Reacting quickly to the challenges of COVID-19

Transport for West Midlands

The Challenge

- Provide the Mayor's office, local authorities and other stakeholders with up-to-date information
- Keep vital transportation services available for key workers

The Benefits

- Clear understanding of the effectiveness of emergency policies
- Essential travel services maintained for key workers
- Vital links established to NHS Nightingale hospital
- Improved public safety on the roads
- Evidence to gauge the economic impact of lockdown

The outbreak of COVID-19 led to a 90% drop in passenger numbers and a significant reduction in public transport services in the West Midlands, within just a few short days. Transport for West Midlands stepped forwards rapidly to provide leadership in this period of uncertainty and keep vital services running for healthcare staff and other key workers.

The Challenge

Under normal circumstances, the role of Transport for West Midlands (TfWM) is to deliver a clean, safe and affordable transportation network, to give everyone in the West Midlands access to education, training and employment opportunities. However, when the British Government announced its strategy of social distancing and prohibited all but essential travel in response to the COVID-19 outbreak, the situation became anything but normal. "For the first time in our history, we were encouraging people not to travel or use public transport," says Stuart Lester, Data Insight Manager at TfWM. "We needed to react quickly to new challenges."

The Solution

Within days of the first COVID-19 cases in the West Midlands, TfWM launched a web-based Esri Operations Dashboard to monitor the emergency situation and its impact on the region's transportation network. Hosted in-house on TfWM's existing ArcGIS Enterprise platform, the dashboard presented daily COVID-19 cases, supplied by Public Health England, along with a number of other diverse, live data sets that had never been combined before, including:

- Data on usage of the region's Swift smart travel card, used as an indicator of public transport usage
- Information on passenger numbers and revenues from transport operators
- Data from the Waze for Cities programme, showing traffic speeds in six key commuter corridors
- Usage data for park & rides, car parks, rail stations and metro stations

TfWM made this interactive dashboard accessible to the Mayor's office, over 260 local authority employees, the police and key partners including Network Rail, Highways England and the Department for Transport. Easy to use, it gave everyone shared access to the same, up-to-date data they needed about the transport network to make informed decisions.

The key achievement, according to Lester, was the speed of delivery. "The ArcGIS platform enabled us to get an Operations Dashboard up and running very quickly, without doing any programming," he says. "We were able to roll it out in a controlled, secure manner to lots of users and then adapt, iterate and improve it, as the crisis unfolded."

With support from Esri UK's Professional Services team, TfWM next developed an Essential Workers Web Map to help it identify the priority public transportation services needed to get key workers to work. TfWM obtained the anonymised home locations of key workers, provided by their employers and staff themselves, the locations of priority sites, like hospitals and supermarkets, and census data showing areas with high public transport dependency. It then combined all this data on a multi-variate choropleth map, revealing where regular public transportation services were most needed.

Learn more at: esriuk.com

"Esri UK has helped us to visualise our key worker data, so that we can really understand the challenges and focus transport resources effectively."

Stuart Lester, Data Insights Manager, Transport for West Midlands

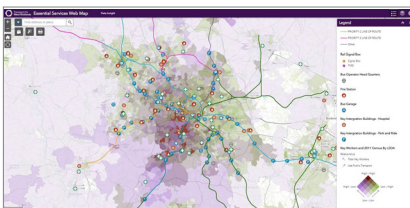The Transport for West Midlands COVID-19 Dashboard, with data from 17th April 2020

Transport for West Midlands' Essential Services Web Map, showing the home locations of key workers, transport routes and priority locations like hospitals

The Benefits

Clear understanding of the effectiveness of emergency policies

Using the TfWM COVID-19 Operations Dashboard, stakeholders can now evaluate the success of the Government's stay at home instruction effectively, by monitoring changes in public transportation usage and traffic volumes. Equally, following the Mayor's announcement that elderly and vulnerable people can use their concessionary travel cards before 9:30am to get food, the dashboard can be used to see the up-take of this important new policy.

Essential travel services maintained for key workers

The development of the Essential Workers Web Map enables TfWM to work with its partners and ensure that critical public transport services remain available to key workers. "Despite declining passenger numbers and revenues, the transport network still has a huge part to play in getting the right people to the right places as part of the national effort to deal with the pandemic," Lester says. "Esri UK has helped us to visualise our key worker data, so that we can really understand the challenges and focus transport resources effectively."

Vital links established to NHS Nightingale hospital

When the decision was made to set up an NHS Nightingale emergency field hospital at the National Exhibition Centre (NEC) in Birmingham, TfWM used ArcGIS to ensure this vital facility would have good transportation links. Many transportation services to the NEC had been suspended at the outset of the crisis, when the venue closed, and TfWM used its Essential Workers Web Map to reinstate and prioritise services to enable nurses, medics and other key workers to get there.

Improved public safety on the roads

With fewer vehicles on the roads, congestion has decreased and vehicles are travelling faster. TfWM and the police now use the Operations Dashboard to monitor changes in the average speed of vehicles in strategic road 'corridors' and put interventions in place to improve road safety. On the A34 between the M6 and Birmingham city centre, for example, average speeds in the morning commuter period are usually 17mph, but have risen to 30mph during lockdown, which means that a number of vehicles are travelling at more than the 30mph speed limit.

Evidence to gauge the economic impact of lockdown

The Operations Dashboard enables TfWM to collate and share data that will be invaluable in the future for helping local decision makers to gauge the economic impact of the lockdown and put recovery strategies into place. "Over the last four years, I have put the right team and the right tools in place to allow TfWM and its partners to manage business-as-usual and exceptional, unplanned events," Lester says. "COVID-19 has demonstrated what we are capable of doing with GIS."

Esri UK | Millennium House
65 Walton Street | Aylesbury
Buckinghamshire HP21 7QG

T 01296 745500 | **F** 01296 745544
E info@esriuk.com | **www.esriuk.com**

Learn more at: esriuk.com