restore the harbour to full functionality,' Mr Guy says.

The ramp is the home of the Kaikoura Coastguard. In the 12 months to June this year, Coastguard Kaikoura volunteers gave 2851 hours, responded to 11 call-outs and safely brought home 20 people.

Normally, the rescue boat, Kaikoura Rescue would be on the water in seven to 10 minutes after receiving a callout. However, after the earthquake, with the raised seabed and damaged slipway, launching was only possible at three-quarters or full tide.

While the repair works were underway, the Coastguard had to tow the vessel to the main marina and launch there, adding a further seven to 15 minutes to get underway.

'This is a tremendously important milestone. Work on the Coastguard ramp and surrounding channel and approach is complete. I'm very pleased to hand the ramp back to the Coastguard,' Mr Guy says.



BIG BRIDGE IN PROGRESS AT IRONGATE

Once the road reopens, the journey north of Kaikoura won't be the same because new roads and a large bridge are being constructed at Irongate. Stretching 140m from the existing road to a new section built along the foreshore, this bridge will soon be a vital link reconnecting the transport network.

Normally the design to build a bridge like this would be completely finished well before work starts. However, the need to reopen the road by the end of the year means construction crews are chasing the heels of designers who are just a few steps ahead.

Work has already started on the northernmost section of the bridge. Crews have dug down two metres to hard rock where they can build a foundation for the bridge abutments and nine metre high piers.

Work is also underway on the foundation for the southernmost piers which will sit 14m high and connect with the existing road halfway up a rock bluff above tunnel 13. Because the piers at this end of the bridge will be heavier, crews are having to dig four metres deep to install the foundations of the bridge. Each of the six piers being built will have a reinforcing cage incorporated within them and fresh concrete is being poured in on site.

Holocore precast beams will make up the deck of the bridge and 91 beams will be craned into place. Site engineer Patrick Stuart says it's a smart way to build this bridge. 'Using this design methodology the bridge will be built quickly, safely and effectively,' says Patrick. Quality is front of mind for his team.

'The road and bridge we are building are designed to last 100 years. It's going to be a fantastic asset for the community and it is amazing to think it will be constructed in such a short amount of time,' he says.



WORKS DELAY: CONWAY BLUFF ON INLAND ROAD (ROUTE 70)

The work on Conway Bluff on the Inland Road (Route 70) to reduce loose material and remove unstable rocks is being delayed a week. Originally scheduled to start today (Friday 21 July), the work will start next Friday and run over three four-day periods- Friday to Monday.

The work will reduce the road to one lane with stop/go and delays up to 25 minutes. It has been scheduled to coordinate with when State Highway 1 (SH1) south to Kaikoura is open and traffic volumes are lower. Conway Bluff is about 160km from Christchurch on the Inland Road.

Note: all work is subject to weather and other conditions. Any changes to the schedule will be updated in this Bulletin.

Thank you for your patience and support while this essential safety work is completed.

KEEP UP-TO-DATE

How to contact us and keep up to date with our road and rail projects:

- Subscribe to our weekly bulletin by emailing info@nctir.com, with 'Bulletin' in the subject line.
- Visit our website: www.nzta.govt.nz/kaikoura-earthquake-response/
- Call our freephone: **0800 NCTIR EQ** (0800 628 4737).
- Email us if you have a question: info@nctir.com
- Attend a community meetings - keep an eye on your local newspapers for details.
- Follow us on Facebook, see: NZ Transport Agency - South Island www.facebook.com/nztasouthisland/ and KiwiRail www.facebook.com/kiwirailNewZealand/
- For travel information about road conditions, see: www.nzta.govt.nz/traffic/regions/11

ALTERNATE ROUTE NEWS

The closure of State Highway 1 (SH1) and the Main North Rail Line between Picton and Christchurch following the November 2016 Kaikoura earthquake means traffic now needs to use an alternate route via the alpine Lewis Pass. This route is, in parts, winding, narrow and challenging and has seen a four-fold increase in traffic which it wasn't designed for. A \$60m Government investment has been made to make this route safer and more resilient.

ARE YOU WATCHING THE WEATHER?

As the last couple of weeks have shown, winter is determined to make its mark this year. Before starting your journey:

1. Keep watching the forecast – severe weather and heavy snow warnings are published by MetService: www.metservice.com
2. Check the road is open by phoning **0800 4 Highways** (0800 44 44 49) or visit www.nzta.govt.nz/traffic
3. Consider if your travel is necessary, or if it could be delayed.
4. If you do need to go, travel fully prepared with food, water and warm clothing/bedding so if you're delayed at a road closure or you get stuck, you're fully self-sufficient – potentially for many hours.



WE'RE ALL RESPONSIBLE FOR GETTING EACH OTHER HOME SAFE AT NIGHT



One speeding driver through a road work site is all it takes to put crew, other drivers and the local community at risk. That's the message the road crews working day (and sometimes night) in freezing winter conditions want to reinforce.

Fulton Hogan Traffic Supervisor Ben McCarthy and his teams work on the Nelson end of the alternate route, between Picton and Christchurch. He says most drivers are good; slow down and drive carefully through their sites and are happy to swap a smile and wave.

Others appear either frustrated and choose their own speed through work sites, look fatigued and don't drive as carefully. That's what's leading to some close calls, he says.

Crews work close to moving traffic and he acknowledges that drivers have to negotiate restricted and sometimes poor driving surfaces surrounded by heavy moving construction vehicles.

'That's why the speed restrictions are essential, to help keep everyone safe. Motorists exceeding the limit are not only putting everyone at risk, they're also breaking the law.'

Ben says their teams work closely with the dedicated police highway patrols to identify safety risks.

He says that they know driving through so many work sites can be frustrating, and they appreciate the care most drivers take. 'While 10km over the speed limit may not seem much when you're driving, that 10km adds a huge amount to the distance you need to suddenly stop. And more importantly it significantly reduces the chances of our guys getting out the way when a vehicle gets too close. That's something our team shouldn't have to deal with during their work day,' says Ben.

If planning to drive this route, please allow for delays and disruption so you get to your destination on time and play your part in keeping everyone safe on the road.

DON'T GET CAUGHT OUT – BE PREPARED FOR THE 'ANYTHING CAN HAPPEN' DELAY

As last week highlighted, anything can happen to delay travellers. Just as the busy school holidays started, snow swept through the country closing roads, for a few hours to overnight.

And just as the snow and ice were cleared for the alternate Picton to Christchurch route to reopen, it was closed again when a truck caught fire near Lewis Pass. When the fire was extinguished and the road reopened, it still took many hours for the backlog of traffic to reach their destinations.

If you were travelling last week, would you have been prepared for such a delay? Particularly, in an area with no cellphone coverage, shops and services?

The NZ Transport Agency urges drivers, particularly in alpine conditions like on the alternate Picton to Christchurch route, to travel prepared. An emergency kit will make a huge difference to the comfort of everyone in the vehicle if unexpectedly delayed. Make sure you travel with water, food (i.e. snacks like chocolate or cereal bars), and warm clothing/bedding.

To help you prepare for your winter journey visit: www.nzta.govt.nz/traffic-and-travel-information/winter-journeys

For up-to-date information on road conditions visit: www.nzta.govt.nz/traffic or call **0800 4 HIGHWAYS** (0800 44 44 49).



SHORT DELAYS FOR TREE REMOVAL NEAR HANMER TURNOFF

Drivers can expect short five-minute delays on State Highway 7 (SH7), about 5kms west of the Hanmer turnoff, during the next two weeks as work continues to remove fire-damaged trees.

The trees were damaged as the result of a fire last summer. The work started this week and will continue until the end of the month, from 7am to 6pm on weekdays only. Trees along a 5km section of the highway need to be felled and removed.

This is one example of the type of vegetation maintenance which helps keep the route safe and serviceable. Other such work focuses on where the more narrow parts along the alternate Picton to Christchurch route, such as national parks, have dense vegetation.

If tree branches grow out too far above and beside the roadside, large vehicles start having to move towards the centre line to avoid them. That's a risk for passing vehicles which is why it needs to be regularly checked.

Vegetation maintenance often means short delays and speed restrictions. Drivers are thanked for their patience while this essential work is completed.



'TRAFFIC CALMING' BOLLARDS KEEPING DRIVERS AND BRIDGES SAFE

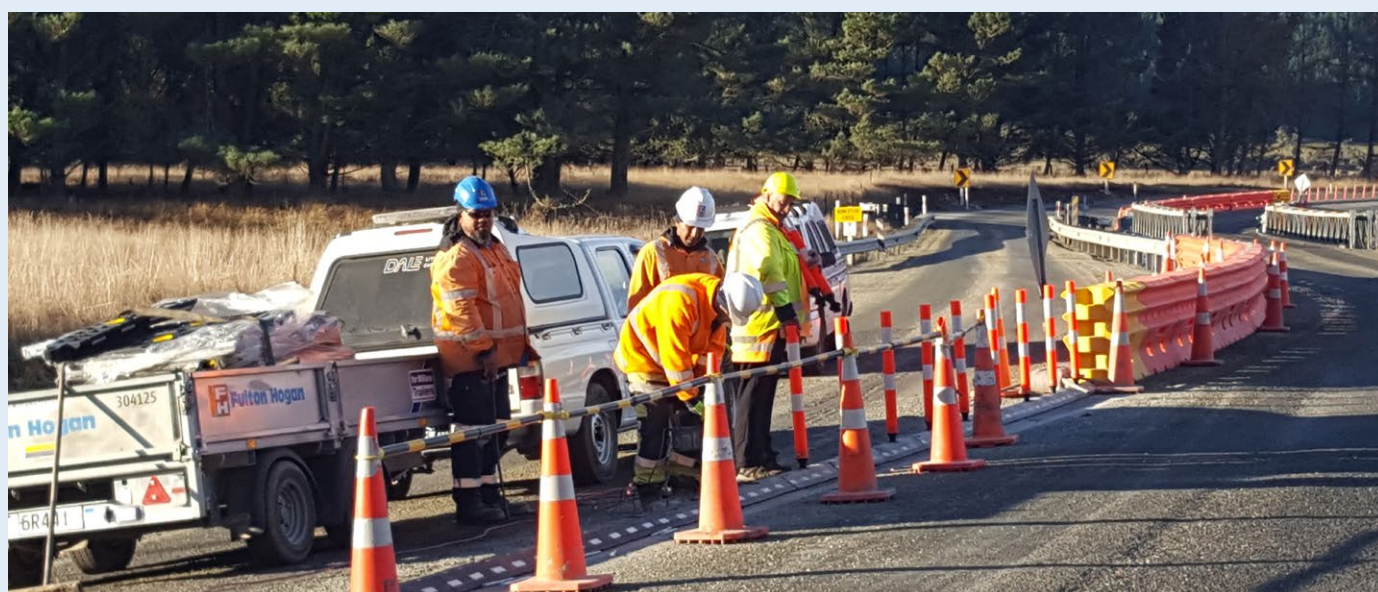
Post-earthquake, the volume of traffic along the alternate Picton to Christchurch route has increased four-fold in some areas.

This route was never designed for this volume of traffic. Some of the early work under the \$60m improvement funding package saw bailey bridges installed alongside single-lane bridges to provide two-way traffic and minimise delays. This also helped improve overall safety along the route.

Bright orange flexible bollards with reflective strips are currently being installed at the approaches of three of these bridges on State Highway 63 (SH63) – Homestead Creek (seen here with work underway by the Fulton Hogan Nelson Pavement Marking Crew), Speargrass Creek and Upper Buller River.

These will help guide traffic to safely negotiate the bridges and reinforce the temporary 30km/h speed restriction which protects the life of the bridge.

Stop/Go traffic management will be in place at each bridge for one to two days while the bollards are installed. Drivers are thanked for their patience while this additional safety work is being completed.



GET REAL-TIME TRAVEL INFORMATION FOR OUR ROUTE

On the NZ Transport Agency's website: www.nzta.govt.nz/traffic

By phoning **0800 4 HIGHWAYS** (0800 44 44 49)

On the Transport Agency's social media: www.nzta.govt.nz/contact-us/connect-with-us/