SOUTHAMPTON SUSTAINABLE DISTRIBUTION CENTRE VIABILITY STUDY

FINAL REPORT

Prepared for

SOUTHAMPTON CITY COUNCIL ®

by

Mott MacDonald

and

ttr® Transport & Travel Research Ltd.

November 2012

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Version	1.0
Date	November 2012
Last edited	16/11/12

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Executive Summary

Southampton City Council has secured funding through the Local Sustainable Transport Fund (LSTF) to invest in local sustainable freight measures to improve local economic efficiency and contribute to a lower carbon economy. The core freight measure proposed is that of a Sustainable Distribution Centre (SDC).

The concept of an SDC is to combine the functions of a Freight Consolidation Centre (FCC) normally used for a purely retail market and extend to the public sector along with other related services such as medium/long term storage with just-in-time deliveries. This service would be provided by a private logistics operator who would contract directly with businesses in the City to receive and deliver their 'final mile' deliveries. This saves transport operators from needing to deliver in to the heart of the city and can increase the level of consolidated loads within the urban environment

The subsidy which would be provided by Southampton City Council will provide a 'kick-start' to the service which the private sector on its own would not be able to cover. Once the service is operating it will provide benefits to Southampton through reduced traffic congestion, leading to greater economic efficiency, reduced carbon and air pollutants as well as providing leverage for future sustainable freight measures within the City and South Hampshire region.

This viability study was carried out to meet the objective of collecting information which would inform the development of a delivery model for an SDC to cover the Southampton / South Hampshire area.

The study included a two stage consultation with the business community as part of a broader process of close collaborative working with Southampton City Council, prospective SDC operators, and combined with knowledge from the existing UK freight consolidation centres and previous studies in the definition of a range of uptake scenarios. Ultimately it is those scenarios that have been used to determine the likely ongoing commercial viability of the SDC.

The stakeholder engagement and subsequent modelling carried out by this study shows that the available LSTF grant would be sufficient to cover the necessary subsidy required to meet the likely uptake of a Sustainable Distribution Centre given certain characteristics.

These characteristics include:

- Provision of storage facilities as well as a traditional freight consolidation service. This will help to draw in some of the larger organisations who can provide substantial throughput.
- Inclusion of Southampton City Council (SCC) as a primary user of the service. Ideally the operational element of the service should not begin until SCC are ready to begin using the service (at least in part) to conserve budget. However other aspects of the operation such as marketing and recruitment should begin as soon as an SDC Operator is identified.
- The services should be marketed at retailers, organisations with significant throughput of deliveries, light construction activity and logistics chains delivering into the area
- To be cost effective, the Operator will need to make use of a facility which is shared with other logistics operations and utilise shared warehouse staff, vehicles and infrastructure.

- A nominated individual within the Council to support and promote the concept and liaise with the Operator. The marketing function of the service will be provided by the Operator.
- State aid considerations will need to be factored into the procurement process as will the ability for other public sector organisations to utilise the service through an SCC contract to avoid the need for repeated tendering of service by each organisation (e.g. Eastleigh Borough Council).

1. Introduction

This viability study has been commissioned by Southampton City Council and delivered by Mott MacDonald working in partnership with Transport & Travel Research Ltd (TTR).

The objective of the Study has been to collect information that will inform the development of a delivery model for a self-sustaining Sustainable Distribution Centre (SDC) to cover the Southampton / South Hampshire area. The concept of an SDC is to combine the functions of a Freight Consolidation Centre[1] (FCC) normally used for a purely retail and office target market and extend to the public sector along with other related services such as medium/long term storage.

The project required the combination of a bespoke methodology combined with an in-depth understanding of existing and previous experiences around the scoping, establishment and operation of freight consolidation centres and similar facilities.

The study included a two stage consultation with the business community as part of a broader process of close collaborative working with Southampton City Council, prospective SDC operators, and combined with knowledge from the existing UK freight consolidation centres and previous studies in the definition of a range of uptake scenarios. Ultimately it is those scenarios that have been used to determine the conclusions of this study on the likely ongoing commercial viability of a self-sustaining SDC.

This study provides pessimistic, realistic and optimistic assessments of the commercial viability of the SDC, which are based on a combination of market size, operational, cost and uptake scenarios. This is accompanied by a costed risk appraisal.

The study made significant use of a freight consolidation centre model which was developed for use on a Department for Transport (DfT) research project in 2010. At that time the model inputs were verified by logistics experts from Wincanton, DHL, CSB Logistics, P.F. Whitehead Ltd and Clipper Logistics with an overall review by a Freight Transport Economist at the DfT.

The purpose of the Study has been to optimise the chances of success in realising the benefits that are anticipated from the introduction of the SDC and associated services. The primary benefit is anticipated to be the reduction in freight trips generated from within the population of participating businesses and greater local economic efficiency.

This report is structured around five main sections:

- The background to freight consolidation in the UK and how this relates to Southampton
- The methodology used by the study
- The findings of the viability study from the stakeholder engagement and modelling
- A summary of the findings and recommendations to Southampton City Council
- Identified risks and recommended mitigation measures

[1] As Section 3 describes, an FCC is a distribution centre, situated close to a town centre or other destination, at which part loads are consolidated and from which a lower number of consolidated loads are delivered to the target area.

2. Background on UK Freight Consolidation

This section provides a background on the existing experience within the UK of the adoption of freight consolidation techniques in general and Freight Consolidation Centres for cities. This provides context for the success factors that would drive a Sustainable Distribution Centre in Southampton.

2.1 Definition

Freight consolidation is a term that is commonly used to describe a number of different types of activity in the distribution chain. In its purest form freight consolidation is defined as:

> *"Grouping individual consignments or part-loads that are destined for the same locality at a consolidation centre so that a smaller number of full loads are transported to their destination."*

By using exactly this principle, individual companies, for example larger retail groups (e.g. supermarkets) and parcel networks, have been successful in reducing distribution costs by consolidating consignments through regional or national distribution centres. This consolidation has tended to focus primarily on minimising the long distance 'trunking' mileage within an individual supply chain and so, depending on the volume of goods destined for any one location, the content of a single full load that leaves the distribution centre may still be destined for a range of locations in neighbouring towns.

In parallel with these consolidated supply chains there are many other distribution journeys made directly from the supplier or manufacturer to the receiver. The result is that there can remain many different freight vehicles serving each location with a wide range of operating regimes.

The general concept of freight consolidation can be taken one step further by adding an additional stage into the various supply chains between the existing dispatch points and a specific group of end recipients such as a town centre, shopping centre or industrial area.

This is effectively a freight consolidation centre (FCC), for which a formal definition might be:

> *"A distribution centre, situated close to a town centre or other destination, at which part loads are consolidated and from which a lower number of consolidated loads are delivered to the target area."*

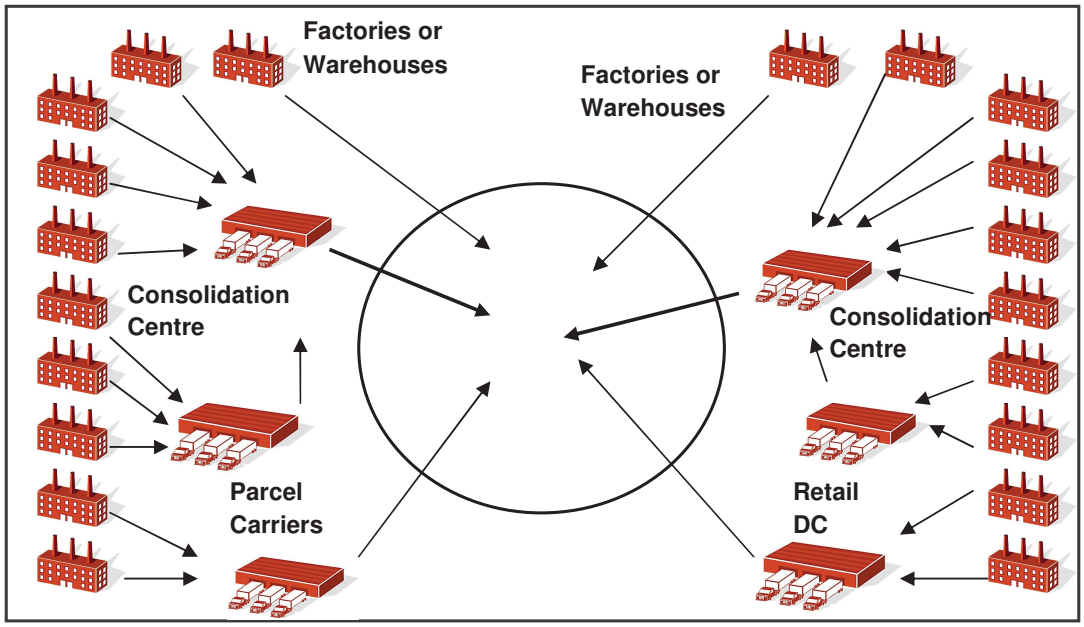


Figure 1 Consolidated Approach to Supply Chains

The term freight consolidation centre is sometimes also applied to distribution centres where all goods destined for a particular location or area are intercepted and transferred to another vehicle for transport to their final destination, irrespective of whether they are already fully loaded for that particular location/area. From a theoretical perspective, terms such as "Urban Distribution Centre (UDC)" or "Freight Transhipment Centre" are more appropriate for this type of facility, because the purpose is not only to consolidate part loads with a view to reducing the number of vehicle trips required, but rather exerting greater control over the type and / or number of freight vehicles in an area.

Between these descriptions of FCCs and UDCs there is also a common interpretation of Freight Consolidation Centres which focuses less on combining loads and reducing vehicles to site and more on smoothing out flows of freight to the final destination whilst offering other value added logistics and retail services to the receivers of the goods. The objective is to reduce the need for stock holding on site as well as reducing the number of vehicles arriving at the same time for deliveries. For this type of operation the resulting reduction in total number of vehicle movements is not necessarily the primary driver, although it is a welcome outcome and the associated increase in vehicle utilisation often helps contribute to the business case of such facilities.

2.2 Existing Situation

On the basis of these definitions it is clear that the principle of freight consolidation is already alive and well in the UK, and on a commercial basis providing certain circumstances exist. Leaving aside the numerous national and regional distribution centres (including pallet and parcel networks parcel hubs), and the construction sector because of its specialist nature, there are effectively three types of freight consolidation centre currently active in the UK:

- those that serve airports, most notably Heathrow, but also much smaller operations at Manchester and East Midlands airports;
- those that serve out of town shopping centres, of which the best known and longest established serves Meadowhall in Sheffield;

- those that serve urban centres and / or town centre shopping malls, including Bristol town centre (with Broadmead / Cabot Circus shopping centre and now extended to Bath town centre), Regent Street and Norwich town centre.

Figure 2 Consolidation Vehicle in Bristol Broadmead livery

In addition to these established UK consolidation centres, many other freight consolidation studies, research initiatives and plans for implementations have been pursued since 2007, including Newcastle, Westminster, South London, Birmingham, Covent Garden, White City Shopping Centre, the Olympic Park, Strathclyde, Perth & Dundee, Edinburgh and Aberdeen. The extent of this list shows the ongoing interest across the UK in the concept and the potential benefits it may bring to the urban environment. To support the growing interest, the Department for Transport commissioned a study in 2010 to draw together existing knowledge on the costs and benefits of freight consolidation centres.

2.3 Existing Knowledge Base

The existing centres and previous studies provides an extensive knowledge base that has been used to address the situation in the Southampton / South Hampshire area without having to repeat some of the basic study work, so allowing the available resource to be focused efficiently on the main objectives of the tender brief.

Much of the previous freight consolidation research has focused on retail deliveries, but more recently there has been a realisation that a more general approach would potentially capture a bigger market and hence present a more sustainable business model. This was emphasised by a study to support the expansion of the freight consolidation centre operating in Regent Street (TfL, 2009). Although Regent Street is often considered primarily as a retail centre, it was found that:

- there are nearly three times as many commercial and non-retail businesses in the area as there are retail outlets;
- the number of delivery vehicle movements to the non-retail businesses was twice that to the retail sector, and;
- the number of delivery vehicle movements to the hospitality sector was 50% greater than to the retail sector.

This opportunity to consider a wider range of potential receivers of goods should be taken into account when formulating the business and action plans for sustainable distribution because it provides a potentially significant market.

Although the existing consolidation centres are similar in general terms, in practice there is a wide range of operational differences between the sites. These differences include:

- the proximity of the consolidation centre relative to the target area that it serves, ranging from walking distance at Meadowhall to 11 miles in the case of Norwich;
- the extent of added value services that are offered (recycling, preparation for sale, customer collection services etc.);

- the degree of compulsion exerted on participants; they are generally voluntary, although Heathrow has been made mandatory as part of its lease requirements by BAA;
- the extent to which there has been start-up financial support and continues to be ongoing operational subsidy;
- the extent to which the operation of the freight consolidation centre is integrated into an existing or parallel distribution operation which makes use of the same premises and vehicles – an option which helps to dramatically reduce the operating costs

The use of existing facilities to reduce overhead costs was shown to be vitally important to the business case as part of the research carried out for the DfT in 2010. In that research a range of scenarios were considered against a baseline of direct deliveries to store. The scenarios were:

- Deliveries via a dedicated FCC with compulsory participation (e.g. Heathrow)
- Deliveries via a dedicated FCC through voluntary participation
- Deliveries via a shared-use FCC with compulsory participation
- Deliveries via a shared-use FCC through voluntary participation (e.g. Regent Street, Norwich)

Cost modelling suggested that the set-up and operating costs of a ***purpose-built*** consolidation centre would be difficult to recover from a combination of user charges and the broader socio-economic impact value even if use of the centre were made compulsory in some way, and were certainly out of the question for a voluntary scheme. However, coverage of the set-up and operating costs of a ***shared-use*** consolidation centre were much more achievable, even for a voluntary scheme if a reasonable level of participation could be achieved through an appropriate package of support measures. The extent to which voluntary participation can be achieved becomes a key element of success, not only in terms of broader impact, but also to the implementation of the business model.

The use of consolidation centres is complementary to a range of other logistics measures and is best deployed as part of a wider strategy to reduce the impact of logistics on the urban environment. These include:

- Reduced vehicle movements in key constrained areas and at peak times
- Lower emissions, improved air quality, less noise (both from reduced numbers of vehicles and the opportunity to link to clean vehicle initiatives so supporting the London LEZ)
- Improved safety, i.e. fewer collisions, injuries (KSIs), reduced threat and intrusion
- Disconnection of local and national distribution activities, allowing a focus on optimising each separately (e.g. night trunking)

Figure 3 Example of how Constrained Delivery Conditions can Cause Problems

- Can be used to support area wide delivery and servicing plans
- Improved transport and business efficiency
- Improved destination security (e.g. fewer vehicles accessing shopping centres)

Freight consolidation centres are not suitable for every town and city; they need to serve a large enough number of outlets to ensure a level of throughput which is economically viable (fixed costs are

spread over a larger number of consolidated deliveries) and are typically better suited to specific environments - typically busy area where access can be difficult (e.g. historic city road layouts) with associated congestion, air quality issues, conflict in shared road space and difficulty in provision of adequate loading space as these all provide drivers for participation.

2.4 Drivers for Participation

Participation in the majority of UK freight consolidation schemes (with the notable exception of Heathrow) has been entirely voluntary, and has required a combination of triggers to drive participation as well as significant marketing and recruitment effort on a case by case basis taking into account the nature of each individual supply chain in order to identify the potential for savings. Best results have been achieved when marketing and recruitment effort has been conducted by the scheme's operator (even when it is nominally a local authority scheme), because it is the operator who is best placed to explain the direct costs, benefits and operational workings of the scheme to each potential participant. This is important as a way of generating a strong partnership between the operator of the consolidation centre and their potential clients.

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. It is not widely acknowledged, but the two best known UK freight consolidation centres (Heathrow and Bristol) were set up in no small part as a direct consequence of severe local congestion that was preventing businesses receiving deliveries to the point where their ongoing ability to function was in question. In such circumstances it is much easier to derive a business case for a consolidation centre than merely a general desire to 'do things better'.

In contrast to Bristol, where a peak figure of around 70 participating retailers was achieved, the urban freight consolidation centre that was set up to serve Norwich in 2007 has been notably unsuccessful in attracting retailers to participate. This appears to be for a number of contributing reasons, including:

i. Delivery restrictions that, although limiting deliveries to particular times (largely before 10 am and after 6:30 pm) are not causing significant constraints in terms of scheduling deliveries within individual retail supply chains.
ii. An urban traffic system that is not unusually difficult in its local layout or with tight weight restrictions.
iii. A lack of enforcement of the existing restrictions which mean that moving traffic contraventions to access particular stores legally were likely to go unpunished.
iv. A lack of profile within the retail sector for the local service provider contracted to provide the service on behalf of the local authority.

In the absence of compulsion, severe routine supply chain difficulties, or access restrictions that make it difficult not to participate, the balance of priorities between stakeholders becomes a fundamental issue that needs to be understood when setting up a consolidation centre, initially through strategic consultation and then subsequently in the context of the supply chain of each potential participant.

The alternative is that the business case for voluntary use of the freight consolidation centre is so compelling that businesses find it easy to do so. Possibly the best example of this is the centre associated with the Meadowhall Shopping Centre. The service model associated with this appears to be one of providing the maximum service offer to potential clients. In some ways, the approach to this is more akin to an off-site stockholding and retail service centre. Even though this centre is located

very close of the shopping centre, so minimising the opportunity to reduce goods vehicle miles, 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. It is interesting to note that the operator of this centre (Clipper Logistics) states that it pays for itself – i.e. does not require an operating subsidy – which appears to set it apart from the other well-established consolidation centres.

This previous experience will be fed into the outline service definition for the Southampton SDC, learning from the experience of others in order to reduce the operational costs and shorten the time required for such a service to become self sustaining.

2.5 Strategic Partners & the Business Case

Three groups of stakeholders have the primary interest in the set up and operation of a freight consolidation centre:

- The shippers and receivers of the goods (which may be the same organisation or many different companies depending on the nature of the supply chain)
- The transporters of the goods (which may be the same organisation as the shipper or receiver, or the provider of a contracted service)
- The local authority

Although there are certain levels of overlap in their interests, they are not guaranteed to overlap sufficiently to agree on freight consolidation as the optimal solution, depending on local considerations. As an example, the success of the scheme in Bristol originated from the fact that although the different project partners had different primary objectives for the Freight Consolidation Scheme their objectives proved to be sufficiently complementary to result in a partnership that was able to drive the scheme forward. Sitting behind this was the key fact that the Bristol Broadmead shopping centre had severe delivery access and capacity problems that were leading to congestion and lack of goods availability for retailers – there was a problem in the view of all stakeholders that needed to be fixed.

Creating a mutually acceptable business case is key, both in terms of the financial viability of the consolidation centre and for the recruitment of participating businesses who need a service that has at worst a net zero-cost implication – in practice they are likely to need a net cost reduction and a guarantee of no negative impacts on service levels in order to make it worth their while in changing their arrangements.

Although there is a strong logic to the applicability of a mutually beneficial business case through savings on upstream transport costs and improved efficiency at the store levels through improved staff scheduling and reallocation of stock holding space to sales area, experience has shown that there can be strong resistance to applying the concept. This appears to result from a variety of perceived barriers including:

- Control: the fear of loss of control of stock has been found to be a strong determining factor in the mind of those involved in retail supply chains. This aligns to a reluctance to adopt a different, ‘non-standard’ approach to distribution to one store as opposed to the other stores in a chain.
- Cost: there is a perception that freight consolidation is inherently expensive. (This may have been the case when the concept was new and the focus was on dedicated facilities and

vehicles, but the move to shared operations and a focus on minimising additional costs has substantially addressed this issue.)

- Identification of true logistics costs is not always easy, particularly as it appears to be common practice to use a single cost per mile to assess transport costs which overestimates the cost for long distance trunking operations and underestimates the much higher cost of low speed 'last mile' urban logistics.
- Commercial sensitivities mean that there is sometimes a reluctance to reveal the transport cost element within the overall price of an 'as delivered' consignment, potentially because there is margin applied to the transport element as well as to the goods.
- Because of the cost centre approach to accounting within large organisations, although it is possible to identify a net zero cost within an organisation, the use of a consolidation centre is often viewed as an additional cost to the store budget which is not fully offset at store level and any savings in distribution costs (if identified) are accrued against a different bottom line.

It must be remembered that people are inherently resistant to change and this effect cannot be underestimated.

As part of this process the benefits are not always obvious or easily quantifiable to those on the potential client side. For example, the implications of giving the store additional control over the way it calls in stock from the consolidation centre, rather than receiving deliveries direct from a central warehouse, is hard to estimate (and difficult to incorporate within the rigid structures of a large business) without actually trialling the system. Similarly, conversion of existing stock rooms to additional retail space might require an initial one-off investment in order to realise the potential of the off-site stock-holding potential, or might be the responsibility of the landlord rather than the tenant.

As a starting point there is a particular sector of the retail market that could benefit from using freight consolidation. This sector could be described as 'mid-tier' retailers with a large enough throughput to warrant a form of regional or national distribution structure, but with a throughput for individual stores that is not large enough to fill a single goods vehicle for an individual store or a particular town or tightly defined location. (Larger businesses that have a more developed distribution infrastructure and deliver full loads are generally more resistant to external consolidation. Smaller businesses tend to be much more dependent upon the transport arrangements of their suppliers. As such they present an opportunity, but this may take more effort relative to reward as you are asking them to become much more involved in the area of upstream logistics than is currently the case and they may worry that they will be distracted from what they see as core business.) Following up businesses from this sector of the retail market and also other types of organisation[2] would be a key element of the implementation of the business case.

2.6 Service Parameters

The location and combination of services provided needs to provide its clients, i.e. the recipients of the goods and their suppliers, with the level of service they require. As an example, at Meadowhall this requires the centre to be located within walking distance of the shopping centre so that, if necessary, participating retailers' staff can access the location where stock is held. The proximity to the customer car park also allows for customer collections at an easy location. In contrast, the

[2] Public sector organisations including colleges, universities and hospitals are often cited in this context as well as commercial offices

Regent Street consolidation centre is located at an existing Clipper facility close to the M25, so allowing trunking vehicles from outside London to minimise the distance they travel on the congested (and expensive) roads within Greater London.

A detailed assessment of the location that balances the benefits of being close to the delivery location, versus removal of traffic from the urban area and land use / transport assessment would be important in determining the location. This then affects other issues such as the frequency of deliveries and the capacity of individual vehicles, which depend upon the length of each delivery journey.

The use of existing facilities to minimise overhead costs will probably be a significant determining factor providing it meets minimum conditions in terms of a location that is accessible both to the strategic road network and the final customer base. In such circumstances the space and facilities available at the chosen location may be what actually determines the services that can be offered.

3. Study Methodology

3.1 Introduction

The study approach has been based on the project team's previous experience in this area and made extensive use of an empirical model developed for the Department for Transport Freight Consolidation Centre Study (2010) of the interrelationships between demand, operational characteristics, costs and impacts of a freight consolidation centre.

The model is formed of a series of linked spreadsheets, where key variables are either inputted or calculated and then passed between the spreadsheets to mimic the many interrelationships within the urban supply chain. The model outputs have been validated in the past against operational and anonymous commercial information from DHL, Clipper Logistics, Wincanton, P.F. Whitehead Ltd CSB Logistics and the London Construction Consolidation Centre.

Use of the model was complemented by a structured and phased approach to stakeholder consultation and market analysis that took into account the pitfalls encountered and lessons learned from previous engagement with businesses when there was no firm proposition in place. This provided key information that was either input directly into the model, or was used to place best-, most likely- and worst-case bounds on certain input variables, particularly cost and participation rates which determined the required costed uptake scenarios.

3.2 Detailed Task Structure

Task 1.1: Scoping

It was important to begin by establishing the key boundaries that would help to formulate the scope, scale and approach to the remaining tasks in an efficient way. These were:

1. Review the 5 objectives for the SDC and determine which (if any) are of highest priority. For example, objective iii[3] has a strong city centre focus which would make location relatively close to the city centre a feasible option, whereas objectives ii[4] and iv[5] would be more easily met if the SDC were located further from the city centre.

2. Examine existing information to understand the extent and location of the traffic constrained sites mentioned in the brief and the degree of the problems (if any) that this causes to the organisations that take deliveries affected by this congestion. The extent and, more importantly, acknowledgement of such problems, and the realisation / acceptance that there may be a workable alternative is a key opportunity and potential driver to participation (as evidenced by the origins of the Bristol and Heathrow schemes).

3. Discussion with Southampton City Council (SCC) about the extent to which they are able and willing to implement actions that would support both the implementation and uptake of the SDC services. This could cover 4 potential areas, all of which have previously been

[3] iii. Reduce (the rate of growth of) the number of delivery vehicles coming in and out of the city/district centre(s)
[4] ii. Reduce peak time congestion on the strategic road network
[5] iv. To reduce (the rate of growth of) the city/districts carbon footprint

considered or actually proposed by other local authorities in support of freight consolidation schemes:

a) Restrictions to access times, weights or vehicle types (e.g. a simple version of an LEZ that restricts city centre access to electric delivery vehicles) and associated enforcement;
b) Resources: In setting up their new consolidation centre in 2011, Newcastle City Council have co-operated with Clipper Logistics to take the concept of a shared centre to another level, by providing spare space and some manpower in one of their own depot buildings.
c) Procurement: the brief mentions the potential for common procurement across public institutions. The order and timing of this could be important in respect of state aid rules - this is explained in Task 2, but makes it important to establish at the outset if there are any relevant contracts ready to be included in the initial SDC operational tender brief;
d) Specific incentives: when considering incentivising the use of an SDC or equivalent, other authorities have proposed specific incentives such as preferential access to loading facilities for SDC vehicles or even temporary / semi-permanent discounts to business rates.

4. Initial outline discussions with established and potential local service providers (DHL, Clipper Logistics and Meachers among others) regarding their specific interests, the local potential within their existing property portfolio for shared site operation, and their willingness to co-operate in a possible shared implementation with SCC, assuming option b) above is considered viable.

Task 1.2: Outline SDC Definition

The results from task 1.1, together with our existing knowledge and experience will allow several possible operating models to be ruled out, though still leaving a 'long list' of possible options for the operating model to be considered in more detail.

Task 1.2 will outline the long list, which will be built from a combination of factors such as:

- Dedicated vs shared facility
- Dedicated vs shared vehicles
- Dedicated vs shared workforce
- Sectors to be included: retail / office / construction / service (inc. food & hospitality) / other specialist
- Nature of services to be offered (stock holding, quality checking & pre-retail, waste management, home delivery hub, long term storage[6] etc.)
- Extent to which clean (electric) vehicles can be prioritised
- Support that can be achieved through public procurement
- Basic location choice (PLACE) i.e. close to city centre vs edge of agglomeration
- Degree of IT sophistication
- Extent of marketing and recruitment by the promoter (SCC) and the contracted SDC operator (the PROMOTION package)

[6] Long term storage is at odds with a traditional consolidation model which tries to make best use of available space by maximising throughput per m^2; however, inclusion of specialist sectors may make this an appropriate additional service, so differentiating the SDC from the conventional operation of a freight consolidation centre and emphasising that each facility is unique and must respond to local market needs. Using an existing site with available capacity would be expected to facilitate the potential for long-term storage.

- Whether the operator takes a flat fee for operating the scheme or whether an incentive is built into the contract with SCC based on their success in recruiting participants

Once this long list has been produced it will be discussed in depth with the client to ensure that it is on track with their expectations and gives the breadth of potential options that they envisage for wider consideration.

Considerations for the location of the SDC (PLACE):

- The location should minimise the diversion off the main supply routes into the area being served: i.e. by intercepting goods on or close to their existing routes so offering optimum routeing solutions;
- The possibility of linking in with alternative modes to offer maximum possibility of full supply chain efficiency;
- The location of existing facilities which could potentially offer an existing platform for a consolidation centre to share unused warehouse / vehicle utilisation and fixed costs
- The degree to which the local road network is congested (and any other geographic linked factors such as areas of poor air quality or traffic restrictions), which will determine where the benefits from curtailing trunking journeys might be maximised;
- Land use designations which might determine the location of potential new sites;
- The ability to receive goods 24/7, which could help decouple trunking and local delivery journeys, also implies a location in a suitably designated area reducing the possibility of disturbance in residential areas.

Task 1.3: Strategic Consultation

The next step was to take the long list of options to a pre-defined group of stakeholders for in depth discussion, either in one-to-one interviews or workshop discussions. The list of stakeholders was agreed with the client as part of the finalisation of task 1.1. As the possibility of introducing some form of consolidation centre / SDC in the Southampton area has been under consideration for several years many organisations that are engaged in local policy development will have at least heard of the concept.

The basis for the strategic consultation would be structured around a presentation covering:

- **Background** – perception of local problems and consolidation experience elsewhere
- **Objectives** – why SCC is investigating setting up an SDC
- **Expected outcomes** – of the strategic consultation in the context of the wider process
- **Opportunities** – the range of possible services that could be offered and how it fits into individual business models, the wider local economy / supply chains
- **Barriers** – open discussion covering key issues such as costs and supply chain control and decision making processes
- **Next steps** – emphasise the desire to consult more widely to test the market

To be effective the strategic consultation was designed to be truly open and interactive. In this way it highlights additional information required about, and initial reaction to, the various options on the table from key members of the local business community and other strategic organisations that could underpin the SDC. It also helped to give a good indication of the potential support, or otherwise, of

these key organisations for the SDC concept and the various implementation options and the likely influence that they will exert on their members and the wider business community. To provide examples of why securing buy-in at this stage is important:

- At the inception of the Bristol freight consolidation centre in 2003, the centre manager of what was then Broadmead (now Cabot Circus) shopping centre was an integral part of the core project team because of the problems that his tenants were having in receiving deliveries and the fact that he had no other alternative due to constraints on the design of and highway access to the centre's loading bays.

- At Heathrow BAA has full control over the delivery arrangements of all businesses based in the airport and has, over time, specified use of the consolidation centre in the leases of all tenants on a compulsory basis.

Given the timing of the Study beginning over the summer and the potential importance of the throughput that could be generated by a relatively small number of large organisation great emphasis was placed on the strategic consultation. Full consultation work in the form of workshops began in September, but preparations in the form of initial one-to-one contacts and the issue of briefing notes covering the sort of things that TTR wished to cover (see above bullet points) were issued in late July and through August so that those approached had the opportunity to be well prepared when the full strategic consultation began.

Task 1.4: Initial Definition of Operating Model and Uptake Scenarios

As a result of the work conducted in task 1.3 a further refinement of the long list of options for the operating model was made. Again, this was done in full consultation with the client at SCC.

In order to have sufficient information about the remaining options for the wider market testing phase to be meaningful, initial modelling of selected options needed to be conducted at this stage. This was done in conjunction with the development of outline uptake scenarios, which required:

- Consideration of how best to deploy the potential LSTF support funds, so that a range of PRICING options could be considered and refined for inclusion in the subsequent market testing phase.
- Definition of the overall market - number, type and size of target businesses in the city centre and the wider region.
- Bounds on the proportion in each market sector that might be expected to participate linked to the location and services offered in each option.

A key consideration in the above is the way in which the LSTF funds could be used, for example:

- on the supply side, by covering the costs of specific aspects of the operation, for example costs associated with the marketing and recruitment and / or the vehicles, leaving part or all of the actual distribution costs to be borne by the customers
- or the demand side, by providing a fixed term discounted or even free period to customers irrespective of the way in which the actual cost base is structured.

This was approached with no preconceptions at this stage; both options have been proposed previously – the most appropriate way to do this in Southampton would become clear from the discussions with the potential service providers and customers.

There is potential for the bounds placed on participation at this stage to be relatively broad, which could be used to provide a broad spectrum of options and costs for the market testing phase. This is easy to justify from previous experience, because in Norwich participation rates were close to 0%, whereas at Heathrow where participation is now compulsory the rate is by definition 100%. The nature of the exact bounds was to be determined by local feedback. A comparable example might be based around a study conducted for Birmingham City Council which suggested the most likely uptake rate to be around 10%.

No more than 3 options for the operational model, each with 3 uptake scenarios, was considered - any more than this would have wasted resource. The information from this analysis was then used in the market testing phase by ensuring that information relating to price is within the bounds suggested by the model, taking into account service, location and use of the LSTF funding.

Task 1.5: Wider Market Testing

Based on previous experience TTR decided that the wider market testing exercise should focus primarily on the PRODUCT and PRICE aspects (which are the issues used by potential customers to formulate their response, linked to the impacts on their business), although PLACE is to some extent linked to some aspects of the product, for example easy staff access to goods in a nearby off-site stock room.

TTR did not think that an extensive survey of current delivery movements from every potential participant is of value at this stage:

- partly because transferable data exists from other locations for mainstream businesses as an integral part of the existing operational model,
- and partly because getting good quality, useful delivery data through a survey can result in an extensive and complicated questionnaire that is both off-putting to the respondent and distracts from the higher level questions required to gauge the likely opportunity for participation and its extent.

The exception to this would be for specialist sectors where the throughput and services would need additional exploration, such as cruise ships and ferries.

The vast majority of the respondents approached at this stage had not previously come across the opportunities offered by an SDC, even if others in their company are already participating in this type of initiative elsewhere in the country. Because of this it was essential that the information presented is clear and relevant to them. This may required a simple segmentation of the market and the production of tailored material that distinguished between retailers and offices.

Previous experience of this type of exercise suggests that sending out general questionnaires by post, e-mail or drop and collect type methods gives relatively low response rates – Atkins achieved just 9% out of 306 businesses approached in Birmingham. In contrast, working jointly with JMP in Perth TTR achieved a 50% success rate using face-to-face and telephone surveys and working on our own achieved similar response rates in London (55% in Covent Garden and 46% in South London). The target for the Southampton market testing was fifty responses, with sixty-nine achieved.

The key to success in the Southampton area was to get introductions to individual businesses via the key strategic stakeholders involved in task 1.3. Hammersons, Marlands, the Chamber of Commerce, and Business Solent were all useful in opening doors to potential respondents. Following on from this TTR conducted the consultation using a mix of:

- Face-to-face interviews at pre-arranged times
- Drop-in face-to-face interviews
- Telephone interviews

The format was informal, with short, in-depth discussions focusing on the key issues, including:

- The extent of any delivery problems being faced, if any
- Description of existing delivery and materials / goods / equipment storage arrangements
- Any problems with current delivery / storage arrangements
- Details of the existing control structure for delivery & storage (i.e. site / head office / in house distribution / external distribution, or a mix of these)
- Discussion of the potential benefits of the different services that the SDC could offer and the potential relevance to the organisation.
- Changes that would need to be made to their existing business practices and how these could be used to release existing costs to offset the cost of participation.
- Approaches to the provision of financial incentives for participation (initial discount periods funded by LSTF and longer term incentives)

As identified in the above list, the wider market testing is the stage where TTR gauged the degree of interest in the range of added value services that could be offered by the SDC (PRODUCT) in addition to the core delivery consolidation function. Examples included:

- remote stock holding, reducing the need for as much (expensive) floor space to be given over to this on site;
- quality checking & pre-retail, reducing the need for sales staff time to be spent on other activities
- improved delivery quality, which was actually quoted as a key benefit by participants in the early stages of the Bristol consolidation scheme;
- waste management / recycling, which has been an extremely popular element of the core scheme definition at the Heathrow consolidation centre;
- more local control of delivery times: this is based on the fact that delivery times are often determined by what is best for the delivery company, or possible according to local restrictions rather than what works best for the local store;
- the potential to spread one large delivery into two or three smaller deliveries during the course of the day might allow more efficient use of sales staff time;
- taking the above point further, Heathrow has demonstrated the ability to unlock upstream supply chain efficiency in some supply chains, whereby a smaller number of trunking journeys are made to the Heathrow FCC each week, each with a larger consignment than previously, with stock then being fed gradually to store;
- home delivery hub, where items destined for home delivery never need to come to store, if combined with a remote stock-holding and pre-retail functions;
- the potential for long term storage of a limited number of (especially large) items.

It should be noted that uptake of added value services at Heathrow has been fairly limited, whereas at Meadowhall it is the primary driver for the facility's commercial success - this emphasises the need to understand local demand.

Given the nature of the proposed discussions, the introduction from the key strategic stakeholders helped to engender trust, as did our assurance that the content of the discussions will remain confidential and any information included in this published report from the market testing phase has been anonymised. It was also important to emphasise that they were in no way committing themselves to anything, but merely helping out with an important study and that if things were to progress at some stage in the future more detailed discussions with the appointed scheme operators, leading to a contractual arrangement, would need to take place.

Where particular respondents showed strong interest / willingness to participate this was followed up with a short delivery movement survey and noted for follow up by the eventual operators. This is not intended to build a comprehensive picture of delivery movements in the area, but rather to validate data in the existing model and as a cross check of the market testing interview. This information could subsequently be useful at the early stages of the implementation programme to produce example (anonymous) case studies of how potential participants could be involved and benefit from the scheme based on the information provided.

Task 1.6: Refinement of Operational Model

The feedback from the strategic consultation, wider market testing and discussions with potential service providers was used to finalise the options for the operational model outlined in task 1.4.

This focused on:

- a single location type (PLACE - either close to the city centre or further afield)
- a single combined option from the grid of 4 DfT options (dedicated vs shared facility and compulsory vs voluntary participation)
- the decision regarding potential involvement of SCC in a shared implementation scheme
- the decision regarding the extent of supporting policy actions and restrictions
- the decision regarding use of clean vehicle / fuel types
- a single approach to application of the LSTF funding to reduce up-front participation costs
- the approach to contracting and incentivising the scheme operator
- the extent, nature and associated cost of the PROMOTION package.
- applying 2 PRODUCT scenarios (based on provision of basic and enhanced service packages) to the operational model.

The detail of PROMOTION package, which includes all recruitment activity, will primarily be a matter for the scheme operator. Both the main existing UK operators (DHL and Clipper) consider this to be a crucial aspect of the success, or otherwise, of freight consolidation schemes. They each now have significant experience and their own approach to the issue, which reflects the nature of the business: DHL's approach is relatively structured and based on interaction at the corporate level, whereas Clipper's approach is more what you might expect from a smaller organisation, as they try to work more closely at individual store level and get close to the local customer.

As a result of these differences in approach, specification of a detailed approach to PROMOTION could determine the outcome of the tender. Our preference would be to outline in general terms the

type of activities that could be included and leave the detailed specification to the individual provider. On this basis the items to be considered under this heading would be more general and include responsibilities of both SCC and the operator:

- a properly defined communications & marketing strategy, with appropriate logo, branding and strapline
- The marketing strategy will need to communicate and exploit the benefits of the SDC both to the local running of each business (in order to try to overcome the barriers that previous experience suggest are likely to be introduced from elsewhere in the supply chain) and to the local community in terms of congestion reduction, air quality, noise, conflict for roadspace etc.
- Investigate the opportunity to gain sponsorship for the scheme or generate advertising revenue, subject to the supporting organisation(s) having an appropriate image that matches the objectives of the scheme.
- Encourage organisations that sign up to display the logo to demonstrate their participation and commitment to the local community and environment.
- Use early adopters to help prove the concept, develop / refine the business case and show that the consolidation centre can at minimum replicate, if not better, existing relationships at the point of delivery.
- The implementation of an SDC has the potential to generate significant public support, as witnessed by the extremely positive reaction of the press to the scheme in Bristol. All parties should be encouraged to maximise this support.
- Making contact with the marketing / CSR departments and CEOs of larger organisations as well as at local level where appropriate to raise the scheme profile and help in the recruitment process at the appropriate stage.
- Use links in other branches of potential SDC customers who already participate in similar schemes (Bristol, Heathrow, Meadowhall, Regent Street etc.) to exploit internal leverage.

The result of this will be two delivery options based on differing service levels, each with optimistic, most likely (medium) and pessimistic bounds developed according to inputs linked to the uptake scenarios.

This information was discussed in detail with the client at a meeting to review the draft recommendations to ensure that they were comfortable with the two detailed delivery options.

Task 1.7: Appraisal of Commercial Viability

The final stage was to confirm which delivery scenario - basic or enhanced service provision - is subject to the final commercial assessment, which will then involve extending the optimistic, most likely (medium) and pessimistic bounds on the uptake scenarios beyond the end of year 3 – i.e. beyond the period when LSTF funding support is available. This showed the extent to which commercial implementation is viable and translates to the optimistic, realistic and pessimistic appraisals for commercial viability requested in the brief.

The business case for a stand-alone freight consolidation centre is strongly dependent upon the generation of enough customer participation to spread fixed costs in order to minimise the cost per delivery. This can be difficult, particularly in the early stages of operation and has led the implementation of freight consolidation towards shared cost operational models where the costs of warehouse staff, buildings, equipment and vehicles are shared with existing distribution operations.

From the outset TTR believed that a shared location would be the most likely outcome, although we were not restricted in our research work by this belief.

Many of the existing consolidation centres have relied on an element of grant funding, often from European sources, to offset set up and even long term operating costs. Where there has been a scheme promoter in the form of a local authority, or BAA in the case of Heathrow, there has also sometimes also needed to be an ongoing operating subsidy.

This is not the intention in Southampton as the LSTF money envisaged to support the SDC has a limited duration. The intention is to move to a mutually-beneficial, commercial operating model within three years. However, a contribution to set-up costs from the LSTF grant, particularly on the basis of the environmental credential of the scheme, is likely to be helpful, especially if it can contribute to one-off costs such as the initial marketing (or the planning / development of a new facility at an optimal location if exceptional demand were shown to be present).

The way in which the operator charges participants will clearly be an important influencing factor on the business case. It would be down to the operator to negotiate this with the users of the centre on a commercial basis. Centres elsewhere have operated on a range of approaches including by item, by pallet or roll cage and by consignment weight. Similarly, the nature of the contract between the operator and SCC will be important. Each potential operator will have their own view on whether it is better for the contract to be fixed price or to contain incentive clauses. It is known that they are more likely to accept incentive clauses if the Council is willing to take steps to drive participation through the types of measure listed in task 1.1 item 3. The input of leading potential operators in informal discussions about the viability of the preferred delivery model would be an important part of this finalisation process.

The main output from Task 1 is this report explaining the preferred delivery model and the outputs of the commercial viability assessment.

4. Study Findings

The Study findings are presented as a narrative covering each project task in the order they were carried out. This approach has been taken to demonstrate the evolution of the thinking which led to the final recommendations. Task 1.1 fed into a revised project methodology so is not described in detail here.

4.1. Outline definition of Sustainable Distribution Centre (Task 1.2)

4.1.1. Outline Definition

The results from task 1.1, together with our existing knowledge and experience allowed several possible operating models to be ruled out, though still left a 'long list' of possible options for the operating model to be considered in more detail.

1. The expectation is for a shared facility which would reduce the initial outlay and overhead costs. The result would be that in the early stages the cost will only be incurred on what is used (staff, space, vehicles, fuel). A stand-alone, dedicated facility would only be considered if a significant amount of business were to be secured on long term contracts, which is considered unlikely in the set up period, meaning that such an approach would become a commercial consideration for the eventual scheme operator.

2. The shared warehouse facility would initially be accompanied by sharing existing vehicles. The move to vehicles dedicated to SDC operations could occur relatively quickly, which would open the opportunity for branding to advertise the SDC and / or advertising to generate revenue. This would also open up the opportunity to specify vehicles for the specific needs of the SDC operations and the use of the latest low emission vehicle technology, although use of electric vehicles is unlikely without specific intervention, for example as a result of a low emission zone for which SCC is currently commissioning a study. Vehicles would most likely be leased rather than bought in order to avoid a long term financial liability.

3. Shared facility will involve a shared work force as per the existing DfT FCC model, with some roles soon becoming dedicated as throughput increases.

4. Space requirements as per the existing DfT FCC model for the consolidation element. The study needs to establish the likely demand for storage and off-site stock holding, and the related space requirements.

5. At this stage of the scope the sectors that can be covered are kept broad, so potentially covering retail, office, public sector, health (subject to legal restrictions on the transport of medicines), light construction, / service (inc. food & hospitality) etc. Ultimately the operator will need to decide if there are certain types of goods that it is unable / unwilling to handle, for example due to special handling or legal requirements.

6. The nature of services offered should also be kept as broad as possible, certainly at the initial stage, because experience shows that each individual business has its own very specific needs and ruling options out at this stage could constrain the consultation and recruitment

process. Therefore stock holding, quality checking & pre-retail, waste management, home delivery hub, long term storage etc. are all still considered possible.

7. It is important to note that long term storage is not part of the approach generally considered for an urban consolidation centre which tries to make best use of available space by maximising throughput per m^2; however, inclusion of specialist sectors may make this an appropriate additional service, so differentiating the SDC from the conventional view of an urban freight consolidation centre and emphasising that each facility is unique and must respond to local market needs. Using an existing site with available capacity would be expected to facilitate the potential for long-term storage, though this option will involve a very specific commercial calculation based on the cost of the space used in the SDC as compared to the value of the freed up space that can be realised by the customer.

8. Waste management will primarily involve the removal of external packaging so the retailer doesn't need to do this and also reduce the burden on facilities management for the customer or their landlord. This may require a special licence, depending on the exact nature of the items involved and the processes conducted.

9. Flexible access is important to any distribution site. The ability to receive goods 24/7, which could help decouple trunking and local delivery journeys, has been shown to be important at Heathrow, where national chains deliver into the FCC overnight, allowing them to benefit from uncongested roads, improving fuel consumption and reducing journey times. Local consultation already conducted by Meachers suggests that this could be an important factor for some potential customers. Linked to this, in cases where smaller customers currently have little control over delivery times (which are often determined by what is best for the company making the delivery, or possible according to local restrictions) the local store may be able to take control over timing and amount of stock delivered at any one time.

10. As regards location, if the SDC is to serve only Southampton then a suitable designated location close to the M27 is logical. If the broader area (Eastleigh, Winchester & Portsmouth) is to be served then it may be easier to market the SDC if a location slightly further north on the road network were to be chosen e.g. Eastleigh. This will need to be included in the consultation to see if this is a significant point or not.

11. In the early stages it will be important to keep the IT aspects simple. If increased throughput or specific customer requirements require more complex systems then it would be expected that the operator would be able to integrate this into their standard business IT system.

12. A framework for the marketing strategy will be developed after the consultation.

13. A brief examination of the going rate for warehouse space in the Southampton area has suggested a range of £4 - £7.20 ft^2 per annum on the open market (as at July 2012). It would be hoped that the use of a shared facility, especially one making use of currently unused space, would not be towards the higher end of this range.

14. Examination of the funding mechanism, particularly whether the operator takes a flat fee for operating the scheme or whether an incentive is built into the contract with SCC based on their success in recruiting participants is an important issue. This links to the question about whether the funding is directed towards the operator or the customers and requires further

investigation at an early stage so that the financial model can be developed at an early stage. This is addressed below.

4.1.2. Support Funding Mechanism

The issue of charging users of the SDC is likely to be a contentious issue, as many user organisations have cited the cost of participation as one of the key barriers when approached about joining other freight consolidation schemes. Often they have found it hard to quantify a financial benefit to offset the clearly stated cost of participation which comes from the scheme operator.

Financial barriers that have been observed elsewhere include:

- A perception that freight consolidation is inherently expensive. (This may have been the case when the concept was new and the focus was on dedicated facilities and vehicles, but the move to shared operations and a focus on minimising additional costs has substantially addressed this issue.)

- Identification of the existing, true cost of logistics is not always easy, particularly as it appears to be common practice to use a single cost per mile to assess transport costs: this approach overestimates the cost for long distance trunking operations and underestimates the much higher cost of low speed 'last mile' urban logistics.

- Commercial sensitivities mean that there is sometimes a reluctance to reveal the transport cost element within the overall price of an 'as delivered' consignment, potentially because there is margin applied to the transport element as well as to the goods themselves.

- Because of the cost centre approach to accounting within large retail organisations, although it is possible to identify a net zero cost within an organisation, the use of a consolidation centre is often viewed as an additional cost to the store budget which is not fully offset at store level and any savings in distribution costs (if identified) are accrued against a different bottom line.

To date different approaches have been taken towards how costs are passed on to the end users at the various consolidation centres around the UK. Much of this official detail remains commercially confidential. However, it is known that:

- In Bristol the freight consolidation centre was offered free of charge for a substantial period whilst the scheme formed part of the European VIVALDI project, as during this time Bristol City Council was able to reclaim a considerable portion of the set up and operating cost from the European Commission. However, once the fixed term of the European funding had lapsed, the operation of the consolidation centre, which by that stage had grown successfully to over 50 retailer participants, became a significant, ongoing, financial burden to Bristol City Council. As a result the decision was taken to start charging participants for the service provided and the charges have slowly increased in order to reduce the subsidy offered by Bristol City Council.

- In contrast, and learning from the experiences in Bristol, the decision was taken by Norfolk County Council that participants in the Norwich freight consolidation scheme would not receive an introductory free period. This meant that no such expectation was developed within the potential client base and therefore no expectation was developed for an ongoing subsidy that

Norfolk County Council felt unable to meet. Norfolk County Council provided a relatively small subsidy to the scheme operator to cover some of the recruitment costs, meaning that the cost of participation was marginally lower than it would have been at a true commercial rate, but in general the prospect of paying from day one appeared to be a significant barrier to the recruitment of participants to the Norwich scheme.

These two sets of experiences represent two extremes. A range of other situations sits within these two bounds, including at Heathrow where BAA feels that the security and control benefits that result from the FCC are sufficient to justify a 50% subsidy in return for the compulsory use of the FCC that it imposes on its tenants.

Considering the two extreme cases, it would seem that a clearly defined, and relatively short, free introductory trial would be beneficial to allow potential customers to experience the benefits of a freight consolidation scheme without a financial penalty. (In order to participate in a freight consolidation scheme a user is going to have to change its delivery practices for a small number of its stores, which will inevitably cause it some disruption and incur cost somewhere in the supply chain.) A free introductory trial period would go some way to offsetting this cost and mitigating some of the perceived risk associated with changing its supply chain arrangements.

The method of charging also needs to be considered. Although the details of the charging structures for the Bristol and Heathrow freight consolidation centres remain commercially confidential, TTR understand that, particularly at Heathrow where security requires goods to be sealed, goods are delivered in roll cages and charges are based upon numbers of full or part-full roll cages.

In contrast, evidence of the charging structures in continental European consolidation centres suggest that charges are levied on a per item basis. Exact details vary, with weight being a determining factor in some cases and physical size being a determining factor in others. However, the charges appear to range between £2-5 for a large box / parcel and £5-10 for a larger delivery unit such as a roll cage or pallet.

For the Southampton SDC the charges levied, the extent / timing of any subsidy and where the subsidy is directed (i.e. to the operator and / or the customer) are still to be defined. The charging structure also needs to be developed in terms of a consideration of how the Boroughs wish to provide an incentive to the scheme operator to recruit more customers by sharing in the revenue raised.

This viability study has used the value of £230,000 as the available total grant funding available to Southampton CC for subsidising an SDC service.

4.1.3. Task 1.2 Summary

Based on the initial scoping exercise conducted as the first task of the project it is proposed that the focus will be on a shared-use operation that is based on the cost reduction benefits of using a small amount of space in an existing facility and, at least initially, sharing staff and vehicles so that the SDC does not have the cover the full cost of facilities that are not fully utilised in the early weeks of operation.

The way in which the commercial agreement between Southampton City Council and the operator of the consolidation centre is structured is another, potentially important element. It is recommended that consideration should be given to an agreement to underwrite a given fixed cost for the operation of the consolidation centre (the exact value of which is still to be determined, based on some outline

modelling exercises). Assuming that charges are levied for items delivered by the consolidation centre (whether after a free introductory trial or not), then the revenue could be shared in such a way that increased use of the SDC benefits both SCC, through reduced overall subsidy, and the operator by increasing their revenue and so providing them with an incentive to recruit more participants to the scheme. The details of this should be considered as part of the eventual financial operating model for the consolidation centre.

4.2. Strategic Consultations (Task 1.3)

Consultations were held with the stakeholders listed within the methodology who were identified as representatives of business in Southampton and the wider Solent region; significant retailer landlords; potential operators of an SDC; and possible major public-sector users of the SDC service.

An initial set of telephone interviews was held with most of the identified stakeholders to provide a briefing on the study and introduce the types of topics which would want to be discussed with them in more detail through stakeholder workshops and market testing. This was followed by two stakeholder workshops which were held in September with an additional presentation and discussion held at a Business Solent logistics conference in October. Business Solent and the Hampshire Chamber of Commerce both circulated the workshop dates to members on their transport sub-groups to generate further interest.

4.2.1. Initial Discussions with Key Stakeholders

During late July and August, the following key stakeholders, identified in the Scoping Stage were contacted. The table shows who the contacts were in each organisation and what their initial views were:

Organisation	Type	Contact	Comment
Meachers	Operator	Gary Whittle	- Currently operate a consolidation centre and storage service for Carnival UK (cruise ships) - Have done a lot of groundwork on the issue of establishing an SDC between 2008 and early 2012 but has held back from promotion in recent times because they do not want to prejudice any tender.
Clipper	Operator	Julian Richardson	- Have been exploring Southampton FCC options with one of the local retail landlords - Familiar with operating FCCs in Sheffield (Meadowhall) and London Regent Street
DHL	Operator	Roger Burns and subsequently Chris Taylor	- Familiar with operating FCCs for BAA (Heathrow) and Bristol/Bath as well as NHS Supply Chain. - Interested but appreciate that viability must be established prior to a decision on procurement
Hampshire Chamber of Commerce	Local business network	Jimmy Chestnut	- Supportive of the overall concept, part of their transport policy for the region
Business Solent	Local business network	Sally Lynskey	- Supportive of the concept and believe that up to five of their members may be interested in bidding for a contract to operate an SDC - Willing to assist with SDC Study dissemination to ensure wide buy-in
Hammersons (West Quay)	Shopping Centre landlord	Carl Brooks	- interested in exploring FCC usage and see Southampton as their test bed - keen to see experienced retail FCC operators involved - wouldn't mandate use for tenants but would encourage them to join - vehicle control (security) is important driver - considers 20% voluntary uptake to be the right level based on their own research - prefers a subsidy model based on gradually reducing subsidy rate which would lock in retailers
Marlands	Shopping Centre landlord	Tim Keeping	- sees a benefit to Marlands (reduced vehicle movements, greater use of retail space, additional service offering to clients) - recognises that retail recruitment would be slow and gradual but they are likely to promote as secondary sellers.
NHS University	Potential user	Sarah Jones	- supportive of concept but not sure whether it

Organisation	Type	Contact	Comment
Hospital Southampton			would be of direct interest to UHS - already tied into freight management contracts to optimise their deliveries
University of Southampton	Potential user	Adam Tewkesbury	- Interested but involving all the right people in the decision making will take some time and early autumn is the most difficult time to get input from within the university.
Solent University	Potential user	Brian Carroll	- interested for three reasons (i) want to make more efficient use of their goods-in; (ii) want to operate just-in-time deliveries to free up space; and (iii) have a document archival facility which may soon be not fit for purpose - would need to be financially more attractive than other options on market
Southampton City Council	Potential user	Chez Stewart, Bev Smith	- SCC could build use of an SDC into future procurement to ensure all departments adopt this approach - Challenge will be to identify the roles responsible across the council to consider the extent of involvement
Hampshire County Council	Potential user	Elise Battison Andy Wren Lisa Hole	No response
Isle of Wight Council	Potential user	Barry Cooke	No response
Eastleigh Borough Council	Potential user	Judith Beard	- interested in participating in the stakeholder consultation
Portsmouth City Council	Potential user	*Facilities Manager*	No response
Winchester City Council	Potential user	Emma MacDonald	No response
Bargate Shopping Centre	Shopping Centre landlord	Darren Byrne	Interested by concept

Additional to this list, three of the largest local bus operators were contacted to explore whether any of them may have spare bus depot capacity which could be used to operate an SDC. None of them had any available capacity, though one of them, Blue Velvet highlighted that they themselves were subleasing space at a shared site from another logistics operator.

4.2.2. Workshop 1: Southampton City Council on 14th September 2012

This was the first stakeholder workshop and was hosted by Southampton City Council. It ran for two hours during which the concept of freight consolidation was explored alongside a discussion on the outline description of what a Southampton Sustainable Distribution Centre might look like to gather in a wider group of opinions.

Attendees:

Mark Fell (TTR)
Gavin MacLean (Mott MacDonald)
Simon Fry (Soton CC)
Frank Baxter (Soton CC) – second half of meeting
Clive Squire (Chamber of Commerce / NXD)
Nick Farthing (Chamber of Commerce)
Adrian Maxey (Solent University)
Bryan Carroll (Solent University)
Tim Keeping (Marlands)
Gavin Bailey (Soton University – Transport Research)
Carl Brooks (Hammersons)

The group provided feedback on what potential users would want to know in order to make a decision on whether to adopt an SDC as part of their operation:

It would need to be transparent on what happens if the SDC is not financially sustainable without subsidy after March 2015 i.e. will costs to the user increase or will the service be closed. Solent University suggested that they would need a 5-10 yr commitment that the SDC would be in place whilst Marlands stated that a 10-15 yr commitment would be needed for them to be willing to implement retail space changes that would free up the additional value which justifies the business case for them.

Additionally, users would need to have transparency on what the future costs would be and what happens if there is a failure in service. These would be covered in user contracts with the SDC service provider but require some consideration now with regards to future support funding.

The business case for retailers is in maximising retail space but refitting stores has a price so this will not happen quickly and retailers will need long term guarantees of SDC service if they are to invest in shop changes. Retail landlords could tie in new tenants to use SDC but turnover of tenants in the Southampton shopping centres is only 2%. The problem with existing tenants is that many of the large retailers are currently operating at the edge of financial viability, introducing change and extra costs will not be considered by many retailers at this time.

M&S retail evidence suggests that consumers are not sufficiently driven by green issues to change their behaviour so this will not be a driver on its own for the majority of retailers. Marlands also stated that there is evidence that double-handling through consolidation increases damage costs and results in lost-trade. Retailers will probably factor this into their decision making. If the direct costs could be pushed onto the distribution chain rather than the receiving site then that would be better from the retailer's perspective.

Only the core consolidation service is likely to be of interest to retailers – if they could have access to a 'caged' area for their own goods at the SDC then perhaps they would use the site themselves for pre-retail preparation but they would be unlikely to pay someone else to do this on their behalf. The backhauling of retailers empty crates, pallets, cages etc would be a requirement and they would need to be guaranteed that their items go back to their distributors.

Currently Southampton does not really have access issues so a 'stick' would also be needed with increased delivery restrictions to encourage voluntary adoption, perhaps in areas such as London St and Oxford St.

For Solent University the primary aim for them is to have an offsite storage facility with transport attached that can deliver and collect items on a regular basis. They have a number of construction projects coming up over the next 5 years so use of SDC for contractor goods would be a benefit. However, the business case for them will be more difficult to construct as putting a value on benefits

would be difficult – an environmental case is important so would need to tie into SCORE3 emissions counting.

An additional benefit for the University would be if there was vehicle parking for them to store occasional use vehicles including two outdoor broadcast trucks (valued at £1m) and five mini-buses.

It was felt that perishable food and drink should be discounted from the operation which removes costs associated with refrigeration. Hammersons' highlighted that collecting and disposing of recycling packaging could be another revenue stream for the SDC and that there is also a gap in collection of food waste for bio-fuel use in Southampton.

4.2.3. Workshop 2: Chamber of Commerce on 21st September 2012

This was the second and final workshop hosted by the Hampshire Chamber of Commerce. It ran for two hours during which the concept of freight consolidation was explored alongside a discussion on the outline description of what a Southampton Sustainable Distribution Centre might look like to gather in a wider group of opinions.

Attendees:

Mark Fell (TTR)
Gavin MacLean (Mott MacDonald)
Sarah Jones (NHS UHS)
Martin John (NHS UHS)
Ed Vokes (Eastleigh Borough Council)
Adam Tewkesbury (Southampton Uni)
Richard Catt (Carnival UK)

In a slightly different approach to the first workshop, each stakeholder in the meeting provided background on their organisation with regards to deliveries and collections. Four relevant key facts for each participant are included below:

NHS University Hospital Southampton (UHS)

a) UHS currently lease secure document storage site in Nursling for holding all patient medical records. These are called on as customer requirements dictate, in highest priority situations a one-hour turnaround is needed (from request for record to arrival of record at ward). Hygiene requirements mean that staff transferring documents from storage to hospital have to follow strict rules (no watches, jewellery, must wear short sleeve tops etc)

b) Current deliveries: 6am delivery of 40 cages each day from NHS Supply Chain which arrive packed and sorted by ward for easy distribution; 54 cages per day collected and delivered of fresh laundry from Sunlight (based in Newton Abbott); no other deliveries allowed onsite until after 10am – then mainly courier based deliveries of special request medicines, equipment etc. Majority of deliveries are Mon-Fri to save weekend staff costs.

c) General view – operate a no-storage, just-in-time policy, goods arrive on the day they're needed (usually ordered that day or night before), no time slack in process for passing most goods through consolidation centre. Response times are critical for majority of items including document storage.

d) It would be difficult for them to find the business case for adopting a new consolidation service outside of the existing NHS arrangements

Carnival UK

a) Local freight operator, Meachers provide a consolidation/just-in-time service for all non-food deliveries for cruise ship departures. Approx 200 departures per annum, which can be on any

day of the week. Pay on a per pallet basis which also includes length of storage factor. On a big scale e.g. can include 800 mattresses, carpets etc

b) Carnival suggested that if a SDC requirement was for handling chilled foods then this may best be offered by an alternative provider than the dry goods. Generally there is little appetite from potential users for chilled goods to be included.

c) The cruise ship stock contains some items which need special storage or handling, e.g. alcohol inclusion would require a bonded warehouse provision; also they carry some specialist heavy goods which may need extra consideration; also pyrotechnics are carried.

d) Also have a 1200 person large office site in Southampton which is open Mon-Fri office hours which does have any consolidation of deliveries

Southampton University

a) Deliveries are ordered by and arrive seven days a week at different departments, students union, Nuffield Theatre, Hansard art gallery. Involving all the right people in the decision making will be a big task, in fact it may be quicker to recruit these as separate users rather than the University as a single entity.

b) Types of delivery item: non-chilled perishables would probably be of interest for putting through SDC; stationery ordering is already controlled with limitations on numbers of deliveries; onsite contractors are required to consolidate and pre-arrange their transport requirements to limit movements onsite (including their deliveries); do have a range of dangerous goods being brought and removed from laboratories onsite.

c) Not sure what storage requirements may be without consultation with others in-house.

d) The main barrier for involvement would be to justify it is an improvement over the current situation. It would be very helpful to see quantified CO_2 benefits in the SDC 'sales pitch' and in service reporting.

Eastleigh Borough Council

a) Eastleigh Borough Council are moving to new town centre site next summer (2013) which may offer opportunity for change to an SDC based delivery system. If Southampton CC had publically procured an SDC service then the procurement exercise for Eastleigh BC of deciding to adopt it, if it made business sense, would be short.

b) There is a congestion problem within Eastleigh so an SDC service could provide services to the retailers and hotels affected by this

c) Not sure about in-house requirements without internal consultation – already have an internal document archival facility. Believes that this is currently on Eastleigh BC owned property so may be tied into it.

d) Is there an issue with overnight lorry parking in South Hampshire? If so then could the SDC be co-located with parking provision to reduce negative impacts elsewhere.

The second stakeholder group made a number of comments during the discussions on which there was a general consensus:

- Reverse logistics for packaging waste makes sense but other waste removal would not be appropriate (as it may require specialist vehicles, tied into existing contracts etc)
- There was no real feel for what a cost per pallet equivalent for a freight consolidation service might be apart from Carnival who are already paying for such a service with Meachers but commercial confidentialities do not allow this to be disclosed
- There was agreement that pricing must be based on being cost neutral for the organisation but realistic that a cost benefit would come from renegotiating existing transport costs with providers.
- The suggestion was made that during market consultation stage it should be asked whether participants have delivery access restrictions (vehicle size) to their site
- Several times the issue that 'time is as important as costs', the service must not add a time penalty onto the arrival of goods[7].
- Decision making as a hurdle was discussed re: public sector. As well as commitments to existing contracts the approval an internal discussion process could be very length. Final go-aheads for involvement would probably have to go through committees etc.

4.2.4. Presentation to Local Logistics Industry

Business Solent invited the project team to deliver a presentation on the SDC Study to date at their Unlocking the Power of the Solent's Potential – Through the Maritime Logistics Sector[8] on Tuesday 17th October 2012. This was used as an opportunity to present a concise version of the material from the stakeholder workshops to a new audience and engage with them on the topic.

The fifty-strong audience was made up of a range of businesses, primarily in the logistics and education sectors. The presentation triggered a good number of questions with the audience encouraged to discuss during the networking break and afterwards via phone or email any input into the study that they wished to make.

The local business network, and organisers, Business Solent stated that an SDC would offer the Solent region a new service when trying to attract businesses to the area – it would also help to leverage other government funding by demonstrating that the logistics industry and major employers were working together.

An additional comment from the audience, supported by others, was that to help ensure a successful SDC the use of it should be embedded within the planning process at SCC so that new developments are encouraged to adopt it within their plans.

A few voices questioned whether there is there an overwhelming business case for an SDC and if not, might that be because businesses are already doing this where it makes sense to do so?

A number of participants highlighted that they saw an SDC as being the first step in a more efficient urban logistics system with possible expansion into a micro-consolidation centre hub close to the city centre with cycle deliveries etc; the implementation of zero-emissions vehicles and associated infrastructure (Electric Vehicles, Hydrogen, Biogas); and also through linking it more closely to the wider multi-modal freight network (rather than just road freight).

[7] This overlooks the potential to redesign the upstream supply chain to tie in savings from fewer trunking trips or off peak journeys

[8] http://www.businesssolent.com/site/solent/news/5267/23/10/2012/unlocking-the-power-of-the-solents-potential--through-the-maritime-logistics-sector

4.3. Outline of User Uptake Scenario Modelling (Task 1.4)

Based on the feedback received from the strategic consultation stage it was clear that cost will be a significant factor in the eventual success of an SDC scheme should it be implemented.

As well as a basic freight consolidation service, the outcomes of the strategic consultation have indicated that an off-site storage offering at the SDC could potentially be a useful option to some organisations. However, given the bespoke nature of such a service it has not been factored into the SDC operational model – see below.

4.3.1. Storage Modelling

The basic concept of an urban freight consolidation centre involves the use of a shared cross-dock and goods holding environment to gather inbound consignments that are destined for a particular geographical area. Goods for all participants in that area are grouped within a shared space and part of the overall cost is based on the share of that space that their goods use. It is generally assumed that goods do not dwell any longer than they need to in the shared space in order to minimise the space requirement and meet the customers' desire for quick turnaround of stock, and hence the overall operating cost, as well as to ensure that service-level KPIs associated with prompt delivery to the end user are met.

At some freight consolidation centres additional services such as off-site stock holding have been offered to the end-users. This generally involves creating a caged area with restricted access. In such cases this remote stock holding has been offered as an additional cost service because it requires a negotiation specific to the requirements and set-up of the individual users that request this option rather than it being a shared service.

Long term storage has been suggested as a potential service that would be useful to several city centre organisations in Southampton for which space availability is restricted. This seems to fall into a similar category to the off-site stock holding offer mentioned above in that it is of a different nature to the standard shared service operation and the requirement (amount of space, level of security, access conditions etc.) would be negotiated on an individual basis. The cost of providing a long term storage option would depend entirely on the space required at the SDC which will have a fixed cost associated with it, plus any racking or other storage solutions that would help minimise the space requirement, plus an element reflecting staff cost. One of the financial support scenarios investigated for the main SDC operation involves covering the cost of the SDC general manager and recruitment manager during the 2-year set-up period. Assuming that such long term storage arrangements fall under the jurisdiction of the SDC then clearly these are costs that would not need to be factored into any overhead charge applied by the operator to the basic unit charge for rented space under this financial support scenario. In other words, under this scenario the space rental option benefits indirectly from financial support that is already allocated to the overall SDC operation.

Application of further financial support for long term storage could an option on a per sq ft basis, but would need to be considered as a separate element once the main financial support scenario has been agreed. In order to meet the requirement that ongoing financial support is not provided to the SDC beyond March 2015 any such financial support would need to be tapered to zero relatively quickly – this seems a possibility to reflect the short term cost associated with a change in storage arrangements and to some extent mirrors the free period that is being considered within one of the financial support scenarios for the main SDC operation.

4.3.2. Uptake Scenario Modelling

The uptake scenario modelling conducted at this interim stage has used the model developed for the 2010 study for the Department for Transport. The modelling has been based on two scenario groups representing 10% and 30% eventual participation of the default business profile for an urban town centre contained within the model. (This reflects 13 and 38 businesses using the SDC and as such represents a relatively conservative approach at this stage of the project development).

The delivery throughput for users in the model is based on an average from five different town centre studies undertaken by TTR (verified within the DfT 2010 study) and adjusted based on the responses received from organisations in the market testing phase.

Within each uptake grouping two approaches to financial support have been modelled as shown in **Table 1** below and for the 30% participation group an additional scenario has been added which shows the impact of reaching 30% participation saturation point after roughly 12 months rather than 24 months. For all the scenarios shown the assumption is that the SDC operates from a shared site with a 17T HGV diesel powered vehicle in order to minimise costs – as per the results of task 1.2.

The two approaches for how the financial support is could be delivered to the SDC are as follows:

- In both approaches the cost of the recruitment manager and the SDC general manager are reimbursed directly to the operator. This is a direct financial incentive that reduces the costs that are allocated to the operation of the SDC and result in a lower cost to users during the set-up stage. Within the model the recruitment manager is considered as a full time post, whereas the general manager starts as a part-time post with the time allocation increasing from a base level to full time depending on the level of throughput.

- In the first approach an 8-week free period is given to each organisation that uses the SDC. This is intended as a direct financial incentive to encourage users past one of the initial barriers to test use of the service. (It should be noted that this has been considered essential in the set-up stages of other FCCs, but was not viewed particularly positively during the strategic consultation in Southampton. This will be the subject of follow-up in the market testing phase.)

- In both approaches a user charge cap is applied to the cost passed on to the end user to minimise the cost impact on early adopters – in the first approach this clearly only applies after the free period has ended, whereas in the second approach this becomes the main financial incentive that is visible to the end users.

- Different levels of user charge cap have been applied to show the effect on the total amount of subsidy required using each approach at each level of uptake. The starting point of £8 was taken from previous study work done elsewhere. £6.65 represents a lower bound where throughput for a shared facility approaches the theoretical minimum on a commercial shared cost basis, whereas £10 represents the higher cost associated with a lower throughput finishing point.

The financial support associated with the free period and the user charge cap could be directed either to the operator or to the end user – this is an issue that would need to be determined based on operator and end user preferences and would need to take into account tendering and public subsidy rules that apply to Southampton City Council.

The exact scenarios modelled are as follows:

Scenario reference	Participation level	Saturation point	Free period?	User charge cap value
S1	30%	12 months	Y	£8.00
S2	30%	12 months	N	£6.65
S3	30%	24 months	N	£6.65
S4	30%	12 months	Y	£6.65
S5	30%	24 months	Y	£6.65
S6	10%	19 months	N	£6.65
S7	10%	19 months	N	£10.00
S8	10%	19 months	Y	£6.65
S9	10%	19 months	Y	£10.00

Table 1 Scenario definitions

The cost breakdown associated with each scenario is presented in the following table. The total subsidy for each scenario is shown and then broken down into its constituent parts, where applicable.

Scenario reference	Total funding	Staff cost element	Free period	User charge cap	Total Operating cost	Subsidy level
S1	£190,278	£97,320	£89,897	£3,062	£710,828	26.8%
S2	£124,410	£97,320	N/A	£27,090	£710,828	17.5%
S3	£132,938	£90,090	N/A	£42,847	£544,820	24.4%
S4	£196,624	£97,320	£89,897	£9,407	£710,828	27.7%
S5	£203,888	£90,090	£93,695	£20,102	£544,820	37.4%
S6	£176,111	£85,000	N/A	£91,111	£330,864	53.2%
S7	£121,429	£85,000	N/A	£36,429	£330,864	36.7%
S8	£198,934	£85,000	£45,729	£68,205	£330,864	60.1%
S9	£152,836	£85,000	£45,729	£22,107	£330,864	46.2%

Table 2 Cost breakdowns for each scenario

The staff cost element of the funding effectively underwrites a relatively constant element of the set-up and operation cost for all scenarios. This element is highest for scenarios S1, S2 and S4 for which throughput is highest and which will therefore require the greatest management input.

Subsequent analysis was initially split into two groups: the scenarios with a free period (S1, S4, S5, S8 and S9) and those without (S2, S3, S6 and S7).

4.3.3. Scenarios with a Free Introductory Period (S1, S4, S5, S8 and S9)

In general the scenarios with an introductory free trial period require the biggest level of funding support (ranging between £203,888 and £152,836) because they offset the full cost to the end user as opposed to merely limiting the end user cost. This is a substantial cost for scenarios S1, S4 and S5

where throughput builds up relatively quickly. For S8 and S9, where participation never reaches more than 10%, the subsidy for each individual shipment is higher, but the number of shipments is substantially lower, so that the overall funding required is lower.

For the scenarios that build throughput most quickly (S1 and S4) the level of the user charge cap is relatively insignificant in terms of the funding required for this element: funding required for S4 (£6.65 user charge cap per pallet) is barely higher than that for S1 (£8 user charge cap per pallet). In contrast for S5, where throughput builds more slowly to the same value, this element does increase to be around 10% of the total requirement.

For S8 the per pallet cost never falls to the user charge cap rate of £6.65, meaning that this element is still required by the end of the 2-year set-up period and hence becomes a substantial element (34%) of the total funding requirement. Comparison with S9 shows that increasing the user charge cap to £10 per pallet reduces this funding element, although the user charge cap of £10 per pallet equivalent must be considered at the top end of the range that is viable for business based on experience from elsewhere – this will be investigated further as part of the market testing phase.

These results are shown graphically in Annex A.

4.3.4. Scenarios with a Free Introductory Period (S2, S3, S6 and S7)

The range of support required for the scenarios without a free introductory period was £121,429 to £176,111. For this group it is the level of the user charge cap which is the variable with the biggest influence on the funding support required. The low user charge cap of £6.65 per pallet , when combined with a low end-user uptake in scenario, S6 results in a significant ongoing subsidy to the end users.

4.3.5. Task 1.4 Conclusions

The scenarios presented were based on default data as an initial test of whether it should be possible to operate a support mechanism within the funding support available to SCC for a 2-year set up period.

The funding support in the scenarios has been assumed to be split into 2 parts – a baseline support element for the staff required to generate participation and support to ensure that the cost to end users is affordable and commensurate with the expected ongoing, unsupported cost. The funding support for staff costs is in general fixed or close to fixed throughout the period, whereas the end user support varies substantially depending on the degree of uptake (% end user participation) and the level of user charge cap that is applied. Scenarios that seem most likely to be commercially sustainable are those where the required subsidy has dropped to the ongoing market rate by the end of the 2 year period and where the rate is low enough to be acceptable to the market. This suggests that, if the necessary participation is achievable, S1 - S5 would be preferable to S6 - S9 in terms of financial sustainability. This is solely down to the throughput assumed for the scenario.

The scenarios are presented based on a combination of assumed participation rate and end-user cost. In reality there would be a dependence between the terms on which the service is offered and the participation rate. However, at this stage it is not possible to accurately determine the nature of this relationship.

The results indicated that some of the scenarios are well within the available funding.

The next stage, following the detailed market testing, will revise these scenarios based on the actual profile of businesses in Southampton and propose a series of bounds for take-up based on the market testing results.

4.4. Wider Market Testing (Task 1.5)

The market testing was conducted during October in two parts, a door-to-door survey of sixty-three general retailers in Southampton City Centre and through in depth interviews with public sector organisations and large office sites.

4.4.1. Retailer Survey

Of the sixty-three general retailers in Southampton City Centre who participated (listed in Annex C), eight (12.5%) said that the SDC would be of use to them with a further eleven (17%) indicating that they were unsure. These ratios are in line with 'cold call' results found elsewhere (Birmingham feasibility survey suggested 10% interest and Bristol early stages of implementation reached 12.5% of the target group). However, as noted in the previous section, the actual uptake will primarily be down to the drivers on the businesses to join, how the service offer matches their expectations & needs, the extent and effectiveness of the marketing and recruitment and the financial implications.

As can be seen in Figure 4, there was no clear preference expressed in terms of a preferred incentive package. Note that where a respondent has indicated multiple options (5 cases) these have been divided across all options.

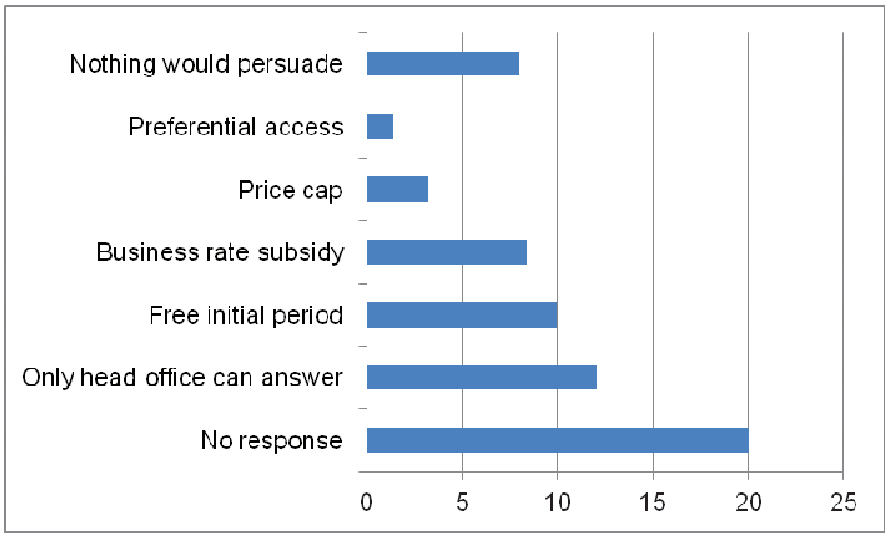


Figure 4 Preferred incentives responses from market testing

This implies that a package, or possibly better, a bespoke approach as part of the recruitment process is required, although this may be difficult to implement in practice while maintaining control of financial flows.

The general market testing has emphasised some of the barriers to implementation that are commonly found when this type of concept is proposed:

- Unfamiliarity with the concept and its implications
- Head office control over decision making, which can slow recruitment or act as a complete barrier to participation
- Use of in house distribution chains which companies are reluctant to disrupt unless forced to do so.

The data from the retail market testing survey has been fed into Task 1.6 to revise the model.

4.4.2. In-depth Interviews

Interviews were held during October and early November with Carnival UK, Solent University, NHS University Hospital Southampton, Skandia Insurance, Southampton Airport and Eastleigh Borough Council. Within Southampton City Council a number of departments provided responses on their current delivery/collection levels and storage requirements. Interviewees were encouraged to involve additional participants from within their organisation that it was felt would have a contribution to make to the discussion.

There was significant interest from several of the large organisations each with specific needs, but potential throughput for the SDC would be much greater from even a small number of these than the individual retailers who expressed interest.

Particular interest was expressed in the availability of storage, which as noted previously, is not the normal approach to freight consolidation operation and would have its own operational model (and financial implications) because the participant would have the potential to realise benefit, and possibly even selling high value assets, by freeing up existing storage space.

Below, some of the key responses that came out of the in-depth interviews with each organisation is detailed:

Southampton City Council

- The City Council has significant delivery throughput across its departments (offices, residential homes, schools, fleets). SDC adoption from even one of the departments, who responded to the survey, could be equivalent to that of the expected retail throughput (in a pessimistic scenario).
- The City Council also has a significant existing use of storage space which could be refined to release office space or sites which could have a significantly strong business case itself

Solent University

- Logistics is a key issue for the University given its city centre location. The day-to-day Goods-In operation does not feel like it is in the control of the University, rather it feels like it is supplier led. This makes it difficult for the University to plan ahead.
- There is limited access to site(s); no or very little storage space on site; large lorries have great difficulty in physically getting to make deliveries e.g. Gate 2 on New Road is shared with a visitor car park. The space is considered at best very busy, at worst a concern in terms of health and safety.
- A benefit of an SDC for Customer Service would be the ability to deal with the same driver(s) from an SDC and not a succession of ad hoc drivers who don't know the University campus and the delivery locations
- Implementation would need trialling first to ensure it worked for the University and their internal processes were able to adapt over time rather than overnight
- Adoption would depend on cost and be subject to internal reviews of the business case. If it was agreed that they would go ahead then it would be from the following August (start of their financial year)

Eastleigh Borough Council

- The delivery arrangements at the current site are good – they are currently near the motorway and plenty of space for deliveries, however they are moving site soon (end 2013-early 2014) therefore this may change. The new site is in the town centre (corner of Romsey Road and High Street) and within a one way system, and there is a more restricted space for deliveries (only one vehicle at a time) – so delivery will become more difficult and use of an SDC more attractive. The timing of this move would fit in well with the SDC implementation.
- Storage may become a problem in the new office. For example, it is useful to buy paper in bulk as its much cheaper this way, but it then has to be stored somewhere and this will be a problem.
- Can provide support with engaging businesses who may be potential users in Eastleigh

Skandia Life Assurance

- Multiple office sites within the city centre and are one of the largest employers in the city
- Their initial feeling is that use of an SDC would fit in their environmental strategy and additionally their carbon footprint: has a tax implication which may help their business case.
- They would need convincing of the business case benefits however and use of the scheme would need to pay for itself - they would also need assurance that they could get out of the scheme relatively easily i.e. no long term contractual tie in, if it didn't work.
- They have significant demand with peaks and troughs through the year.

Carnival UK

- Carnival was interviewed from both the perspectives of its cruise ship operation and its large office site in central Southampton.
- For the cruise ship operation they are already doing a consolidation operation through Meachers with a dedicated facility, which would dwarf the SDC in scale. Therefore they will be considered as out of scope to avoid skewing the model results.
- The office site is a new development with good delivery facilities and they do not see envisage making use of an SDC given the existing access they have to the cruise ship consolidation centre.

Southampton Airport

- There are issues in terms of delivery space as the yard only really has room for one HGV at a time which means that deliveries can take much longer than they need to.
- The stores at the airport usually try to work with their delivery companies to arrange for deliveries to arrive during quiet times.
- An issue for the airport is storage. For example they have information that is held for a season (e.g. printed timetables that are valid for 6 months) and it would be useful to store these elsewhere and be able to access them when needed.
- Similarly, there is always construction work at the site but this has peaks and troughs and it would be useful to have a facility for the ad-hoc storage of construction materials.
- The key factor for decision making for them is the costs in the long term – hence a capped rate is of most interest.

Local 'food-bank' charity

- A local charity is looking to set up a service that collects food between its 'best before' and 'use by' from supermarkets, and redistributes to low income families, homeless organisations etc.
- They are looking for 9,500 square feet of warehouse facilities with access to the motorway, with a yard for large lorries. Southampton CC are in discussions with them regarding being part of the SDC approach. This would provide another significant early user of an SDC and reduce costs for the charity (compared to going it alone).
- The requirements for chilled and frozen would need to be explored in more detail prior to any procurement process to ensure that requirements are fully catered for.

4.5. Outputs and Appraisal of Commercial Viability (Tasks 1.6-1.7)

This task involved revising the modelling conducted in task 1.4 so that it is based on inputs from the market testing phase rather than default uptake and throughput data.

On this basis the modelling has been conducted using the following characteristics:

- Two Sustainable Distribution Centre product offers, one which is solely a traditional freight consolidation centre and one which includes the additional participation of several large business driven by the availability of a parallel storage option
- A shared facility operation to minimise set-up costs
- Location close to the M27 giving a stem mileage of five miles
- Assumed voluntary participation with limited policy intervention to drive participation (some increase in local parking restrictions and enforcement)
- A mixed approach to application of the Local Sustainable Transport Fund grant support (as used in the preliminary modelling of task 1.4) consisting of:
    - Underwriting the salaries of the SDC recruitment manager and part-time general manager for the full 2-year period
    - First eight weeks free for users of the SDC
    - End user user charge capped to the estimated long term cost of the likely (middle) scenario
- Offering the operator a financial incentive to perform above the likely scenario

The survey results indicated lower volumes per business among those expressing interest than the default values incorporated in TTR's standard freight consolidation model and the model has been adjusted to reflect this between tasks 1.4 and 1.6. (This reflects initial interest being expressed during the market testing phase primarily by small – medium stores without established and directly controlled supply chains.)

For each of the two SDC offers, three uptake scenarios have been estimated based on middle (most likely), optimistic (high uptake) and pessimistic (low uptake) recruitment profiles.

	Pessimistic	Middle	Optimistic
% uptake	5%	12.5%	25%

Table 3 Voluntary participation levels in each of the three outlooks

A conservative approach to decisions have needed to be made in estimating the development of the SDC function e.g. the timing of recruitment to the SDC or the number of offices available to target.

These profiles have been mapped onto the following business profile for Southampton based on information sourced from the Streets Ahead Southampton Ltd website.

2010 Southampton City Centre Shops & Businesses	Number
Department/ very large stores	16
Arcades	4
Misc retail	210
Banks	20
Book shops	4
Bookmakers	5
Eateries	70
Charity shops, pawnbrokers, dry cleaners	11
Chemists	4
Offices	25
Beauty salons	15
Hotels	3
Gyms	3
Pubs	8
Supermarkets	10
Event venues (inc. galleries, theatres, museums, cinema)	10

Table 4 City centre business profile based upon 2010 Streets Ahead Southampton listing

These have been incorporated into the model, leading to the following eventual uptake levels for the basic (FCC only) scenario:

	Pessimistic	Middle	Optimistic
SCC	yes	yes	yes
Retailers (various delivery profiles)	11	27	54
Offices	0	4	8

Table 5 Estimated uptake levels for the FCC only scenario

For the enhanced (FCC plus storage) scenario:

	Pessimistic	Middle	Optimistic
SCC	yes	yes	yes
Universities	1	1	2
Other councils	0	1	2
Retailers (various delivery profiles	11	27	54
Offices	0	4	8
Large offices	0	1	2
Charity	0	0	1

Table 6 Estimated uptake levels for the FCC plus storage scenario

The modelling has used the model TTR developed for our 2010 study for the Department for Transport with bespoke uptake and business delivery factors. For all the scenarios shown the assumption is that the SDC operates from a shared site with a 17 tonne GVW (Gross Vehicle Weight) diesel powered vehicle in order to minimise costs.

For the basic, FCC only, option the user charge cap was set at £10 per pallet that reflects the longer term relatively low throughput expected on the basis of the survey results.

For the enhanced, FCC plus storage, option the user charge cap was set at £7.65 per pallet to reflect the lower per-pallet equivalent cost achievable due to the higher throughput that could be achieved by the anticipated participation of several larger organisations.

The financial support associated with the free period and the user charge cap could be directed either to the operator or to the end user – this is an issue that would need to be determined based on operator and end user preferences and would need to take into account tendering and public subsidy rules that apply to Southampton City Council.

4.5.1. Results

For the Freight Consolidation Centre only scenario:

	Pessimistic	Middle	Optimistic
Eventual No. participants	12	32	63
Total new customer contributions	£45,238	£43,131	£57,508
User charge cap contributions	£17,088	£19,740	£11,949
Staff underwrite	£85,000	£85,000	£85,000
Cost to SCC	£147,326	£147,871	£154,457
Suggested operator incentive	£4,511	£13,078	£30,578
Total operating cost	£290,084	£307,875	£362,901
Weekly pallet throughput	290	338	576
Ongoing cost per pallet	£11.80	£9.90	£8.56

Table 7 Estimated costs and throughput for the FCC only scenario

For the FCC plus storage scenario:

	Pessimistic	Middle	Optimistic
Eventual No. participants	13	35	70
Total new customer contributions	£49,904	£60,632	£96,778
User charge cap contributions	£19,006	£14,194	£8,726
Staff underwrite	£85,000	£85,000	£94,474
Cost to SCC[9]	£153,910	£159,826	£199,978
Suggested operator incentive	£0	£13,412	£51,267
Total operating cost	£369,380	£415,593	£606,735
Weekly pallet throughput	481	728	1456
Ongoing cost per pallet	£9.37	£7.65	£6.64

Table 8 Estimated costs and throughput for the FCC plus storage scenario

The scenarios presented show that it should be possible to operate a support mechanism within the funding support available to SCC for a 2-year set up period; the exact details would need to be negotiated between SCC and the operator of the SDC and then between the SDC operator and its customers.

[9] As a user of the SDC SCC would end up transferring money between budgets on this scheme

The funding support has been assumed to be split into two parts – a baseline support element for the staff required to generate participation and support to ensure that the cost to end users is affordable and commensurate with the expected ongoing, unsupported cost. The funding support for staff costs is in general fixed or close to fixed throughout the period, whereas the end user support varies substantially depending on the degree of uptake (% end user participation) and the level of user charge cap that is applied.

The week-by-week subsidy levels paid to the SDC operator can be seen in figures 5 and 6. These show that by adopting the modelled funding support values, at the point where the available LSTF funding ends the funding level would be equivalent to between 11 and 24% of the ongoing operational costs. At that time this would need to be met by either increasing the commercial rates (most likely) or further support funding.

Note that the dramatic fall in subsidy required occurs at the point in the model where it is factored that Southampton City Council becomes a user – SCC has been assumed to be the first large-scale user which results in throughput levels moving towards where economies of scale start to become commercially viable. This illustrates the significant impact that this one user has on the overall operational cost model. The impact of other large users which join later is less noticeable once the first large user has joined the scheme.

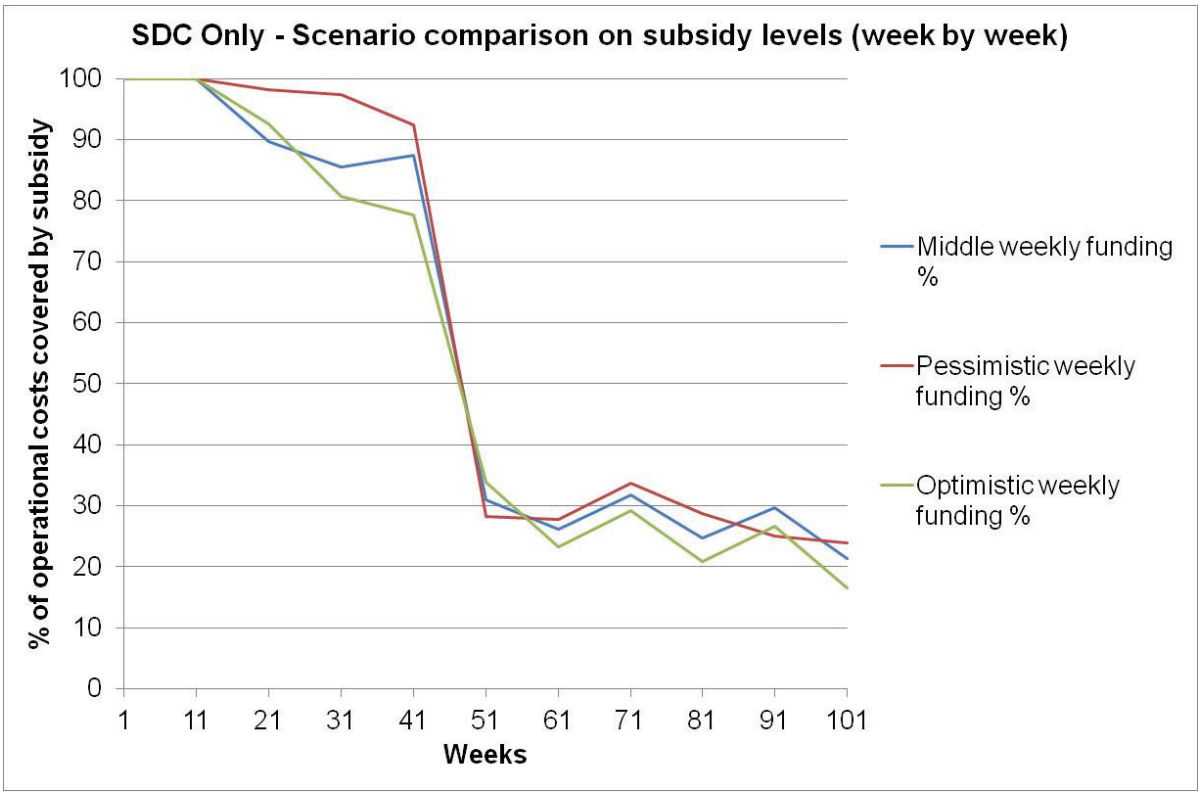


Figure 5 Percentage of subsidy needed per week in SDC only scenarios

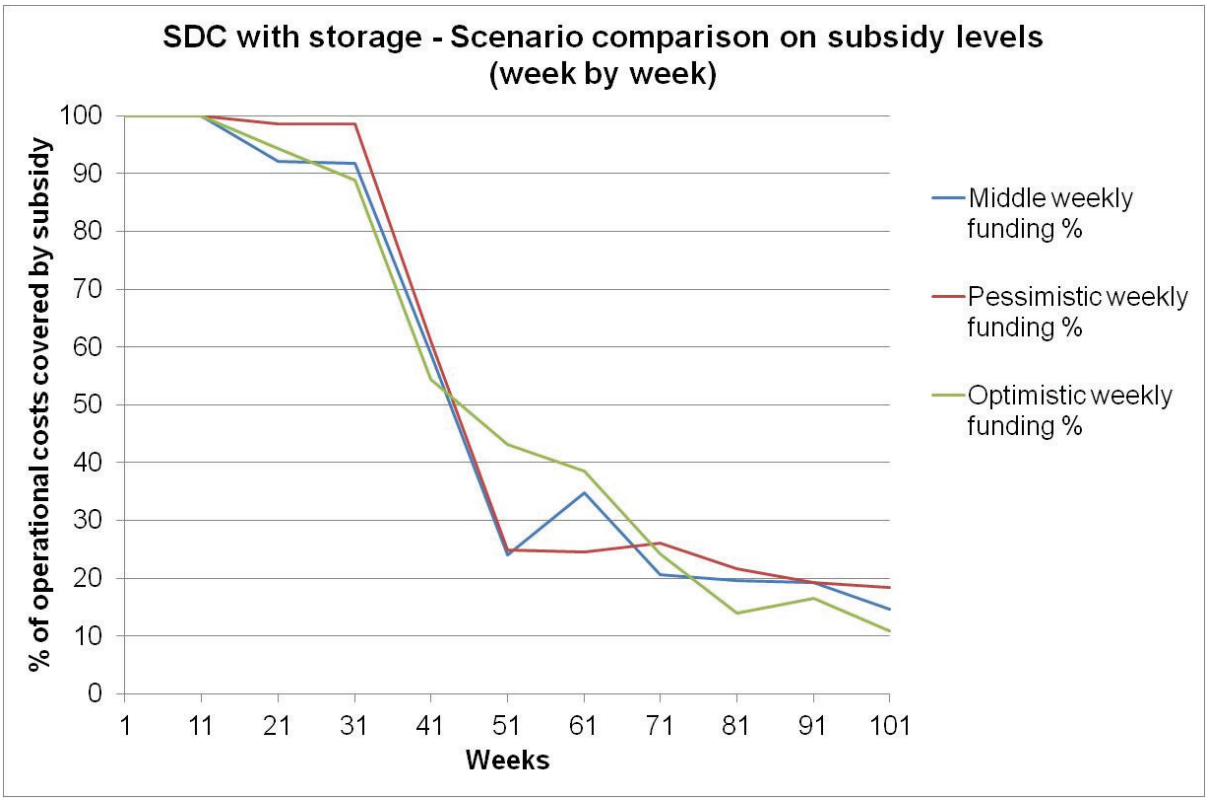


Figure 6 Percentage of subsidy needed per week in SDC with storage scenarios

The scenarios are presented based on a combination of assumed participation rate and end-user cost. In reality there would be a dependence between the terms on which the service is offered and the participation rate.

Middle 'Most Likely' Scenario Comparison

The table below shows the direct comparison between the two middle 'most likely' scenarios. The total operating cost of providing the storage facility as well is 26% higher than the FCC alone however the additional SCC grant costs required are only 7.5% greater. The cost to SCC of either option is comfortably within the available LSTF grant monies, therefore on the basis that storage is an attractive feature for many of the non-retailers, in fact it is possibly the deciding factor given it has a simpler business case and a stated demand, it would be appropriate to adopt the FCC with storage option.

	Middle Projection for FCC only	Middle Projection for FCC plus Storage
Eventual No. participants	32	35
Total new customer contributions	£43,131	£60,632
User charge cap contributions	£19,740	£14,194
Staff underwrite	£85,000	£85,000
Cost to SCC	£147,871	£159,826
Suggested operator incentive	£13,078	£13,412
Total operating cost	£307,875	£415,593
Weekly pallet throughput	338	728
Ongoing cost per pallet (based on SDC throughput volumes only)	£9.90	£7.65

Table 9 Comparison of estimated costs and throughput for the two middle scenarios

Without the accompanying storage facility the likely uptake is very much at the margins of what might be considered as viable and within this the throughput is heavily influenced by the participation of SCC.

In contrast, the introduction of additional, larger users who would attracted by the parallel storage facility (paid for as part of a separate agreement with the SDC operator) bring the throughput and hence the charge rates to a level which is more likely to give long term viability, and in a way that is less dependent solely on SCC use to underwrite it.

Annex D of this proposal contains graphs comparing the optimistic-middle-pessimistic scenarios for both the FCC only and a FCC with storage facility options. Over a two-year period, week by week, these illustrate the expected growth in user levels; cumulative operating costs; operational costs per pallet and the cumulative subsidy costs.

5. Summary and Recommendations

This study finds that it would be viable to establish a Sustainable Distribution Centre to serve Southampton. The stakeholder engagement and subsequent modelling carried out by this study shows that the available LSTF grant would be sufficient to cover the necessary subsidy required to meet the likely uptake of an SDC given certain characteristics.

These characteristics include:

- Provision of storage facilities as well as a traditional freight consolidation service. This will help to draw in some of the larger organisations who can provide substantial throughput.
- Inclusion of Southampton City Council (SCC) as a primary user of the service. Ideally the operational element of the service should not begin until SCC is ready to begin using the service (at least in part) to conserve budget. However other aspects of the operation such as marketing and recruitment should begin as soon as an SDC Operator is identified.
- The services should be marketed at retailers, organisations with significant throughput of deliveries, light construction activity and logistics chains delivering into the area
- The service should assume a core operating area of Southampton and Eastleigh, therefore the most appropriate location for an SDC facility will be near to a junction along the M27 or lower M3. It would be at the Operator's discretion where this should be though it is recommended that a maximum distance of six miles from Southampton City Centre is stated within the service requirements.
- To be cost effective, the Operator will need to make use of a facility which is shared with other logistics operations and utilise shared warehouse staff, vehicles and infrastructure.
- A nominated individual within the Council to support and promote the concept and liaise with the Operator. The marketing function of the service will be provided by the Operator.
- State aid considerations will need to be factored into the procurement process as will the ability for other public sector organisations to utilise the service through an SCC contract to avoid the need for repeated tendering of service by each organisation (e.g. Eastleigh Borough Council).
- The service may need to include an area for 'bonded goods' to support some users
- The provision of refrigerated and frozen goods storage and transport is probably not required, unless a significant user such as a local food bank charity requires it. Otherwise, this can be left outside of the initial service procurement

The costs presented should be considered indicative. Because the delivery model is proposed to be a shared user model, the actual costs will depend on the business model of the successful tendered and the way in which they are able to integrate the SDC into their existing operations. Given that we do not

know the successful tenderer at the stage it is not possible to factor the throughput of the existing operation into these calculations, which means that the costs could be considerably lower. This could result in lower user cost cap values and higher throughput. These are issues that would need to be negotiated with the chosen operator after the tender during the process of drafting the operating contract.

6. Risk Mitigation

The risks in providing the Sustainable Distribution Centre (SDC) for Southampton need to be managed through the procurement process when selecting an Operator for the service. The table below details identified risks and how Southampton City Council can be shielded from these.

Risks to Southampton City Council		
No.	**Identified Risk**	**Mitigation approach**
1	LSTF grant is unable to be spent as an operator is not appointed until late in the programme schedule	The Pre Qualification Questionnaire stage of procurement should be begun in December 2012
2	More subsidy is required than is available from SCC as a result of demand exceeding optimistic forecasts	Specify the cap on subsidy within the procurement and contract with the service Operator.
3	Subsidy claims do not reflect actual throughput, income or operating costs	Tender will need to define 'open book' requirements for operation so that SCC can have visibility of costs to support the subsidy claims
4	Operators may request that SCC implement more policy levers to drive recruitment to reduce their risk	The Supplementary Planning Document (SPD) on travel planning advice being developed with Hants CC should include guidance to businesses encouraging the use of the SDC
5	The model results and the recommendations based on them are inaccurate	The model used was developed for use on a Department for Transport (DfT) research project. The model inputs were verified by logistics experts from Wincanton, DHL, CSB Logistics and Clipper Logistics. The overall model was reviewed by a Freight Transport Economist at the DfT.

Risks to service operator		
No.	**Identified Risk**	**Mitigation approach**
6	Operators bid with high prices to reduce risk on them but will decrease the chance of high adoption rates from users	A reward mechanism should be built into the contract so that the operator should be allowed to hold onto profit generated by the SDC as reward for taking commercial risks to operate the service and recruit participants
7	Operator needs to have sufficient independence to allow pricing flexibility to build up a core business during the two-year subsidised period	The operator will be allowed to set user rates at a lower cost early in the service provision to aid in building a core level of activity

Risks to users of service		
No.	**Identified Risk**	**Mitigation approach**
8	Risk to users is that they will be locked into long term contracts with the SDC because of the cost-of-change which puts them in a weak negotiating position.	In the tender documents request that potential operators provide details on what the maximum end per pallet equivalent rate will be for users after March 2015 when the subsidy finishes SDC operator contracts with users will need to allow for appropriate break clauses and notice periods
9	Storage costs are increased above the market average over time when users are 'locked-in'	In the procurement include a requirement that storage costs linked to a local average market rate.
10	Storage costs are only attractive for larger organisations receiving bulk discounts and not to smaller organisations	In the procurement include a requirement that storage costs being charged to users differ by no more than 5% per square foot.

Annex A: Task 1.4 Graphs of Interim Scenario Model Results

The following graphs were produced as part of Task 1.4, following the stakeholder consultation phase but prior to the market testing phase. A finalised set of the same graphs produced after the market testing phase in Task 1.6 can be found in Annex B.

For graphs of Scenarios 1-9, the axes should be used as follows:

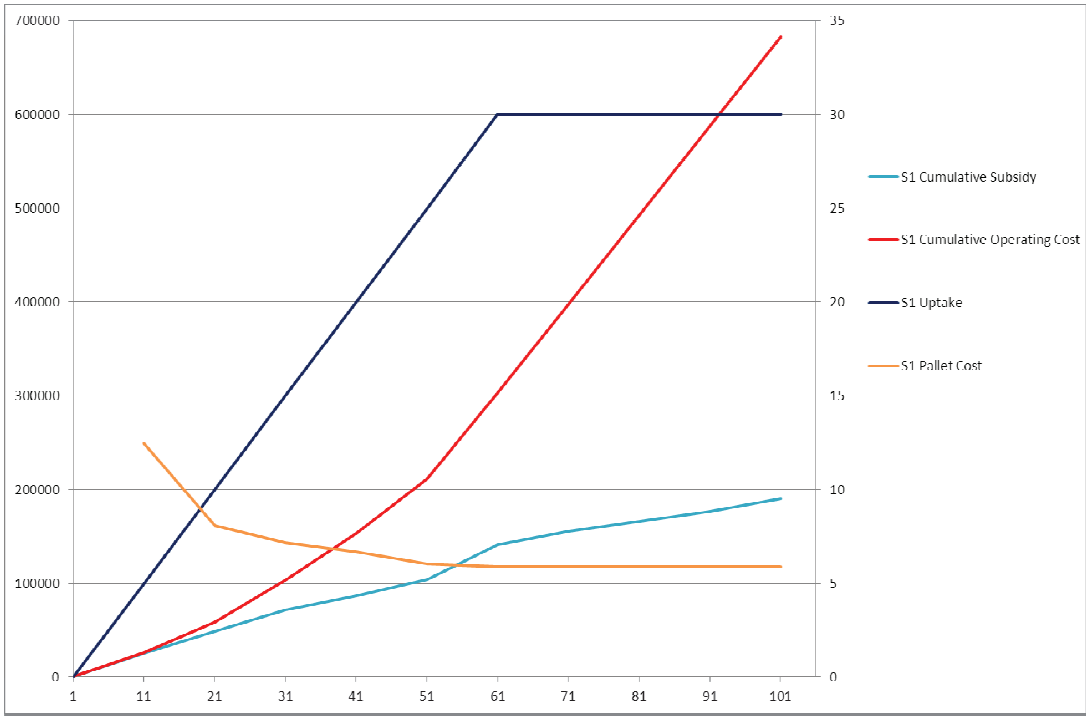
Left hand axis:

- Cumulative funding requirement in £
- Cumulative operating cost in £

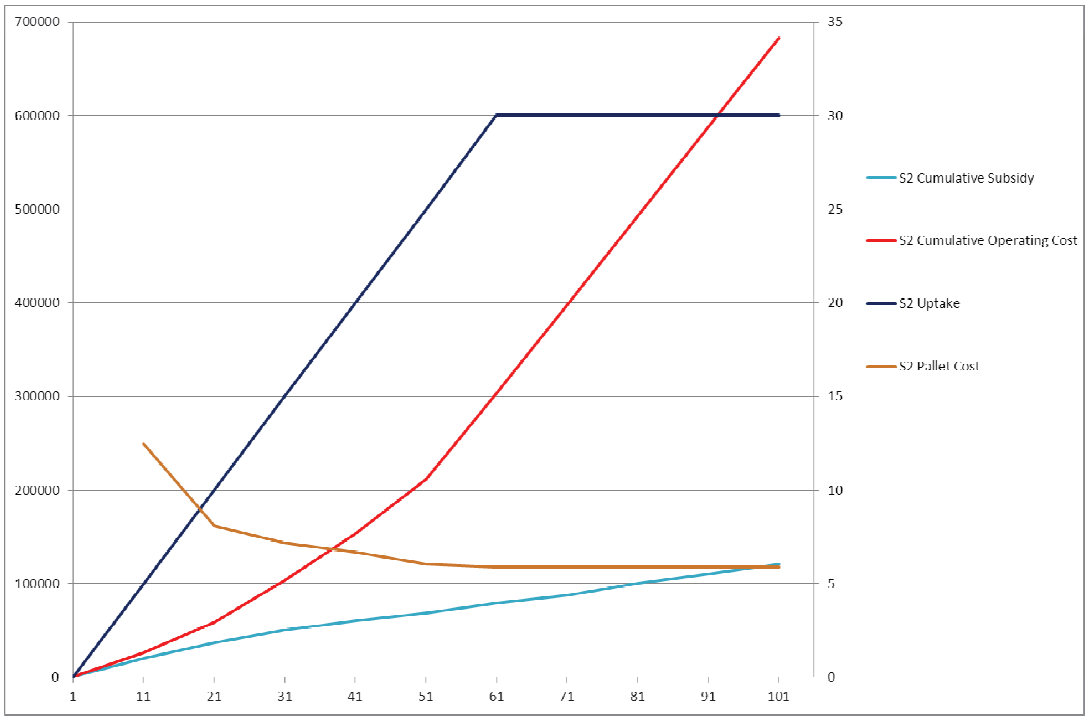
Right hand axis:

- Uptake level as % of notional total market in DfT model
- End user cost in £ per pallet equivalent

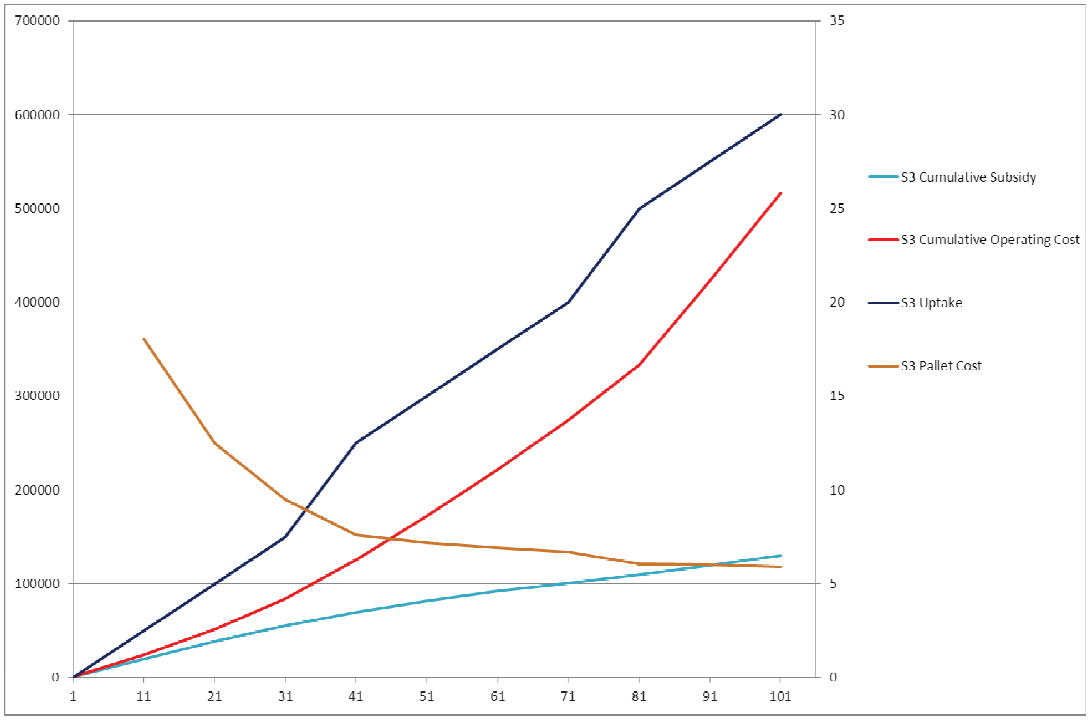
S1 (30% uptake, saturation at 12 months, free period and £8 user charge cap)



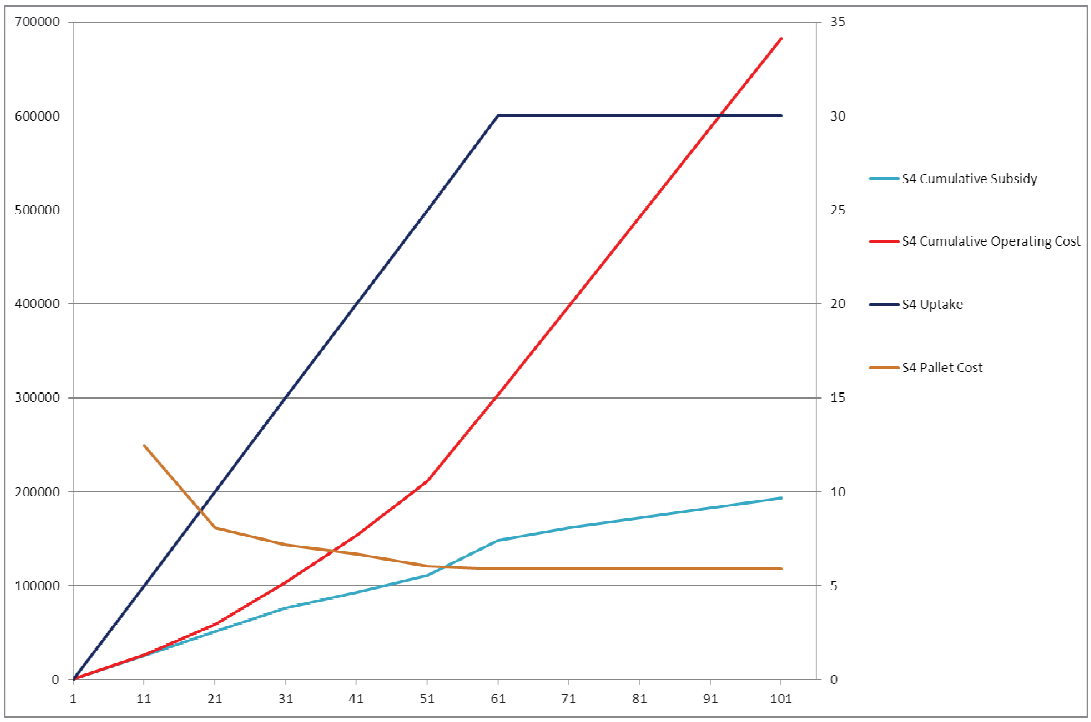
S2 (30% uptake, saturation at 12 months, no free period and £6.65 user charge cap)



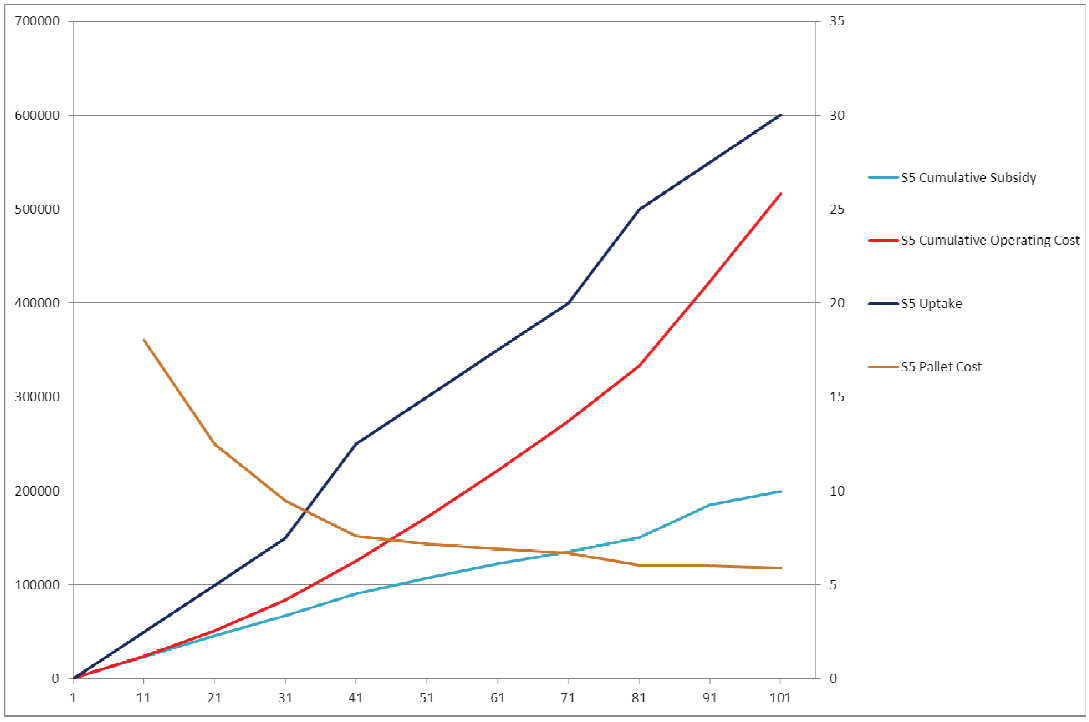
S3 (30% uptake, saturation at 24 months, no free period and £6.65 user charge cap)



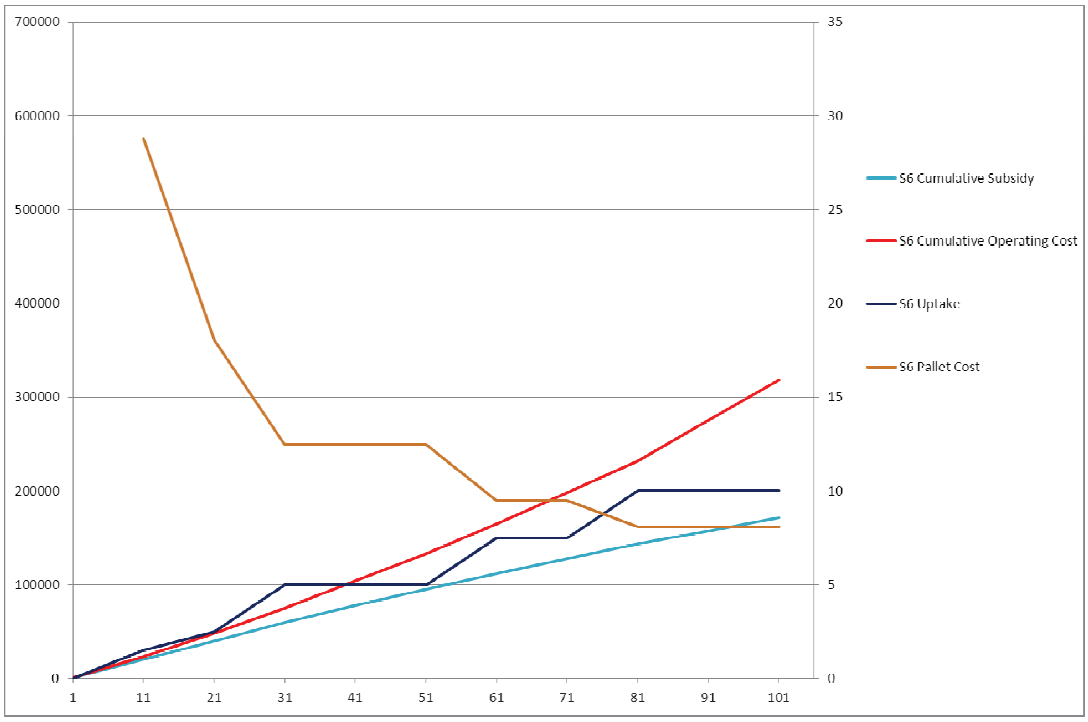
S4 (30% uptake, saturation at 12 months, free period and £6.65 user charge cap)



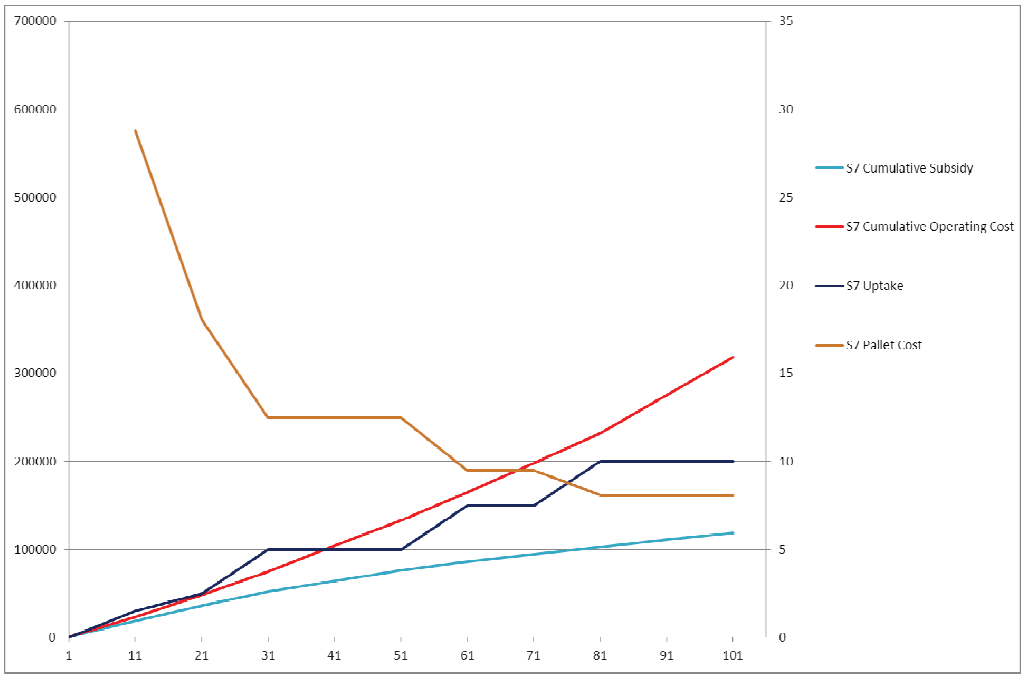
S5 (30% uptake, saturation at 24 months, free period and £6.65 user charge cap)



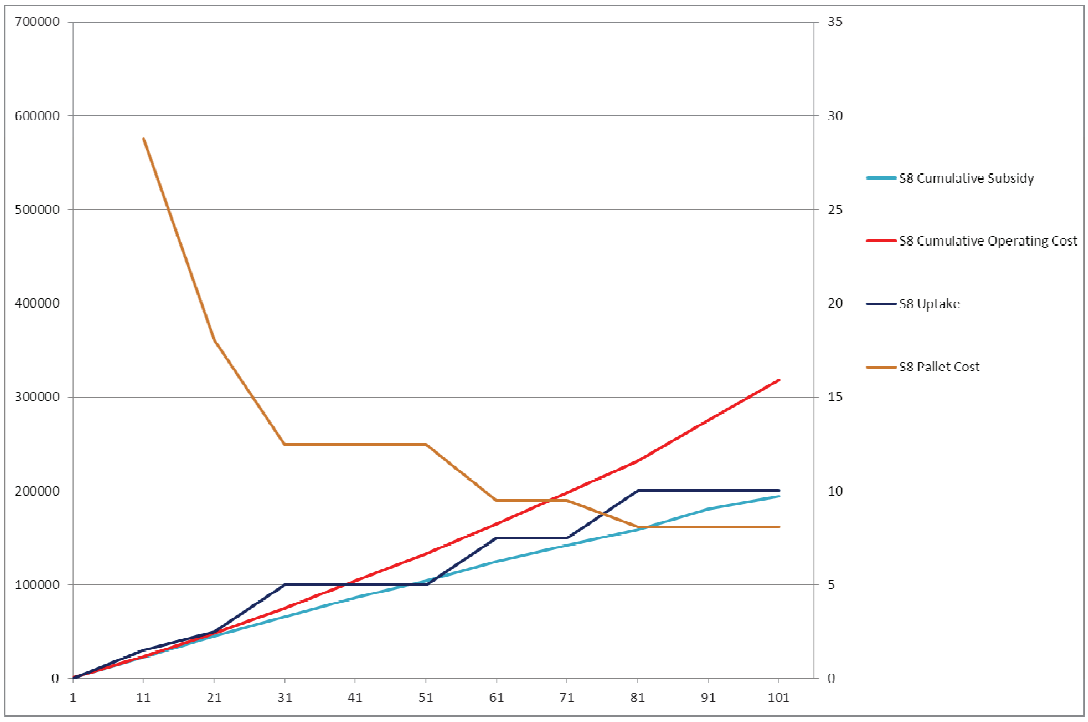
S6 (10% uptake, saturation at 19 months, no free period and £6.65 user charge cap)



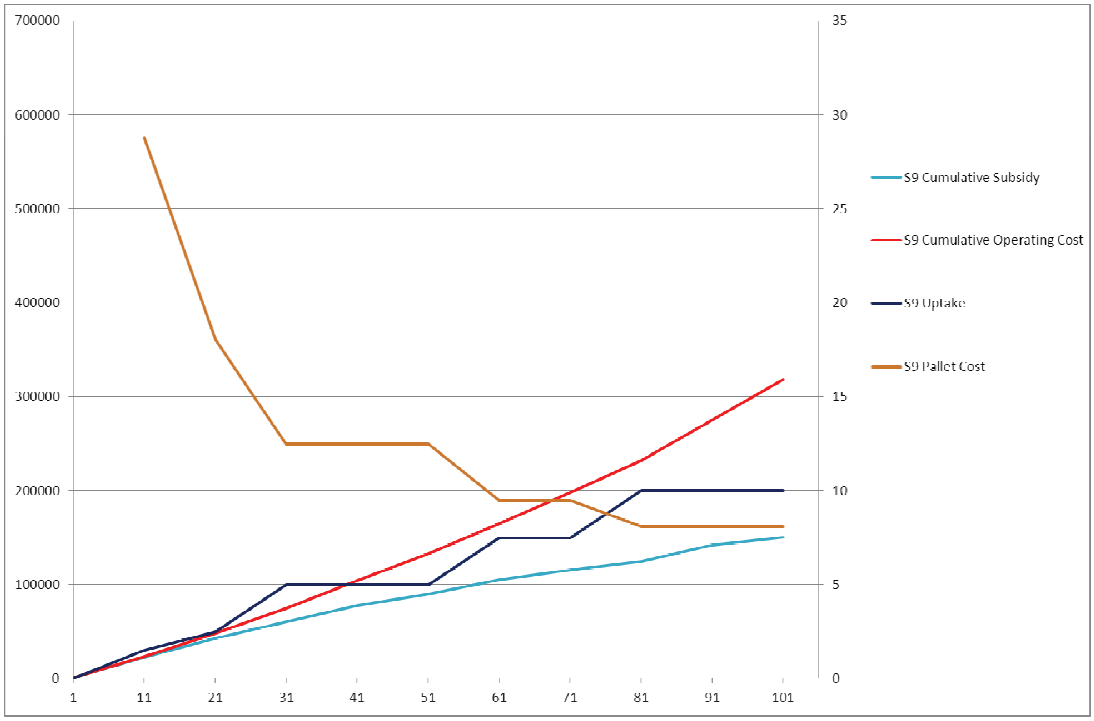
S7 (10% uptake, saturation at 19 months, no free period and £10 user charge cap)



S8 (10% uptake, saturation at 19 months, free period and £6.65 user charge cap)



S9 (10% uptake, saturation at 19 months, free period and £10 user charge cap)



Annex B: Task 1.6 Graphs of Finalised Scenario Model Results

The following graphs were produced as part of Task 1.6, following the market testing phase. The scenarios have been revised so that they consist of three types of projection – optimistic, medium and pessimistic forecasts. Each of these has been produced for an operation which is FCC only and one which is FCC plus a storage facility.

For graphs of each the six scenarios, the axes should be used as follows:

Left hand axis:

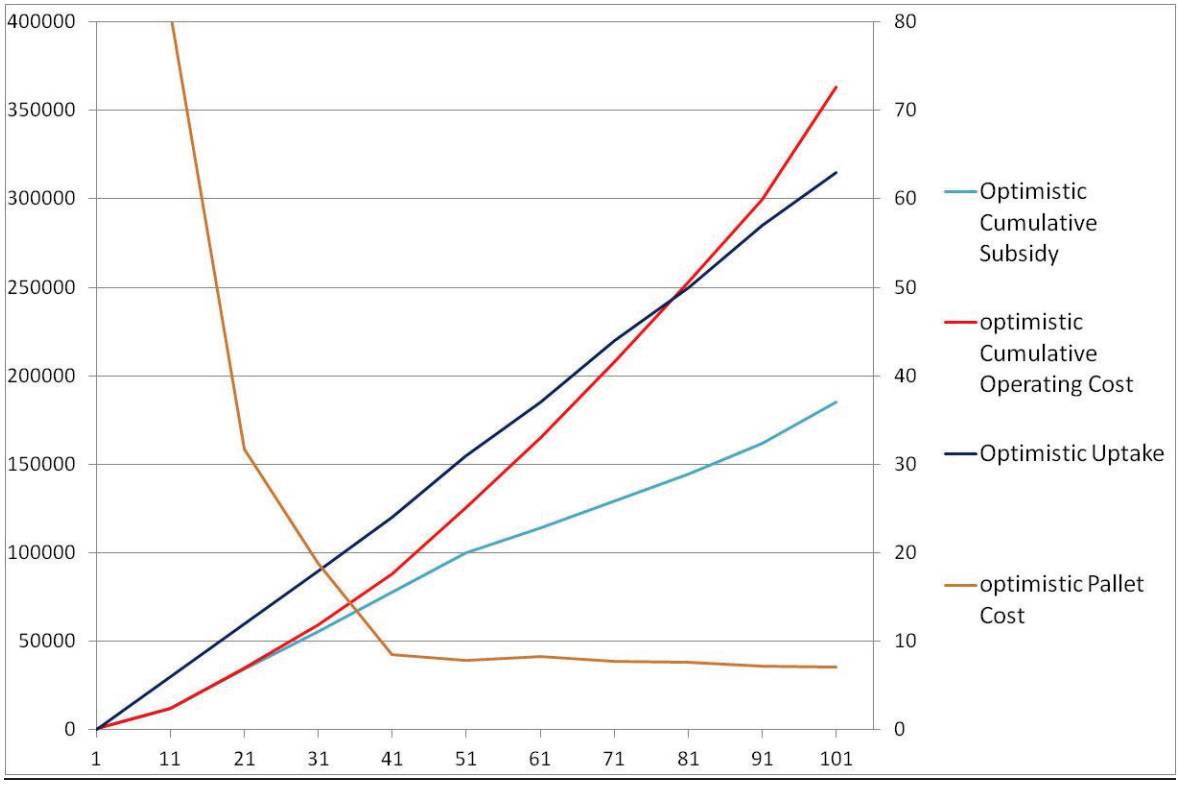
- Cumulative funding requirement in £
- Cumulative operating cost in £

Right hand axis:

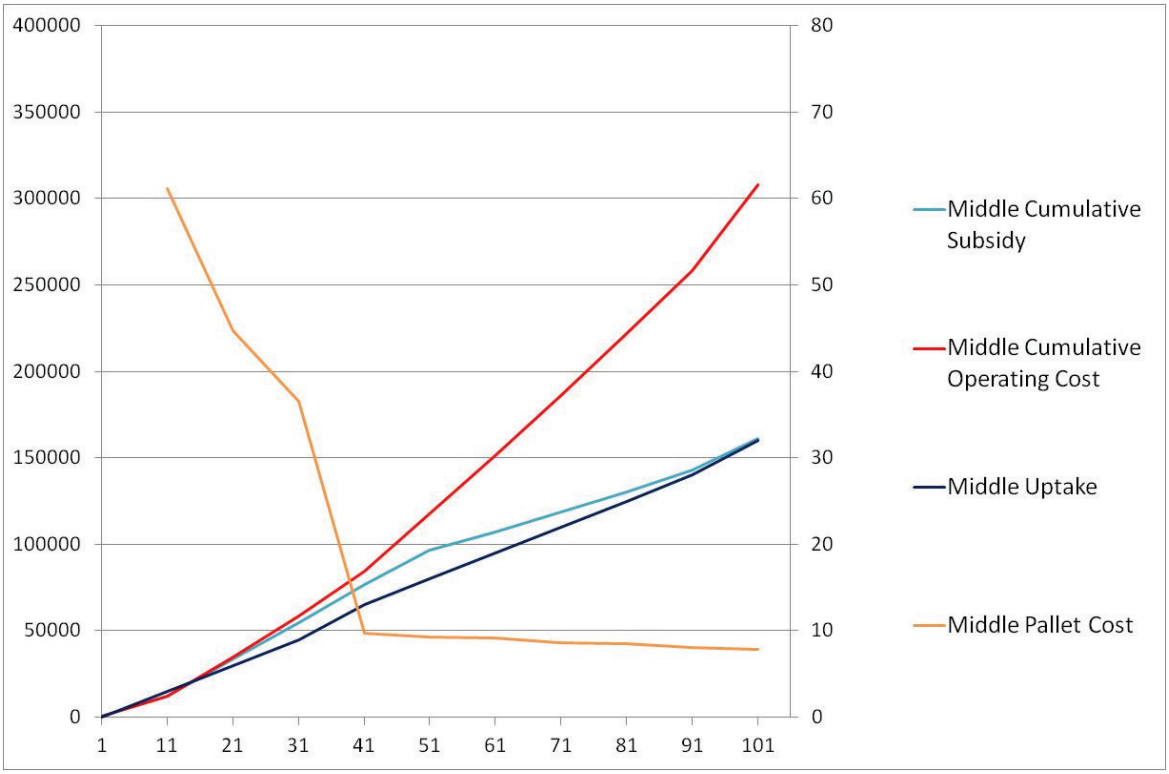
- Uptake level as % of notional total market in DfT model
- End user cost in £ per pallet equivalent

Basic FCC only Scenarios

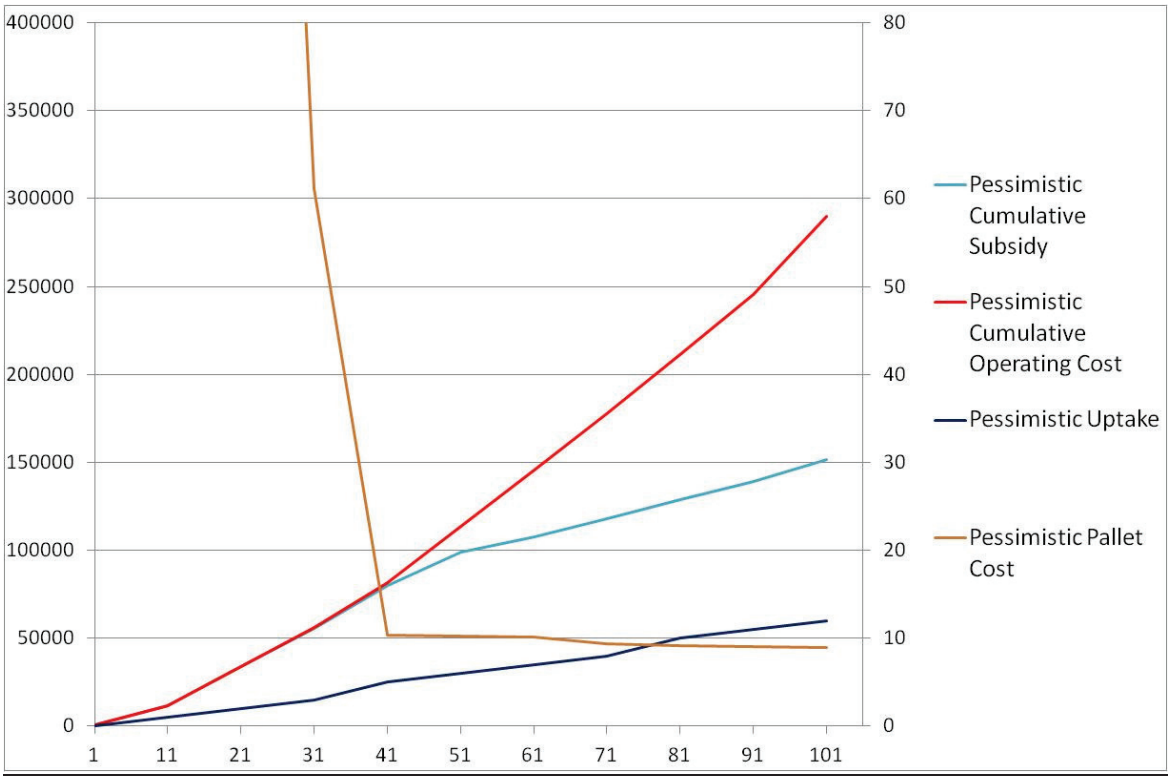
Basic FCC with Optimistic forecast



Basic FCC with Medium forecast

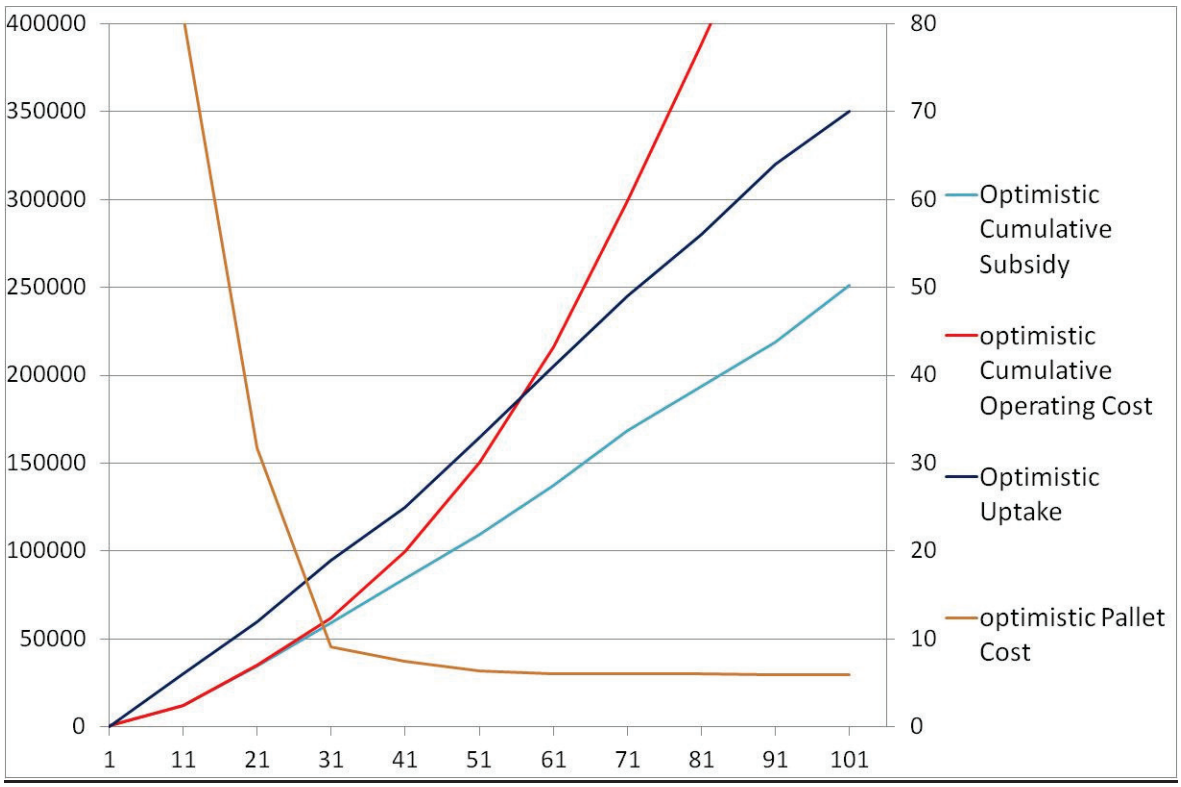


Basic FCC with Pessimistic forecast

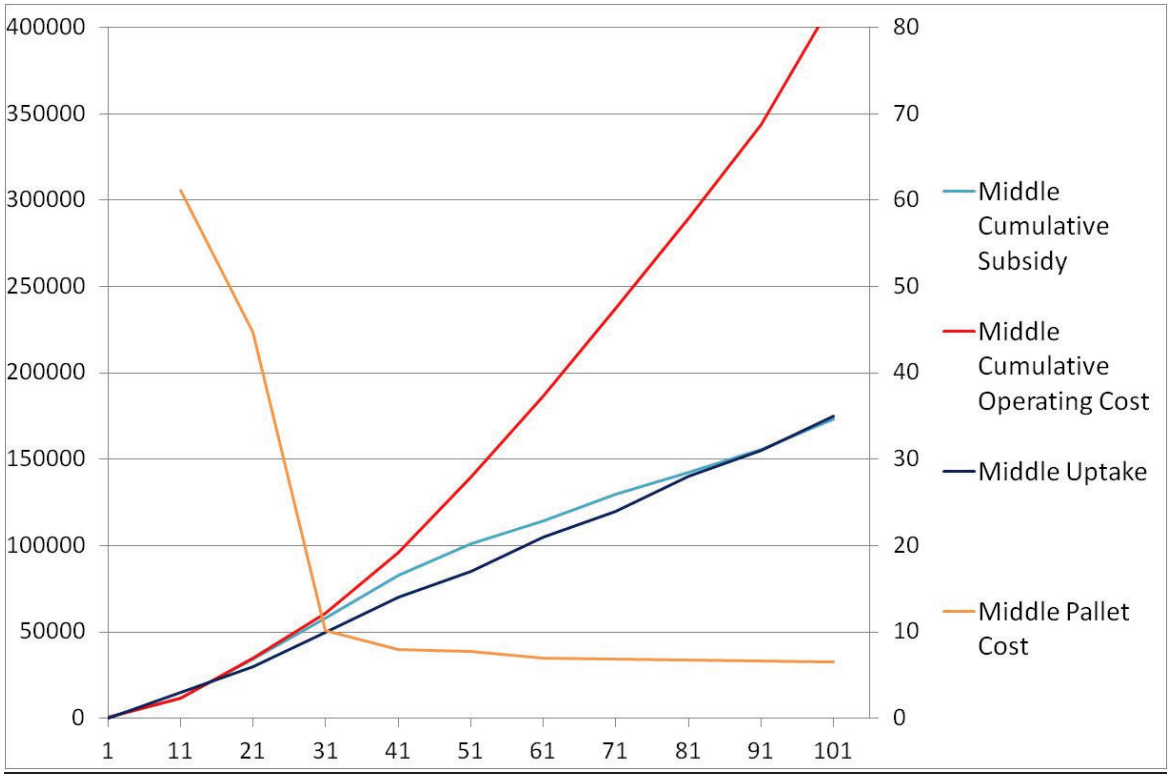


FCC with Storage Facility Scenarios

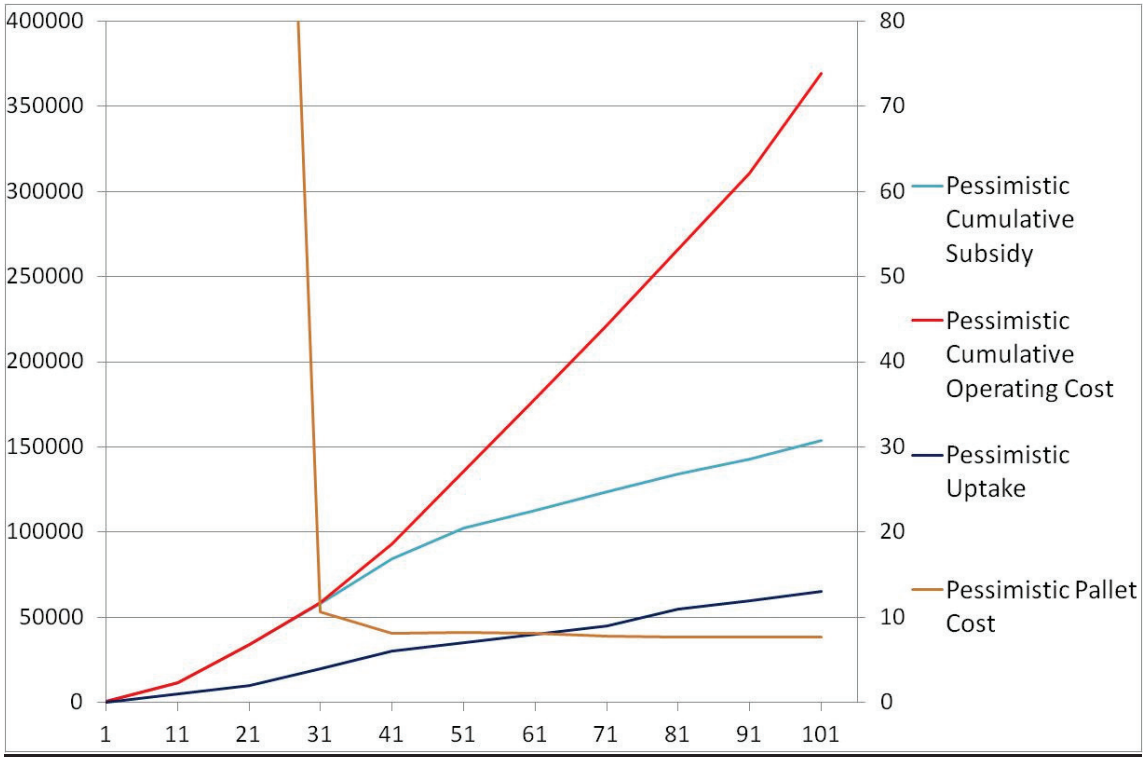
FCC with Storage Facility optimistic forecast



FCC with Storage Facility medium forecast



FCC with Storage Facility pessimistic forecast

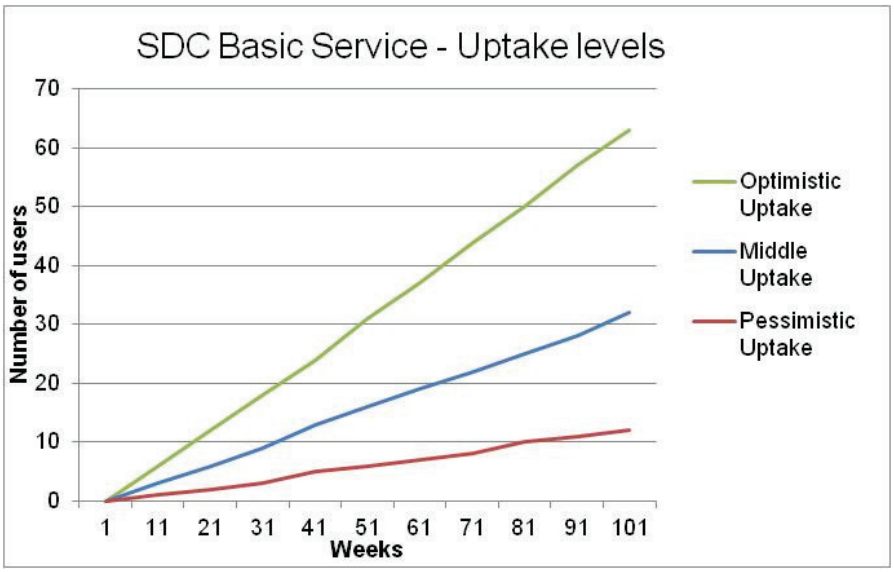


Annex C: Retailer Respondents to the Market Testing Survey

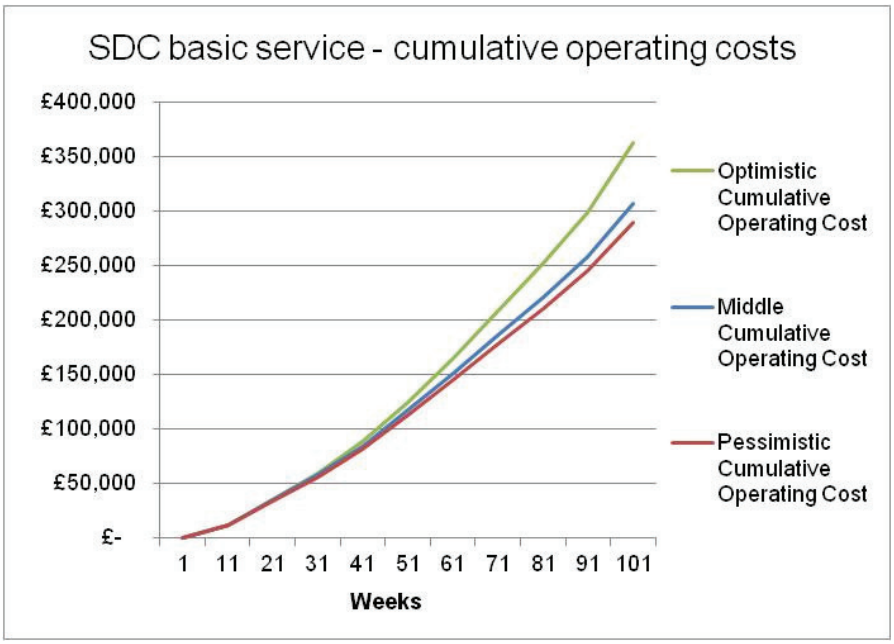
- 3 (Three)
- 99p Store
- Alternate
- Animal
- Ann Summers
- Argos
- Art Effects
- BHS
- Blacks
- Boots
- Brantano
- Build-A-Bear Workshop
- Card Factory
- Carpet Right
- CEX Ltd
- Classical Fabrics
- Ecco
- Essensuals
- First Choice
- Frontline
- Game
- GAP
- GNC
- Halfords
- High & Mighty
- Hotel Chocolat
- Internacionale
- JD Sports
- Jessops
- Laura Ashley
- Leighton Opticians
- Lucid
- Lush Retail LTD
- Maplin
- Matalan
- McKenzies Furniture
- Model Zone
- Monsoon
- Mostyns
- Next Home
- Panasonic Store
- Paperchase
- PC World
- Perrys Art & Office Supplies
- Poundland
- Repertoire
- Reskue
- River Island
- Route One
- SNIP A-Z Discount Store
- Staples
- Superdrug
- Swatch
- Sweatshop
- Telephone House Pharmacy
- The Body Shop
- The Disney Store
- The Engraving Gallery
- TKMaxx
- Tuned In
- USC
- Vision Express
- WH Smith

Annex D: Task 1.6 Comparisons Between Pessimistic, Optimistic and Middle Uptake Scenarios

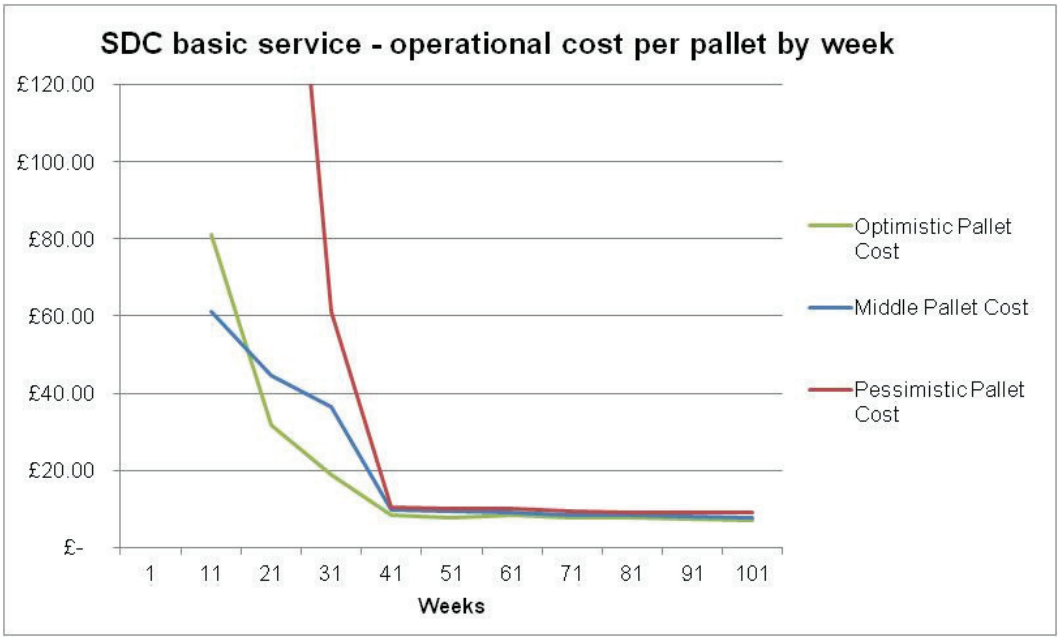
1. **Basic SDC Service: Uptake levels**



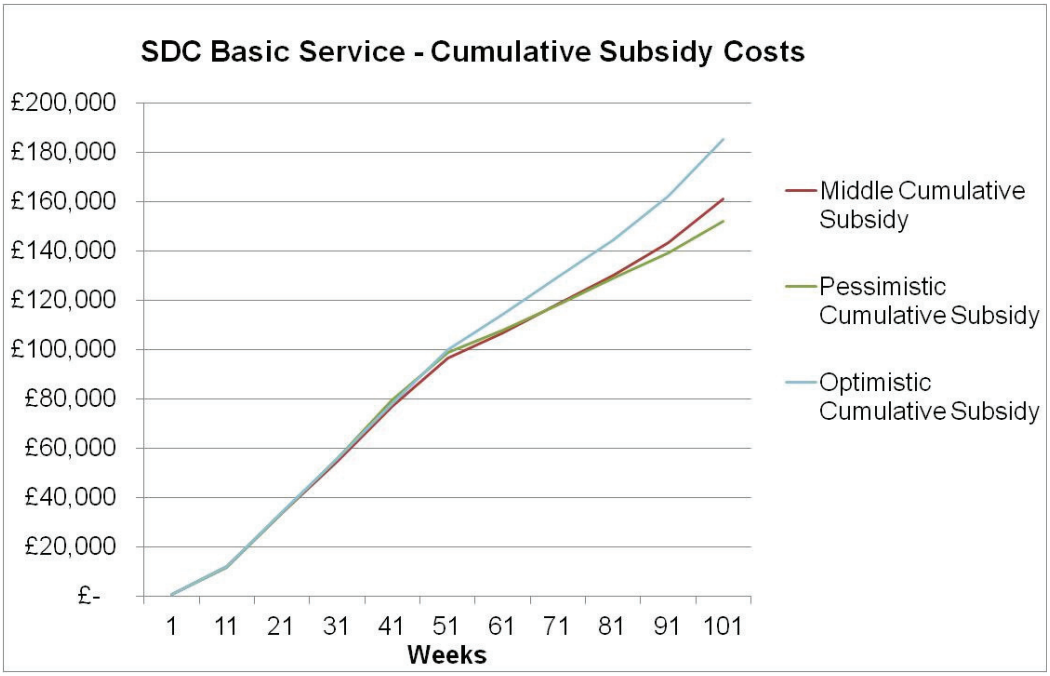
2. **Basic SDC Service: Cumulative operating costs**



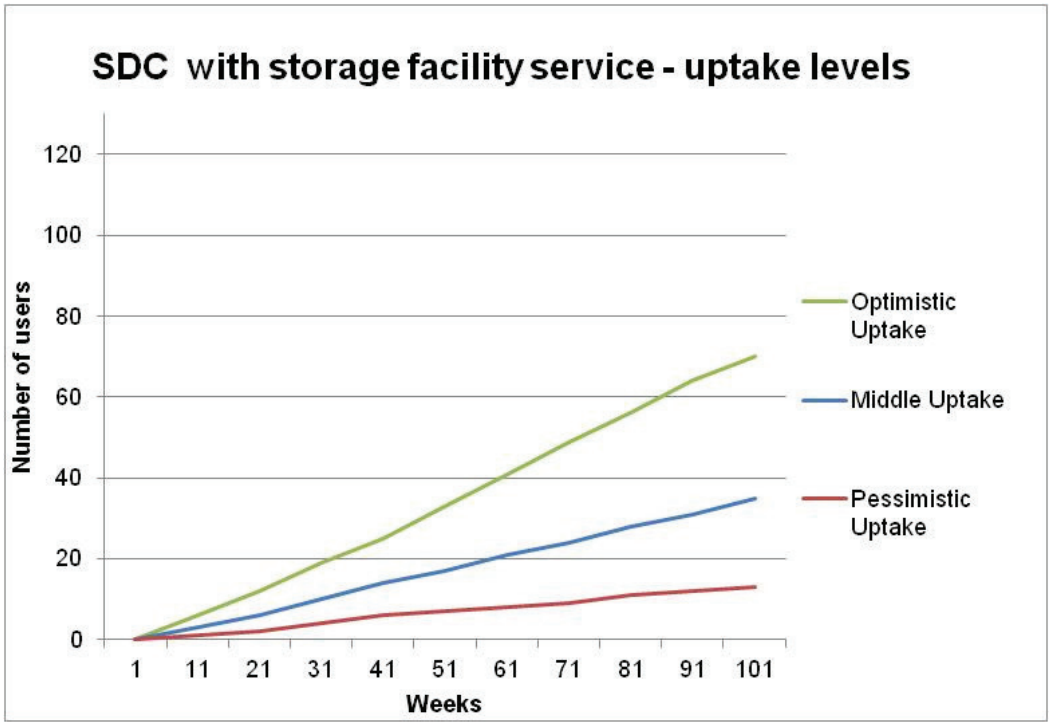
3. Basic SDC Service: Operational cost per pallet by week



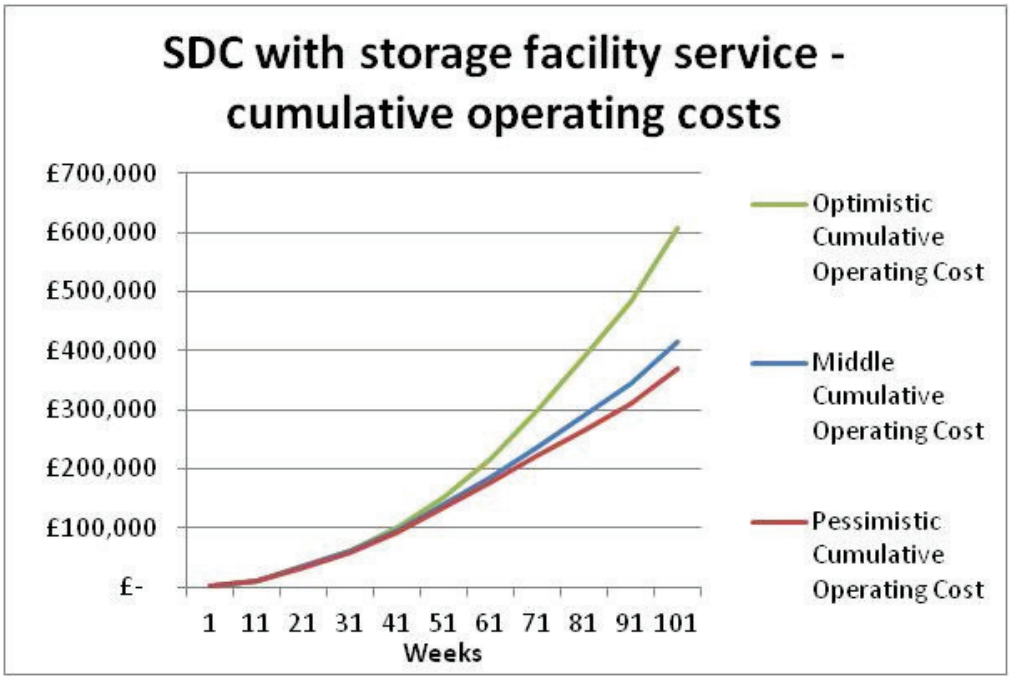
4. Basic SDC Service: Cumulative subsidy costs



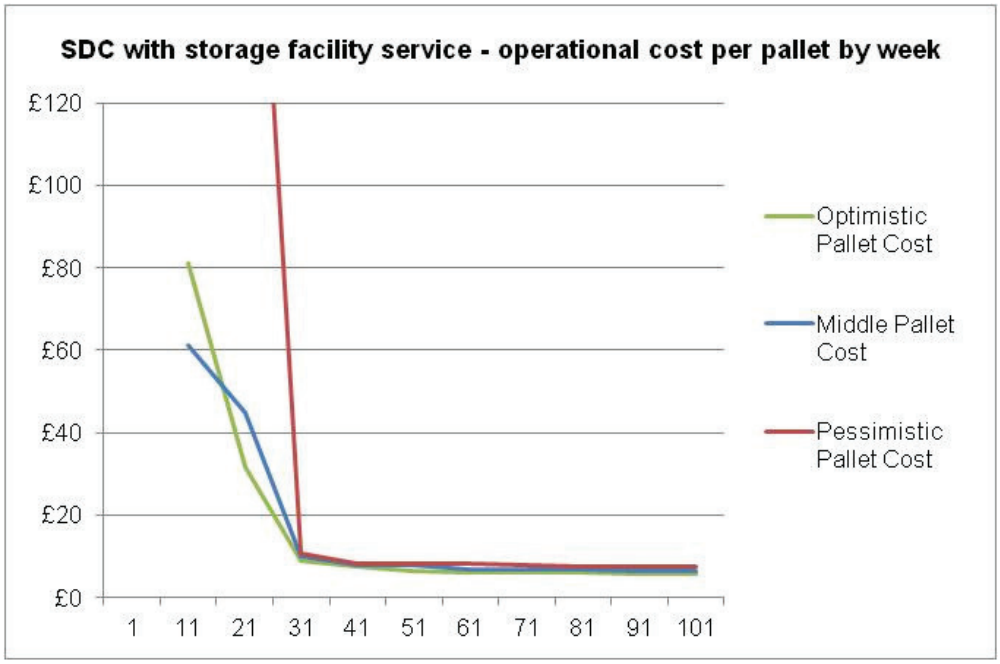
1. **SDC plus storage facility service: Uptake levels**



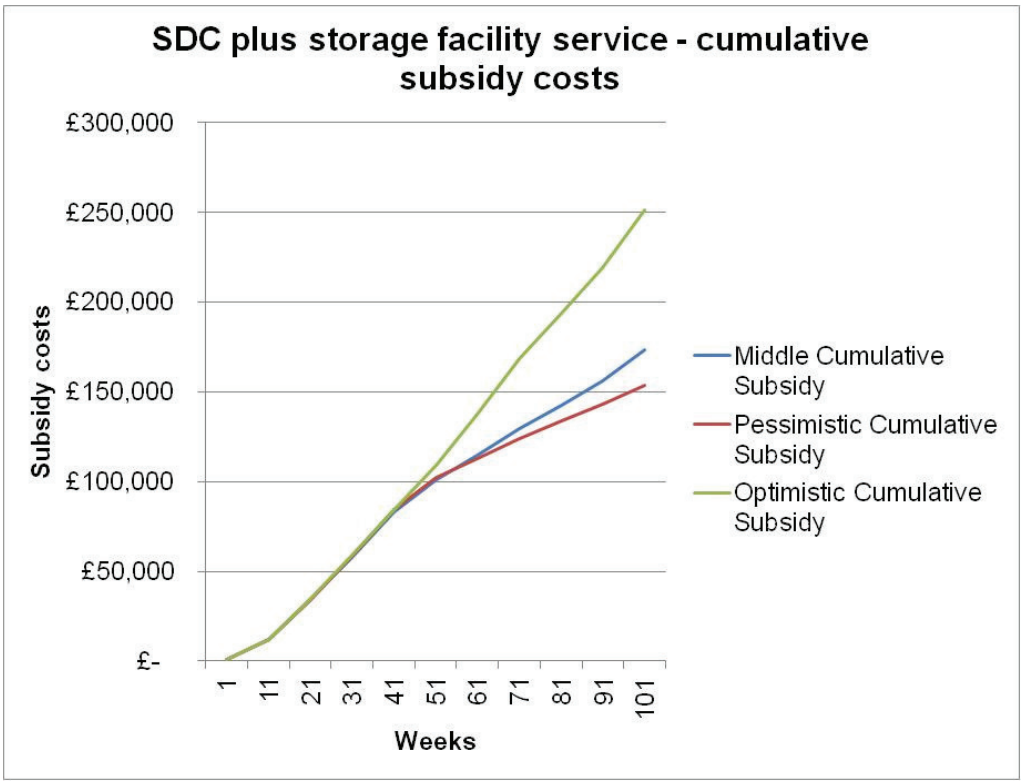
2. **SDC plus storage facility service: Cumulative operating costs**



3. **SDC plus storage facility service: Operational cost per pallet by week**



4. **SDC plus storage facility service: Cumulative subsidy costs**



Annex E: Assumptions Used in the Model

The model makes the following assumptions on the operations of a Sustainable Distribution Centre.

- The facility would be shared with other logistics operations and utilise shared warehouse staff, vehicles and infrastructure.
- The model factors in costs for the lease of the distribution centre site, heating/lighting, vehicle lease costs, insurance and licensing, fuel and operating costs (based on FTA published costs of distribution 2012), forklift truck(s) (FTA figures, per annum for a 5 year contract - either a 2 tonne lift or a 1350Kg 6m lift), racking (including rails, packaging etc), IT systems, office costs, marketing materials, legal costs and goods in transit insurance.
- Costs for a full-time marketing manager are included along with a part time General Manager with increasing proportion of this cost when throughput reaches a certain threshold. Staff costs are based on FTA figures with regional adjustment.
- An examination of the going rate for warehouse space in the Southampton area has suggested a range of £4 - £7.2 ft^2 per annum on the open market (as at July 2012) of which a midpoint has been used in this model..
- This report uses the phrase 'pallet equivalent' as a unit measure of freight space for both trucks and warehousing. The specific measurement being used is a Standard Pallet which equals 120cm x100cm in size. Retail freight is typically transferred in units such as cages, rails (clothes) and boxes. The study translates these units into pallet equivalents for ease of reference. Construction freight is considerably more varied with larger prefabricated items being delivered as well as smaller boxes, pallets and tools.
- The vehicle loading in the model is assumed to be single stack.
- The SDC would be open to receive deliveries on a 24/7 basis
- The SDC would make deliveries to stores 6 ½ days a week, 7am-7pm
- The SDC is located 5 miles by road from the city centre
- No operator's management charge or profit margin has been added into the SDC operating costs – profit would be determined by the subsequent charge out rates negotiated between the operator and end users
- Deliveries would be made to the store as a simple drop-off at the delivery bay
- The retail\office mix and total number of stores used in the model is based on data extracted from the Southampton City Centre Businesses list prepared in 2010 by Streets Ahead Southampton. The delivery throughput for users is based on an average from five different town centre studies undertaken by TTR and adjusted based on the responses received from organisations in the market testing phase.