



# The Bulletin Kaikoura earthquake update

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## REPAIRING BRIDGES TO RECONNECT COMMUNITIES

An invisible army of workers are repairing a series of earthquake-damaged bridges, and you probably have no idea it is even happening.

While a lot of construction work is highly visible, involving large machines, friendly traffic controllers, and an endless line of orange cones, the unsung heroes repairing the region's damaged bridges are often hidden from view.

Several bridges were damaged during last year's earthquake and a few of these are high on the priority list to finish before SH1 reopens at the end of the year. Top of the list is the Kowhai River Bridge, located near the Kaikoura turn off to Inland Road (Route 70).

This bridge was significantly damaged during the earthquake and more than 20 people are working each day to repair and upgrade sections of the bridge. Armed with powerful water blasters, one team carries out hydro demolition of broken and fractured concrete pieces to expose the workings of the bridge.

The settlement slabs at the top of the bridge are being replaced along with the expansion joints. These have the ability to expand and move and are a crucial part of the bridge.

Diaphragm sections are being cut out using a wire saw to expose the shear keys. These stop the bridge from moving sideways and are also being replaced. These were badly damaged during the earthquake because of the sideways thrust.

While the invisible army continues working below, half the bridge is closed so the general public can continue drive across it. A tent has been set up at the top of the bridge over the exposed expansion joint to protect passing vehicles from the hydro demolition occurring within the tent.

Further along SH1, it has been almost impossible to miss the layer of scaffolding decorating the Hapuku Bridge, just north of Kaikoura. 'It was one of the more difficult parts of the repair job actually, the scaffolding is suspended directly from the edge of the bridge so the crew can work underneath and it took time to install,' says Roger Tuffery.



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.



The bridge was badly damaged in the earthquake as the force of the earthquake shifted it off its bearings. 'Essentially the bridge deck has moved sideways by a few centimetres in different places. Crews have been working directly underneath the bridge out of sight. They've jacked up four of the 10 piers (bridge piles) and are carrying out repairs. Six piers remain to be repaired,' says Superintendent Roger.

While work on this bridge is due to wrap up next month, another crew is carrying out work on the Oaro River Bridge just south of the rail overbridge. Expansion joints are being replaced along with the damaged bridge piers.

'It's a busy time for our crew that's for sure,' says Roger.



## DEBRIS FLOW BRIDGES TO PLAY A CRITICAL SUPPORTING ROLE ONCE ROAD OPENS

Three rail and three road debris flow bridges are being built north of Kaikoura to prevent travel delays from severe weather once the road is open. Any material that comes down can go safely under the bridges and straight out to sea, says Foreman Cori Iaseto.

The bridges are quite different. For rail, the abutments are built, allowing the rail to be built over top of these, the deck precast, the rail moved, the main bridge deck prefabricated, and laid within eight hours.

Each bridge deck weighs 100 tonnes. It requires earthworks to be completed, KiwiRail to move the rail, cranes to be brought in for the lift, and a structures team to install the bridges. 'It really is a team effort, and the best part is that everything is fitting together wonderfully,' says Cori.

For the road debris flow bridges, the bridge beams that form the deck are made in Christchurch, Hastings, and Tauranga, and then transported to Kaikoura via the Inland Road (Route 70), which has been a challenge in itself. 'The abutments for two of the three road bridges have been completed and we're now backfilling and preparing for the installation of the beams,' says Cori.

'This is our only opportunity to build these debris flow bridges before the road reopens, and we've had to maintain keeping the road open at all times for scheduled work. Our schedule has been about one bridge every six weeks. That's a pretty phenomenal pace for this scale and with construction work happening around us at all times.'

'The recent weather made things very tough, but everyone worked together to get us back on track. What could have taken two weeks was achieved in four hours using bulldozers and a lot of large earthwork machinery. We were able to remove the recently laid rail, and fully relay the rail. Now the race is on to get onto the third road debris flow bridge and have that completed for our Christmas opening. We'll be working 24-hour days if necessary to get this job done on time,' says Cori.





## WORK PROGRESSING DESPITE WET WEATHER

Recent wet weather has impacted on progress at a number of critical sites north and south of Kaikoura where work needs to be completed before State Highway 1 reopens. 'This may have an impact on the level of service when the road opens but we have contingency plans in place to minimise this impact where possible,' says Planning Manager Dominic Bradburn.

New slips south of Kaikoura, along with increased scope at existing sites in the north and south, mean the crews are working harder than ever to stay on target. Many of these slips are responsible for disruption to the recently reopened Main North Line (MNL).

Even after being heavily delayed and disrupted by rainfall and increased scope of work due to ground movement, work is progressing, with a forecast of road opening by Christmas.





## MARINA MILESTONES

Good progress has been made at the Kaikoura Marina. The NCTIR teams continue to meet major marina construction milestones and the project remains on schedule to be handed back to the community in November.

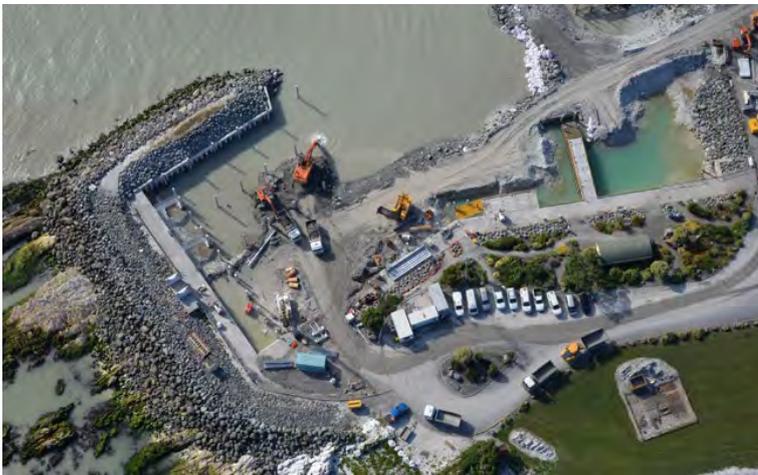
Last Friday, NCTIR was able to welcome home Whale Watch. Two of their four berths are now complete and their first trial berthing was a great success. Both completed berths will be in use shortly.

Stu Haynes, Project Manager of the Kaikoura Marina rebuild says 'we just had a successful trial completing berth four for Whale Watch, and we are pretty pleased to see them come in, and for them to get their business up and running again from Monday.'

Another milestone, is the completion of both the Tender Jetty and the Encounter Kaikoura's Jetty.

Pilings within the marina bed are nearly complete, while diggers are working longer hours to remove material within the marina basin. The diggers use a combination of GPS and sea floor mapping displayed in real-time on a screen to accurately dig out the river stone of the harbour floor.

Over the next few weeks, the restoration and extension works at the boat ramp will be underway and the public will not be able to launch boats into the water from here.



## POST-WINTER REHAB - PLAN FOR DELAYS

Post-winter road rehabilitation work and the next phase of the \$60 million improvement programme is ramping up on the alternate Picton to Christchurch route. While longer term the rehabilitation and improvement work is good news for drivers, short term it does mean another busy season of multiple work sites along the route.

Harsh wet, icy and snowy winter conditions and the four-fold increase in traffic since the closure of SH1 through Kaikoura have all taken their toll. This route was never designed for that volume of traffic, and crews have worked hard all winter keeping it safe, serviceable and open as much as possible. 'Pothole patrols' have been particularly busy.

The warmer drier weather is now enabling construction to get under way in earnest - and there's plenty to do before the end of the summer season.

Expect to see everything from repainting essential road markings, replacing reflective cats eyes (scraped off by ice and snow graders), new safety guard rails and completing the surfacing of widened sections of road, including a number of new slow vehicle and stopping bays. Overall, about 17 kilometres of road rehabilitation (pictured) will be completed at various sites.

The crews thank everyone for their patience and support while this essential work is completed. Please drive to the conditions and observe all temporary speed limits which are there to keep drivers and road crews safe.



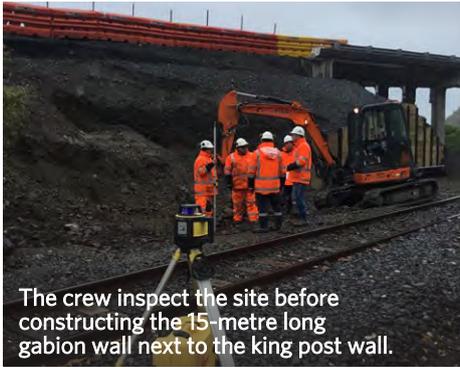
# OARO BRIDGE - MAKING PROGRESS



Backfilling behind the king post wall near the northern abutment underway.



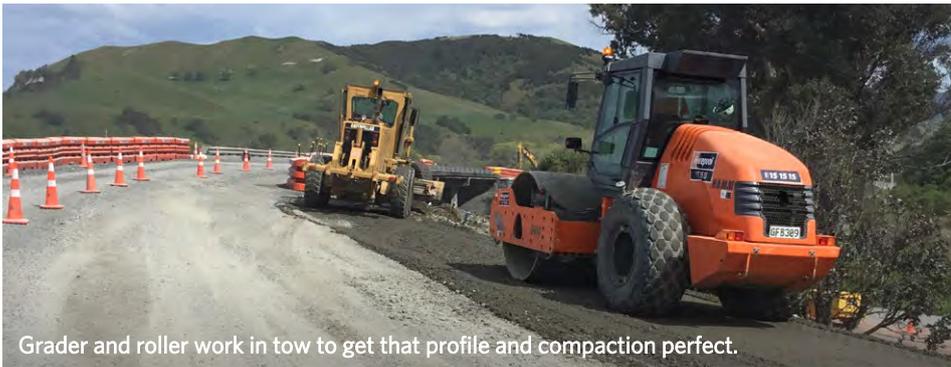
Grader working on the first layers of the subbase material on the northern approach.



The crew inspect the site before constructing the 15-metre long gabion wall next to the king post wall.



Hard at work, even in the rain, to meet our December deadline.



Grader and roller work in tow to get that profile and compaction perfect.



Gabion wall nearly complete. Crews hard at work, each stone is placed by hand to ensure maximum bond and strength of the basket.



Road reconstruction underway.



Backfilling is underway behind the completed section of gabion wall.



Rolling and compaction of the road underway.



Both the king post and gabion walls adjacent to Waitane Road are nearly completed.



Embankment batters nicely done.



## RAMPING UP IN THE HUNDALEE

With the reopening of State Highway 1 only two months away, work in the Hundalee is getting busier as crews push to finish critical sites before Christmas. By the end of the month, 120 people will be working around the clock, night and day, carrying out repairs along this vital section of the corridor.

Thirteen worksites are currently operating and causing short delays for people heading to and from Kaikoura.

Project Manager Richard Falloon says because of the large amount of worksites close together there will be delays of up to 10 minutes at several of the worksites, so please plan for an additional 30 minutes through the Hundalee.



'Now that it's getting warmer, our programme is ramping up, and traffic is down to one lane in places. We are grateful for everyone being so patient as wait times are increasing,' says Richard.

The largest worksite, a 60 metre long king post retaining wall, is nearly completed. With 34 piles now installed, crews are carrying out the finishing touches and will shortly be installing capping beams on top of the retaining wall. The 60 metre section will then be backfilled and new crews will move in to rebuild the earthquake-damaged road.

'We will leave behind a stronger, more resilient structure; it is going to be a much better road once we are finished,' says Richard.

Last week's rain added additional challenges to the project as crews moved off the job to clean up slip material and make the route safe.

'We lost two days' work. It's frustrating for the team but we will push on,' says Richard. Despite the recent weather challenges, work is already back on track. 'The deadline hasn't changed, but we will continue to increase our resources, including people and machinery to make up for the lost time.'

Another king post retaining wall is underway and work begins next week on three others. 'These are between 15 to 30 metres long. We are also about to start work on another 1000 metres of gabion basket retaining walls,' says Richard. This additional work comes as the crew finishes off a series of new gabion basket walls stretching one kilometre.

**We are making progress in the Hundalee south of Kaikoura.**  
The work is taking place between Cheviot and Oaro.

AS OF SEPTEMBER 2017



**3km**  
of road  
reconstruction over  
**5 sites**

**7** bridge  
sites  
need minor  
or moderate  
repairs

**5.7km**  
of guard rails across  
**14 sites**

Almost half of all  
**57**  
culvert repairs/  
replacements  
completed

Retaining structure work includes  
**15** gabion wall sites  
**7** king post sites  
**13** anchor sites and  
**5** soil nail sites



## TAR BARREL RETAINING WALL AND ROAD REPAIRS UNDERWAY

Located five kilometres south of Ward, the Tar Barrel worksite covers a stretch of about one kilometre with stop/go traffic management set up during the day and traffic lights at night.

The work at Tar Barrel involves building 400 metres of gabion baskets to increase the strength of the road. The project also involves replacing three storm water pipes, installing 450 metres of guardrail for edge protection on steep slopes and the removal of trees for sight distances.

Site Engineer Rana Hassnain said there is a tight deadline on this project. 'We started early October with a target completion date of mid-November. We are making solid progress but safety is our number one priority. To date we have completed 100 metres of gabion baskets and preparation for another 100 metres is expected to be completed by the end of the week.'



## HELP OTHERS PASS SAFELY

Forty new slow vehicle and stopping bays on the alternate Picton to Christchurch route provide slower traffic, such as heavy trucks, campervans and towing vehicles, with safe places to pull over and let other traffic past.

The recently installed 'traffic courtesy signs' (pictured) are helping drivers to understand where the bays are and how to use them. This work forms part of a \$60 million improvement programme announced in March.

As these signs are not common across New Zealand, the NZ Transport Agency is monitoring driver response to them. The police, who have a strong daily presence on this route, have provided positive initial feedback. Sergeant John Hamilton from Canterbury Road Policing says his team understands what leads to driver frustration, poor decisions and sometimes crashes. He describes the 'traffic behind you? Let it pass' signs as 'brilliant'. 'These help with both enforcement and driver education while reminding drivers of their obligations to others on the road,' he says.

If you are planning a trip on a busy route, stay aware of the traffic around you, drive courteously and use these bays to let vehicles pass to play your part in keeping everyone safe.



# LABOUR WEEKEND - CHECK THE HOTSPOTS MAP TO HELP PLAN YOUR JOURNEY

Travelling this long weekend? Find out where and when the traffic is heaviest through the NZ Transport Agency 'Hotspots Map' [www.nzta.govt.nz/traffic-and-travel-information/holiday-hotspots/labour-weekend-holiday-hotspots](http://www.nzta.govt.nz/traffic-and-travel-information/holiday-hotspots/labour-weekend-holiday-hotspots).

This is a valuable tool to help plan your travel to reach your destination refreshed and relaxed. 'Increased traffic, tiredness and driving in unfamiliar environments can make driving over the long weekends stressful,' says the Transport Agency's Journey Manager Tresca Forrester. 'Remember you're sharing the road with many others, you have a responsibility to be courteous and patient to ensure you look after yourself, your family and other road users - and everyone gets to their destination safely.'

## Labour weekend 2017 congestion hot spots South Island

### 1 SH6 - between Nelson and Blenheim

DIRECTION	DATES	TIME
East	Friday, 20 October 2017	3:30pm - 5:30pm
West	Monday, 23 October 2017	2pm - 4:30pm

### 2 SH7 - Lewis Pass

DIRECTION	DATES	TIME
East	Monday, 23 October 2017	11am - 6pm <b>Heaviest 12:30pm - 5pm</b>
West	Friday, 20 October 2017	11:30am - 8pm
West	Saturday, 21 October 2017	10am - 1pm
West	Monday, 23 October 2017	11am - 2:30pm

### 3 SH73 - Arthur's Pass

DIRECTION	DATES	TIME
East	Monday, 23 October 2017	11am - 6:30pm <b>Heaviest 12:30pm - 3pm</b>
West	Friday, 20 October 2017	4:30pm - 7pm
West	Saturday, 21 October 2017	9am - 1pm

### 4 SH1 - Waipara (North of Christchurch)

DIRECTION	DATES	TIME
North	Friday, 20 October 2017	2:30pm - 7pm
North	Saturday, 21 October 2017	10am - 12 noon
South	Monday, 23 October 2017	11am - 7pm <b>Heaviest 1pm - 6pm</b>

### 5 SH1 - between Ashburton and Christchurch

DIRECTION	DATES	TIME
North	Monday, 23 October 2017	12:30pm - 7:30pm <b>Heaviest 2pm - 6:30pm</b>
South	Friday, 20 October 2017	12:30pm - 7pm <b>Heaviest 3:30 pm - 6pm</b>
South	Saturday, 21 October 2017	8am - 11am

### 6 SH6 - Queenstown

DIRECTION	DATES	TIME
East	Monday, 23 October 2017	9:30am - 11:30pm



The times shown are the busiest times based on previous years travel patterns. These are predictions and subject to change based on weather or other factors. For real time information on the day either subscribe to **On-TheMove** or visit the Traffic and Travel information page at [www.nzta.govt.nz](http://www.nzta.govt.nz)

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- Visit our website: [www.nzta.govt.nz/kaikoura-earthquake-response/](http://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](mailto:info@nctir.com)
- Attend a community meeting - keep an eye on local newspapers for details
- Follow us on Facebook, see: NZ Transport Agency - South Island [www.facebook.com/nztasouthisland/](https://www.facebook.com/nztasouthisland/) and KiwiRail [www.facebook.com/kiwirailNewZealand/](https://www.facebook.com/kiwirailNewZealand/)
- For travel information about road conditions, see: [www.nzta.govt.nz/traffic/regions/11](http://www.nzta.govt.nz/traffic/regions/11)

## GET REAL-TIME TRAVEL INFORMATION FOR OUR ROUTE

On the NZ Transport Agency's website: [www.nzta.govt.nz/traffic](http://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/](http://www.nzta.govt.nz/contact-us/connect-with-us/)