

South London Freight Consolidation Centre Feasibility Study

Final Report

Prepared by



on behalf of:



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Prepared by



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Executive Summary

This report presents the outcomes of a feasibility study that set out to develop an urban freight consolidation strategy for South London.

Freight consolidation involves grouping individual consignments or part-loads that are destined for the same locality at a consolidation centre so that a smaller number of full loads are transported to their destination.

By using this principle, individual companies have been successful in reducing distribution costs by consolidating consignments through regional or national distribution centres. However, this consolidation has tended to focus primarily on minimising the long distance ‘trunking’ mileage within an individual supply chain, and depending on the volume of goods destined for any one location, the content of a single full load that leaves the distribution centre may still be destined for a range of locations in neighbouring towns. Urban freight consolidation takes freight consolidation one step further by adding an additional stage into the supply chain so that part loads destined for a common location are consolidated leading to a lower number of consolidated loads delivered to the target area.

The main aims of the study were to:

- Assess the barriers to the development and efficient operation of one or more freight consolidation centres in South London, through consultation and analysis of the potential demand;
- Assess the benefits that will encourage businesses to sign up to receiving their goods through a consolidation centre;
- Develop an implementation pathway to setting up one or more trials to obtain practical operating experience of freight consolidation in South London.

Subsidiary aims were to:

- Establish the degree to which freight consolidation could support activities in sectors of the economy, other than retail;
- Assess the potential impact of future policy initiatives, such as the low emission zone and road charging on goods deliveries, on the case for consolidation centres.

The information used to achieve these objectives was obtained from a number of different sources, including:

- Previous research conducted by South London Freight Quality partnership into retail delivery operations in South London;
- A review of the operations of existing freight consolidation centres in the UK and elsewhere together with a wider review of relevant research and current developments elsewhere;
- Consultation with strategic stakeholders and local stakeholders regarding their attitudes to freight consolidation;
- Desk research into the potential size of the market for freight consolidation operations.

A review of existing consolidation centre operations, both in the UK and in continental Europe revealed significant potential to reduce goods vehicle trips and associated emissions from those vehicles which operate in urban areas delivering part loads to discrete locations. There is also strong evidence that intercepting vehicles that are fully loaded and destined for

a particular location, which is typical of the distribution practices of the largest businesses, brings no benefit and would merely result in additional costs. However, even for these businesses, where direct deliveries are made from specific suppliers that do not pass through in-house distribution centres then these may benefit from using urban consolidation centres.

Many of the existing consolidation centres have been established with the aid of some form of public sector financial support, and in some cases continue to receive a level of ongoing support. In such cases it is presumed that the supporting authority sees some value in return for the support through meeting local objectives such as reduced congestion, intrusion, emission or noise in the urban area. It has been stressed that this sort of support from public sector sources is extremely unlikely to be forthcoming in South London, so placing greater emphasis on the establishment of a commercial business case.

Consultation with strategic stakeholders suggests that there is significant interest in the concept of urban freight consolidation, as shown by a proliferation of studies on the subject in recent months. However, doubts remain regarding the business case for its implementation, both at the strategic and operational levels. One of the objectives of this study has been to investigate the business case. However, the information necessary to establish this is largely the property of commercial organisations and has not been widely forthcoming. In particular, further information is required to incorporate the potential savings that could result from changes in working practices at store level, which appear to be considered separately from distribution costs in many businesses.

Nevertheless, it has been established that the business case is likely to be dependent upon a range of specific factors that vary for each individual supply chain, so that a generic study approach would mask the key determinants for each business approached to participate. It seems likely that there is a particular sector of the retail market that could benefit from using freight consolidation centre in South London. This sector could be described as ‘mid-tier’ retailers with a large enough throughput to warrant a form of regional or national distribution structure, but with a throughput for individual stores that is not large enough to fill a single goods vehicle for an individual store or a particular town or tightly defined location.

Although the business case will be a key factor in businesses deciding to use an urban consolidation centre as part of their supply chains, another significant factor will focus around psychological and institutional barriers – in other words there will be an element of resistance to change which would need to be overcome gradually by working with early adopters to prove the concept, develop the business case, show that the consolidation centre can, at minimum replicate, if not better, existing relationships at the point of delivery and develop integrated systems that allow track and trace to current service levels.

The location and development of arrangements for urban freight consolidation centres will require case by case consideration to ensure that locations are logical in terms of intercepting goods on or close to their existing routes so offering optimum routeing solutions. Where possible, consolidation centres should provide opportunities to link in with alternative modes to offer maximum possibility of full supply chain efficiency.

There are already many private sector delivery systems that could effectively deliver a freight consolidation centre service within their existing operations. This route appears to offer the bonus of minimising set-up costs and not further duplicating existing urban delivery movements. Hopefully this would result in a financial structure that is less demanding on

public support whilst efforts are made to demonstrate the benefits of using a freight consolidation centre and recruit participants. This approach is already being trialled to serve Norwich, and so we recommend that links with that trial and the lessons learned, both positive and negative, are continued to help inform the future development of freight consolidation in South London. Because of this we recommend that this feasibility study report is made available to private sector organisations that are likely to consider providing freight consolidation services either as part of their existing operations or through a small element of expansion.

Whilst TfL has a strategic role in supporting improvements in efficiency in the use of London's road network, it appears clear that the individual Boroughs, businesses and transport operators have a specific role to play in the implementation of specific freight consolidation schemes in South London. The most promising immediate prospects for freight consolidation in South London appear to be around the axis of Sutton, Croydon and Bromley, given the existence of a major entry route on the Sutton Croydon border, a significant market within the three Boroughs, and a concentration of existing distribution facilities with potential to incorporate freight consolidation services as part of their existing operations. In this context stores in locations where constraints on deliveries are most severe will probably benefit most from the use of urban freight consolidation centres. Therefore we recommend that this area becomes the focus for the future development of freight consolidation in South London.

Because we anticipate the uptake of urban freight consolidation services to require significant effort and initially be limited to a fairly tightly defined business profile it seems likely that anything more than a single consolidation point aimed at businesses in the defined target area of Sutton, Croydon and Bromley is likely to be over optimistic and uneconomic. Should such a project gain momentum with the benefit of private sector investment and drive then expansion and ultimately a wider geographic spread covered by other consolidation centres would remain as a possibility.

South London FQP will provide support to any operators that express an interest in following up the study recommendations by facilitating discussions with our Borough partners or whatever other action is appropriate within its remit. To help this approach we intend to facilitate a local conference and workshop on the topic early in 2008.

As future changes in the restrictions on the movement of goods vehicles within urban areas occur, their impact on freight distribution operational patterns in London should be monitored to establish if they make uptake of urban freight consolidation more likely through changes in the cost balance between current and alternative practices (i.e. urban freight consolidation). The degree to which restrictions could or should be introduced to improve efficiency will be a matter for ongoing debate for the public authorities in London in the context of the London Freight Plan.

Whilst working on this feasibility study it has become clear that interest in freight consolidation is inextricably linked to other ways that businesses and operators are investigating to avoid operating within the heavy congestion that typifies London's road network by day. This linkage particularly relates to night-time deliveries and efforts to exploit this type of synergy should be made wherever possible.

Finally, the ongoing national interest suggests that some form of nationally-led open access, transparent experiment to establish the full business case would be beneficial. A nationally-

led open book and open access (publicly funded) trial (not necessarily in South London) where the operational costs are entirely visible to all potentially interested parties so that the detailed financial aspects of operation can be clearly ascertained.

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1 INTRODUCTION

This report presents the outcomes of a feasibility study that set out to develop an urban freight consolidation strategy for South London. The study originated from a shared interest in the potential for freight consolidation from four separate sources, namely the South London Freight Quality Partnership (SLFQP)¹, the Draft London Freight Plan, PF Whitehead Ltd and the Smarter Travel Sutton project.

These initiatives have collaborated to fund the feasibility study and through it to:

- Assess the barriers to the development and efficient operation of one or more freight consolidation centres in South London, through consultation and analysis of the potential demand;
- Assess the benefits that will encourage businesses to sign up to receiving their goods through a consolidation centre;
- Establish the degree to which freight consolidation could support activities in sectors of the economy, other than retail;
- Assess the potential impact of future policy initiatives, such as the low emission zone and road charging on goods deliveries, on the case for consolidation centres;
- Develop an implementation pathway to setting up one or more trials to obtain practical operating experience of freight consolidation in South London.

The information needed to achieve these objectives comes from a number of different sources, including:

- The SLFQP's own research into retail delivery operations in South London;
- Desk research into the potential size of the market for freight consolidation operations;
- Consultation with a range of strategic stakeholders regarding their attitude to freight consolidation
- Consultation with a range of stakeholders, including local authorities, businesses, shopping centres and developers, logistics operators and trade organisations, regarding their attitudes to freight consolidation;
- A review of the operations of existing freight consolidation centres in the UK and elsewhere together with a wider review of relevant research and current developments elsewhere;
- A review of potential locations for a freight consolidation centre in South London and potential links to existing distribution centres and other developments;
- Collection of delivery schedule data for use in a modelling exercise to estimate the potential impact on delivery vehicle miles and associated emissions;
- Work on understanding the business case for a freight consolidation centre, particularly in relation to assigning costs and benefits;
- Production of an implementation pathway to setting up one or more trials to obtain practical operating experience of freight consolidation in South London.

¹ For more information on the South London Freight Quality Partnership see www.southlondonfqp.com.

The rest of this report documents the activities and outcomes of these tasks. The report is split into three distinct parts:

- A brief introduction to freight consolidation, identifying previous research, experiences from operational trials in the UK and in continental Europe, the results of a strategic consultation exercise about how urban freight consolidation is perceived and a review of the extent of current interest in the concept.
- A summary of the information collected in relation to the specific opportunities and barriers to freight consolidation in South London.
- Analysis of the situation in South London leading to an assessment of the outline potential for freight consolidation in South London and identification of possible routes to implementation

PART 1 – Introduction and Baseline

2 BACKGROUND TO FREIGHT CONSOLIDATION

2.1 What is Freight Consolidation?

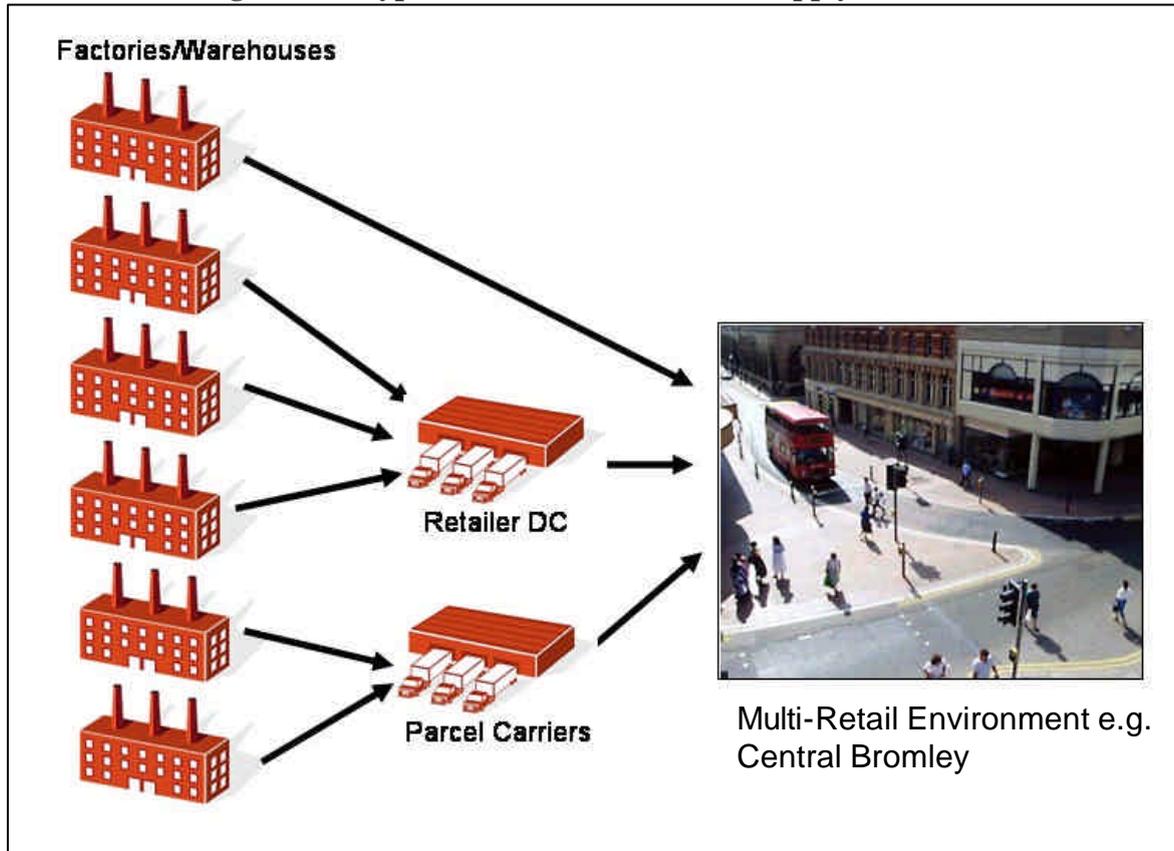
Freight consolidation is a term that is commonly used to describe a number of different types of activity in the distribution chain. Given this situation, it is worth defining what is meant by the term “freight consolidation” within this report, as follows:

“Freight consolidation involves grouping individual consignments or part-loads that are destined for the same locality at a consolidation centre so that a smaller number of full loads are transported to their destination.”

By using this principle, individual companies, for example larger retail groups and parcel or pallet networks, have been successful in reducing distribution costs by consolidating consignments through regional or national distribution centres. Such distribution centres or hubs accept goods from suppliers and split the inbound consignments to form full loads that are moved from the distribution centre to the various destinations it serves. However, this consolidation has tended to focus primarily on minimising the long distance ‘trunking’ mileage within an individual supply chain, and depending on the volume of goods destined for any one location, the content of a single full load that leaves the distribution centre may still be destined for a range of locations in neighbouring towns.

In parallel with the vertically integrated, consolidated supply chains that exist for some businesses, there are many other distribution journeys, made directly from the supplier or manufacturer, direct to the receiver or using commercial courier and parcel services.

The result is that there are many different freight vehicles and operating regimes within the urban environment, as indicated in figure 2.1.

Figure 2.1: Typical Retail Centre Goods Supply Channels


2.1.1 Urban Freight Consolidation

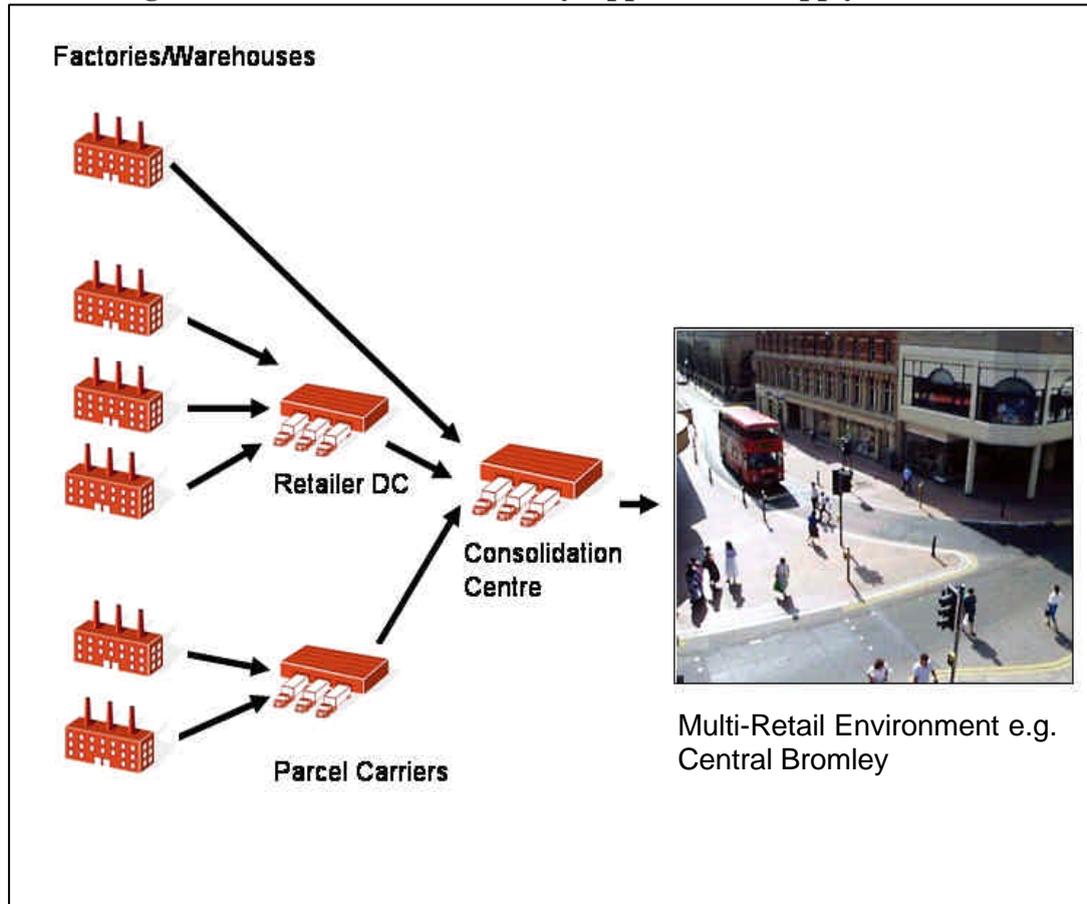
Urban freight consolidation takes the general concept of freight consolidation one step further by adding an additional stage into the supply chain between the various existing dispatch points (which could be either a retailer's distribution centre or a supplier's factory or warehouse) and the end recipients. A formal definition might be:

“A distribution centre, situated close to a town centre or other retail centre, at which part loads are consolidated and from which a lower number of consolidated loads are delivered to the target area.”

As goods from the distribution centre are delivered and consolidated into full vehicle deliveries for onward delivery into the urban area, the result is fewer vehicle trips, as shown in Figure 2.2.

The principle of this type of consolidation activity serving a specific location has been demonstrated in the retail sector by the operation of such a centre at Heathrow Airport, since 2000 and within an urban setting by a retail consolidation centre trial in Bristol, since 2004.

Figure 2.2: Consolidated Delivery Approach to Supply Channels



2.1.2 What Else is Sometimes Meant by the Term “Freight Consolidation”?

The term freight consolidation is sometimes mis-used, to refer to distribution centres where goods destined for a particular location or area are intercepted and transferred to another vehicle for transport to their final destination, irrespective of whether they are already fully loaded for that particular location/ area.

We feel that terms such as “Urban Distribution Centre” or Freight Transshipment Centre” are more appropriate for this type of facility, because the purpose is not about consolidating part loads with a view to reducing the number of vehicle trips required, but rather about controlling the type and / or number of freight vehicles used for urban deliveries.

This type of facility has been proposed and frequently implemented in continental Europe with the intention of ensuring that only small distribution vehicles are used for the final leg of a distribution chain.

Whilst there may be legitimate grounds for doing this, in some cases, (for example in locations with a particularly restricted medieval road layout within which large vehicles find it difficult to manoeuvre or where city centre low emission zones have been implemented), the result of this type of activity, when applied to a full articulated vehicle, could be to transfer the contents of one large vehicle to many smaller vehicles, actually resulting in many more, duplicate journeys within the urban area. Hence the outcome of this type of activity is the exact opposite of the objective set for an urban freight consolidation centre.

The reason for this mis-use is clear, because the distinction between the scenarios is a subtle one, because, in both cases, an extra handling stage is included prior to distribution of the goods in a specified area.

It is, nevertheless, important for this distinction between operations and the real meaning of 'consolidation centre' to be stated clearly, at this stage of the report.

2.2 Research Baseline

Following a request from the Department for Transport (DfT), the University of Westminster conducted a scoping study between December 2004 and June 2005 to identify the potential for the development of urban consolidation centres.

The work conducted by the University of Westminster² was largely concerned with the wider business and supply chain issues and can be considered as being divided into 4 tasks:

- analysis of the existing literature about Urban Consolidation Centres (UCCs);
- a more thorough review of current UCCs in the UK and worldwide;
- investigation of the views of a selection of interested parties.
- Based on those 3 first tasks, an evaluation of UCCs.

This research was taken as the baseline upon which the feasibility study for freight consolidation in South London was constructed. The following findings were considered to be of particular relevance:

- Detailed information from 17 operational UCCs was analysed, which showed changes in the total travel time – to and from the city terminal and the city centre – of all goods vehicle trips using the UCC after the introduction of such a platform. There was also a reduction in vehicle kilometres, ranging from 30 to 45% and improvements in vehicle load factors, ranging between 15 to 100%.
- Those elements directly impacted, in a positive way, on the total fuel consumed, whilst observed reductions in vehicle emissions ranged from 25 to 60%.
- A need to establish a good partnership with the main local stakeholders (local governments, retailers, road transport industry...) to discuss the wider implications of such a scheme and to demonstrate the potential benefits of using a consolidation centre for the economy and environment.
- There appears to be a significant lead time when an urban consolidation centre is set up as time and effort is taken to establish the scheme and sign up users. As a result of this the financial viability and the environmental impacts of this structure can only be achieved with efficient support and funding to run a trial for a suitable period of time, over which results can be measured and analysed.
- Prior to any such trial they recommended a thorough prior investigation, which was one of the objectives of this feasibility study.
- Moreover, in order to succeed, consolidation centres must be attractive to companies, rather than motivated purely by local authority interests and they should be operated by one or more commercial players that have identified the potential benefits of being involved.

² Urban Freight Consolidation Centres, Department for Transport, 2005

3 UK NATIONAL OVERVIEW

3.1 The National Context

Distribution underpins the economy, acting as the link between suppliers, manufacturers, retailers and consumers. Road haulage currently dominates the inland movement of freight. During the last 25 years, the amount of road freight has increased by around 30%, both in tonnage and in average length of haul, resulting in a 70% increase in the amount of freight transport as measured in tonne kilometres.

Changes to the structure of distribution, with an increasing emphasis on globalisation of production and international trade, as well as rationalisation of supply chains into larger, **more dispersed manufacturing and distribution clusters**, has led to this increased length of haul. Reflecting this increase in volume and distance, more of this freight is now moved by larger articulated vehicles, with the share of tonnage lifted by such vehicles increasing by nearly two-thirds over the same period.

Looking ahead, the industry faces a number of challenges associated with this growth, including:

- Predictions of significant traffic growth (22% for lorry and van traffic alone over the next 20 years), which in the absence of a major increase in highway capacity is forecast to increase congestion;
- Ongoing reductions in the average speed of goods vehicles;
- Increased activity on the part of public authorities to manage and limit traffic growth
- An increasing environmental challenge to be addressed which all sectors of the economy will be expected to contribute towards.

Within this context, the Logistics Director of ASDA and Chairman of DEFRA's Sustainable Distribution steering group noted in a recent presentation to the Institute of Grocery Distribution that industry has been charged with identifying ways of making efficiencies of 20% in the environmental impact of the grocery supply chain. His group has identified various actions that could make significant improvements and the degree to which each action could contribute, including:

Action	% Improvement
Operating lorries with greater capacity (taller, longer, heavier)	5.3%
Making more use of rail	4.5%
Improved performance of lorry engines (Euro 4 and 5):	3.5%
Shared-user distribution amongst retailers	3.2%
Greater use of telematics to improve routing and monitoring	3.0%
Redesign logistics systems (e.g. warehouse design):	2.3%
Permit more out of hours deliveries to avoid traffic congestion	2.0%

Source: Institute Grocery of Distribution, 2007

This analysis suggests that there is no single way which will improve distribution on its own. Instead, a combination of measures will be required to produce any significant reduction in the environmental impact of the supply chain and that consolidation has a part to play within that process.

3.2 Established UK Operational Experience

3.2.1 Heathrow Retail Consolidation Centre

Over recent years, retail activity has increased dramatically at airports across the world and Heathrow is no exception. This retail development has proved extremely welcome to travellers and provides a strong income stream to BAA, Heathrow's operator.

However, vehicles delivering the goods to be sold in the retail outlets began to have difficulty in making deliveries because there was insufficient space allocated to delivery bays and it was becoming ever more difficult to find additional space at what is a very constrained site. The result was lengthy queuing of goods vehicles to access the delivery bays. This was compounded by vehicles that had completed their deliveries being blocked in by other vehicles that were still completing their deliveries leading to lengthy delays at the delivery bays, an unpredictable delivery service for the retail outlets and goods vehicles queuing to access delivery areas causing congestion among the general traffic entering the terminal areas, with consequential impacts on local air quality.

To address these issues a trial was initiated in the spring of 2000 and, following successful implementation, a five year contract was awarded to Exel Logistics (now DHL), in May 2001. During the course of this subsequent five year contract the number of retailers whose goods were directed through the consolidation centre increased significantly and by spring 2008, it is expected that the final few remaining retailers that are not currently using the Heathrow consolidation centre will begin to do so.

This process has largely been driven by BAA which has been able to specify use of the consolidation centre into the leases of the retailers as they have come up for renewal. The indicative reduction in the number of delivery journeys being made to the terminal delivery bays as a result of the Heathrow consolidation centre was 60-65% by 2006.

In spite of the improvements to the reliability of delivery operations brought about by the consolidation centre, there has been reluctance on the part of some retailers to participate because of additional charges made for the use of the consolidation centre facility.

This is in part because use of the Heathrow consolidation centre will become compulsory with the completion of Terminal 5, and, as such, more like what we define as a freight transshipment centre in section 2.1.2, than purely a consolidation centre because deliveries that would otherwise have been made by full vehicles destined solely for Heathrow airport are required to unload at the consolidation centre³.

³ Further information about the set-up of the Heathrow consolidation centre can be found in a Freight Best Practice Programme Case Study , Heathrow Airport Retail Consolidation Centre, available to download free of charge from www.freightbestpractice.org.uk

3.2.2 Bristol Broadmead

The urban consolidation facility set up in Bristol in April 2004 was the first of its kind in the UK. The initiation of the scheme was driven by a combination of factors, particularly problems that were being experienced in delivery vehicles accessing the service bays at the Broadmead shopping centre in the town centre, leading to retailer dissatisfaction and congestion, as trucks and vans struggled to enter, complete their deliveries and clear the centre effectively:

The result was a collaborative approach, driven by the City Council in partnership with the owners of Broadmead. Bristol City Council were able to use funding from the European Commission within the 'VIVALDI' project to part-fund the cost of contracting Exel Logistics (now DHL Exel Supply Chain) to set up and run a freight consolidation centre trial during the fixed life of the VIVALDI project and then to assess whether to keep the centre running.

The primary objective of the Freight Consolidation Scheme in Bristol was to reduce goods delivery traffic in the city centre, with the secondary objectives of increasing delivery reliability, reducing vehicle emissions and improving safety and the quality of life for those in the target area.

The evaluation of the consolidation centre and the positive press that it generated both locally and nationally have led Bristol City Council to continue to fund the consolidation centre even though the European co-funding has now finished. The key data monitored in this case was the percentage reduction in vehicle movements to the participating retailers which has remained at over 50%, reaching a peak level of 75%⁴. Linked to this was a reduction in vehicle kilometres which peaked at around 4000 HGV kms per month. The reduction in HGV kms translated to savings in emissions, as follows:

- CO₂ reductions by up to 600kg per month;
- NO_x reductions by up to 100g per month;
- Particulates reductions by up to 1.2kg per month;

The continuation of the scheme without direct EC co-financing has, however, introduced a pressure to start to charging the participating retailers to use the centre, which in turn results in pressure on the centre's operators to clearly demonstrate a benefit to the retailers and a clearer understanding of the business case for retailers to use the consolidation centre⁵.

3.3 Stakeholder Feedback

As part of the initial stage of this feasibility study, a consultation exercise was conducted with several strategic stakeholders, including a Government Department, association of retailers, freight transport operators and town centre managers. Organisations consulted included:

- Department for Transport (DfT)
- British Retail Consortium (BRC)
- Association of Town Centre Managers (ATCM)

⁴ VIVALDI Project final evaluation report, European Commission 2005.

⁵ For more information see: <http://www.start-project.org/download/fact%20sheets/START%20factsheet%20Bristol%20WP3-4%20Feb%202007.pdf>

- Freight Transport Association (FTA)
- Efficient Consumer Response UK (ECR-UK)

The general position for all the above organisations is that they support the wider principle of freight consolidation. However, all the organisations indicated that they had unanswered questions regarding the practicality of urban freight consolidation schemes and their implementation, and whether they could meet the objectives laid down for them, in terms of reducing urban congestion and improving air quality. Reservations were also expressed about the potential impact on retail systems and distribution efficiency.

The primary issue raised related to the business model for implementing a consolidation centre and under what circumstances the benefits, in terms of reductions in vehicle mileage, could be translated into cost savings for operators and their clients and whether this could ever offset the costs of introducing an extra handling stage within the distribution chain.

Within the UK, the evidence for this is limited and the Department for Transport regard consolidation centres as a local issue, where if local authorities are interested in developing a scheme then it's up to them to explore the practicalities.

DfT also see the operation of consolidation centres as a potential business opportunity for companies in the private sector to develop a viable product/service. The personal feeling of the DfT contact was that the business case for construction consolidation is clearer than that in the retail sector. In this context he was full of praise for the TfL pilot construction consolidation centre at South Bermondsey and was pleased to hear that the South London FQP is pursuing this concept for the several major developments planned in Croydon.

The increased profile of corporate and social responsibility was raised by the consultees as an issue which had the potential to help in the recruitment of participants, but this would again depend upon the benefits being clearly demonstrated from a wider range of trials. Again, this would ultimately be weighed against the financial cost of participating.

The BRC representative indicated that, in his opinion, mid-tier retailers⁶ would be most likely to benefit (and hence participate), as they were more likely to be delivering part-consolidated loads through multi-drop delivery operations, over a wider area.

The Freight Transport Association position appears to be one of a watching brief. The association's previous Chief Executive publicly praised the environmental impacts and increases in distribution efficiency achieved by the Bristol trial, although this was at the stage when the trial was being administered at zero cost to the participants (i.e. fully funded by the public sector). He was also keen to point out that the Bristol scheme had been developed in full co-operation with a key player in the logistics industry, rather than being imposed by a local authority and considered that this type of partnership approach was key to the long term success of urban consolidation initiatives.

It is also worth noting that the retail consolidation centre scheme in Bristol and a similar type of operation involving off-site stock holding and pre-retail activities at Meadowhall Shopping Centre in Sheffield have each won awards from the British Retail Consortium and the British Council for Shopping Centres.

⁶ i.e. Medium sized high street retailers with national coverage through small or medium sized stores

The British Council for Shopping Centres is clearly also interested in the concept of consolidation centres, as shown by the fact that they have commissioned a desk study on the issue, to run concurrent to this feasibility study.

According to ECR-UK, consolidation centres are generally well established upstream in the food and grocery chain, used by individual retailers to enable deliveries from smaller suppliers to be combined in more efficient loads, for onward delivery to retail stores. The concept of a facility shared by retailers to consolidate deliveries to stores is obviously less well established but increasingly under consideration. However, their modelling indicated that the benefits of shared use consolidation are potentially much greater in areas of sparse population (such as Northern Scotland), rather than major cities where it would be difficult to create an attractive financial proposition because the road mileage saved would be relatively small. However, this would, of course, depend on the size of business and it is felt that smaller operators may be more likely to benefit from involvement in consolidation activities.

3.4 Recent / Current UK Developments

In addition to these established UK consolidation centres, several other general freight consolidation initiatives and research studies are also being pursued, as outlined in the following paragraphs.

3.4.1 Norwich

Within the framework of the CIVITAS SMILE project, a new freight consolidation centre to serve central Norwich has recently been set up (summer 2007) in a joint initiative between Norfolk County Council and Foulger Transport Limited.

The centre is located at Snetterton, near the A11 (nearly 30 miles from Norwich) to deliver to central Norwich.

The freight transport operator is able to receive shipments at any time of day or night and it will then combine these loads and make the final deliveries using low emission vehicles that will make daily deliveries into Norwich at flexible times to suit participating businesses.

The centre will target major city centre retailers and businesses, but will not cover items such as chilled/frozen food, very high value goods and items requiring specialised handling.

Norfolk County Council will contribute £123,500 from the CIVITAS SMILE project budget which will largely cover set up costs and promotion of the consolidation centre to businesses in the city by funding a full time scheme development manager within Foulger's operation. The main focus of this post is following up leads within the target businesses and encouraging them to participate in the scheme. As the contract for the centre serving Norwich was signed in June 2007, the process of contacting and recruiting participants is only just starting and it is too early to judge how successful it will be.

The aim is to use the CIVITAS SMILE funding to develop the project into a commercially sustainable operation and the future of the scheme will be reviewed in 2009.

3.4.2 Central London Freight Quality Partnership (CLFQP)

The Central London FQP is managed by the Central London Partnership and includes the City of London Corporation, the London Boroughs of Camden, Islington, Southwark and Lambeth, the Royal Borough of Kensington and Chelsea and Westminster City Council.

In conjunction with CLFQP, the Crown Estate has previously expressed interest in setting up a consolidation centre for retail deliveries to Oxford Street, Regent Street and Bond Street.

Currently, it appears that the Central London Partnership is aiming to build on this by seeking consultant(s) to carry out some initial exploratory work on consolidation with a view to implementation early in 2008.

3.4.3 West London Freight Quality Partnership (WLFQP)

The West London FQP (WLFQP) includes the London Boroughs of Ealing, Hillingdon, Hounslow, Hammersmith and Fulham and Brent Council.

The West London FQP is also currently working on an investigation of consolidation centre feasibility. The WLFQP have produced notes describing consolidation centres and their benefits and illustrated these with 3 case studies.

These have been distributed to members who have provided initial feedback. Moreover, the WLFQP have consulted all West London boroughs to identify the potential for CCs across West London.

Borough planning officers are currently being consulted to identify existing and future retail sites that could benefit from the consolidation centre.

The WLFQP appear to be investigating a consolidation centre funding mechanism through the Business Improvement District (BID) process because, as most businesses lease their premises, they may not be willing to contribute to capital investment.

3.4.4 Manchester Airport

Following the lead of Heathrow, Manchester Airport Group issued a call for tenders to set up and operate a freight consolidation centre for Manchester Airport, during the spring of 2007.

3.4.5 Birmingham

During the summer of 2007, Birmingham City Council realised a long-held aspiration to let a contract for a feasibility study into a rail-linked consolidation centre for Birmingham city centre.

3.4.6 Glasgow

In December 2007, Strathclyde Partnership for Transport initiated a tender exercise for a feasibility study into a multi-sector, potentially multi-modal consolidation centre for Glasgow city centre, taking into account potential demand for developments associated with the forthcoming Commonwealth Games.

3.4.7 British Council of Shopping Centres Research

During the summer of 2007, the British Council of Shopping Centres commissioned an initial desk review on the potential benefits of freight consolidation to its members. The results of this research have yet to be made public.

4 CONTINENTAL EXPERIENCE OF FREIGHT CONSOLIDATION

The University of Westminster report contained a review of experiences of urban freight consolidation from around the world, but predominantly continental Europe from the point of view of objectives and operational experiences. In order to enhance that information to inform this feasibility study we conducted a brief survey to update baseline information about a range of consolidation centre implementations in continental Europe. We did this in order to collect information about more recent developments (newly implemented urban freight consolidation / urban distribution centres and changes to arrangements at existing centres) and to gain additional details about the operational procedures and business case and support structures wherever it was available.

Detailed information was collected about operational consolidation centres in Monaco, La Rochelle and Padova as well as the detailed proposals for a new consolidation centre in Clermont Ferrand.

There are many similarities between these consolidation centres as well as some important differences. These are summarised in the following table.

Similarities	Differences
Size – the centres are all in the range 700-1500 m ² .	The degree to which they are initiated by public authority initiatives (the majority) or a collective agreement that shared deliveries can lead to logistical efficiency and a better business outcome.
Financing – they all involved some form of public funding to initiate the centre.	The way in which public policy supports the centre i.e. whether there are local restrictions that provide strong direction to logistics providers to use the consolidation centre or whether they are to be used on a voluntary basis.
Price structures, which are generally a function of both size and weight.	The degree to which public subsidy continues to be available after the initial set-up period.
Prices which are generally in a range of £2-5 for an individual parcel and £5-10 for a pallet.	The exact structure of the pricing.
	The degree to which impacts on the logistics operations and the urban environment are assessed.

5 POTENTIAL IMPACTS

The interest in urban consolidation centres is primarily driven by the perception that they could provide significant benefits to both the urban environment and also the management of the supply chain within urban areas. This section lists some of the potential impacts and then examines in general terms the most important of these – reduction in delivery vehicle mileage.

5.1 General Benefits of Consolidation Centres

Based on the UK and continental experiences, consolidation centres appear to offer the following wider range of potential benefits:

- Reduced and better managed local HGV journeys serving the retail environment (fewer delivery rounds in urban centres; ability to deliver to tight delivery slots; easier management of loading bays; dedicated, trained drivers with local knowledge of preferred routes; avoidance of peak period deliveries);
- Lower emissions, improved air quality, less noise;
- Improved safety, i.e. fewer collisions, injuries (KSIs), reduced threat and intrusion;
- Reduce the number of PCNs issued, through use of drivers with local knowledge of delivery facilities and parking / access restrictions;
- Improved delivery service level (better on time delivery rate; drivers with local knowledge delivering direct to customer stock room);
- Reduce loss of goods (shrinkage) within the supply chain;
- Encourage and support clients' recycling commitments (WRAP) allowing co-ordinated approach to recycling from all units in a town centre, rather than forcing used packaging etc all the way back through the supply chain.;
- Shared reverse logistics and home delivery facilities;
- Opportunity to disconnect trunking from urban delivery, so allowing trunking operations to be conducted at night when the highway system is more reliable;
- Overall reduction of operational costs for haulier and retailer (reduced delivery mileage and driving time within the urban area for trunking operations, shorter dwell times for unloading; possibility of increased retail floor space, due to decreased storage requirement);
- Opportunities for stock buffering (allowing delivery of smaller more easily managed deliveries throughout the day, with priority goods loaded on the earlier delivery rounds), seasonal stock holding at busy periods and provision of pre-retail / added value services;
- Potential for reduced delivery bay requirements and associated costs in new-build shopping centres.

5.2 Delivery Vehicle Mileage Reductions

The detailed evaluations of the Heathrow and Bristol consolidation centres revealed delivery vehicle mileage reductions of 50-75%, depending on the stage of development of the scheme, time of year etc.. These reductions in vehicle mileage would of course be associated with reductions in pollutant emissions. However, a note of caution needs to be expressed about the transferability of these overall mileage reductions because, potentially, they present a best case scenario. The reasoning behind this is that, in the case of Bristol, the retailers within

Broadmead were targeted for recruitment according to various criteria. In particular, retailers that were receiving relatively small consignments, which offered the biggest potential benefit for consolidation, were prioritised in the recruitment process. This approach was logical in terms of maximising the benefit of the investment, especially when the trial was known to have a limited capacity in comparison to the total volume of goods being delivered into Bristol Broadmead.

Similarly for Heathrow the majority of participating retailers have relatively small outlets, whereas the few retailers who remain to join the scheme are those with multiple sites across the airport terminals, such as Boots the Chemist and WHSmith Ltd. These remaining stores are likely to have the largest throughput and are already thought to be delivering full vehicle loads to their stores at Heathrow (although this probably includes stock destined for several outlets, at different terminals, within one load). The inclusion of these last few larger players within the scope of the Heathrow consolidation centre may dilute the published benefits from the current high levels.

A theoretical example of the relatively small impact that could accrue from attempting to consolidate full loads is provided by the 'Shared Conurbation Deliveries' section of the Efficient Consumer Response UK (ECR-UK) Collaborative Green Distribution Blue Book⁷.

This investigated the potential impact of consolidating the urban distribution operations of three well known retail groups, Boots the Chemist, Sainsbury's and Musgraves-Budgens-Londis, using the existing Boots distribution centre in Greenwich as the prospective consolidation centre. The scenario that was modelled covered their operations in central London because this is judged to be the most problematic area to conduct delivery operations due to congestion and a range of delivery restrictions. The result of this exercise was a reduction in trips of just 2% and delivery mileage of 2.5%.

Although a very different result to that obtained from the consolidation operations in Bristol and at Heathrow, this should not be particularly surprising because the nature of Boots / Sainsbury's / Musgraves-Budgens-Londis distribution operations is quite different to the majority of the traffic passing through the Bristol and Heathrow centres. The three supply chains involved in this exercise are all well managed and if not already fully consolidated for individual stores will have a drop density which is relatively tightly defined, due to the strong presence of these retailers throughout the study area, hence providing little opportunity for significant reduction in delivery vehicle mileage.

Hence it would appear that the potential for delivery vehicle mileage reduction depends heavily upon the nature of the delivery traffic passing through the consolidation centre. The data presented here shows that, depending upon the nature of the deliveries intercepted, the range could be anywhere between 0 and 75%. The figures quoted for delivery vehicle mileage reduction in the University of Westminster report of 30 to 45% lie mid way between these extremes and are probably indicative of the vehicle reductions found in practice from a mixed use schemes.

⁷ This document has been published in 2007 by the ECR UK following a study made during 2006. It summarises the opportunities identified and the challenges encountered for collaborative distribution initiatives and is available free of charge from: <http://www.igd.com/cir.asp?menuid=84&cirid=2179>

PART 2 – Freight Consolidation for South London

6 SOUTH LONDON BASELINE

This section starts by providing a baseline in terms of responsibilities, perspectives and information related to transport and its impacts in South London prior to the following sections which develop and present information specifically related to freight consolidation.

6.1 Public Authorities

A range of responsibilities relevant to consolidation centres are shared across various public authorities within London. Of particular relevance to consolidation centre operations are highways management and responsibilities for air quality. Naturally, all authorities also have an interest in promoting the local economy, although the scope of that focus clearly relates to each individual authority's areas of responsibility.

6.1.1 Pan-London Level

Responsibility for the strategic road network within London rests with Transport for London and it is in order to make best use of this constrained network, whilst allowing the economy of London as a whole to develop, that TfL has developed the draft London Freight Plan.

This mirrors other relevant areas such as planning, waste management and wider transport policy, where strategic guidance is developed at the pan-London level (e.g. the London Plan) and implemented at Borough level (e.g. through Local Development Frameworks).

6.1.2 Borough Level

Borough Councils also have a responsibility to manage the local road network within their Borough boundary, working in partnership with the Boroughs' umbrella body, London Councils, where cross border issues are concerned.

There is a statutory requirement for local authorities to manage the air quality in their area of responsibility according to limit values for selected pollutants, as laid down by European Commission directives. Within London, this requirement rests with the various Boroughs and, where air quality measurements and modelling reveal that there is a problem, focuses their actions towards measures that could help to alleviate the problem.

Table 6.3 indicates that goods vehicles make a significant contribution to the emission of NO_x and PM₁₀ in London. Given that these are the pollutants which normally present a problem to local authorities in meeting their air quality targets, this leads the Boroughs to look to address emissions from goods vehicles as part of their overall plans for air quality management.

6.1.3 Borough Feedback on Freight Consolidation

The fact that TfL and some South London Boroughs have part-funded this feasibility study demonstrates their general interest in the concept.

In order to clarify their specific levels of interest, representatives of some of the South London Boroughs were questioned about their views on creating one or more consolidation centres in South London. Additionally, a brief analysis of the Local Implementation Plans has been carried out to investigate if the concept of the consolidation centre has been included.

The interest of Boroughs in freight consolidation appears to stem from three interlinked issues:

1. **Local Air Quality:** i.e. a reduction in emissions as a result of fewer, better managed goods vehicles;
2. **Town Centre Business Environment:** less vehicle intrusion on shopping streets;
3. **Use of Highway Space** both for town centre loading / unloading and town centre access: Closely linked to 1 and 2 above, but also to congestion on specific access routes.

Given the town centre focus of the above, the retail and service sectors (and hence the organisations that take responsibility for distribution in those sectors), appear to be the most likely target for consolidation.

Additionally, however, there is interest in the potential of freight consolidation in other sectors, in certain specific areas, for example on the border of Croydon and Sutton, where there is a concentration of industrial estates which are perceived as leading to an excessively large number of freight transport movements.

In discussion with Borough representatives, one of the appeals of the consolidation centre concept is that it appears to offer a potential 'step change' reduction in the number of goods vehicles present in the town centre, with many of those vehicles which do continue to access the town centre being easier to manage, because there is a single point of contact in the case of a problem.

In practice, some of the problems which Boroughs think that the introduction of a consolidation centre will solve actually appear to be linked to the current inadequate provision of town centre loading facilities (something which the SLFQP is working on with TfL and the Boroughs to find potential solutions on a case by case basis).

In some cases it could be that a simple solution involving the provision of better local delivery facilities could suffice in fixing the specific local problem. However, merely following this case by case methodology might result in overlooking a more coherent area wide solution, that provides wider benefits if a consolidation centre approach were to be followed.

The particular case of Sutton is interesting because their LIP mentions that the Council seeks to encourage the use of more environmentally-friendly methods of freight distribution, such as rail. This could potentially be extended to the provision of urban freight services from a consolidation centre, using the latest clean vehicle technologies such as electric or gas powered vehicles.

The degree to which a Borough has taken a strategic decision to limit access to one or more of its constituent town centres and the way in which this has been implemented is of direct relevance to the development of the consolidation concept. For example, access to central areas of Sutton, particularly the High Street, is currently restricted to all vehicles over 3.5 tonnes, between the hours of 10.00 and 16.00. Though this is understandable to a degree, in terms of meeting a desire to take delivery vehicles off the streets during busy shopping periods, the result is to focus delivery vehicles into activity at times of the day when congestion is at its worst i.e. the morning and evening peak periods.

A combination of a consolidation centre with this type of approach, with 'favourable delivery terms' for those businesses that direct their deliveries through the consolidation centre, has the potential to allow longer distance strategic deliveries, into the consolidation centre, to be conducted out of peak hours and local journey legs to be managed to meet all three of the Boroughs' primary objectives.

The LIPs of Bromley and Croydon also make reference to the potential relevance of freight consolidation centres.

It is worth contrasting the above approaches with that of Richmond, whose LIP refers to the fact that, because the Borough is a very lightly industrialised, there is very little need for a freight distribution centre. This position effectively ignores the importance of freight transport in servicing retail and other non-industrial businesses.

6.2 Traffic Data

6.2.1 Trends in Goods Vehicle Movements

An analysis of the trend in freight vehicle movements shows an increase in the number of vans and other vehicles below 7.5T (LGVs) on the roads. An example of this is shown in table 6.1, using data from the London Atmospheric Emissions Inventory for the main motorways in the London area (M1/M3/M4/M11/M25/M40), where the number of LGV movements is predicted to increase by 8% between 2003 and 2010, while the number of vehicles over 7.5 tonnes is expected to decrease, typically by 1%.

The implication of this observation is that freight transport operators are moving towards the use of a greater number of smaller vehicles.

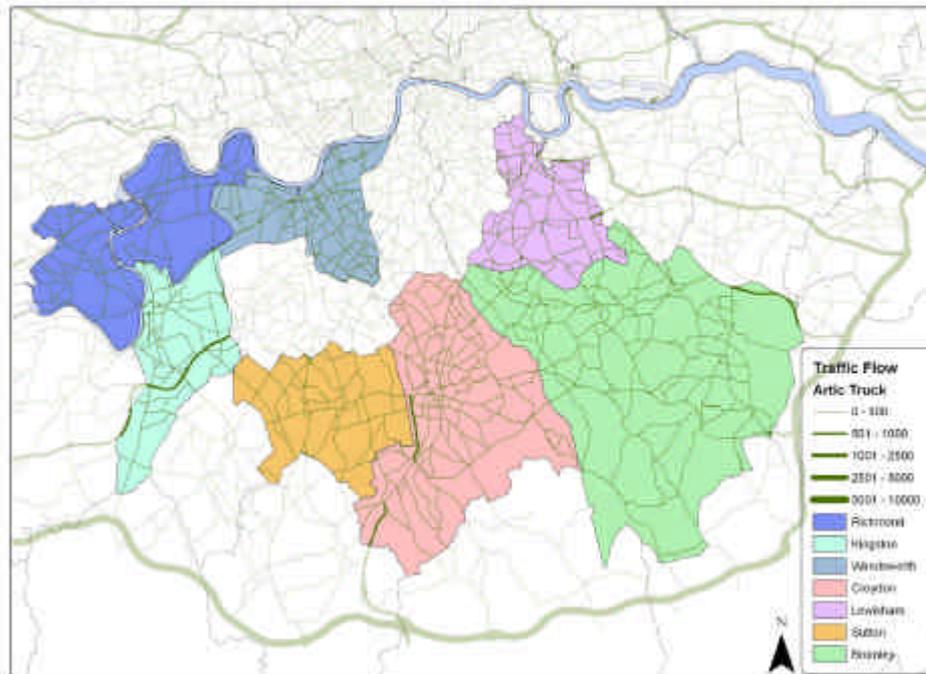
Table 6.1: Evolution of the number of freight vehicles on the motorways around London

Motorway	LGV	Rigid Vehicles			Artic Vehicles			Total
		2 Axle	3 Axle	4 Axle	3 4 Axle	5 Axle	6 Axle	
M1	8%	-1%	-1%	-1%	-1%	-1%	-1%	0%
M11	8%	-1%	-1%	-1%	-1%	-1%	-1%	0%
M23	8%	-1%	-1%	-2%	-1%	-1%	-1%	5%
M25	-7%	1%	0%	1%	1%	1%	1%	-4%
M3	8%	-1%	-1%	-1%	-1%	-1%	-1%	4%
M4	9%	1%	2%	26%	-25%	-38%	-42%	2%
M40	8%	-1%	-1%	-1%	-1%	-1%	-1%	5%

On basis of data from the London Atmospheric Emissions Inventory

Data from the London Atmospheric Emissions Inventory is also of use in identifying the main goods vehicle flows in the South London area. The following maps show overall goods vehicle flows for seven of the eight SLFQP Boroughs. In general, the maps show that significant flows of the largest vehicles tend to be concentrated on a small number of arterial roads, with LGV and rigid HGV flows becoming more evenly spread across the road network.

Figure 6.1: Articulated HGV traffic flow on the main road corridors South of London

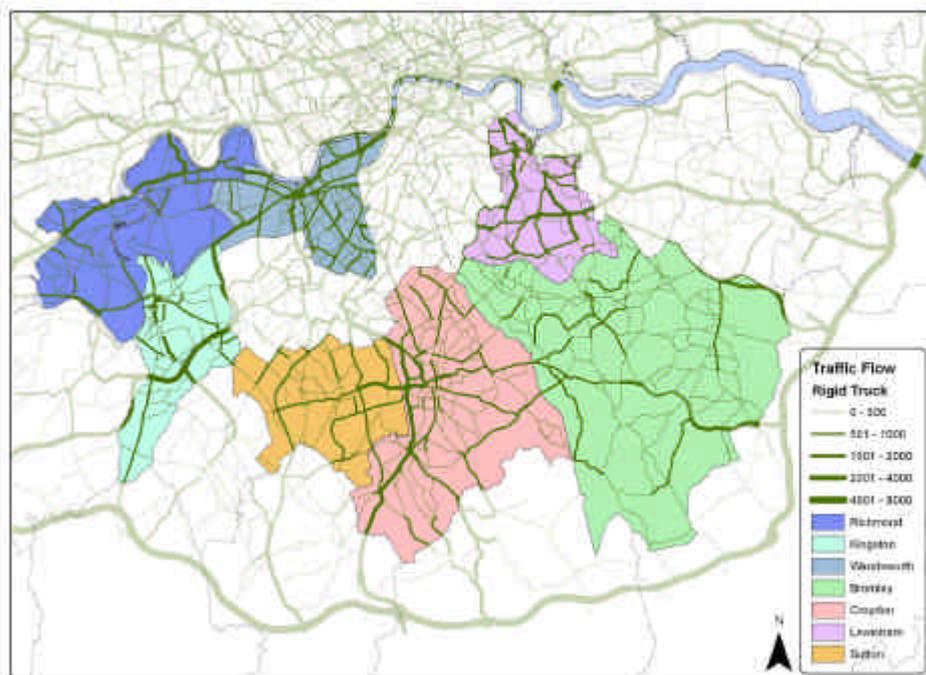


Observations – Artic trucks:

- Highest traffic density in the Boroughs of Croydon, Kingston, and Bromley,
- Lowest density in the Boroughs Sutton, Wandsworth and Richmond.

Source: London Atmospheric Emissions Inventory

Figure 6.2: Rigid HGV traffic flow on the main road corridors South of London



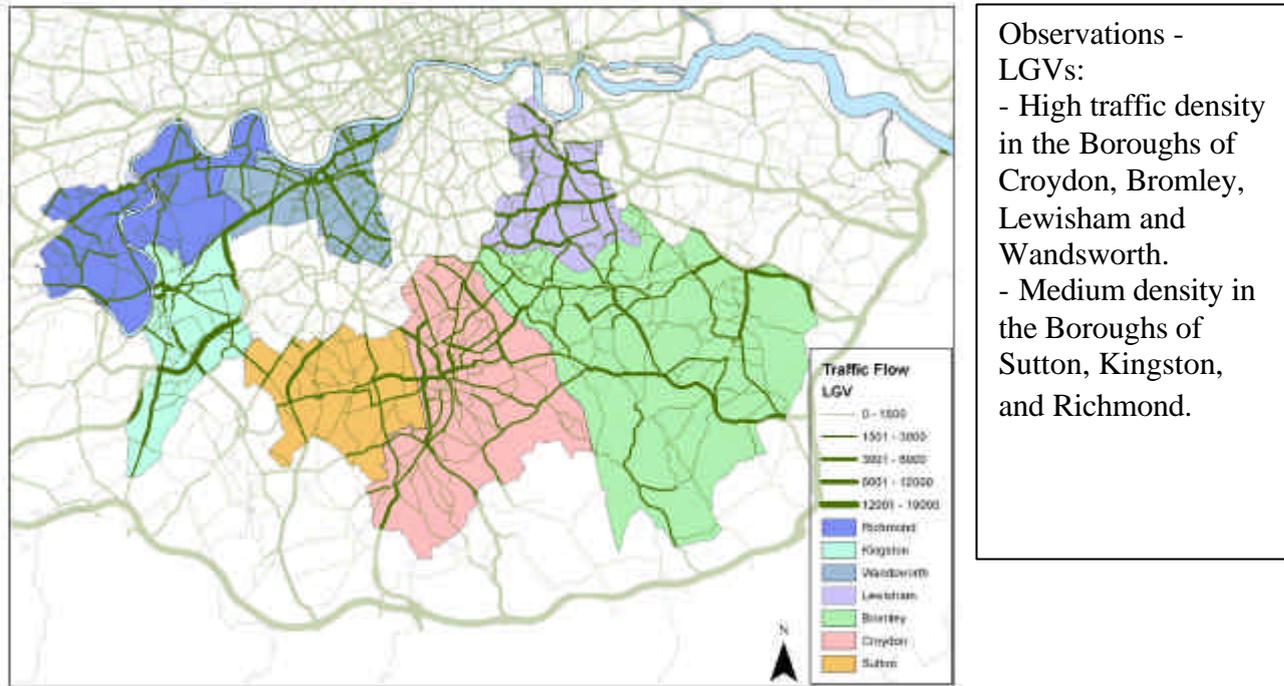
Observations – Rigid trucks:

- High traffic density in the Boroughs of Wandsworth, Croydon, Bromley, and Lewisham.
- Medium density in the Boroughs of Sutton, Kingston and Richmond.

Source: London Atmospheric Emissions Inventory

As would be expected, rigid HGVs are often concentrated in the main commercial areas, both town centres and industrial areas, which, to a certain extent, reflects the general character of each Borough.

Figure 6.3: LGV traffic flow on the main road corridors South of London



Observations -
LGVs:
- High traffic density in the Boroughs of Croydon, Bromley, Lewisham and Wandsworth.
- Medium density in the Boroughs of Sutton, Kingston, and Richmond.

Source: London Atmospheric Emissions Inventory

6.2.2 Freight Traffic Segmentation

In general terms, it is possible to segment the freight traffic within South London as:

- **Transit traffic** (for i.e. users and/or their hauliers who are simply moving traffic through an urban area on the basis of this being the shortest / quickest route: use of traffic management measures (routing, signing, cordons) may assist in re-routing such flows if suitable routes are available around urban areas (i.e. M25, South Circular);
- **Full-load vehicles serving dedicated delivery facilities** (for i.e. distribution centre to supermarkets): whilst there would be little to be saved from routing such traffic through a consolidation centre, as the load is effectively already consolidated, other measures such as easing of delivery windows, use of alternative fuels and noise reduction kits, could help reduce the impact of such movements in urban areas;
- **Part-load traffic**: this is the key sector likely to be of most relevance to the consolidation centre concept, whether construction materials for a building site, or electronics into a high street store. Such traffic involves the sort of 'multi-drop' deliveries that could lend themselves to being consolidated before final delivery. But much of this consolidation activity already occurs in practice through the existing distribution network.

6.2.3 Relative Vehicle Impacts

Table 6.2 provides an indication of the emissions of CO₂ due to road freight vehicles in the UK, calculated on the basis of vehicle kilometres travelled.

Analysis of the information shows that, although the largest trucks produce more emissions (and use more fuel) than smaller ones in absolute terms, the emissions (and fuel use) per unit payload available are significantly lower.

When considering which type of vehicle is most appropriate for use in urban delivery operations, this needs to be balanced with issues such as local air pollutant emissions, safety, noise, suitability of road space and access restrictions and visual intrusion, which lead to conflicting pressures on the type of vehicle used.

Table 6.2⁸: Road Freight: calculation based on vehicle kilometres and authorised gross weight for a selection of goods vehicle sizes

	kg CO ₂ per vkm <i>when empty</i>	kg CO ₂ per vkm <i>when full</i>	% of journey made while empty
GVW 6.1 to 10.9 T	0.518	0.746	19%
GVW 11 to 19 T	0.674	0.971	18%
GVW 19.1 to 21 T	0.776	1.117	15%
GVW 21 to 32.6 T	0.982	1.414	30%

Table extracted from the *GHG Transport Protocol*, EpE-ADEME, 2005

The data collected for this report indicate that rigid HGVs (a categorisation which is of course very wide in terms of vehicle size) appear to be most commonly used in the South London urban area, with a trend towards their further use and also towards the use of vans, which, as shown, could lead to a proliferation of smaller vehicles, in order to move the same amount of freight, based on an assumption of full vehicle utilisation.

6.2.4 The Emissions Baseline

As a starting point for assessing the potential environmental benefits of consolidation centres, it is important to understand the baseline, in terms of the proportion of emissions from road transport by vehicle type relative to total emissions within Greater London and Central London (1999):

Table 6.3: Road Transport Emissions in the London Area

Road transport	Greater London		Central London	
	%NO _x	%PM ₁₀	%NO _x	%PM ₁₀
Cars	28.9	22.4	22.2	18.5
LGVs	5	22.8	5.7	26.7
HGVs	13.9	16.2	14.3	19.2
Buses	5.1	5.1	12.6	10.2
Taxis	0.6	2.7	3.5	17
Motocycles	0.1	0.6	0.2	1.4
Total Road transport	53.6	69.7	58.4	92.9

Source: London Councils

⁸ The figures have been extracted from a GIS map, 2006

The information in Table 6.3 shows the significant contribution of LGVs to local emissions (PM₁₀) and the high level of NO_x coming from HGVs. As a result, it is essential, in the interests of the local environment, to optimise available truckload capacity and to accommodate and facilitate the movement of HGVs, which, when fully laden, emit less pollutants per tonne of goods transported.

7 DELIVERY SURVEYS

7.1 Background

As part of the preparatory work for the feasibility study, detailed surveys of goods deliveries were conducted with retail businesses in Sutton, Croydon and Bromley town centres. These survey results have been reported in two separate reports⁹ and are only summarised here.

The aim of these delivery surveys was to collect data that would subsequently be used to assess the potential for a freight consolidation centre to serve the area. The primary issues to be addressed were:

- What are the goods being moved in the retail centre?
- How and when and from where are they transported?
- Are they appropriate for transshipment?
- Who controls the process?

The questionnaire was also designed to assess the suitability of retailers for involvement in freight consolidation should the primary issues support such a scheme. The secondary issues examined were:

- Current delivery times
- Location of loading areas
- Handling requirements for goods inbound
- Number and size of deliveries both at normal and peak periods

This approach had previously been developed and implemented as part of the set up of the pilot freight consolidation initiative in Bristol. The surveys in Sutton and Croydon were conducted in October and November 2006 and the questionnaire was modified slightly for use in Bromley from mid-January to early February 2007.

Town centre retail businesses were selected for the survey because they represent the lifeblood of the traditional town centres, generate freight transport by virtue of the fact that they require stock to sell, in order to exist and it is the town centre areas in which they are situated that generate the levels of traffic and associated pollution that generate concerns for the responsible local authorities.

7.2 Number of Store Deliveries

The number of deliveries estimated by respondents ranged from 1 to 100 per week, although the majority of respondents received between one and 4 deliveries per week and the mean value was five deliveries per week. Some retailers were known to receive no deliveries during some weeks¹⁰.

Those stores receiving five or more deliveries per week were typically:

⁹ South London Retail Distribution Survey Report and South London Retail Distribution: Bromley Survey Report

¹⁰ Some store types, for example jewelers, were understandably unwilling to disclose information about their deliveries.

- Food stores requiring regular deliveries of perishable goods;
- Larger well-known retailers, with high stock turnover and / or many suppliers;
- Retailers who receive deliveries from suppliers and also process goods off-site for members of the public, such as photo processing outlets;

The data also indicates that, during busy peak periods such as the build up to Christmas, there is a 30-50% increase in the number of deliveries to stores. However, this can also vary significantly between stores.

7.3 Delivery Times

In response to a general introductory question, the majority of respondents indicated that deliveries tend to be made according to a regular schedule. Where retailers receive deliveries made to a schedule, the vast majority (87%) are received on weekdays, i.e. from Monday to Friday, particularly during the morning from 06:00 to 12:00. Only 6% of respondents operated completely *ad hoc* delivery schedules, while 17% of respondents were unable to provide details of their delivery schedule.

However, more detailed questioning revealed that this data hides the fact that a significant proportion of respondents stated that some of their deliveries could arrive on any day of the week (23%) and at any time during the day (41%). In fact over 50% of the respondents either had insufficient information to answer a question regarding specific timing of deliveries or merely stated that the delivery could, in fact, happen at any time during the scheduled day. This shows that the deliveries of many retailers are effectively uncontrolled at point of delivery, even if a nominal schedule is in place. This was noted to make it difficult to process some deliveries, particularly when they arrived at the same time as other deliveries or at times when staff were taking breaks.

Currently, less than 10% of deliveries are made outside of normal working hours, between the hours of 18:00 and 06:00.

Many retailers, particularly those of a smaller size, received goods via courier services organised by their suppliers. In contrast, larger companies typically have their own delivery services: either they operate with their own fleet or they subcontract the transport element of the supply chain to a freight transport operator.

7.4 Loading Units

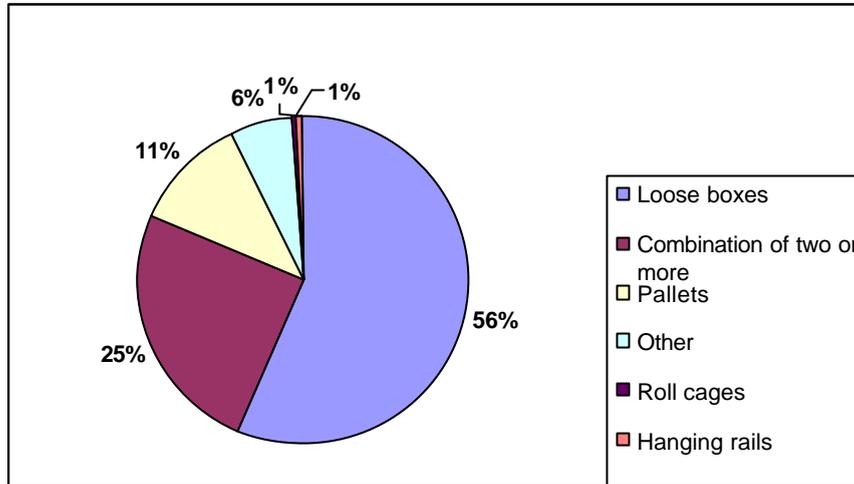
The way in which goods are packaged is of direct relevance to a requirement for specialist handling facilities and could have a direct impact on how goods are stored and transferred within a consolidation centre.

The SLFQP survey suggested that the average size of delivery was around 16 'loading units', although this entails a very wide range of delivery sizes and packaging.

The most common type of loading unit were individual boxes loaded as loose items. This partly reflects the frequent use of couriers, suppliers' own fleets and third party logistics providers by the majority of small to medium stores. Deliveries of individual boxes ranged from 11 to 34 boxes in a single delivery.

Around 25% of deliveries involved a mixture of different types of loading unit at the same time (e.g. individual boxes and hanging rails, individual boxes and pallets, pallets and roll cages etc.), whilst 11.5% were made solely using pallets. The breakdown of the type of packaging used can be seen in Figure 7.1.

Figure 7.1: Type of loading unit used to deliver in the main commercial areas



Although individual boxes are most common loading unit in both cases, their use is much more common if the freight transport operator is conducting a multi drop round as opposed to delivering to only one store. (Note that this does not necessarily directly correlate to the amount of stock transported by each type of loading unit as it would be expected, for example, that deliveries of loose boxes would on average be smaller than deliveries that required the use of roll cages or pallets.)

7.5 Vehicles used for Deliveries

Deliveries are made by a wide range of different vehicle types. The most common form of transport was found to be rigid truck, which accounts for between 25 and 40% of deliveries.

Other commonly used vehicles were articulated vehicles and vans, both in the range 17-25%. A number of smaller retailers reported that they used their own private cars to transport their stock to the store. The relatively large uncertainties in the figures resulted from the fact that, even with regular delivery schedules, the vehicle type was observed to vary from day to day.

The data showed that the use of the smaller classes of delivery vehicles (rigids and vans) appears marginally more common when deliveries are as part of a multi-drop delivery round.

7.6 Responsibility for Deliveries

In many cases, there appeared to be a further disconnection between the store and the supply chain, which can be demonstrated by the fact that in Bromley (the only location where this question was asked) around 60% of respondents did not know the origin of the delivery vehicle or the way that deliveries had been organised.

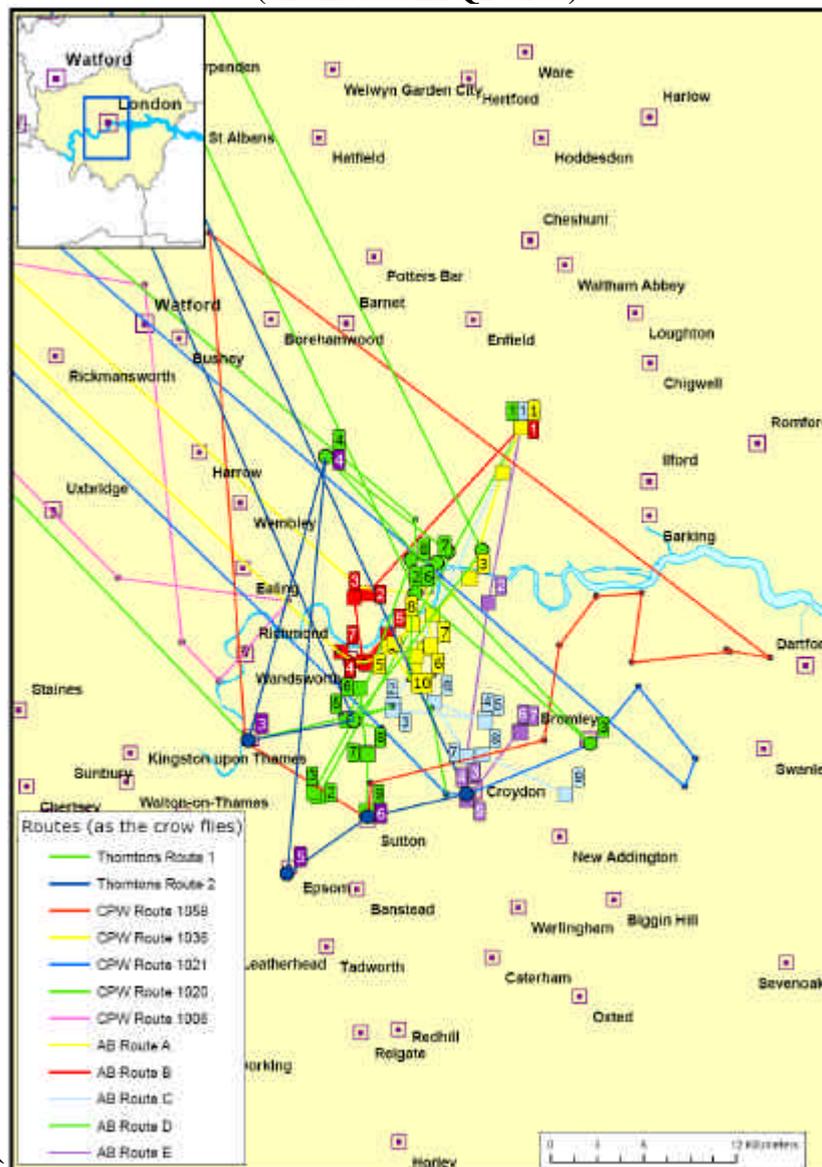
This lack of influence at store level over deliveries received is also represented the fact that, if there was a problem with a delivery, the responsibility for sorting it out commonly lay with

the company head office or distribution function, rather than within the store. For the majority of stores contacted, deliveries are mainly under the responsibility of the company’s head office or distribution section / contractor, with few being the responsibility of an employee within the receiving store.

7.7 Delivery Schedules

The key impact expected from the introduction of a consolidation centre is a reduction in goods vehicle miles travelled within the urban environment. One of the aims of the feasibility study was to try to gather enough information regarding the detail of existing delivery schedules, for a range of organisations in different retail sectors to conduct an indicative quantitative modelling exercise to estimate the impact of a consolidation centre on distribution vehicle mileage within those chains. This would have led to an optimisation module, providing an initial indication of the locations with biggest potential benefits.

Figure 7.2: Map of existing pallet depots in South of London (extended SLFQP area)



Although a great deal of information about deliveries has been collected, many distribution companies, wholesalers and retailers who have access to detailed schedule information have been reluctant to share this information with us. This reluctance is due to a combination of client confidentiality commercial sensitivity – as supply chain innovation and optimisation are key elements of business success. However, we have succeeded in obtaining some samples of key information which provide information about the distribution of deliveries made in the South London FQP area from distribution centres located far from their stores. These are shown on a map in figure 7.2¹¹.

Although it only represents a small sample, it does show that many rounds made in the South of London originate from different distribution centres located all round the UK and if these rounds were multiplied by the complete number of rounds which serve South London, then the concentration of the delivery rounds to the district centres suggests that the concept of consolidation becomes viable, even remembering that consolidation centres provide benefits when used by trucks having a medium or low percentage of fulfilment. It is also interesting to note that some of the multi-drop rounds link deliveries in South London to deliveries in other parts of London, particularly Central London. This suggests that any consolidation strategy would need to consider how best to deliver to London as a whole and how to best modify rounds that currently link sites in central and outer areas.

The way in which distribution costs are accounted has a significant impact on the attractiveness, or otherwise, of a consolidation centre. Because the distribution industry often looks at costs on a per mile basis, it is clear that a significant reduction in stem mileage, as a result of the implementation of a consolidation centre, improves the cost balance calculation on this basis and favours implementation in peripheral locations, such as Norwich, rather than dense urban locations.

However, businesses that include urban distribution costs within their general distribution costs quite often develop what is in effect their own in-house consolidation centre; indeed they plan a part of their margin on this supply chain practice. The outcome of such practices could be a proliferation of in-house consolidation centres and parallel supply chains which would avoid overall optimisation of the loads delivered to city centres.

However, the information that was available from those sources provided some information regarding schedules, goods traffic levels and distribution operations that has been cross-referenced to the information collected about deliveries received at store level.

7.7.1 Data from SLFQP Survey

The data from the SLFQP survey of retailers in Bromley suggested that only the largest retailers used their own dedicated supply chain to transport stock, whereas many smaller retailers (who do not have access to company vehicles) receive their inward goods via couriers, *ad hoc* arrangements or according to procedures controlled by their suppliers.

With the notable exception of the deliveries made to the very largest stores, such as Marks and Spencer, a driver survey also conducted in Bromley indicated that the majority of delivery vehicles carry deliveries for more than one store. This comprises both deliveries made by courier, in which case they may be able to serve several stores from a single stop

¹¹ The majority of the rounds shown in figure 7.2, take place on the morning (between 6am to 9am).

(for example on one visit to a particular shopping centre), and deliveries made by a company's dedicated supply chain, where the delivery vehicle will carry stock from a central distribution centre to several stores on a single delivery tour. In fact, respondents in Bromley reported that 65% of the vehicles used to make deliveries to their stores went on to make further deliveries to other stores as part of a multi-drop round.

This was particularly noticeable for those stores that were part of a retail chain, who received deliveries daily, as part of a chain involving other outlets of the same company or group in the region (for example, a sports and outdoor goods retailer which delivers to its four South London stores all on the same morning) and smaller independent stores who often received goods through a courier system.

Retailers with no other deliveries en route were often small independent clothing stores who had separate links with numerous private suppliers. For example, one independent clothing retailer received single *ad hoc* deliveries from independent fashion designers. Other examples included retailers who specifically ordered enough stock to completely fill one delivery vehicle.

Because so many stores are uncertain of the origin of the deliveries that they receive it makes it impossible to draw firm conclusions. However, according to the minority of retailers in the Bromley survey sample who did know the origins of the delivery vehicles, the most common origins for delivery vehicles are local, namely Kent and Greater London (approximately 40% of those who knew the delivery origin). A wide range of other locations within the UK were also represented, as well as a few international deliveries originating in continental Europe.

This is backed up by the results of some on-street interviews with delivery staff conducted in the South London area which showed a wide variation in location of origin and schedule detail, although the origin of the delivery vehicles operating in South London was relatively local. For such delivery rounds, a common distance per round appears to be in the region of 40 miles in total. Also, a general average distance between two delivery points is around 5 km (although, again, with considerable variation both within a single delivery round and from round to round). From the relatively small number of interviews conducted, these figures for multi-drop deliveries were for small consignment sizes (e.g. packages of cell phones, etc.).

Further examples come from Londis and Boots, who both have regional distribution depots that cover South London, located in North Kent.

For Boots, typically 5 or 6 deliveries are made from their Dartford depot on each of two rounds per day to their South London stores. Rigid trucks are the most used due to the balance between maximising available delivery volume and ease of use in urban areas.

8 SIZE OF THE POTENTIAL RETAIL SECTOR MARKET

The delivery surveys conducted to inform this feasibility survey focused on core retail areas (main shopping streets and shopping centres) of Croydon, Bromley and Sutton because this type of area provides a significant store density and hence target group of potential users of a consolidation centre. When considering the full potential of one or more consolidation centres to serve South London the wider retail group needs to be considered in terms of:

- This type of core retail location in the other South London Boroughs
- Other retail outlets in the main district centres
- Retail outlets within South London that are situated outside the main district centres i.e. smaller neighbourhood centres, out of town shopping centres and smaller outlets dispersed throughout the Borough.

8.1 Core Retail Areas

The starting point for this analysis was to identify the stores in a selection of core retail locations across South London as follows:

Centre	Retail outlets
Bromley, <i>The Glades</i>	120
Bromley, <i>High Street</i>	68
Croydon, <i>Whitgift Shopping Centre</i>	156
Croydon, <i>Centrale Shopping Centre</i>	109
Kingston, <i>Bentalls</i>	85
Kingston, <i>Eden Walk</i>	24
Lewisham <i>Shopping Centre</i>	69
Richmond, <i>Town Centre</i>	29
Wandsworth, <i>Southside Shopping Centre</i>	21
Wimbledon, <i>Centre Court Shopping Centre</i>	52
Wimbledon, <i>The Broadway</i>	19
Wimbledon Village area	22
Total	774

The detailed delivery survey data was disaggregated for different segments of the retail sector and then matched to the store types in these locations in order to estimate the total delivery volume.

Table 8.1 displays the number of deliveries, per week, by sector, for a sample list of retailers located in the main commercial streets and shopping centres of the South of London¹². The table shows that department stores, food retailers and outlets and clothes retailers are the sectors that receive most deliveries per week in these locations.

¹² Bromley, Croydon, Kingston, Lewisham, Mitcham, Richmond, Sutton, Wandsworth, Wimbledon.

Table 8.1: Estimation of the number of deliveries for the main shopping centres in South London

Category	Number of retailers	Estimated average number of deliveries per week	Estimated number of deliveries per week
Department store	22	32	704
Food retail	23	15	345
Food outlet	80	8.3	664
Healthcare retail	38	8.2	312
Accessories	12	7	84
Electronic retailers	37	6.2	229
Retail Others	23	5.2	120
Other	93	5	465
Toy shop	26	4.5	117
Booksellers	32	4.5	144
Clothes stores	204	3.9	796
Jewellery	42	3.7	155
Services	46	3	138
Entertainment retail	15	3	45
Footwear	40	2.5	100
Greeting Card shop	19	2	38
Grand total	752	6	4456

These stores represent the 752 outlets which could be allocated to the various categories out of the 774 retail units in the main town centre shopping locations of South London, identified previously.

8.2 Borough Level Information

According to the Nomis, *Annual Business Enquiry data 2005*, there were 8,600 retail units¹³ in the retail sector in the South London FQP area, distributed as follows:

Borough	Retail outlets	Borough	Retail outlets
Bromley	1400	Merton	800
Croydon	1500	Richmond	1000
Kingston	800	Sutton	800
Lewisham	900	Wandsworth	1400

¹³ Data (or local) units do not readily correspond to the commonly used terms firms, companies or businesses by which employers are sometimes identified. They are roughly equivalent to workplaces but because of the way the data are collected two or more units can be present in the same workplace. For example, a bank may have several branches and offices in a city, each one of these would be counted as a separate data unit.

If the information from table 8.1 is scaled up at the average rate of 6 deliveries per week per store then the approximate number of retail deliveries in the South of London would be 51,600 per week. However, a degree of care needs to be addressed to this figure because the wider retail store population will include a broader range of store types, from large out-of-town stores, to small corner shops.

As part of the process of quantifying the potential size and throughput of a consolidation centre in the South London FQP area, it will be essential to target the potential user profile within the wider retail community.

8.3 Scale of Facilities

The scale of the consolidation centre will be a function of the volume and spread of traffic processed by the facility each day.

As a guide, a modern warehouse for general distribution may generate an average of 1 HGV arrival per day per **100m² of floorspace**, but a consolidation centre is likely to concentrate more intensive use by a range of HGVs and LGVs. Hence the choice of an appropriate location with access roads of appropriate capacity well-linked to the national highway network and able to operate 24 hours per day becomes a key determinant.

Information from the Broadmead (Bristol) and Heathrow Consolidation Centres provide some indicative parameters for the potential scale of consolidation centres; the Broadmead facility is around 660 m² warehouse and aims to serve approximately 60 retail outlets, whilst at the other end of the scale, the Heathrow facility is housed in a 5,200 m² warehouse and serves 220 retail outlets.

The Heathrow facility includes an area for security scanning, as well as separate areas for chilled and frozen items and also has space set aside for off-site stock holding.

If these are typical of what might be expected from such facilities, then an average provision of around 10m² per retail outlet, for a basic facility focused solely on goods handling associated with consolidation, could be appropriate, in addition to extra space a central receipt, handling and marshalling area.

On the basis of a space requirement of an additional 10m² per retail outlet served, the size of a consolidation centre required to serve the complete retail population, assuming 100% participation, would be as laid out in table 8.2.

Table 8.2: Estimates of Consolidation Centre Size Requirement

Centre	Retail outlets	Consolidation centre size (m ²)
Bromley	1400	14,000
Croydon	1500	15,000
Kingston	800	8,000
Lewisham	900	9,000
Merton	800	8,000
Richmond	1000	10,000
Sutton	800	8,000
Wandsworth	1400	14,000

This will clearly represent a hypothetical upper bound, because the participation rate is likely to be significantly less than 100%, and also desirable because 100% participation would mean that goods currently being carried by full vehicles would be passing through the consolidation centre leading to lower efficiency, increased costs and worse overall environmental performance.

Given that initial uptake is actually expected to be quite limited and to be focused around a relatively small number of businesses which supply one or more stores in South London as part of a multi-drop round from a remote location it could be that a single facility of similar size to that used to serve Bristol Broadmead (or an option on part of an existing distribution warehouse of that size) would be adequate.

9 BUSINESS CASE FACTORS

The key issue for retailers / freight operators regarding the creation of a consolidation centre is that a new step in their supply chain will increase the cost of the delivery operation due to costs related to land and building, infrastructure, maintenance and management which are often paid by the centre's owner / management and need to be covered by a combination of charges and / or subsidy. The exact costs will of course depend upon the specific local circumstances. This is important because, as mentioned previously, the success of a consolidation centre will ultimately be judged by the impact of the centre on logistics efficiency, a calculation which, for businesses, includes by default cost effectiveness.

These additional costs need to be set against potential cost reductions both to the existing supply chain (less time being spent on urban deliveries, shorter journey times, reduced journey distances, increased vehicle utilisation and fewer instances of penalty charge notices being directly served) and also through any savings that can be made in store through more efficient management of shop floor staff and reductions in on-site storage requirements. The cost of the whole supply chain has to be taken into account - not only a calculation involving the final delivery miles, where the deliveries are actually carried out.

One of the problems in considering this is that, although there will be similarities and patterns of operational practice within the target population of the consolidation centre, each operation will be different and the impact needs to be considered on its own terms.

Another problem in developing an economic case is that the cost model used varies among businesses. Stakeholder feedback indicates that some businesses appear to operate according to a single cost per mile within their organisation, whereas others are easily able to consider a variable cost per mile where trunking mileage is likely to be less expensive than congested urban delivery mileage.

Unless the potential savings from quick vehicle turnaround and return to base can be identified and captured by an operator, then it will be difficult to convince them of the benefits.

Where transport is carried out by a third party operator on behalf of a retail client, this will require the third party operator to identify these savings within their cost model and make adjustments in the price charged to their client.

This section makes a start in developing some of the issues that would need to be taken into account by a business considering using a consolidation centre.

9.1 Overview of Distribution Costs

9.1.1 Standard Costs

An industry standard operating cost for a 44t articulated vehicle (subject to variables like fuel price, seasonality, nature of route etc.) is commonly taken as roughly £1.30 per mile (including fixed costs relating to operating the vehicle like office overheads, operator licence fees, vehicle excise duty etc, as well as variable vehicle costs like fuel, tyres, maintenance, all added to driver wages attributed to travelling one mile). However, it is based upon a standard

operating cycle which for a 44t artic includes a high proportion of long distance transport away from urban congestion. This would also provide a large number of miles for the fixed cost element to be averaged over.

9.1.2 Urban Distribution Costs

In contrast, our surveys suggest a typical multi-drop urban operation might be conducted by an 18t rigid on a 60 mile round trip, including several deliveries within a congested urban environment. We would contend that the cost per mile for this sort of operation would actually be considerably higher. Using the Motor Transport cost tables¹⁴, this type of scenario of operation produces a figure in the range £3.35 - £3.50 per mile, which probably reflects a more realistic cost per mile for an urban delivery vehicle or the 'last miles' of a combined trunking and delivery operation.

For the sort of urban delivery trip that has been identified in our retail surveys, the industry standard cost per mile figure would suggest a total cost per 60 mile delivery round of £78, whilst the alternative figure would be around £205.

To determine the unit cost per pallet on these bases, we then need to assess the combination of vehicle and body type used. There are clearly many different capacity options but if we take a simple single deck 13.6m curtainsider semi-trailer with capacity of 26 pallets, then the unit cost per pallet over 60 miles will be $78/26 = £3.00$, assuming that the full capacity is used. (Clearly as pallet capacity and utilisation of available space increase, so this unit cost key performance indicator (KPI) decreases and vice versa. Assuming a full deck of pallets as above is optimistic as illustrated by Freight Best Practice Programme data that suggest average deck fill of 70-75%.)

The corresponding figure for the 'urban scenario' could be $205/14 = £14.64$ assuming a full 14 pallet capacity for the 18t vehicle in question.

Clearly this provides two bounds for a very wide range of costs. It is likely that industry will be sceptical about the higher bound value and the true value probably lies somewhere in between, but we believe it is indicative of the cost implications of delivering within a congested urban area and represents a cost which is generally hard to identify within the wider road transport pricing structure.

The amount of this cost which can be removed from the supply chain, due to the implementation of the consolidation centre, will depend upon the location of the centre in relation to the delivery schedule, so that the maximum amount of high cost urban mileage is removed, leaving stem mileage only on appropriate trunk routes.

9.2 Consolidation Centre Cost Structures

We have drawn together as much information as possible from a range of sources about the cost structures for the range of existing consolidation / urban distribution centres mentioned elsewhere in this report. It should be noted that such costs are often treated as commercially confidential and in some cases the subject of speculation and rumour. Hence, it has not

¹⁴ Freely available at <http://www.motortransport.co.uk/>

always been straightforward to gain such information. We have done our best to separate fact from speculation and in some cases our sources must remain confidential.

Later in the report the information presented here is combined with estimates of current urban distribution costs to examine the potential financial business case for freight consolidation in South London.

9.2.1 Charges at Existing Sites

Information gained from the review of continental consolidation centres indicated that charges to use the centre were in the range of £2-5 for an individual parcel and £5-10 for a pallet.

Information gained from operators using the Bristol consolidation centre indicates that the cost per pallet or roll cage charged for handling and delivery there to be slightly higher than that quoted above.

Furthermore we understand that the full cost per roll cage for handling at the Heathrow consolidation centre (i.e. to offload, security scan and reload for onward delivery) is around twice this figure. It is our understanding that BAA covers half of this cost and the other half is passed on to the participating retailer. As stated previously although it was originally set up to provide operational and environmental benefits for BAA, in our opinion the Heathrow consolidation centre is now a special case due to security issues associated with airport operation. However, it is interesting to note that BAA is prepared to cover half the handling cost per pallet, presumably because they acknowledge a monetary benefit from keeping the Heathrow consolidation centre going and hence reducing the number of delivery vehicles within the terminal complexes.

9.2.2 Indicative Charges

As there is no existing trial in South London to provide cost estimates for comparison we have worked with a south London-based haulier to develop some cost estimates associated with running the consolidation centre. This reflects the vehicles, staff, equipment and overhead costs allocated to the centre. It is assumed that this is based around an existing distribution operation (as per the new trial in Norwich) rather than the creation of a new centre which might be expected to have additional set up costs associated with land purchase and building. This approach appears to be a financially attractive alternative as it would utilise existing staff, handling equipment, warehouse space and vehicles. This would have the benefit that, assuming some pre-existing spare capacity, the cost per pallet could be minimised, as it is subject to an incremental share of the cost of the existing operation. It also has the added benefit of not adding an extra distribution chain in parallel to those which already exist in the marketplace.

The final cost per pallet, assuming a successful scheme, depends on various assumptions related to the throughput, the degree to which goods are required to pass through the warehouse quickly, or be held until required, and the type of loading unit (particularly whether it lends itself to easy stacking to make best use of warehouse space). An indicative cost for this model would be at the lower end of the range quoted for continental experience (i.e. around £5-6) and an initial cost per pallet which might be only around 10% greater than the cost per pallet for larger throughputs.

The most significant single cost element within this is the cost per square foot of warehouse space required, which reflects the relatively high price of land within London. An expert suggested to us that an operator could expect to pay a rental charge of approximately £10 per square foot per annum for warehouse space in London, compared to £5-6 per square foot elsewhere in the UK, (i.e. outside of the South East of England). This could be an obvious disincentive to setting up a consolidation centre within Greater London. However, it is important to note, that by using this logic there would be few if any distribution facilities in the South East of England, whereas, in reality, South London appears to be well served by such facilities.

9.3 Business Responsibilities & Accounting – Disconnection

During the course of the research and consultation phases of this project, and from other work conducted by TTR in relation to freight consolidation, it appears that some of the benefits lie at the local level i.e. at the individual store and the area around it, whereas any inconveniences or costs appear to be visible at the corporate level.

This highlights a separation of responsibility in the way that many businesses manage deliveries and account for them within their overall business model. It has become clear that the additional costs (i.e. charges) associated with use of a freight consolidation centre are currently appearing as a separate line within the overall cost model of the supply chain, and depending on a particular business' accounting procedures may either appear as an overhead at company level or store level.

Previous end user surveys of those stores participating in the Bristol and Heathrow consolidation centres indicate that the managers receive a service that allows them to better manage their deliveries in terms of delivery time reliability, choice of delivery time, level of delivery service, opportunity for off-site stock holding or staging deliveries through the day with priority items arriving early in the day and non-urgent items arriving later, easier handling of waste & recycling etc. This would allow the store manager to better co-ordinate staffing levels to match the arrival of deliveries, as compared to the apparent unpredictability of supposedly regular delivery schedules, as was identified in the delivery surveys reported in section 5.2.

The cost implications of this type of impact will need to be accounted for within the local store budget, in terms of staffing levels required to ensure customer service, whilst allowing for the need also to receive and process deliveries. These are difficult to quantify without direct experience of participation within a consolidation scheme and we have not been able to find any evidence that this has actually been quantified or fully exploited by the participating businesses. However it appears that store managers would only take this on if there was a clear cost at store level that they could identify and be directly offset, which would most likely be fewer shop floor staff based on the reduced need to cover for receiving deliveries.

The provision of added value services such as removal of 'outers', recycling, returns and collections in addition to off site stock holding could provide a service that has clear value to the local store manager and be easier to justify within the business than the costs purely associated with the distribution element.

This situation reinforces the disconnection between store and broader delivery operations which became apparent from the delivery surveys and will prove a major barrier to voluntary recruitment of individual stores to a freight consolidation scheme because, even if the local management can be convinced to participate, the final decision may be taken in a separate part of the organisation, using a cost model that only looks at part of the overall cost picture, likely from a strategic, rather than local viewpoint.

9.4 Business Case Examples

For a simple case, consider a retailer with a single store in a town which has a consolidation centre on the main route into town, situated 5 miles from the town centre. Use of the consolidation centre would lead to a round trip saving of 10 miles, which, using the figures from section 9.1, gives an associated financial saving of somewhere between £13 and £35, depending on the cost per mile assumed for the saved miles. This would then be offset against the handling and delivery charges associated with the consolidation centre in the range of £5-10 per pallet (£3.33 - £6.67 per roll cage¹⁵).

To take a real life example, consider the situation of a national retailer delivering daily into London from a national distribution centre well away from the capital. Currently they use one or two 7.5 T trucks per day to make multiple drops to their dozen stores around London. Current cost for each multi drop round is in the range £375-£550 per round depending on number of drops and total number of pallets. Total cost for two rounds is therefore in the region of £1000. The alternative price for a single larger HGV to make one drop to south London is £300, leaving a balance of around £700 to cover the consolidation centre handling and delivery costs. Even comparing the potential saving resulting from the single drop to a consolidation centre compared to the full multi-drop round the saving is in the region of £75 - £250, which appears to offer potential for the use of a consolidation centre.

Neither of these examples includes cost savings associated with staff costs at the store. There are also many other considerations to consider, but this does show how for medium sized high street retailers with national coverage through small or medium sized stores the pure financial case might work.

We are aware of another national retailer that already uses the Bristol consolidation centre which is actively considering the wider use of consolidation centres because they have identified savings, in terms of labour costs and fuel, which more than offset the cost of the additional handling charges leading them to believe that consolidation centres can potentially be economically viable. This latter case is perhaps more surprising because they deliver temperature controlled product. However, it is the significant difficulty they find making deliveries in Greater London¹⁶ from their national distribution centre which makes this appear viable. Normally the delivery vehicle servicing South London (usually a 32-40T artic) would have, say, up to 10 drops for a 'milk round' in London and South East, covering Bluewater, Sevenoaks, Maidstone and then working up through Bromley and other Boroughs before returning north.

¹⁵ Assumes a roll cage occupies two-thirds of the area occupied by a pallet

¹⁶ due to the obvious traffic volume and congestion issues, as well as having to negotiate the various delivery restrictions from Borough to Borough, as well as the London Lorry Control Scheme

Their approach to deliveries in Central London is to carry them out at night with driver access to the stores. Where possible, they try to take this approach in outer London as well, avoiding delivery restrictions, by making the deliveries either in the early morning or in the evening, but this approach cannot be arranged for all stores within a particular delivery schedule. More specifically, they have few difficulties delivering to Croydon , but Bromley is particularly difficult, due to the extended hours of pedestrianisation, combined with a particularly high volume (multiple pallets), which they have to deliver in through the front door of their Bromley stores.

10 BUSINESS SECTOR FEEDBACK

Few urban consolidation centres are operational in UK or on the continent, due to the perception of retailers that such a facility would potentially make their supply chain more complex and costly, with no direct benefit to help offset this. Where urban consolidation centres have been created, it appears common that ‘pump-priming’ funds from the public sector, sometimes further supported by the European Commission, have been at the heart of their creation. On the other hand, local authorities are generally not able to finance a consolidation centre for the long term.

As part of this study significant efforts have been invested in discussing the potential for an urban consolidation centre with the retail sector and those responsible for their supply chain decisions.

When various retailers were questioned about the feasibility of a consolidation centre in South London, many of them seemed to have a misconception that there is only one model for such a facility. Retailers are understandably concerned about the potential costs of using a consolidation centre and wonder whether these costs can be recouped through improved retail efficiency, resulting from the scheme or from other supply chain partners.

In addition, logistics companies often seem to be resistant to development of consolidation centres, as they believe costs would be increased and they fear loss of control over, and responsibility for, the goods they deliver on behalf of their clients.

However, misconceptions can result if consolidation is only seen as an environmental solution for urban freight that ignores the potential logistics benefits of such a centre and examples (in the UK and on the Continent) show that a distribution / consolidation centre may potentially reduce vehicle mileage and, as a result, time spent on each delivery round.

Discussions with many of the major retailers, who already consolidate their goods at stages within their own supply chains, confirm that they will not want to create an artificial consolidation platform. This may be because their own distribution model replicates that which would be provided by the consolidation centre, (for example if they already have their own distribution centre specifically for the London area) or if they have sufficient throughput to be sending full, goods vehicles to a particular store.

However, for smaller retailers, who do not have the necessary throughput for their own dedicated consolidation operation, the opportunity to use a shared facility does exist, providing the business case can be shown to work and they can be provided with enough confidence that the service will be at least equal to that already delivered.

From our consultation this opportunity appears to be strongest among ‘mid-tier’ retailers who:

- have a large enough throughput to warrant a form of national distribution structure;
- make deliveries to individual stores that are not large enough to fill a goods vehicles for an individual stores;
- have a national presence, but whose store density is not big enough that they can send a full vehicle to a combination of stores within a particular town or tightly defined location;

- do not carry dangerous goods or restricted items.

10.1 Retail Centre Managers etc.

The owners and managers of retail centres may also have an important role to play in determining the future uptake, or otherwise, of freight consolidation centres, as witnessed by the role of Bristol's Broadmead in the establishment of its freight consolidation schemes and also BAA at Heathrow. Outline discussions have also been held with the managers of the Whitgift, Centrale and The Glades shopping centres (in Croydon and Bromley) in order to understand their perspective in relation to the distribution operations of their tenant retailers.

A surprisingly wide range of views was expressed, ranging from an interest in becoming involved in the management of inbound deliveries, in order to ensure that the shopping centre can provide the best level of service to its tenants, to a feeling that their tenants knew best how to manage deliveries and hence an unwillingness to become involved.

The level of interest and willingness of the various shopping centres to become involved may be linked, in part, to how well deliveries can be accommodated within each shopping centre. For example, tenants of The Glades in Bromley indicated that there were problems resulting from delivery vehicles accessing the delivery area. Similar issues that resulted directly from the layout of the delivery bays were reported by the management of the Whitgift Centre, whereas Centrale's management appeared not to have an issue with their delivery bays, except for inconsistencies in the time restrictions that applied to their three separate delivery areas.

It is also important to consider the supporting role that consolidation centres could play in the development of new shopping centres. For example, the proposed Park Place shopping complex in central Croydon will inevitably draw additional servicing trips into the centre of the town. The centre's developers have been involved in discussions with South London FQP about how a consolidation centre could help the construction phase and have also acknowledged the possibility of applying the consolidation principle, once it is functioning as a retail complex, by making it a condition of the leases for retail tenants. If such a centre were to incorporate consolidation into its plans from the outset then it offers the developer the opportunity to considerably reduce the provision of loading bays as part of the design, so reducing initial costs.

PART 3 – The Way Forward

11 IMPLEMENTATION STRATEGY

From the current starting point in which businesses are supplied via a range of different supply chain models, the introduction of consolidation centres will require a significant change in thinking and organisation before they become a widespread option.

However, this feasibility study has identified opportunities in terms of a range of locations, business characteristics and facilities which offer a pathway towards an initial implementation. This section aims to summarise this issues to provide a starting point for any private sector operator that may like to take up the implementation challenge with strategic support from the South London FQP and at Borough level.

11.1 Areas to be Served

Given the existing situation, in terms of short term opportunities and interest in applying the consolidation centre concept, there are three areas that appear to lend themselves to relatively early adoption:

- Sutton, because of the combination of the tightest existing town centre delivery restrictions in the South London area and the opportunity to benefit from the ongoing communications work associated with the Smarter Travel Sutton initiative;
- Bromley, through the potential interest of the management of The Glades shopping centre, supported by the local Borough, backed up in the longer term for plans to extend retail activities in the town centre;
- Croydon, because:
 - this appears to be the most likely area to be served initially by a construction consolidation facility, which could then lend itself to extension into other sectors;
 - during the extensive construction phase the town centre area could become restricted leading to access problems for commercial vehicles;
 - there is also the longer term potential for working in partnership with the landlords of Park Place, to accommodate the concept of freight consolidation within the operating parameters of the new development.

There is wider interest in other Boroughs, most notably Merton and Wandsworth, but this appears to be linked to opportunities slightly further from realisation than the opportunities quoted above, for example plans to extend retail activities in the town centre.

11.2 Type of Distribution Platform

From the consideration of the factors influencing the business case for one or more freight consolidation centres in South London, it appears that there is an opportunity to provide a cost effective, functional distribution function for medium sized high street retailers who have national coverage through small or medium sized stores. However, the investment required to set up or lease new bespoke premises for a consolidation centre is unlikely to be economic.

There are several types of existing distribution facility which could be used to implement the consolidation centre concept, which should provide the opportunity to implement the concept without the need for an excessive up-front investment in a new distribution facility. These include:

- The operating bases of mainstream parcels carriers (such as DHL, TNT, UPS etc) many of whom also have 3rd party contract haulage divisions;
- The operating bases of independent 3rd party logistics providers (such as P.F. Whitehead Ltd who have been working with the SLFQP on this issue, or their equivalent);
- The distribution centres of large retail businesses such as the national supermarket chains.

Clearly the location of an existing distribution facility, its current operating volumes in relation to site / capacity, and the interest of the operators to operate such a scheme would be prerequisites to a decision to implement a consolidation centre.

The Large Retailer Option

From the feedback we have received during our consultation, the first two of these seem the more likely route because, although some shared user platforms have been investigated, modelled and trialled by the larger retail distribution groups, these are not common arrangements and they appear to be treated with some suspicion with likely suppliers appearing reluctant to allow shared use of their facilities. The ECR UK study appears to have led some potential leading participants to discount further freight consolidation in the urban context.

The Parcel Carrier Option

The potential for the parcel carrier sector to expand its operations from existing bases appears logical, and indeed is a route that has been / is being considered by at least one of the major companies in this sector. However, the local depots of the national parcel carriers have large and fairly predictable throughputs from their existing business that commercial constraints are unlikely to leave them with much spare capacity within their existing local distribution facilities. Nevertheless, the type of local distribution work does suggest that the potential for expansion from within this sector does exist, if the business case can be justified.

The Third Party Logistics Provider Option

The remaining possibility, of independent 3rd party logistics providers appears, in many ways, to provide the best match to the requirements of an organic growth approach to freight consolidation. A particular opportunity that seems to offer scope for exploitation is the expansion of existing pallet network services, which are already offered on an open, commercial basis by networks of local operators. This type of expansion could hopefully be done at marginal cost rates, over and above the existing operations, in order to minimise the additional handling costs associated with the additional link in the distribution chain.

It might also open up the possibility of accessing a cheaper trunking operation as an additional incentive to participate in the urban consolidation part of the network.

In terms of additional size, in comparison with existing facilities, a sample of sites analysed showed a range of building sizes from as little as 100 m² for a small pallet depot up to

12,000 m² for a larger sub-regional hub such as PF Whitehead Ltd on the Sutton / Croydon border or DHL at Vauxhall (see figure 11.1).

Figure 11.1: DHL Vauxhall (left) and PF Whitehead Croydon (right) depots
(photograph from Google Earth)



Such facilities would easily provide the necessary floorspace required to serve initial take up in the selected retail centres, subject to other existing business requirements at these depots. There is also evidence that this type of operator already provides services such as peak period stock holding and pre-retailing services for major high street retailers.

11.3 Location

According to the definition of a consolidation centre, made by the University of Westminster the facility should be placed along the 'line of route' for the existing supply chains, to avoid generating any additional mileage to reach the site. In relation to South London, a balance also needs to be struck between proximity to the M25 and to the final destination.

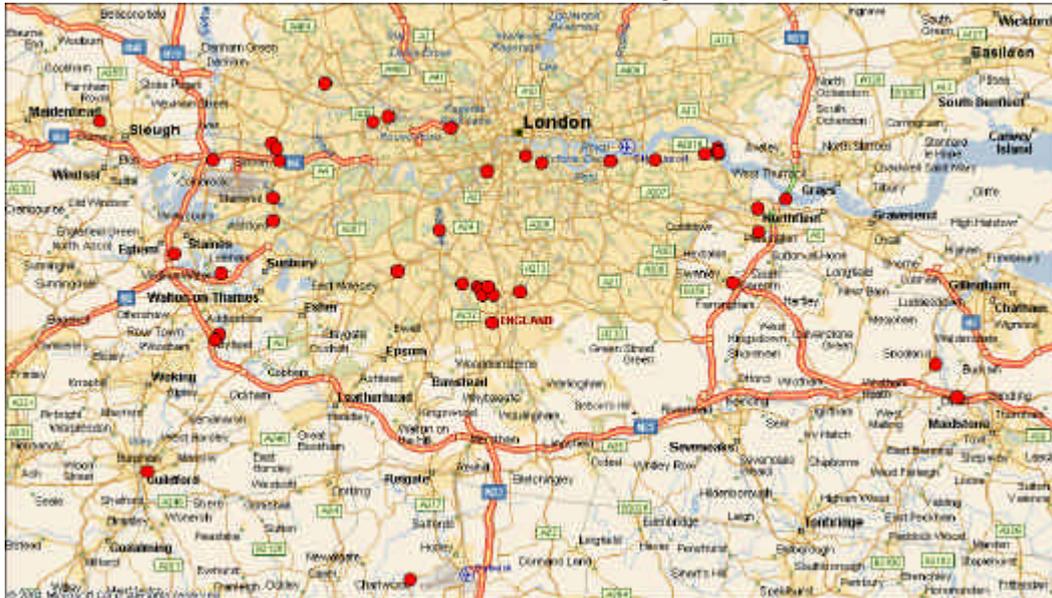
Thus, the site will need to sit outside, but in proximity to, the 'cordon' within which goods vehicle movements are to be reduced. The approach roads should be capable of enabling access by larger goods vehicles to and from the trunk road network, as well as enabling local delivery vehicles to access the area within the cordon. The site itself should ideally be located within an area of established industrial or distribution activity, to avoid creating potential conflicts with planning policies.

The success of the consolidation centre will depend, in part, on the extent of over-arching controls on the surrounding road network, particularly within the cordon area itself. From an operator's perspective, the ideal would be to allow the site to be accessed at all times of the day and night, to avoid bunching of inbound vehicles delivering goods to site, and to enable the smaller fleet of local delivery vehicles access into the cordon as required. Use of electric / gas / low-noise local vehicles could help address any concerns regarding 24/7 access within the cordon.

There are a number of large national networks of courier / pallet distribution companies who operate 'hub and spoke' networks for anything from a parcel up to a pallet, and which have local depots in the South London FQP area, as a mixture of corporate and franchised operations. Around 50 local depots can be found in and around the South of London, as shown in Figure 11.2. It is apparent that there is a considerable provision of facilities along the northern, western and eastern edges of the South London FQP area, together with a significant cluster of depots in the Croydon area.

Analysis of the flows from these depots indicates that Croydon is already well connected with other South London Boroughs. There are also a number of existing links between Bromley and Dartford, in South East London. The west side of the area seems to have a more diverse range of links, although the area around Heathrow is clearly important as a supply base to Richmond and Kingston.

Figure 11.2: Map of existing pallet depots in South of London (extended SLFQP area)



11.3.1 Rail-linked Consolidation Centres

Within the South London FQP area there may be scope to use a small number of existing major stations and/or rail-linked land for such activities (around Clapham, Croydon, Hither Green and Wimbledon), but as with the consolidation centres, a degree of ‘critical mass’ will be required (typically more than 25 articulated lorry loads per train) to and from each site to provide a commercially viable option.

11.4 Potential Participants

In section 9.4 we have identified some businesses for which urban freight consolidation offers the potential to save money and increase efficiency in comparison with their existing practices. When the characteristics of these businesses are considered it is immediately apparent that they have certain similar characteristics, including:

- A national presence with distribution from a single national distribution centre
- Relatively small store size and volume throughput
- Several stores in South London
- Multi-drop delivery rounds

The businesses that we have identified and established interest from are by no means unique in the British retail sector. Examples of this type of business include:

- The Heath Store

- Julian Graves
- The Body Shop
- Lush Cosmetics
- Past Times
- Carphone Warehouse
- Thorntons
- Claire's Accessories
- Tie Rack
- Early Learning Centre
- Accessorize
- Hotel Chocolat

11.5 Other Sectoral Possibilities

Although much of the focus of this report has been on the retail sector, it currently appears that some form of consolidation centre in South London may most easily be implemented in the construction sector.

This would be on the back of a number of large developments that are planned in Central Croydon over the coming years, following on from a successful trial of a construction materials consolidation centre serving Central London from South Bermondsey. From ongoing discussions with the construction teams involved with the larger schemes in Croydon, it is clear that there is significant interest in the potential benefit of applying this type of centre to the developments in Croydon. The apparent requirement of those in the construction sector would be to locate a construction materials consolidation centre at a location that would allow the trunking legs of deliveries to be made during off peak, uncongested periods to a site close to, but outside Croydon town centre. This location would then allow for short and prompt deliveries to be made from the consolidation centre to the participating construction sites.

An alternative (or complementary) approach to using existing pallet or parcels networks to house a consolidation centre could be to extend the operations of a construction materials consolidation centre into sectors other than construction, once it had been established. Concerns over the perceived 'dirtiness' of construction materials should probably be easily allayed by the fact that aggregates would continue to be transported direct to site, so that if the construction consolidation centre was seen in operation it would become clear that the type of material passing through is handled in much the same way as any non-food retail product. If absolutely necessary, the construction element could be housed in a separate or partitioned storage facility on the same site.

This type of staged, generic growth appears to offer a better chance of success than a more high profile and concentrated attempt to push hard to capture what is likely to remain a largely sceptical target market for some time to come.

The nature of the facility and operation that would result would most likely be suited to small and medium-sized businesses that have already been identified as the businesses most likely to benefit from freight consolidation. It would also seem to fit with the Boroughs' perception of the freight consolidation concept (i.e. it could easily be applied to selected relatively small

but important locations such as selected town centres or industrial areas within the wider south London area) and could be extended both on an area by area basis as Boroughs or private sector partners wished to participate and also into other commercial sectors such as offices which are often based within the same town centre buildings. One route towards this could be for public sector organisations such as the Boroughs to consider the feasibility of using a consolidation centre for receipt of their own deliveries as part of a move to implementing their own delivery and servicing plans.

However, the most likely location of the construction consolidation centre, i.e. relatively close to Croydon town centre, appears to be slightly at odds with two of the key points in relation to the general freight consolidation centre concept:

- that it should aim to minimise stem or trunking mileage, particularly within the built up area and
- in the longer term that it should minimise the distance travelled within the LEZ or any subsequent road user charging zone.

11.6 Evaluation

It is clear that the impact of any implementation, both in terms of throughput, traffic impacts, business case and also associated benefits, should be monitored and this should be carried out in a way that reflects the template laid out within the University of Westminster's report for DfT.

11.7 Promotion

Finally, in terms of taking this concept of freight consolidation for South London forward, we consider there being significant merit in South London Freight Quality Partnership holding a workshop on the topic of consolidation, open to local businesses in our suggested target area, logistics providers (both local and national), local authorities, town centre and shopping centre representatives and other organisations to raise the profile of the potential and to gauge how the various perspectives on the issue come together.

This workshop could play an important role in identifying the next key steps in the consolidation centre feasibility process and in establishing short, medium and longer term action plans. This could include identifying key delivery partners and determining possible roles and responsibilities for action plan delivery.

12 CRITICAL SUCCESS FACTORS

12.1 Marketing and Psychology

The incorporation of an urban freight consolidation centre within a logistics supply chain clearly involves a change in behaviour from an established way of working to a new situation.

Given that this is being done in a business context, the financial business case will be a key element within the decision making process. However, ultimately the decision will be made by a human being and by our very nature we are resistant to change. This type of issue should not be underestimated in this context.

One of the first things that becomes apparent, and which actually needs to be addressed as a fundamental issue in the implementation of consolidation centres, is that the key issues (and hence the 'problems' related to urban distribution that are experienced by a local authority) do not necessarily match those perceived by a retailer at store level, which in turn do not match those of the logistics provider (irrespective of whether they are 'in house' or a 3rd party provider).

For example, in simple terms:

- The local authority has a role in trying to minimise congestion on the locally administered road network, to promote the overall prosperity of its locality and a legal responsibility to address local air quality through a range of potential measures. There is a common perception among local authorities, partly backed up by traffic and air quality monitoring, that goods vehicles make a contribution to congestion and poor air quality that is disproportionate to the numbers actually operating in the urban area.
- The retailer's primary interest is in making goods and services available to its potential customers at a price and in a sales environment, (which includes the area around the shop and its approaches) that is conducive to generating sales and ultimately making a profit. This, in part, depends upon the success of the local authority in meeting its objectives, but is also dependent upon having the right goods in the right place at the right time and at a low enough cost to them that they can generate profit on their overall sales volume.
- The logistics provider is largely focused on getting the goods to the agreed delivery location at an agreed time in an undamaged state and at a cost which is as low as possible, given that the transportation cost can be viewed as an overhead and so directly eats into overall profit margins. Hence the logistics provider's cost structure becomes key, and, when taken in isolation, measures to reduce fuel use within the existing operation tend to become the focus of attention, once they are convinced that the supply chain is organised optimally.

One key difference between the perspective of a local authority and that of a particular logistics provider is that the local authority has a responsibility for a clearly defined and potentially quite small area, whereas the logistics provider will need to consider a much wider area, within which its vehicles operate. The supply chain of a large retailer could cover the whole country, with the result that any geographic focus tends to be on the traffic

conditions around their distribution centres with other areas gaining a lower level of less concentrated attention unless there is a specific problem.

This difference in perspective emphasises one of the sources of differences of opinion and resultant tensions between local authorities and logistics providers, with the retailer apparently caught in the middle.

Without an agreement about the problem that needs to be addressed, then agreement about the options that should be implemented is effectively impossible. The evidence currently available suggests that implementation of an urban freight consolidation centre can make a considerable impact upon the number of goods vehicles and resultant emissions within its area of influence, so matching two key objectives for local authorities, which is why the concept has gained their interest and support. The success in influencing these two issues comes from a step change in the way in which the supply chain is organised in the area covered by the consolidation centre.

The process of change involves an assessment of the impacts of the information available. Where a change is proposed and a previous experience can be used as a proxy for the proposed change, then that previous experience gains importance in determining the final outcome. This is of direct relevance when considering the proposed move to freight consolidation in South London.

The feedback we have received is that the implementation of the freight consolidation centres in Bristol and Heathrow has been viewed as good in terms of local levels of service (which is not particularly relevant to spreading the practice to other locations as the store managers who have benefited are not directly involved in the decision for other locations) but potentially expensive in supply chain terms. This latter impact is of key importance in spreading the practice to other locations because some (perhaps many) supply chain managers have already formed this opinion about the existing schemes and then become more resistant to listening to new proposals and may well not even be willing to listen long enough to reach the point where the cost of an alternative, cheaper business model is proposed.

12.2 Recruitment of Participants

It is clear that recruitment of participants to use the facility will not be straightforward. In order to maximise recruitment, we would recommend a two pronged approach:

- Co-operation with town centre management and public authority efforts to raise the importance of travel planning, including taking ownership of deliveries not just when they arrive but also considering their upstream impacts. This will be an important element of local delivery and servicing plans.
- Significant efforts based from within the consolidation centre, to follow up local leads and persuade the decision makers within a logistics chain that there are significant business benefits to be captured, by using the freight consolidation centre, including making maximum use of the potential added value services that could be provided through the consolidation centre.

The second element of the recruitment process is strongly recommended on two grounds.

Firstly, on the experience of DHL Exel Logistics in recruiting participants to the Bristol and Heathrow centres (which was found to be time consuming and require significant efforts targeted at company head offices and distribution managers, away from the retail units to be served).

Secondly, on the basis of our experiences in trying to consult with businesses in South London, where there was a reasonable level of interest at store level whilst it became clear that decisions about changes to distribution patterns were largely taken away from the store.

This approach mirrors that currently being pursued in Norwich, where the local authority input to the scheme has been to use their local links to generate initial interest from the town centre retail community and shopping centre contacts and then to fund the presence of a recruitment manager within their partner logistics organisation (which was chosen by a two stage open competitive tender process) for the period of a two year trial.

In addressing and overcoming the behavioural and psychological barriers it will be necessary to develop a two stage recruitment process:

- Highlight local issues which cause problems in local distribution which a freight consolidation centre can overcome and the benefits it would deliver;
- Build on this through contacts further up the logistics chain.

Our expectation is that the decision for existing stores to participate in a consolidation centre will probably not be made at local level. Hence, persuading store managers or equivalent of the benefits of participation could be a task for town centre management staff or linked into the travel planning initiatives of the Smarter Travel Sutton project, but will need to be backed up by strong sales efforts aimed at those who actually make the supply chain decisions either at head office or the distribution depot.

This type of work would be best carried out by people who have detailed knowledge of the logistics industry and the proposed consolidation centre. This reflects the reality of the experience of DHL Exel in developing the Bristol centre, where they required a full time recruitment and retention manager to develop the scheme to 50 participants over 12 months – and that was at a time when participation in the scheme was free.

Taking a wider project lifecycle approach and incorporating consolidation into the construction phase of projects would have the benefit that as new schemes come on line the leases could be drafted to ensure use of the consolidation centre, with this potentially being a planning requirement. This would bring the town centre situation closer to that which has allowed BAA to introduce and implement the consolidation centre at Heathrow.

12.3 Delivery Problems as Opportunities

As has already been highlighted in the review of the Heathrow and Bristol consolidation centres, both schemes were initiated because there was a specific problem in making deliveries that needed to be overcome and which lent itself to consolidation.

Currently in South London the two most likely opportunities of this type appear to be in Sutton Town Centre where there are strong daytime delivery restrictions, which, when

combined with overnight restrictions, lead to relatively tight delivery windows and to a lesser extent in Bromley, where, again, restrictions apply in certain areas.

The significant development works proposed in Croydon may lead to areas of the town centre becoming congested or difficult to deliver to, due to extra restrictions during the construction works, so providing additional locations to target.

Although there was interest from the management of The Glades Shopping centre in Bromley this would need to be converted into a firm commitment to persuade leaseholders of the benefits of consolidation. A similar opportunity could arise in relation to the Whitgift Centre in Croydon, where although there are few time restrictions on deliveries, the layout sometimes causes problems.

The longer term opportunities appear more promising as further (and different types of) restrictions come into force and the prospect of some form of road user charging continues to rise up the political agenda. These initiatives could tend to add to the possibility of locating consolidation centres fully outside the Greater London built up area in order to provide trunking vehicles with the interim delivery location.

13 CONCLUSIONS & RECOMMENDATIONS

13.1 Conclusions

13.1.1 General

- There is strong interest in the potential of urban freight consolidation among many stakeholders involved with fulfilling, regulating and receiving urban freight deliveries. There continues to be support at a strategic/policy level for the concept.
- Progress has been made in establishing the business case for specific businesses as part of this study, particularly in respect of small multi-drop deliveries that are currently made from remotely situated national distribution centres. This is typical of the profile of many mid-tier high street retailers.
- The business case still needs further work to incorporate the potential savings that could result from changes in working practices at store level, which appear to be considered separately from distribution costs in many businesses.
- The distribution practices of the largest businesses that are able to provide full single drop loads to their stores or have sufficient drop density to deliver full vehicle loads to stores within a very close geographic area do not appear to offer benefit from consolidation at this stage. However, where direct deliveries are made to such outlets from specific suppliers that do not pass through in-house distribution centres then these may benefit from urban consolidation centres.
- Although the business case will be a key factor in businesses deciding to use an urban consolidation centre as part of their supply chains, another significant factor will focus around psychological and institutional barriers – in other words there will be an element of resistance to change which would need to be overcome gradually by working with early adopters to prove the concept, develop the business case, show that the consolidation centre can, at minimum replicate, if not better, existing relationships at the point of delivery and develop integrated systems that allow track and trace to current service levels.
- Some manufacturers / wholesale suppliers have incorporated logistics operations into their core business model (for example catering suppliers) and view consolidation centres as a threat to this business model because it could lead to a reduction of their margins which include an element built into the transport aspect of their business offer.
- The ongoing national interest suggests that some form of nationally-led open access, transparent experiment to establish the full business case would be beneficial.
- The location and development of arrangements for urban freight consolidation centres will require case by case consideration to ensure that locations are logical in terms of intercepting goods on or close to their existing routes so offering optimum routing solutions. Where possible consolidation centres should provide opportunities to link in with alternative modes to offer maximum possibility of full supply chain efficiency.
- In this context stores in locations where constraints on deliveries are most severe will probably benefit most from the use of urban freight consolidation centres.
- Because there are already several private sector delivery systems that could effectively deliver a freight consolidation centre service within their existing

operations this route appears to offer the bonus of minimising set-up costs and not further duplicating existing urban delivery movements.

- It will take time to establish the market and develop a customer base of participants. To bridge the operational cost gap associated with setting up a new operating centre and urban distribution network continental applications freight consolidation centres have required significant public funding. Forming links with existing private sector operations will hopefully result in a financial structure that is less demanding on public support.
- Given the continuing interest in urban freight consolidation and the increase in the number of trial sites and studies there could be potential in establishing a forum where experiences and good practice can be shared.

13.1.2 South London Specific

- Whilst TfL has a strategic role in supporting improvements in efficiency in the use of London's road network, it appears clear that the individual Boroughs, businesses and transport operators have a specific role to play in the implementation of specific freight consolidation schemes in South London.
- The most promising immediate prospects for freight consolidation in South London appear to be around the axis of Sutton, Croydon and Bromley, given the existence of a major entry route on the Sutton Croydon border, a significant market within the three Boroughs, and a concentration of existing distribution facilities with potential to incorporate freight consolidation services as part of their existing operations.
- Because we anticipate the uptake of urban freight consolidation services to be relatively slow and initially limited to a fairly tightly defined business profile it seems likely that anything more than a single consolidation point aimed at businesses in the defined target area of Sutton, Croydon and Bromley is likely to be over optimistic and uneconomic. Should such a project gain momentum with the benefit of private sector investment and drive then expansion and ultimately a wider geographic spread covered by other consolidation centres would remain as a possibility.

13.2 Recommendations

- South London FQP will provide support to any operators that express an interest in following up the study recommendations by facilitating discussions with our Borough partners or whatever other action is appropriate within its remit. To help this approach we intend to facilitate a conference and workshop on the topic early in 2008.
- We recommend that this feasibility study report is made available to private sector organisations that are likely to consider providing freight consolidation services either as part of their existing operations or through a small element of expansion.
- As the most promising immediate prospects for freight consolidation in South London appear to be around the axis of Sutton, Croydon and Bromley, we recommend that this area becomes the focus for the future development of freight consolidation in South London.
- The approach of working in partnership with an existing provider of urban freight transport services is that already being trialled to serve Norwich, and so we recommend that links with that trial and the lessons learned, both positive and

negative, are continued to help inform the future development of freight consolidation in South London.

- As future changes in the restrictions on the movement of goods vehicles within urban areas occur, their impact on freight distribution operational patterns should be monitored to establish if they make uptake of urban freight consolidation more likely through changes in the cost balance between current and alternative practices (i.e. urban freight consolidation). The degree to which restrictions could or should be introduced to improve efficiency will be a matter for ongoing debate for the public authorities and it could be worth TfL / GLA considering regulations such as those used in Copenhagen where only vehicles with a fulfilment of 60% can deliver the city.
- Whilst working on this feasibility study it has become clear that interest in freight consolidation is inextricably linked to other ways that businesses and operators are investigating to avoid operating within the heavy congestion that typifies London's road network by day. This linkage particularly relates to night-time deliveries and efforts to exploit this type of synergy should be made wherever possible.
- A nationally-led open book and open access (publicly funded) trial (not necessarily in South London) where the operational costs are entirely visible to all potentially interested parties so that the detailed financial aspects of operation can be clearly ascertained.

ANNEX A – Glossary

BAA Ltd – the owner and operator of seven British airports, including Heathrow

CIVITAS – a European initiative to promote better and cleaner transport in cities

Congestion charging – a form of road pricing involving payment for the use of roads, including within town and city centres

Cordon – the area within which congestion charging would apply

Cross-docking – a logistics practice involving offloading inbound vehicles and loading outbound vehicles with little or no storage of product in between

DfT – Department for Transport, the Government Department responsible for transport in England and non-devolved transport matters in Scotland, Wales and Northern Ireland

FQP – Freight Quality Partnership, established to bring a range of parties together to find local solutions to local freight issues

Freight consolidation – the practice of aggregating multiple less than full vehicle loads of freight onto single full load vehicles, for onward delivery

Freight transshipment – the practice of moving goods to an intermediate destination, potentially for short-term storage, then onward movement to a final destination

HGVs – Heavy Goods Vehicles (over 7.5 Tonnes Maximum Permissible Weight)

IEEA – Intelligent Energy Executive Agency, created by the European Commission to implement the Intelligent Energy – Europe programme

LEZ – Low Emission Zone, a geographically defined area which aims to restrict or deter access to certain polluting vehicles, with the aim of improving local air quality

LGVs – Light Goods Vehicles (up to 7.5 Tonnes Maximum Permissible Weight)

SLFQP – South London Freight Quality Partnership, established to bring a range of parties together to find local solutions to local freight issues in South London

TfL – Transport for London, the local government body responsible for implementing transport strategy and managing transport services across Greater London