

Sustainable Travel Demand

Executive Summary

This report investigates the relationship between settlement patterns and sustainable transport. This work is a crucial element in determining the strategic transportation issues that impinge on economic growth and sustainable development in the context of the National Spatial Strategy. It will also be essential to the task of identifying the capacity for expansion of existing urban areas and the identification of additional gateway centres.

Sustainable development may be defined briefly as concerned with maintaining and enhancing the quality of human life - social, economic and environmental - while living within the carrying capacity of supporting eco-systems and the resource base. Sustainable transport may be defined as transport systems and policies that contribute to this aim.

The pursuit of sustainable development is a key component of land use and transportation policy in Ireland. This has manifested itself through inter alia:

- The incorporation into land use planning policies of the concept of the minimisation of potential growth in transport demand;
- Government support for improved public transport systems and infrastructure, as a means of improving public transport's market share;
- The enhancement of facilities for non-motorised modes; and
- The introduction of tax incentives and other measures to encourage use of more fuel-efficient road vehicles.

There is a general agreement in the literature that the following factors have a positive role in promoting sustainable transport:

- Higher densities;
- Mixed land uses;
- Compact settlements; and
- Concentration of development on transport corridors.

However, the scope for settlement policies to influence sustainable transport may be more limited than is often thought. This is because of the fixity of much of existing land uses, the degree to which existing settlement patterns already support sustainable transport, and the extent to which significant segments of the population are already reliant on sustainable transport modes.

While there is a general tendency for sustainability to increase with settlement size, transport sustainability may be more a reflection of settlement patterns within the urban area rather than settlement size. This view is confirmed by an analysis of transport sustainability in Irish towns. Within urban areas in Ireland, use of sustainable transport modes increases somewhat with settlement size. However, use of sustainable transport modes shows a wide variation for towns of a given population size. It is clear that the settlement pattern and function of individual towns are more important determinants of sustainable transport use.

There is some tendency for long trip lengths to occur more frequently in larger towns. However, it is again evident that there is considerable variation among towns of the same size, indicating that other factors, such as the settlement pattern, are more important in determining trip lengths. However, larger conurbations do encourage longer trip making.

Within the above context it is generally held that settlements below 25,000 may perform relatively poorly in terms of sustainability. The threshold level for the development of local bus services would also appear to be at approximately this level.

Apart from the major urban areas, only four towns in Ireland have a population over 20,000 (Dundalk, Bray, Drogheda and Swords). This inhibits the development of local bus services. Expansion of town size to the threshold level for bus operations is a factor to be considered when identifying appropriate urban scale in the context of the National Spatial Strategy.

The vast majority of autonomous Irish towns achieved reasonable levels of transport sustainability in 1996, largely by virtue of the use of walk and cycle modes. However, use of sustainable transport modes declined rapidly during the period 1986-96, and the latest evidence for the year 2000 suggests significant further decline. Walk, bus and cycle modes experienced the greatest decline. It is only in the larger conurbations that public (bus) transport makes a significant contribution to sustainability, although public transport use does rise with town size. Even among the larger conurbations, it is only in Dublin that public transport use is high.

The decline in transport sustainability is largely the result of increasing car ownership. However, the separation of home and workplaces and the consequent increase in trip lengths would appear to be a contributory factor.

The rapid decline in the use of sustainable transport modes may mean that in future, the car will dominate to an even greater degree. Given the small population size of many Irish towns, local bus operations may not be viable. This will mean that there will not be a viable public transport alternative to the car, and there will be a continued transfer from walk and cycle modes. In the context of the National Spatial Strategy, this argues strongly for the development of Irish towns, to a scale above the threshold level for the introduction of local bus services.

The analysis of Irish data showed that dormitory towns generally have low levels of transport sustainability, except where public transport provision and particularly rail service levels are high. The international literature shows that it is difficult to achieve self containment in new settlements in terms of a balance between the number of jobs and resident workers in the town. These findings highlight the dangers in the concentrated decentralisation approach to urban development. Giving the difficulties of ensuring that local residents take local jobs, especially in the light of increasing job mobility, satellite towns will have negative impacts on sustainability unless they are well served by public transport,

As the larger conurbations grow, commuting trip length increases and this reduces the use of walk and cycle modes. In Dublin, public transport has taken the place of these modes to a significant degree, thus maintaining a high level of sustainable transport mode use. However, public transport (bus) use in other conurbations, especially Cork, has not increased in a similar fashion, so that they perform relatively poorly in terms of use of sustainable transport modes. Given the scale of Irish towns outside of Dublin, expansion of public transport services will be based largely on the bus mode. This argues for an enhancement of bus services in Cork, Limerick, Galway and Waterford.

Apart from Dublin, the other major urban areas are not, in general terms, close to a scale that would support significant LRT or Metro systems.

Suburban rail operations will also contribute to sustainability where there are significant dormitory towns in the hinterland of major urban areas, but at some distance. The obvious locations in which suburban rail operations could be extended are in Limerick and Cork.

With regard to the framing of a spatial strategy, the analysis presented in this study suggests that town size is not a dominant factor in determining the sustainability of transport. Provided appropriate settlement patterns are encouraged, the development of larger towns should not result in unsustainable transport patterns. However, in practice, this is likely to require a significant expansion of public transport provision.