

# UNLOCKING DELIVERY OF INTEGRATED TRANSPORT THROUGH ACCESSIBILITY PLANNING

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## 1. Introduction

Good transport is a vital component of an efficient and healthy economy and society. Too often transport performance is considered only from the perspective of operational indicators for networks and systems such as capacity, congestion, speed and safety. These are important, but so also are the links between transport and wider sustainable development aims.

In the last two decades there has been extensive debate about how to measure the links between transport, the economy and society (e.g. SACTRA 1999). Accessibility planning has long been identified as *conceptually* a helpful approach to consider these issues (DoE 1994, ECOTEC 1993, SEU 2003) but it has only been in recent years that there has been recognition that transport scheme delivery is predicated on:

- Clear accountability for success and failure
- High quality evidence as a bridge in building partnerships
- A managed approach to skill development
- Tackling policy conflicts and legislative and regulatory barriers at all levels

This paper discusses how accessibility planning can provide an administrative and management framework to make the necessary connections to succeed in delivering sustainable integrated transport.

## 2. Accountability Challenges

Most transport professionals view themselves as successful if they deliver sustainable development in terms of a strong economy, inclusive society and clean environment (ICE 2004) and have no doubt that the many projects, schemes and initiatives contribute to these goals. However at an administrative and political level, accountability for transport has related mainly to travel demand indicators such as the number of bus passengers or the number of vehicle kilometres. As a result economic success, social justice, and environmental improvement benefits are far more likely to be attributed to actions outwith the transport sector and problems such as congestion, safety and pollution to the transport sector. The high turnover of transport politicians is testimony to the fact that the credit for many transport successes has fallen to non-transport sectors, with transport only being seen as responsible when things go wrong (AA 1995).

At a consumer level, the poor alignment of accountability and authority for delivery is even more apparent. If, due to transport problems, a delivery of goods is regularly late, or a businessman keeps missing meetings, or an employee is repeatedly late for work due to transport delays then the company, businessman, and individual are accountable for their failure to perform. The response of the company or traveller is to seek to change those aspects of the transport system over which they have control. People can purchase cars and bikes, and can influence when demand responsive transport such as taxis run, but in general when consumers have tried to change things

like: the supply of roads, trains or buses, or the reliability services, or the ways of paying for buses and trains, they have faced a reluctance from transport providers to open decision making to a wider user community (Scottish Executive 1998, Sears 2004).

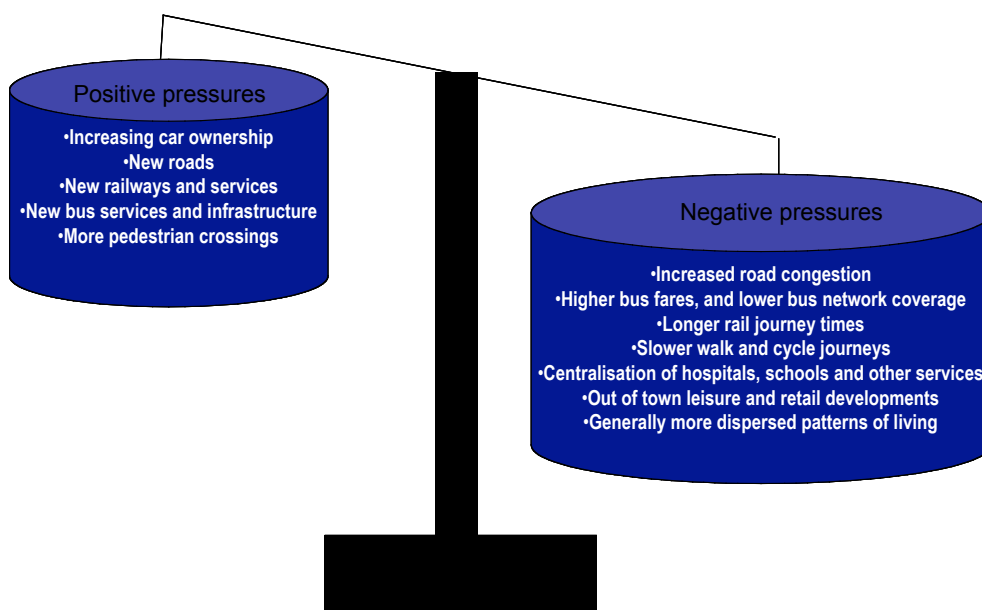
Although spending on transport by consumers exceeds that by public providers by a ratio of at least 10:1 (Scottish Transport Statistics 2004) there remains a perception that public funding can solve all the transport problems. This causes particular problems for delivery of policies that involve demand management. For example many researchers have pointed out the conundrum that, at a theoretical level, transport planners can solve many of the current problems through efficient pricing of roads, but that at a political level consumers are very cautious about a transfer of power to government without clearer accountability to consumers that the benefits will exceed the costs (Progress 2004). As a result of the inability of users and providers to engage effectively within an efficient transport market, the politics of transport have become increasingly unstable with public expectations that politicians can resolve all complex competing interests being unrealistic.

To overcome these problems, there is a need for accountability for transport performance to be described in terms of the level of service experienced by users. Accessibility concepts describe travel opportunities as they are perceived by users, so have therefore become an increasingly important focus for transport policy in recent years. Before moving on to discuss the application of these policies it is worth reviewing first the factors that have affected their development.

### 3. The Development of Accessibility Policy in Scotland

Some suggest that we need to go back to the Romans to understand the development of transport policy and attitudes to travel (Stradling 2003), but this paper concentrates on the last twenty years, since up until around 1980 in Scotland there had been a reasonably steady increase in accessibility for most people for most trip purposes. Since then, improvements in accessibility have been limited to a few people and only some times of day. Positive and negative pressures on accessibility are shown in Figure 1.

Figure 1 – The Balance of Accessibility



Even on the roads where growing car ownership has substantially improved accessibility for many people, the effects of increasing congestion have meant that for the population as a whole accessibility has been declining.

Recognising these trends, and the associated growing environmental problems, in the early 1990s, the Scottish Office published the results of a major review of policy stating that the Government “recognise that all demand for travel cannot be met” but that the objectives of transport policy include “to provide good accessibility to all parts of Scotland where economic activity (including tourism) is carried on or could be expected to develop” (Scottish Office 1992).

It was therefore recognised that if travel demand cannot be met, then some criteria were needed to decide which demand should be met and which demand should be suppressed. Thus the concept of “accessibility planning” in Scotland was born. Reinforcement for the policy then came from a wide range of more detailed policies and including land use planning guidance (NPPG17), the Transport White Papers in the late 1990s and more recently some practical advice was contained in the Scottish Transport Appraisal Guidance. These have particularly emphasised that good accessibility should not just be for all parts of Scotland but also for all groups of people.

Of particular significance was the recognition that accessibility benefits needed to be at the heart of transport investment (Scottish Executive 1998, 2003). However despite these policy changes, delivery approaches have been slow to change. Some of the reasons for this slow rate of change have been:

- Statutory land use plans cover a very long time period
- Public expectations about transport scheme delivery do not change overnight
- The culture and skills within the transport sector have not been conducive to delivering the new accessibility policies.
- Detailed understanding of how to measure accessibility has been slow to move from research to practice.

A major review commissioned by the Prime Minister (SEU 2003) suggested that these hurdles could be overcome through a systematic approach, auditing people’s needs and available resources and with agencies working in partnership to deliver joint action plans. In particular, recognising that the accessibility needs of all groups in society were not currently being met, the SEU recommended that:

*“accessibility planning will ensure that there is clear responsibility and accountability for identifying accessibility problems and deciding how to tackle them”*

It has been recognised (DfT 2004) that the culture change needed to implement accessibility planning includes:

- Tackling scheme delivery in new ways by building partnership and trust.
- Providers sourcing evidence on the needs of users. The SEU review found that most transport planners did not know the effects of transport policies and plans on users being focused at operational impacts such as congestion and capacity.
- Funding for schemes is unlikely to be by one sector alone but instead involve resource assembly from many stakeholders.
- Non transport impacts and cross sector benefits may be as important in prioritising actions as transport impacts.

#### **4. Building Partnership and Trust**

Transport is a derived demand so making the case for transport investment relies on identifying the ultimate beneficiaries. Perhaps more than any other sector, transport delivery is exposed to potential conflict and needs to recognise the different contributions:

- Between modes – walking, car, bus, rail, cycle, tram, and other modes all compete to provide the most efficient means of travel for people and businesses.
- Between sectors – private, public and voluntary sectors all deliver a mix of infrastructure and services.
- Within sustainable development - a sustainable economy relies on increasing competitiveness, and an inclusive society depends on travel benefits being available to all, but increased travel can threaten environmental sustainability.
- With other policies – transport is a derived demand so successful transport delivery needs to be linked with success in the sectors that create the demand.
- Between users and providers – transport provision has a major impact on the built environment and there are difficult trade-offs to be managed including how much space can be allocated to movement and how users should pay for internal and external costs.

There has been a tendency amongst transport planners to say that the profession has done its job by outlining the technical solutions and that politicians are simply not brave enough to implement it. However as worldwide experience on controversial transport agendas shows (AA 1995), brave politicians can quickly become unemployed. A call for more brave politicians amongst transport professionals is little more than recognition of the failure of the profession to build public support for sustainable policies. Robust politicians are needed to present case for better transport, but the outputs from current transport planning often fall well short of a coherent picture of the impacts of transport change on the economy, environment and society (CPRE 2001, House of Commons 2002).

An overwhelming body of research shows that a more integrated approach to transport within a sustainable development framework will not only deliver wider economic, environmental and social aims but will also be more effective in tackling congestion and safety problems. It might therefore be expected that building consensus for integrated solutions would be easy. However when the “Consensus for Change” (Labour Party 1996) for integrated transport did not materialise, the short term focus for transport delivery appeared to shift to pragmatic multi-modalism rather than integration (Shaw and Walton 2001). It has taken longer to establish new best practice on accessibility planning (DfT 2004) recognising that consensus and trust need to be built; they do not just happen. Integration between modes and between policies requires complex conflicts to be resolved and divisional and departmental structures based around modes and sectors reinforce these conflicts.

Some argue that: delivering multi-modal solutions is difficult, achieving some degree of integration between the modes is harder still (e.g. integrated ticketing across public transport, or road charges to pay for improved public transport), so policy integration is best left off the agenda until better progress is made with the first two. This would be a tempting argument were it not for experience which demonstrates that transport will only be high enough up the policy agenda to deliver integrated multi-modal solutions if people understand what the changes will mean for them personally and how transport links with economic, social and environmental policy. For transport planning to become more relevant to the perspectives of users, businesses and politicians, it needs to describe impacts in terms of the things that matter to each group (Halden 1996). Over the last 10 years, experience and practice of stakeholder involvement in transport

planning has grown for relatively small schemes (Goodwin 2004) but accountability for the effectiveness of large schemes remains highly centralised.

Yet this does not reflect a real world in which transport supply is only one element affecting travel demand. Changing administrative structures, cultural attitudes and social trends are not simply external issues for transport planning but offer some of the most promising tools for managing and delivering transport change.

The new policy framework for accessibility planning therefore recognises that in the past cross-sector delivery has been too difficult, with no legislative, funding and administrative cultures to help practitioners overcome the inevitable obstacles delivering joint schemes. In Scotland the new administrative, planning and funding mechanisms are being managed through:

- Transport investment decisions under STAG
- Planning policy delivery
- Closing the opportunity gap and social inclusion funding
- Community planning

Underpinning the ability to progress accessibility planning is a strong evidence base using relevant qualitative and quantitative data.

## **5. The Evidence Base**

In order for accessibility planning to be able to manage the trade-offs between different stakeholder objectives, the evidence base needs to be relevant to each group who have an actual or potential influence over delivery. If everyone who wants to visit a hospital or visit a shop tries to park their cars at the door then everybody ends up in congestion and unable to reach their destination. Successful transport planning is therefore predicated on matching the capacity of the infrastructure supply and the demand for travel. This often relies more on restraining certain types of modes, at specific times of day and locations than on providing increased capacity in the transport systems.

If appraisal concentrates on travel demand the solutions can be difficult to identify and the needs of some traveller groups and businesses can be missed (Halden 1996). In any case travel demand is heavily dependent on transport supply so it is often less useful to know how many people want to travel to a destination than what the economic and social impacts are of them reaching it.

Lessons from Safer Routes to School show the power of evidence within accessibility planning (DHC 1999). When children map their preferred routes to school, and these are discussed with the police, local authority roads departments and others, the outcome is often to provide infrastructure changes such as pedestrian crossings that would not have been identified using demand analysis alone.

More generally, the lessons learned from the last 40 years about travel demand management policies are that “trust me I am a transport planner” approaches do not work. Many good schemes have become increasingly controversial and been subject to protracted delay in delivery. Only once all the potential objectors understand that restricting car use actually improves the quality of access is the necessary momentum for delivery achieved. For very simple schemes these principles can be explained with very limited analysis. However more complex travel demand management needs more sophisticated accessibility modelling. Road pricing has replaced pedestrianisation at the more controversial end of strategy implementation, but public consultation on

transport strategies often falls short of a managed process to build community ownership of both problems and solutions. The role of a transport planner is, not just to convince policy makers and funders that a particular strategy will work, but to engage with residents and businesses on the things that matter to them.

Non-transport sectors are much less interested than transport sectors in the operational problems caused by growing travel demand. The primary concern of travellers and non-transport organisations is that they can meet their own travel needs, so demand management policies are often perceived as a potential threat since they may seek to suppress particular trips. If “congestion” charging is successful at reducing congestion and this means less cars on the road then we must expect many people to start from the presumption that they will lose out, unless we provide them with personalised information to the contrary.

It is therefore important to be able to demonstrate the impacts of travel demand policies on real trips such as access to and from work, shops, hospital etc. for different groups and for different geographical areas. This then suggests that consensus on the way forward on travel demand policies can be build around identifiable and measurable accessibility improvements.

The ability of transport planners to provide users with such evidence has increased substantially in recent years with the availability of new data sets and powerful computing tools.

## **6. Accessibility Analysis**

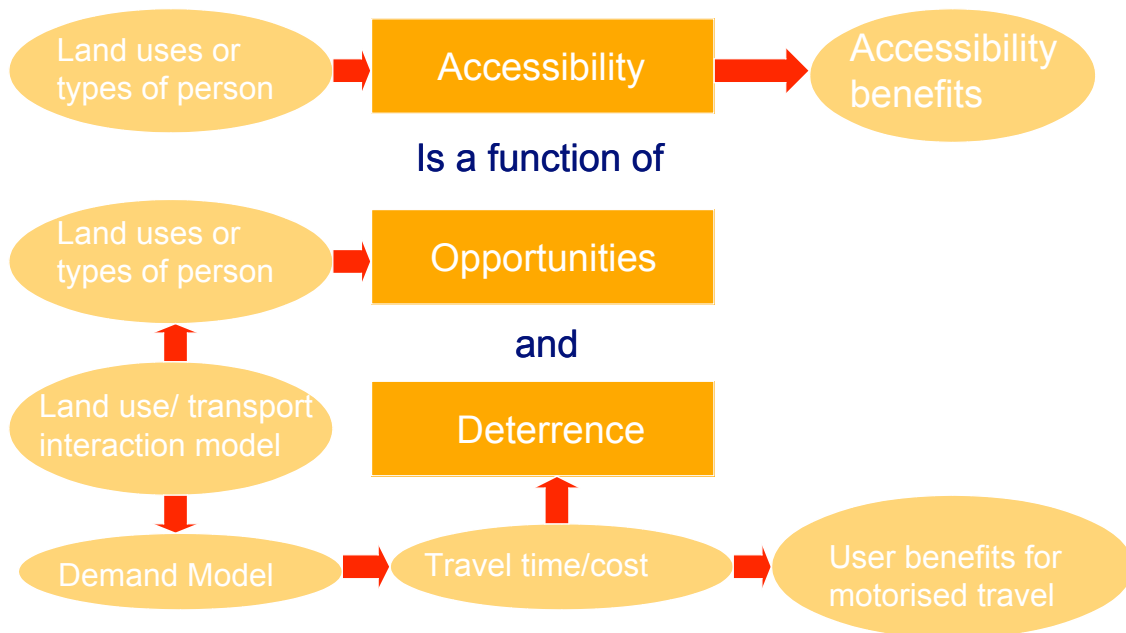
Accessibility analysis has been hampered by its perceived complexity and by the myriad of different ways of measuring and representing it. In recent years there has been an increasing standardisation of terminology and approach (DHC 2000, DfT 2004) which has helped to clarify nomenclature and practical techniques for calculating the various measures.

In defining the components needed for any accessibility measures, the starting point is to ask some questions:

- For whom is the accessibility being considered?
- What is the opportunity being sought?
- What options are available for the given individual or group of people to reach the opportunities, and are there any constraints on these options?
- How accurate does the analysis need to be?

Figure 2 shows how accessibility analysis sits alongside demand modelling. It is important to recognise that accessibility is a broader concept than travel demand and incorporates all of the user benefits normally considered within user cost benefit analysis (Simmonds et al 1998). The accessibility benefits cannot therefore simply be added to the user benefits but instead viewed alongside them within appraisal.

**Figure 2 – Integrated Analysis Framework**



Land use opportunities of interest include:

- Employment, Education and Training – Employment locations, schools, colleges, universities, training centres.
- Health and Social – Health centres, hospitals, social security offices, job centres, post offices.
- Shopping and Leisure – Shops/shopping centres, cinemas, theatres, sports centres, outdoor activity opportunities, centres for religious activity, pubs, clubs.

Types of person or traveller take account of:

- Mobility – Car ownership, disability.
- Employment status – unemployed, economically active etc.
- Age – Retired, adult, children, etc.

For opportunities that can be defined in spatial terms such as the location of jobs, hospitals, schools, shops, etc., accessibility measures can represent the spatial distribution of access to these opportunities. This assumes that alternative jobs, schools, etc. are effective substitutes for one another, so it is often necessary to disaggregate opportunities to consider sub-groups or sub-markets to ensure the analysis is realistic. For opportunities that cannot be disaggregated into meaningful groups to reflect the choices available, e.g. access to friends and family, access to transport systems provides the best practical proxy for the overall level of accessibility.

The deterrence function can be measured as time, travel cost, distance, or generalised cost/time. It aims to represent real behaviour and perception of travel or non-travel options for accessing opportunities which in some cases can be defined using thresholds or contours. This must include the relative deterrent effect of different types of travel, and the costs associated with each, including issues such as the greater deterrent effect of time waiting for a vehicle when compared with the same time spent travelling in a vehicle.

As desktop data processing and analysis using GIS has become much more common in recent years, so the availability of data sets in electronic form is now the norm. Geo-referenced data on most opportunities (such as education, healthcare, employment) are now readily available at national and local levels. Detailed data on demographics of the travelling population is also available through Census 2001 results, although for some people groups more recent figures are required to ensure that results are meaningful. With all data it is important to complement nationally sourced data with local sources. This can act as a reality check, and also provide additional and up-to-date detail relevant to the accessibility issues being considered. Other national sources on specific topics, updated more frequently, are also available.

Establishing travel deterrence can be achieved by considering observed behaviour of those using different modes for different journey purposes. The large travel diary data sets available in the Scottish Household Survey and the National Travel Survey allow some calibration of model parameters for different types of journey times and people groups (DHC 2004a).

To date the bulk of accessibility modelling practice has concentrated on cost and time, building from the data available to individual travellers to assist with journey planning. Modelling solutions are therefore exploring other aspects of journey quality such as reliability, physical activity and safety information. It can be expected that increasingly transport planners will be able to inform travellers and partner agencies on the impacts of transport changes on many more social inclusion, economic development and health impacts.

## **7. Managing joint delivery**

Accessibility planning involves identifying solutions that reflect the aims of the partners [participating in the process]. The starting point is for the transport planner to identify which partners need to participate in delivery and the synergies and conflicts between their policies and aims (DHC 2004b). This then provides the basis for discussions and negotiation on analysis needs, option appraisal, resource assembly, and action planning.

It needs to be recognised that different types of stakeholder have different pressures placed on them. Some of the main characteristics are:

- Local residents and businesses - This group usually contribute the largest element to the costs of improved transport through car, van and lorry purchase, fuel, and public transport fares. Their future well-being is also more dependent on the success of the solutions than other stakeholders. In managing this group the key challenge is to ensure that the decisions of particular individuals or groups do not dominate or have adverse effects on others, and to demonstrate to all groups that solutions are fair.
- Public agencies - Local and central government, economic development agencies, health authorities, environmental protection bodies, and tourist agencies are a few of the public agencies with a legitimate transport remit. Each has public funding to deliver defined objectives. The key challenge is to identify where these objectives overlap and that the costs and benefits of projects make good use of scarce public resources. These public agencies will also usually play a lead role in funding planning and administrative activity.
- Transport operators - Bus, rail, ferry, and air operators and road, airport, port, and railway infrastructure providers receive varying levels of public subsidy. The main focus of appraisal for these groups is travel demand to balance commercial and



operational decisions about investment. Most of these decisions are currently made for individual modes without cross subsidy from other modes. The current administrative framework for transport does not offer major incentives for cross modal, or even joint operator interventions. As accessibility plans are developed, the trade offs between the relative benefits of integration and competition for public transport services will become more explicit helping the Office of Fair Trading and others to assess more clearly where competition will offer greatest benefit.

In the absence of market mechanisms to encourage integration between modes or with other policies, it is substantially for the first two groups to link transport and non-transport policy. The focus within accessibility planning toward impacts on people, rather than vehicles, can help to ensure an integrated approach to analysing costs and benefits.

The rate and effectiveness of progress with joint delivery is determined by seven important factors (DHC 2004) as discussed below.

Robust engagement by transport planners is needed, to influence **decision making in other sectors**. Rather than accepting adverse consequences of non transport decisions, accessibility planning requires transport planners to require that accessibility plans are built into the solutions for changes including hospital re-organisations, school and college re-locations, shopping developments, and other land use changes.

Although, in the long term, accessibility planning should be able to draw largely from funding in different sectors, in the short term, to foster the new partnership culture, new **funding** needs to be made available specifically for multi-sector initiatives. To date social inclusion funding has helped to deliver many successful cross sectoral projects in Scotland.

Skills and cultures within the transport industry need to change. The Scottish Executive has recognised the need to support new approaches to transport appraisal including accessibility analysis through workshops and **training** on STAG. However little support has been provided beyond funding for staff to help manage complex partnership working e.g. funding for school travel co-ordinators.

The new partnership delivery approaches involve a cultural shift for many professionals. A review of partnership building in the construction sector (Latham 2005) identified four types of attitudes amongst professionals which could threaten progress:

- People who have been doing a job for a long time and do not like change
- People who see the potential benefits from new approaches do not like risks
- People who say that they cannot see any problems with the current approach so there is no need for change.
- There may be vested interests for certain individuals in the current approach.

**Audits** of performance need to measure what is valued locally. National accessibility indicators have a place, particularly in considering overall travel times to facilities, but locally sensitive factors including safety, comfort, cost, information and reliability may be more important local barriers to accessibility than travel time. Success with accessibility planning should be largely based on the effectiveness in meeting specified local aims.

Transport appraisal and **investment decisions** for all modes need to be consistent with the accessibility plan. It is increasingly unacceptable not to know who is affected

by transport changes and whether the opportunity gaps between rich and poor are being closed or widened. The progressive implementation of equity audits supports the accessibility planning process.

**Land use plans** which require developers to demonstrate consistency with specific quantified local accessibility planning objectives, should ensure that long established policy principles translate into practical planning decisions.

**Best value audits** need to demonstrate that the efficiency is not just within a single sector but involves effective joint delivery. The SEU identified that integrating socially necessary services for patient transport, social work transport, community transport and public transport was a particular priority, so this might be a good place for the best value auditors to start.

## **8. Prospects for delivering better accessibility in Scotland**

There are many reasons why accessibility planning will support integrated transport delivery, not least that accessibility planning helps to define in practical terms what integration means to users of public transport and what specific changes are needed to deliver it.

To build partnerships and consensus, equity aims are a powerful motivator, and by being clear about the accessibility benefits being delivered professionals can understand the differences they are making to people's lives, and the potential impacts of inaction. Transport planners have not been good at communicating the benefits of transport investment but there can hardly be a more powerful way to make the case for a scheme than by describing impacts on different groups of people for access to jobs, health, learning and other trip purposes.

There are also substantial prizes through delivery on cross-cutting accessibility agendas: reducing patient non-attendance with substantial cost savings for the NHS, overcoming barriers to work for jobless people demonstrating practical links between transport investment and economic development, and developing markets for healthy fresh food increase through more accessible products. These provide the potential for significant new investment in transport.

Funding mechanisms for accessibility planning are currently evolving and short term policy priorities in Scotland include enhancing employability through access to work, access to health, and access to learning. There are also increasing expectations that efficiency gains can be achieved through integrated delivery of transport services across these sectors (Audit Commission 2001).

Overall the transport sector needs to be prepared to be more accountable for the standard of accessibility provided to all members of society. Rather than making narrow cases for transport investment based on operational aims such as tackling congestion, accessibility planning helps to identify the causes of congestion and to identify cross sectoral action programmes to challenge these. Accessibility planning is therefore an opportunity to deliver the integration benefits in transport that have proved too difficult to overcome in the absence of this powerful administrative, funding and evidence based approach.

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