URBAN FORM AND REDUCING THE DEMAND FOR CAR TRAVEL:
INSIGHTS FROM BELFAST

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PEP 05/02

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PEP/05/02
ISSN 1649-5586
January 05

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Formerly: Environmental Studies Research Series (ESRS)
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Abstract

Much of the interest in promoting sustainable development in planning for the city-region focuses on the apparently inexorable rise in the demand for car travel and the contribution that certain urban forms and land-use relationships can make to reducing energy consumption. Within this context, policy prescription has increasingly favoured a compact city approach with increasing urban residential densities to address the physical separation of daily activities and the resultant dependency on the private car. This paper aims to outline and evaluate recent efforts to integrate land-use and transport policy in the Belfast Metropolitan Area in Northern Ireland. Although considerable progress has been made, this paper underlines the extent of existing car dependency in the metropolitan area and prevailing negative attitudes to public transport and argues that although there is a rhetorical support for the principles of sustainability and the practice of land use/transportation integration, this is combined with a selective reluctance to embrace local changes in residential environment or in lifestyle preferences which might facilitate such principles.

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Citation: M. Scott, M. McEldowney, Ryley, T. & A. Smyth (2005). “Urban Form and Reducing the Demand for Car Travel: Insights from Belfast”, Planning and Environmental Policy Research Series (PEP) Working Paper 05/02, Department of Planning and Environmental Policy, University College Dublin.
Introduction

In recent years, the concept of sustainable development has become central in the formulation of spatial plans throughout Europe. Indeed, as Briassoullis (1999) records, sustainable development is now commonly cited as the ultimate planning goal, although what it means and how it is to be achieved are not usually specified. In general, participants in planning processes agree that sustainability is concerned with the simultaneous satisfaction of three objectives – environmental protection, social equity and economic development (Lindsey, 2003); in other words, creating a positive-sum strategy embracing these three policy goals (Albrechts et al., 2003). In this regard, the planning system (and specifically development plans), are a “key arena within which economic, social and environmental issues come together with respect to the spatial dimensions of management of environmental change” (Healy and Shaw, 1993, p. 770).

Much of the interest in promoting sustainable development in planning for the city-region focuses on the apparently inexorable rise in the demand for car travel and the contribution that certain urban forms and land-use relationships can make to reducing energy consumption and emissions harmful to both local environmental and global ecological conditions. Furthermore, even if the environmental consequences of increased car mobility can be limited, issues associated with traffic congestion and its impact on quality of life will remain problematic. As Banister (1999) suggests, although some of the growth in car dependency can be attributed to the acquisition of cars by individuals, it also reflects the distribution of functional opportunities which have become more dispersed throughout the city-region. The post-war period has been characterised by trends in which both land-use and travel patterns have reinforced each other to produce an increasingly mobile society. Rapid growth in car ownership has permitted more dispersed and complex patterns of urban development; these land-use patterns in turn require longer journeys for most daily activities and have become increasingly difficult to serve by energy-efficient modes of transport (Owens, 1992). It is the increased spatial separation of homes and workplaces, shops and schools that causes travel distances to rise – particularly in low density, sprawled cities.

Within this context, policy prescription has increasingly favoured a compact city approach with increasing urban residential densities to address the physical separation of daily activities and the resultant dependency on the private car. This paper aims to outline and evaluate recent such efforts to integrate land-use and transport policy in the Belfast Metropolitan Area in Northern Ireland, wherein significant policy initiatives have recently been undertaken through the adoption of a regional spatial framework – Shaping Our Future, the Regional Development Strategy 2025 (RDS) – and in parallel, the Regional Transport Strategy 2002-2012 (RTS). In addition, these initiatives are being articulated at the metropolitan scale through the Belfast Metropolitan Area Plan and the Belfast Metropolitan Transport Plan, due
for publication in draft form in 2004. Specifically on the theme of land-use/transport integration, Planning Policy Statement PPS 13 (DRD, 2002a) relates the regional strategies to each other and to the development plan process, and sets out key objectives for the future integration of transport and land-use policy decisions.

This paper examines the convergence of these policy initiatives as a means of delivering more sustainable patterns of development in terms of reducing car dependency and urban sprawl (although inevitably it also includes some discussion related to initiatives for greening travel). Although considerable progress has been made in integrating land-use and transportation policy both institutionally and conceptually, this paper draws on two major recent research projects to argue that significant challenges remain to be overcome. In particular, the results of an Engineering and Physical Sciences Research Council Sustainable Cities project\(^1\) underlines the extent of existing car dependency in the metropolitan area and prevailing negative attitudes to public transport. Furthermore, drawing on the authors' involvement as facilitators for the public consultation process for the Belfast Metropolitan Area Plan (BMAP)\(^2\), this paper suggests that although sustainability principles are unquestioned at the city-wide scale, at the level of implementation sustainable development becomes a contested concept. In particular, the paper explores the widespread neighbourhood and community opposition (NIMBY-ism) to increasing housing densities and brownfield development during the formulation of BMAP. Accordingly, this paper is structured as follows: firstly, the paper will locate the discussion within the context of sustainable development and urban form. Secondly, a brief overview of land-use and transport trends in the case study area will be provided, followed by an assessment of recent attempts to integrate land-use planning and transport policy, at both regional and metropolitan scales. The remainder of the paper will focus on emerging challenges to implementing a sustainable urban development agenda, before conclusions are developed relevant to the future practice of land-use transport policy integration.

**Sustainable development and urban form**

The phenomenon of tension between a compact city structure and the motorcar is not a recent one, but dates to the 1970s and before (see Owen, 1972; Hass-Klau, 1990). Much of the urban environment has been developed to accommodate the motorcar, including the road network, filling stations and car parks, and the growth of private motorcar ownership has enabled city residents to migrate to the suburbs and beyond. Indeed, virtually all Western countries have witnessed deep-seated counterurbanisation trends in the post-war period (Breheny, 1992). As noted by Gaffikin and Morrissey (1999, p. 96):

...these processes were the outcome of 'push' factors from central cities, such as congestion, pollution, noise, crime and grime, together with 'pull' factors in the suburbs, such as the facility of under-priced car use, good supply of relatively cheap
land, public policies which subsidized housing and highways, technology changes from the telephone onwards which minimized the effect of distance, and the desire by employers for low-rise offices which allowed for more efficient employee interaction. In many advanced capitalist societies in recent times, land-use trends alongside the opportunities afforded by past road construction efforts and the mass availability of private cars has led to the breaking of traditional relationships between home, work and leisure opportunities (Vigar, 2002). Urban sprawl has resulted from increasingly affluent householders and commercial investors exercising their locational choices in a free market, aided by the availability of good quality transport infrastructure and relatively cheap private transport. As identified by Banister (1998), transport has been seen as a principal permissive factor in the development of suburban housing and in redirecting development pressures away from the city centre. This dynamic is reinforced by the development of out-of-town and edge-of-town growth in retail, business and leisure services at motorway intersections and along bypasses. However, recently in the UK, following trends in mainland Europe, the notion of a dense and compact city with mixed-use neighbourhoods has gained a high political currency. The Commission of the European Communities’ Green Paper on the Urban Environment (1990) strongly advocates a ‘compact city’ solution to mounting environmental problems, proposing that “strategies which emphasize mixed use and denser development are more likely to result in people living close to work places and the services they require from everyday life” (p. 60). Within the UK these sentiments have been translated into formal guidance through planning policy guidance notes PPG6 (DoE, 1995) and PPG13 (DETR, 2001) and have been given high profile promotion by the Urban Renaissance Report (Urban Task Force, 1999) and subsequent White Paper (DETR 2000).

A central theme in recent policy prescriptions has been the integration of land-use planning and transportation. There is a growing realisation that the primary means to improve both the environment and congestion is to reduce the need to travel, and in particular the length of trips needed to carry out daily activities. In this context the planning system has a key role. As Banister (1997, p. 447) suggests, “to reduce levels of car dependence and trip lengths, planning decisions must have an instrumental role through establishing and implementing clear development principles based on sustainability”. This has been formally recognised in policy with the Government outlining a key role for planning in reducing the need to travel (DETR, 2001, p. 1):

By shaping the pattern of development and influencing the location, scale, density, design and mix of land-uses, planning can help to reduce the need to travel, [and] reduce the length of journeys … Consistent application of these planning policies will help to reduce some of the need for car journeys and enable people to make sustainable transport choices.

In the UK, the whole debate concerning urban form, transport, and quality of life coincides with a longer standing debate in planning about the accommodation of development
(Breheny, 1992). Indeed, this discourse encapsulates three of the most important and interrelated issues facing land-use planning at the beginning of the twenty-first century: how to accommodate substantial growth in the number of households; how to revitalise cities; and how to create more sustainable urban areas (Heath, 2001). The compact city model, therefore, is supported for a number of reasons which relate to sustainability and include: conservation of the countryside; less need to travel by car, thus reduced fuel emissions; support for public transport and walking and cycling; improved access to services and facilities; more efficient utility and infrastructure provision; and, revitalisation and regeneration of inner urban areas (Burton, 2003).

To address these issues, plans and planners are increasingly moving beyond ‘land-use’ planning to embrace a wider agenda, adopting in effect the European notion of spatial planning instead of the traditional UK regulatory approach (Tewdwr-Jones and Williams, 2001). This new thinking seeks to achieve an integration of the social, economic and environmental dimensions, and to broker connections between the core city and its wider metropolitan hinterland. In Northern Ireland, this broader agenda resulted in the preparation of a new regional strategic framework for spatial development (Shaping Our Future), developed from a collaborative planning process involving widespread participation of community interests and multiple stakeholders (McEldowney and Sterrett, 2001). This broader agenda notwithstanding, much of the debate inevitably focused on the distribution of forecasted housing growth and included tensions relating to brownfield versus greenfield development (especially dealing with intense housing pressure on Belfast’s greenbelt), edge of settlement development versus new free standing ‘village’ concepts and the split in housing demand allocation between the Belfast region and the rest of Northern Ireland (Neill and Gordon, 2001). The remainder of this chapter will examine the outcome of this planning process, focusing on proposals for the Belfast Metropolitan Area as they evolve during the Area Plan process.

The Belfast Metropolitan Area

The Belfast Metropolitan Area (BMA) covers the administrative districts of Belfast City, Castlereagh Borough, Carrickfergus Borough, Lisburn Borough, Newtownabbey Borough and North Down Borough, and is the largest urban centre in the region with an estimated population of 650,000 people (DOE, 2001). Belfast has been described as one of the UK’s most car dependant cities (Cooper et al., 2001). The last 25 years have seen huge increases in car ownership in the UK and while Belfast and Northern Ireland have lagged behind Britain in the level of car ownership, it is rapidly catching up. Between 1990 and 2000, for example, the number of vehicles licensed in Northern Ireland has increased by almost 35 per cent, while the comparable figure for Britain is just 15 per cent (DOE, 2001). Growth in car ownership has increased by around 11 per cent between 1995 and 2000, and by over 400 per
cent since 1960, with the number of vehicles expected to double by 2025 (DRD, 2001). In terms of travel culture, the car is by far the most dominant mode for personal travel in the BMA – recent Department of Regional Development (DRD) (2002b) figures suggest that 81 per cent of the workforce travel by car, van or minibus in their journey to work. Modes that have less adverse impact on the environment, such as walking, cycling and public transport, have a combined share of only 19 per cent (see table 1). The result of this car dependency has inevitably been large increases in road traffic. In the BMA, peak hour traffic conditions are steadily worsening, causing accessibility and environmental problems – for example, between 1995 and 2000 the Department of Environment (DOE) (2001) highlight that increases in traffic flow measured on some of the key routes to and from Belfast City Centre has risen by up to 20 per cent. The use of the car for many journeys is encouraged by the availability of free or low cost car parking at key destinations. Trends in the availability of public car parking spaces in Belfast City Centre over the last 20 years show almost a five-fold increase in the number of spaces available (DOE, 2001). In Northern Ireland as a whole, people who have cars or access to cars are making more and longer journeys. Total distance travelled in the Region by car has increased from an estimated 4.5 billion km in 1971 to over 15 billion km by 1998 (DRD, 2002b).

Reinforcing these trends has been the emergence of a low-density urban form characterised by population loss in the central city. The BMA has experienced a massive out-migration from the urban core, common to most UK cities, although exacerbated by the ‘Troubles’ (Cooper et al., 2001). There was a period of intense urban decentralisation of Belfast between 1971 and 1981 when the population fell from 416,700 to 314,300 (Ellis and McKay, 2000). It continued to decline throughout the 1980s and by 1991 it had fallen to 279,200, as people continued to move out of the city into the contiguous suburbs and dormitory towns and villages. Ellis and McKay (2000) suggest that although a significant degree of population movement occurred as a result of the violent political conflict, there were a number of other reasons for this population shift including: the redevelopment of the inner city; the decline in mean household size; rising car ownership resulting in increased commuting; regional policy,

<table>
<thead>
<tr>
<th>Mode of transport to place of work</th>
<th>% of workforce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car, van, minibus</td>
<td>81%</td>
</tr>
<tr>
<td>Bus</td>
<td>5%</td>
</tr>
<tr>
<td>Walk</td>
<td>10%</td>
</tr>
<tr>
<td>Other method</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 1: Percentage of workforce and mode of travel to work in Northern Ireland, 2000 (source: DRD, 2002b)
which encouraged out migration from Belfast. However, since 1991, there has been a small growth in the population within the Belfast Council area following decades of decline (DOE, 2001). In addition, there has been population growth in the outer districts of the BMA, with the most significant increase within Lisburn Council. The reversal in population trends within Belfast City and the continued growth in outer districts have resulted in overall growth within the BMA since 1991, increasing from below 620,000 in the early 1990s to over 650,000 in 2000 (DOE, 2001). Over the period 1971-91 there has been a substantial reduction in the size of households within the BMA and a corresponding increase in the number of households, in particular one and two person households (DOE, 2001).

**Current policy context – towards sustainable development?**

In recent years, land-use and transportation planning has enjoyed a high profile within Northern Ireland, underlining the current quest to secure more effective linkages between these two areas of public policy. This section will examine the current policy context for the BMA, both at a regional and metropolitan-wide level, presented schematically in figure 1. The current regional planning framework in Northern Ireland is provided by *Shaping Our Future, the Regional Development Strategy* (RDS) 2025 (DRD, 2001), a statutory plan prepared by the Department of Regional Development (NI) and endorsed by the Northern Ireland Assembly in 2001. This political endorsement brought to an end a plan preparation process which had commenced in 1997 and was marked by an extensive public consultation exercise or participatory planning approach (McEldowney and Sterrett, 2001), involving over 500 community or interest groups in the plan formulation. Although this process has been criticised (see for example, Neill and Gordon, 2001), Murray and Greer (2003) and Albrechts et al. (2003) contend that this approach has been highly inclusive, standing in contrast to the previous expert dependant and technocratic prescriptions of past regional planning, and provides some legitimisation for the current framework. In relation to the Strategy Document, this paper will selectively focus on proposals relevant to the BMA, in particular housing and transport concerns.
The broad aim of the spatial strategy is to guide future development in order to “promote a balanced and equitable pattern of sustainable development across the Region” (p. 41) and adopts a framework of interconnected hubs, corridors and gateways. Two regional gateways are identified – Belfast and Londonderry/Derry – in addition to a polycentric network of hubs, based on the main regional towns serving a strategic role as centres of employment and services for urban and rural communities. The key and link transport corridors provide the skeletal framework for future physical development (see figure 2).

In relation to the BMA, the RDS outlines the main thrust of its approach as a balance between concentration and decentralisation (see figure 3). Thus, the development of the BMA is based on (DRD, 2001, p.50): encouraging the revitalisation of the BMA; providing for major planned lateral expansion of the key transport corridors at Lisburn and Newtownabbey (to the south and north of the city respectively); developing the surrounding District Towns of Antrim, Downpatrick, Larne, Newtownards, Banbridge and Craigavon as counter magnets to the Metropolitan Area (given the environmental constraints and congestion pressures in the BMA); and the accommodation of ‘overspill’ growth from the BMA by the expansion of seven nearby smaller towns of Ballyclare, Ballynahinch, Carryduff, Comber, Crumlin, Dromore and Moira. Perhaps the key challenge outlined by the RDS will be the accommodation of the projected housing growth for the BMA. Out of a regional need of 160,000 dwellings for this period, the Strategy has allocated 51,000 to the Districts covered by the BMA, of which 42,000 should be located within the urban parts of the Metropolitan Urban Area. The RDS, therefore, at least in rhetoric, supports the concept of the ‘compact city’, establishing a regional target of 60 per cent of new housing to be located within existing urban areas (which
contrasts with the recent level of achievement of less than 30 per cent). It suggests a focus on brownfield sites within the city, although it should be noted that the RDS definition of ‘brownfield’ refers to land within the urban ‘footprint’ rather than ‘previously developed land’ as in the English situation. This is endorsed by the sequential approach adopted for the allocation of land for housing (see table 2).

Fig. 2: The Spatial Development Strategy for Northern Ireland (source: DRD, 2001a)

The principle of promoting brownfield development and a compact city approach within the BMA is further linked to the transport section of the RDS. Transportation is “the glue that will hold together with emergent city-region geography” (Greer and Murray, 2003, p. 290). Within the new strategy, emphasis is placed on the creation of a Metropolitan Transport Corridor Network radiating out from Belfast City Centre and characterised by improved public transit services. The RDS also stresses the need to integrate land-use and transportation (subsequently developed in Draft PPS 13 discussed below) and consequently proposes developing land-use patterns which contribute to reducing the need to travel. Central to this will be reducing the physical separation of key land-uses by promoting mixed-use developments.
Figure 3: The Spatial Framework for the Future Growth of the BMA (source: DRD, 2001a)

Table 2: Search sequence for land for housing (source: DRD, 2001, p115)

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Use previously developed and undeveloped land within urban areas, informed by urban capacity studies</td>
</tr>
<tr>
<td>Step 2</td>
<td>Extensions to Towns and Cities</td>
</tr>
<tr>
<td>Step 3</td>
<td>Exceptional major expansion of a village or small rural settlement</td>
</tr>
<tr>
<td>Step 4</td>
<td>New Settlements</td>
</tr>
</tbody>
</table>
In 2001, the DOE announced its intention to prepare the *Belfast Metropolitan Area Plan* (BMAP) as part of its ongoing programme to provide full coverage of contemporary plans for all District Council areas in Northern Ireland. The plan, once formally adopted, will play a key role in guiding the future development of the BMA over the next 15 years. However, although the RDS attempted to move spatial planning beyond land-use planning concerns, it is likely that the key issue in the formulation of BMAP will be the accommodation of future housing growth. Certainly, this issue has been central in the public consultation process (Gaffikin et al., 2003) discussed in detail below.

Parallel to the publication of the RDS, the Department of Regional Development also prepared a Regional Transportation Strategy (RTS), approved by the Northern Ireland Assembly in July 2002. The aim of the RTS is to support the RDS and to move over a 10-year period towards the achievement of the longer-term transportation vision, expressed as:

> To have a modern sustainable, safe transportation system which benefits society, the economy and the environment and which actively contributes to social inclusion and everyone’s quality of life (DRD, 2002b, p. 8).

At a strategic level, the integration of land-use and transportation responsibilities within the Department of Regional Development is a positive acknowledgement of the inter-dependent relationship between these two functions. Effective integration demands clarity in the hierarchy of power, with planners arguing the case for planning’s overarching responsibility, within which transportation should play a key, but subservient role. This, surprisingly, is accepted and promoted in the Regional Strategic Transportation Strategy, which presents itself as a ‘daughter document’ to the Regional Development Strategy, dedicated to achieve, over ten years, the first stages of the RDS’s longer-term vision for a ‘modern, sustainable and safe transportation system’. This transportation ‘subservience’ is a logical outcome of an integrated approach and, indeed, the Regional Transportation Strategy mirrors the principles outlined in the RDS, and spatially the RTS follows the pattern of development outlined in the RDS with emphasis on the promotion of the Regional Strategic Transport Network. Given the parallel approach of preparing both a regional spatial and transportation strategy, links in the consultation process, adoption of common principles, and a consistent spatial framework – institutionally, at least, it can be argued that recent initiatives have promoted a greater commitment to the integration of land-use and transportation policy. However, a potential implementation gap is identified by DRD in its Final RTS:

> … The outcome will be determined through the normal budgetary process which will take account of the needs of other Departments and decisions on priorities … If that process determines that the full level of funding identified in the Strategy is not available, then not all of the planned initiatives will be delivered.

Therein lies the crux of the issue. If a central component of the Regional Development Strategy (i.e. transport) is not implemented through funding constraints, what impact will this have on the full implementation of the Strategy?
Similar to the parallel land-use and transportation initiatives at a regional scale, the preparation of the Belfast Metropolitan Transport Plan (BMTP) ‘shadows’ the BMAP process. The BMTP has the same geographical coverage and timeframe as BMAP, and has two general aims: (1) to coordinate the implementation of local transport, outlining an integrated programme of transport schemes and measures; (2) to reflect and inform the development of BMAP. The BMTP is being prepared using a multi-modal study approach under the direction of a steering group comprising representatives from the Departments of Regional Development, the Environment, and Social Development, Northern Ireland Transport Holding Company (NITHCO), Translink and the six relevant local councils, all of which are responsible for ensuring its integration into planning and other policy contexts. Its summary of transport problems, issues and opportunities was published in February 2002 and its consultation process, which ran parallel to the BMAP consultation process in 2002, culminated in draft proposals to a public conference in January 2003. BMAP (draft) and BMTP (final) plans will be presented in 2004.

While many of the integration objectives outlined above may be considered aspirational and occasionally vague, more specific attention is focused on the issues of land-use and transportation integration by the publication of Draft Planning Policy Statement (PPS) 13 – Transportation and Land-use – in December 2002 (DRD, 2002a). It builds on the strategic policies of the Regional Development Strategy and the Regional Transportation Strategy, claiming in the introduction that:

The relationship between these two overarching documents provides a unique integrated approach to transport and land-use planning, importantly linked to mutually inclusive and reinforcing implementation processes.

It acknowledges the point made above about Northern Ireland being almost totally dependant on a roads-based transportation system which in turn means that ‘an emphasis on the car in the planning of development increases car dependency [which] contributes to social exclusion and reduced accessibility to job opportunities’. Consequently, it outlines a process of integration based on a series of key principles including:

- Land-use allocations should ensure that as far as possible all development sites are accessible by means other than by car, are high-density and mixed-use, and focus on public transport interchanges and areas well served by public transport;
- Transport assessments will provide a review of potential transport impacts of a development proposal;
- Developers’ contributions will be sought for the funding of public transport and other infrastructural connections to new development;
- Parking restraints will be encouraged, including the introduction of ‘areas of parking restraint’ where normal car parking standards are reduced to facilitate objectives such as densification or regeneration;
High quality ‘park and ride’ and ‘park and share’ schemes will be facilitated at public transport interchanges; and,

A maximum walking distance of 800 metres between new housing developments and the nearest railway station will be established where possible.

The introduction of PPS 13 will certainly provide a useful tool for development control purposes, particularly in reducing previously generous car-parking standards. However, given the paucity of both the existing rail and proposed light rail systems, opportunities for applying standards in relation to access to rail networks outlined above would appear to be limited. Draft PPS 13 should also be considered in association with Draft PPS 12 relating to Housing in Settlements (DRD, 2002d), which focuses on the achievement of higher residential densities, mixed-use developments, brownland locations and, inevitably, the integration of residential development with public transport and modes of transport other than the private car.

It would appear, therefore, that considerable progress has been made in integrating land-use and transportation planning. The evolving policy process has given greater recognition to the relationship between land-use and transportation and the need for an integrated approach, framed within a sustainable development agenda. At the level of generality, sustainability imperatives seem unquestionable (Owen, 1996); however, at the level of implementation sustainable development becomes a contested concept. This is demonstrated by insights developed from an EPSRC project which provided analysis of travel behaviour within the BMA, and the authors’ involvement as facilitators for the public consultation process for the Belfast Metropolitan Plan, outlined below.

**Travel behaviour in the Belfast Metropolitan Area**

The research on which this section draws was conducted as part of an EPSRC Sustainable Cities project entitled ‘Tools for Assessing Consumer, Business and Developer Responses to Sustainable Development Initiatives’, and focused on two regional capitals, Belfast and Edinburgh, as case studies. The research aimed to develop new or refine existing planning tools, analysing how travel demand, residential location and business location respond to sustainable development initiatives. This section focuses on a lifestyles-based household survey undertaken in Belfast (and mirrored in Edinburgh) to establish a point of reference for measuring contemporary lifestyles in the city region. The household survey was undertaken in June 2001 and approximately 1,000 questionnaires were collected from 40 wards in the metropolitan area. The household survey contained a vast array of revealed preference housing and transport variables, including migration decisions (e.g. previous, likely future), vehicle ownership (e.g. car, bicycle), parking provision (e.g. home, work) and modal choice (journeys to work, school and main food shopping). A summary of the household survey sample is contained in Table 3.
Table 3: A summary of the household survey sample

<table>
<thead>
<tr>
<th>Category</th>
<th>Group</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>494</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>490</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>984</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>18-24</td>
<td>24</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>165</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>35-44</td>
<td>194</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>45-54</td>
<td>199</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>208</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>65-74</td>
<td>142</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>74 and over</td>
<td>53</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>985</td>
<td></td>
</tr>
<tr>
<td>Household formation</td>
<td>1 adult, no children</td>
<td>110</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>2 adults, no children</td>
<td>329</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>3+ adults, no children</td>
<td>147</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>1 adult, children</td>
<td>52</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>2 adults, children</td>
<td>253</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>3+ adults, children</td>
<td>60</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>951</td>
<td></td>
</tr>
<tr>
<td>House type</td>
<td>Terraced house</td>
<td>264</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>Semi-detached house</td>
<td>302</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>Detached house</td>
<td>397</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>Apartment or flat</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>13</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>983</td>
<td></td>
</tr>
<tr>
<td>House tenure</td>
<td>Owner Occupier</td>
<td>838</td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>Rented property</td>
<td>146</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>984</td>
<td></td>
</tr>
<tr>
<td>Property location</td>
<td>Inner BMA</td>
<td>498</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Outer BMA</td>
<td>497</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>995</td>
<td></td>
</tr>
</tbody>
</table>

The results of the household survey reinforced the view of Belfast as a car dependent city, with the private car dominating modal choice for journeys to work, school and the main food shopping. For example, the vast majority of the sample in Belfast travelled to work by car (80 per cent) with walking and bus accounting for 4 per cent each. This compares to 60 per cent of the Edinburgh sample using the car to work, with the difference taken up by people walking and taking the bus (13 per cent and 20 per cent respectively). Consolidating the modal choice for travel to work in Belfast is the availability of workplace car parking and a relatively weak city centre in terms of an employment base. Most car and motorcycle users on the
journey to work park at the workplace (63 per cent), while a further 20 per cent park in a private car park not available to the public. The majority of this parking is provided by employers (or employment providers) (82 per cent), which tends to be free for employees in most cases (89 per cent). Surveys carried out for the Belfast Alternative Urban Transport Technologies Study in the early 1990s (JUTLU, 1991) showed Belfast also to be unusually generous, as compared with similar sized British cities such as Leicester and Newcastle, in relation to car-parking provision standards for new developments in the city centre. At this time, obviously, attracting new development into a ‘Troubles-affected’ city centre was a priority, so developers could bargain successfully for generous standards.

Given this ease of workplace parking, it is of little surprise that for those travelling to work by car, the primary reasons stated for not using public transport were that it was inconvenient (60 per cent) and that public transport takes too long (43 per cent). Analysis of commuting patterns demonstrates that Belfast has a significantly weaker city centre in terms of employment concentration (18 per cent of those employed) than Edinburgh (24%), reflecting Belfast’s dispersed geography of employment (for example, the 1990s witnessed a proliferation of small office development south of the city centre with the availability of free on and off-street car parking). In addition, the Regional Development Strategy promotes the concept of Strategic Employment Locations – large industrial sites of up to 40 hectares, for the purpose of attracting and accommodating major inward investment projects. Within the BMA, it is likely that potential Strategic Employment Locations will be located on greenfield sites at the edge of the Belfast Urban Area, for example in Newtownabbey. However, it is not clear if investment in these sites will be matched by improved accessibility by public transport. The car dependent lifestyle of Belfast residents is further illustrated by modal choice for travel for household food shopping and for children’s journey to school/college. The main food shopping is dominated by car travel in Belfast (84 per cent of households) – compared to 75 per cent in Edinburgh. The largest market share was captured by ‘Forestside’ shopping centre on the edge of the city, which has over 1,500 car parking spaces. Approximately, a third of the Belfast sample had children in full-time education (a total of 638 children). In order of popularity, the mode used for travel to school/college was car (37 per cent), walk (34 per cent) and bus (23 per cent).

Reinforcing these travel behaviour trends are residential preferences and migration within the city. Analysis of migration patterns was undertaken by examining ten spatial sub areas within the BMA. Respondents were given the opportunity to state where they would like to live within the metropolitan area, and for the most part it appears that the desirable places to live are widely dispersed – however, a city centre location was not considered a desirable residential location. A comparison was also made between the location of the previous and current property of households in the survey. The overall trend was one of greater out-migration than in-migration. Movements from inside the city to the city surrounds are 18 per
cent, with an in-migration level of 4 per cent, with the remainder moving within inner or outer areas. The two most popular reasons for moving to the current property are cost (44 per cent) and liking the local area (68 per cent). However, related to transport, very few state ‘reducing travel costs’ as a reason for moving to their current property (8 per cent), while only 6 per cent stated that being too far from work was a reason for moving from a previous property.

These findings present a number of challenges to policy-makers in the Belfast city-region. Although the policy agenda appears to embrace an integrated approach, the emerging geography of Belfast suggests a further dislocation of land-use and transportation. This is particularly the case in relation to employment location and public transport provision. The present dispersed pattern of employment location is difficult to serve effectively and efficiently by public transport as journey-to-work patterns become increasingly lengthy and complex, compounded by changing patterns of work such as 24 hour call-centre offices. A generous supply of free workplace car parking has further encouraged the dominance of the car in travel to work modal choice. The lifestyle and residential preferences of many Belfast residents is highly dependent on the private car, suggesting a considerable obstacle in embracing more sustainable patterns of development, such as promoting higher residential densities with reduced car parking or city centre living. Indeed, community opposition to sustainable development initiatives (albeit combined with support for generalised sustainability principles) was a prevalent feature of the consultation process for the Belfast Metropolitan Area Plan, and this is discussed below.

Sustainability and community consultation

The consultation process for the BMAP consisted of a two-stage series of public meetings (information sessions followed some weeks later by area-based debating sessions) supplemented by focus group discussions with disadvantaged groups and integrated seminars with cross-sectoral representation. It was based on the BMAP Issues Paper (DOE, 2001), took place in the first half of 2002 and culminated in a report to government (Gaffikin et al., 2003) which summarised the key findings and reported detailed feedback on an area-by-area basis. This consultation is now the basis of the preparation of the draft plan that will be published in 2004. It was an unusually comprehensive exercise for an Area Plan, and was carried out by a similar consortium of academic and professional experts as was the case for the Regional Development Strategy.

Sustainable development was one of the ‘guiding principles’ on which the BMAP Issues Paper (DOE, 2001) was based – it refers to the UK’s government commitment to the principle and to its widened definition to include social and economic objectives as well as prudent use of resources and effective protection of the environment. More particularly, it refers to the
Regional Development Strategy’s commitment to a ‘compact metropolitan area’ with ‘an enhanced quality of urban environment’ in which key objectives will be ‘the location of new development to reinforce better integration between land use and transportation’ and ‘the development of a modern integrated and inclusive transport system.’

In the consultation process it emerged that there was a generalised support for the principles of sustainable development and for the objective of better integration of planning and transportation planning, although much scepticism about the achievability of both. This reaction was influenced by the effective participation in many public meetings of environmental pressure groups such as Friends of the Earth and the Belfast Metropolitan Residents Group, who were concerned with green belt protection, urban densification and better public transport. However, this support was tempered with concern about the need to avoid ‘town cramming’, the need to respect local residential identities and housing quality, and the importance of retaining existing urban ‘greenfields’ such as parks, golf courses etc. It was also tempered by scepticism about definitions of ‘greenfield and brownfield’ and about the accuracy and timeliness of the ‘urban capacity studies’ which were to be the cornerstone of land allocation policy.

However, when it came to area-specific debates, many of the implementation realities of sustainability objectives were seriously questioned. In ‘middle-class’ areas such as Malone Road and Jordanstown there was concern about developer opportunism in the densification of sites, as well as about the environmental consequences of their operations – reduced privacy, increased traffic and noise, multi-occupancy, student colonisation etc. – not to mention the loss of traditional architectural quality in many instances. In ‘working-class’ areas in West Belfast, high-density development had unfortunate remembered associations with unpopular projects of the 1960s such as Divis Flats, and there was concern in the Shankhill Road, for example, that the Community Association’s objective of attracting middle-class residents back to the area would be undermined if no perceived ‘middle-class’ (i.e. low-density detached) housing was becoming available. As the report observes (Gaffikin et al., 2003, p. 34):

…while many appreciated the virtues of a compact city, there was a slight tendency to see brownfield development as suitable for somebody else – the towns and villages passing the baton to the main urban area, the suburbs to the city and the more affluent Belfast communities to the inner city.

What is urgently required, the report concludes, is a series of positive architectural role models demonstrating that high-density does not necessarily equate to low quality in terms of housing design. The most obvious place for such experimentation, it was generally agreed, and for the location of significant high-density residential development was the new Titanic Quarter in Belfast’s harbour estate, but even here there is some reluctance by the owners to
commit to large-scale residential development, and there are limitations in relation to its public transport accessibility.

On the question of public transport there was unanimity – Belfast was perceived to have a poor system as compared with most European cities, and there was much need for improvement. Indeed, a radical agenda is suggested in the report, which would include free public transport, a metropolitan light rapid transit system, congestion charges, integrated travel tickets, flexi-hours for schools, infrastructure-taxes for developers and reductions in the availability of civil-service occupational parking in the city centre.

Matching this wish-list to the draft proposals of the BMT (DRD, 2003) discussed at a transport consultation conference in February 2003, is an interesting exercise, in that the latter is very firmly grounded in financial reality, although its operational plan (to 2015) is located within a 2025 ‘vision’ which accords with the RDS in keeping with the rhetoric of land use/transportation integration. Of the above list, affordable rather than free public transport is the objective, and congestion charges will be kept under review. Controlled parking areas and restricted parking for new developments are to be considered, as well as integrated ticketing and variable message signing as part of a campaign to change travel attitudes. Of most interest, however, is the commencement of a rapid transit network focused on four corridors into central Belfast (from the east, south, west and the Harbour Estate/City Airport, illustrated in Fig. 3), of which the E-route (from the east along a disused heavy railway track) will be an initial pilot-study, using guided-bus technology which may later upgrade to tram-based systems.

In summary, these consultation exercise reinforces the hypothesis outlined above – a rhetorical support for the principles of sustainability and the practice of land use/transportation integration, combined with a selective reluctance to embrace local changes in residential environment or in lifestyle preferences which might facilitate such principles. There is positive evidence also of more imaginative approaches to transport policy and more mutually-supportive systems of land use/transportation thinking, but these are still conditional in their expression and hedged about with the financial and political uncertainties which are typical of the region.

Conclusion

In terms of urban development, Belfast can perhaps be considered as unique due to the impact of the political conflict in Northern Ireland on urban form, such as persistent ethno-religious residential segregation. However, other trends identified suggests that Belfast has also experienced similar patterns of development to other medium-sized UK and European post-industrial cities – for example, despite the presence of a greenbelt and urban
containment policies since 1963, Belfast has experienced processes of metropolitan decentralisation and deconcentration. Therefore, lessons developed from Belfast’s recent attempts to integrate land-use and transport policies can provide useful insights for planning practice elsewhere.

In Northern Ireland and Belfast, following the rhetoric of UK planning practice, there has been a shift to an urban development policy discourse that favours a compact city approach, higher residential densities and mixed-use development as a means of reducing the need to travel by car and promoting sustainable development. In this regard much progress has been achieved. A significant development has been the adoption in the Regional Development Strategy of a target of 60 per cent of new housing to be located within brownfield areas. This represents a sea-change in urban development policy as previously less than 30 per cent of new housing was brownfield development. Progress has also been considerable in terms of integrating land-use and transport policy, both at a regional and metropolitan scale. The parallel and inter-linked formulation of a regional spatial strategy and transport strategy is a positive acknowledgement of the inter-dependent relationship between these two functions, particularly within the context of sustainability, and this policy convergence continues at the metropolitan level. Furthermore, Draft Planning Policy Statement 13 is significant in its direct analysis of the car-dependence problem in Northern Ireland and in the appropriateness of its key principles towards achieving more sustainable developments. Initiatives such as land-use allocations based on public-transport accessibility, parking restraint areas free from excessive car-parking requirements and the direct linkage of rail accessibility to new housing development will have a serious impact on both planners’ and house-builders’ approaches.

However, considerable challenges remain which may lead to difficulties in translating the sustainable development rhetoric into implementation. Firstly, at an institutional level, concerns can be identified related to the governance of Northern Ireland. The future of regional governance in the Province is inextricably linked to ongoing political negotiations and the peace process. Devolution to the Northern Ireland Assembly has been a stop-start affair, leading to considerable uncertainty in decision-making and policy formulation processes. In the past, direct rule administration from Westminster has resulted in limited investment in public transport in the Province, and indeed historically central government has appeared somewhat hostile to public transport. It has been interesting to contrast this perception to the more positive rhetoric of local Northern Ireland Assembly representatives – however, funding constraints and competing financial priorities (particularly in health and education) are likely to test the political will of local elected representatives to make difficult and more sustainable choices. At the time of writing the Northern Ireland Assembly is currently suspended, and it is far from clear if local institutions will be re-established in the immediate future.
One concern identified during the household survey is the deep-rooted car dependency culture prevalent in the metropolitan area. Modal choice for journeys to work, school and for shopping were clearly dominated by the motorcar, often facilitated by the availability of free car-parking. Belfast’s dispersed geography of employment is difficult to serve effectively and efficiently by public transport as journey-to-work patterns become increasingly lengthy and complex. This is likely to be compounded by the location of Strategic Employment Sites identified in the Regional Development Strategy, which appeared to be selected on the basis of proximity to motorways, rather than access to existing public transport nodes or networks. Clearly, innovative policies are required to address the issue of car-dependency in the city. In particular, car-parking policy needs to be fully integrated into transport demand management as a tool for sustainable urban management, and schemes are needed for linking employment centres to the existing public transport network. Further research is also needed to investigate the impact of increasing numbers of dual-income households on residential preferences and travel-to-work patterns. For example, research from US cities (Jarvis, 2003) suggests that intra-household negotiation and compromise on residential location has a significant impact on travel behaviour as households seek a ‘hub’ residential location with access to large labour markets.

Although the ‘policy/expert’ community increasingly favours a more compact, higher density form of urban development, a number of tensions can be identified, particularly in relation to increasing residential densities to accommodate future housing demand. Firstly, it is not clear if private house-builders have ‘bought into’ this new vision for housing development. The house-building lobby vigorously opposed the 60 per cent regional target for brown field housing during the preparation of the RDS (see Neill and Gordon, 2001), preferring to maintain the existing pattern of greenfield development. Secondly, during the BMAP public consultation process, increasing residential densities proved perhaps the most contentious issue at community meetings, both within low-income and middle-high income areas. This suggests that the identification of potential locations in the plan process and proposals for high-density housing development will be opposed by organised residents’ groups. A third issue relates to consumer or lifestyle choice for potential house-buyers. For example, if a compact, high-density city is rejected by consumers in favour of lower density housing developments, it is possible that locations and settlements beyond the greenbelt could prove popular. In this case, residential preference for lower densities would lead to a more car dependent pattern of development as people move to locations outside of the metropolitan area. Reinforcing this perspective, it was apparent from analysis of the household survey that the city centre as a residential location appears to have only a limited appeal.

In this context, positive urban design models are required to demonstrate to both house-builders and consumers that higher-density residential development can satisfy contemporary lifestyles at various stages of the lifecycle, including suitability for families, and also to counter
the poor image of city centre living. In this sense, quality urban design can help to address the emerging gap between the ‘policy/expert’ community and individual aspirations. In addition, it may be appropriate to consider marked-based policy instruments to encourage both higher densities and city centre residential development. For example, in the Republic of Ireland in the late 1980s and early 1990s tax incentives were successfully employed to encourage both developers and consumers to invest in inner city areas. Given the apparent limitations at present in reducing travel via urban form measures (particularly negative public perceptions of densification policies), an immediate focus on greening travel may be more appropriate, especially in providing longer distance park and ride schemes, which may imply more concentrated growth at key transport nodes in the urban fringe. In common with many planning initiatives, the rhetoric which characterises recent strategic planning and transport documents in Northern Ireland is consistently positive in relation to issues of sustainability, although its translation into reality will probably be problematic. Transport and land-use planners in Northern Ireland have generally been cautious in their promises as well as limited in their ambitions. The recent break from this tradition, regardless of the long-term realities, is therefore a welcome innovation. Nevertheless, the difficulties experienced in policy integration identified, suggest a considerable challenge to implementing a sustainable development agenda.

Notes

1. This research was undertaken as part of an EPSRC Sustainable Cities project entitled ‘Tools for Assessing Consumer, Business and Developer Responses to Sustainable Development Initiatives’. The project was undertaken jointly by the Transport Research Institute, Napier University and the School of Environmental Planning, Queen’s University Belfast, and staff involved in the project were Austin Smyth, Tim Ryley and James Cooper (all Napier University) and Malachy McEldowney, Geraint Ellis and Mark Scott (Queen’s University).

2. The public consultation process for the Belfast Metropolitan Area Plan was undertaken by a consortium of the School of Environmental Planning, Queen’s University Belfast and Price Waterhouse Coopers. Queen’s University staff involved in the exercise were Frank Gaffikin, Malachy McEldowney, Ken Sterrett, Stephen McKay, Jayne Bassett and Mark Scott.
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