

Costs and Benefits of Freight Consolidation Centres

50th IAPSC Conference

**Freight Consolidation Centres
and their Potential Role in Air
Quality Management**

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Presentation by

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Quality, Innovation & Originality

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Outline

- Introduction
- Current Situation and Experiences
- DfT Study
- Conclusions & Recommendations

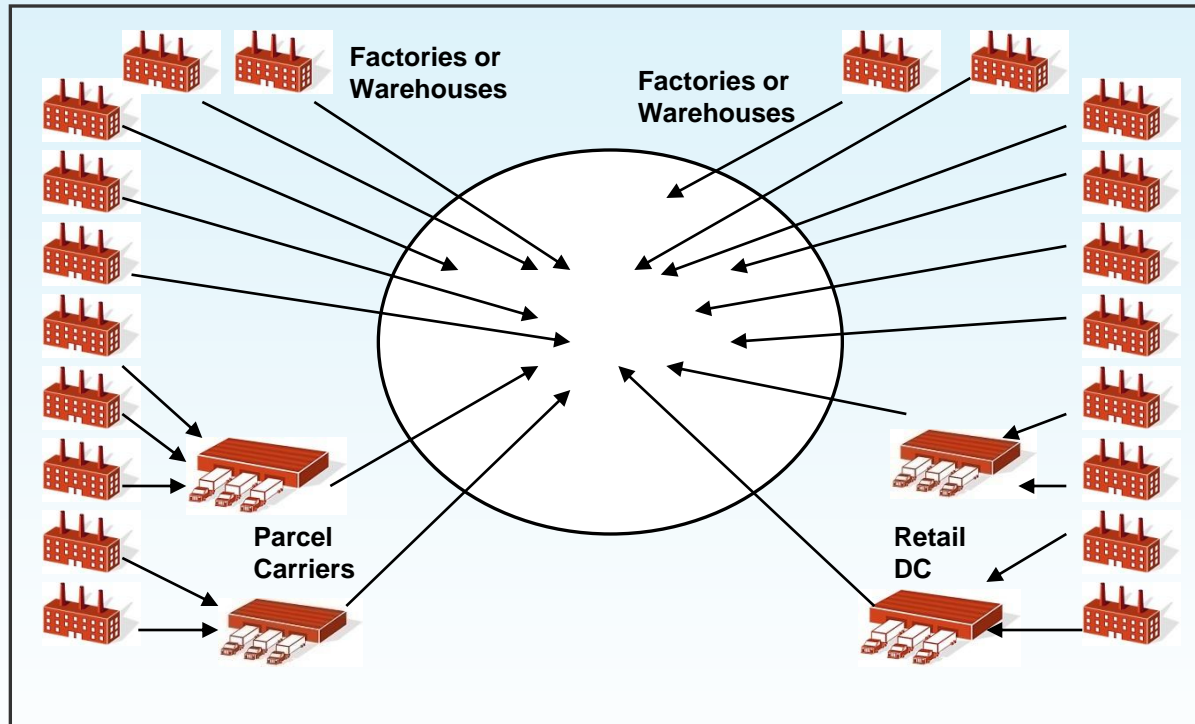
What is Freight Consolidation?

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

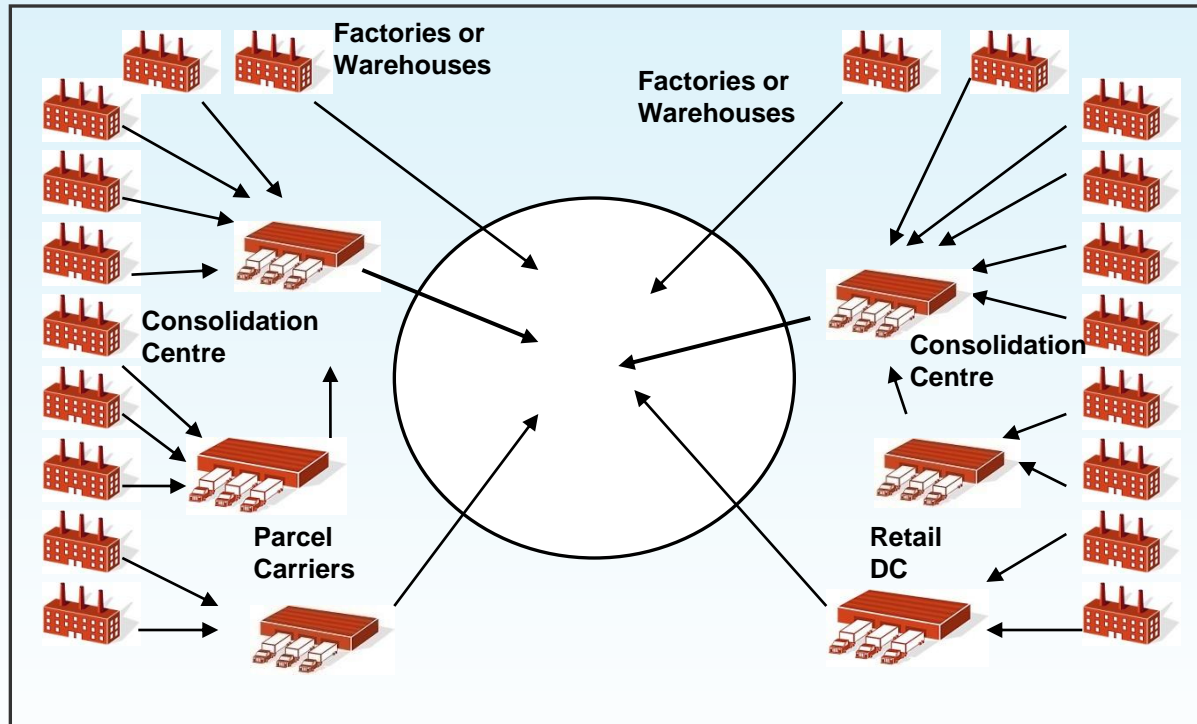
- Widely applied within modern supply chains
- Often assumed:
 - Transhipment Centre
 - Urban
 - Retail



From



To



Freight Consolidation Centres : UK Background

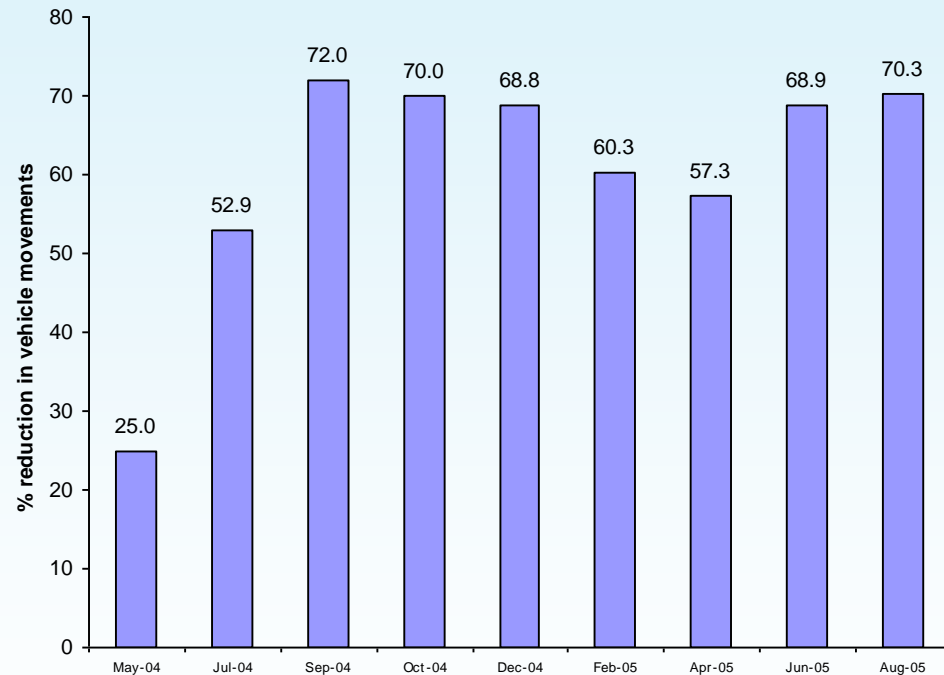
- Various examples now in existence
 - Heathrow
 - Bristol (+ Bath)
 - Meadowhall
 - Regent Street
 - Norwich
 - Newcastle
- Each with it's own unique operating model and origins
- Many more have been / are being investigated



Freight Consolidation Centre Impacts

Bristol Broadmead (2004/5)

- 70% fewer delivery journeys to **participating stores**
- Up to 4000 HGV kms less per month
- CO₂ reduced by up to 600kg per month
- NO_x reduced by up to 1.2kg per month
- Particulates reduced by up to 100g per month
- Better service at store level for those involved



Is Bristol a one off? No....

Heathrow

- 60-65% fewer delivery journeys to participating stores in 2006

London Construction Materials CC

- 68% fewer journeys to site
- CO₂ reduced by 75%
- Delivery accuracy more than doubled
- Reduction in waste on site


Is Bristol a one off?but

Norwich

- Essentially zero impact
- Little uptake


ECR-UK 'Shared Conurbation Deliveries'
study

- 2% fewer delivery journeys
- 2.5% less delivery mileage






**NORWICH FREIGHT
CONSOLIDATION
CENTRE**

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Cleaner and better transport in cities

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Consolidation Centre Consultation Results:

- Strong 'in principle' support at strategic level, but associated uncertainty
- Scepticism from many commercial organisations, particularly larger businesses (don't underestimate human nature and our resistance to change)
- Limited FCC data & confidential commercial arrangements
- Wide differences in opinion within individual sectors
- Business case is a key factor

Business Case

- No consensus over who should pay
- Logistics accounting practices – no clear mechanism for how benefits can be captured in a holistic way for different groups
- What is the true cost to make a delivery on an urban delivery round?
- Case by case approach for each business
- Is there a more cost-effective approach for operating an FCC?

DfT Study Remit

- Model the costs & benefits of specific FCC scenarios
- Assess the overall balance of the costs and where the benefits are distributed
- Improve the understanding of how and why FCCs can be used successfully

- In partnership with:



Basis of Operational Model

- Number and type of businesses
- Number and size of deliveries by business type
- Supply chain typology, inc 'transport unit'
- Vehicles used
- Space, staff, equipment & vehicle requirements at FCC
- Degree of (further) consolidation possible
- Emissions functions

DfT Study Scenarios

- In comparison with baseline, combinations of:
 - In-town shopping centre
 - Typical mixed High Street
 - Construction Site
- Dedicated or shared use facility
- Compulsory or voluntary participation
- Additionally:
 - 7.5T / 17T rigid diesel / electric / diesel urban artic

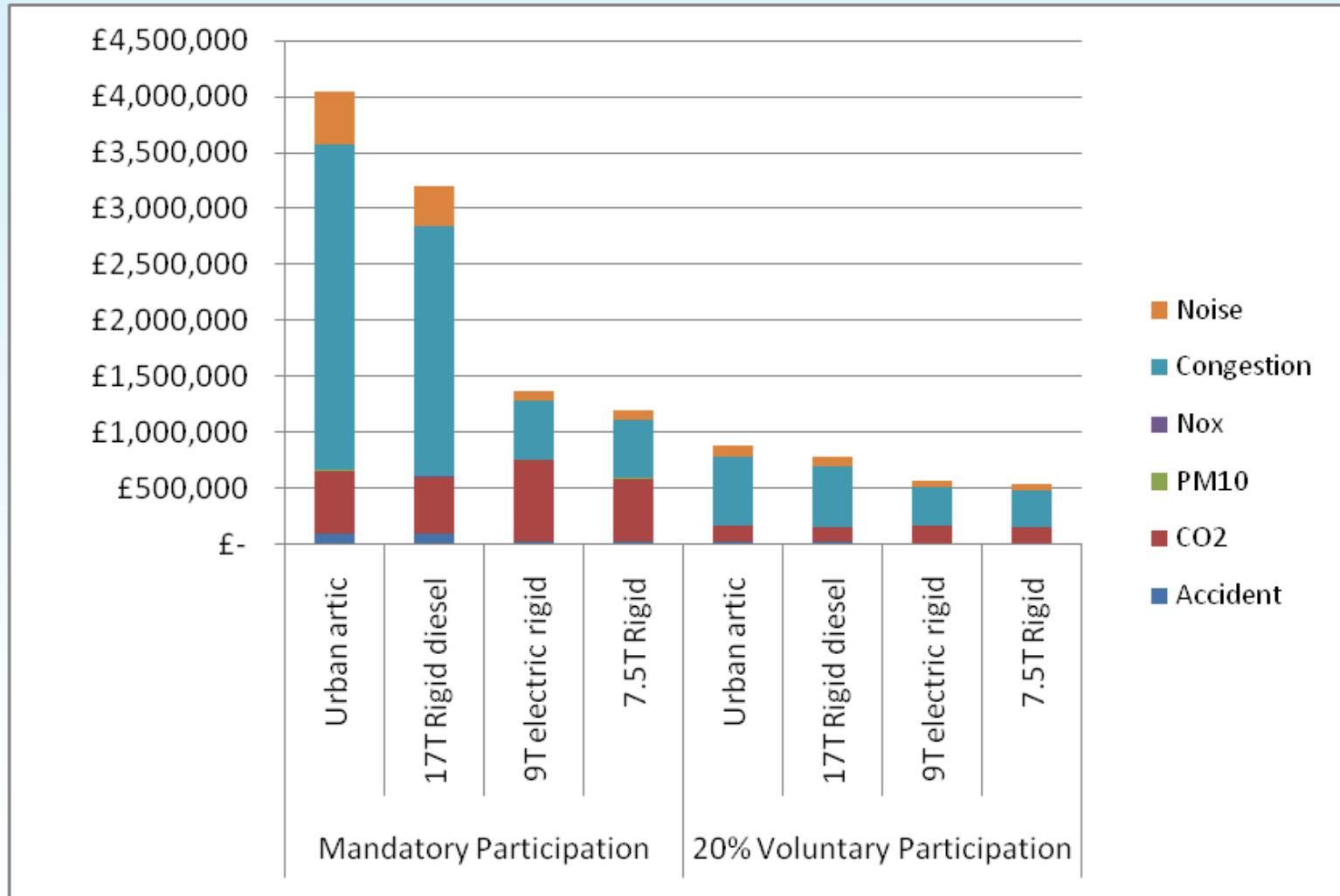
Example Operating Cost Output

17T Rigid Diesel	Mandatory		Voluntary (20%)	
	Shared	Dedicated	Shared	Dedicated
Total Cost	£3.0m	£3.1m	£0.48m	£0.66m
Cost per pallet	£5.8	£5.9	£7.7	£10.6
# staff	69	71	11	17
# vehicles	26		4	
# runs/week	721		87	

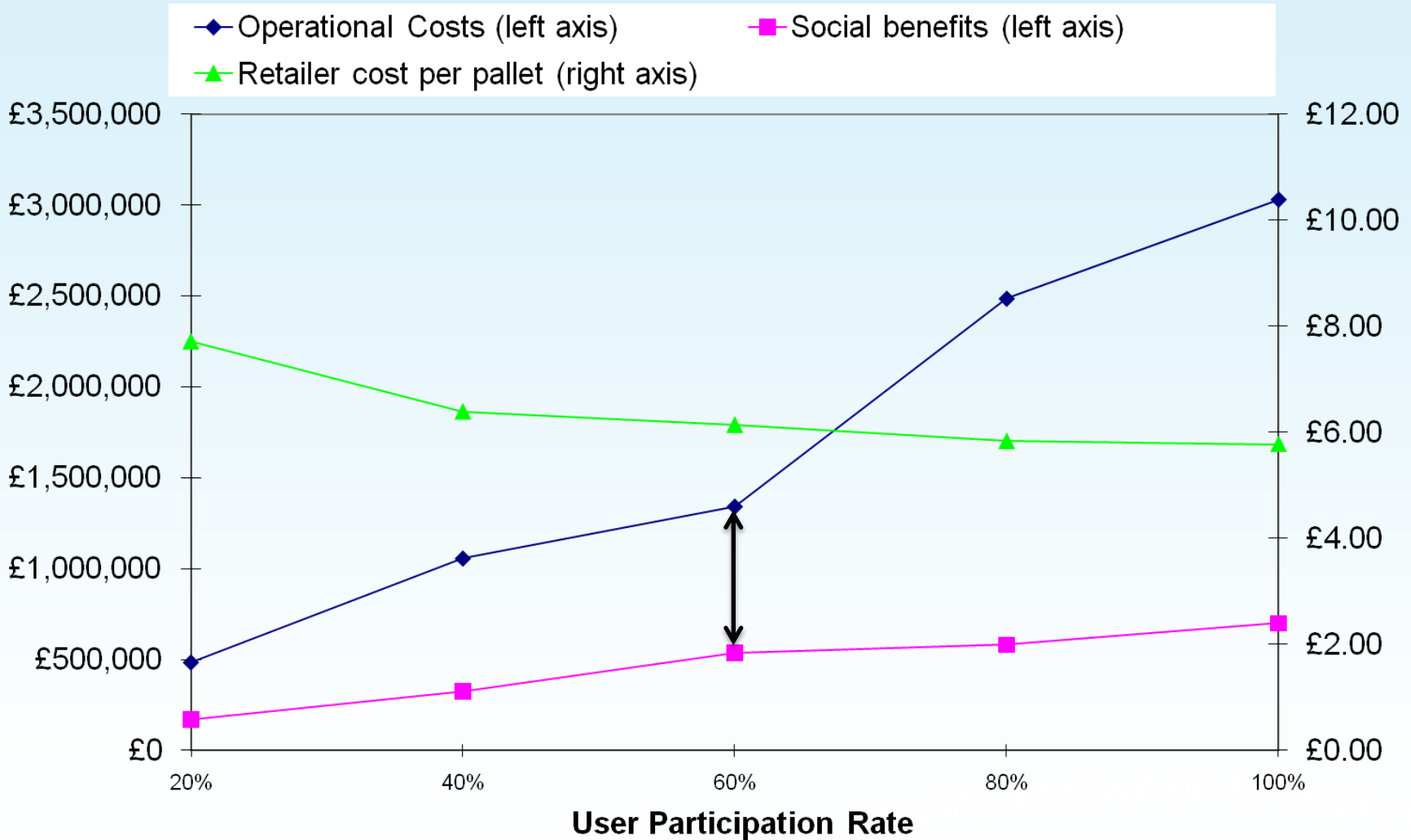
Benefits

17T Rigid Diesel	Mandatory	Voluntary (20%) + residual traffic
Mileage reduction	50%	12%
NOx reduction	71%	14%
PM10 reduction	77%	15%
CO2 reduction	40%	10%

Benefits



Cost Comparison



Construction

- Social benefits in range 10-15% of total operating costs
- Consolidation best suited to a limited (later) stage of the build phase
- Commercial benefits are more tangible to a single main customer
- Still not an easy sell

Implementation Strategy

- Without some form of external stimulus, participation is likely to be limited
- Landowner / Development Control intervention
- Road user charging
- LEZ
- Stricter enforcement of existing roadside regulations
- Tighter time or access restrictions

- Fuel prices
- Local capacity constraints
- Security concerns

- Beware unintended consequences

Link to Wider Freight Strategy

- Consider the broader picture - a range of options and potentially take a package approach that supports consolidation
- Delivery & Servicing Plans
- Legal Loading Initiatives
- Eco Stars
- Out of Hours Deliveries
- Decision Trees
- Make sure you understand the problem from all perspectives
- Make sure you have appropriate data to make decisions



Conclusions

- Freight consolidation centres can offer considerable societal benefits
- They can also offer commercial benefits, that vary and must be considered on a case by case basis
- Don't expect it to be easy - acting alone could be difficult
- Make sure you have the necessary evidence to back up decision making
- Consider a package of measures, both to support deliveries and, if you really want / need action, to drive participation

Report available at:

<http://www.ttr-ltd.com/information/reports.htm>

Thank you for your attention



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