AUCKLAND TRACK REPAIR PROJECT
SEPTEMBER 2020

WHAT IS HAPPENING – WHY ARE THE TRACKS BEING CLOSED?

Rail track becomes worn over time as a result of usage, in the same way that road surfaces deteriorate. Recent testing across the Auckland metro network has indicated wear on the tracks is more widespread, with repair work required more urgently, than previously understood. To fix this we are accelerating our programme of work to replace rail and sleepers.

This work can only be done when the tracks are closed to trains. Usually the track is closed at nights and over weekends when fewer people are using the trains. However, the scale of work required means extended track closures are needed so we can get the work done as quickly as possible and minimise overall disruption for rail passengers.

HOW MUCH NEEDS TO BE DONE, AND HOW LONG WILL IT TAKE?

Testing has shown more than 100 km of rail needs to be replaced at multiple locations across the Auckland Metro network. We are planning to get all the work done in the next five months.

WHEN WILL YOU DO THE WORK?

KiwiRail and Auckland Transport have agreed to a rolling programme of four-week track closures across the network. This will enable the work to be completed and normal operations resumed in the shortest time frame, thus minimising overall disruption for commuters and those living and working alongside the rail corridor.

WHY ARE YOU CLOSING THE TRACK FOR SEVERAL WEEKS AT A TIME?

An extended track closure allows for more productive and efficient processes in the sequencing of tasks and deployment of equipment and personnel. Work done in a two-week track closure would take more than 100 days if done piecemeal at night and over weekends. A four-week track closure allows for 20% more productive time than two two-week closures. This is due to the time needed to bring people and equipment onto site to set up each time the track is closed, and the need to return the track to a fit state for train operations every time the track is re-opened.

WHY ARE YOU SLOWING THE TRAINS?

In the same way that speed restrictions are put in place for road works, trains have been slowed to 40 kph across the network so we can continue to operate trains safely while the repairs are carried out, and to minimise further damage to the tracks

WHY IS THE SPEED RESTRICTION ACROSS THE ENTIRE NETWORK WHEN THE DAMAGE IS ONLY AT SPECIFIC LOCATIONS?

Speed restrictions had been in place at multiple locations spread across the network in areas where repairs need to be carried out. These speed restrictions changed frequently as new areas were identified and repairs carried out. This changing landscape of speed restrictions makes it challenging for a rail operator to run services that continue to meet their timetables. The blanket speed restriction allows for a new timetable to be developed that can remain in place regardless of where and when new areas requiring maintenance and repair are located.

WHEN WILL THE TRAIN SPEEDS BE INCREASED?

Speed restrictions can be lifted on sections of the network as soon as KiwiRail has completed all necessary work and the necessary track inspections have been completed. For some sections a single four-week block of line will enable this to happen, however there are other sections where more time is needed. That additional work would be done at nights and weekends or during additional closures later in the year. As work is completed and speed restrictions lifted, Auckland Transport and its rail operator will determine the timetable changes they make for each section – this would be dependent on the length and location of each section that KiwiRail removes the speed restriction from.

HOW IS THE WORK DONE?

The replacement of rail tracks is done in two stages, involving several steps. After the old, damaged rail is removed, new rail is cut to size and lifted onto the sleepers where it is connected by welding each piece together. Once installed, it needs to be stretched and rewelded to ensure it is the right length to cope with hot and cold temperatures - a process called de-stressing.

KiwiRail

WHAT HAS CAUSED THE WORN TRACKS?

Rail track becomes worn over time as a result of usage, in the same way that road surfaces deteriorate. One particular type of damage, Rolling Contact Fatigue (RCF), has become increasingly prevalent on the Auckland metro rail network. It occurs when the stress created by contact between rail and the rolling wheel of a train causes the rail to develop cracks, and those cracks to grow.

HOW DO YOU IDENTIFY AND FIX IT?

We use a range of techniques to identify the issue, including regular visual inspections and non-destructive testing methods to locate damaged rail. Resurfacing the surface of the rail with a specialist grinding machine removes the shallower cracks. However, once cracks become deeper the rail needs to be replaced.

WHEN DID YOU FIRST BECOME AWARE OF THE ISSUE IN AUCKLAND AND WHAT HAS BEEN DONE TO RESOLVE THIS?

We began seeing a more widespread issue in Auckland around three years ago. In early 2018, we established a technical working group with Auckland Transport to investigate the root causes and identify infrastructure and/or rolling stock solutions. In 2019, we received additional funding from the Government that enabled us to take a more intensive approach to resolving this. Immediate actions included enhanced track inspections and accelerated replacement of rail around the network, additional rail grinding and the introduction of new testing technology to detect the extent of the issue.

WHY HAS IT SUDDENLY BECOME URGENT?

New testing introduced over the last six months - Eddy Current Testing and Phased Array Testing - has provided KiwiRail a much greater understanding of the extent of the fatigue problems on the Auckland network. Eddy Current Testing finds the locations of RCF and Phased Array Testing, an ultra-sonic test, is used to confirm the depth and severity of the cracks. This has shown us that issues are more widespread than initially understood.

IS THIS PRESENT ELSEWHERE ON THE NATIONAL RAIL NETWORK?

Our tests across the national network have found only isolated instances of RCF on other high use areas – such as the Wellington metro network and on the East Coast Main Trunk between Hamilton and Tauranga.

HOW ARE YOU GOING TO STOP THIS FROM HAPPENING IN THE FUTURE?

A working group has been established to investigate why RCF is more prevalent in Auckland than elsewhere on the network. This includes representatives from KiwiRail, Auckland Transport, and international consultants with expertise in this issue, and will consider all possible contributing factors.

HAVE YOU BEEN GRINDING THE RAIL TO PREVENT THESE CRACKS GETTING TO THE POINT THAT THE RAIL NEEDS REPLACING?

We have carried out rail grinding on the Auckland rail network in 2015, 2017, 2018 and 2019.

Earlier this year we procured a further rail grinding programme with specialist suppliers. This arrived in New Zealand

WHAT IS THE AUCKLAND METRO RAIL PROGRAMME?

KiwiRail's $1 billion Auckland Metro Programme is a suite of projects that will;

- ease congestion in the busiest parts of the network by building new track and a third main line,
- extend electrification to Pukekohe, build new stations around Drury, and
- deliver city-wide renewals that will cut delays and make sure Auckland is ready for the City Rail Link.

Replacing worn rail is part of this wider programme.

WHO IS RESPONSIBLE FOR WHAT IN DELIVERING COMMUTER RAIL SERVICES IN AUCKLAND?

- Auckland Transport – specifies and procures the commuter service; owns and maintains the trains and the stations.
- KiwiRail – owns and manages the network; maintains the network to agreed levels of service to enable delivery of the commuter service specified by Auckland Transport.
- Transdev – delivers the service on behalf of AT – eg. train drivers, on board staff, customer communication.
- CAF – supplies and maintains the rolling stock on behalf of Auckland Transport.

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