

Drone Inspections for Highway Infrastructure: Thurrock Council Case Study

Thurrock Council is using specialist drones to find defects on hard-to-reach highway infrastructure, a trial delivered by ProDroneWorx and reported by BBC News on 29 September 2026. Every highway authority in the UK has assets that are difficult, slow or unsafe to inspect. This case study sets out what Thurrock did and how the same approach can work on your network.



The challenge

Highway structures on Dunstable Road and St Margaret's Road in Thurrock, Essex, sit among steep embankments, dense vegetation and confined spaces. Inspecting them the traditional way means sending engineers onto unstable slopes, through undergrowth or into enclosed structures.

That approach is slow, often needs access equipment or traffic management, and puts staff at risk. It also makes it harder to spot problems early, before they become expensive repairs.

Our approach

ProDroneWorx surveyed the structures with specialist drones carrying high-resolution cameras and slam laser scanning. Nobody had to enter a hazardous location.

- **Capture:** detailed, 3D point cloud and location-referenced imagery and condition data from embankments, vegetated areas and confined spaces.
- **Record:** a digital record of each structure, which becomes a baseline for future inspections.
- **Flag:** defects identified and logged against their position, so engineers can see where further investigation is needed.

Where structures are enclosed, such as culverts and chambers, we use the Elios 3 collision-tolerant drone, which flies inside the structure from its entrance and captures video, stills and a LiDAR 3D model.

Results for Thurrock Council

The council now has detailed condition data to prioritise maintenance, target repairs and inform future investment in its highway network. "These surveys give our engineers detailed information without needing staff to enter difficult or hazardous locations, helping us identify issues earlier and make better decisions about maintenance and repairs." Richard Bingley, Leader, Thurrock Council

- **Safer:** no staff on steep embankments or in confined spaces.
- **Faster:** structures surveyed quickly, with less time on site.
- **Better decisions:** defects found earlier, before they become costly failures.
- **Reusable:** a digital record to compare against on future inspections.

Why this matters for your council

Councils are maintaining ageing assets on tight budgets. Drone inspection cuts access costs, so more assets can be inspected for the same budget, and maintenance can move from reactive to planned. Multiple structures can also be inspected or surveyed in one day making it very cost effective.

The same approach works on:

Asset	What we capture	What it replaces
Bridges and retaining walls	Soffits, abutments, bearings, wall faces	Underbridge units, scaffolding, road closures
Culverts, headwalls and outfalls	Internal condition, debris, cracking, 3D model	Confined-space entry teams and rescue cover
Embankments and cuttings	Slope condition, vegetation, drainage, terrain models	Walking unstable slopes
Road corridors	Topographic LiDAR, point clouds, CAD for design	Lane closures and traffic management
Council buildings and housing	Roofs, gutters, facades, high-level elevations	Ladders, cherry pickers, scaffolding

How we work with councils

1. **Scope:** we agree the assets, priorities and outputs with your engineers.
2. **Plan:** site-specific RAMS, airspace checks and permissions, shared before we mobilise.
3. **Capture:** drone and confined-space surveys, with several assets covered in one visit where possible.
4. **Deliver:** condition imagery, point clouds, 3D models and CAD, in formats that drop into your asset management and GIS systems.

ProDroneWorx holds ISO 9001, SSIP accreditation, Constructionline Gold and Cyber Essentials, and flies under CAA operator registration. We carry £10m employer's liability, £5m public liability and £5m professional indemnity insurance.

Next steps

If you have assets that are hard to reach, we would be happy to talk through the Thurrock trial and what a pilot could look like on your network. We can also run a short CPD session for your highways or asset management team.

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Source: [BBC News, "Drones to be used to pinpoint road defects and hazards", 29 September 2026](#)