

DIRECT ANSWER

Road pavement condition assessment maps the defects on a municipal road network and rates its condition. TarmacView captures the roads from drone and ground imagery, detects each crack, pothole and area of raveling with its position, type and extent, rates the sections, and delivers a priority list with a 3D model.

● ● ○ ○ ROAD PAVEMENT · MUNICIPAL NETWORKS

Map the roads, rate them, rank the repairs

Drone and ground imagery over a window of one to two hours, turned into a map of every detected defect, a condition rating per section, a priority list and a 3D model of the surface. Report within two weeks.

Scope a survey

How the method works

1–2 h

capture window for the agreed area

2 weeks

	from capture to delivered report
0–100 condition scale of the reported rating	3D model of the surveyed surface

FIT

Who this is for

A road department knows which streets are bad. What it usually cannot produce on demand is the evidence, in the same form, for the whole network, updated this year.

FOR

- ✓ Municipal road departments that own a network and rebuild their condition picture by driving it and writing notes.
- ✓ City GIS teams that already hold a road centreline layer and want a condition attribute they can refresh each year.
- ✓ Regional road authorities preparing a maintenance budget who need the sections ranked before the money is split.

NOT FOR

- × Networks that need a formal ASTM D6433 survey signed by a certified inspector for a funding programme.

- × Structural or bearing capacity questions, which need coring or deflection testing rather than surface imagery.
- × Single-street complaint investigations, where sending a crew to look is faster and cheaper than a survey.

JUDGED ON DELIVERY

Outcomes and acceptance criteria

The survey exists to replace an opinion with a record. Three outcomes carry that, and each can be checked on the day it is delivered.

01

Every defect located

Cracks, potholes and areas of surface loss come back as objects with a position, a type and an extent, not as a description in a paragraph.

ACCEPTANCE

You can open any section of the map, pick a defect and see where it is, what it is and how large.

02

A condition rating you can rank on

Each section carries a rating on a 0 to 100 scale together with the defects that produced it, and the network carries an overall figure.

ACCEPTANCE

The inputs behind any section rating are visible, so a disputed figure can be argued about with evidence.

03

A priority list with reasons

Sections are ordered so that the ones needing attention first appear first, and each carries the reason it sits where it does.

ACCEPTANCE

No section on the list is ranked without a stated cause.

The fourth deliverable, the 3D model of the surveyed surface, is what makes the second survey worth more than the first. It fixes the geometry the next capture is compared against, so change becomes measurable rather than remembered.

What the survey does not produce is a repair design, a bill of quantities or a cost estimate. Those belong to your designer. A condition survey that quietly becomes a works specification is one nobody can hold to account.

SCOPE AND DELIVERABLES

What is inside the survey

Each deliverable with what it contains and who owns it, including the parts that are deliberately outside the scope.

01 Defect map

Every detected crack, pothole, patch and area of surface loss, with position, type and extent.

OWNER TarmacView

02 Condition rating

A rating on the 0 to 100 scale for each agreed section and for the network as a whole, with the defect densities behind it.

OWNER TarmacView

03 Priority list

Sections ordered by the attention they need, each with the defects that place it there.

OWNER TarmacView

04 3D model

A model of the surveyed surface in a standard exchange format, usable without our software.

OWNER TarmacView

05 Data export

The defect inventory and section ratings as tabular data with coordinates, in the format your system reads.

OWNER Format nominated by the municipality

06 Capture window

One to two hours for the agreed area, drone and ground imagery, no closure booked beyond that window.

OWNER TarmacView, with the road authority

07 Flight permissions

Arranged before the date where local rules require a permit for the drone flight.

OWNER TarmacView

08 Section map

The network split into sections, agreed before capture and reused on later surveys.

OWNER Municipality, from its own centreline data

09 Repair design and costing

Not included. The survey reports condition, it does not specify works.

OWNER Excluded

10 Structural evaluation

Not included. Bearing capacity needs coring or deflection testing.

OWNER Excluded

11 Traffic and safety assets

Not included. Signs, markings and drainage assets are a separate inventory task.

OWNER Excluded

- Distress naming follows ASTM D6433 categories. The reported condition figure is a proxy derived from image analysis and is not a formal ASTM D6433 survey.

DELIVERY • 6 STEPS

From centreline layer to priority list

01

Scoping call

You send the streets to survey and, if you have one, your centreline layer. We agree the section split, the export format and the capture windows. Output is a scope note with a price. Without an agreed section split the survey does not

02

Permissions and planning

Flight permissions are arranged where local rules need them, and the capture is planned from the road geometry and the camera optics so that coverage is computed rather than assumed. Output is a

start, because a rating against boundaries nobody accepts cannot be defended.

validated plan and confirmed dates.

03

Capture

Drone and ground imagery over one to two hours for the agreed area, with traffic moving through it. Larger networks are captured across several windows. If weather stops a window, that window is re flown rather than the plan rebuilt.

04

Detection

Imagery goes through the vision pipeline, which segments the surface and classifies each defect by type and severity. Detections below the confidence floor are held for human review rather than dropped.

05

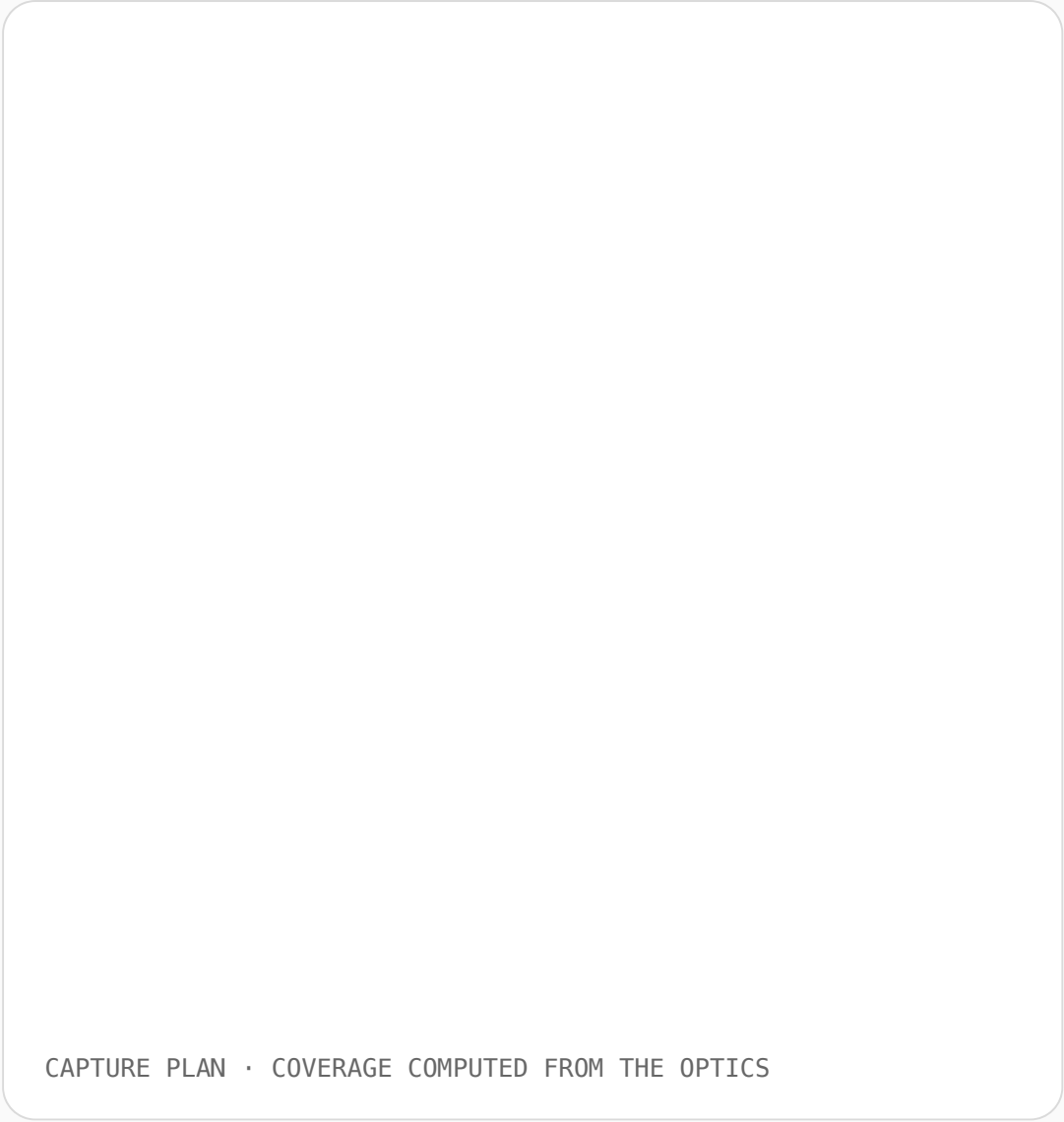
Rating and ranking

Defect density is computed inside each agreed section, converted to a condition figure on the 0 to 100 scale, and the sections are ordered into the priority list. The 3D model is built from the same capture.

06

Delivery

Map, ratings, priority list, 3D model and export land together within two weeks of capture, and we walk your engineer through the sections at the top of the list. Anything disputed is re-examined against the retained imagery.



CAPTURE PLAN • COVERAGE COMPUTED FROM THE OPTICS

EVIDENCE AND CAPABILITY

How the detection works

The part of this service worth understanding before buying it is the detector, because everything downstream is arithmetic on what it finds.

Images are passed through a self-supervised vision transformer backbone. The model was trained without labels on a very large image corpus, and it turns every small patch of an image into a high-dimensional embedding that carries texture and structure rather than a category name. Lightweight heads sit on top of those embeddings and do the specific jobs: segmenting a crack from the surface around it, separating a [pothole](#) from a shadow, telling [longitudinal cracking](#) apart from a sealed joint, and grading [alligator cracking](#) by how far the pattern has developed. The method page for the backbone is [DINOv3 for infrastructure surface analysis](#) , and it goes into the architecture properly.

What matters operationally is not the architecture but the consequence. A frozen backbone with trained heads applies the same decision boundary to every metre of every survey. A crew driving a network applies a threshold that drifts with fatigue, weather and who is in the vehicle. The machine is not more perceptive than a good engineer standing on the road. It is more consistent than the same engineer on the twentieth kilometre, and consistency is what a time series needs.

The rating built on those detections is a proxy for a [Pavement Condition Index](#) , and it should be read as one. The idea is the same: distress of a given type, severity and density pulls a score down from 100. The derivation is not the same, because [ASTM D6433](#) asks an inspector to walk sample units and read deduct curves by hand. Where a funding programme names the standard, the formal survey is what satisfies it. Where the question is which sections to treat first, this answers it across the whole network rather than across a sample.

The 3D model is the other half of the record. It fixes the geometry of the surveyed surface, which is what allows a survey next year to report change rather than a second opinion. Feeding both into a [pavement](#)

management system is the point of the exercise, and the export format is agreed before capture for exactly that reason.

DETECTOR VS DRIVEN SURVEY

same threshold

applied to every metre of every survey by a frozen backbone with trained heads

proxy

for a Pavement Condition Index, derived from imagery rather than from deduct curves

3D model

fixes the surveyed geometry, so the next survey reports change rather than a second opinion

HOW THE PRICE IS BUILT

Four things move the quote

No rate is published, because the work scales with the network rather than with a line item.

EUR

PER KILOMETRE OF SURVEYED ROAD

EXCL. VAT

EU

CHECKED 2026-09-04

Cost driver 01

Length and width of road

Capture time and processing both follow it.

Cost driver 02

How finely the network is sectioned

The same imagery produces a different report at ten sections than at a hundred.

Cost driver 03

Ground imagery alongside the drone

Needed or not depending on tree cover, parked vehicles and how narrow the streets are.

Cost driver 04

Travel

Travel to the survey area.

There is one discount and it is worth stating plainly rather than burying. A pilot project is priced below list because the captured imagery is used to train the detection model, and that data is worth something to us. It goes in the agreement rather than being assumed. If you would rather the imagery was not used for training, the survey is priced at list and nothing else about the deliverable changes.

EACH WITH AN OWNER

Risks and dependencies

Four things can stop a survey or weaken its result, and each has an owner.

OWNER · WEATHER

Weather and surface state

Standing water, snow and heavy leaf cover hide the surface from a camera. The affected window is recaptured rather than rated through the obstruction, and this is the most common reason a date moves.

OWNER · BOTH, AT SCOPING

Occlusion

Parked cars, overhanging trees and narrow streets with tall buildings block a view from above. This is why ground imagery is in scope for some networks and not others, and it is decided at scoping rather than discovered on the day.

OWNER · TARMACVIEW

Flight permissions

Urban drone flight is regulated, and a permit that does not arrive is a date that does not happen. That work sits with us, but it depends on the authority granting it.

OWNER · BOTH, AT SCOPING

Section agreement

A rating describes a defined stretch of road. If section boundaries move between surveys, the comparison breaks. Boundaries are frozen at scoping, and changing them later is a decision with a cost rather than an edit.

Accountability sits with TarmacView for capture, detection, rating and the model, and with the municipality for the section map, for access and for what is done with the priority list. Nothing here is a compliance statement, and whether a given condition record satisfies a particular funding programme is a question for that programme.

Frequently Asked Questions

What exactly arrives at the end of a survey?

Four things. A map of every detected defect with its position, its type and its extent, so a crack is a located object rather than a note. An overall condition rating for the network and for each section within it. A priority list naming the sections that need attention first and why. And a 3D model of the surveyed surface, which is what lets a later survey be compared against this one rather than described next to it. The report arrives within two weeks of capture.

Do you need to close the road?

No closure is booked in advance. Capture runs from drone and ground imagery over a window of one to two hours for the area agreed, and traffic keeps moving through it. Where local rules require a permit for the drone flight, that permit is arranged before the date rather than on the day. Larger networks are captured across several windows rather than in one longer closure.

How does the defect detection actually work?

Imagery is passed through a vision model that segments the surface and classifies what it finds. The backbone is a self-supervised vision transformer, which produces an embedding for every small patch of the image, and lightweight heads on top of those embeddings do the crack segmentation and defect classification. The practical consequence is that the detector applies the same threshold everywhere, on every survey, which is the property a human crew driving a network cannot offer.

Is the condition rating a Pavement Condition Index?

It is a proxy for one, not a formal survey. The rating uses the same idea as the Pavement Condition Index, which is that detected distress of a given type, severity and density reduces a score from 100 downwards. It is derived from image analysis rather than from an inspector walking sample units and reading deduct curves. Where a programme requires a formal survey to a named standard, this rating does not replace it. Where the question is which sections to treat first, it answers that directly.

Why is pilot pricing lower?

Because the survey imagery improves the detection model, and that is worth something to us. A pilot is priced below list on the understanding that the captured data is used for training. This is stated in the agreement rather than assumed. If you do not want the imagery used that way, the survey is priced at list instead and nothing else about the deliverable changes.

Can the output go into our existing systems?

Yes. The defect inventory and the section ratings are delivered as tabular data with coordinates, which is the shape a pavement management system or a municipal GIS expects. The format is agreed before capture, because the receiving system decides it. The 3D model is delivered in a standard exchange format so it can be opened without our software.

References

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