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RoadSiDe: Transforming Road Condition Management through Digital Innovation

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RoadSiDe
a Veris platform

Veris – a fully integrated digital and spatial data advisory and consulting firm

Company Profile



500+

People

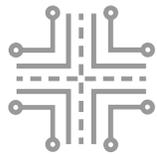


15

Offices across Australia

Sectors

Transport



Mining & Resources



Defence



Property & Buildings



Energy & Utilities



Government



Our Services

DIGITAL & SPATIAL

Digital solutions, 3D scanning, data capture, storage, management, modelling, visualisation and analysis.

ENGINEERING SURVEY

Civil construction and engineering survey solutions for major infrastructure.

PROPERTY SURVEY

Land surveying, cadastral and consulting solutions.

CONSULTING & ADVISORY

Due diligence, strategic planning, master planning, place-making and planning approvals, environmental services.

Our Digital Approach



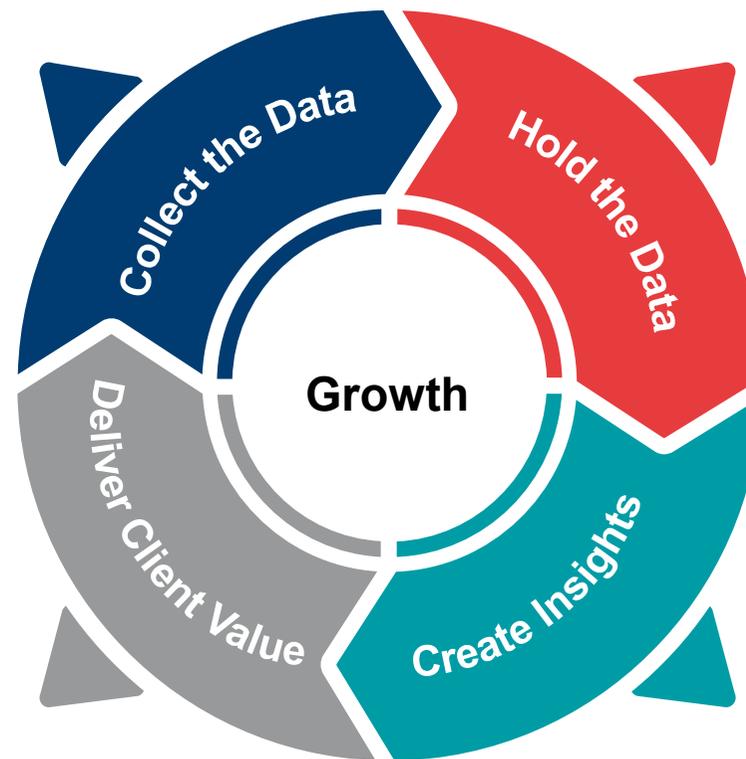
Veris are experts in all aspects of spatial data – from collecting measurements in the field to applying the latest 3D data capture, analysis and AI, 3D modelling and visualisation technologies



- High-quality fit-for purpose data
- Survey accurate measurements
- Efficient, rapid capture processing



- Data management that enables our clients to identify valuable insights
- Building and strengthening key client relationships
- Implement workflows that ensure our clients are able to make data driven decisions



- Securely store and manage our client's data
- Data is managed in a manner that ensures security and integrity



- Make it simple for our clients to interact and visualise insights
- Provide analytics, machine learning and value-added services

Key Road Management Challenges

Accessing road condition data post disaster event

Auditing and prioritising road maintenance works

Understanding the causes of road surface failure

Progress towards predictive maintenance and understanding remaining pavement life

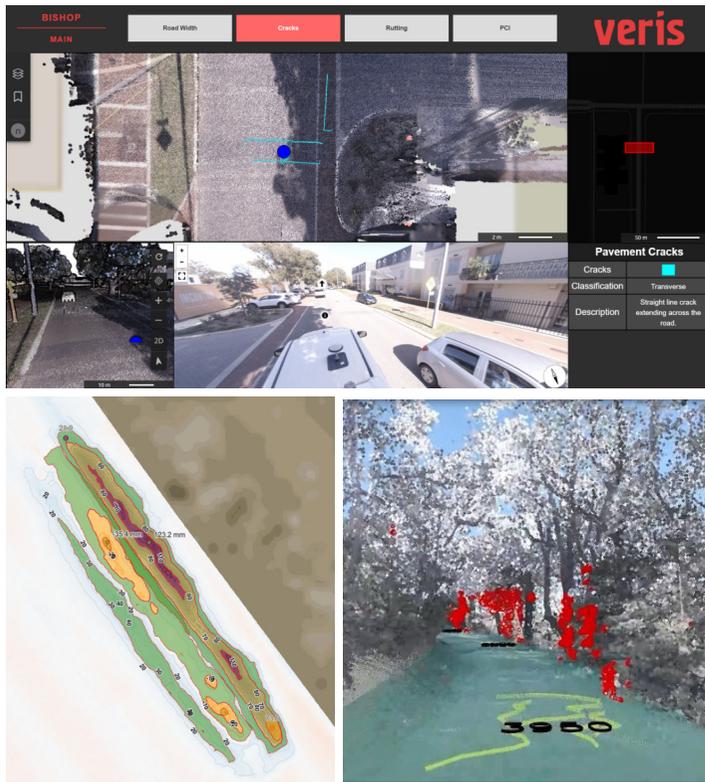
Improved vegetation monitoring and management

Road corridor asset location and management



RoadSiDe – comprehensive road corridor assessments, enhancing efficiency, safety, and accuracy

RoadSiDe is a virtual inspection platform that integrates sensor data, 360-degree imagery, and spatial analytics in a cloud-based environment. asset management..



Problem

Traditional road inspection methods are labour-intensive, time-consuming, and pose significant safety risks for on-site personnel.



Solution

- Comprehensive visualisation combining 360-degree panoramic imagery with 3D visualisations
- Utilises spatial analytics and AI to automatically identify and classify defects such as cracks and surface wear.
- Cloud-based accessibility enables virtual inspections, allowing remote access to data anytime, anywhere.
- Customisable analysis tools offer filtering and measurement capabilities tailored to project needs, streamlining data exploration and reporting.



Benefit

Delivers significant productivity gains, smarter decision-making and eliminates safety risks.

Our RoadSiDe Solution

We are the only provider in Australia to offer a full 3D road condition platform

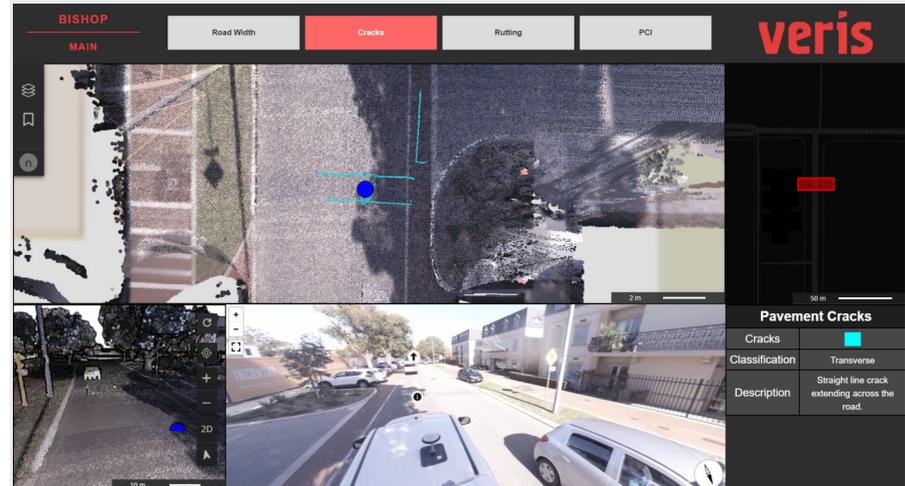
3D Spatial Data Capture

Accurate 3D data capture of the road corridor using mobile laser scanning (MLS) and 3D Ground Penetrating Radar (3DGPR).



RoadSiDe AI, Analytics and 3D Platform

The data is delivered using our RoadSiDe platform, integrating 3D visualisations, dashboards, machine learning and analytics.



RoadSiDe Dashboard Insights

BISHOP

Road Width

Cracks

Rutting

PCI

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Pavement Cracks

Cracks	■
Classification	Transverse
Description	Straight line crack extending across the road.

Road Condition Analysis Using AI and Analytics

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Defect Groups		
Group ID	Area (m ²)	Severity
G-015	4.2	■ ■ ■ ■ ...
G-029	0.6	■ ■ ■ ■ ...
G-036	1.2	■ ■ ■ ■ ...
G-749	13	■ ■ ■ ...
G-290	2.3	■ ■ ■ ...
G-781	20	■ ■ ■ ...
G-115	1	■ ■ ■ ...

Vicmap Basemaps is a licensed service available on 9 to 5 Service Level Agreement (SLA). It should be also noted ... Powered by Esri

Defect Group Detail	
Defect Group ID	G-015
Hazard Area (m ²)	0.16
Severity 1 Area (m ²)	0.96
Severity 2 Area (m ²)	1.08
Minimum Deviation (mm)	-44.7
Maximum Deviation (mm)	118.0

Defects		
Defect ID	Area (m ²)	Classificati...
D-0013	0.16	■ Hazard
D-0065	0.01	■ Hazard
D-0106	0.01	■ Hazard
D-0176	0	■ Hazard
D-0180	0	■ Hazard
D-0184	1.07	■ Severity 1
D-0185	0.96	■ Severity 1
D-0187	0.85	■ Severity 1
D-0188	0.77	■ Severity 1

Spherical Imagery

1 of 8

Pavement Crack Imagery

1 of 50

Defect Detail	
Defect ID	D-0013
DefectType	Rise
Severity	Hazard
Defect Group ID	G-015
Area (m ²)	0.16
Maximum Deviation (mm)	118.0
Minimum	100.8

Defects
Imagery
Details

Shire of Mingenew – Road Condition Assessment

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MINGENEW

5/2/2025

Road Width

Cracks

Rutting

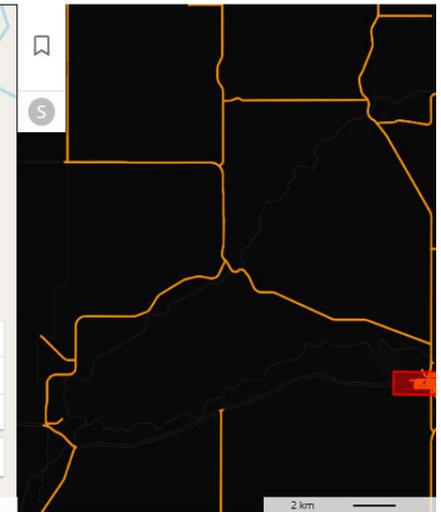
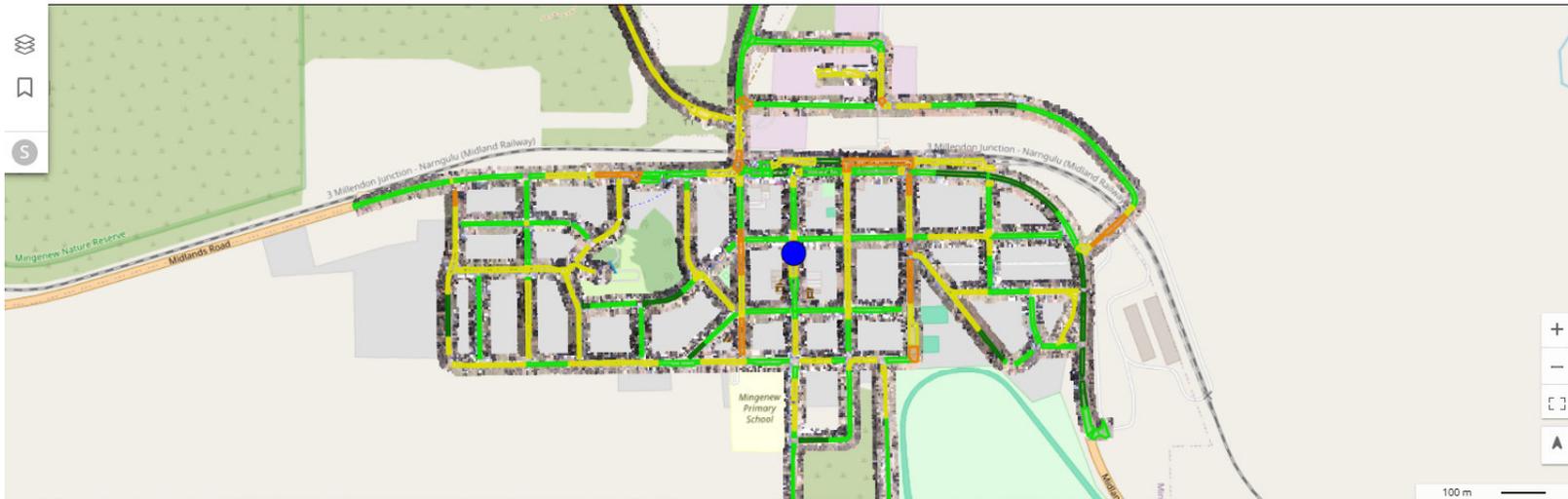
Corrugation

Potholes

Gravel

IRI Roughness

PCI



Pavement Condition Index

Cracking	83
Rutting	64
Corrugation	100
Potholes	83
IRI Roughness	35
OVERALL	59

TMR Subsurface Insights Dashboard



TMR Labs Subsurface Detection

Select a road
RACQ site

Select a chainage segment
No category selected

Depth average (m) for each road chainage

Layers

- > Vector Layers
- > Depth
- > Thickness
- > Moisture
- > Weather
- > Imagery

Thickness (m) for each road chainage

Moisture for each road chainage, measured by 3D radar amplitude

Total anomalies per road

Number of anomalies

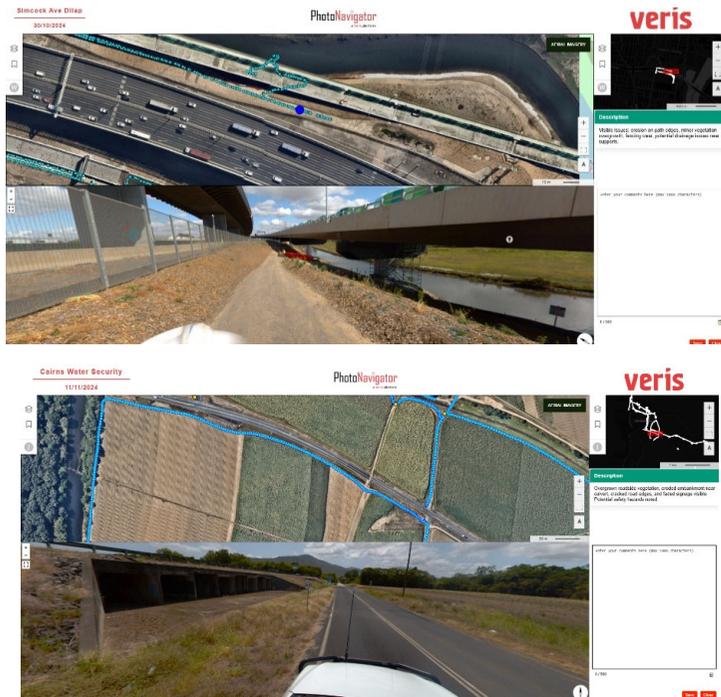
ID number	Type	Width (m)	Length (m)	Depth (m)	Road_Sect...	Road	Latitude	Longitude
12	Concrete s...	7	17.5	0.8		RACQ site	-27.65012...	153.22829...
13	Concrete s...	3	6.5	0.8		RACQ site	-27.65060...	153.22823...
14	Concrete s...	3	12.5	0.8		RACQ site	-27.65089...	153.22831...
15	Anomaly	2	7.5	0.4		RACQ site	-27.65154...	153.23000...

Anomalies

Services

Photo Navigator – simplifies inspections, enhances collaboration, and reduces risk for clients.

Photo Navigator is a web-based platform that utilises 360 panoramic imagery, AI, and an interactive map interface to deliver detailed dilapidation surveys and asset condition reports.



Problem

Traditional dilapidation surveys using SLR cameras often result in incomplete documentation by missing areas not explicitly photographed. This approach increases risk for clients due to gaps in records and requires manual effort.



Solution

- 360° panoramic imagery captures every detail from backpack or vehicle-mounted cameras.
- The map-based interactive platform enables users to view and zoom into imagery, navigate through sites, and annotate images for collaboration.
- AI analysis automatically detects and describes cracks, corrosion, and other defects across the imagery, tailored to client priorities.
- Automated reporting generates tailored dilapidation reports quickly, reducing manual effort and ensuring accuracy.



Benefit

The platform ensures comprehensive coverage by capturing every detail, minimising risk and providing a reliable digital archive for tracking changes. It also enhances efficiency through automation, reduces manual workload, and enables remote inspection and collaboration via the web platform.

Photo Navigator App and Case Study

The screenshot displays the Photo Navigator app interface, which is divided into several sections:

- MINI-MAP:** Located at the top left, it includes a "RESET" button and a search icon.
- Header:** Shows the "veris | PhotoNavigator" logo and a search icon.
- TGSP:** Displays the date "24/01/2025" and a dropdown menu.
- Image Selection:** A section titled "Browse map points or select an image." with a file name "IMG_SPHERICAL_001.jpg" and a dropdown arrow.
- DESCRIPTION:** A section titled "DESCRIPTION" with a "POWERED BY VERIS AI" badge. The text reads: "The footpath near the intersection shows minor cracking and unevenness. The road surface displays isolated patches of rutting near the junction. Traffic signals and utility poles appear structurally intact, with no visible signs of rust or damage. No significant subsidence or potholes are evident on this section of the road."
- REVIEW NOTES:** A section titled "REVIEW NOTES" with a star icon and the text "Appears as ☆". It contains a text input field with the placeholder "Enter your review notes here." and "SAVE" and "RESET" buttons at the bottom.
- Map:** A large map view showing a street network. A specific road is highlighted in green, and a blue dot marks a point of interest. The map includes labels for "Camden Park", "Plympton", "Emerson", and "South Plympton". A "200 m" scale bar is visible at the bottom right of the map.
- Aerial Imagery:** A button labeled "AERIAL IMAGERY" is located in the top right corner of the map area.
- Street View Photo:** A large photograph showing a street intersection. A signpost in the foreground reads "CROSS RD" with arrows pointing left and right. In the background, there is a building with a sign that says "Rabboni Electrical Appliances". Several cars are visible on the road.

Key Take Aways

RoadSiDe combines digital technologies to enable proactive road management by identifying the root causes of road defects before they become costly.

1

RoadSiDe combines surface and subsurface analytics to pinpoint underlying issues, not just assess the surface level symptoms.



2

It's rapid - saving time by identifying, analysing and quantifying damage to roads faster using AI.



3

Improves the ratio of planned maintenance to reactive fixes for the reduction of maintenance costs.



4

Stakeholders can collaborate and plan the program of repair works by sharing data, imagery and analytics using a cloud-based platform.



5

It enables more accurate budgeting and improved prioritisation for capital works programs and long term asset strategies.



6

Temporal analysis provides insights on the growth and risk of road deterioration.



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Thank you

Nathan Quadros

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