Road Science

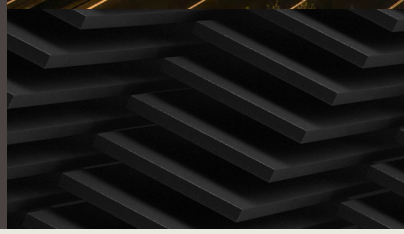
Smart Solutions
Powered by Science

Capability Statement

May 2026

Innovative road + pavement solutions

At Road Science, we lead with innovation — delivering smart, science-driven solutions that build safer, stronger, and more resilient roads for New Zealand.



Our complete solution

TECHNICAL SERVICES

Mix design
Materials testing
Quality assurance
Pavement investigation
Mobile laboratories
Road condition surveys
Data collection

PRODUCTS

Bitumen
Emulsions
Polymer modified (bitumen + emulsions)
Asphalt, Sealing + Pavement preservation

CAPABILITIES

Manufacture
Quality control
Product development
Digital solutions
Zero harm commitment
Advice + support
Solutions

Road Science
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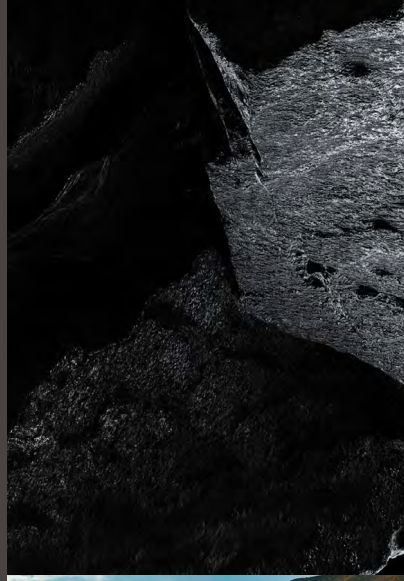
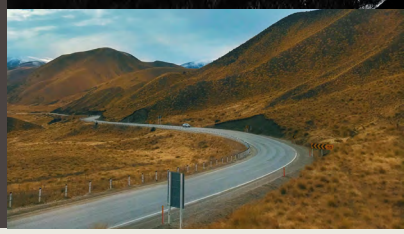
Our values

Our values are the foundation of everything we do at Road Science reflecting who we are, how we work, and the impact we strive to make across the road and pavements industry.





We are listeners

We believe great outcomes start with listening - to each other and to our customers. By asking the right questions and reflecting with empathy, we identify the real challenges to be solved. This helps us to build trust, set realistic expectations, and deliver lasting value.

Our culture values people first. We're inclusive, open to diverse thought, and easy to work with - never defensive. We stay agile in how we deliver, back each other as a team, and work with shared purpose. Together, we aim not to over promise, but to exceed expectations through honest relationships, unity, and consistent follow-through.

We are your trusted experts

We're a passionate team of thinkers and doers - industry-recognised for our curiosity, craft and commitment to solving tomorrow's problems. We combine deep technical knowledge with genuine care for people, always designing for safer outcomes and zero harm.

Proudly Kiwi-made, we build trust through consistent delivery, open communication and humble confidence in what we do. We stay present - in the field, in the industry and in our relationships - because great outcomes are built together. We learn from the past, challenge ourselves with new thinking and take pride in doing what we say we'll do, every time.

We don't just follow best practice - we help shape what's next.

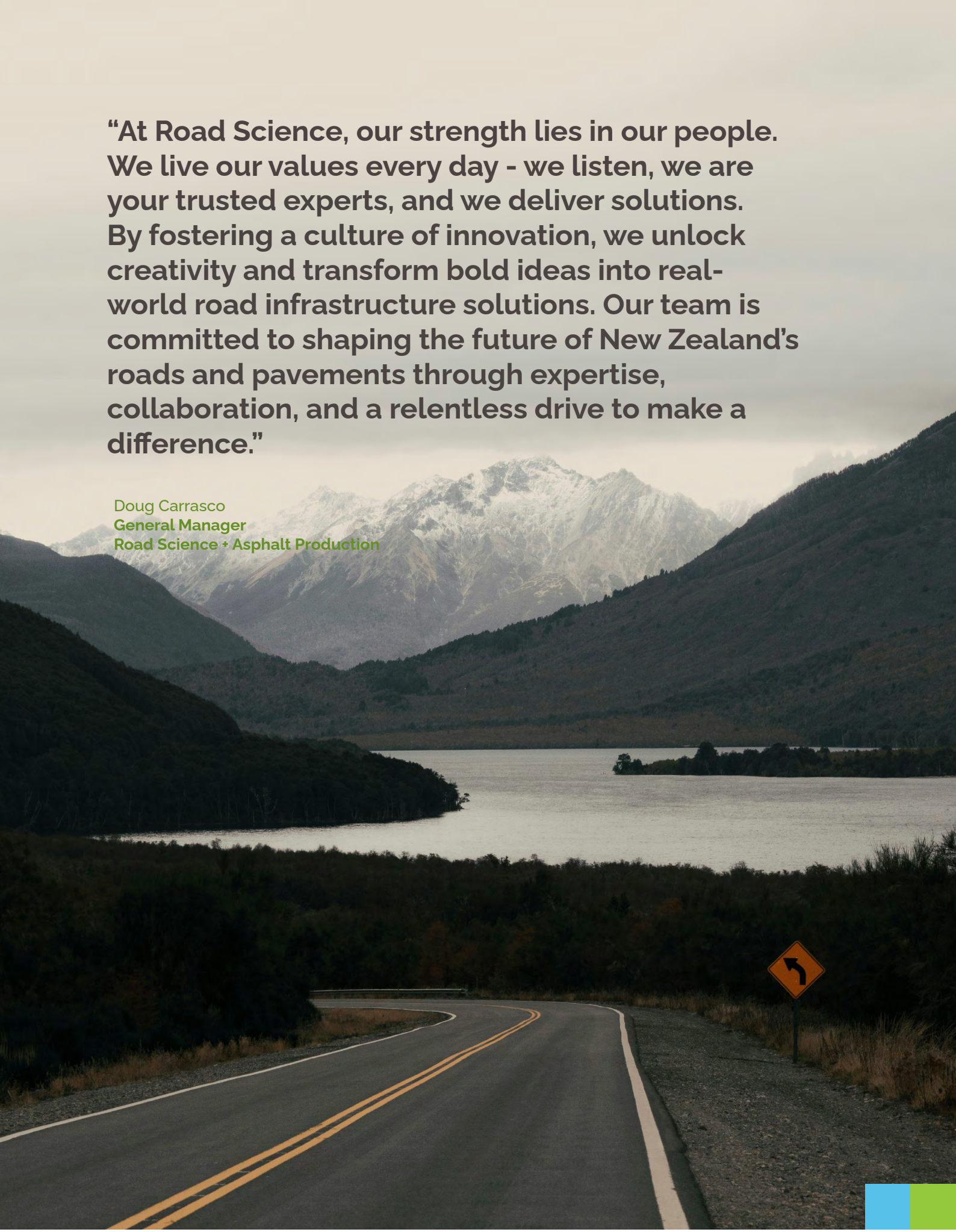
We deliver solutions

Every solution is a team effort - from plant operators to mobile crews, office staff to lab technicians. We combine deep expertise with agility, working together to solve the real problems our customers face.

We embrace technology, adapt to change, and aren't afraid to think outside the box. We follow through, even when things get tough, learning from setbacks and staying focused on the outcome. Through strong partnerships - both within our team and with our customers - we deliver smarter, safer, and more sustainable solutions that stand the test of time.

“At Road Science, our strength lies in our people. We live our values every day - we listen, we are your trusted experts, and we deliver solutions. By fostering a culture of innovation, we unlock creativity and transform bold ideas into real-world road infrastructure solutions. Our team is committed to shaping the future of New Zealand’s roads and pavements through expertise, collaboration, and a relentless drive to make a difference.”

Doug Carrasco
General Manager
Road Science + Asphalt Production



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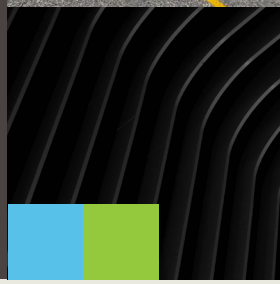
Our products

At Road Science, we engineer and supply innovative, safe, and sustainable solutions for New Zealand's roads.



While we continue to offer hot cutback bitumen, our focus is on advancing the industry through bitumen emulsions - a safer, more environmentally friendly alternative with over 20 years of proven success and strong support from Waka Kotahi NZ Transport Agency.

Formulated in our IANZ-accredited labs and manufactured in state-of-the-art facilities nationwide, our products are backed by strategic storage hubs and New Zealand's largest bitumen tanker fleet - ensuring consistent quality, reliable supply, and timely delivery.

We deliver more than products - we deliver confidence, powered by engineering excellence and a deep understanding of modern road maintenance.

Hot Bitumen

We supply a full range of Standard Bitumen grades, including:

- All PG grades listed in NZTA M1-A specifications for asphalt applications
- 130/150 and 180/200 for sealing applications

Our expert team will work alongside you to identify or tailor the right product for your specific needs.

Bitumen Emulsions

Through advanced engineering, we've developed emulsions that can be sprayed at just 80°C - a significant reduction from the typical 180°C required for hot cutback bitumen. These emulsions cure quickly, offer superior adhesion, resist weathering, and store well over extended periods.

Polymer Modified Bitumen and Emulsions

Our polymer modified products are engineered for high-performance applications, offering enhanced durability, flexibility, and resistance to cracking and deformation. Whether you need a tailored binder for a specific surfacing challenge or a proven solution for demanding conditions, our team has the expertise to match the right modification to your needs.

Asphalt

With seven asphalt plants (plus mobile plants), Road Science offers a comprehensive portfolio of asphalt products engineered to meet the diverse demands of New Zealand's transport infrastructure.

Bitumen Product Categories

A comprehensive suite of surfacing and maintenance solutions designed to support the full life cycle of New Zealand's road infrastructure.

Asphalt Binders

At Road Science, we manufacture and supply high-performance specialty binders that elevate asphalt durability, safety, and longevity. Our products are engineered to meet the demands of both high-performance environments - such as airports and motor racing circuits - and everyday infrastructure. With a focus on innovation and reliability, we tailor binder solutions to your project's unique requirements, to help achieve superior pavement performance and long-term value.

Product examples include;

BioBind EME2 FlexiPlus Bind

Sealing

Our sealing products are engineered to protect and extend the life of pavements in diverse environments. Our advanced formulations deliver flexibility, and resistance to weathering, ensuring long-lasting performance across a range of sealing applications - from crack sealing to surface treatments. Designed for both preventative maintenance and rehabilitation, our sealing solutions help reduce water ingress, prevent structural damage, and improve road safety.

Product examples include;

EnviroSeal EnviroPlus Seal AntiFlush Seal

Pavement Preservation

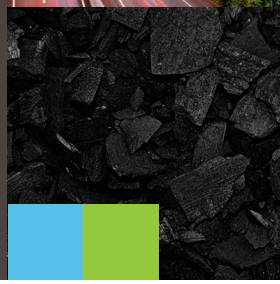
Our pavement preservation products are designed to extend the life of road networks while maximising maintenance budgets. Our innovative range includes surface rejuvenators, sealants, and protective treatments that slow pavement deterioration, improve surface integrity, and reduce the need for costly repairs. Tailored for a wide range of road maintenance programmes, these solutions help asset managers maintain safer, smoother roads with minimal disruption.

Product examples include;

EnviroBase EnviroShield UltraMender

Asphalt Product Categories

A comprehensive portfolio of asphalt products engineered to meet the diverse demands of New Zealand's transport infrastructure.



Asphalt

At Road Science, we specialise in the manufacture and supply of high-volume, premium-grade asphaltic products engineered to meet the rigorous NZTA M10:2020 specifications. Our comprehensive asphalt product suite is designed to support the successful delivery of infrastructure projects across New Zealand - from major highways and airports to ports and standard road networks.
Our asphalt solutions are trusted by industry leaders for their consistency, performance, and compliance, ensuring your projects meet both technical and regulatory standards with confidence.

Product examples include;

- **Asphaltic Concrete (AC)** - ideal for roads, car parks, and driveways
- **Dense Graded (DG)** asphalt mix - which provides durability and load-bearing capacity - ideal for industrial areas and commonly used for car parks and residential roads.
- High-modulus asphalt (**EME2**) for heavy-duty applications like airports, ports, and freight corridors.
- Thin surface treatments including;
- Stone mastic asphalt (**SMA**),
- Thin high-skid resistant asphalt (**THSRA**),
- Open graded porous asphalt (**OGPA**),

  Each tailored for skid resistance, noise reduction, and water drainage - perfect for motorways and intersections.
- Ultra thin asphalt (**UTA**) designed for surface renewal with minimal disruption - ideal for urban environments and overlays
- Sustainable products like **foamed asphalt**, warm mix (**WAM**), and reclaimed asphalt pavement (**RAP**) supporting lower carbon emissions and circular construction practices.
- **Cold mix** and **Plantmix** provide temporary solutions for emergency repairs and remote applications
- **EnviroTack** - Road Sciences high-performance 60% bitumen emulsion tack coat for superior bonding between asphalt and underlying pavement.
- Quality Pavement Repair (**QPR**) - a high-performance, permanent pavement repair solution for potholes, utility cuts, and damaged asphalt surfaces.

Our digital solutions

At Road Science, we have developed a series of tools to support you when selecting or using our products.

Product Selector Tool

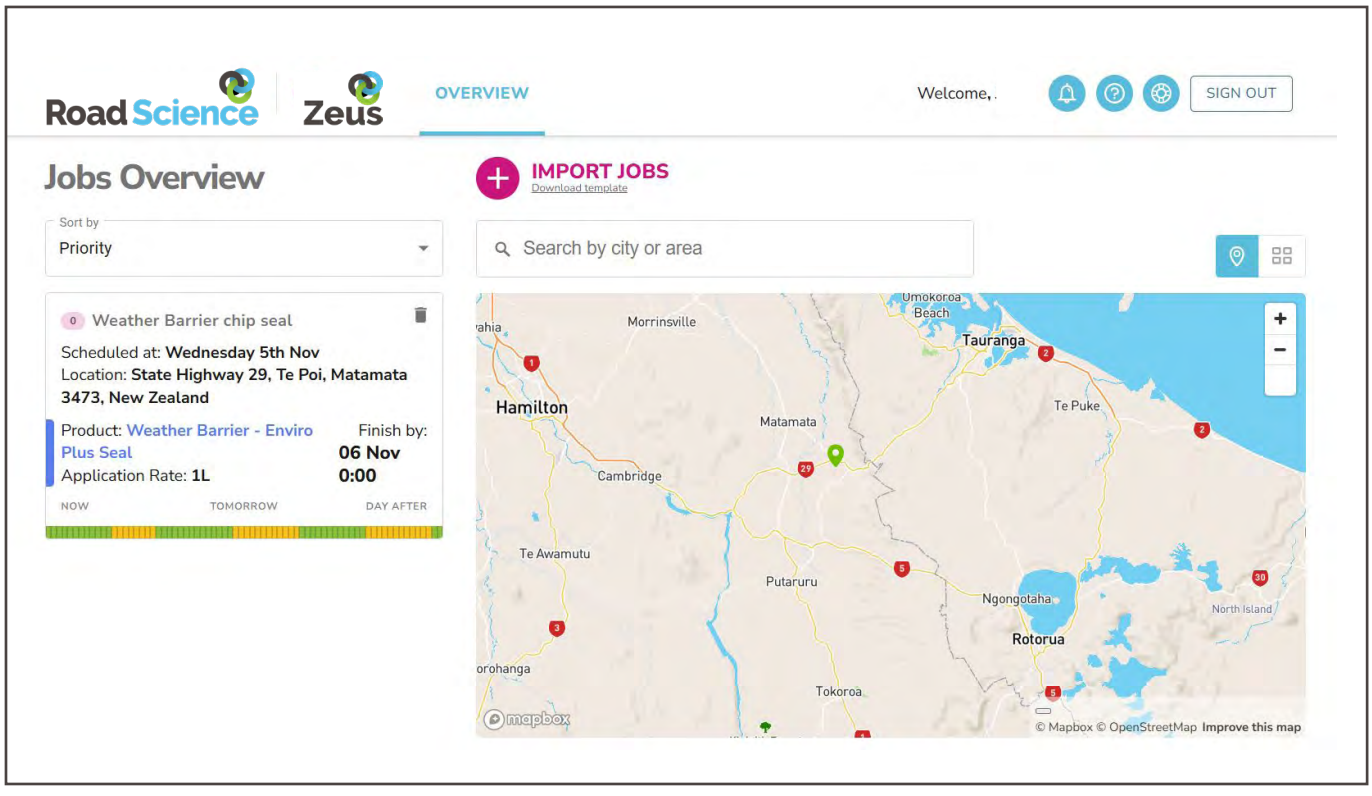
Need help choosing the right product?
Use our product selector tool on our website to find the ideal solution for your project

› FIND OUT MORE

Zeus

Zeus is Road Science's intelligent weather risk assessment tool that provides clear, location-specific advice on when and where our products will perform optimally, based on live and forecasted weather conditions. Drawing from a vast and continuously expanding database of national weather data, Zeus is a digital solution that delivers accurate, real-time insights to help users make informed decisions and minimise application risks.

› FIND OUT MORE



Case study

Tirau to Waiouru (T2W) Accelerated maintenance project

EME2

A New Zealand first pavement renewal project

The T2W project set a new benchmark for road maintenance in New Zealand, compressing four years of pavement renewal funding into just two construction seasons. Led by Downer, this ambitious programme was designed and delivered to a 25-year pavement life standard - demonstrating what's possible when innovation, collaboration, and technical excellence align.

Why EME2?

To meet the structural and performance demands of the project, Downer selected EME2 as the asphalt of choice. Engineered for high-modulus strength, EME2 enables thinner, longer-lasting pavements with exceptional rut resistance - ideal for heavily trafficked and high stress environments like SH1. Originally developed in France, Road Science is proud to be New Zealand's sole manufacturer of EME2-grade bitumen, supporting the delivery of advanced structural asphalt mixes.

Season one delivery highlights

To meet tight time lines, the project adopted zone closures, enabling efficient delivery and minimising disruption. EME2 comprised 38% of the total asphalt laid in season one, with an additional 80,000 tonnes (including EME2 and SMA) scheduled for season two.

This project was a true showcase of industry collaboration - bringing together customers, suppliers, and stakeholders to overcome complex freight logistics across multiple carriers. The result: record-breaking monthly asphalt deliveries, exceeding previous years by 15–45%.

PROPERTIES

Hot Bitumen

USED FOR

Rutting

ENVIRONMENT

Airports

Roundabouts & Intersections

Ports

Industrial

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Case study

Sustainability partnership with New Plymouth District Council

BioBind

A landmark collaboration for greener infrastructure

In 2023, Road Science and New Plymouth District Council (NPDC) embarked on a pioneering partnership to reshape the future of sustainable road construction. Together, with Downer as the contractor, they launched New Zealand's first full-scale trial of BioBind - a low-carbon, petroleum-free alternative to traditional bitumen - at the Smart Road site in New Plymouth.

This initiative aligns with NPDC's bold vision to become the country's "sustainable lifestyle capital," making BioBind the ideal choice for a greener infrastructure solution.

Why BioBind?

BioBind is a next-generation binder made from renewable resources, primarily sourced from trees. It's engineered to match the performance, durability, and handling of conventional petroleum-based bitumen, while its cutting-edge formulation boasts significantly lower embodied carbon to reduce environmental impact. It is compliant with NZ Transport Agency M1A standards, as full or partial replacement, and is adaptable to evolving raw material sources, with the ultimate goal of being fully renewable and recycled.

Smart Road trial highlights

The trial involved resurfacing a 150-meter stretch of Smart Road with a 50mm AC14 asphalt layer, using 100% BioBind bitumen replacement. The existing seal layer exhibited flushing and chip loss defects with a Pavement Condition Index (PCI) of 82%. Post-trial results (18months on since remediation) records an improved PCI of 90% (which is considered excellent condition) and remains stable, with the road showing excellent durability and resilience, validating BioBind's performance in real-world conditions.

PROPERTIES

- Hot Bitumen
- Reduced Emissions

ENVIRONMENT

- Airports
- Roundabouts & Intersections
- Ports
- Industrial
- Motorway
- Residential

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Case study

Accelerating chip seal curing during shoulder seasons

WeatherBarrier

Delivering more resilient and timely chip sealing projects in challenging conditions

In Turangi, Central Waikato's high-altitude climate, chip sealing is typically limited to summer due to extreme weather risks. To test the limits, NZTA trialled Weather Barrier - a nano-material that accelerates bitumen curing - on two of four sites re-sealed in mid-April.

Why Weather Barrier?

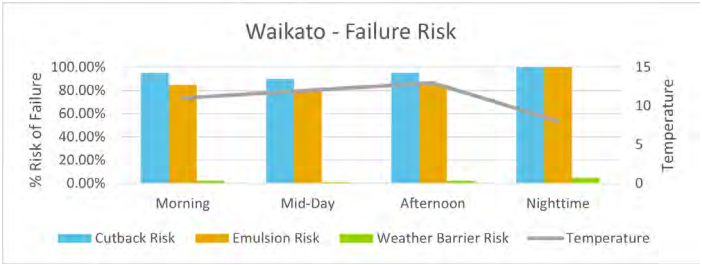
Weather Barrier, an eco-friendly nano-material developed by Road Science and designed to accelerate the curing of our bitumen emulsions. It enhances the coalescence of bitumen, enabling faster setting and improved seal performance - even in cooler, less predictable conditions.

Turangi performance highlights

Road Science's pre-trial evaluation estimated an 80%+ risk of stripping across the region due to seasonal conditions. However, the application of Weather Barrier reduced that risk to under 10%.

Untreated sites: Both experienced significant stripping and chip loss within weeks of completion.
Weather Barrier sites: Showed no signs of stripping or chip loss, maintaining full integrity despite the challenging weather.

This stark contrast highlights Weather Barrier's effectiveness in extending the sealing season and safeguarding road quality - a clear strategic advantage.



USED FOR

Waterproofing
Chip Loss

ENVIRONMENT

Residential
Rural
Motorway
Airports
Roundabouts & Intersections
Ports
Industrial

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Case study

Preserving pavements with smaller budgets

EnviroShield

Delivering a product solution that looks like asphalt but doesn't break the bank

Auckland Transport needed a cost-effective solution to renew aging pavements showing early signs of oxidation, chip loss, and micro-cracking — without the expense of full asphalt resurfacing. In 2020, 17 sites across the Auckland Central Network were treated with EnviroShield, a high-performance surface treatment designed to restore and protect road surfaces.

Why EnviroShield?

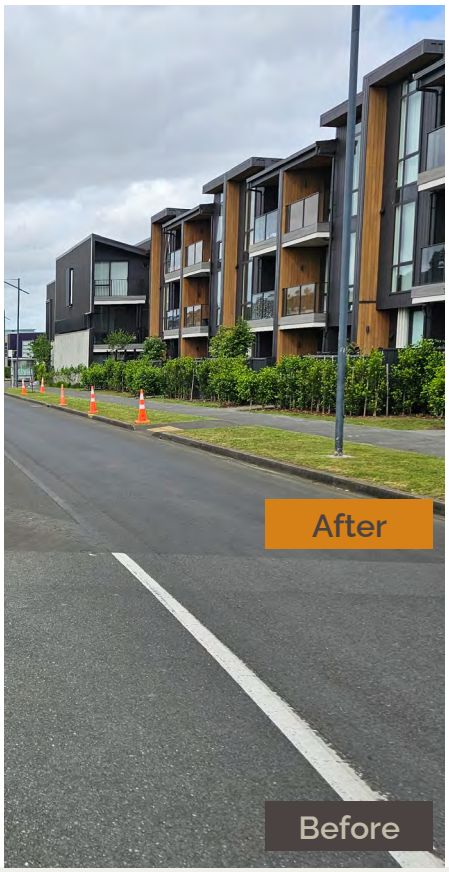
EnviroShield is a warm-applied, ultra-hard bitumen treatment that cures into a waterproof, oxidation-resistant barrier. It locks in aggregate, preserves surface texture, and withstands heavy use - all while maintaining a low-tack finish.

The Results?

Five years on,

- 94% of sites still outperforming pre-treatment conditions
- 65% showed no measurable deterioration
- Projected lifespan: 4+ years, with data modelling suggesting upwards of 8 years on low-volume roads (<1700 AADT)

EnviroShield has proven to be a smart, budget-friendly alternative to asphalt - delivering long-term performance and delaying costly maintenance.



PROPERTIES

Emulsion

Reduced Emissions

ENVIRONMENT

Airports

Rural

Residential

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Testing, advisory and R&D services

Advancing pavement performance with science, innovation, and technical expertise.

Laboratories: Expert testing and advisory services

Road Science offers comprehensive construction materials testing, classification, quality assurance, material design, data collection technology, pavement investigation, and expert advice. With four IANZ-accredited laboratories in Auckland, Tauranga, Wellington, and Christchurch, as well as mobile laboratories for specific projects, we ensure that you receive precise, reliable testing tailored to your needs.

Our specialised testing includes:

- Field testing: Test pit pavement investigation, British pendulum testing, E2 spray distribution testing
- Aggregate testing: Polished stone value, Repeat load triaxial testing and Foam bitumen stabilisation designs
- Soils testing: Hydrometer testing
- Asphalt testing: Asphalt mix design and performance testing including Hamburg wheel tracing and fatigue testing
- Bitumen testing: Multiple stress creep recovery, durability, and accelerated aging of binder
- Concrete testing

For more information on the testing scope for each of our labs, visit IANZ

Search by 'Road Science' as your keyword to locate each of our labs.

Research and product development

Innovation isn't an add-on - it's embedded in everything we do. Our dedicated R&D facility in Tauranga leads the way in developing smarter, more resilient road solutions tailored to New Zealand's unique conditions. With a team of specialists in bitumen, emulsions, and polymer technologies, we're shaping the future of road maintenance through science, collaboration, and authentic testing.

What sets us apart is our full-service approach: from concept to full-scale delivery, every solution is grounded in real-world challenges our customers face. We listen. We collaborate. We deliver.

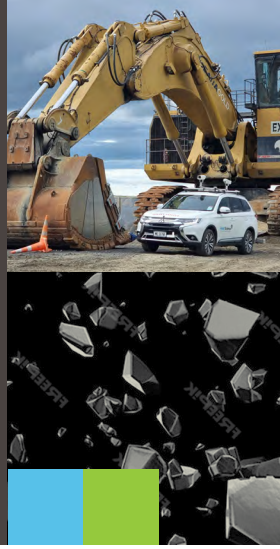
Our innovation process ensures solutions are scoped, developed, and delivered efficiently. By working closely with customers, operational teams, researchers, and funding partners, we can rapidly prototype and test new ideas - reducing development costs and accelerating implementation. This approach enables:

- Faster speed-to-market
- Higher likelihood of product success
- Sharper focus on customer needs
- Smarter use of resources
- Stronger collaboration and outcomes

With access to a wide network of materials expertise and technology partners, we're equipped to meet a broad range of customer requirements - delivering practical, scalable solutions that make a genuine difference.

Road condition surveying + Infrastructure asset mapping

Delivering precise insights to optimise pavement performance, asset management, and infrastructure decision-making.



Data collection services

At Road Science we offer a variety of advanced road condition survey services and asset mapping to help you assess and optimise the performance of your road infrastructure. With cutting-edge technology and a team of experts, we offer precise, reliable, and actionable data to support better decision-making and improve road management.

Our specialised services include:

GripTester MK2

Assesses road friction and skid resistance to ensure optimal safety and traction in all conditions.

Hawkeye

A road profiling system that accurately measures surface texture, ride quality, and irregularities.

FWD Falling Weight Deflectometer

Measures pavement deflection to assess structural capacity and optimise rehabilitation strategies - we also have the Fast-FWD (faster, smarter, safer)

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“Road Science remains at the forefront of road and pavement innovation. Their unwavering focus on customer-driven, sustainable solutions is actively shaping New Zealand’s transport infrastructure — making our roads safer, more intelligent, and future-ready.”

Murray Robertson
Managing Director
Downer New Zealand

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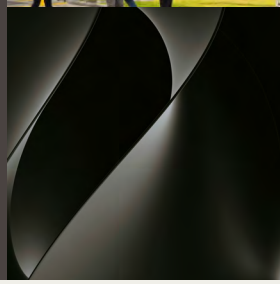
Our locations

Nationwide expertise ensures local support and innovative road and pavement solutions wherever your projects need us.



Head Office
Tauranga

Laboratories
Auckland
Tauranga
Wellington
Christchurch

Asphalt Plants
Whangārei
Auckland
Hamilton
New Plymouth
Wellington
Dunedin
Invercargill

Bitumen Plants
Mount Maunganui
New Plymouth
Lyttelton
Bluff

Road Science
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Key contacts

Get in touch with Road Science today — our team is ready to support your projects with proven expertise.

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