

Highways: The New Economics Story Of A Pothole

The Story of a Pothole

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The Beginning

A Simple Question: What happens if you repair a small pothole as soon as it appears?

A 3cm-deep defect can be permanently repaired the next day using a single cup of high-quality asphalt.

Now compare that with the current approach.

The defect is left until it reaches the council's intervention threshold. Because it is only just large enough, it may then wait another 26 weeks before repair.

The result?

- One small repair becomes a much larger one.
- More inspections are needed.
- Multiple reports are made on FixMyStreet.
- Hundreds of vehicles are damaged.
- Near misses increase.
- Water enters the road structure, causing rapid deterioration.
- Eventually, hundreds or even thousands of times more asphalt is required.

A road that was once in excellent condition becomes unsafe and expensive to repair.

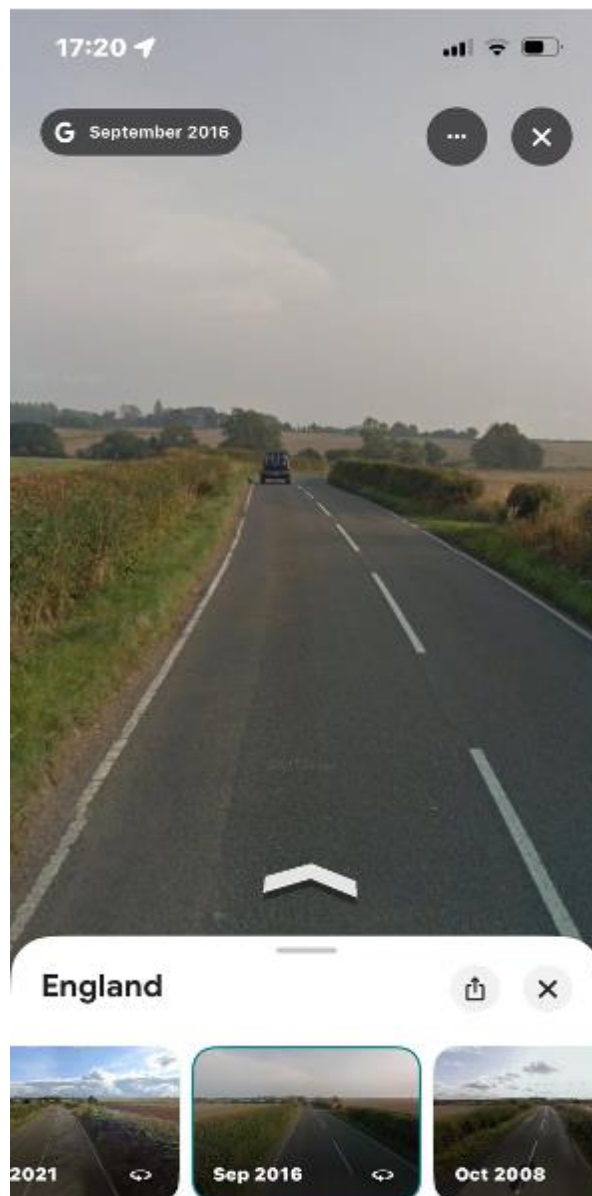
The Story of Radstone Road

Radstone Road is a typical rural road linking Brackley, Helmdon and the B4525. Originally little more than a farm track, it was adopted by Northamptonshire in the 1860s and probably first surfaced with asphalt in the 1960s.

By 2016 the road was in excellent condition. It had:

- Clear centre and edge white lines.
- Very few defects.
- Good drainage through traditional roadside grips.

A Google Earth image from September 2016 shows a sound road with no signs of failure.



Less than seven years later, by April 2023, the same section had deteriorated dramatically.



The obvious question is: How can a road described as "well managed" decline from excellent condition to almost beyond repair in under seven years?

Interestingly, 2016 was also the year the new *Well Managed Highway Infrastructure* Code of Practice introduced "risk-based management".

Watching One Pothole Grow

I cycled along Radstone Road several times each week and regularly reported defects.

At the time, Northamptonshire's intervention level for potholes was approximately 30cm × 30cm × 4cm, a volume of 3,600cm³.

The pothole I first noticed was only about 4cm × 4cm × 3cm, just 48cm³. It was far below the intervention threshold, so nothing was done.

On 8 January 2020, just over three years after the 2016 Google Earth image, I reported it on FixMyStreet.



Even then:

- The edge white lines had almost disappeared.
- Cracking had begun around the defect.
- Loose stone (scree) was visible along the drainage channel.
- Water was already entering the road.

Although the pothole had finally reached the intervention size, it was already too late to prevent further damage.

Around 20 tractors, 50 HGVs and over 1,000 other vehicles travelled over this section every day. Every wheel strike forced water deeper beneath the surface, weakening the road further.

By 16 September 2020, the pothole had grown to approximately 50cm × 35cm × 8cm, with clear evidence that water had liquefied the material beneath the asphalt.

The Cost of Waiting

The numbers tell the story.

If the defect had been repaired when it first appeared, it would have needed around 300cm³ of asphalt.

If repaired immediately after my January 2020 report, it would have required about 9,000cm³, already 30 times more.

By September 2020 the repair volume had increased to around 14,000cm³. Including the neighbouring failed repair, around 210,000cm³ of asphalt had been used 700 times more than an early repair would have required.

Six Years Later

In July 2026, the damaged section extends for around 47 metres (see below images).



The road has widespread "crocodile cracking" and structural failure across much of the carriageway.

To rebuild this section properly would require approximately 4.2 million cm³ of asphalt.

That is:

- 14,000 times the volume needed for the original defect.
- Around 470 times the official intervention threshold.

All because a very small pothole was allowed to grow.

Who Benefits?

Under earlier maintenance practices, defects of around 4cm depth were often repaired before they caused structural damage. Under the current risk-based approach, defects are left until significant deterioration has already occurred.

The result is predictable:

The Highway Authority? No. Costs increase and budgets come under pressure.

Councillors? No. Complaints increase while resources become more limited.

Road users? No. More vehicle damage, poorer roads and greater safety risks.

Society? No. Higher repair costs, more collisions, greater NHS demand and reduced active travel.

Asphalt suppliers? Demand increases as repairs become larger and more frequent.

Conclusion

This single pothole demonstrates how delaying a simple repair can lead to massive long-term costs. A defect that could have been repaired with a few hundred cubic centimetres of asphalt ultimately requires millions. If the objective of *Well Managed Highway Infrastructure* is better value for money and safer roads, this example raises an important question:

Does the current risk-based approach achieve those aims, or does it simply allow small, inexpensive problems to become very large and very expensive ones?

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