

Unsealed Roads

Meeting: Council Briefing
Date of meeting: 02 December 2020
Reporting officer: Greg Monteith, Capital and Procurement Manager

Purpose/Ngā whāinga

To provide Elected Members with information around unsealed roads in relation to how they are managed, what work is currently being undertaken and some of the issues encountered when managing an unsealed network.

Context/Horopaki

Kaipara District Council, as the Road Controlling Authority (RCA), currently manages a roading network of 1,574km made up of 455km sealed roads and 1,119km unsealed roads.

The split is predominately urban and arterial routes being sealed and rural lower volume routes being unsealed.



The primary reason we have unsealed roads is that they are cheaper to build and maintain, and in appropriate low traffic volume locations they are adequate for the purpose they are intended.

The approximate cost of converting a gravel road to a sealed road is approximately \$500k per kilometre, with the annual cost of maintenance for a sealed road is over double of an unsealed road.

Discussion/Ngā kōrerorero

Management of Unsealed Roads

Unsealed roads are constructed from specific graded gravels (metals), with a high content of fines (sands / clays), water and compaction. To achieve optimum performance, they require optimum conditions with optimum moisture content to maintain its compaction and strength.



Gravel



Water



Compacted unsealed pavement

With exposure to environmental conditions of sun, rain and wind they have a varied lifecycle and therefore unsealed roads rate of change is highly variable due to this exposure to the elements, traffic loading and speeds.

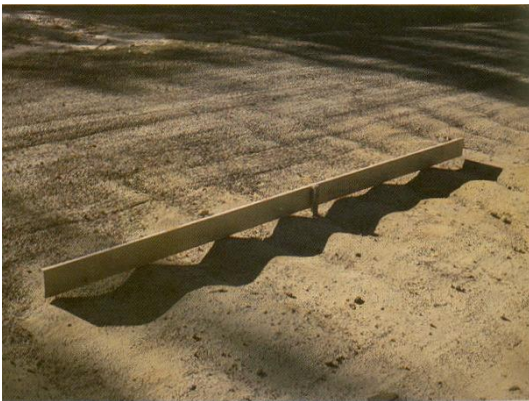
When the roads are too wet we tend to see potholes while when they are too dry we tend to see corrugations, rutting, unravelling and dust



Potholes



Rutting



Corrugations



Surface unravelling

Through the Maintenance Contracts, Contractors complete regular inspections across all network roads, with inspection frequencies determined by the One Network Road Classification (ONRC) of the specific road. For unsealed roads this inspection frequency is generally set at monthly. Contractors assess the defects identified against standard intervention level measures and, where a defect is identified as requiring repair, these repairs are completed with measured response times. The combination of inspections and repairs is determined to maintain the Districts roads to the ONRC desired level of service.

To remedy these faults the maintenance intervention is to grade out these defects and compact the pavement back down noting that to undertake this work effectively requires optimum moisture conditions. Too wet it turns to mud; too dry it will not bind together and unravel. These optimum conditions are generally available during the spring and autumn seasons and therefore the bulk of the unsealed network maintenance programmes (heavy metalling, grading, drainage & water tabling works etc.) are scheduled to occur outside of peak summer and winter.

The maintenance intervention strategy during the winter and summer months is to do minimum work unless the defect is posing a safety risk, noting that we actively encourage our Contractors to trial other methodologies through the summer season (e.g. drag broom techniques etc.) to address surface (as opposed to deep seated pavement) corrugations.

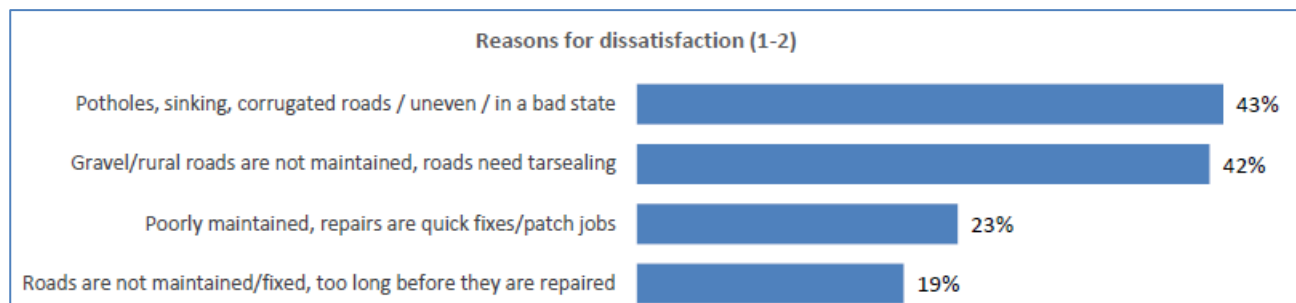
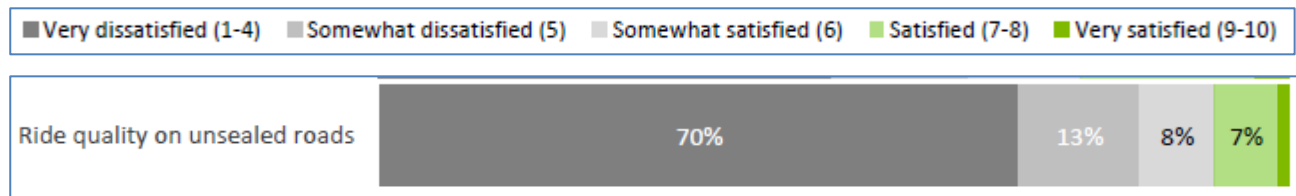
Dust

Due to the nature of unsealed roads dust will be generated. The extent of which is usually determined by vehicles size and speed. Traditionally dust has been dealt with in two main ways:

- Sealing the road. Currently KDC does not undertake seal extensions on its network but does have a seal extension policy to provide a mechanism if local communities would like to progress this option.
- Dust suppressant applications. Currently KDC does not undertake dust suppressant on its network. Work is being undertaken to determine if a policy could be developed similar to the seal extension policy.

What our customers said

From the latest KDC key research results



What we are doing

Work is currently underway as to how we manage our unsealed network to improve the pavement structure, longevity and ride quality.

The process developed is to provide a wearing course to our unsealed roads that will consist of a blended material that will hold together better and produce less defects and potentially less dust.

While the primary driver of this work is around pavement condition improvements it is noted we may also see a reduction in dust being generated. Noting this will not eliminate dust from our unsealed network only potentially reduce it.

Funds have recently been awarded to Kaipara district council from the Provisional Growth Fund (PGF) that will allow this work to progress. But with a network of 1,119km of unsealed roads this will occur over a number of years.

In addition, KDC has embarked on a speed limit review. The first tranche is underway in the Kaiwaka / Mangawhai area where we are seeking public feedback on the proposed speed limits. This review has identified a reduction on unsealed roads from the current open road speed limits. If this change is adopted it will also provide for a reduction in the speed of vehicles travelling on unsealed roads and in turn reduce the defects the amount of dust being generated.

Next steps/E whaiake nei

Things to note / take away

Unsealed roads will deteriorate. This will be dependent on environmental factors, the geometry of the road, the type and speed of vehicles using the road.

Grading will cause more damage if undertaken in the wrong conditions

We have encouraged our contractor not to grade roads during summer unless there is a significant rain event and then to prioritise what they do, and actively encourage them to trial other methodologies to maintain good surface conditions through the summer season (e.g. drag broom techniques etc.) to address surface (as opposed to deep seated pavement) corrugations.

We will respond to dangerous conditions and rectify these (knowing this is a short term fix)

We are progressing with work to improve our unsealed network which will be undertaken over the next 2 years.

Attachments/Ngā tapiritanga

	Title
A	Unsealed Roads presentation