

# Chapter 73

## The Role of Urban Consolidation Centres in Sustainable Freight Transport

**Julian Allen**

*University of Westminster, UK*

**Michael Browne**

*University of Westminster, UK*

**Jacques Leonardi**

*University of Westminster, UK*

**Allan Woodburn**

*University of Westminster, UK.*

### ABSTRACT

*The chapter considers the role that urban consolidation centres (UCCs) can play in helping to reduce goods vehicle traffic and its environmental impacts in urban areas. A UCC is a logistics facility that is situated in relatively close proximity to the area that it serves. Goods destined for this area are dropped off at the UCC, and are sorted and consolidated onto goods vehicles for delivery to their final destinations, often using environmentally friendly vehicles such as electric and gas-powered goods vehicles, and electrically-assisted cycles. The development of UCCs since their first appearance in the 1970s is reviewed and the various types of UCC categorised. The freight transport and logistics advantages offered by UCCs are discussed. Case studies of four recent UCC trials are included. The objectives, operational and financial aspects and impacts of these UCCs are compared and their critical success factors identified.*

### INTRODUCTION

This chapter considers the role played by urban consolidation centres (UCCs) in rationalising the movement of freight in urban areas to cut delivery costs and reduce environmental impacts. They not only permit greater consolidation of loads, but also permit greater use of electric and other

alternatively-fuelled goods vehicles which emit less CO<sub>2</sub> and other, noxious gases.

The introductory sections provide an overview of the development of UCCs and the range of benefits that they offer. Case studies of four recent UCC trials and operations in the UK are then presented: the London Construction Consolidation Centre, the London Heathrow Retail UCC, the Bristol UCC and an urban ‘micro-consolidation’ Centre based in the City of London. The final two

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sections draw on the experience of these UCCs to highlight key issues and identify critical success factors and future research needs.

## **OVERVIEW OF UCCs**

A UCC is a logistics facility that is situated in relatively close proximity to the urban area that it serves be that a city centre, an entire town or a specific site such as a shopping centre, airport, hospital or major construction site. Goods destined for these locations are dropped off at the UCC. The UCC operator sorts and consolidates these loads dropped off by logistics companies and makes deliveries to the final destinations, often using environmentally-friendly vehicles such as electric and gas-powered goods vehicles, and electrically-assisted cycles (Browne et al, 2005).

By improving the lading factor of goods vehicles making final deliveries in congested locations, UCCs reduce the total distance travelled by delivery vehicles in urban areas, as well as reducing greenhouse gas emissions and local air quality pollutants associated with these journeys (both through reductions in the total distance travelled, and through the use of low emission vehicles) (Browne et al., 2007). In addition the total kerbside time and space occupied by vehicles making on-street deliveries can be reduced through consolidation further reducing the impact of freight operations on traffic congestion. Other social and environmental advantages can include noise reductions through the use of quieter vehicles, reductions in conflicts between goods vehicles and other road users and greater pedestrian safety (Gonzalez-Feliu and Morana, 2008; WSP, 2008).

The logistics companies dropping their loads at the UCC benefit by avoiding the need to enter congested urban areas and thereby saving time and costs. Those receiving goods from the UCC benefit in terms of delivery reliability. In addition

to consolidation and final delivery, a range of other value-added logistics and retail services can also be provided at the UCC.

Initial research into UCCs as an urban freight initiative commenced in the early 1970s and has continued ever since with levels of interest in this approach increasing during the last decade (see for example Browne et al., 2005; Institut für Seeverkehrswirtschaft und Logistik, 2005; McKinnon, 1998a; McKinnon, 1998b; van Duin et al., 2010).

An international literature review of UCCs carried out in 2005 identified 67 UCCs in 15 countries worldwide that had either been the focus of a feasibility study, trial or fully operational scheme. The earliest was a UCC study that took place in Columbus, Ohio in the early 1970s (McKinnon, 1998a). The majority of these UCCs had taken place in Europe, with France, Germany, Italy, the Netherlands and the UK accounting for 46 of the 67 identified (Browne et al., 2005).

The review indicated that 26 of the 67 UCCs had been the subject of a research study/feasibility project only, 13 had proceeded to a trial, and 28 had become fully operational schemes (Browne et al., 2005). At the time of the review (2005) 27 UCC schemes were understood to still be in operation, 14 of these dated from 2000 or later showing the growth in interest in setting up UCC operations in the last decade. Much of this had been driven by private sector involvement (including logistics service providers, property developers and landlords). Three major categories of UCC can be defined.

*UCCs serving all or part of an urban area:* These UCCs are usually associated with the supply of retail products, but are also used for the supply of office products, and occasionally food supplies for restaurants and cafes. These UCC schemes are often used to serve locations with features such as narrow streets, historic layouts, and limited unloading facilities. The introduction of this type of UCC is usually initially suggested by the local authority on traffic and environmental grounds.

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