Freight Options for Oxford

Phase 1 Report

Project Ref: 30658 | Rev: - | Date: October 2014

Office Address: Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN
T: +44 0118 952 0631 F: +44 (0)118 959 7498 E: pwright@peterbrett.com I: www.peterbrett.com

Document Control Sheet

Project Name: **Freight options for Oxford**

Project Ref: **30658**

Report Title: **Phase 1 Report**

Date: **10th October 2014**

	Name	Position	Signature	Date
Prepared by:	Stephen Anderson	Principal Consultant		10th October 2014
Reviewed by:	Tim Hapgood	Principal Transport Planner		10th October 2014
Approved by:	Philip Wright	LLP Director		10th October 2014
For and on behalf of Peter Brett Associates LLP				

Contents

Tables

Appendices

This page is intentionally blank

1 Introduction

1.1.1 In June 2014 Peter Brett Associates LLP (PBA) in association with JMP and FITIT were commissioned jointly by Oxfordshire County Council and Oxford City Council to undertake a study that examines the options which could be applied to improve road freight activity in the City of Oxford.

1.2 Study objectives and scope

1.2.1 The objectives of the study are to identify measures that will improve the management of freight activity in Oxford that leads to:

- Reduced congestion
- Improved air quality
- Reduced number of accidents, particularly involving cyclists and pedestrians
- A better public realm environment that will benefit business
- The promotion of shorter term financially viable options

1.2.2 The work is being undertaken in two phases:

i. Review of policy options and measures for freight in Oxford

ii. Based on the results of the Phase 1 work, Oxfordshire and Oxford City Councils will decide on which options they would like to consider in more detail in Phase 2.

1.2.3 Phase 1 considers a broad range of policies and measures that are adopted elsewhere in the UK and Europe. Each of the options is assessed using a common appraisal framework that relates to a range of priorities. These priorities were set out in the brief and have been reviewed with the client to ensure they represent a robust appraisal mechanism.

1.2.4 As part of the Phase 1 work, a workshop has been held with a selection of stakeholders to gain their views on the existing situation regarding freight and the potential options that could be introduced.

1.3 Context of study

1.3.1 In 2013, the government published its Public Health Outcome Framework (PHOF) that included an indicator for air quality which local authorities (LAs) are expected to show progress towards. This means that LAs such as Oxfordshire County Council will have to take actions to improve the overall environment for better community health. These actions include, for example, addressing traffic congestion, the presence of which contributes to poor air quality, which in turn affects the health of individuals.

1.3.2 For Oxford, the PHOF indicates that 5.6 per cent of all mortality (the same as the UK average) is attributable to long term exposure to fine particulate matter ($PM_{2.5}$). Road traffic can make substantial contributions to $PM_{2.5}$ concentrations at the kerbside (within 1 m of the kerb), but at the roadside (a few metres from the kerb) the contributions are relatively limited.

1.3.3 In Oxford, the air quality objectives are exceeded for annual mean concentrations of nitrogen dioxide (NO_2) close to major roads and at busy junctions across the city. In the city centre, the hourly mean

objective is also exceeded in streets such as St Aldate's, High Street, George Street, Frideswide Square, Worcester Street and St Clement's.

1.3.4 To tackle emissions across the city, the City Council aims to develop a range of measures focusing on the following themes[(1)]:

- Support for development of sustainable transport measures
- Support for the uptake of low and zero emission vehicles
- Reducing freight emissions
- Planning for sustainable transport
- Managing the Council's transport activities
- Partnership working and education

1.3.5 The focus of this study is reducing freight emissions.

Reducing freight emissions

1.3.6 After buses, freight traffic (comprising light goods vehicles [vans] and heavy goods vehicles [HGVs]) is the second principal source of mono-nitrogen oxide (NOx) emissions in central Oxford. Thus far, little has been done to tackle emissions from this sector.

1.3.7 Therefore, as part of an action plan to improve air quality, the City Council has stated that it will explore and develop options to reduce emissions by freight including:

- Examining the options available for freight consolidation and management and other schemes to reduce the amount of freight vehicles operating in the city.
- Considering how to encourage greater use of low and zero emission vehicles in relation to the final delivery leg of any consolidation schemes.
- The potential formation of a freight quality partnership (FQP) to promote safe and efficient driving and anti-idling policies with operators in the city.
- Support the development of Delivery and Servicing Plans (DSPs) with business across the city to further reduce unnecessary freight movements. The development of potential DSPs will need to consider integration with work emerging on freight consolidation.

1.4 Oxfordshire County Council and Oxford City Council

1.4.1 Oxfordshire has a two-tier system of local government. This means that council services are provided by two different councils. Oxford City Council run services such as planning, leisure and waste collection, while Oxfordshire County Council is responsible for running services such as libraries, schools and social care. In terms of transport, responsibilities are split as set out in the table below:

[1] Air Quality Action Plan 2013-2020, Oxford City Council, December 2013

Table 1-1: Council transport responsibilities

Oxfordshire County Council	Oxford City Council
Major roads	Minor roads
2 Park and Ride sites	3 Park and Ride sites
Transport planning	Car parks
Residents parking permits	Recycling and waste collection
On-street parking	Air Quality Monitoring
Concessionary bus passes	Air Quality Action Plan
	Low Emission Zone

Oxfordshire County Council

1.4.2 Oxfordshire County Council is the local highway authority with responsibility for producing the Local Transport Plan (LPT) and ensuring its implementation. A new LTP is currently in production with consultation on a draft expected in early 2015. In terms of freight the current LTP sets the Councils transport policies as:

- Ensure that the transport network can meet the requirements of the county's world class economy, whilst protecting the environment and the amenity of Oxfordshire residents.
- Manage the classification and numbering of the roads in its control to direct traffic, and particularly lorry traffic, onto the most suitable roads as far as is practicable.
- Only consider proposals for alterations to road classification and / or numbering if there are significant economic, environmental or routeing benefits which clearly outweigh the financial and environmental costs of making the change or where this is desirable or necessary as a result of new development; new environmental weight limits will generally not be supported unless there is a compelling, evidence-based case for them.

Oxford City Council

1.4.3 In addition to the transport responsibilities as set out in the table above Oxford City Council has a duty under Part IV of the Environment Act, 1995 to periodically review and assess the air quality within the city. Where it appears that air quality objectives will not be met by designated target dates, Oxford City Council must declare an Air Quality Management Area (AQMA) and develop an action plan in pursuit of those objectives. The whole of Oxford was declared an AQMA in 2010 and subsequently an Air Quality Action Plan (AQAP) has been produced alongside a Low Emission Strategy for the city. Transport emissions were identified as the source of emissions requiring most attention.

1.4.4 A Low Emission Zone (LEZ) was introduced in Oxford in January 2014 to encourage the take up of cleaner greener vehicles in order to achieve reductions in emissions and improve air quality. The LEZ covers some 25 streets in central Oxford including Park End Street, George Street, Beaumont Street, Broad Street, Queen Street, St Aldgate's and High Street.

1.4.5 All local bus services within the streets affected must be operated exclusively by buses whose engines meet the Euro V emission standard (for nitrogen oxides (NOx)), either as a new engine or a

vehicle that has been retrofitted with equipment to reduce emissions in order to achieve the Euro V standard (for Nitrogen Oxides (NOx)).

1.5 Background

1.5.1 The City of Oxford is the county town of Oxfordshire and a renowned centre of learning and research. It has a population of about 150,000 people with over 22,000 students and attracts more than 9 million visitors a year. Over the next 20 years its employment opportunities are forecast to grow by approximately 25,000 jobs and housing will increase significantly. The combination of this current and predicted activity makes the city a vibrant, economic centre.

1.5.2 However, the city is physically compact and this could potentially inhibit effective communications and the movement of goods and services for businesses in the future. Furthermore, as the city's economy grows its physical constraints could exacerbate aspects such as congestion, pollution and competition for road space.

1.5.3 The conurbation comprises a number of districts (e.g. the city centre, Headington, Cowley, Botley) where there is a concentration of retail, commercial and industrial activity. The city centre also includes a permanent covered market. In addition to this, there are two universities which comprise a large number of colleges and campuses spread across the city and there is the presence of large regional hospitals such as the John Radcliff, Nuffield, Churchill and Warneford. The council offices of Oxford and Oxfordshire are also located within the city.

1.5.4 Access into and out of the city is via a number of main routes: the A40 from the east and west, A44 and A34 from the north, and the A420, A34 and A4074 from the south. A number of other routes also complement these trunk roads. There are north and south bypass routes that form a ring road for through traffic.

1.5.5 The County Council controls deliveries to the city through time and specific access restrictions. Within the centre there are four loading zones, the details of which are published in a leaflet entitled Oxford City Centre: Access and delivery arrangements. The central area includes a pedestrian zone which has barred entry between 1000 and 1800. Vehicles over 7.5 tonnes are only permitted within the city's ring road for access.

1.5.6 This study, thus, seeks to balance the need to maintain and enhance economic opportunities within the context of the need to review the effectiveness of current policy measures, and recommend options that could minimise the number of freight movements in the city centre, reduce pollution levels, and improve road safety. The study is also required to identify the wider benefits that freight related policies and measures would have to the city's economy.

1.5.7 The findings, conclusions and recommendations of this Phase 1 study are presented later in this report.

1.6 Previous studies

1.6.1 Two previous studies that examine freight activity within Oxford have been completed. The first was the *Oxford Freight Management Study* carried out in 1998, which examined the options for reduced and

better co-ordinated freight activity in the city; the second was a study supported by the Oxfordshire Freight Quality Partnership Oxford City Sub-Group and was a *Business and Driver Survey*.[2,3]

1.6.2 It was not in the scope of this study to complete a detailed review of this previous work, although their findings have been considered.

[2] Oxford Freight Management Study, Howard Humphreys Transport Planning, 1998

[3] Business and Driver Surveys: Result and Analysis, SKM, 22nd June 2004

2 Existing information

2.1 Introduction

2.1.1 Information provided to PBA by the Client includes copies of the previous studies noted above and traffic flow data recorded at the outer and inner cordon points.

2.2 Previous studies

2.2.1 The 1998 study had a remit to consider measures that could be introduced to reduce goods vehicle circulation and better manage freight activity in Oxford. As part of this study, the work had to examine the potential for a freight consolidation centre.

2.2.2 The study included an analysis of freight traffic flows and these indicated that the majority of good vehicles entered Oxford during the morning period (0900 to 1030) at both the outer and inner cordons.

2.2.3 A survey of businesses was completed and this showed that:

- About 80 per cent of premises receive goods from on-street deliveries
- About 50 per cent of deliveries took less than 15 minutes
- The main routes to the centre at that time were Magdalen, Folly and Osney bridges
- Large vehicle represented only a small proportion of delivery vehicles

2.2.4 The measures that the study considered were grouped into three categories:

- Network and area-wide measures
- Local traffic management
- Best practice and other measures

2.2.5 Much of the discussion in the report was limited in consideration of discrete measures and how they might help address the freight related issues. However, measures to be considered for the network and area-wide measures included:

- Establishment of freight co-operatives
- City delivery booking system
- Effective freight signage strategy
- Temporary restrictions and lorry bans

2.2.6 For the local traffic management, these included:

- Encourage operators to use smaller vehicles
- Route corridor traffic management measures
- Home delivery service
- Internet notification for delivery / collections
- Edge of town goods delivery / collection service

2.2.7 In the case of the freight consolidation centre (FCC) it was proposed that:

- An FCC be located on the west side of Oxford close to the A34
- Only the city centre area to be served
- Possible intermodal FCC located by the railway
- Could potentially handle some construction materials
- Maintain full load deliveries during out of hours periods

2.2.8 The 2004 study was purely a survey of city centre delivery and collection activity and involved questionnaires being sent to a range of businesses. The business survey achieved 100 responses and results included the following:

- About 90 businesses had deliveries / collections from on-street
- 65 businesses said that the delivery vehicle did not use an on-street loading bay
- About 50 per cent of all deliveries were made by van
- A large number of deliveries to the door were carried
- Half of the respondent used their own cars for deliveries / collections
- Only 25 per cent of businesses arranged their own delivery / collection and 71 per cent did not have an influence over the date / time of delivery
- Although 37 businesses received deliveries from between 1 and 10 suppliers, these were delivered by between 1 and 5 vehicles
- Most deliveries were made during the morning period up to 1200
- Most deliveries took between 5 and 20 minutes

2.2.9 The driver's survey received an 18 per cent response rate, but many of the questions were not answered; results thus need to be treated with some caution.

2.2.10 A larger number of the responses were from drivers of larger vehicles (10 heavy goods vehicles to 6 vans and 2 cars). Results of interest include:

- Most deliveries are made between 0600 and 1200
- The time taken to deliver was fairly evenly split between <5 minutes, between 5 and 30 minutes and 30+ minutes (8, 6, 7 responses respectively)
- Most drivers were aware of the parking and loading restrictions
- Of the 23 driver responses 7 found Oxford more difficult to deliver in than other towns and cities, 7 thought it was average and 8 did not answer

2.2.11 As far as we are aware no general conclusions were made regarding the results of the study.

2.3 Traffic flow data

2.3.1 As part of the study, traffic flow data has been examined in order to gain a better understanding regarding the levels of commercial vehicles travelling in, out and within the city. This data has been captured from outer and inner cordon counts and represents the number of vehicles moving across the counting point in a day. Therefore, the count provides data on movements and not actual

numbers of vehicles, since vehicles may travel in and out of the city more than once in a day across the cordon.

2.3.2 The data available from the counts was also presented differently. The outer cordon data was provided by each count location, whereas the inner cordon data was aggregated.

Outer cordon analysis

2.3.3 A total of twelve counting locations are used on the outer cordon. The data for the count was recorded on the 1st October 2013 and represents one day's traffic flow between 0700 and 1900.

2.3.4 Over the course of the day approximately 158,000 traffic movements were recorded, of which 6,300 were cyclists. Of the motor vehicles, 83 per cent were cars and about 11 per cent were commercial vehicles. The remainder comprise buses, coaches and taxis.

2.3.5 In total the data shows about 19,260 commercial vehicle movements, of which 89 per cent were vans, 10 per cent rigid lorries and 0.61 per cent articulated lorries.

2.3.6 The data reveals that there is no one route which vans and lorries prefer, however it does indicate that more vehicles arrive using the southern routes to the city centre. Table 2-1 shows the number of commercial vehicle movements by route, with the highest number for each type of vehicle highlighted. Most vans and rigid lorries appear to use a wider range of routes, but articulated vehicles seem to concentrate principally on four.

Table 2-1: Routes most used by van and lorries on outer cordon

Road	Light Vans	Rigid Lorries	Articulated Lorries	Total
Woodstock Road	1468	175	1	1644
Banbury Road	1485	215	3	1703
Jackson Road	28	4	0	32
Marsh Lane	1642	**321**	10	1973
London Road	1457	140	6	1603
Horspath Driftway	1771	144	2	1917
Garsington Road	1778	218	20	2016
Rose Hill	1546	205	8	1759
Abingdon Road	2183	202	13	2398
Botley Road	**2450**	295	**55**	**2800**
Blackbird Leys Road	1015	25	0	1040
Cowley Rd Littlemore	350	26	0	376

Inner cordon analysis

2.3.7 The inner cordon data is formatted in different way and does not split the numbers for each HGV type. The two groups for commercial vehicles are vans and HGVs.

2.3.8 The data shows how many vehicle movements there are by inner cordon routes. These routes cover Magdalen Bridge, Folly Bridge,

Osney Bridge, Walton Street, Woodstock Road (Inner) and Banbury Road (Inner).

2.3.9 The total number of combined movements for the inner cordon is approximately 78,300. Of these, about 20,500 (26 per cent) are by cycles.

2.3.10 Commercial vehicles total 7,425, of which 88 per cent are vans and 12 per cent HGVs. This suggests that the proportion of vans and lorries travelling through to the city centre are fairly constant when compared with the outer cordon figures.

2.3.11 In terms of the routes used by commercial vehicles, Table 2-2 shows the number of van and lorry movements on the inner cordon routes.

Table 2-2: Routes most used by van and lorries on inner cordon

Road	Light Vans	All Lorries	Total
Magdalen Bridge	1226	192	1418
Folly Bridge	1399	133	1532
Osney Bridge	**1695**	180	**1875**
Walton Street	364	60	424
Woodstock Road	739	124	863
Banbury Road	1103	**210**	1313

Summary

2.3.12 The data from the two cordons indicates that higher numbers of vehicles travel in and out of the city centre from the south. However, from the data it is not possible to determine their destination.

2.3.13 While the cordon data is useful in providing an indication of overall flow patterns, it does not provide information about why vehicles are in the city. This type of information can only be obtained through surveys such as that carried out in 2004 or completing an observation survey of freight activity on-street.

2.3.14 However, from the cordon data it is possible to determine which routes commercial traffic use, which can then inform possible freight options.

2.3.15 A map indicating the location of the cordon points and the number of commercial vehicles recorded is provided in Appendix A.

3 Stakeholder workshop

3.1 Introduction

3.1.1 As part of the information gathering process a stakeholder workshop was held with groups that represented different interests in freight activity in Oxford. Representatives who attended came from:

- Oxford City Council
- Oxfordshire County Council
- Oxford Covered Market
- Oxford City Centre Manager
- Marks and Spencer
- Oxford University
- Land Securities (Westgate Shopping Centre)
- TNT Express
- Road Haulage Association
- Pembroke College
- The Logistics Business Limited (on behalf of the British Council of Shopping Centres)

3.1.2 In total, 20 people from these organisations attended.

3.1.3 The objective of the workshop was to gain the attendees views on the problems they thought existed in the city related to freight activity.

3.1.4 The workshop was split into two sessions. The first addressed the existing situation, issues and problems in Oxford, in terms of traffic flows, congestion and available information. The second considered the types of measures that could potentially be introduced. To assist attendees consider the topic, a series of questions were posed which led to a wider discussion.

3.2 Points to emerge from stakeholders

3.2.1 The main points to emerge from the first session were:

- Certain key roads are susceptible to congestion due to vehicles stopping to deliver goods, which also has an impact on public transport
- More information is needed about the type of freight activity taking place
- Congestion also had an impact on freight activity, which placed pressure on drivers to meet their delivery deadlines
- Existing loading restrictions were not necessarily consistent or necessary at certain times. A review of loading restrictions would be useful
- It was felt that there were opportunities for retailers to exploit out-of-hours deliveries. However, it was noted that not all organisations could accommodate such deliveries due to the proximity of residential properties
- Organisations felt there was more they could do to improve the way in which they ordered and received goods

- Oxford University was starting to look at how it can consolidate deliveries and thought that the expansion of its campuses was an incentive
- It was recognised that some deliveries could not be organised differently and for large retail stores full loads were the most effective, especially if made out-of-hours. This was the case for Marks and Spencer which receives food deliveries in the evening and early morning
- Oxfordshire County Council is currently reviewing its procurement and central ordering arrangements which offers an opportunity for change
- TNT said that they have some seven vehicles making approximately 500 deliveries across Oxford per day. Issues they face include time restrictions and congestion, particular at the bridges. They thought that there is potential for a local consolidation point close to the city centre from where deliveries could be made using electric vehicles or cycles. However; the challenge was identifying a suitable site
- Whilst freight consolidation was regarded as a positive approach, it was thought that it raised issues which deterred its use, for example ownership of goods and insurance. Also, businesses are not keen on paying an additional fee for a delivery service they are already receive from their logistics service provider
- It was thought that there could be an opportunity to use a consolidation centre for large construction projects and Land Securities were examining this option for the Westgate Shopping Centre redevelopment
- Organisations such as the County and City Councils and universities could consider using “nominated carriers”, which would undertake all deliveries from their suppliers. This would introduce consolidation in the transport supply chain and reduce the number of vehicles visiting their premises
- The trend towards online buyers selecting Click and Collect for delivery, means parcels being delivered to locations such as participating retailers and locker banks to collect their purchases from points that are convenient to them. It was suggested that such a system could be considered for P&R sites

3.2.2 The main points to emerge from the second session were:

- It was thought that implementing a freight consolidation centre would be difficult, especially if the location was within the Greenbelt. However, it was noted that the current thinking for FCCs is to piggyback on an existing operation, so that spare capacity at existing warehouses is used. This approach is being used for a new FCC starting up in Southampton
- It was pointed out that it is important that the County and City Councils have a vision of what they want to achieve. A consolidation centre was set up to serve the Houses of Parliament specifically to improve security and removed delivery vehicles arriving at Parliamentary buildings. Similarly, T5 at Heathrow has a designated construction consolidation centre to manage materials and deliveries into the airport
- The concept of Delivery and Servicing Plans (DSPs) was introduced and the County and City Councils and the University

felt this would be a worthwhile method of understanding the levels of freight activity associated with their organisations

- Were DSPs to be developed it would be important to adopt a common approach, especially for data collection as this could be amalgamated to provide a wider picture of freight activity at different locations across the city and provide a data base capable of ongoing update
- There is an overall need for the Covered Market to develop efficiencies for the delivery of goods to site

3.2.3 The ideas, comments and views raised at the workshop are wide ranging and are taken into account in the review of potential measures.

3.2.4 A list of the organisations that participated in the stakeholder workshop is provided Appendix B.

3.3 Additional stakeholder engagement

3.3.1 A number of stakeholders were unable to attend the workshop and attempts to complete and follow up discussions have taken place. Three organisations were contacted, Oxford Brookes University (OBU), Oxford University Hospitals NHS Trust (OUH) and Unipart Group.

3.3.2 The person that was going to attend the workshop informed the study team that OBU is in the middle of a major re-organisation and he will no longer be the contact point. However, he thought that OBU would be willing to carry out freight surveys and they were looking to reduce and change their delivery patterns, albeit some of their sites were outside the City. He suggested that OBU be contacted later in the year.

3.3.3 With respect to OUH and Unipart Group, the members of staff that could respond were unavailable, but it is known that they would like to be consulted about future freight measures.

3.3.4 Unipart has previously expressed an interest in the concept of a freight consolidation centre for Oxford and should be included in the on-going development of freight activity measures.

4 Freight management options

4.1 Introduction

4.1.1 This section of the report discusses the options that are potentially available to better manage freight activity. As part of explaining the work for this study, the County and City Councils set out the measures that were of interest to them. In reviewing the list the study team has also added other options that they consider valid.

4.1.2 It is important that a wide range of measures are initially considered for freight management, as this will help identify those that are more pertinent to Oxford. All local authorities are able to introduce the same type of measures, but typically they are tailored to address the prevailing local conditions. Similarly this would be the case for Oxford and therefore measures considered to be less effective for the City would not be pursued.

4.1.3 The options under review are:

- The creation of a DSP for Oxford city centre, within which a variety of measures could be incorporated, including a FCC
- The introduction of a FCC without the development of a city centre DSP
- Additional loading / unloading facilities in Oxford city centre
- The potential for out of hours / overnight deliveries
- Greater restrictions such as tightening time windows for deliveries particularly on pedestrianised streets
- Introducing a vehicle booking system for delivery and servicing trips with and without physical restrictions
- Measures to encourage low emission or electric vehicles
- Requirement for building and development projects over a certain size to include a Construction Logistics Plan
- Specific DSPs for organisations with a substantial presence and premises in the city, such as the City and County Councils, Oxford University, Oxford Brooks University, NHS Hospitals and Schools
- Time determined road sharing options
- Promoting an Operator Recognition Scheme for delivery and collection companies working in Oxford; and
- The introduction of a Freight Quality Partnership or similar forum

4.1.4 In assessing the options each had to be considered in relation to a range of priorities:

- Relative costs to all parties involved
- Benefits to all parties involved; fuel savings, carbon and air pollution emissions savings, congestion reduction, reduced traffic conflicts with cyclists at peak hours etc.
- Schemes that have high level of infrastructure / investment
- Schemes that have low level of infrastructure / investment
- Schemes that would involve significant additional transport management interventions

- Schemes that would involve minimal additional transport management interventions
- Schemes that could only operate with mandatory measures
- Schemes that could operate based on co-operation and engagement
- Potential barriers to implementation

4.2 Generators of freight activity

4.2.1 In assessing freight activity it is important to recognise that there is a range of different needs that have to be addressed in terms of deliveries and collections. There are two primary sectors - food and non-food, and these typically generate different levels of activity.

4.2.2 Research shows that businesses in the food preparation sector normally receive more deliveries per week than non-food businesses. The key reasons for this is:

- The higher number of suppliers that a food preparation business will use compared with non-food business and the shelf-life and freshness of produce that food establishments require; and
- The frequency at which replenishment needs to take place, although there is variation between food preparation chains and the independent businesses - i.e. deliveries to the latter are normally higher.

4.2.3 A consequence of having food and non-food businesses in the same locale means that some measures might be challenging to apply across the board. Therefore, in considering measures that do aim to reduce goods vehicle activity, the nature of businesses should be taken into account where appropriate.

4.3 Parcel and logistics operators

4.3.1 There are many parcels and logistics operators serving Oxford, which are both nationally and locally based. The companies included in the table are known or expected to operate in Oxford, either by offering collection and delivery services, or because they work for retail and food chains as logistics service providers.

Table 4-1: Parcel and logistics operators serving Oxford

Parcel Companies	Logistics Companies
Parcel Force	DHL
City Link	Ceva
TNT	Wincanton
UPS	Gist
DHL	Bidvest
FedEx	Norbert Dentressangle Group
Interlink Express	Kuehne + Nagel
DPD (UK)	Bibby Distribution Services
Tuffnells Parcels Express	Culina Logistics
Yodel	Fowler Welch
Bybox	NFT Distribution Operations
Hermes	Clipper Logistics Group
APLE Logistics	John Hackling Transport
Pan.Ex	Chris Hayter Transport

4.4 Freight assessment and summary tables

4.4.1 To address the options listed in the section above, an iterative assessment process has been used. A pro-forma table has been developed which is used to provide a summary of each option. The summary criteria comprises:

- Description
- Benefits and challenges
- Stakeholders / participants
- Interrelationship with other measures
- Infrastructure requirements
- Costs
- Traffic and environmental impact
- Timescales
- Other comments
- Recommendations and next steps

4.5 Scoring the measures

4.5.1 During the production of the summaries it was possible to consider the key elements for each option, and review their importance as a possible method of contributing to reduce freight traffic activity. The summary tables allow the assessment of the criteria by a set of factors that are important to the County and City Councils and thus place the options in an order of priority.

4.5.2 The order of the freight options has been achieved by scoring each one using the following three priorities:

a) Effectiveness at reducing goods vehicle numbers

b) Ease of implementing / quick wins; and

c) Cost of implementation

4.5.3 The three priorities are derived from grouping the list of eight that were included in the study brief, which is shown in Table 4-2.

Table 4-2: Adapted scoring priorities for measures

Study scoring priorities	Study brief scoring priorities
a) Effectiveness at reducing goods vehicle numbers;	• Benefits to all parties involved; fuel savings, carbon and air pollution emission savings, congestion reduction, reduced traffic conflicts with cyclists at peak hours etc. • Schemes that could only operate with mandatory measures • Schemes that could operate based on co-operation and engagement
b) Ease of implementing / quick wins;	• Schemes that would involve significant additional transport management interventions • Schemes that would involve minimal additional transport management interventions
c) Cost of implementation.	• Relative costs to all parties involved • Schemes that have high level of infrastructure / investment • Schemes that have low level of infrastructure / investment

4.5.4 The scoring range for the adapted priorities was based on a set of criteria shown in Table 4-3 and scored 1 to 5.

Table 4-3: Scoring method for assessment priorities

Scoring priorities	Scoring method	
a) Effectiveness at reducing goods vehicle numbers;	Criteria	Score
	70%+ reduction	5
	50 to <70%	4
	20 to <50%	3
	10 to <20%	2
	<10%	1
b) Ease of implementing / quick wins;	Criteria	Score
	< 6 month	5
	6 to <12 months	4
	12 to <24 months	3
	24 to <36 months	2
	36 months +	1
c) Cost of implementation.	Criteria	Score
	< £20,000	5
	£20,000 to <£70,000	4
	£70,000 to <£125,000	3
	£125,000 to <£175,000	2
	£175,000+	1

4.5.5 Table 4-4 shows the freight options scoring for each category. The table is then ranked based on effectiveness at reducing goods

vehicle numbers. The scores for ease of implementing / quick wins, cost of implementation are also shown.

Table 4-4: Freight options scoring; ranked by effectiveness at reducing goods vehicles

Ranked Order – Effectiveness at reducing goods vehicles Freight measure options	Effectiveness at reducing goods vehicles	Ease of implementing / quick win	Cost of implementation
Freight Consolidation Centre	4.3	2.7	1.3
Delivery and Servicing Plan	4.0	4.7	4.7
Construction Logistics Plan	3.7	4.0	4.7
Local consolidation point and delivery	3.3	3.0	2.3
Provision of Click/Collect Point at P+R Facilities	3.0	2.7	3.0
Out-of-Hours/Night-Time Deliveries	2.7	3.7	3.3
Access Restrictions	2.3	2.7	2.3
Delivery Booking System	2.3	3.0	2.7
Loading / Unloading Facilities	2.0	3.0	3.3
Road Space Sharing	2.0	3.0	2.3
Operator Recognition Schemes	1.8	3.0	3.3
Low Emission Zone for Freight Vehicles	1.7	1.7	1.0
Freight Quality Partnership	1.7	3.7	4.5

4.5.6 Table 4-4 shows that the measures expected to be the most effective at reducing freight traffic are an FCC, DSPs, CLPs, local consolidation points and Click/Collect Point at P+R Facilities. Of the remainder, there are five measures that also offer some prospect for reducing freight vehicles, while there are a number of measures that are scored as being less effective.

4.5.7 The measures expected to be the easiest to implement and provide a relatively quick win are DSPs. CLPs, Out of Hours deliveries, ORSs and an FQP. These measures are comparatively ‘soft’ and place the responsibility of implementation on either another stakeholder or require the County and City Councils to initiate the action (i.e. FQP set up). For the remaining measures, it is anticipated that they will require more effort to start and take longer to implement.

4.5.8 In terms of cost, the measures scored to be the least costly to implement are the CLPs, DSPs, and an FQP. These are soft measures and require either another stakeholder to make the financial commitment or a relatively modest contribution from the County and City Councils. The measures that are scored lower typically require more effort and would probably include some infrastructure funding.

4.5.9 The lowest scoring measure is extending the LEZ to include freight vehicles, suggesting this would be ineffective. However this should be seen in the context that the scoring categories do not specifically include the impact on air quality, which is a category where the LEZ would likely have scored highly.

4.5.10 The scoring of the different freight options should be considered as indicative and not a definitive and absolute assessment or outcome. When considering which freight options to potentially pursue the County and City Councils and the project team will need to take in to account a multitude of factors. Some of these factors are less tangible than others including acceptability, deliverability, political will and ownership. On this basis the final recommendations do not necessarily completely reflect the ranking of options as shown in the table above.

4.6 Packages of measures

4.6.1 Within the summary tables in Section 5 there is a criterion to consider *Interrelationship with other measures*, which indicates how measures may complement one another. This suggests that measures may be more effective if implemented as a package and offer a more robust approach than if introduced separately. Furthermore, using a package of measures also provides an opportunity to assess a problem area or street holistically, so that the effects of measures on one another can be considered. In this way an overall design concept or system can be developed such that it takes account of all road user relationships when aiming to improve traffic flow or reduce the number of freight vehicles.

4.6.2 Table 4-5 indicates a series of potential packages of measures that might support this approach.

Table 4-5: Possible packages of measure to influence freight activity

Package	Possible combination of measures
Understanding freight activity	– Data Gaps - Freight Activity Surveys – Delivery and Servicing Plans
Street design	– Loading / Unloading Facilities – Access Restrictions – Road Space Sharing – Bus stop locations
Changing delivery patterns	– Local consolidation point and delivery – Out-of-Hours / Night-Time Deliveries – Delivery Booking System – Access Restrictions – Freight Consolidation Centre
Influencing construction traffic	– Construction Logistics Plans – Delivery Booking System – Freight Consolidation Centre – Out-of-Hours / Night-Time Deliveries
Alternative motive power	– Low Emission Zone for Freight Vehicles – Local consolidation point and delivery – Access Restrictions
Encouraging best practice	– Freight Quality Partnership – Operator Recognition Schemes – Construction Logistics Plan – Delivery and Servicing Plan

4.6.3 In the following section each measure is summarised in the priority of their overall scores.

5 Summary of potential measures

5.1 Introduction

5.1.1 This section provides thirteen tables that are ordered in the priority of the scores set out in Table 4-4. Each table is organised using the headings listed in Section 4.2.

5.2 Freight Consolidation Centre

Oxford Freight Improvement Measures	
Measure: Freight Consolidation Centre (FCC)	**Score: 4.3**
Description	A freight consolidation centre (FCC) is an intermediary logistics facility that intercepts many incoming deliveries destined for a relatively local area and then forwards them to recipients in consolidated loads. The area that it can serve could be a city centre, an entire town or a specific site (e.g. shopping centre). This means that logistics companies with deliveries scheduled for the urban area or site are able to transfer their loads at the FCC and thereby avoid entering the congested area. It is the role of the FCC operator to sort and consolidate the loads from a number of logistics companies and deliver them, often on environmentally friendly vehicles, to an agreed delivery pattern. A range of other value-added logistics and retail services can also be provided at the FCC, for example remote stock rooms, removal of primary packaging, ad hoc storage of sales paraphernalia, etc. There are a number of successful examples of FCC in the UK and Europe such as Bristol & Bath, Meadowhall (Sheffield), Regents Street (London), Heathrow Airport and recently Newcastle and Southampton. A new approach to FCC provision is emerging whereby the FCC 'piggybacks' on an existing facility and/or delivery operation. This approach offers set up and on-going cost saving as existing resources are potentially available. It also potentially eliminates planning difficulties as the FCC would not be a new build facility. An FCC does not have to be a large facility as retail stock is not normally held there for any length of time. In many instances deliveries are 'cross-docked' on the same day from the inbound supplier vehicle to the FCC delivery vehicle. FCCs do not just have to be based on retail deliveries but could be used for large organisations or networks such as local authorities, Universities, hospitals and local surgeries and clinic, and schools. FCCs have common features that help to create a successful operation. Such features include: • **Good links to the strategic road network:** centres are often located close to motorway junctions or other major routes to allow suppliers easy

	access to the site. • **Location at the optimum distance from the target area:** close enough to provide a short and convenient journey from the Consolidation Centre to the target area, but far enough away to provide easy, congestion-free access to the Consolidation Centre to external supplier vehicles. Sufficient space for articulated vehicles to unload and manoeuvre safely must also be provided. • **Strong stakeholder partnership:** communication and support from all interested parties (such as local government representatives, potential consolidation centre operators, trade associations, logistics companies, and local retailers) is crucial for an effective scheme that suits everybody's needs. • **External funding for start-up:** Once established a Consolidation Centre can be supported by payment from retailers but initial trials and piloting of a scheme are likely to require other funding sources. External funding, potentially from the EU, could also be available in the long-term. • **Strong public sector involvement:** to provide benefits that would encourage suppliers to use a Consolidation Centre such as relaxing time access restrictions for vehicles using the centre. The public sector should also participate in the FCC thereby setting an example. • **Outsourcing management / operation:** The examples of consolidation centres all use third party logistics companies to manage and / or operate the Consolidation Centre.
Benefits and Challenges	**Benefits** • To reduce the number of separate deliveries to one place by providing facilities where deliveries can be collected together and then a high load vehicle can make one large delivery into the target area • Reduces air quality issues • Reduction in the number and frequency of goods vehicles entering and leaving a city / town / shopping centre • Can provide "a range of other value-added logistics and retail services" – Tracking of goods from receipt to delivery – Stockroom management – Pre-retailing services such as labelling / unpacking and hanging goods – Peak & seasonal storage – Permanent off-site stockroom facilities – Waste and packaging collection & recycling • Provision of environmentally friendly vehicles to deliver to the city • Reduction in wasted delivery times • Elimination of parking and or unloading fines • Relocation of stockrooms • Proven to increase sales by store • Proven to reduce stock losses • Improves delivery performance • Increases stock availability

	Challenges • Likely to require seed-funding • Who pays for the service? • Is it subsidised? • Who operates the FCC? • What would be the lead time? • Not clear if an FCC can become self-supporting without mandatory use being introduced • Would the County and City Councils have the political will to make use mandatory • Identifying a suitable location that would be relatively optimal for incoming deliveries • Setting up and undertaking a procurement process to select an the FCC operator • Setting the contract length and monitoring the performance of the operator • Setting up a method to ensure best value for money is being obtained from the operator • What happens if incumbent operator is not chosen when a contract renewal is tendered - could be an issue regarding facility and vehicle ownership? • Would FCC be expanded to handle food and produce supplies for catering sector
Stakeholders / Participants	The following organisations would be actual or potential stakeholders in an FCC serving Oxford: • Oxford City Council • Oxfordshire County Council • Major retail developers in Oxford • Retailers • Westgate Shopping Centre • Clarendon Shopping Centre • Independent retailers • Town Centre Manager • Oxford Covered Market • Federation of Small Businesses • Appropriate Third Party Logistics companies • Courier / Parcel Companies • Cycle delivery companies • Purchasing departments of Oxford University and Oxford Brookes University • FTA • RHA
Interrelationship with other measures	Other measures that an FCC operation would interact with are: • Access restrictions • Load / unloading facilities • User of low / zero emission vehicles • Cycle base deliveries

Infrastructure Requirements	Infrastructure requirements include premises (warehousing), racking and storage, deliveries vehicles, handling equipment, back office operational equipment. These elements are the core of the scheme and potentially require significant investment. However depending on the contractual nature of the scheme these infrastructure costs are borne by the scheme operator and as previously mentioned, by integrating the FCC within an existing distribution operation the costs can be shared.
Costs	**Set up:** First and second year £80K-£100K marketing and development costs **On-going:** Operating costs circa £250k per year but dependent on success could be reduced significantly depending on contract with third party logistics operator and potential income from user fees
Traffic and environmental impact	**Congestion** • Potential to reduce congestion due to significant reduction in delivery trips heading in to the city centre. Working FCCs have achieved up to an 85% reduction in delivery trips for participating businesses. **Air Quality** Potential to improve air quality in the city centre due to significant reduction in delivery trips heading in to the city centre. This is increased if electric delivery vehicles are used as part of the FCC operation. Between Jan 2011 and May 2012, research indicates that the Bristol FCC reduced: • Delivery vehicles trips into the city centre by 1,332 • Pollutant emission by - CO_2:17 tonnes; CO: 106kg; NO_x: 552kg, PM_{10}: 112kg **Road Safety** • Potential to improve road safety due to significant reduction in delivery trips heading in to the city centre and high driving and vehicle standards of the FCC operator, which can be imposed through the terms of the contract.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Scoping, feasibility, specification, tender and implementation: **Long**
Other comments	The aim of an FCC is to reduce goods vehicles trips to the urban area, with a primary focus on retail and some business premises. Food preparation establishments are not normally included, but there is no reason why ambient products could not use an FCC. Currently, most FCCs are subsidised and there is no clear evidence that this ceases, since the FCCs are not achieving a critical mass to be self-supporting. Formats for supporting an FCC are typically: • A fully tendered basis whereby the Local Authority pays a fixed fee for the operation of the FCC. • A shared risk agreement between Local Authority and FCC provider so that the LA underwrites an agreed fixed cost for the operation of the consolidation centre. • A purely commercial contract basis whereby the operator derives all revenue from participant retailers. One approach not apparent is the creation of a Not-For-Profit Organisation that would undertake the operation of the FCC. For example, the FCC might be set up as a Community Interest Company (CIC) which is a limited company with special features to ensure that it works for the benefit of the community. It differs from a charitable company in that it can be established for any legal purpose which benefits the community. Such a venture could be assess as part of a feasibility study.

	Another version of the FCC focuses on the delivery of construction materials to larger projects, especially during the fit out stage. A number of such Construction Consolidation Centres (CCC) are permanently used (East London, Heathrow Airport) and others have been temporary for specific projects (Portsmouth Hospital). A recent City of London project spanning nine months, Wincanton achieved the following: • 35,452 vehicle km saved • 80% fewer deliveries to site • 32,820 litres of fuel saved • 53% reduction in CO_2 emissions • 86,330 kg of CO_2 saved The Waste and Resource Action Programme (WRAP) has demonstrated that the inclusion of a Construction Consolidation Centre in the supply chain achieves an approximate 70% reduction in vehicles going to site for the fit out stage of project.
Recommendation and Next Steps	**Recommendation:** An FCC is a strategic commitment and would require a substantial level of effort to plan and implement. As a first step it is recommended that there is a need to clarify political will for implementing an FCC, integrating its need within the County and City Councils transport, freight, environmental and development policies. Secondly, undertake a more detailed study that considers its viability and long term prospects of being self-support in financial terms. As part of this work prospective partners and users would be identified and target area that it would serve considered. **Next Steps:** • Viability study, if politically approved • Consider whether a CCC is potentially attractive

5.3 Delivery and Servicing Plan

Oxford Freight Improvement Measures	
Measure: Delivery and Servicing Plan (DSP)	**Score: 4.0**
Description	Similar to a Travel Plan but focusing on freight and commercial vehicle activity. A DSP is a plan to make sure that freight vehicle activity to and from the target location is working effectively for everyone. The DSP will seek to improve the safety, efficiency and reliability of deliveries, collections and servicing trips. The process for producing a DSP is shown below. **Understanding the current situation** • Collect data (usually one week's worth) on all the delivery and servicing trips to and from the target location • Assess the target location to understand where and how deliveries are made and identify any problems • Review business operations to understand how the target location operates **Analysis of the results** • Analyse the data collected to produce a profile of the delivery and servicing activity and start identifying opportunities for improvement **Identify opportunities for change** • Consider a wide range of tools and techniques including measures that cover managing deliveries, supply chain operations and looking at business operations and procurement practises • Develop the business case to show potential efficiency gains and financial savings • Implement measures • Short, medium and long term measures will be put forward that reflect the characteristics of the target location and the delivery and servicing requirements
Benefits and Challenges	**Benefits** • Reduce delivery costs and improve security • Improve the reliability of deliveries resulting in less disruption to normal business practices • Achieve time-savings by identifying unnecessary deliveries • Reduce noise and intrusion • Provide the opportunity to feed into your Corporate Social Responsibility programme • Improve the overall environment making it a better place for everyone **Challenges** • DSP needs to be owned by a designated person within the location • Requires commitment from the participating organisation to carry out data collection • Requires commitment to implement the identified measures • Requires commitment to carry out monitoring to understand the benefits achieved by implementing the DSP

Stakeholders / Participants	A number of organisations and locations in Oxford are considered suitable for producing a DSP, including: • Oxford City Council • Oxfordshire County Council • Oxford University • Oxford Brookes University • Oxford NHS • Oxford Covered Market • Oxford Pedestrianised Area. It may be possible for some organisations to develop joint DSPs for example Oxford City Council and Oxford County Council, or Oxford University and Oxford Brookes University.
Interrelationship with other measures	The outcome of the DSP will be a series of recommendations on measures for implementation, for example: • delivery booking system; • adopting a preferred carrier; • using night time deliveries; • utilising a freight consolidation centre; • using a no-emission vehicles.
Infrastructure Requirements	The DSP itself will require no infrastructure. However the recommended measures may do - e.g. using a local consolidation centre, provided additional on-site storage etc.
Costs	**Set up:** c £5-10k to produce a DSP for an organisation. Complexity and data collection requirements will determine the full cost implications. **On-going:** Dependant on the identified measures for implementation.
Traffic and environmental impact	Previous experience of organisation's completing DSP's has resulted in fewer vehicle movements and cost savings to the receiving companies. For example TfL quote the following improvements from completing a DSP at their Palestra Office: • Deliveries reduced by 20% • Catering supplies deliveries reduced by 40% • Archives/records deliveries reduced by 40% • Stationery supplies deliveries reduced by 40% • Deliveries made by FORS-registered operators – 33% • Significant increase in materials recycling and reduction in waste generated
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Completion of DSP: **Short** Implementation of identified measures: **Short – medium** (from DSP completion)
Other comments	Good exemplars such as the City Council or University colleges would be a powerful persuader for other organisations in Oxford.

Recommendation and Next Steps	**Recommendation:** Strongly recommended that DSPs are produced for the identified stakeholders in particular the County and City Councils and the two universities. **Next Steps:** • Confirm willingness of organisations to participate • Identify owner of the DSP within each organisation • Agree a methodology for data collection to allow comparison and synergies between organisations to be identified

5.4 Construction Logistics Plan

Oxford Freight Improvement Measures	
Measure: Construction Logistics Plans (CLP)	**Score: 3.7**
Description	Construction Logistics Plans (CLPs) are an important management tool for planners, developers and those working in construction companies. They act as the catalyst for reducing the negative transport effects of construction work on local communities, residents, businesses and the environment. These include the effects of congestion, pollution and noise. A well-written CLP not only benefits the local environment, but also saves costs by encouraging efficient working practices and reducing deliveries. CLPs are increasingly becoming a requirement of the planning process. The CLP addresses all aspects of the construction programme and sets out in a reasonable level of detail the actions and practices that the construction managers will implement to improve the efficiency of the site and reduce the overall number of vehicles visiting the site. A CLP is not just about defining and managing site bound traffic, but offers the opportunity to consider methods of improving the construction process by including possible use of construction consolidation centres and off-site fabrication of assemblies. Producing a practical CLP document will help plan for and support all the transport, travel, and movement to and from a construction site. It will also reassure the planning authority, local communities, residents and businesses that an approach to minimising disruption at and around the site is in place. Transport for London has pioneered the use of CLPs and they are now a requirement for all large scale construction projects within London
Benefits and Challenges	**Benefits** • Linked to the planning process • Can be used to develop better project delivery process • Encourages the consideration of innovative construction techniques • Best Practice of a CLP – Congestion Reduction – Environmental benefits – Better Waste Management operations – Safety – Operator Recognition Schemes could be implemented • Can include targets for reducing site traffic and materials waste • Amalgamates various requirements of the planning process - construction traffic management plans, construction environmental management plan, site waste management plans (but does not replace these as they are a legal requirement) • Can be applied to outline and detailed planning applications • Can be stipulated as a condition of planning consent **Challenges**

	• Convincing the construction sector and developer that CLPs are a worthwhile approach • Monitoring compliance with the CLP
Stakeholders / Participants	The main stakeholders for a CLP would include: • Oxford City Council • Oxfordshire County Council • Developers • Construction Companies and their sub-contractors • Construction Suppliers
Interrelationship with other measures	The outcome of the CLP will be an agreed series of recommendations on measures for implementation. • Access restrictions • Use Operator Recognition Schemes • Freight consolidation centre for construction materials • Would interface with planning requirements
Infrastructure Requirements	The CLP itself may or may not require infrastructure changes.
Costs	**Set up:** £5k to £10k, but depends upon if the County and City Councils wanted to provide guidance documents to developers along the lines of the TfL publication. If no guidance provided anticipated as zero cost. **On-going:** Unknown, but envisaged has an indirect cost associated with evaluating CLP within planning applications and future monitoring
Traffic and environmental impact	**Congestion** • Potential to reduce freight related traffic, depending on the proposed approaches included. For example, if a Construction Consolidation Centre was included, the project might experience an approximately 70% reduction in vehicles going to site during the fit out stage. **Air Quality** • Potential to improve air quality in the vicinity of the site and on supply chain routes due to reduction in vehicle trips and enhanced vehicle emission standards. **Road Safety** • Potential to improve road safety to / from and around project site due to reduction in vehicle trips and improved driving standards.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Implementation of CLPs: **Medium to Long** if not already in existence Implementation of identified measures: **Short – medium** (from CLP completion)
Other comments	CLPs are not the only logistics plan approach for the construction sector. The Waste and Resource Action Programme (WRAP) have also developed a logistics management approach referred to as the Materials Logistics Plan (MLP). This approach seeks to reduce waste emanating from a construction project, and advocates principles such as off-site fabrication, improved and safe storage of materials on-site and consolidating deliveries either through better resource planning on-site or the use of consolidation centres. CLPs and MLPs complement one another as both seek an increase in overall resource efficiency by addressing the actions and activities the developers, designers and contractors adopt.

Recommendation and Next Steps	**Recommendation:** It is recommended that CLPs are stipulated as a planning requirement for construction projects. Oxfordshire and the City Councils should decide on a spatial area or construction value (e.g. £1 million) over which a CLP is required. To minimise guidance cost the County and City Councils should adopt and amended a version of the TfL's CLP guidance for developers. **Next Steps:** • Arrange consultation with TfL/PBA on the principles of CLPs • Arrange consultation with WRAP/PBA on the principles of MLPs • Discuss with planning colleagues on adopting CLP approach • Consult with key developers and contractors on introducing CLP for larger scale projects

5.5 Local Consolidation Point and Delivery

Oxford Freight Improvement Measures	
Measure: Local consolidation point and delivery	**Score: 3.3**
Description	A local delivery point is a small facility at which goods are transferred from larger vehicles to low or zero emissions means of transport for onward delivery. The facility is located close to the area its serves and is home to the delivery transport that are used for the local deliveries. Ideally they should be shared user (many companies delivering to the facility to consolidate more deliveries), but it is possible the parcels companies could operate such facilities separately. The facility is well suited to serving independent businesses that do not receive large quantities of goods in single delivery. Companies such as TNT use the approach in the City of London where packages are transferred to cycle and foot couriers at a depot on the edge of the City for delivery to the recipient in the centre.
Benefits and Challenges	**Benefits** • Removes large vehicles from streets used by large numbers of pedestrians and cyclists • Contributes to improved air quality on the streets served • Potential to be offered access incentives • Reduction in noise and intrusion of larger vehicles • System can work in reverse for collections later in the day • If used as a shared facility, removes higher number of larger vehicles from served streets. **Challenges** • Finding a building that is suitable for use as the local delivery facility • How best to encourage a shared user facility • Should the County and City Councils provide financial support for start-up
Stakeholders / Participants	In setting up a local delivery point the following stakeholders are likely to be included: • Oxford City Council • Oxfordshire County Council • Parcels Carriers • Local Cycle Delivery Companies • City Centre Manager • Oxford University Colleges • Covered Market
Interrelationship with other measures	Other measures that a local delivery point would interact with are: • Access restrictions • Loading / unloading facilities • Delivery and Servicing Plans

Infrastructure Requirements	Premises sufficient in size to store small electric vehicle, delivery tricycles and space for sorting parcels.
Costs	**Set up:** £0-30k, depends on whether the County and City Councils contribute funding support **On-going:** £0-30k depends on whether the County and City Councils contribute continued funding support
Traffic and environmental impact	**Congestion** • Potential to reduce congestion due to reduction in delivery trips and removal of larger vehicles from city centre in particular during network peak times. **Air Quality** • Potential to improve air quality due to reduction in delivery trips by petrol / diesel fuelled vehicles. **Road Safety** • Potential to improve road safety due to removal of larger vehicles from city centre in particular during network peak times.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Planning and implementation: **Medium to long**
Other comments	This is a measure that could provide a localised benefit and possibly be a forerunner to introducing a complete freight consolidation centre. A trial of the concept would be worthwhile as a means of demonstrating the use of non-polluting delivery vehicles and consolidated deliveries. Possible approaches could include: • Engaging a third party to perform the final delivery on behalf of parcels companies • Different parcels companies are assigned specific rounds that would involve carrying one another deliveries from the consolidation point A possible location for such facility could be within Osney Mead Industrial Estate
Recommendation and Next Steps	**Recommendation:** Recommended that the County and City Councils consult with parcels carriers that serve central Oxford on the potential for early introduction of a consolidation point and delivery facility. The aim should be to implement a trial using either a one or more suppliers at a suitable facility. **Next Steps:** • Invite parcels companies to a meeting to obtain views • Establish County and City Councils' position on support funding • If positive response received from one or more of the parcel companies then carryout feasibility study • Identify best location for consolidation point facility • Devise implementation plan

5.6 Provision of Click and Collect Service at Park and Ride Facilities

Oxford Freight Improvement Measures	
Measure: Provision of Click and Collect Service at Park and Ride Facilities	**Score: 3.0**
Description	The definition of *Click and Collect* in the Collins Dictionary is "A shopping facility whereby a customer can buy or order goods from a store's website and collect them from a local branch". Click and collect has been evolving over the last 5 years and has had significant impact on retailers. However, the concept has now expanded into online sector and is a means of purchasing and receiving goods without having them delivered to a home address. The collection location is stipulated at the time of purchase and it could be to a local retailer that has a franchise with a large delivery and collection network (e.g. Collect Plus); a third party lockerbank network (e.g. ByBox, iPost), or the retailers own collection point or lockerbank (e.g. John Lewis, Amazon). Customers are provided with an access code to open lockers and timeframe in which to collect parcels. The maximum size for parcels varies between lockerbank providers, but can be up to 20Kg in weight and about the size of carry-on luggage for airlines. The lockerbank approach is of interest to this study, since it can support fewer delivery trips to the centre of town as lockers could be located at public transport interchanges, such a Park and Ride (P+R) facilities. The County and City Councils have significant and well used Park and Ride facilities surrounding the city and this would provide an idea location for lockerbanks. The lockerbanks could be applied to both internet and high street online purchases. Currently, lockers tend to cater for only non-perishable goods, but in order to enhance the services provided to the users and to ensure that the facilities are utilised more widely than the provision of lockers both chilled and ambient goods should be investigated. It is worth noting that Waitrose(John Lewis) have recently announced that they are introducing chilled lockers. (4)
Benefits and Challenges	**Benefits** • Diverts parcels deliveries away from city central road network • Significant increase in first time delivery rates, thus reducing number of delivery trips • Financially beneficial to parcels companies since delivery consolidation is taking place • Potential to encourage wider use of the P+R facilities • Electric vehicle and cycle deliveries from the city • Click and Collect significantly growth area for retailers • Convenience for consumers and removal of potential additional road trips • Potential income stream for City Council through ground rent from lockerbanks • Improves delivery efficiency **Challenges** • Confirming P+R facilities are attractive to lockerbank provider and retailers

[4] http://www.waitrose.presscentre.com/Press-Releases/Waitrose-to-launch-fully-automated-click-and-collect-lockers-in-UK-grocery-first-c2b.aspx

	• Identifying set up timeframes • Identifying levels of income and cost for County and City Councils • What need for security? Who pays? • Identifying the overall benefits in terms of diverting deliveries from in-town to out-of-town location • Identifying the level of existing 'delivered to work place' personal items • Identifying the number of P + R users that receive deliveries to work place
Stakeholders / Participants	• Oxford City Council • Oxfordshire County Council • Bus Companies • Retailers • Lockerbank providers • Parcels delivery companies
Interrelationship with other measures	Use of no emission vehicles and cycle deliveries Public transport and travel plan policy
Infrastructure Requirements	• Hard, level surface areas for securing lockerbank • Possible canopy/shelter to cover lockers and users at times inclement weather • Pedestrian and mobility access provision • Security cameras • Designated unloading bay for deliveries/returns
Costs	**Set up**: Currently unknown
Traffic and environmental impact	**Congestion** • Potential to reduce congestion due to reduction in delivery trips heading in to the city centre and re-routing to the P&R site instead. **Air Quality** • Potential to improve air quality in the city centre due to delivery trips re-routing to the P&R site instead. **Road Safety** • Potential to improve road safety due to reduction in delivery trips heading in to the city centre and re-routing to the P&R site instead.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Implementation of Click & Collect facilities: **Medium**
Other comments	Click and collect concepts need not apply to only general consumers, but could be applied to other areas of business. Locally located locker banks might be a method that could serve business communities from where parcels are collected.
Recommendation and Next Steps	**Recommendation:** County and City Councils instigates a short study into the viability of such a scheme and to investigate the costs and benefits

	Next Steps: • Clarify the political will for adapted use of P+R facilities • Identify potential participants • Investigative study of lockerbanks at P+R facilities

5.7 Out-of-Hours / Night-Time Deliveries

Oxford Freight Improvement Measures	
Measure: Out-of-Hours / Night-Time Deliveries	**Score: 2.7**
Description	Retiming deliveries and collections to less busy times of the day and, where appropriate, nights means large lorries can be taken out of congested areas. Making deliveries later in the evening, overnight or earlier in the morning can lead to less risk of collisions involving cyclists and pedestrians, less fuel used and better air quality. However, noise from vehicles making deliveries outside of normal working hours can sometimes cause a greater disturbance when roads are otherwise quiet. Oxford City Council may restrict out-of-hours deliveries to minimise night time disruption to local residents and communities. Oxford City Council or Oxford County Council could commit to a programme of encouraging deliveries at less busy times of day, but without disturbing local residents. Out-of-hours or night time deliveries doesn't have to mean deliveries at 3.00 a.m. but in a more extended day or early evening delivery
Benefits and Challenges	**Benefits** • Remove commercial vehicle traffic from crowded roads • Less risks for cyclists • Faster access for commercial vehicles • Implementing the Code of Practice which has already been successfully trialled in other cities with out-of-hours deliveries • Using newer and quieter delivery vehicles and equipment, where possible. • Ensuring all staff involved in the delivery activity are briefed and trained • Liaising with Environmental Health Officer (responsible for noise issues) to explain the plans to manage night time delivery and servicing activity. **Challenges** • Without involving all stakeholders misunderstanding can lead to negative entrenched views. • Not everyone welcomes the change of delivery times • There are potentially extra costs for delivery companies • Not every company has staff available at new delivery times • Access after closing time can lead to problems and non-deliver • Could result in staffing hours changing which may be resisted.
Stakeholders / Participants	• Oxford City Council • Oxfordshire County Council • Residents impacted • Property developers e.g. Land Securities • Town Centre Manager

	• Federation of Small Businesses • Oxford University • Oxford Brookes University • Oxford NHS • Oxford Covered Market • Oxford Pedestrianised Area. • Freight Transport Association • Road Haulage Association • Noise Abatement Society
Interrelationship with other measures	Could be introduced as part of a successful Delivery Service Plan initiative
Infrastructure Requirements	Possible modification to entrances and surfaces to facilitate easy access and reduce potential noise
Costs	**Set up**: Trial would be in order of £30-45K. There could be small increase in costs to delivery but possible savings to receiving organisations. Reduction in waiting time for commercial vehicles and ease of collection and delivery.
Traffic and environmental impact	**Congestion** • Potential to reduce congestion due to reduction in delivery trips during normal working hours in particular during network peak times. **Air Quality** • Potential to improve air quality due to deliveries being undertaken when there less congestion and therefore less idling in traffic and faster journey times. **Road Safety** • Potential to improve road safety due to reduction in delivery trips during normal working hours in particular during network peak times.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Introduction of out-of-hours deliveries would be **Medium** to **Long Term**
Other comments	Trials and implementation of out-of-hours deliveries have been successful and are well documented.
Recommendation and Next Steps	**Recommendation:** A trial of night deliveries be sought with agreeable participants and as example of best practice **Next Steps:** Understand barriers to be overcome to facilitate out of hours / night time deliveries Identify potential participants to undertake trial Work with the logistics industry to set the terms for the trial in particular the objectives and monitoring.

5.8 Access Restrictions

Oxford Freight Improvement Measures	
Measure: Access Restrictions	**Score: 2.3**
Description	Access restrictions are commonly used as a method of managing freight activity in order to improve traffic flow, reduce potential street user conflicts or reduced atmospheric pollution. Essentially there are three categories which can be applied: • Vehicle access time restrictions • Vehicle weight restrictions • Vehicle dimensions restrictions The most frequently used of these is time, while weight and dimensions restrictions may apply to specific streets of area. However, all are fairly straightforward to implement, relatively low cost and can be applied to specific locations or areas. Time restrictions stipulate periods when access is granted or not, while weight and dimension restriction will prevent vehicles over a certain size entering a street or area.
Benefits and Challenges	**Benefits** • Locations will be free of large vehicles during specified periods • Can be implemented to suit certain road conditions • No special regulations needed for implementation • Flexible as they can be adjusted if found to be incorrect • Improved safety for other street users • Potentially easier access for emergency services • Reduced environmental impact at busier times • Reduced visual impact • Unloading dwell times can be stipulated • Can be modified as part of regular parking reviews Reviews on freight loading can be standardised by using the Freight Environment Review System (FERS) tool. FERS is based upon a street audit of vehicle movement and goods movement outside of the vehicle, data collection, and desk-based review. It provides details of aspects such as where demand and capacity for freight space are mismatched, non-compliant or misleading signage difficulty in accessing an area and congestion caused by freight activity. **Challenges** • Potential to generate higher numbers of goods vehicles as transport operators and supplier attempt to deliver same quantity of goods in a reduce

	time frame • Potential increase in the intensity of freight vehicles in order to meet time restriction • Potential increase in the use of smaller vehicles to avoid weight restrictions • Possible increase in vehicles stopping to unload in streets surrounding the area with the restriction in place • Access restrictions should be considered holistically as part of wider parking reviews • Maintaining a consistent approach on time constraints in a specific area • Can be unpopular with freight and logistics industry as consider as being imposed upon
Stakeholders / Participants	The following organisations would be actual or potential stakeholders when introducing or amending access restrictions in Oxford: • Oxford City Council • Oxfordshire County Council • City retail community and their logistics service providers • Westgate Shopping Centre • Clarendon Centre Oxford • Covered market traders • Parcels carriers • Freight Transport Association • Road Haulage Association • Universities • Oxford University Hospitals NHS Trust
Interrelationship with other measures	Access restrictions could be linked to other measures whereby they are used as an incentive for taking other actions. In particular: • Freight Consolidation Centre • Road space sharing.
Infrastructure Requirements	The infrastructure requirements would depend on how the restrictions are to be implemented and the area they would cover. It is envisaged that the majority of time and weight restrictions would require signs and road markings with the occasional inclusion of physical barriers. For dimension restrictions physical barriers might be used in the form or width or height constraints.
Costs	**Set up:** £10k+ the implementation costs would in line with those for other parking restriction measures and dependent on the size of the area covered. **On-going:** Low, as once implemented cost would relate to maintaining road marking and the occasional replacement of signs. Physical barriers a likely to incur higher on-going cost due to potential damage and maintenance.
Traffic and environmental impact	**Congestion** • Potential to reduce congestion as controlling access can force suppliers / hauliers to delivery outside of network peak times i.e out of hours or night time deliveries. However overall the level of congestion could remain the same. This is a consequence of this measure not specifically seeking to impact on congestion. **Air Quality** • Does not necessarily improve air quality as delivery, collection and waste vehicles have to access area within limited timeframe, the overall number of which could be the same as the number visiting if the restrictions were not in place. **Road Safety**

	• Potential to improve road safety due to a reduction in delivery vehicles in specific locations at specific times therefore reducing conflict with other road users.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Assessment and implementation: **Medium - Long**
Other comments	When used in co-ordination with other measures such as an FCC, vehicles operating from a Freight Consolidation Centre could be offered a longer period of access, operators using zero emission delivery vehicles gain preferential access times, or access restrictions would complement any road space sharing actions. Access restriction could also be included in holistic approach to reviewing the use of road space and therefore be part of a package of measures.
Recommendation and Next Steps	**Recommendation:** A review of existing loading time restrictions is recommended to establish the range of restrictions in place and to determine whether they are effective and consistent. FERS could be used a tool in this process. Amendments to any loading restriction would be based on the review. **Next Steps:** • Consideration areas of Oxford that might benefit from a loading review • Consider a possible the timeframe for an loading review

5.9 Delivery Booking System

Oxford Freight Improvement Measures	
Measure: Delivery Booking System (DBS)	**Score: 2.3**
Description	A Delivery Booking System (DBS) is a method of managing and controlling the number of delivery vehicles arriving at an identified target location by requiring suppliers / hauliers to pre-book delivery slots using an on-line booking system. The DBS can control the number of deliveries vehicles by limiting the number of delivery slots available by time of day. The number of slots available will largely be determined by the objective trying to be achieved - i.e. seeking to deter deliveries at a certain time or to avoid too many vehicles turning up at once to a constrained delivery space etc. DBSs have previously been used in both the construction and retail / business locations. They are predominantly utilised when a large volume of delivery vehicles are anticipated. The Westfield shopping centre in Stratford, London uses such a system to control the flow of vehicles in to the delivery yard and ensure security standards. Users must book at least 24 hours in advance and can book repeat slots for up to three months.
Benefits and Challenges	**Benefits** • Improved control of supply chain and vehicle flow • Improved security through registered vehicles • Reduced congestion in delivery bay / service yard • Reduced congestion on delivery routes through vehicle flow control • Improved air quality due to less congestion • Noise reduction potential • Improved delivery reliability **Challenges** • Users not always able to keep to allotted time due to congestion • Users arriving early and needing to waiting till their slot begins • Users unable to get the delivery slot they need • Irregular deliveries unaware of the DBS • Enforcement of the DBS
Stakeholders / Participants	Potential stakeholders for implementing a DBS include: • Oxford City Council • Oxfordshire County Council • Oxford University • Oxford Brookes University • Oxford Covered Market

	• Town Centre Manager • Land Securities for Westgate
Interrelationship with other measures	Collection information on potential use through a freight activity survey Using a DBS could be a recommendation within one or more DSPs. It could also encourage more out of hours and night time deliveries.
Infrastructure Requirements	Two alternatives available: 1) No on-street infrastructure would be required. The costs would be associated with the purchasing of the delivery booking software, administering the service and any other back office requirements. 2) The inclusion of on-street infrastructure to provide a gated system. Other costs would be associated with the purchasing of the delivery booking software, administering the service and any other back office requirements.
Costs	**Set up:** This would depend on the specification of the delivery booking software, but it is anticipated that a budget range of £10 - 500k is suitable **On-going:** On-going costs would be associated with the staff resource required to administer the service.
Traffic and environmental impact	**Congestion** • Potential to reduce congestion by controlling the number deliveries vehicles through limiting the number of delivery slots available by time of day in particular network peak times. Also reduces instances of vehicle waiting and circulation, and illegal parking, all of which contribute to or cause congestion. **Air Quality** • Potential to improve air quality due to a reduction in delivery vehicles, waiting and circulation and illegal parking helping to improve traffic flow and reduce emissions. **Road Safety** • Potential to improve road safety due to a reduction in delivery vehicles, waiting and circulation and illegal parking.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Set up of DBS: **Medium - Long**
Other comments	As mentioned in the description, DBS is typically implemented by organisations that have total control over access which suggests that the Clarendon and Westgate shopping centres could introduce such a system to regulate the flow of vehicles to their service bays. However, applying DBS to a wider area of individual businesses is a greater challenge and would either require the commitment of a large of companies agreeing to use such a system or the local authority implementing an area wide scheme that it is controlled by either barriers or cameras or both. The criteria for using such a system on area-wide basis could be that at any one time only a certain number of vehicles could be on-street in a given zone.
Recommendation and Next Steps	**Recommendation:** It is recommended that the potential for utilising a DBS is explored through a freight activity survey, consulting stakeholders and developing within DSPs. **Next Steps:** • Collect data through the DSP process or a freight activity survey

	• Consult with stakeholders • Assess the potential for a DBS

5.10 Loading / Unloading Facilities

Oxford Freight Improvement Measures	
Measure: Loading / Unloading Facilities	**Score: 2.0**
Description	Demand for loading and delivery activity can create congestion, harm road network performance and reduce the effectiveness of traffic engineering schemes (e.g. bus priority measures). However, facilitating kerbside loading at the right place and time, using suitably designed loading bays and regulatory instruments can smooth traffic flows and benefit other road users. Loading bays are the term used for an area of road space at which commercial vehicles can unload or load goods, or collect waste. Such bays can be within the carriage way, set half off the carriageway, inset within the footpath or off street within the curtilage of premises. The design used is dependent upon factors such as available space, flow of pedestrians, proximity to junctions or crossings, or the preference of the local authority. The location of these facilities also has to take account of other road uses (e.g. bus stops or cycle lanes), as well as what is being unloaded and where it has to go to. Certain loads such as those delivered using roll cages or on pallets, or beer barrels, need to be within a short distance of the premises entrance, as long movements are not practical or perhaps physically possible. Loading bays can be subject to time controls, limiting a vehicle to a set stopping period such as 20 or 40 minutes and also be restricted in use by time of day.
Benefits and Challenges	**Benefits** • Allocates specific parts of the road to freight activity • Can improve traffic flows • Can be designed to suit specific size of vehicle • Can be incorporated into otherwise restricted road space • Can be used as shared road space **Challenges** • Provision of adequate number of loading bays • Identifying a suitable location that suits it need, but does not impede other road users • Ensure time restrictions are clear and consistent when applied to a loading bay • Other some delivery drivers and road users can abuse their availability • Ensuring good enforcement of loading bay usage rules is applied
Stakeholders / Participants	The key stakeholders for loading bays are: • Oxford City Council • Oxfordshire County Council • Bus operators • Businesses requiring the delivery of goods from on-street bays

Interrelationship with other measures	Other measure that would complement or include loading bay facilities is access restrictions.
Infrastructure Requirements	The level of infrastructure for loading bays is dependent on features such location, size, and design.
Costs	**Set up:** £5k+ to assess, design and implement **On-going:** Occasional renewal of marking if needed
Traffic and environmental impact	**Congestion** • Provision of sufficient dedicated loading / unloading facilities can improve congestion by reducing illegal and obstructive loading activities therefore improving traffic flow. **Air Quality** • Potential to improve air quality by reducing illegal and obstructive loading activities therefore improving traffic flow and reducing vehicle idling. **Road Safety** • Potential to improve road safety due to reducing illegal and obstructive loading activities that can be dangerous to other road users.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Assessment, authorising and installation: **Medium**
Other comments	As with road sharing considering loading / unloading facilities, it would be advantageous to consider all uses of street space on a specific street or location. For example, a review of bus stops, loading bays, parking bay, the position of street furniture, the surfaces materials used and the entrances to business premises (shops and offices) would provide a holistic view of road space use. Improved loading/unloading facilities could be applied so to optimise the street space in a manner that would improve overall traffic flow.
Recommendation and Next Steps	**Recommendation:** Review the provision and use of loading bays on key routes, with the aim to optimise traffic flows and servicing of businesses. Review whether enforcement of abuse is being properly maintained **Next Steps:** • Plan a future date for review of enforcement of existing bays • Plan a future date for review of provision and use of loading bays

5.11 Road Space Sharing

Oxford Freight Improvement Measures	
Measure: Road Space Sharing (RSS)	**Score: 2.0**
Description	Road space sharing (RSS) measures are a means of allocating road space to different users at different times of the day. They have been successfully implemented cities such as Barcelona where there was a substantial conflict between car parking and freight delivery and collection activity. Potential road space sharing includes parking bays, specific carriageway lanes and reserved lanes (e.g. bus). For example, if a set of parking bays (residential or pay and display) are located where they could usefully serve as loading bays during the course of the morning then it would be sensible to offer these for unloading between, say, 09:30 and 13:00, at which time they would revert back to normal parking bays. Such a scheme would require clear, well defined signs such that users would be aware that they were dual purpose The use of intelligent transport systems (ITS) and close circuit TV (CCTV) can be used to control and manage length of stay times with the area that are allocated to dual purpose use.
Benefits and Challenges	**Benefits** • Optimises road space more effectively • Can be positioned to assist different road user groups • Can be designed to suit different road layouts • Use can be timed and managed remotely • Modern technologies can be used to monitor and manage **Challenges** • Identifying the areas that could benefit from road space sharing • Defining the type of road space sharing protocols for different local conditions • Conducting underlying research to understand the nature of the freight and conflicting activity on a street or in an area. • Estimating the cost of research, design and implementation of a scheme • Enforcement of alternating use
Stakeholders / Participants	The stakeholders for implementing a road space sharing scheme would potentially vary depending on the location, but would include: • Oxford City Council • Oxfordshire County Council • Covered market • Bus operators • Freight Transport Association • Road Haulage Association

	• Cycling representatives
Interrelationship with other measures	The implementation of RSS could be stand alone or complement other measures, depending on the location. Other measures could include: • Access restrictions • Delivery booking system • Freight Quality Partnership If a Freight Quality Partnership (FQP) were re-established it could be part of its role to assess the potential of RSS at certain locations.
Infrastructure Requirements	RSS would require a support structure of regulations, street marking, signs and possibly remote management systems.
Costs	**Set up -** £5k+ the overall assessment and implementation requirement costs are considered to be high and would be dependent on the nature and design of the RSS measure. Other example of RSS have include variable message signs and automated monitoring making the option very costly - for Barcelona it is quoted as €500. **On-going:** Need to police and monitor, which would probably fall within existing parking management.
Traffic and environmental impact	**Congestion** • Potential to improve congestion by reducing illegal and obstructive loading activities therefore improving traffic flow. **Air Quality** • Potential to improve air quality by improving traffic flow. A recent study by Ricardo examining smoothing traffic flow of buses in Brighton showed that there was a correlation of poor air pollution with stop-start traffic conditions. **Road Safety** • Potential to improve road safety due to reducing illegal and obstructive loading activities that can be dangerous to other road users.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Assess and implementation: **Medium**
Other comments	In considering road space sharing, it would be advantageous to consider all uses of street space on a specific street or location. For example, a review of bus stops, loading bays, parking bay, the position of street furniture, the surfaces materials used and the entrances to business premises (shops and offices) would provide a holistic view of road space use. From this a re-designation of road uses could be applied so to optimise the space in a manner that would improve overall traffic flow.
Recommendation and Next Steps	**Recommendation:** If other access restrictions or parking controls are being reviewed / considered, this would by an appropriate time to assess RSS as a complementary measure. **Next Steps:** • Consider internally whether RSS is an attractive option for managing road space • Only pursue in conjunction with other parking measures

5.12 Operator Recognition Schemes

Oxford Freight Improvement Measures	
Measure: Operator Recognition Schemes (ORS)	**Score: 1.8**
Description	Operator Recognition Schemes are schemes that certify operators of vehicle fleets are taking positive steps to adopt best practice that will result in improved efficiency and reduced the environmental impact of their operations. Currently, two such schemes are available to operators, Fleet Operators Recognition Scheme (FORS) introduced by Transport for London (TfL) and ECO Stars that began in South Yorkshire with EU funding support. ECO Stars is now being promoted by around eight cities and counties. Both schemes promote the adoption of best practice by businesses which own and operate fleets of vehicles. These include any size of commercial vehicle, buses, coaches, cars and motorcycles. FORS operates on an accreditation basis and by joining the scheme operators can be accredited with one of the following awards: • Bronze - a legally compliant operator that is following best practice • Silver - high-quality operator that is committed to becoming safer, greener and more efficient • Gold - exceptional operator that has met specific targets and is continuing to improve. In order to achieve FORS bronze accreditation a company must demonstrate that it operates to a standard that is over and above the legal minimum requirement to operate commercial vehicles and that it has significant policies and procedures in place to manage and monitor its operations. In accessing an operator for membership, there are four key areas that apply to the FORS standard: management, vehicles, drivers and operations. On application an operator carries out a self-assessment against FORS requirements. These requirements are primarily based around, legal compliance, safety, efficiency and environmental protection. FORS appointed assessors then appraise the applicant operator to establish if it does indeed meets the standards or if not will provide information on the areas that need improvement. Operators then have the opportunity to remedy the weaknesses in order to be accepted into the scheme. Once a member of the scheme, operators have access to information that is designed to help them improve that operations and potentially achieve a higher level of award. Accredited FORS membership is increasingly becoming a mandatory requirement for TfL and GLA transport and supply contracts. Although FORS primarily has a London focus, membership is now being promoted by the Tyne and Wear Freight Quality Partnership for operators that serve that part of the country. From the end of 2014 a new programme delivery partner will be appointed by TfL, with the aim of franchising the scheme to other counties and cities. ECO Stars is not as sophisticated as FORS and its application process less rigorous. Applications are reviewed based on profile of fleet vehicles, fuel management programme, driver skills development and performance management programme, robust vehicle specification process, operational support systems, and performance monitoring and targeting systems. The review will accredit a number of stars (between 1 and 5 Gold) to each

	vehicle and an overall rating to the operator. ECO Stars state that each member signing up to the scheme will receive tailor-made support to ensure that their fleet is running as efficiently and economically as possible, to help them progress to higher ratings. Members of the scheme have the opportunity to improve their star rating as they introduce more modern vehicles to their fleet. Also as they improve their non-fleet items such as management, training, monitoring and performance systems and procedures they can be submitted for review. If judged to be an improvement on the existing systems and procedures the company will advance up the star ratings. Unlike FORS, ECO Stars is not currently a requirement for contract tenders, although nothing precludes this from happening should an organisation wish to introduce such a condition.
Benefits and Challenges	**Benefits** • Can be promoted by the City to encourage high standard freight operations in the city • County and City Councils could register their own fleets with an ORS to lead by example • An ORS promoted by Oxford sends out a message that city encourages operator excellence • County and City Councils could encourage businesses that provide them transport and freight services to become members an ORS • County and City Councils could stipulate that ORS membership is required for certain business and construction projects. • ORS are currently free, and since it is voluntary this indicates that participating operators are committed to adopting best practice. • Becoming a ORS operator could help companies when tendering for business, save money, improve safety and reduce their environmental impact. • It is a good way for companies to demonstrate to existing and potential customers they are accredited as an operator maintaining high quality standards. • Access to growing number of business and construction projects are stipulating ORS membership in order to be able to continue to supply good to them • ORS membership provides access to a range of instructive workshops and training guides to support areas such as, driver training, fuel efficiency, work related road safety and monitoring and measuring road fleet performance. **Challenges** • Taking the political decision to commit to ORS standards either as a member or promoter • Adapting ORS such that it has an Oxford focus • Identifying the financial commitment required to initiate an Oxford-focused ORS • Persuading the County and City Councils' transport managers that joining ORS would provide a beneficial return • Organising the internal policies and procedures required to meet the ORS standards • Maintaining the internal policies and procedures to retain ORS membership • Encouraging suppliers they should adopt ORS standards
Stakeholders / Participants	The initiators and participators in ORS could be: • Oxford City Council • Oxfordshire County Council

	• ORS provider • Suppliers of transport to the County and City Councils At an early stage the County and City Councils might be more willing to join ORS rather than be the actual promoters.
Interrelationship with other measures	The inclusion of ORS as a measure for Oxford has two dimension - one as a participant and another as the promoter. As the latter the County and City Councils could integrate ORS with planning policy that requires larger construction projects to ensure supplier and transport operators are ORS registered. In other areas, if a nominated transport supplier was used by the County and City Councils, it could be stipulated that they require an ORS accreditation.
Infrastructure Requirements	FORS has an establish website, but this does not preclude other promoters providing their own localised website (e.g. Tyne and Wear FQP). ECO Stars promoters have their own website, but typically provide the information in a similar template.
Costs	**Set up - As an adopter:** £5-30k to assess and adapt transport management and practices to meet entry level approval **Set up - As a promoter:** Cost not known. Possible web-microsite through the County and City Councils' websites. **On-going:** Workshop event management. General enquiry support - may require an officer to perform this on a part-time basis.
Traffic and environmental impact	**Congestion** • Limited impact on congestion as not directly aimed at reducing vehicle trips. **Air Quality** • Potential to improve air quality due to driver training and improved driving techniques leading to fuel savings and subsequently emissions. Studies demonstrate a potential fuel saving of between 9 - 10% per vehicle. **Road Safety** • Potential to improve road safety due to improved driving and vehicle standards including proximity warning devices.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Adopter of ORS: **Short** Promoter of ORS: **Medium** (Initial set up effort) **Long** (On-going support and management)
Other comments	Of the two schemes, FORS would appear to be the more formal in that there are terms and conditions stating contractual commitments. FORS is also probably politically influenced in that there has been, in the light of high number of cycling fatalities involving lorries, a revision of requirements which substantially focus on the need to equip vehicles with cycle safety devices and include cycle awareness training for drivers. Discussion with FORS revealed that they are planning to roll out the scheme to other towns and cities at the end of 2014 and are currently in the process of tendering for an organisation to become the Programme's Managers. Currently, there is no indication of what the cost might be to promoter towns/cities/regions.
Recommendation and Next Steps	**Recommendation:** Promoting ORS should be considered a longer term aim, and consequently seeking ORS membership should be carried in a period prior to promotion in order to understand the level of commitment required and lead by example. **Next Steps:** • Confirm the necessary actions required to promote ORS

	• Confirm the involved costs required to promote ORS • Assess the political will to promote ORS • Set a longer term timeframe for promoting ORS

5.13 Low Emission Zone for Freight Vehicles

Oxford Freight Improvement Measures	
Measure: Low Emission Zone for Freight Vehicles	**Score: 1.7**
Description	The existing Low Emission Zone (LEZ) was introduced in Oxford in January 2014 to encourage the uptake of cleaner greener vehicles in order to achieve reductions in emissions and improve air quality. The LEZ was established in response to the introduction of an Air Quality Management Area (AQMA) in Oxford and as part of the Air Quality Action Plan (AQAP). Oxford City Council, together with Oxfordshire County Council developed the LEZ over a number of years in consultation with local bus operators. The LEZ covers some 25 streets in central Oxford including Park End Street, George Street, Beaumont Street, Broad Street, Queen Street, St Aldgate's and High Street. All local bus services within the streets affected must be operated exclusively by buses whose engines meet the Euro V emission standard (for nitrogen oxides (NOx)), either as a new engine or a vehicle that has been retrofitted with equipment to reduce emissions in order to achieve the Euro V standard (for Nitrogen Oxides (NOx)). The local authorities are now considering the potential to extend the LEZ to cover freight vehicles
Benefits and Challenges	**Benefits** • Improved air quality – all pollutants not just NO2 and PM10 • Progress towards EU Air Quality Limit Values • Health benefits – lower lost time at work, NHS costs • Noise reduction potential • More attractive city centre environment for companies and people • Safety benefits of newer vehicles • Economic and employment benefits for vehicle and retrofit equipment manufacturers **Challenges** • Chosen vehicle emission standards and the enforcement regime will determine the effectiveness of the scheme and relative cost. • Which vehicles to target, HGVs, Vans, both? • Emission standards will also determine the relative impact on affected industry sectors • Geographic coverage, - e.g. city centre or within the Ring Road • Disproportionate impact on expensive 'specialist' vehicles - e.g. coaches and specialist lorries - i.e. waste vehicles and cement mixers • Greater relative impact on smaller companies • Greater relative impact on road haulage, wholesale, trade and manufacturing sectors and construction / building companies • Higher potential business costs for companies • High level of political challenge from major trade bodies

	• Enforcement and penalty notice collection
Stakeholders / Participants	In order to consider extending the LEZ to cover freight vehicles a number of different stakeholders would need to reach consensus on the proposals including, but not limited to: • Oxford City Council • Oxfordshire County Council • Oxford Covered Market • Freight Transport Association (FTA) • Road Haulage Association (RHA) • Major retailers and shopping centre owners • Town Centre Manager • Logistics service providers and operators
Interrelationship with other measures	Extending the LEZ could be a recommendation within one or more DSPs. It could also support the introduction of an FCC for Oxford and potentially encourage more out-of-hours and night time deliveries. The issue could also be discussed through an FQP.
Infrastructure Requirements	Infrastructure requirements would depend on the type of LEZ scheme and the enforcement regime - i.e. permit or ANPR camera and the associated back office operations.
Costs	**Set up:** This would depend on the type of LEZ scheme and the enforcement regime - i.e. permit or ANPR camera and the associated back office operations. A budget range of £500k - £7million is considered as a ball park estimate. **On-going:** On-going costs would also be determined by the type of scheme but would be in the region or £1 million
Traffic and environmental impact	**Congestion** • Likely to have limited impact upon congestion as delivery and servicing trips will still place in the LEZ. This is a consequence of this measure not specifically seeking to impact on congestion. **Air Quality** • Potential to significantly improve air quality depending on the vehicle emissions standards applied and the enforcement regime. The stricter the emissions standards the greater the environmental impact. However this will need to be balanced against the needs of the effected industries and vehicle owners / operators. **Road Safety** • Potential to improve road safety due to improved vehicle standards as a consequence of the emissions standards applied to the LEZ.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Assessment, planning, tender and implementation: **Long**
Other comments	Influence of the London LEZ: Data from the DVLA showed that the number of rigid lorries not meeting EU emission standards dropped substantially in 2008, suggesting that the London LEZ resulted in an extra 20% of vehicles being replaced by lower-emission vehicles. Articulated lorries showed a similar trend. In January 2012, minimum standards were introduced for light commercial vehicles (LCV), such as vans. LEZ restrictions on vans with a

	weight of more than 1.3 tonnes had significant impact, since this includes more than 60% of all freight-carrying vehicles. There is early evidence that LCVs are also being replaced in the same way as the larger ridged and articulated vehicles. It should also be noted that freight vehicles (both LGVs and HGVs) of most fleets tend to be replaced / renewed on a regular cycle of between 5-7 years. This is largely due to the fact that the majority of freight vehicles are leased with a residual value and a full maintenance pence per mile/Km charge. Operators also wish to operate the quietest, cleanest and most fuel efficient vehicles in order to reduce running costs and maintain or enhance their reputation. This was confirmed through survey work undertaken with freight operators during the feasibility work for the London LEZ.
Recommendation and Next Steps	**Recommendation:** An LEZ for freight is a strategic commitment and would require a substantial level of effort to plan and implement. As a first step it is recommended that there is a need to clarify political will to implementing a freight LEZ, integrating its need within the County and City Councils transport, freight, environmental and development policies. If these are a given, it is recommended that further feasibility work is undertaken to understand the potential for extending the LEZ to cover freight vehicles. **Next Steps:** • Clarify political commitment to a freight LEZ • Feasibility work is undertaken to understand the potential for extending the LEZ to cover freight vehicles.

5.14 Freight Quality Partnership

Oxford Freight Improvement Measures	
Measure: Freight Quality Partnership (FQP)	**Score: 1.7**
Description	Freight Quality Partnerships (FQP) are a means for local government, businesses, freight operators, suppliers, industry organisations, local interest groups and other interested stakeholders to work together to address specific freight transport problems. They provide a forum to achieve best practice in economic, safe, efficient and environmentally friendly freight transport. FQPs may operate under different guises such as: • Freight Forum • Freight Advisory Group • Freight Transport Liaison Group • Sustainable Distribution Partnership Whatever the name, the important characteristic of an FQP is that it provides a mechanism for industry and local government to work together in partnership to produce tangible outcomes to localised freight transport problems.
Benefits and Challenges	**Benefits** • Enhanced understanding between stakeholders in particular freight industry and local government • Increased knowledge of an industry and sector that is often overlooked • Stimulate best practice through the exchange of information and ideas • Increase efficiency through working together • Focus on delivery by providing impetus and direction FQPs can subsequently deliver environmental, economic and societal benefits through the implementation of agreed measures. However it should be noted that establishing an FQP is not an end in itself and cannot be considered successful until tangible progress has been made, in part or whole towards the objectives of the FQP. **Challenges** • Commitment to running the FQP from the council(s) • Meetings need to be regularly scheduled in advance • The agenda needs to be interesting and inclusive • Terms of reference should be agreed at the first meeting • A vision and objectives should be also be agreed • An action plan with SMART measures should also be agreed • Funding the FQP Secretariat • Funding for measures should be identified and allocated • The biggest problem for an FQP is that it becomes a talking shop with no visible action

Stakeholders / Participants	A number of organisations and businesses both specific to Oxford and those who have a regional or national role could be members of an FQP for Oxford. • Oxford City Council • Oxfordshire County Council • Oxford University • Oxford Brookes University • Oxford NHS • Oxford Covered Market • Freight Transport Association (FTA) • Road Haulage Association (RHA) • Highways Agency • Town Centre Manager • Logistics service providers • Network Rail • Police • Shopping centre managers • Major retailers A number of organisations such as the universities could be represented by one or more representatives depending on the topics being discussed. Some FQP members such a Network Rail, Police, Land Securities may only be part time members and would attend depending on the agenda.
Interrelationship with other measures	The outcome of the FQP should be an action plan that sets out the measures that the FQP will implement. This could therefore involve a wide range of freight measures ranging from marketing and promotion through to introducing an FCC, considering a freight LEZ.
Infrastructure Requirements	The FQP itself will require no infrastructure other than a place for meetings to take place.
Costs	**Set up:** Set up costs are minimal, but come in the form of committing staff resource to set up and administer the FQP. **On-going:** Staff resource required on a continuous basis. Other costs dependant on the identified measures for implementation.
Traffic and environmental impact	The FQP would not have a direct impact on congestion, air quality and road safety. Any impact would be dependent on the measures chosen for implementation by the FQP.
Timescales **Short 0-6 months** **Medium 6-12 months** **Long 12+ months**	Set up of FQP: **Short** Implementation of identified measures: **Short – long**
Other comments	Offers an excellent opportunity for stakeholders to comprehend each other's different roles and responsibilities. FQPs require proactive management

	to ensure that it can generate useful and workable solutions to local problems. However, it is acknowledged that without a high level of commitment FQPs can fail to achieve their original objectives.
Recommendation and Next Steps	**Recommendation:** It is recommended that an FQP is set up for Oxford. The FQP could provide a valuable mechanism for cooperation between stakeholders, which could be especially important in the context of developing and implementing a freight strategy for Oxford. **Next Steps:** • Understand appetite of the council(s) for establishing an FQP • Identify council resource to set up and administer FQP • Identify FQP members and draft terms of reference • Set up inaugural meeting and agree agenda

6 Gaps in knowledge and understanding

6.1 Introduction

6.1.1 An underlying consideration with implementing any of the measures summarised in Chapter 5, is the need for robust evidence on existing freight activity.

6.1.2 It is important to understand the fundamental reasons about what, why and when activity is taking place. Such information can be combined with other traffic data sources, which together develop a more informed picture of freight activity to provide a view on factors such as the types of vehicles used, primary access routes, and which business sectors are generating greater volumes of freight activity.

6.1.3 From the information collected, an appreciation of the activity can be gained which informs the decision making process on the measures that could have the most beneficial impact and potentially be implemented.

6.1.4 Having such knowledge is an important element in developing and implementing a freight strategy and deciding which measures would improve the existing situation.

6.2 Description

6.2.1 Obtaining the information and data is typically achieved through surveys. The level of information recorded can range from simple counts about the number and type of vehicles visiting a street to an in-depth survey where respondents are asked a series of questions about the deliveries, collections and other servicing activity related to their premises, including waste disposal.

6.2.2 Typical methods of data collection include observation surveys, interviews, postal questionnaires and focus groups. Information can be collected from businesses, residents and the providers of delivery and collection services.

6.3 Benefits and Challenges

6.3.1 The collection of data and information therefore has a range of benefits that would assist the County and City Councils in understanding the freight activity taking place in Oxford, the key ones of which are set out below.

Benefits

- Provides the necessary information and data on the existing level of freight activity
- Supports other forms of information, for example, traffic flows
- Highlights the types of freight activity taking place
- Highlights the types of problems that delivery / collection / waste companies face, as well as those for retailers and business
- Indicates where freight activity is concentrated
- Can be updated after measures implement to gain a ‘before and after’ understanding

6.3.2 However, in acknowledging data and information collection would support the implementation of measures, it must also be recognised that collecting and using the information faces challenges.

Challenges

- Funding the data collection and analysis
- Identifying the range of data / information required and choosing the most suitable collection method
- Identifying the target groups and gaining their support
- Deciding on the geographical coverage
- Ensuring the survey results are suitably used

6.4 Stakeholders / Participants

6.4.1 The stakeholders for a survey would depend on the nature of the survey, but would typically include:

- Oxford City Council
- Oxfordshire County Council
- Businesses
- Residents
- Logistics service providers
- Retail centre owners
- Market traders

6.5 Interrelationship with other measures

6.5.1 Since surveys are a basis for considering approaches to freight management measures, data collection has a relationship with for example:

- Access restrictions
- Loading / unloading facilities
- Road space sharing
- Delivery and Servicing Plans
- Freight consolidation centre for business and construction sectors

6.6 Cost

6.6.1 The complexity and thoroughness of the survey will ultimately determine the cost of carrying out the data collection, analysis and interpretation.

6.6.2 Surveys can be a one-off cost as either a review process or part of implementing a measure. The cost is considered to range between £10k and £50k depending on the scope of the data collection exercise. Alternatively, the survey could be organised such that it is also a long term commitment to monitoring the impacts of implementing measures. The costs would be similar to a one-off survey, but be on-going over the period of monitoring.

6.7 Timescales

6.7.1 Time associated with data collection is very much dependent on the type of survey completed and the information it is gathering.

6.7.2 The components of data collection are planning, design, implementation and analysis, but the time to organise the survey are expected to be in the order of up to 6 months for a short term survey and 6-12 months for a longer term commitment. Monitoring surveys are likely to exceed these timeframes as they would seek to capture data on longer term changes and trends.

7 Freight Consolidation Centres

7.1 Introduction

7.1.1 This section seeks to provide additional information regarding Freight Consolidation Centres (FCCs) to that provided in the measure summary in Chapter 5. This information explains the consolidation concept and processes involves and looks at how FCCs have evolved in the UK. It also considers the lessons learnt and key success factors. The requirements to measure the FCCs impact are also outlined. Construction Consolidation Centres (CCCs) are then looked at separately the end of the section.

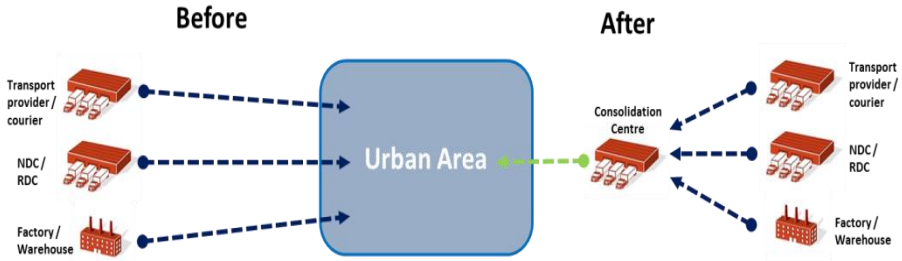
7.2 Freight Consolidation

7.2.1 The term freight consolidation can be used to describe a number of different types of activity that can occur through the course of a distribution supply chain. Consolidation is an activity that larger retailing companies, pallet networks and parcel companies have been using for some time in order to reduce mileage on the road network and improve efficiencies in their supply chains.

7.2.2 Freight consolidation involves grouping individual consignments or part-loads that are intended for the same destination at a logistics facility (consolidation centre), so that fewer and fuller loads are transported to the target destination.

7.2.3 This principle can be transferred to an urban setting and thus make efficiency gains as outlined above. Urban freight consolidation therefore adds a link in the supply chain and sits on the interface between secondary and tertiary distribution. The process helps simplify the final leg of the journey to the target area by intercepting deliveries bound for the urban area at the periphery and transferring multiple loads on to fewer and fuller dedicated vehicles for onward delivery. The concept is demonstrated in the 'before' and 'after' scenario shown below.

Freight Consolidation Centre Concept

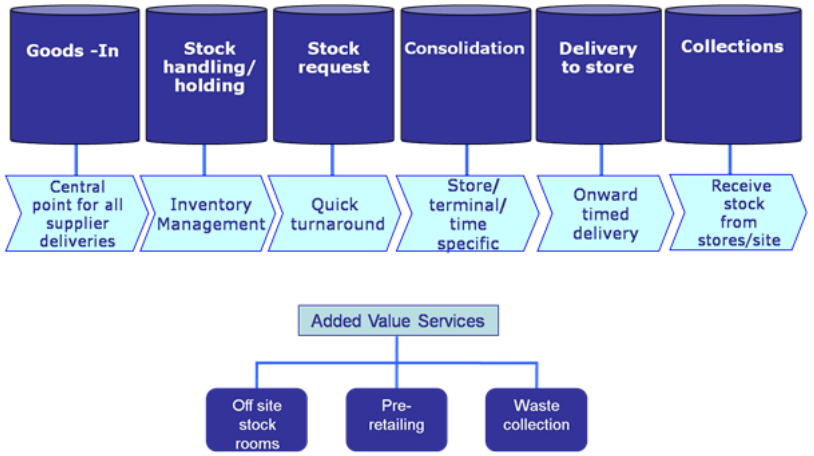


7.2.4 It is important to distinguish between a FCC and some of the other terms that are used to describe what is thought to be the same process. Terms commonly used such as 'Urban Distribution Centre' or 'Freight Platform' are not necessarily the same as they refer mainly to the transfer of loads, managing deliveries and vehicle types; they do not relate to the consolidation of part loads in order to reduce delivery vehicle trips and therefore they do not necessarily deliver the same benefits.

A FCC can be defined further and as shown in the consolidation process diagram can integrate other activities and benefits that are not found in the traditional sense of freight consolidation. This,

therefore, highlights the opportunities to add value to the consolidation process by offering additional and potentially revenue earning services, and advocates the use of environmentally friendly vehicles. Unless goods are requested to be held at the consolidation centre, the turnaround time from 'goods-in' to' goods-out' for onward delivery to the final destination would take place in a matter of hours.

Consolidation Process



7.2.5 Previous research into the FCC concept has helped to identify the types of locations and prevailing conditions where a FCC is most likely to be appropriate and have the best chance of succeeding (operationally and commercially). The identified scenarios include:

- Specific and clearly defined geographical areas where there are delivery-related problems;
- Town centres that are undergoing a major retailing redevelopment;
- Historic town centres and districts that are suffering from delivery traffic congestion;
- New and large retail or commercial developments (both in and out of town);
- Major construction sites.

7.3 Freight Consolidation Centre Evolution

7.3.1 FCCs have been in operation in the UK since approximately 2000 and have evolved over time. They have differences in terms of the reason for their origination, but they are all operationally similar from a logistics point of view, with variations in the proximity of the consolidation centre relative to the target area, the extent of added value services that are offered and the level of integration between the FCC and other distribution operations.

7.3.2 Current FCCs include, Bristol & Bath, Southampton, Newcastle Enfield serving Regent Street, Trial from Enfield for specific supplies to the London Boroughs of Camden, Enfield and Waltham Forest public buildings; Snetterton serving Norwich City Centre, Sheffield for Meadowhall shopping centre, Greenhithe serving Bluewater shopping centre, Heathrow Airport, Bury serving Manchester Airport, and local warehousing facility serving East Midland Airport.

7.3.3 The consolidation centre at Heathrow Airport has one significant advantage that sets it apart from other FCCs. The airport's owner has been able to drive the participation process by specifying use of

the consolidation centre as a condition of lease as retailers leases have come up for renewal. The consolidation centre at Heathrow is also purpose built and a standalone operation used solely for consolidated deliveries to the airport retailers and offices. The service was originally operated by DHL, but Bradford Swissport is now the contracted operator.

7.3.4 There are certain parallels between the initiation of the Heathrow consolidation centre and that of the first urban freight consolidation centre in the UK in Bristol, set up in 2004. The initiation of the scheme in Bristol was driven by a combination of factor in particular problems that were being experienced by delivery vehicles accessing the service bays at the Broadmead shopping centre in the town centre. This lead to retailer dissatisfaction and congestion as lorries and vans struggled to enter the centre and complete their deliveries effectively. As of 2012, the scheme was extended to Bath, operating from the same location on the west of Bristol. The Bristol and Bath FCC is run by DHL and is integrated with other delivery operations, but only in the sense that other DHL departments store stock on-site. The scheme operates using two Smith Newton 9 tonne electric lorries, which provide additional air quality benefits on top of achieving consolidated deliveries.

7.3.5 Participation in the Bristol and Bath scheme has been entirely voluntary, and has required significant marketing and recruitment effort on behalf of all parties in order to achieve the current participation level of just over 100 businesses. A list of known participating businesses is provided in Appendix C.

7.3.6 The success of such a voluntary recruitment process is heavily dependent on the business case that can be made for using it within the supply chain of each potential participant and the local constraints that exist on making deliveries in the urban area. The Bristol and Bath scheme requires a subsidy in the region of 50-60% from the local authorities to cover the on-going operating costs.

7.3.7 The alternative is that the business case for voluntary use of the FCC is so compelling that businesses find it easy to do so. The best example of this is the centre associated with the Meadowhall Shopping Centre in Sheffield. The service model associated with this is based on providing the maximum service offer to potential clients. The approach is more akin to an off-site stockholding and retail service centre. Even though this centre is located very close to the shopping centre, so minimising the opportunity to reduce goods vehicle mileage, this approach does still offer the prospect of reducing the number of delivery vehicles and associated impacts at the point of delivery to the stores in the shopping centre. The Meadowhall operation serves some 180 retailers and is known to pay for itself – i.e. does not require an operating subsidy – which appears to set it apart from the other schemes.

7.3.8 A not so successful FCC scheme was initiated in Norwich in 2007 as part of the EU CIVITAS project. The scheme was relatively short lived with little take up from city centre businesses. A combination of factors were believed to have contributed to the unsuccessful nature of the scheme including a lack of delivery related problems to solve, lack of enforcement of existing time and weight restrictions and the scheme operator appeared to lack the required profile to attract business participation.

7.3.9 In London a joint initiative between the Crown Estate and Clipper Logistics has seen a FCC service offered to businesses in Regent Street. The Regent Street consolidation centre is located in Enfield some 12 miles away and is an existing Clipper operating base, thus combining consolidation with other distribution activities. The FCC serves both retail and non-retail businesses therefore broadening the target market for participation. Clipper has also introduced an electric vehicle into the operation to boost the environmental credentials of the scheme. This is seen as a key selling point, in particular helping it to be differentiated from other supply chain operations.

7.3.10 A recent trial FCC scheme was proposed for Perth in Scotland with idea of broadening the end user to potentially include offices and the City Council as well as retailers. However, the trial scheme was not forthcoming due to constraints in identifying a suitable scheme operator.

7.3.11 The most recent FCC example is the Southampton Sustainable Distribution Centre (SSDC). Launched on the 1st February 2014 the scheme is run by locally based distribution company Meachers Global Logistics utilising their existing warehouse on the outskirts of Southampton. The scheme has secured funding through the Local Sustainable Transport Fund (LSTF) that will help provide a subsidy for the first two years of operation. Aligned with this Southampton City Council have agreed to use the SSDC for a period of four years.

7.3.12 The SSDC differs from previous FCC schemes as it is predominantly used by public sector customers. Six organisations currently use the SSDC including Southampton hospital, Southampton University, Solent University as well as the City Council. These organisations are considered key anchor customers and have provided the initial throughput and usage of the scheme to get it off the ground.

7.3.13 The SSDC differs further from the traditional approach of consolidation as it provides the option of on-site long term storage. This was always intended and has been taken up by customers with some 1,200sqm of storage space utilised. The hospital has been the biggest user / beneficiary of the consolidated delivery service to date due to its own on-site delivery constraints. The focus going forward for the SSDC is to build upon its successful start and existing client base. In particular the scheme is looking to attract private sector customers as well as continuing to attract interest from the public sector. Marketing and promotion of the scheme is carried out by Meachers with assistance from the city council.

7.3.14 Another FCC being trialled as part of the LaMiLo (last mile logistics) Project funded through INTERREG IVB and the London Mayor's Air Quality Fund, is also focusing on non-retail consolidation. The FCC is based in Enfield and is being used by the London Boroughs of Camden, Waltham Forest and Enfield for the consolidation and delivery of stationary and cleaning products to around 400 public sector buildings within the three boroughs.

7.3.15 The pilot project started in January 2014 for a fixed period of 6 months, which was then extended for a further 3 months. The project is part of an EU wide programme and has received £175k of funding, as well as £300k financial support from the Mayor's Air Quality Fund. Camden's total commitment to date is approximately £50k (£30k in 2012/13, £10k each in 2013/14 & 2014/15).

7.3.16 During the first 4 months of the project, DHL (the appointed logistics contractor) have already delivered 3,000 orders to over 400 council buildings and other premises across Camden and the partner Boroughs (Enfield & Waltham Forest) which represents nearly 10% of London's geography. In Camden more than 200 council buildings and other premises have been visited on behalf of the participating suppliers, and other council departments who have needed items delivered. The project has been well received by council staff with very few issues arising.

7.3.17 The Heathrow, Bristol and Regent Street consolidation centres have all achieved delivery vehicle reductions of between 50 – 85% for participants, depending on the stage of development of the scheme, time of year etc. These reductions in vehicle mileage in turn bring associated reductions in pollutant emissions.

7.4 Lessons Learned and Key Success Factors

7.4.1 Any FCC scheme for Oxford should look to learn from previous experience and combine as many of the identified success factors.

- **Shared use facility:** Look to share all aspects of the FCC operation with other distribution activities to minimise risk and costs including warehousing, vehicles, handling equipment, back office equipment and operatives.
- **Electric delivery vehicles:** Practical for use at a FCC and bring additional air quality benefits and a unique selling point to the scheme. However the additional cost implications and lead in times (6-12 months) for delivery need to be considered.
- **Supporting measures:** FCCs with voluntary participation need to be assisted through the implementation of supporting measures that promote the FCC as a viable alternative delivery solution i.e. tighter access restrictions, emissions regulations, incentivised business rates etc.
- **Broad range of end users:** Participants should not just be retailers. Offices and other end such as the local authority, universities and hospitals should also be targeted.
- **Additional services:** Any FCC scheme should look to provide and charge for additional services to end users such as the collection and recycling of waste and packaging material, provision of off-site storage space and pre-retailing services.
- **Marketing and promotion:** A critical element in order to persuade businesses to change their supply chain operation.

7.5 Freight Consolidation Centre Impact

7.5.1 In order to accurately assess the impact of a FCC scheme it would need to be implemented and carefully monitored. However it is possible to quantify the potential impact of a FCC scheme in terms of estimating the likely reduction in delivery vehicle trips, delivery vehicle mileage and associated emissions. In order to produce this estimate a number of steps need to be taken:

- Identify potential end users of the scheme - i.e. retailers, local authority, university, hospital;
- Undertaken data collection with potential end users to build up a current daily and weekly delivery profile;

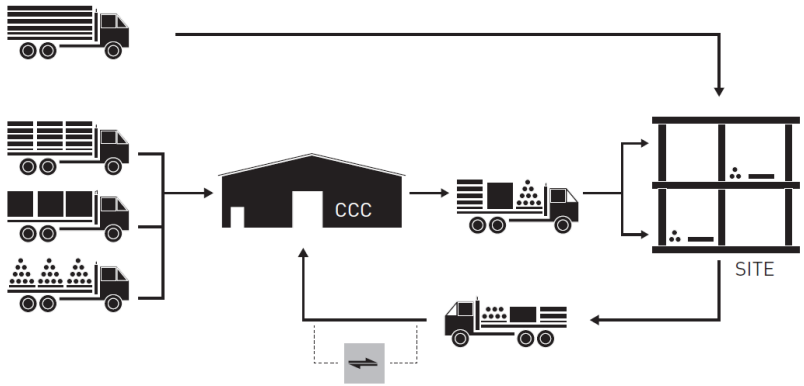
- Produce end user scenarios based on potential take up in use of a FCC;
- Produce a FCC scenario based on potential FCC location, size, vehicles used etc;
- Apply a consolidation factor and average trip distance based on a potential FCC location and utilise Emissions factors for CO_2, NO_2 and PM_{10}s from the National Atmospheric Emissions Inventory (NAEI) to generate emissions savings;
- Produce estimates of weekly, monthly, yearly savings in delivery vehicle trips, delivery vehicle mileage and associated emissions;
- Based on this information it is also possible to produce a short – medium term (3 year) business model to understand the financial implications and also identify potential funding sources.

7.5.2 This exercise has been successfully carried for previous studies in Bristol, York and Perth and could be undertaken in Oxford if the requisite data collection exercise is carried out.

7.6 Construction Consolidation

7.6.1 A Construction Consolidation Centre (CCC) is a distribution facility through which material deliveries are channelled to construction sites. The material is handled with appropriate equipment and stored in dry, secure locations. On call off from the site, the CCC operator makes up consolidated loads and delivers them on a Just-in-Time basis. This process is often combined with on-site logistics specialists delivering materials to the point of use and provides an excellent opportunity to improve the overall resource efficiency of a construction project. The process is illustrated below.

Construction Consolidation Process



Source: WRAP Guidance: Construction Logistics

7.7 Benefits

7.7.1 The direct benefits of a CCC relate to the reduction in construction traffic both on-site and particularly relevant in city centre locations. Traditional transport to construction sites is often uncoordinated, with many separate deliveries and various peaks of congestion at the site. The vehicle utilisation is poor with vehicles often travelling half-empty to site and empty from site, leading to excessive traffic flow and emissions out of proportion to tonnage handled.

7.7.2 The environmental benefits of reducing construction traffic include reductions in congestion, noise, and emissions, while the utilisation

of reverse logistics ensures that journeys from site can be used for waste removal, the return of unused material and packaging for reuse and recycling, and the return of pallets and reusable packaging.

7.7.3 In addition to the environmental benefits, fewer and more productive vehicle journeys mean cost savings for contractors, suppliers and clients, and faster turnaround times benefit the haulier. Several studies also show that the way a CCC enables effective Just-in-Time delivery to site leads to waste reduction, productivity improvements and improved programme certainty.

7.7.4 Data varies from project to project, but notable statistics include:

- A reduction in freight traffic to site by up to 70%;
- Increased productivity of site labour by 30 minutes per day leading to a 6% productivity gain; and
- A waste reduction of 7-15% from reduced damage and shrinkage through loss of material.

7.8 Project size

7.8.1 Project size is not necessarily decisive as to whether a CCC should be used or not, so long as there is an ongoing business volume to maintain the operation. CCCs that have been studied varied in size between 650m^2 of warehouse space with one warehouse operative, two drivers and an administrator and 10,000m^2 warehouse space, plus yard area. There are, however, advantages in shared user approach as opposed to single user CCCs; for example, small projects can tap into services that are already in place, the costs of operating a CCC will be spread more efficiently and a permanent operation will allow experience and expertise to develop.

7.9 Location

7.9.1 The locating of CCCs should take into account the proximity of the motorway network and major roads, to both lessen the impact on local roads of incoming deliveries and minimise hauliers' turnaround times. Ideally, a CCC should be situated where a cluster of construction sites can be reached in under 30 minutes' drive time.

7.10 Challenge

7.10.1 Currently there are limited examples of CCCs in operation in the UK despite the benefits; there are a variety of reasons why they are not taken up so readily. It is normally up to the main contractor to take the decision to use a CCC and to carry the cost. However, it is not only the main contractor who benefits from the use of a CCC. Subcontractors, suppliers and hauliers all benefit, and ways need to be found to spread the cost among these other participants in line with the savings they make. The fixed cost of setting up one CCC for one site may be prohibitive.

7.11 Examples

7.11.1 In 2001 the Heathrow Consolidation Centre (HCC) was set up to serve the ongoing construction work at Heathrow's terminals 1-4. A few years later in 2005 the London Construction Consolidation Centre (LCCC) began operation in Bermondsey, London.

7.11.2 The HCC was set up by Mace and continues to be run by Wilson James for BAA, while the LCCC was created for a pilot study in a partnership between Transport for London, Stanhope PLC, Bovis Lend Lease and Wilson James (who also operated the facility). After the pilot study Wilson James carried on the activity on a commercial basis and it has now relocated to Silvertown just south of City of London Airport.

7.11.3 All these early examples of CCCs were studied in some depth, and generally regarded as successful. However despite the early success there has not been the level of take up in the industry that might have been expected. The table below helps to illustrate how viable and successful CCCs operate and what the common features and variations are between the different operations.

	The London CCC, Silvertown	**Nine Elms CCC, London**	**Sainbury's consolidation, reuse and recycle centre, Park Royal, London**
Operator	Wilson James	MLogic (part of Mace) - Site owned by DHL	Sainsbury's in partnership with Fit Out (UK) Ltd
Size and throughput	10,000m^2 warehouse space, plus yard area. 50,000 pallets per year throughput (pallet equivalent units - PEU)	650m^2 fully secure warehouse are (at peak) including an extra secure caged area contained within. About 6,000 PEUs Approximately 4,000 bins of 6000 litre capacity removed from site in reverse logistics operation, back to CCC from where waste company collects	6,000m^2 warehousing space and 1,5000m^2 mezzanine area. Yard area 12,000 PEUs (first two years of operation)
Staffing	Eight employees: manager, administrator, warehouse operatives and drivers	Four employees: manager, administrator, one warehouse operative and two drivers	Fifteen employees: A manger and consolidation coordinator, six warehouse operatives shared with other activities, seven drivers also shared with other activities. Note this is a 24/7 operation.
Vehicles and materials handling at CCC	1 x 26 tonne flatbed with crane 2 x 18 tonne flatbed 1 x 18 tonnes curtain sided with tail lift 1 x LWB Transit 4 x forklift trucks Fleet is regularly adjusted to demand	1 x rigid flatbed lorry 1 x 18 tonnes curtain sided with tail lift 1 x large Transit van 1 x forklift truck	1 x 18 tonne curtain sided lorry Articulated lorries hired in as and when required for larger loads 1 x forklift truck
Construction projects	The LCCC supports between three and six projects. Project handled include: St Bart Hospital Phase II, with Skanska as main contractor. Quadrant III run by Sior Robert McAlpine	Single user facility for One Hyde Park where Lang O'Rourke are the main contractor	Predominantly within M25 - Has delivered as far as Leamington Spar. Has delivered to 29 projects over the first two years' operation

	The London CCC, Silvertown	**Nine Elms CCC, London**	**Sainbury's consolidation, reuse and recycle centre, Park Royal, London**
Comments	It also serves as a London base storage to a number of trade customers	Only a one-hour delivery slot each day - therefore consolidation only option.	This facility is shared with other Fit Out (UK) activities, such as manufacture and delivery of fit out materials. There is also refurbishment (deep cleaning) of refrigeration equipment and serves as a store for returned available for reuse.

8 Summary and potential measures for further examination

8.1 Summary

8.1.1 Phase 1 of this Freight Options for Oxford study has considered a range of measures that could potentially contribute to reducing commercial goods vehicle numbers and improving air quality in Oxford.

8.1.2 As part of the information gathering and assessment process a workshop was held with a selection of stakeholders. From this session an informed range of views were expressed and it emerged that there is general support for taking steps that would reduce freight vehicle numbers.

8.1.3 A number of the stakeholders from outside the County and City Councils were already considering how they might better manage their own deliveries to site and were either in the process, or about to start looking at areas such as procurement and ordering systems, with the aim of consolidating the number of suppliers they use.

8.1.4 Consolidation of deliveries was also being examined, especially for multi-site organisations and potentially for the redevelopment of the Westgate Shopping Centre.

8.1.5 It also became apparent that while the County and City Councils have objectives to reduce the overall impact of freight traffic, particularly its contribution to poor air quality, it is important they have an overall vision of how they want to achieve this outcome.

8.1.6 Using the County and City Councils' own traffic flow data it was shown that light goods vehicle traffic forms by far the greatest proportion of commercial vehicles travelling to and from the city centre.

8.1.7 In total, thirteen different freight measure options are considered in this study. To judge their suitability they have been assessed using a scoring method against three priorities (Effectiveness at reducing goods vehicles; Ease of implementing / quick wins; Cost of implementation). The scoring ranged between 1 and 5, based on a series of criteria, but the defining priority was the 'Effectiveness at reducing goods vehicles' since this has implications on the number of vehicle kilometres run within the City and the impact on air quality.

8.1.8 Five measures are put forward for further consideration and reasons for their inclusion are set out in the following sections. Although 'Provision of Click and Collect Service at Park and Ride Facilities' was within the top five categories, it was felt by Oxfordshire and the City Councils that this measure would not be acceptable to senior managers. Therefore Local Consolidation Points was included.

8.1.9 The measures therefore put forward for further consideration are:

- **Delivery and Servicing Plans**
- **Construction Logistics Plans**
- **Out of Hours Deliveries**
- **Local Consolidation Points**
- **Freight Consolidation Centres (retail, business and construction)**

8.2 Measures for further examination

8.2.1 The uppermost objective of introducing measures to deal with freight activity is the reduction in pollutant emissions that contribute to poor air quality.

8.2.2 However, it should be recognised that there is no one measure which can achieve this in the short term and a combination of measures addressing different aspects of managing freight activity will be required. Furthermore, only the more innovative and radical measures are likely to achieve a significant reduction and to instigate a bold approach will require vision and a strong political resolve.

Understanding freight activity in Oxford

8.2.3 Before any measures are implemented it is vital that the County and City Councils have a comprehensive understanding of the existing freight activity in Oxford. This would complement the traffic flow data that is regularly collected; data collection could be achieved relatively easily and at a reasonable budget. There are two approaches which could provide the required data and information, specific freight activity surveys and / or Delivery and Serving Plans.

8.2.4 In the first instance it is **strongly advised that the County and City Councils develop a programme of freight activity surveys that would support their future freight management measure strategy**. The focus of the survey(s) should be the geographical areas of most importance - i.e. City Centre, Headington and Eastern Arc. Importantly, a methodology should be devised that could be applied to one or more surveys such that comparable data and information is obtained. It is envisaged that either a single all-area survey would be conducted in which the methodology is developed or a series of two or three with the methodology being developed in the first survey.

8.2.5 Delivery and Serving Plans (DSPs) are an all-encompassing approach that initially gathers data regarding deliveries / collections and servicing trips to an organisation's premises and then through data analysis, identifies areas for improvement and develops solution to be implemented. A DSP could be developed at an area level within Oxford, to include retailers and businesses in a defined locale. Furthermore, at the stakeholder workshop Oxford University (OU) expressed interest in this approach as it felt that the concept would assist their own ambitions to reduce deliveries to OU sites. The County and City Councils should also be involved in developing DSPs for their respective organisations. Therefore, it is **advised that steps are taken to develop DSPs at Oxfordshire and Oxford City Councils, within a defined area of the city centre and with Oxford University and Oxford Brookes University**.

8.2.6 Through this approach, a common survey form can be designed and used which captures data from a wide range of sources. It is suggested that a 'diary' survey is completed for a week and results are aggregated to provide a central database on delivery / collection activity by organisation and area.

8.2.7 A significant advantage of this approach is the opportunity to begin developing delivery strategies at an organisational level and use the aggregated data to consider how other measures might influence freight activity.

8.2.8 The data would also be valuable in providing a resource for modelling measures vis-à-vis air quality impacts.

Planning approaches

8.2.9 The use of planning conditions as a means of ensuring a specific outcome is achieved as part of a building project is common practice. The two freight measure options which scored highest were DSPs and Construction Logistics Plans (CLPs).

8.2.10 As part of London planning policy for large projects, it is a requirement for developers and their contractors to provide a CLP and DSP at outline and detailed planning stages.

8.2.11 The broad nature of CLPs and DSPs means that they are able to include a range of measures within an overarching CLP and DSP framework.

8.2.12 In the case of a CLP, this could include methods such as a delivery booking system, lorry holding point for managing deliveries to site, off-site prefabrication, use of a construction consolidation centre or out-of-hours deliveries. Data could also be captured regarding deliveries and the types of vehicles visiting the site. It could be stipulated that such data be provided to the council, which would further enhance the picture of freight activity within Oxford.

8.2.13 Given that CLPs could be relatively productive with a minimal financial burden on the County and City Councils, it is **advised that CLPs are included as a planning requirement. The threshold could potentially be based on project value, floor space or the number of dwellings in a development.** For example, all construction projects over the value of £1 million would require a CLP. When planning applications are being submitted, the County and City Councils should not be hesitant on stipulating that a CLP is weak and the applicant should reconsider strengthening the methods included in order to meet the City's overall objective of improving air quality.

8.2.14 Although DSPs are previously recommended, it is felt that they should also be a requirement at the planning stage of a new development. At the planning stage DSPs should be produced so that a new development will aim to reduce its freight impact from the very start. Therefore, developers should be encouraged to propose ways that this will be achieved. DSPs should be used as a framework that would incorporate methods that significantly reduce freight traffic; for example the proposal to use a freight consolidation centre or implement a delivery booking system or receive a large proportion of deliveries in low / no emission vehicles could be included. Therefore, it is **advised that DSPs are included as a planning requirement. The threshold could potentially be based on project value, floor space or the number of dwellings in a development.** For example, all construction projects over the value of £1 million would require a DSP.

Actions by the retail and logistics sector

8.2.15 From the review of the 2013 traffic flow data and the 2004 freight survey, it was shown that most deliveries are made in Oxford between 06:00 and 12:00. However, how many of the deliveries need to be made during this period and how many could be moved to a time that is outside these hours? Much could be gained if retailers

and their logistics service providers could be convinced that out-of-hours deliveries would benefit them and their customers. Some stores already use this approach such as Marks and Spencer for its food deliveries.

8.2.16 However, there is substantial scope to move away from traditional morning deliveries, to times when traffic levels and pedestrian activity is lower. This is particularly the case for retailers that are located in shopping centres where access is more secure and methods such as drivers with keys or airlocks can be used.

8.2.17 Incentives for adopting this approach could include the use of larger vehicles for deliveries which could cut costs for delivery operations. A disincentive might be the imposition of restricted vehicle sizes in the city centre for day time deliveries.

8.2.18 Therefore, it is **advised that the potential for greater use of out-of-hours deliveries is explored with retailers and their logistics service providers**, and to encourage this approach where it is practical to do so. It should be noted though, not all delivery operations could accommodate this approach such as overnight parcels or chilled deliveries.

8.2.19 The TNT representative stated at the stakeholder workshop that the company would welcome an opportunity to use electric or cycle based vehicles for deliveries if they could find a facility on the margins of the main shopping area in Oxford. This would permit them to consolidate delivery rounds and remove pollutant emitting vehicles.

8.2.20 The local consolidation point for deliveries / collections concept aims to cater for a few streets in a close proximity. Deliveries are deposited at the centre and then delivered to premises by foot couriers, cycles or electric vehicles. Greater benefits are accrued if more than one delivery company is using the consolidation point.

8.2.21 The ideal systems would involve all parcels carriers working together, but this is considered unlikely, since each has a duty of care to deliver the parcels they handle and they market their own delivery service products. But with an innovate approach such hurdles could be overcome. For example, if the parcels companies were to form a joint venture which required a buy-in (i.e. share the cost) challenges regarding signing for deliveries and collections could be addressed.

8.2.22 To assist and encourage participation the County and City Councils could adopt a firmer approach to the use of diesel / petrol powered vehicles for parcels deliveries. However, it is important to establish the extent to which parcels carriers deliver into the city centre and the use of a ‘diary’ survey as part of developing an area-wide DSP could be a useful tool to identifying this information.

8.2.23 Therefore, it is **advised that the opportunity to introduce a local consolidation point for deliveries / collections is assessed** by way of a survey of city centre businesses and freight activity, and exploratory discussions with parcels companies.

High cost measures

8.2.24 In terms of effectiveness at reducing goods vehicles the introduction of a Freight Consolidation Centre (FCC) is assessed as being the

most suited measure. There are now a number of these facilities being used in Britain and it has been demonstrated that they can reduce the presence of delivery vehicles by at least 50% and up to 85% in the target area. FCCs can be used for consolidating retail and business deliveries including organisations such as local authorities and universities or materials going to construction sites. In the case of the latter they can also be used for retrieving and recycling construction site waste, pallet management and accommodating other value added activity such as pre-assembly or pre-fabrication.

8.2.25 The biggest challenge to introducing this type of measure is the set up cost and on-going funding. As noted in the chapter on FCCs funding could potentially be through:

- A fully tendered basis whereby the Local Authority pays a fixed fee for the operation of the FCC.
- A shared risk agreement between Local Authority and FCC provider with the Local Authority underwriting an agreed fixed cost for the operation of the consolidation centre.
- A purely commercial contract basis whereby the operator derives all revenue from participant retailers.

8.2.26 This study also proposes that another approach could be the creation of a Not-For-Profit Organisation that would undertake the operation of the FCC. It could be argued that the FCC is set up to provide a social benefit in that it aims to reduce the number of goods vehicles in a target area, it is serving the wider community by improving air quality.

8.2.27 To be self-supporting an FCC requires a critical mass of users, which means encouraging retailers and other businesses to use the facility where they might incur an additional cost for doing so; this is a difficult concept to sell unless the user can attribute a direct financial benefit from using the facility.

8.2.28 At present most FCCs are run on the principle that users volunteer to use the facility. Only those run by Heathrow Airport Holdings Limited are compulsory for the businesses that have outlets in the airport terminals.

8.2.29 To assess the viability of an FCC would require a full feasibility study to examine optimal locations, potential utilisation, funding options and potential operators. It is felt that compulsory use should also be examined and a detailed consultation process undertaken on this aspect. This last approach would clearly be radical and controversial, but could potentially provide the critical mass that would make the FCC self-supporting.

8.2.30 The lessons learnt through this study would also be valid for a Construction Consolidation Centre (CCC) given that the principle is identical.

8.2.31 **Therefore, it is advised that consideration is given to undertaking a feasibility study examining the potential introduction and future use of a FCC / CCC for retail and business deliveries or construction materials within the context of the other measures considered in this report.**

9 Phase 2 Methodology

9.1 Introduction

9.1.1 This chapter of the report presents an outline methodology for Phase 2 of the Oxford Freight Options Study for consideration by the stakeholders. The methodology proposes to divide the next stage of the project into:

- **Phase 2a:** basic data collection and analysis; and
- **Phase 2b:** a decision making process and implementation plan

9.2 Phase 2a: Data Collection and Analysis

9.2.1 It is believed that Phase 2 should start with data collection. It was acknowledged during Phase 1 that there was a lack of delivery and servicing data available to help make more fully informed decisions. Therefore, the following data collection and analysis tasks have been identified. The data collection and analysis exercise should also be viewed as the first step in the process of completing a DSP programme.

Task 1: Develop Data Collection Methodology

9.2.2 It will be necessary to define a common methodology for data collection which can take place across a variety of organisations, potentially using different collections techniques (self-completion and interview completion) and allows for homogenous delivery and servicing data to be collected.

9.2.3 The output from this task will be data collection survey forms and spreadsheets for data input and analysis.

Task 2: Undertake Data Collection

9.2.4 Data collection would then take place among participating organisations and businesses. The participants would need to be agreed in due course, but it is recommended that the following organisations and businesses undertake data collection:

- Oxford City Council
- Oxfordshire County Council
- Oxford University
- Oxford Brookes University
- Oxford NHS
- Oxford Covered Market
- Selected businesses and retailers

9.2.5 It is likely that the majority of the participants could undertake self-completion data collection through use of a delivery and servicing ‘diary’ survey for a week.

9.2.6 For some participants self-completion will not always be possible, most likely certain businesses and retailers. Therefore, it may be necessary to undertake some telephone or face-to-face interviews so as to achieve a full and comprehensive dataset.

Task 3: Data Analysis

9.2.7 Once collected the data would be analysed using a bespoke set of spreadsheets. Data analysis would allow the project team to understand the 'who, what, when, where and how' of delivery and servicing activity in Oxford for the participating organisations and businesses. This would be analysed on an individual basis and also aggregated to provide a central database of delivery / collection and servicing activity by organisation and area. Synergies between organisations can also be identified.

Task 4: Present the findings and next steps

9.2.8 The findings from the data analysis can be presented to participants in a non-technical user friendly way. This would allow participants to understand their own current situation and the wider collective position. Participants might also begin to identify where improvements could be made in the way they order and receive goods, collections and services.

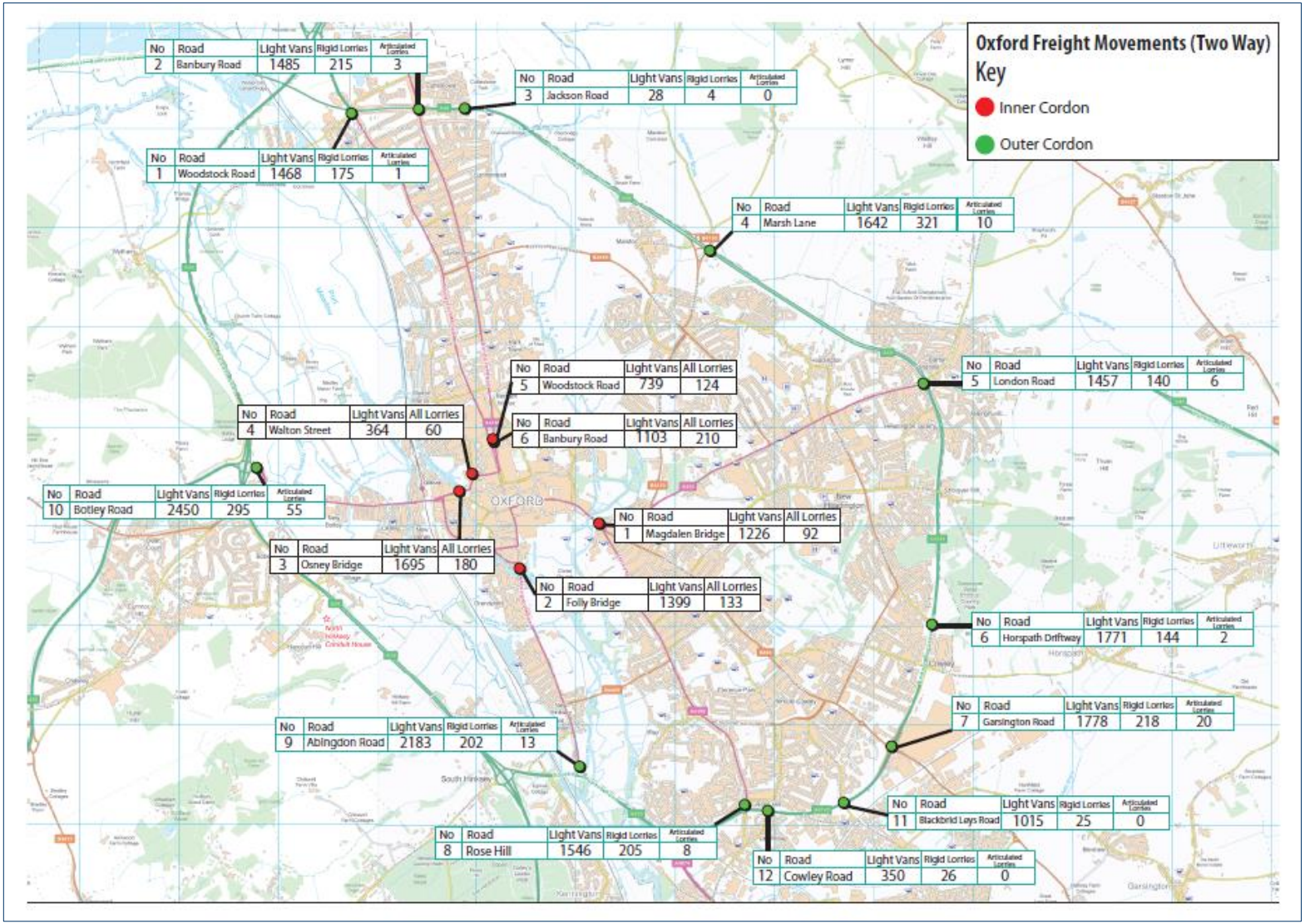
9.2.9 As a result of the findings, recommendations can be put forward for discussion and future implementation, which would then be considered in more detail in Phase 2b.

9.3 Phase 2b: Decision making and implementation

9.3.1 The exact methodology for Phase 2b would depend on the outcome of Phase 2a. However, it is anticipated that a number of freight measures will be considered appropriate for implementation and Phase 2b will focus on developing implementation plans. This could involve for example:

- Completing DSPs for organisations and business focusing on elements such as procurement policy and on-site delivery management
- Producing a technical specification and undertaking a procurement process for an FCC or local consolidation point / delivery scheme
- Working with local organisations / businesses and suppliers / logistics companies to switch to out-of-hours or night time deliveries
- Working with the County and City Councils to roll out Click and Collect lockers at P&R sites
- Considering the value and possible timescales of a range of freight consolidation opportunities
- Working with the County and City Councils to embed DSPs and CLPs in to the planning process

Appendix A Map showing number of commercial vehicles crossing outer and inner cordons


Oxford Freight Movements (Two Way)
Key
Inner Cordon
Outer Cordon
No | Road | Light Vans | Rigid Lorries | Articulated Lorries
2 | Banbury Road | 1485 | 215 | 3
3 | Jackson Road | 28 | 4 | 0
1 | Woodstock Road | 1468 | 175 | 1
4 | Marsh Lane | 1642 | 321 | 10
5 | Woodstock Road | 739 | 124
5 | London Road | 1457 | 140 | 6
4 | Walton Street | 364 | 60
6 | Banbury Road | 1103 | 210
10 | Botley Road | 2450 | 295 | 55
1 | Magdalen Bridge | 1226 | 92
3 | Osney Bridge | 1695 | 180
2 | Folly Bridge | 1399 | 133
6 | Horspath Driftway | 1771 | 144 | 2
7 | Garsington Road | 1778 | 218 | 20
9 | Abingdon Road | 2183 | 202 | 13
11 | Blackbird Leys Road | 1015 | 25 | 0
8 | Rose Hill | 1546 | 205 | 8
12 | Cowley Road | 350 | 26 | 0

Appendix B Organisations represented at the Stakeholder Workshop

Attended

- Road Haulage Association
- Covered Market (Oxford City Council)
- City Centre Manager (Oxford City Council)
- Oxford University (Estates Services)
- Oxford University (Purchasing)
- Land Securities (Westgate Shopping Centre)
- TNT Express
- Oxford Marks and Spencer
- OCC: Corporate Facilities and Property Partnership manager
- OCC: Central Area Facilities Manager
- Pembroke College, University of Oxford
- The Logistics Business Ltd (on behalf of British Council of Shopping) Centres
- Oxford City Council Facilities Management
- Oxford University (Environmental Sustainability)
- Oxfordshire CC (Environment and Economy)
- Oxford CC (Environmental Development)

Invited but able to attended

- Oxford Brookes University
- Clipper Group
- Freight Transport Association
- Oxford University Hospital Trust
- Clarendon Centre
- Unipart group
- Debenhams

Appendix C Bristol and Bath Freight Consolidation Centre Participants

No	Business	Location
1.	AAH	Bristol
2.	Bestways	Bristol
3.	Bloomsbury	Quakers Friar
4.	Brakes	Bristol
5.	Bunzl	Bristol
6.	Carphone Warehouse	Broadmead
7.	Carphone Warehouse	Broadmead
8.	Carphone Warehouse	Broadmead
9.	Carphone Warehouse	Non Broadmead
10.	Carphone Warehouse	Non Broadmead
11.	Carphone Warehouse	Non Broadmead
12.	Carphone Warehouse	Non Broadmead
13.	Carphone Warehouse	Non Broadmead
14.	Carphone Warehouse	Cabot Circus
15.	Coast - (HoF)	H of F - The Cabot Centre
16.	Coast (Debs)	Debenhams - Broadmead
17.	Cult	Cabot Circus
18.	Dulay	Broadmead
19.	DW Holly	Bristol
20.	Dwell	Cabot Circus
21.	Fred Perry	Quakers Friar
22.	Ghost	Quakers Friar
23.	Karen Millen - Queens Road	Non Broadmead
24.	Lush	bath
25.	Lush	Broadmead
26.	Mastershoe (Park St)	Non Broadmead
27.	Matthew Clarke	Bristol
28.	Oasis	H of F - The Cabot Centre
29.	Oasis - Cabot Circus	Cabot Circus
30.	Oneida	H of F - The Cabot Centre
31.	P&H	Bristol
32.	P&H Ceva	Bristol
33.	Ra Ra Ra	Non Broadmead
34.	Sheridan (Debenhams)	Debenhams - Broadmead
35.	Sony	Cabot Circus
36.	Swarovski	H of F - The Cabot Centre
37.	Swarovski	Cabot Circus
38.	The Body Shop	Cabot Circus
39.	The Body Shop - Broadmead	Broadmead
40.	The Body Shop -Queens Road	Non Broadmead
41.	Thorntons - Clifton	Non Broadmead
42.	Thorntons - Henleaze	Non Broadmead
43.	Thorntons (Broadmead)	Broadmead
44.	Thorntons (The Arcade)	Broadmead
45.	Thorntons (The Galleries)	Broadmead

46.	Thoughts Cards (Cabot Centre)	Cabot Circus
47.	Thoughts Cards (Cribbs Causeway)	Non Broadmead
48.	Warehouse	Broadmead
49.	Warehouse	H of F - The Cabot Centre
50.	Waverly	Bristol
51.	Wholesaler	Unknown
52.	Wholesaler	Unknown
53.	Wholesaler	Unknown
54.	Wholesaler	Unknown
55.	Wholesaler	Unknown
56.	Bath Spa University	Bath
57.	Bath Rugby Club	Bath

It should be noted that the scheme operator was not able to provide the latest version of the participants list as it was considered sensitive information by the client. The list above is based on previous knowledge with some up to date input from the scheme operator.