

Analogy of Poor State of our Fen & Whittlesey Roads- by AB.

*noun: **analogy**; plural noun: **analogies***

a comparison between one thing and another, typically for the purpose of explanation or clarification.

Last night's council meeting.

A good report on the road discussion Roy.

I had reason to travel to March and Thorney yesterday. Looking at where roads are failing (height of road / proximity of ditches) the basic report below (sent to Chris, Michael and Barry) looks accurate.

The need to meet and discuss mitigations for patch repair disruptions is likely to increase and road conditions will get worse before (or even if) they get better. Haq is aside from any new developments needed services. I imagine new developments will also mean more water flood management/ lower water table - which is not managed in relation to maintaining roads.

Fen roads situation - It is getting worse, objectively, not just a feeling

The Fens now have three compounding pressures:

a. The peat is still shrinking every year

Wherever deep drainage is maintained the soil *keeps dropping*. Roads laid on this are being stretched and bent like a carpet on a slowly tilting floor.

b. Heavy vehicles have become far heavier

Modern agricultural traffic now weighs far more than the roads were designed for. Those loads squash the already-weak substrate and cause the "tramline" collapse you showed in the image.

c. Drainage intensity has increased

To protect agriculture and homes, pumping lowers the water table. Lower water tables mean *faster* peat oxidation beneath road verges and shoulders, which leads to exactly the kind of edge collapse being photographed.

This combination means the failure rate of roads accelerates even when maintenance budgets hold steady.

This road is a highway built on peat and other highly compressible soils. It should be treated as a geotechnical risk site under CD 622 and planned for structural renewal rather than routine patching. That status does not magically produce money, but it gives the council a proper technical basis for seeking capital funding and using more robust designs. You break the cycle by fixing the ground the road sits on, not just the asphalt surface, and by raising or stabilising local water levels where possible so the peat stops shrinking. Predictive maintenance then becomes possible because you are designing for movement, not pretending the ground is stable. Lift the water table and use predictive maintenance.

Why the Dutch succeed where we fail

The Netherlands treats soft-ground roads as a *specialist discipline*. Britain treats them as normal rural roads plus a bit of extra tarmac.

The Dutch assume:

- the ground will move
- the water table will rise and fall
- the peat will shrink

- heavy loads must be controlled
- drainage and roads must be managed together

So they design accordingly.

Typical Dutch measures include:

- **Deep geotextile reinforcement**
- **Lightweight fill** to stop the road sinking
- **Compensated embankments**
- **Steel-pile edge restraints**
- **Crash barriers anchored into firm layers**
- **Strict routing of heavy vehicles**

In the UK, most Fen roads still sit on thin historical constructions placed directly on the peat.

Local authorities “monitoring” is code for: we cannot afford a rebuild

To rebuild a failing Fen road properly you must:

- excavate a deep section
- stabilise or replace the substrate
- lift the water table under verges
- reinforce edges
- potentially install geogrids or piling

This costs **£1m–£3m per kilometre** depending on depth and soil behaviour. Councils simply do not have that budget, so they add signs and patch holes.

That is why deterioration feels worse: **the underlying failure mechanism has accelerated while the maintenance model has not changed.**

Domestic homes, businesses and major A-roads will stay viable — but minor roads will increasingly fail

Major roads get reinforced and protected.

Homes built on piles stay stable.

But **minor Fen roads** will:

- sink faster
- crack more often
- require more temporary closures
- become less safe for cyclists and motorbikes
- need more weight restrictions
- cost more to rebuild when the time comes

Without a Dutch-style strategy, the decline is baked in by the soil itself.

Classic Fen failure: verge subsidence + shear cracking

- The road edges will slump downward because the verge has lost volume beneath it
- The asphalt cracks along the load line
- A dip forms in the wheel track where the underlying soil has compressed

This is not potholing. This is **structural collapse of the road base** caused by **soil movement**, not just surface wear.

You cannot repair this with patching. You can only delay it.

Some AI helped ideas on the topic =

1. Stop treating Fen roads as normal roads

The current mistake:

Roads are built and repaired as if they sit on stable ground. They don't.

2. Lift the water table under verges and stop the peat from shrinking

This is the single most powerful tool the Dutch use.

The vulnerable part isn't the road surface. It's the *shoulders* and *verges*, which dry out, shrink, collapse and drag the road edge down with them.

Changes that work:

- Keep roadside drains *higher*, not deeper
- Add controlled culverts to maintain moisture in the peat
- Use movable weirs to stop over-drainage
- Introduce *managed aquifer recharge* beside key road corridors

This slows or halts the shrinkage that is tearing the road apart.

This alone can extend Fen road lifespan by several decades.

3. Build a modern roadbed designed for moving ground

When a Fen road is rebuilt, it should not be rebuilt "the old way".

The stable models use:

- **deep geotextile reinforcement**
- **geogrids** to spread loads
- **lightweight fill** (foamed concrete, expanded clay, EPS blocks)
- **piled edges** or **steel-reinforced timber kerbing**
- **compensated embankments** so the road does not sink under its own weight

These are proven in the Netherlands, Denmark and parts of the US.

Costs are higher than patching, but they pay back because the failure cycle is broken.

4. Protect minor roads from heavy vehicles

Fen peat cannot carry modern agricultural axle loads.

Options:

- weight restrictions on vulnerable stretches
- designated **heavy-vehicle corridors** built to higher standards
- farm access tracks upgraded instead of letting HGV traffic migrate onto weak B-roads
- GPS-based enforcement for repeated offenders (Dutch model)

This is not anti-farmer. It's exactly what Dutch farmers live with because it preserves the entire network.

5. Tie road management to drainage management

Right now the UK treats them as separate.

The Dutch treat them as one system.

A Waterschap-style model means:

- drainage boards and highways engineers plan together
- pump schedules are adjusted to avoid over-drying verges
- embankment, dyke and road foundations are treated as a single structure

This means the *hydrology* is designed to protect the road, not undermine it.

6. Use realistic maintenance cycles

UK approach: patch holes when they appear.

Dutch approach: predict movement and reinforce before failure.

Examples:

- schedule shoulder stabilisation every 5–8 years
- regrade profiles before dips become shear cracks
- add moisture to verge peat during drought episodes
- reinforce edge restraints before collapse

This turns a reactive model into a preventive one.

7. Build local expertise (the Dutch do this because it works)

This part of James Fuller's comments is spot-on.

The Fens need:

- a soft-ground engineering programme at a regional university
- exchanges with Wageningen or Delft
- training for local contractors in peat-road methods
- creation of a "Fenland Infrastructure Lab"
- pilots where Dutch methods are trialled on short sections of collapsing roads

The Dutch treat soft ground as a solvable engineering puzzle.

We treat it as a nuisance.

8. Accept that some roads should be rebuilt, not patched

This is uncomfortable but true.

Some Fen roads can no longer be kept safe with surface treatments.

They need structural rebuilds using a polder-style design.

Signs like your photo mean:

- the substrate has failed
- the peat beneath has shrunk or sheared
- surface dressing will last weeks, not years

A rebuild is the only break in the cycle.

Summary in one line

You break the cycle by repairing the ground the road sits on — not just the asphalt on top.

RG Note....of course AI Artificial Intelligence knows all the answers – really You need at least

3 different AI models to compare the facts and even then it may bet it wrong.

I rarely and I mean rarely use any form of AI to write articles.