Severely flushed road

AntiFlush Seal

Sealing emulsion treatment
Product insights guide

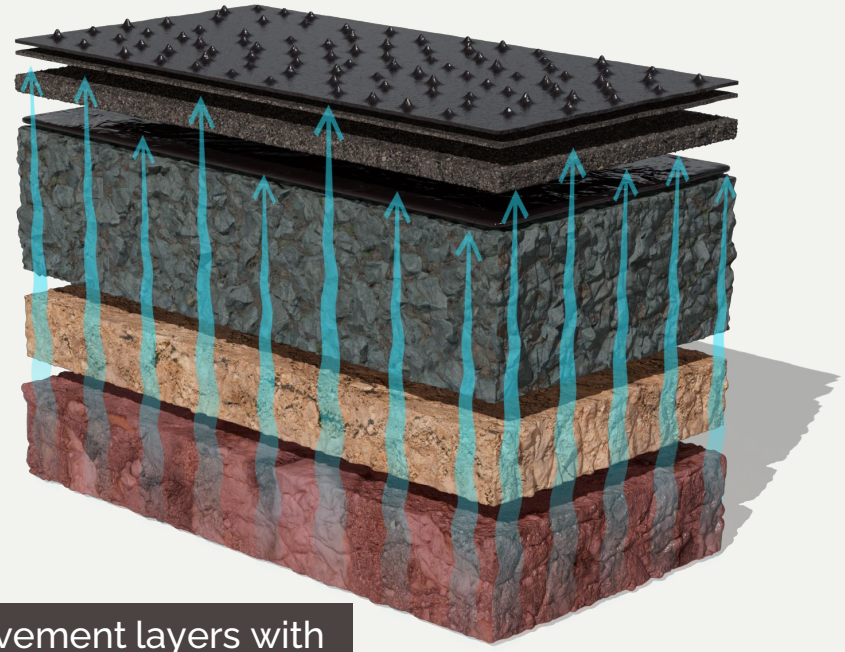
March 2026

Road Science

What is flushing?

Driven by frequent temperature fluctuations, it is largely the phenomenon where trapped moisture creates pressure beneath the road layers and forces bitumen to migrate to the surface.

Flushing is most commonly recognised as the ‘black shiny patches’ on a road and the small volcano bubbles.



Pavement layers with bitumen migration

Flushed road – volcano bubbles

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Stop flushing roads

AntiFlush Seal is a high-performance bitumen emulsion designed to combat flushing by sealing off water vapour venting through chip seal layers.

Reinforced with premium polymers and binders, it forms a strong, flexible, and waterproof membrane that prevents bitumen migration and surface bleeding, to support safer roads with better grip.

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AntiFlush Seal benefits

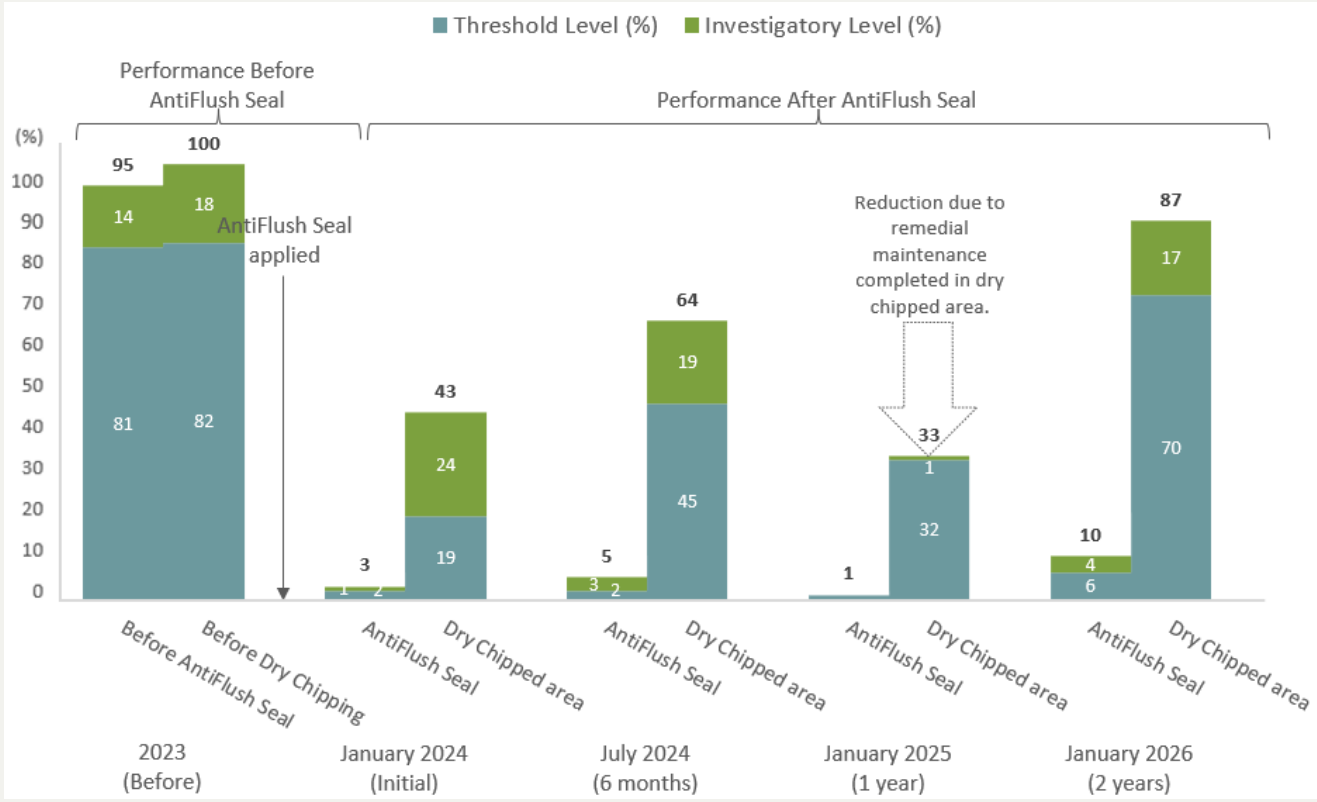
- Prevents flushing + increases road safety
- Practical solution
- Extends seal lifespan
- Safe application
- Standard sprayer compatibility
- Stops binder rise
- Retention of macrotexture and skid resistance

Porangahau Road – key project insights

- Overbuilt surface (5+ seals, weak pavement base) → recurring flushing and 2021 reseal failure
- Dec 2023 Hawkeye data: heavy flushing across both trial and control zones
- Jan 2024: AntiFlush Seal applied – resetting the surface from mostly failing to predominantly passing
- A dry-chipped section acted as the informal control, giving only a short-term texture lift
- **6-month review**: AntiFlush Seal remained stable and performing strongly; control section deteriorated rapidly
- **1-year review**: AntiFlush Seal still in excellent condition; control section continues degrading. Minor texture lift in control section was due to remedial maintenance, not treatment performance
- **2-year review**: AntiFlush Seal continues to perform very well; control section fully flushed in wheel paths.

Hawkeye

Macrotexture Comparison



Macrotexture performance of the AntiFlush Seal on Porangahau Road. Macrotexture comparisons show that while dry-chipping offered short-term relief - deteriorating rapidly until a maintenance intervention was required - AntiFlush Seal effectively reset the surface and consistently maintained improved macrotexture without the need for additional treatment.

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Porangahau Road – AntiFlush Seal treated site

2 years pre-treatment

AntiFlush Seal treatment

2 years post-treatment

Porangahau Road

Performance comparisons between AntiFlush Seal treated sections vs conventional chip treatment of adjacent stretches of road.

Performance highlights

Seal lifespan expansion

Flushing sites sealed with conventional treatments typically fail within 2 years.

Data modelling indicates AntiFlush Seal delivers a significantly longer performance life of 6+ years.

View full technical report on trials here: AntiFlush Seal trial overview

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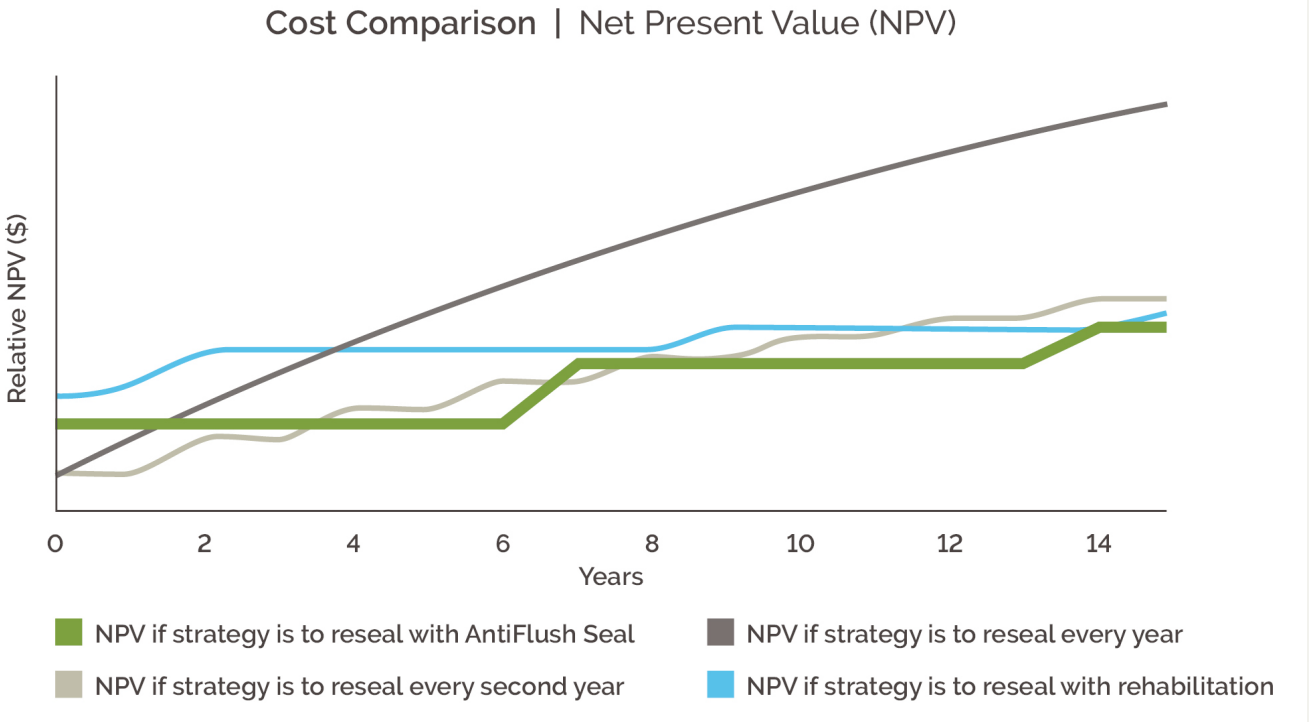
Cost comparison

NPV comparisons show that flushing sites often need resealing every 1–2 years due to rapid deterioration, driving up lifecycle costs.

While AntiFlush Seal has a higher upfront cost, its superior performance and extended service life delays repeat treatments.

The investment is typically recovered within 1.5–3.5 years, after which it delivers clear cost savings over standard resealing strategies.



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AntiFlush Seal

"Many sealed roads carry decades of chipseal layers, and increasing moisture and rising water vapour within these older pavements often leads to flushing - even where roadside drainage is good. After applying AntiFlush Seal, the results have been nothing short of spectacular: the treated section continues to retain strong surface texture two years on, while adjacent areas using conventional materials showed flushing within weeks. AntiFlush Seal offers Councils and road owners a valuable bituminous solution to extend the life of aging pavements and defer costly reconstruction"

Downer

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