

NORTHLAND'S FRAGILE LOCAL ROAD NETWORK COMPOUNDING EFFECTS OF 2022/23 EXTREME WEATHER EVENTS

March 2023

Compiled by

NORTHLAND TRANSPORTATION ALLIANCE



Mā te mahitahi ka waihanga te huarahi e manaaki ana i te tangata puta noa i Te Tai Tokerau
Collectively creating better, safer and more accessible journeys across Northland

on behalf of Whangarei District Council



*The current estimate to repair and improve Northland's local roading network is **\$250M**. This funding is essential to provide Northland with a safer, more resilient local road network.*



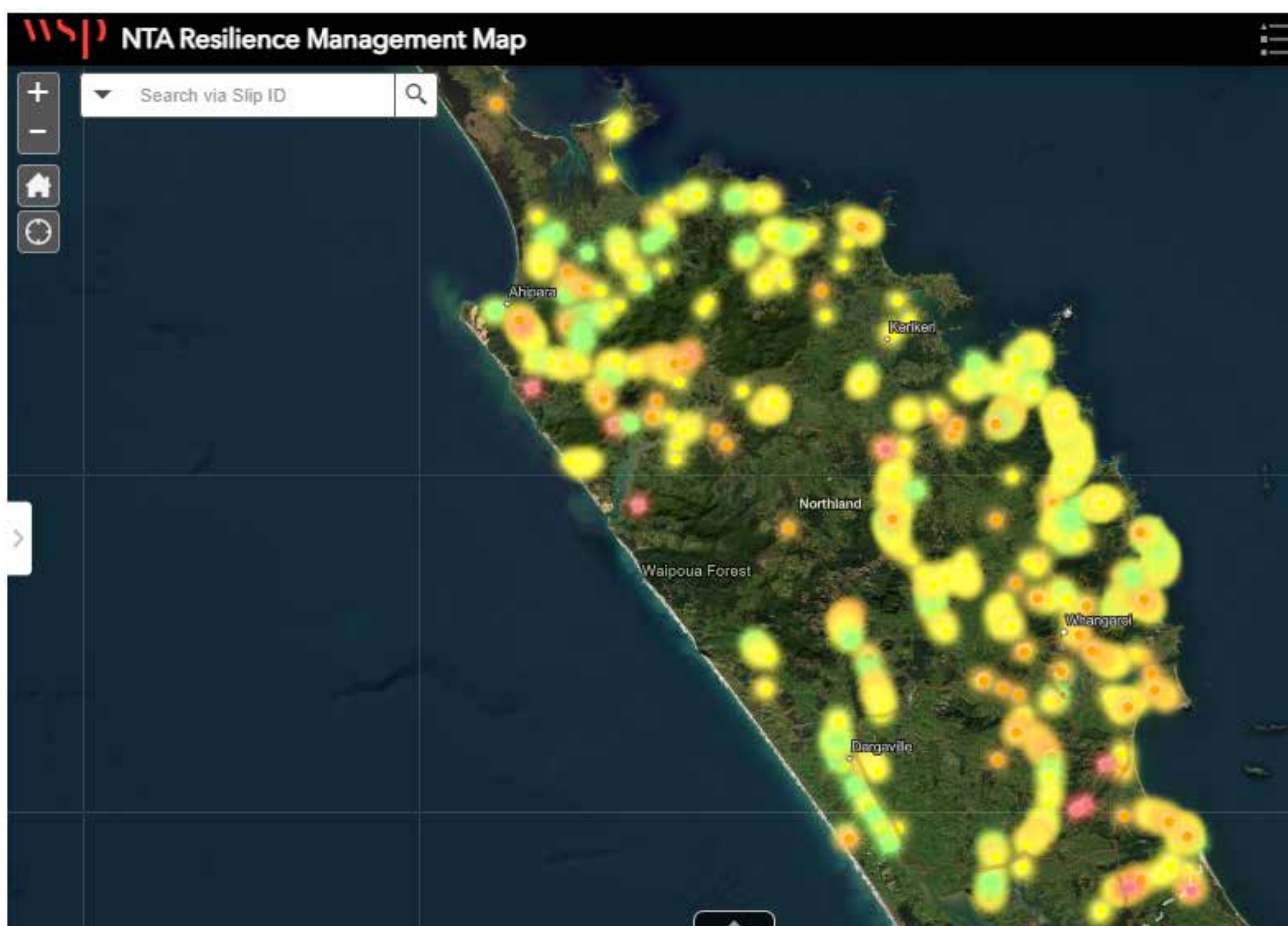
MANAGING AND UNDERSTANDING NORTHLAND'S FRAGILE LOCAL ROADING NETWORK

The Northland Transportation Alliance (NTA) has undertaken an exercise to define the individual road criticality across Northland's local roading network.

Roads are categorised according to several criteria: forestry; schools, marae/churches; quarries; living zone (District Plans); width rating; remoteness; if it is a detour route, and land use (as examples).

Based upon all the criteria, an overall rating was defined and that rating was then validated by staff who knew the network.

The heat map below provides a snapshot of all identified existing slips on category 5 (most critical) and category 4 roads **prior to the Cyclone Gabrielle event**.



PRE-CYCLONE GABRIELLE NORTHLAND LOCAL ROADING CONDITION

- Pre-Cyclone Gabrielle there was an **average of one recorded slip per km** (1126 live slips across 1,110 km) along these category 4 and 5 routes.
- 557 slips requiring a single lane closure.
- Estimated on-going maintenance cost of \$7.25M per annum requiring usage of existing routine maintenance budgets.
- Current approved 2021/24 Northland Land Transport Fund (NLTF) Low Cost Low Risk funding of approximately \$11.4m is estimated to be able to address 32 slip sites (2.8%) over the 2021/24 period.
- To date recommended repair options have been determined for 116 of the total 1,126 recorded slips with an estimated cost for these 116 sites of **\$36.28M**.
- No present funding available to undertake assessment exercise for Category 1,2 or 3 routes (4645km still requiring assessment)



LOCAL ROAD EVENT IMPACTS

2022/2023

In the 8 months since July 2022 the Northland roading network has suffered approximately **\$75M** of damage from the eight discrete significant weather events listed below:

- July 2022 (x 2 extreme rainfall events)
- August 2022
- November 2022
- January 2022 (Cyclone Hale + Auckland Anniversary weekend)
- February 2022 (Cyclone Gabrielle + 24 February Mangawhai rainfall event).

2022/23 EXTREME WEATHER EVENTS PRE-CYCLONE GABRIELLE

The figures below are a summary of previously approved Emergency Funding (current estimate totalling \$23.7M) related to multiple extreme weather events in this current financial year (since July 2022) summarised as:

- FNDC – \$18.4M (includes \$2.7M local share)
- KDC – \$1.8M (includes \$0.68M local share)
- WDC – \$3.5M (includes \$1.6M local share).

CYCLONE GABRIELLE INITIAL RESPONSE

The table below provides a summary of the total number of individual roads identified as having issues responded to, which impacted on network usage (slips, fallen trees, flooding, damaged bridges etc). There are many other roads with issues identified that did not impact on the network usage such as drainage asset issues, trees fallen onto berm areas, footpath obstructions, seawall damages, etc.

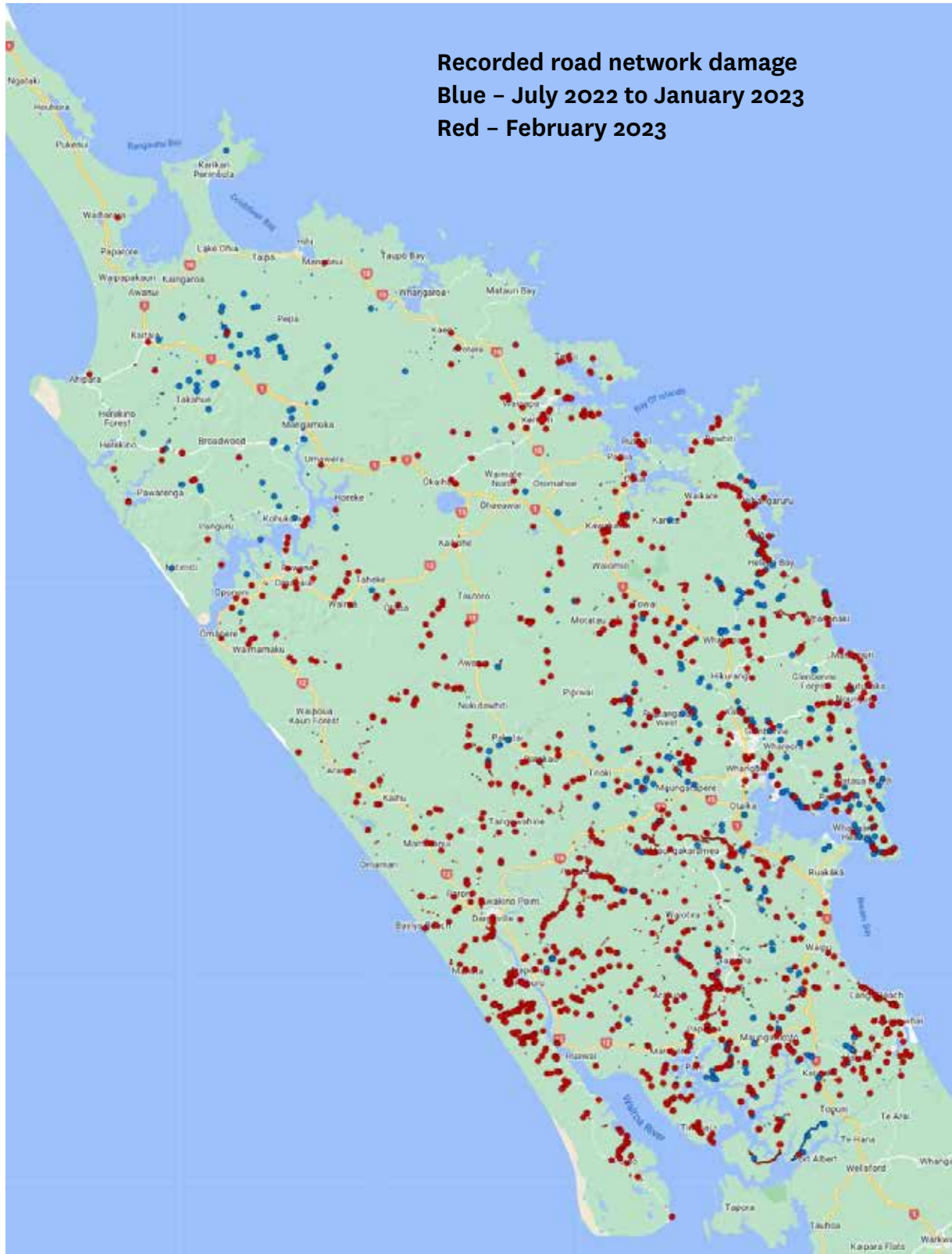
| Council | Individual (#) roads closed | Individual (#) network (roads) impacted (minus closures) | Total (#) roads impacted |
|------------|-----------------------------|--|--------------------------|
| Whangārei | 68 | 99 | 167 |
| Kaipara | 60 | 44 | 104 |
| Far North | 55 | 124 | 179 |
| Regionally | 183 | 267 | 450 |

Multiple incidents on a single road are reported as a single incident

- 645 individually-identified new slips caused by the combined Cyclone Gabrielle / Mangawhai extreme rainfall events made up of:
 - 302 over slips cleared (or in process of being cleared)
 - 343 under slips requiring geotechnical assessment and retention.
- As at 20th March 2023:
 - 8 roads remain closed (5 WDC / 3 KDC) noting all have alternate access
 - 67 local roads remain impacted (43 WDC / 19 KDC / 5 FNDC) down to single lane, 4WD only or passable with caution with many of these having multiple issues reported.
- Current staff estimate for the total response and repair cost for damage incurred to Northland local roads remains estimated at approximately \$50M noting final estimate will not be able to be confirmed until response phase is completed and full site geotech options assessments are undertaken.
- Council cost split of repairs (based on type and extent of damage identified) is presently:
 - Kaipara \$19-\$23M
 - Whangārei \$15-20M
 - Far North \$5-10M.



2022/23 RECORDED WEATHER EVENT LOCAL ROAD NETWORK IMPACTS



NORTHLAND STATE HIGHWAY ONE CLOSURE IMPACTS (BRYNDERWYNS & MANGAMUKA)

The table below provides details of:

- travel distance increase details via the various Mangamuka and Brynderwyns detour routes and
- the estimated cost of upgrading of the Brynderwyns local road detour routes to a resilient, safe and appropriate standard is **\$118.6M**.
- in addition to distance, due to the reduced road quality in comparison to SH1, travel times are also increased.

| | Travel impacts | | | Route resilience upgrade estimates | |
|--------------------------|-------------------------------|-----------------|----------------|------------------------------------|---|
| | Distance (km) | Additional (km) | Additional (%) | Local road distance (km) | Required investment (includes 1-lane bridge replacements) |
| Kaiwaka to Whangārei | | | | | |
| via Brynderwyns / SH1 | 61 | N/A | N/A | N/A | N/A |
| SH12/14 (via Dargaville) | 135 | 74 | 121% | N/A | N/A |
| via Cove Road | 77 | 16 | 26% | 37.4 | \$47.4M |
| via Paparoa-Oakleigh | 81 | 20 | 33% | 40.4 | \$52.6M |
| via Waipu Gorge Road | Currently closed due to slips | | | 12.5 | \$18.8M |
| Pakaraka to Kaitaia | | | | | |
| via Mangamuka / SH1 | 87 | N/A | N/A | | |
| via SH10 | 110 | 23 | 26% | | |
| via Twin Coast Discovery | 115 | 28 | 32% | | |

Key



Road closed
(No vehicle access, may be a Waka Kotahi worksite)



Open with conditions
(Localised traffic management, speed and bridge restrictions)



Local road detours

Mangamuka Gorge

Significant damage caused by torrential rain in August 2022. Timeline for re-opening will be shared in March.

Northland

Brynderwyn heavy vehicle detour via SH12 and SH14

Freight access but not suitable for HPMV unless permitted.

SH1 Brynderwyn

Slips requiring remediation. We estimate up to four weeks before access can be provided to all vehicles. We hope to have controlled access with conditions prior to this time.

Brynderwyn light vehicle detour via Mangawhai

Truck and trailers units are restricted.

All heavy vehicles are encouraged to take SH12 and SH14 excluding HPMV.

Dome Valley

Stop/Go traffic management.

Warkworth

Auckland

SUBSEQUENT IMPACTS

- Local road detour routes were also damaged through combined 2022/23 extreme weather events, and condition continues to deteriorate with significant increase in volume and loadings.
- Significant road user safety risk through local road routes that are not designed for the sustained increase in traffic volumes (particularly heavy vehicle).
- Significant impacts on heavy haulage and freight industry made up of:
 - additional fuel and Road User Charges
 - driver time (labour cost, driver hour constraints and scheduling issues)
 - increased maintenance (higher wear and tear from lower quality roads).
- Freight Industry estimates additional cost impact of \$1M per day.





NTA



Far North
District Council
Te Kaitiaki o Tai Tokerau ki Te Raki



KAIPARA
DISTRICT
Kaipara ki Whangarei - Te Kaitiaki o Te Haurangi



Whangarei
District Council

Northland
REGIONAL COUNCIL



WAKA KOTAHI
NZ TRANSPORT
AGENCY