

GIS revolutionising Hertfordshire County Council's management of highway schemes

Hertfordshire County Council

The Challenge

- Develop a central hub to enable different teams across Hertfordshire County Council to coordinate highways schemes to reduce road closures, costs and minimise the impact on local communities

The Benefits

- Better decision-making driving down costs
- More efficient collaboration supporting community engagement
- Enhanced longer-term planning aids understanding
- Improved service delivery for communities

Hertfordshire County Council is taking a 'one and done' approach to the management of its highway schemes. Using ArcGIS Enterprise it has developed a Virtual Operations Hub enabling different teams to collaborate and coordinate works, minimising road closures and reducing costs.

The Challenge

Hertfordshire County Council (HCC) is responsible for over 5,000km of highway network and its Highways Transport Planning and Data Team (HTPD) constantly strives for improvement in service delivery through objective analysis, openness and transparency.

There are hundreds of improvement and maintenance schemes being planned or undertaken on the network at any given period, all of which are generated through a variety of pathways. Highways engineers need to be aware of all these schemes and programmes of works, from emergency work, and gully cleansing to resurfacing, in order to identify co-ordination opportunities. However knowledge was not easily sharable, coordination was difficult and opportunities to optimise resources were potentially missed. Data was held in isolated silos, on different platforms, and there was no single tool to give context to the data and offer any useful interpretation. Knowledge also remained with individuals and was not always recorded.

The HTPD team was asked to investigate how a new collaboration tool could support the 'one and done' approach. HCC already had internal web maps for asset management purposes and user groups including district service agents, contract managers; but what did they want to see?

The HTPD team acknowledged it was vital to support project coordination to save time and costs. "The web app was the easy bit. The difficult part was understanding where the data was stored and getting information out of people's heads," observed Antony Oldridge, Team Leader/Principal Analyst, Transport Planning & Data Team, Environment & Transport, Hertfordshire County Council.

The Solution

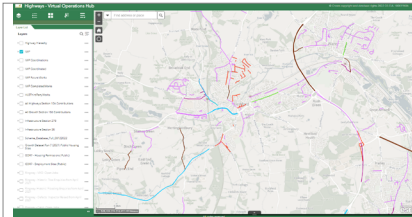
The Virtual Operations Hub is a live web app developed in partnership between HCC, WSP Arup and Ringway Infrastructure Services. It contains work HCC is planning to do on the network, schemes being considered for following years, completed schemes alongside customer reported defects and enquiries. Data is shared between all parties within the Hertfordshire contract.

Experienced in the use of ArcGIS Enterprise, the HTPD team began by using ArcGIS Desktop to prepare the data layers and undertake clash detection. Data is extracted and published in ArcGIS Online, visualised on one digital map letting users instantly see commonalities, view data they did not previously have access to and combine datasets to understand spatial and temporal relationships.

Currently (as of March 2023) its 27 data layers, automatically updated, include contextual information such as planned housing, flood risk areas and HCC's ideas pool of potential schemes to help mitigate the effects of growth and encourage active travel. Several layers are automatically updated overnight with Ringway contributing its own data. Access for Ringway teams is through a shared, secure HCC portal account using Citrix to access the dynamic landing page.

“Our highways schemes are now joined and we can also think more strategically longer-term so, if we need to build something, we will build it once, and build it right.”

Gary Beaumont, Transport Planning & Data Manager, Hertfordshire County Council



Highways - Virtual Operations Hub

Internal training for colleagues is being rolled-out across user group meetings, so specific teams can see how their requirements are being met. Individuals from these teams now access the Virtual Operations Hub to view and query data in order to look at collaboration opportunities.

The Benefits

Preventing gridlock and reducing congestion

Co-ordinated works support HCC's 'one and done' approach by minimising road closure times, maximising the use of road space and reducing the impact on local residents and businesses. Related works such as sign-cleaning, hedge trimming and gully cleaning can now be undertaken while a resurfacing scheme is taking place. In 2022/23, HCC co-ordinated 379 out of 1874 schemes, into 49 separate coordination areas.

Better decision-making driving down costs

The Virtual Operations Hub is helping HCC to save money and reduce costs to society, by minimising congestion and disruption. Detailed evaluation of planned schemes enables decision-makers to assess needs and make decisions on whether to proceed more accurately. HCC has already identified six schemes to merge, defer, and coordinate so far in 2023 which would have cost approximately £60,000.

More efficient collaboration supporting community engagement

Highway Locality Officers now use the Virtual Operations Hub when liaising with County Council members and communities; readily available information allows them to inform, engage and make intelligence-led decisions on, for example, cycling and walking infrastructure plans.

Enhanced longer-term planning aids understand

The Virtual Operations Hub contains future ideas and mitigation schemes that have been generated from highway modelling, and strategy documents like the Local Cycling Walking and Infrastructure Plans (LCWIP) and the growth and transport plans. Strategy Managers can see growth and potential schemes, enabling them to plan for possible larger interventions and understand the possible lifetime of current works.

Improved service delivery for communities

Data from cyclic work such as gully cleansing is viewed live from site crews enabling the drainage community to understand the context of flooding enquiries. Routine works and highways enquiries such as road degradation reports are mapped, so managers can more easily understand the history of the road section and any potential clustering of issues. These can be used to inform priority works planning where, for example, road conditions have worsened.

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