Virtual Inspection of Above Ground Network Assets Using Street Level Imagery

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Utilities across the UK, Europe and America, own and maintain electrical, gas, water transmission and distribution networks. Typically, these networks service a large geographic region with a significant proportion of their network being above ground and often in semi-urban and rural areas.

To conform to regulatory requirements and to keep the public safe, this infrastructure is inspected periodically from a health & Safety perspective. The condition of these assets and their proximity to surrounding infrastructure and potential hazards are monitored on a periodic basis.

Inspections can be a physical or a visual safety inspection. Often physical and visual inspections are alternated between over time.

The following information is normally collected during inspection:
- Location of the assets
- Lean of structures
- Asset condition
- Height, visibility and condition of warning signage
- Clearance around critical infrastructure including clearance of spans across roads
- Proximity of network assets to vegetation
- Signs of damage, hazards or interference
- Physical and Geographic connectivity

Inspections have traditionally been carried out on foot, with an inspector checking the overhead assets one circuit at a time. The frequency of inspections varies by asset type and network however the inspection regime is normally managed within a Works Management System. While a physical inspection reports the condition of all above ground assets; visual safety inspections often report by exception. The data captured by field inspectors, including imagery, is currently captured using a combination of paper records and digital devices to be later updated in Asset Management Systems.

How Can Cyclomedia Help?

Virtual Survey

Cyclomedia collects very High definition 360-degree imagery and LiDAR data at ground level, over very large areas. We collect our own imagery, using our fleet of 65+ data collection vehicles. This provides DNO's with an up-to-date image database of their operational area collected within a defined period. We drive down roads and tracks not normally accessed by other imagery providers such as google. This can involve getting permission from local authorities and other landowners to gain access to private roads.

For off-road collection our camera units are attached to quad bikes.

Asset extraction

We can extract the location, asset type, and condition of above ground assets. This data can be used to virtually survey assets, removing the need to carry out foot based visual surveys.

If imagery of the same location is collected many times, we can visually monitor any deterioration of assets over time.

The imagery collected along with the extracted assets are made available within our Street Smart application along with API's. Cyclomedia have existing Plugin's to all major GIS applications enabling simple integration.
Legal evidence.

Our data is made available through a cloud platform called Street Smart. Street Smart allows users to create custom reports for each asset and output them as a PDF file. This data has been used in both the Netherlands and Germany as legal evidence of asset condition.

Tangible Benefits

>80% OPEX Saving – Virtual surveys cut operational costs and travel time expenditure.

50% **Time Saving**	**£3.67** **Per Pole**	**82%** **Cost Saving**

This is based on an average cost of £20.00 to manually survey a low voltage distribution pole, we predict there is a potential saving of £16.00 per pole using Cyclomedia imagery.

Safety	**Audit Trail**
Assets can be checked more frequently virtually	High-Definition imagery reports provide auditable evidence of asset condition

Asset management	**ESG**
Visible deterioration can be a leading indicator of asset degradation	Carbon miles saved through reduced inspector travel and minimized risk of field incidents

Visualize a better world.

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Geo Data Driven Insights