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Case study

Saving millions of pounds through collaboration

Atkins

The Challenge

- Improve collaboration between utilities and local authorities to reduce the number and duration of road works

The Benefits

- £5.2 million in savings from fewer road works
- 50% reduction in days of traffic disruption
- Reduced socio-economic & environmental impacts from congestion
- 57% cut in the cost of new connections
- More efficient long term maintenance planning

A new collaboration strategy is now available to utilities and local authorities to help them coordinate road works, dig fewer holes and cause less traffic disruption. With a methodology developed by Atkins and partners, the solution is already delivering multi-million pound savings, reducing the duration of road works by 50% and delivering a range of socio-economic and environmental benefits.

The challenge

Every time a road is dug up – whether to maintain a gas pipe, repair a water mains, lay new broadband cable or undertake routine resurfacing – there can be huge disruption for local residents and road users. At the same time, there are substantial costs involved, not only from actually digging the holes, but also from operating temporary lights, communicating with residents and applying for licenses. So wouldn't it be better if utilities and local authorities could plan roadworks more collaboratively to both reduce inconvenience for road users and save money?

The Solution

The respected design, engineering and project management consultancy Atkins was convinced that if different departments and organisations could share data more effectively, they could coordinate their activities and significantly cut the number and duration of road works. In partnership with Thames Water and Croydon Council, Atkins deployed a borough-level methodology that aligned with an emerging consensus from the Mayor of London's Infrastructure Group of the need to more efficiently coordinate infrastruture delivery. The methodology leveraged Esri's ArcGIS solution to develop a secure and trusted platform to enable organisations to visualise their sub-surface assets and those of other departments or external organisations.

Called Connect, the ArcGIS-based methodology allows collaborating organisations to see the 'as is' picture of all the assets that currently exist below roads and a 'future' view of all the projects planned, in each location, by each participating partner. Users can query the data and ask 'what's near' a particular gas pipe to see all other subsurface assets like water mains that could be maintained in parallel in the same scheduled road works.

Atkins and its partners developed the Connect methodology using ArcGIS Online and the ArcGIS Web AppBuilder, with the support of the Greater London Authority's Infrastructure Mapping Application, and ensured that all data entered was compliant with Building Information Management (BIM) best practices. Using an agile project methodology to support collaboration, Atkins then sought input into the project from utilities and local authorities and also conducted workshops with members of the public to solicit their views. This collaborative approach informed the development of the data-sharing methodology and helped Atkins and its partners to overcome organisations' initial resistance to sharing commercial information.

In order to scale across the London metro area, the Connect methodology has benefitted from the Esri-based Greater London Authority's Infrastructure Mapping Application, funded by industry and providing a multi-utility data repository facilitated by non-disclosure data agreements.

"This ArcGIS-based methodology solves a huge problem for our clients, utilities, local authorities and large commercial sites, such as airports," says Geoff Waite, Geospatial Director at Atkins. "It allows better quality data to be shared and visualised and is a large step forwards for creating a BIM-compatible digital twin for Britain's subsurface assets."

Learn more at: esriuk.com

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>
> Geoff Waite, Geospatial Director, Atkins

The Benefits

£5.2 million in savings from fewer road works

By using the Connect methodology to improve data sharing between different departments, Atkins’ client Thames Water was able to detect more than 120 km of road where two projects such as mains replacement and new connections could be planned to take place simultaneously. The organisation was then able to renegotiate contracts with road digging contractors and identify ways to save a predicted £5.2 million and remove 3,900 days of construction through its programme.

50% reduction in days of traffic disruption

Continuing to use the Connect methodology, Thames Water, Southern Gas Networks and the London Borough of Croydon were able to coordinate plans to carry out routine maintenance on the road surface, gas pipes and water mains along the busy Epsom Road in Croydon. If the planned jobs had been undertaken separately, construction work would have taken 30 weeks, but it was reduced to 15 weeks through use of the ArcGIS-based Connect platform. Furthermore, the collaborative approach is estimated to have saved around £240,000 for the gas and water utility providers involved.

Reduced socio-economic & environmental impacts from congestion

In the Epsom Road project described above, Atkins estimates that the use of the Connect methodology contributed to socio-economic and environmental benefits of £670,000 from reduced congestion, fewer delayed journeys, improved air quality and less fuel consumption. “1,200 residents live along the Epson Road and thousands of drivers, pedestrians and cyclists use it every day,” says Waite. “Reducing the duration of the road works had a positive impact on the lives of all these people.”

57% cut in the cost of new connections

Using the Connect methodology, it is now possible for utilities to collaborate more effectively to save money when providing water, gas and broadband connections for new housing developments and commercial property developments. They can share the cost of digging the hole, obtaining road closure permissions, suspending parking bays and resurfacing the road. According to Waite, “Atkins has estimated that the cost of providing services for a new housing development or commercial premises could reduce by 57% per new connection, if utilities collaborate.”

More efficient long term maintenance planning

Atkins anticipates that use of the Connect methodology will prevent a lot of time from being wasted planning maintenance activities that have to be cancelled. Currently, utilities often have to abandon months of planning if they discover that the road has been resurfaced, because section 58 of the Highways Act stipulates that roads cannot be dug up again for five years except in case of emergency. If utilities and local authorities collaborate, maintenance works can be undertaken before the roads are resurfaced, reducing the risk of future, costly emergency works and unsightly patches on roads.

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