

# 2 Recommended resilience improvements Devil's Elbow Information sheet

July 2024

## Devil's Elbow on State Highway 2 (SH2) suffered massive damage caused by Cyclone Gabrielle, resulting in road closures.

Much of this 6 km section of road is still reduced to one lane, while TREC carries out necessary works to address cyclone damage and to reduce ongoing risks to open up this road back to two lanes. Along with carrying out recovery work, we've looked at what could be done to make this route safer and more resilient, to reduce the risk of future disruptions to people's daily lives and the regional economy.

Undersized stormwater infrastructure is unable to carry the large volumes of water and debris from the surrounding 660 hectare catchment. This undermines the road and erodes the surrounding hillsides. The existing road is also narrow. When there are slips or rockfall this results in full road closures for maintenance crews to clear the road. There are also safety issues on this winding route and at the sharp bend.

We presented some ideas in March and April 2024 and we wanted to hear from stakeholders and the public on these concepts. We have used your feedback and continued our technical work to refine these possible options.

### Alternative routes and new alignments

We know many people provided feedback on alternative routes, wanting us to further investigate several offline (new alignment) options, like the existing rail corridor.

We have had a closer look at these. Whilst all the alternative routes and new alignment options provide benefits, they also have high costs, costs exceeding the additional economic benefits forecast.

The alternative routes and new alignments will take a long time to construct and will cross unstable and steep land. They have property and potential environmental impacts. These options are therefore not recommended.



Hillside erosion



Slip damage



Slip damage

Rebuild and resilience projects are subject to NZTA Board endorsement and funding.



## The preferred rebuild option represents significant improvements at Devil's Elbow

Our recommended rebuild option is to widen the road through the Devil's Elbow area by cutting into the hillside or constructing retaining walls, making the road straighter and wider. A wider carriageway will be provided at critical locations.

This option provides a step change in resilience to the network and will make it easier and quicker to clear the road of fallen debris and repair the road after a heavy weather event. Widening the road in sections allows crews to remove slip material without closing the highway, a 3m extra width provides working room for machinery. These changes would reduce the risk of this section of road being fully closed, keeping at least one lane open to maintain access between Napier, Wairoa and Gisborne, minimising disruption to people and freight from future extreme weather events.

Creating new larger drainage channels alongside the road to capture and divert stormwater and

sediment, will help to prevent stormwater crossing the road, and reduce erosion and underslips.

Targeted re-alignments at spurs will provide additional maintenance and emergency stopping bays. This option targets the most critical segments of the route and minimises traffic impacts during construction over other on-line rebuild options we investigated.

Our design for this area includes a new curved bridge or arch culvert, easing the sharp bend at Devil's Elbow to improve safety and manage water flows better.

The preferred rebuild option would require an investment of \$330 to \$446 million.

**A new bridge concept**

Easing the sharp bend at Devil's Elbow to improve safety and manage water flows better.

existing highway

new bridge or culvert

**Rebuild and resilience projects are subject to NZTA Board endorsement and funding.**

## Also included in the design development are:



Culvert upgrades throughout the project length



Stabilisation of slopes next to the road with retaining walls and/or applied concrete



Excess stormwater flows captured in drainage channels and conveyed to formal discharge points to reduce erosion of the slope and retaining walls below the road



Vegetation of upper slopes to reduce erosion in more frequent rainfall events



Enhanced maintenance

Rebuild funding (which looks at delivering improved resilience) will be subject to future funding considerations. Potential rebuild projects will need to seek funding approval from NZTA through the National Land Transport Fund (NLTF). NZTA Board endorsement for the business case will be sought in late 2024. Necessary recovery work on the SH2 Devil's Elbow corridor is continuing and any future resilience works will further build on these.

Constructability of the recommended option has been reviewed; it may involve lane closures as well as the use of night closures for periods of time. Detailed design will seek to minimise the disruption for users during implementation. Should the next stages of the project be funded in the future, we will work with partners, stakeholders and the community on design development, approvals and any proposed construction staging.

## The recommended options will have the following benefits:



More resilient, less prone to full road closures



Drainage upgraded to meet current standards



70% of road alignment widened



Impacted slopes designed/upgraded to current standards



Safer by making the road straighter and wider

Rebuild and resilience projects are subject to NZTA Board endorsement and funding.

## Whakapā mai ■ Get in touch

Visit our website  
[nzta.govt.nz/trec](https://nzta.govt.nz/trec)

Email us  
[info@trec.nz](mailto:info@trec.nz)

Call us  
0800 80 TREC (0800 80 8732)

Stay up to date  
Scan the QR code

