

Heathrow: construction meets logistics



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With nearly 200 building and refurbishment projects underway at any one time, Heathrow Airport has developed a slick construction logistics operation to feed them. Could this be a blueprint for other airports and cities?

1 spend a lot of my time deconflicting,' says John Spottiswood, Director of Heathrow Logistics Integration, Wilson James, which runs Heathrow's Colnbrook Logistics Centre (CLC). 'If we've got a giant concrete pour planned, we don't want a piling rig arriving at the same time as dozens of concrete wagons.'

There are currently over 140 projects on the go at Heathrow, equating to around £65 million-worth of construction work every month, so the potential conflicts are many. However, John Spottiswood is armed with 57 live reports covering every inch of an item's journey from factory gate to construction site, via a consolidation centre with on-site screening and security checks. He says: 'If you have got data, you can make decisions. Because we have the information and systems in place, we can manage the exceptions and give them the due diligence they deserve.'

The CLC, which has been running since 2003, receives, checks and redistributes goods bound for the airport's construction works. It has often been cited as an exemplar for construction industry logistics, but in the last few years, levels of interest from around the world have ramped up: 'We've recently had visits from consultants from several European countries, people from the Middle East who are planning huge airport projects, visits from other UK airports and some major UK infrastructure projects.'

Run by many

The projects that the CLC services are a diverse bunch, ranging from the upgrade of retail space to the complete refurbishment of the airport's main access tunnel. There are four main contractors or 'delivery integrators', each responsible for around £250 million-worth of works in a different geographical area of the airport. Below them are more contractors, their subcontractors and many tails of suppliers.

John Spottiswood's 57 reports come to him through Fulcrum, a software system developed by Wilson James to manage the many facets of the CLC: booking and organising deliveries, controlling transport, checking drivers' credentials, warehouse management and security checks and reporting.

Each of the four delivery integrators at Heathrow could have 50 or 60 projects on the go, with the contractors they employ all able to make bookings and see the information relevant to them within the system. There are over 3,000 users in, all, with over a million inventory items handled since 2015.

John Spottiswood explains: 'I don't run Fulcrum, the people that use it run it. It's as if I have hundreds of people working for me out in the supply chain. They make their own bookings and supply details of the vehicles and drivers, which Fulcrum checks. It makes life easier for them and easier for me, too.'

Since it was first introduced in 2015, Wilson James has made many tweaks and improvements to Fulcrum, as those using it have provided feedback and ideas. For instance, it is now used as a communication tool, too, flagging up important logistics-related documents; it can even insist a document is read before it allows a booking to be made.

Materials and equipment arrive at CLC via road. Most loads are stored at the centre, which has 9,000m³ of space internally and 11,000m³ externally, and sent out to site in small batches, as needed. This shrinks 3.6 lorry loads into one load, reducing traffic airside and in the central terminal area by 72%.

Wilson James has pledged that all deliveries will arrive within half an hour of their requested timeslot. For some construction professionals, that requires a leap of faith. John Spottiswood says: 'There are some site managers whose view of doing a good job is to have a lot of material around them. One of my jobs is to give them confidence, so that they don't feel they need to do that.' There's the added bonus that Wilson James' vehicles take waste away as they deliver.

Some deliveries, such as construction plant or modular elements, are not offloaded at the centre, but instead are escorted from the CLC to an airside location. Before this can happen, the vehicles must be properly searched and inspected to ensure that they are not a security risk, and that they are in good operating order.

Air quality counts

Although an airport is a unique environment in which to carry out construction projects, there are significant parallels with the life and workings of a city centre: the flow of people and transport must be disrupted as little as possible; there are multiple projects, ranging in size and nature; and controlling deliveries over the last few miles is crucial.

Another important consideration is air quality. Fewer vehicles means less pollution. A panel of engineering experts convened by the Institute of Civil Engineers (ICE) recommended that construction consolidation centres be used for all major construction projects in London. In its report: *Engineering Cleaner Air*, published in October 2017, it cites the CLC and its outcomes.

Were electric vehicles to be used for those final few miles of delivery, the positive impacts on air quality would be further magnified. This is something that Heathrow and the CLC are pushing for, with a goal for all vehicles to be electric or hybrid by 2020. John Spottiswood already has a fleet of 10 Nissan Leafs, which are primarily escort vehicles, and two box vans, 3.5t and 7.5t. He is now on the lookout for technology that could provide him with larger vehicles that could accommodate a lorry-mounted crane for distribution of goods.

With all these potential benefits, it is perhaps surprising that construction consolidation centres have not been more widely adopted. There are a few operating around the periphery of London, but projects that use them wholeheartedly are the exception rather than the rule.

That could be set to change. Some planners are demanding a more rigorous approach to construction logistics. The City of London's planning authority has already set a precedent, mandating the use of a consolidation centre for the construction of high-rise office development 22 Bishopsgate. The ICE report calls on City Hall and Transport for London to do the same.

John Spottiswood says: 'Consolidation centres and city-wide control are the future and I can see the future coming quite quickly. We already see it happening in some of the more forward-thinking cities around the world.'

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