

Transport for London

Delivery Management and Truck Holding Areas

Transport for London

Summary report

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MAYOR OF LONDON

Transport for London



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1 Background, objectives and approach

With an additional 436 towers (20 storeys +) approved for construction in London, the construction industry is already a significant contributor towards road congestion in London. By looking at journeys made by HGVs to and from construction sites, TfL aim to implement systems that will help alleviate the pressure on the road network.

Objectives

Provide an overview of the current state of play, drawing upon existing knowledge to generate actionable recommendations for the following areas of logistics in the construction sector.

The aim of this research is to provide TfL with recommendations for the construction sector and local authority planners, for effective use of DMS, truck holding areas and CLP.

DELIVERY MANAGEMENT SYSTEMS

TfL need to understand the extent to which major construction sites in London are using DMS to manage their delivery logistics, and the relative

strengths and weaknesses of these systems.

TRUCK HOLDING AREAS

There is a need to understand the processes in place which facilitate the identification and approval of truck holding areas.

CONSTRUCTION LOGISTICS PLAN

Greater understanding is required around how effectively the CLP is being completed, updated and monitored.

Approach

A mostly qualitative approach, featuring a mix of desk research, face-to-face interviews, software demos, teledepths and site visits.

PHASE		RESEARCH ACTIVITY	VOLUME
1. Desk research		Desk research (online / print)	5 x days
2. Best practice	Construction sector (UK)	Face-to-face + telephone depth interviews	8 x Construction Managers 13 x Logistics Managers 5 x DMS software providers 1 x company president (New York)
	Construction sector (Overseas)	Telephone depth interviews	4 x Construction Managers (Dubai / Saudi Arabia / Dammam, Hong Kong) 1 x Logistics Manager (Lisbon)
	Other industries	Face-to-face + telephone depth interviews	12 x Logistics Managers (3 per sector: retail / postal / automotive / waste)
3. Planners		Face-to-face + telephone depth interviews	6 x planners 2 x VNEB working groups
4. Site visits		Face-to-face + tour of site	20 x construction sites
Total = 82 x stakeholder interviews			

2 Summary of research findings

State of the nation: The construction sector is behind other industries in terms of application of delivery logistics. This is partly due to the transitory and changeable nature of construction projects, which make for a challenging logistics environment. However, overseas interviews revealed that London is ahead of other countries in adoption of Delivery Management Systems.

DATASCOPE

CLIPFINE LAING O'ROURKE

Wilson James

Alandale
Group of Companies

DELIVERY MANAGEMENT SYSTEMS

DMSs are increasingly viewed as essential in terms of effectively managing HGV deliveries, particularly in areas of inner London experiencing intense levels of construction activity. Recent years have witnessed an increase in use of (DMS) in London, where increasingly complex site environments and growing regulation are prompting adoption of software solutions. There are five key players in the DMS market, all of which provide an effective booking system

TRUCK HOLDING AREAS

Where truck holding areas are present, construction sites benefit from greater control over delivery logistics. However, generally there is a shortage. The approval system is complicated and needs simplifying and construction sites need to put more thought into the provision of holding areas at an earlier stage of the planning process.



Holding areas are essential. For me they are like a big red 'stop' button that I can press. You have to have that control over deliveries"

[Operations Manager, MACE]

CONSTRUCTION LOGISTICS PLANS

Construction companies have been completing the CLP as per the stated requirements and the majority of sites had them to hand when visited. However, they are not being used as a monitoring tool. The time gap between the initial planning application and commencement of the construction work means important aspects, such as truck holding areas, are deprioritised. Local Authorities do not have the resource to advise and monitor sites on effective CLP management. CLPs should be more than just a tick-box exercise and could benefit from greater monitoring and enforcement.

3

Learnings from logistics



Postal, retail and automotive manufacturing sectors all have strong logistics processes and commitment to innovating solutions that address their whole supply chain. In comparison, construction is playing catch-up and can learn valuable lessons from these other sectors.

There are four key learnings from applications of logistics in other sectors.



I think generally that the construction sector is 20-30 years behind what the retail and automotive sector has been doing”

[Logistics Manager, Wincanton]

JUST-IN-TIME

Just-in-time approaches to construction are mostly evident where site parameters are so restrictive that sites have been pressured into adopting this approach (eg Crossrail). A just-in-time approach is relevant to construction, but will more likely succeed where other elements are in place (eg consolidation centre, prefabrication, real-time tracking). The benefits for construction could be significant, including safer sites, less congestion and less time spent moving materials around sites.

PULL' RATHER THAN 'PUSH'

A pull approach focuses on robust processes at source (ie materials warehouse) and generates a coherent and lean ordering processes throughout the supply chain. Postal and retail sectors place greater emphasis upon pulling orders back through from the start of the supply chain, whereas construction tends to

focus more upon pushing stock towards the end stage.

A move towards a pull approach could result in more space on site, less congestion and emissions, as well as safer roads and sites.

INTRA-SYSTEM CONNECTIVITY

Postal and retail sectors place emphasis upon strong connectivity between each stage of the entire logistics system, from warehouse to distribution centre to shop / customer. The challenge here for the construction sector is to generate links between systems, eg connecting DMS with BIM (Building Information Modelling) could help Logistics Managers automate and further prioritise which deliveries come to their site.

INTEROPERABILITY

Suppliers in other sectors are coming under pressure to be more interoperable and connect vendor systems (ie DMS), in the face of growing journey and delivery inefficiencies. The need for this in the construction sector is less urgent currently, though in the years to come the business case for this may strengthen as DMSs become more established and inefficiencies more easily identifiable.

4 Delivery Management Systems (DMS)






The use of DMS in London has grown considerably in recent years, and are now viewed as essential tools to address an increasingly complex and regulated construction environment. The emergence of DMS, therefore, is closely linked with this evolving compliance landscape.

There appears to be clear understanding and support for the benefits of using DMS:

- Enhanced company reputation
- Performance management
- Better use of truck holding areas
- Legal evidence
- Improved Safety
- Enhanced compliance
- Greater efficiency
- Improved air quality
- Reduced congestion
- Reporting

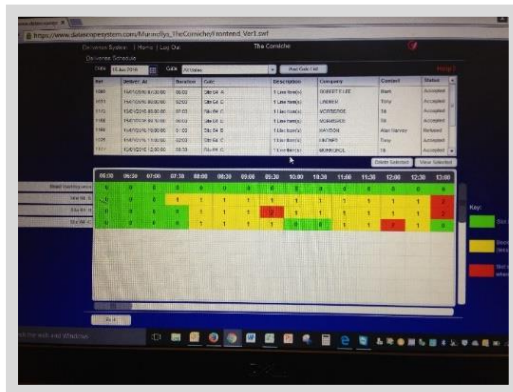
The majority of DMS are provided by established construction logistics companies, and are largely shaped by the sites they have been deployed on.

Therefore, procurement of DMS is often associated with decisions being made around the selection of a logistics company.

DMS	Strengths	Weaknesses	Summary
ADBM 	20-year heritage of use Full functionality In-house development Strong routing	Reluctance to use handheld devices (due to site safety concerns)	Highly suited to most conventional sites
DataScope 	Strong support Handheld devices All-inclusive fee	Tied-in to purchase handheld devices (key part of their pricing model)	Highly suited to most conventional sites
Fulcrum 	Connects with consolidation centre and security checks on vehicles Performs in highly complex setting Strong reporting	As yet unused outside of Heathrow Airport	Handles security and CCC aspect
iCL:ik 	Solid heritage Accessible via smartphone	Does not allow for auto-updating of cranes / hoists to gates	Highly suited to most conventional sites
Juggler 	5-year heritage In-house development	Weaker performance on handheld devices	Solid performer on conventional sites, but could benefit from functional development

DMS functionality: The majority of DMS provide the same core booking functionality, with some variance around ability to provide access via handheld devices.

- Home page - site details, driver guides, gate access, road restrictions
- User accounts - ability to add new users (internal + Subcontractors)
- Booking a delivery - Subcontractors select a date and time for delivery
- Approve a delivery - Logistics Manager approves / rejects a booking
- Schedule - ability to view and share daily bookings with site team
- Reporting - ability to capture and generate a range of reports



DataScope delivery schedule interface.

COMPLIANCE

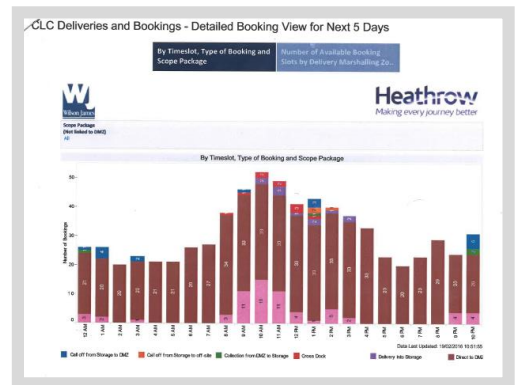
Because HGVs are checked as they enter site, there is potential for DMS to play a key role in raising levels of compliance in the construction sector. However, difficulties sometimes emerge where 'first tier' subcontractors make a booking request through the DMS, but have subsequently passed this work on to another subcontractor / haulier. A minority of sites feel obliged to accept some of these vehicles, even where they do not match with the booking as made in the DMS.

TRAINING AND SUPPORT

Overall it appears that DMS as provided by logistics companies require more training and support than DataScope. However, training and support needs are generally quite low-level compared to other specialist software used in other industries. Use of handheld devices by Site Marshals, to access DMS on-site, sometimes requires some initial training.

MOBILE DMS

While some DMS providers do provide marshals with handheld devices on especially busy sites, there is a reluctance to invest in them where there is a lower intensity of bookings overall. In these cases, marshals are typically provided with printed paper sheets of bookings every morning. However handheld devices do allow for a more efficient data-entry process overall.



Fulcrum report for Heathrow Airport.

REPORTING

The ability for DMS to generate reports is a key requirement. Reports on various aspects of construction logistics activity are used by both the construction sector and local authorities, particularly HGV emissions and operator performance. The construction sector is interested in performance metrics relating to their own, and their Subcontractors' performance, whereas local authorities are focused on accessing data relating to regulation and compliance.

INTEROPERABILITY

As the construction logistics sector becomes increasingly developed, new areas for technological innovation are starting to be identified, with the potential goal of integrating the entire supply chain. In particular, there is interest in connecting DMS with consolidation centres, real-time routing applications and Building Information Modelling (BIM).



The next step for us is to become BIM-friendly, not necessarily BIM-compatible. That will soon be justifiable though”

[Logistics Manager, Wilson James]

There is also interest in connecting DMS together, where clusters of construction sites are closely situated, in order to integrate delivery logistics across the area.



An integrated system on one platform could work. All the projects across Waterloo ran by one system would help harmonise logistics”

[Logistics Manager, South Bank Place, Waterloo]

The key look-out with all these potential innovations is for the construction logistics sector is to code DMS in an 'open' and easily interoperable language, in order to make future inter-system integration more feasible.

5 Truck holding areas

Pit-lane areas, typically a strip of public road adjacent to the site itself, were the most common type of truck holding area identified in central London. However, acquiring a truck holding area or pit-lane in London is often extremely challenging. This is due to capacity constraints and structural issues with planning policy and approval processes.

BENEFITS

Truck holding areas are viewed by construction and Logistics Managers as vital for effective management of site deliveries. They differ in size and function, depending on project type and site location, but their basic function is to regulate the flow of vehicles on and off site, in order to reduce saturation of the local road network.



Lorry holding areas always take longer than you expect to set up, it's about getting the contractor to think in advance about what he needs"

[Logistics Manager, Crossrail]



A shared holding area near London Bridge Station.

AWARENESS AND CONSIDERATION

In most cases Logistics Managers are alert to the need for holding areas and are aware of the issues caused by returning early HGVs back out onto the local road network. However, in a minority of cases, less consideration is given to the impact of such vehicles on the local community. Some feel their legal obligation is only to the behaviour

of HGVs in and around the site but not the external, local road network.

CURRENT APPLICATION EXPERIENCES

Finding an area large enough to accommodate trucks in central London is often difficult and, even where a potential location is identified, applications are often rejected by the local authority (or TfL) due to projected infringements on surrounding residents, highways and other road users.

As there are a number of different bodies of authority that have a role in the location and approval of truck holding areas, there can be confusion around which expectations need to be met or prioritised. Some in the construction sector feel it takes too long to process application requests and that local authorities have their hands-tied around being able to approve holding areas (especially those within zones of public transport).

Key considerations for obtaining a truck holding area:

- Early planning - obtaining a holding area can take time, and early planning gives a head start
- Local knowledge - knowing the local area and identifying available (and suitable) locations
- Good rapport – getting to know the local authority and/or past working experience with local councils and TfL
- Demonstrating initiative - finding an area often comes down to innovative thinking (eg site staff cycling around local road on hire bikes to identify viable areas)
- Specification – ideal areas in central London are half a mile from site but close to the major road network

6

Construction Logistics Plan (CLP)

CLPs are an important management tool for planners, developers and those working in construction companies. They aim to reduce the negative transport effects of construction work on local communities, residents, businesses and the environment. However, there are some issues currently with how CLPs are being used, with a division of opinions between planners and the construction sector on their completion, purpose and value

CONSTRUCTION SECTOR VIEW

Their main focus is on creating and maintaining a CLP that serves as the living guide to their site, which can then be shared with other subcontractors. In this sense, the CLP from their perspective is a practical go-to document which enables them to proceed with the construction in an effective way. While the construction sector does update CLPs with site details as they evolve, they tend to use them primarily as project management tools.

LOCAL AUTHORITIES' VIEW

Planners felt that the time gap between the original document creation and the start of the project meant some sections of a CLP were often out of date. They felt that over this period of time the local area may have altered considerably and that contractors tend to exploit this time-lag by steering logistical arrangements to their advantage. In addition, there is a lack of resources in some local authorities to adequately regulate, approve, monitor and enforce CLPs.



CLPs are difficult in that once developers get planning permission, things tend to go backwards, and they let the contractors dictate how they will be working”

[Planner, Transport for London]

CHALLENGES AND OPPORTUNITIES

The challenge is to change how the construction sector view and apply the CLP in order to make it a more useful and accountable tool. The opportunity is to build upon the assumption that the construction sector would comply more readily with CLP requirements if they were actively prompted and encouraged to do so (backed up with enforcement).

RECOMMENDATIONS

- Raise status and enforcement powers of CLP
- Increase monitoring of CLP by local authorities
- Commit developers to procure DMS and truck holding area(s) at an earlier stage
- Increase level of scrutiny (ie compare original CLP to amended CLP once construction has started)
- Greater transparency with original CLP, ie intended use, who uses it, updating and maintenance of CLP etc

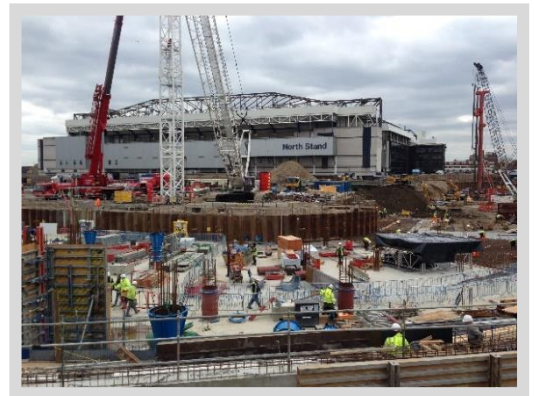
7 Recommendations

It's an exciting time to be in the construction sector with a number of emergent issues posing both challenges and opportunities. With London experiencing a construction boom and population increase, the sector is poised for considerable change over the next few years. A combination of new technology and enhanced logistics planning appear to offer the strongest routes to creating strong and effective construction logistics.

The construction sector can learn a great deal from the application of logistics in other sectors, in particular by moving towards a just-in-time approach (where materials are pulled, rather than pushed) through the supply chain. The use of DMS in construction logistics has increased in recent years and is now viewed as an essential tool in effectively managing the flow of HGV deliveries in London. As a result, there are now a range of robust products on the market, the majority of which are provided by logistics companies.

As usage of DMS increases, and a more integrated approach is taken towards the entire supply chain, the need for interoperable systems will grow. This could enable DMS to connect with other construction-related management systems (such as BIM) leading to greater efficiencies.

High profile construction projects in London and the South-East (Crossrail, 2012 Olympics, Heathrow T5) can do much to promote new initiatives throughout the construction logistics sector, in particular with their commitment towards DMS and acquisition of truck holding areas. However, processes managing the identification, approval and funding of truck holding areas need to be structurally improved in order to generate greater clarity and better provision of suitable areas. As with DMS, the need for holding areas in London will become increasingly acute.



White Hart Lane new stadium.

While CLPs are referencing both DMS and truck holding areas, overall they require greater commitment from both the construction sector and local authorities. By doing this they can help create a more robust, effective and accountable document.

8 Thanks

We would like to thank the following organisations for participating in this research:

- Accenture
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- Dennis Eagle
- DHL
- Dunne
- Faithful+Gould
- Hanson
- Heathrow Airport
- HS2 (High Speed Two)
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- Labinal Power Systems
- Labyrinth Logistics Consulting
- Laing O'Rourke
- Lambeth council
- Mace
- Merton Council
- Mota-Engil
- Mountainvil
- New Line Structures
- PERI
- PIE Mapping
- Rayaz Engineering
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