

Driving the sustainable operation of the M25

Connect Plus

The Challenge

- Minimise negative impacts on the environment from the ongoing operation and maintenance of the M25

The Benefits

- Greater environmental awareness in organisation
- Improved schemes to conserve habitats and species
- 25% more productivity in field workers
- Cost savings from better tender processes
- The ability to share enhanced quality data



Within the grass verges of the M25, one of Europe's busiest motorways, Connect Plus Services is taking innovative steps to conserve some of Britain's protected species and to promote pollinator species. Using Esri's ArcGIS platform, the company is able to better understand the environmental impacts of its business, implement schemes to enhance the natural environment and, at the same time, operate more cost efficiently.

The Challenge

The joint venture company Connect Plus Services works on behalf of Highways England, as part of a DBFO (Design, Build, Finance and Operate) contract comprising all motorways and A roads within Highways England's Area 5 network around Greater London. As well as maintaining this 228-mile road network, the company has a legal obligation to protect the natural environment, a challenging requirement that also involves monitoring and improving approximately 15 km² of soft estate on roadside verges.

The Solution

Connect Plus Services has been using geographic information system (GIS) technology ever since its foundation in 2009, when it was awarded the 30-year M25 contract by Highways England. The company's Environment Department selected Esri's ArcGIS platform to meet Highways England's EnvIS (Environmental Information System) data requirements and improve the quality and quantity of environmental asset data available for the M25 network. It drew together a diverse range of data sets, from on-site surveys and street-view video to water drainage reports and public rights of way data, to build up a valuable and informative picture of the natural environment under its stewardship.

In addition, Connect Plus Services took advantage of ArcGIS Online & ArcGIS Server to create a Corporate GIS for the visualisation of operational data. Using this platform, the company can make its rich environmental data accessible to all employees, across all departments, via a secure, intranet-based map viewer. This solution not only displays environmental and asset-related information on an intuitive mapping interface; it also puts basic GIS capabilities in the hands of all employees, enabling them to conduct analysis on demand, to help them make better decisions.

More recently, the Environment Department has used the ArcGIS Collector App to create a versatile mobile GIS solution, integrated with internal systems, that removes the need for surveyors to rely on paper maps and survey forms. Field-based employees enter their survey findings into mobile devices, from the roadside, and the data is automatically and securely transferred directly into Connect Plus Services' central systems, without any need for further manual data handling.

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Jennifer Banks, GIS Specialist and Environmental Assistant, Connect Plus Services



Benefits

ArcGIS now plays a key role in helping Connect Plus Services to meet its environmental obligations more efficiently. The advantages include:

Reduced adverse environmental impacts

Employees use ArcGIS to make more informed decisions about how to mitigate any potentially damaging environmental consequences during and following activities such as essential road maintenance. “It is vitally important for us to ensure that due consideration is given to the environment in everything we do,” says Jennifer Banks, GIS Specialist and Environmental Assistant at Connect Plus Services. “ArcGIS has become a critical tool in helping us ensure that the ongoing maintenance of the M25 has minimal adverse impacts on the environment.”

Improved schemes to protect native species

In a range of environmental improvement projects, Connect Plus Services is using ArcGIS to help it proactively conserve protected species and enhance environmental assets. For instance, the company uses ArcGIS to analyse third-party land that lies adjacent to the soft estate it manages, to determine whether it is feasible to use the roadside verge to create ecological corridors. As Graham Lee, Environmental Manager at Connect Plus Services, explains, “It is possible to use the motorway verge to enhance ecological connectivity, by joining areas of species-rich grassland so that pollinator species can move more freely within the landscape.”

25% more productivity in the field

Using the mobile GIS solution, the organisation’s environmental inspectors can complete surveys in the field in significantly less time, as they no longer have to record their environmental information on paper, then re-enter it when they get back to the office. “We have cut the amount of time we spend on surveys and post-survey data entry by up to a quarter,” says Lee. “As a result, we can perform more inspections of the soft estate, more quickly and in greater detail, to meet the growing needs of the business.”

More cost-effective tenders

Connect Plus Services is making ongoing cost efficiencies by giving sub-contractors more accurate plot information relating to grass cutting, weed control and vegetation removal activities. “When we go out to tender, we receive more competitive prices from contractors, as they have more accurate information about the areas of land we expect them to work on,” Lee says.

Better data, shared more easily with partners

Finally, Connect Plus Services can now continually enhance and more easily share its data. For instance, new data on environmental assets, collected by mobile surveyors in the field, can be easily submitted quarterly to Highways England, for inclusion in its Environmental Information System (EnvIS). As Banks observes, “Working with GIS data in apps such as Collector streamlines the digital data hand-over process because our client, Highways England, also use an Esri GIS system to store, view and analyse information.”

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