

# Does Accessibility Planning address what matters? A review of current practice and practitioner perspectives

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## Abstract

“Accessibility” has become commonplace in transport planning and as such there is a plethora of interpretations of what accessibility means, what constitutes a good measure of accessibility, and how this might be applied in practice. This paper presents an overview of approaches to measuring accessibility and presents a case study of Accessibility Planning in England – one approach to formalising the concept of accessibility. Results of semi-structured interviews with local authority officers are discussed to establish whether current approaches allow their desired outcomes to be met. This approach demonstrates where there might be gaps between measured or modelled accessibility and the perceptions of the individuals. Findings suggest that while the *process* is deemed useful in raising the profile of accessibility issues, *measures* of accessibility do not necessarily easily translate into quantifying benefits of those improvements that are perceived by practitioners to improve accessibility and reduce transport disadvantage.

**Keywords – Accessibility Planning/ Accessibility Measures/ Local Transport Planning/**

## Introduction

Accessibility, in the context of transport planning, has been defined in a number of ways, but is broadly understood to encapsulate the ability of people to access destinations (origin based), or the accessibility of destinations to a defined population (destination based). Mobility provided through the transport system is traditionally the means by which accessibility is provided. In order for the concept of “accessibility” to be applied there is a need to develop measures of accessibility for utilisation in planning and policy decisions capable of measuring variation both temporally and spatially, and there are various such approaches to measurement.

The process of Accessibility Planning in England represents one approach to a practical application of theoretical measures of accessibility, and forms the focus of this paper. Despite the large number of approaches to measuring accessibility, Straatemeier (2008) suggests that the theory is not well applied in practice. As Handy and Niemeier (1997) point out, concepts of accessibility have rarely been

translated into performance measures by which policies are evaluated and thus have had little practical impact on policies. While there is a large body of literature focussing on the theoretical definition and measurement of accessibility, the extent to which measures are useful in assessing the most appropriate interventions to reduce inequality and disadvantage for society as a whole or for targeted populations is less clear.

Accessibility Planning in the UK has developed a particular focus on individuals' barriers to accessing services, and (in)equality and disadvantage in levels of accessibility. The Accessibility Planning process has developed slightly differently in each of the devolved nations of the UK over the last decade or so (see Halden, 2009 for an overview) but was formalised in England – the case study for this paper – through the requirement of “Accessibility Strategies” to accompany the second round of Local Transport Plans (LTPs) submitted by Local Transport Authorities (LTAs).

The motivation for this paper is to explore how local transport planners are using Accessibility Planning to address inequalities and disadvantage in accessibility. The research seeks to contribute to the existing literature on accessibility measurement by providing evidence to understand how such measures are used in one practical application: the English Accessibility Planning process; and reacts to the assertion that measures may not assess the complex social interactions, perceptions and behaviours which influence travel and ultimately the accessibility of individuals. As such, measuring accessibility in this way may not lead to desired improvements in social welfare. The paper therefore seeks to understand which measures can lead to the outcomes desired from Accessibility Planning.

## **Approaches to understanding and measuring Accessibility**

Classical approaches to measuring accessibility include Hansen (1959) and the time-space geography of Hägerstrand (1970). Measures based upon Hansen's approach are widely used, whereby accessibility is calculated based on a distance decay function of origins to a destination point and the attractiveness of the destination (e.g. number of jobs available). Taking a more person-based approach, Hägerstrand (1970) introduced the concept of time-geography and space time, based on individual travel spaces and taking into account daily scheduling. While this measure has been used extensively in research, particularly utilising travel diary data in the United States, there is limited evidence of this approach being applied in practice, perhaps due to the data requirements and the difficulty of developing policy to address individuals' issues.

A review of the literature reveals numerous methods of measuring accessibility. Baradaran and Ramjerdi (2001), Geurs and van Eck (2001), Geurs and van Wee (2004), Vandenbulcke *et al* (2009), Halden *et al* (2000) and Handy and Niemeier (1997) amongst others have attempted to classify such measures. The various approaches differ in their level of complexity and practical applicability. Table 1 summarises these classifications.

**Table 1 – Classification of Accessibility measures**

<b>Measure</b>	<b>Description</b>	<b>Example Measure</b>
<p><b>Infrastructure based measures</b></p> <p>(e.g. Church et al, 2000)</p>	<p>Relate to the performance of the network and therefore might include measures used in transport modelling such as capacity, or in terms of public transport frequency or reliability.</p>	<ul style="list-style-type: none"> <li>• Travel times to development Site</li> <li>• Frequency of bus services passing an origin point</li> <li>• Congestion across a local authority area</li> </ul>
<p><b>Cumulative measures</b></p> <ul style="list-style-type: none"> <li>- Contour measures</li> <li>- Threshold Measures</li> </ul> <p>(e.g. Nettleton et al, 2006, Casas, 2007; Escolona-Orcao and Díez-Cornago ,2007)</p>	<p>Represent the accessibility at a location (origin) to another (destination) or set of destinations and are the most easily understood measures. These are often also described as contour measures, due to the contour maps produced.</p>	<ul style="list-style-type: none"> <li>• Proportion of the population within a reasonable (e.g. 30 minute) walking time threshold of a GP surgery</li> <li>• Number of schools within a 20 minute drive of a postcode sector (origin)</li> </ul>
<p><b>Gravity based measures</b></p> <ul style="list-style-type: none"> <li>- Hansen measures</li> <li>- Opportunity measures</li> <li>- Potential measures</li> </ul> <p>(e.g. Bertolini et al,2005; Geertman and van Eck,1995; Knox,1981;Hansen, 1959)</p>	<p>An extension of cumulative measures, but weight opportunities by an impedance factor and the attractiveness of the destination, and may also be called opportunity or potential measures. The resulting measure does not mean anything on its own but is a relative measure of accessibility at one point relative to others within the study area.</p>	<ul style="list-style-type: none"> <li>• Accessibility of the defined population (e.g. within a local authority area) to employment (where accessibility is calculated using a function of travel time and number of jobs available at each employment site).</li> <li>• Accessibility of schools to the population (where accessibility is calculated using a function of travel time and number of children of school age).</li> </ul>
<p><b>Utility based measures</b></p> <p>(e.g. Bohnet and Gertz, 2008; Niemeier,1997)</p>	<p>Considers travel behaviour in terms of selecting the location based on economic principles of diminishing return; the likelihood of an individual making a certain choice is based on the attractiveness of that choice in relation to all options.</p>	<ul style="list-style-type: none"> <li>• Monetary value of a change in accessibility for a defined population</li> <li>• Accessibility, in terms of attractiveness, of a destination based on the expected utility an individual will gain</li> </ul>
<p><b>Activity based measures</b></p> <ul style="list-style-type: none"> <li>- Time-space measures</li> <li>- Potential Path areas</li> </ul> <p>(e.g. Buliung and Kanaroglou, 2006; Casas, 2007; Farber and Páez, 2009)</p>	<p>Relate to individuals' level of access to spatially distributed activities, considers location of activities, travel through the network and incorporates a behavioural element, usually captured via travel diary data.</p>	<ul style="list-style-type: none"> <li>• Potential Path Area The area that can be visited by an individual taking into account location of destinations, the transport network and the individuals scheduling constraints</li> <li>• Household Activity Space Extension of the Potential Path Area to account for the activities and constraints of all members of the household</li> </ul>

While activity and utility based measures are arguably based on a stronger theoretical underpinning and are better able to reflect behaviour, they are rarely used in practical applications due to the complexity and data intensity of such measures, and the difficulties encountered with communicating the outputs to a non-expert

audience. As a result of this use of cumulative or contour measures is much more common in practical applications (Geurs and van Eck, 2003).

Many studies utilise a combination of techniques in developing an understanding of accessibility, as, broadly speaking, quantitative approaches provide an aggregate level of understanding, often enriched by qualitative work addressing individual level issues. This point is borne out in the results of practitioner engagement presented in this paper.

It is important to represent the views of practitioners responsible for implementing accessibility related policies, as they are responsible for shaping policy and utilising measures of accessibility. Wennberg et al (2009) present planners' views in relation to incorporating accessibility into planning in Swedish municipalities, but otherwise there is limited evidence of how planners have implemented the concept of accessibility into planning and policy.

### **Accessibility Planning in the UK**

Considerable progress has been made in “mainstreaming” accessibility into transport planning through the local transport planning process, which, in England, requires a Local Transport Plan (LTP) including an Accessibility Strategy. Accessibility Planning is framed in the context of social exclusion within transport planning, focusing on the ability of people to participate fully in society, characterised as being limited by poor accessibility (DfT, 2004). This paper focuses on the experiences of English Local Transport Authorities (LTAs) in implementing the process of Accessibility Planning, through the development of Accessibility Strategies, and under the guidance of central government (DfT, 2004).

LTAs are the local government bodies with statutory highways and transport responsibilities in England. The governance structure varies but LTAs can be a county council (encompassing several district councils), a metropolitan borough or unitary council. Since 2000 LTAs have been required to submit LTPs, the first one covering the period 2001-2006 (LTP1), and the second covering 2006-2011 (LTP2). In metropolitan areas LTPs are submitted in conjunction with the Passenger Transport Executive (PTE), a local government body responsible for co-ordinating public transport across a metropolitan area. There are six PTEs in England covering the metropolitan areas of Greater Manchester, Merseyside, South Yorkshire, Tyne and Wear, West Midlands and West Yorkshire. Following recommendations outlined in a report by the Social Exclusion Unit, “Making the Connections” (SEU, 2003) local councils were required to submit an Accessibility Strategy as part of LTP2, alongside strategies for congestion, air quality and road safety, together known as the four shared priorities. Halden (2009) and DHC and University of Westminster (2003) provide an overview of the historical development of Accessibility Planning in the UK, prior to and following “Making the Connections” (SEU, 2003) and placing this in the context of broader themes in transport planning. This paper focuses on the English experience; the approach to Accessibility Planning is slightly different in Scotland, Wales and Northern Ireland.

The use of accessibility measures forms a large part of the Accessibility Planning process, alongside tools such as user and stakeholder consultation. Software called 'Accession' was developed to support the process, and can be used to calculate measures based on simple threshold, cumulative opportunity or gravity based measures. Core Accessibility Indicators (CAI) are calculated nationally to benchmark local authorities and for reporting against two National Indicators: NI175 (Access to Services) and NI176 (Access to Employment) against which local authorities may choose to report as part of their overall accountability to central government.

Accessibility Planning recognises the importance of factors other than journey time and spatial location (SEU, 2003), yet, given the availability of data accessibility measures and indicators have tended to focus on the objective journey time or distance of people to destinations, and do not usually consider factors such as convenience, physical mobility, safety and cost,

There is often an assumption that because a public transport service exists it can be used, but as noted by Kwan and Weber (2003): *"individual household measures, or individual characteristics such as gender, age, income and number of households are more important than the urban environment and differences between individuals can have vast impacts on their personal accessibility."* Hine and Grieco (2003) suggest Accessibility Planning is based on largely anecdotal evidence. While accessibility audits, and use of tools such as GIS are useful in identifying accessibility problems, and raising awareness with stakeholders, it is important not to adopt the 'black box' approach feared by Lucas (2006) who highlighted the potential problem: *'however sophisticated the model, it will be unable to identify people's actual activity patterns, or other 'softer' barriers to access such as low travel horizons, cognitive and mental mapping abilities, which can often be more of a barrier than the availability and timing of transport services,'*. However, with the use of (sophisticated) measures of accessibility it is all too easy for them to be seen as providing *the* answer, rather than placed in the wider context.. While many, mainly speculative problems were anticipated there is limited evidence of how these have played out following full introduction of the process. This paper thus provides a more up to date discussion following the full introduction of Accessibility Planning across English local authorities. Lucas (2006) provides a useful discussion of the piloting of Accessibility Planning in eight local authorities, and many of the potential problems highlighted resonate with some of the emergent problems of the process found in this discussion with practitioners. The following section presents results of engagement with local authorities involved in delivering Accessibility Planning in England as empirical evidence for how the process has been implemented.

## **Practitioner Perspectives**

This section draws on results from semi-structured interviews with officers from English Local Transport Authorities (LTAs). An understanding of their perspectives and experiences with the process and with utilising accessibility measures is vital

given the pivotal role played by LTAs in delivering transport improvements. If the link from theory of accessibility measurement to practice of accessibility improvements is not understood then the process will not achieve its full potential.

### Methodology

A shortlist of fifteen LTAs was contacted by email and post during February 2010 to invite them to participate in a short telephone interview discussing their experiences with Accessibility Planning. A similar approach was used by Canning et al (2010) to understand local transport authorities' views towards devolution of transport powers, and proved an effective method of eliciting views from transport professionals. The shortlist was drawn from a total of eighty-three authorities who had submitted Accessibility Strategies covering the period 2006-2011. The shortlisting process was designed to ensure broad coverage of representation in terms of geographical region, rurality, quality of accessibility strategy (according to a scoring procedure undertaken by the Department for Transport) and levels of accessibility (as measured by the 2008 Core Accessibility Indicators). Three of the shortlisted areas were metropolitan areas where a joint LTP had been submitted with the relevant Passenger Transport Executive (PTE). In these cases contact was made with both the PTE and the individual metropolitan boroughs. Twelve positive responses were received and semi-structured telephone interviews were undertaken between February – April 2010. Those interviewed included 1 PTE, 4 unitary authorities falling within metropolitan PTE areas, and six county councils. The individuals targeted for interviews were officers with responsibility for Accessibility Planning.

Engagement with Local Authorities had four primary objectives:

- 1) To gain an understanding of how Accessibility Planning is being implemented by English Local Authorities as part of the Local Transport Planning Process - what are the aims of Accessibility Planning and the tools being used to implement it?;*
- 2) To establish whether the tools and data currently used and available to practitioners allow them to undertake their jobs effectively, and result in their desired outcomes;*
- 3) To understand what (if any) gaps in knowledge or resources exist preventing authorities obtaining more desirable outcomes; and*
- 4) To identify examples of where modelled accessibility differs from perceived accessibility.*

The semi-structured interview schedule was designed around these four objectives. With interviewee's permission the interviews were recorded, and subsequently transcribed. A qualitative data analysis tool (NVivo) was then used to code the data into themes related to the interview schedule, as well as other emergent themes; the results are discussed in the remainder of this section.

## **Background to Interviewees**

This section discusses the role of the individual within the organisation and their involvement in the Accessibility Strategy as well as the accessibility priorities for the local area. There was a range of response from officers involved at different levels of responsibility or stages within the process of Accessibility Planning. The levels of involvement can be split into three broad types: 1) Policy and Strategy (strategic level work involving production of the accessibility strategy and the LTP); 2) Technical (detailed appraisal and analysis work, and the monitoring and measurement of accessibility) and; 3) Delivery (delivery of accessibility improvements, usually in the guise of a sustainable travel or 'Smarter Choices' (behaviour change) team within the local authority), although there is some overlap. Interviews were conducted with a range of individuals representing different levels of involvement in Accessibility Planning, and therefore a range of perspectives are covered.

When discussing the authorities' accessibility priorities, the majority of respondents referred to the key areas outlined by the SEU (2003). These are employment, healthcare, education, food and leisure. There were some exceptions; for example where an area-based approach was taken, reported priorities were often based around regeneration or economic development.

## **Aims and expectations of Accessibility (Planning)**

This section explores how local accessibility planners understand accessibility, what they seek to achieve (desired outcomes) and perceived barriers to accessibility.

The majority of definitions given derive from the SEU (2003) definition of accessibility as the 'ease with which people can access goods and services'. Many respondents emphasised the difference between 'physical accessibility', seen as specifically relating to access onto a bus or into a building and associated with disability legislation, and accessibility more broadly, as defined in the context of Accessibility Planning. It was clear the "accessibility" respondents were talking about was a broader concept relating to and affected by a wider range of factors ranging from air quality to road safety. Indeed accessibility was described as a "buzzword" and an "umbrella term".



Figure 1 - Definitions of accessibility (planning)

As shown by Figure 1 definitions had a clear theme surrounding issues of equity, social exclusion and transport-related deprivation. There is also a clear 'sustainable' theme to understandings of accessibility, with many definitions relating to improving non-car accessibility.

Most respondents viewed accessibility as a normative policy goal, as illustrated by definitions (Figure 1) focussed on non-car based accessibility and improving access to opportunities for deprived populations. While there was some recognition that an increase in accessibility might lead to excess travel, this was not a widely held view and the general perception was increased accessibility would have economic and social benefits, both within and outside of the transport sector by improving the range of opportunities individuals have access to (using non-car modes). A number of barriers to accessibility were identified, and can be broadly categorised into those relating to the transport system, the land-use system, societal factors and individual factors. Specifically, cost, interchange and reliability of services were the most frequently mentioned as barriers to use of public transport in accessing key destinations. It was generally believed reducing or eliminating these barriers would improve accessibility and therefore lead to enhanced social inclusion, greater equality and modal shift. These outcomes were seen as broad ranging, and not only impacting transport but a wide range of sectors, particularly health, as well as employment and overall quality of life. In terms of measuring this change, difficulties were stated by respondents, many of whom suggested that the way in which accessibility is measured and reported does not allow many of these barriers to be considered.

Accessibility, in terms of its definition, aims and expectations is interpreted as a broad ranging concept and it is difficult to find a definitive understanding. While this is not problematic in itself and it is a useful concept around which transport planners can frame certain problems, how this translates into measurements of accessibility is less clear.

### **Approaches to measuring accessibility**

This section focuses on the different ways accessibility is measured by local authorities and how measures are related to the definitions and expected outcomes of Accessibility Planning. Interviewees were asked what they thought made a good measure of accessibility, how they measure accessibility, the tools and data they use for this, how they agreed their accessibility targets for LTP2 and finally, how they think their targets reflect the aims of Accessibility Planning.

Respondents had difficulty explaining what would make a good measure of accessibility, suggesting there cannot be one single measure and emphasising a good measure would draw upon a number of sources, reflective of the multi-dimensional concept of accessibility. A number of respondents suggested a good measure would incorporate how people perceived accessibility, yet there was frustration that measuring perceptions is difficult to achieve because most evidence tends to be anecdotal and difficult to quantify. Respondents mentioned use of non time-based measures, with frequency and cost being important. Overall there was recognition among practitioners that there is no one “good” measure of accessibility, and each problem or application should be approached differently. This is encouraging given some of the concern that the process could have led to a “black-

box” approach (Lucas, 2006). How this recognition translates into practice is discussed in the rest of this section.

Focussing on how accessibility is currently measured resulted in much more uniform responses, although this was closely connected with continued debate about the “correct” way to measure accessibility. Almost all authorities said they used Accession software to measure accessibility and report against local and national targets. Few respondents mentioned use of national Core Accessibility Indicators (CAI), calculated for reporting against national targets and benchmarking local authorities, and where they were discussed there was little understanding of how to use them. For example in discussion of using the CAI: *“I’ve tried to on a number of occasions and I’ve found them very difficult to get hold of, to access and very difficult to understand and to be honest I think when you have national indicators they’re pretty meaningless.”*

In practice, the types of measures most often used were based on cumulative or contour accessibility measures (see Table 1). Respondents were hesitant to discuss the use of more complex measures such as gravity-based measures (although there is functionality for this within Accession) and where these were discussed they were dismissed as being flawed, too difficult to explain to stakeholders, as well as being difficult to compare longitudinally. There were some exceptions to the use of threshold based measures with one authority using a measure of accessibility based upon satisfaction with local bus services. However, given this was an authority wide measure and not geographically disaggregated in relation to bus service provision it is arguably no more beneficial than other measures of accessibility as it is not known how this measure of satisfaction varies in relation to provision of bus services, and therefore how it could be improved.

Although Accession was used as a tool to measure accessibility almost without exception by the LTAs interviewed, the extent this was deemed acceptable varies. Some authorities found it a useful tool, whereas others felt pressure to use the software had limited their ability to approach the issue independently. It was felt going against the DfT guidance would have created problems for the authority in terms of the increased workload associated with presenting a more robust alternative. Limitations were discussed in relation to the level of detail captured, such as not being able to incorporate micro-level accessibility issues for pedestrian routes, such as dual carriageways or dropped kerbs, and in terms of assumptions made such as modelling an unlimited number of interchanges or use of the nearest destination point possible.

As noted, use of the national Core Accessibility Indicators (CAI) is limited, despite the richness of information readily available. The stated reasons behind this were firstly, some respondents were not aware of the availability of these indicators. Those that were, often did not feel comfortable using them, finding it difficult to penetrate the quantity of information available, not understanding how to use it,

having little control over the calculation methods and data inputs, meaning they could not manipulate the data for their requirements. Secondly, there were issues of trust, as results generated were often different to their “own” Accession calculations and in many cases respondents felt the CAI over-estimated the “real” levels of accessibility, particularly in rural areas.

It emerged there is a wide range of data used to support decisions in the process of Accessibility Planning, outside of the straightforward measurement of accessibility used to report against targets, including widespread use of census data and the Indices of Multiple Deprivation (IMD), which are a nationally calculated index based on 7 domains and used to rank areas in terms of relative deprivation. There was also discussion of using outcome-based data such as number of missed hospital appointments, or job centre usage, although it was difficult to find clarity on how this is used and how outcomes can be directly attributed to accessibility improvements. Data relating to evaluation of a specific initiative had also been used, such as bus patronage figures or uptake of specific initiatives such as ‘Wheels to Work’ (a moped loan scheme). Questionnaire data is also used, again usually in relation to perceptions or satisfaction with a specific initiative as well as council-wide surveys such as citizens’ panels. Interestingly, this sort of data was much more widely used in evaluation rather than problem identification, where views of individuals were more likely to be represented through anecdotal evidence or from qualitative research based around focus groups. Some respondents suggested that since it is difficult to quantify the importance of issues arising from qualitative approaches this can lead to an evidence base highly dependent upon measurable aspects of accessibility, such as journey time, giving more weight to time-based barriers, even if this is not always the most important barrier to accessibility; for example:

*“the main issue for me is that although it wasn't intended that things like mapping would be the principal source of information I think it has gone that way a little bit and I think that has tended to make it take focus away from other, less quantitative sort of analysis, so the importance of going to talk to people about accessibility difficulties and the more very localised accessibility differences in terms of the benefits you can get by putting seats at all your bus stops or having pedestrian crossing in particular places and those sort of very localised things, I think they get a little bit lost, and also some of the limitation in the measurement tools probably give a false impression of accessibility”*

There is some evidence of a feeling of being restricted by DfT guidance in terms of deciding priorities and targets for the local area: *“the scope’s sort of narrowed a lot... the sort of implicit thing within the DfT guidance is that they have a big focus on travel time indicators and that may not be the only benefit’* and furthermore the process of reporting targets to DfT was only a small part of the picture -*“went for a simple threshold measure, but only on the basis of, that it was kind of like, it wasn’t gonna bother us that much, you know what I mean it wasn’t going to cause us any difficulty and we could get on with doing accessibility.”* Evidence suggests that for some respondents the target setting process was simply a box-ticking exercise and

the real “getting on with it” did not depend too much on measures and targets. Respondents suggested the only way to impact on targets was to improve public transport services, although this may not be the best way to meet the needs of socially excluded populations, a sentiment echoed by Hine and Grieco (2003). In contrast, the types of initiatives seen by practitioners to improve accessibility are smaller schemes, whose benefits might not be evidenced through measuring accessibility but could be assessed by those with local knowledge who “knew” what schemes would be and were being effective.

Respondents were convinced of the impact their work is having in improving outcomes, but this is not necessarily linked to the targets or measures set out in the Accessibility Strategies. While respondents were critical of measures and able to discuss the problems with target setting it was harder to talk directly about how these targets might relate to desired outcomes of Accessibility Planning. Often the only way to improve against targets was seen to be through bus service changes or relocation of facilities, and it was clear these were not seen to be the things perceived as making a “real” difference. Interestingly, this was not always expressed as a problem. Rather, the local level of working and implementation of accessibility improvements might be viewed as separate to the more strategic policy making and target setting agenda, but both are important: *“well we need an indicator to sort of raise it in the profile in the strategy and something to report on and sort of gets it in the process, raising the profile of it so people recognise that its something that needs to be addressed but then more locally we have all the other work which I think you can influence when it comes to a more local level.”*

Use of strategic level accessibility measures is useful for tracking longitudinal changes in accessibility across a region, but less useful for measuring small local level changes in accessibility for individual’s or targeted sections of the population. Respondents described tension between the political and technical process and this is one potential tension arising between use of targets at the policy level and local knowledge at the delivery level. Another important point to emerge is *who* accessibility provides improvements for. Use of accessibility measures will give an overall picture of accessibility for a specific area or population but may not address the trade-offs this creates for other areas or groups. This was highlighted by some respondents - *“one of the potential scenarios we were envisaging would be beneficial for most people, but just a small area would get slightly worse accessibility.”*

This leads to debates surrounding who should benefit and whether the aim should be to improve accessibility for all, for targeted populations or to reduce inequalities in accessibility. Farrington and Farrington’s (2005) discussion of the difference between absolute and relative accessibility is of relevance here, drawing upon issues of social justice, rights and wants as important, especially when areas for investment might be decided based upon how one area compares with another.

## Expected and realised outcomes of Accessibility Planning

This section addresses whether local authorities have realised their expected outcomes through Accessibility Planning and what initiatives have been implemented as a result, and also how they have been able to communicate the benefits of Accessibility Planning to non-transport stakeholders.

A very wide range of transport and non-transport initiatives were mentioned as having emerged from the Accessibility Planning process. These range from bus service improvements (quality, frequency, routes, interchanges) ticketing changes, bus subsidies, information such as signage or leaflets including “how to guides”, demand responsive transport, moped loan schemes, changes to walking and cycling infrastructure such as pedestrian crossings and cycle lanes and changing location of service provision, such as clinics, to reflect the needs of the population.

The “joined-up”, cross-sectoral nature of Accessibility Planning was emphasised by the SEU (2003). However, given many of the initiatives mentioned during engagement with practitioners and likewise many of the LTP targets are transport, and specifically mobility focussed, the level of engagement with non-transport stakeholders was discussed in the interviews, particularly in terms of how cross-sectoral benefits of Accessibility Planning can be demonstrated. There is evidence of engagement with a wide range of non-transport stakeholders, but the quantifiable benefits of this are less well evidenced. Respondents were positive in terms of having achieved engagement with stakeholders and having put the issues on their agendas, but felt accessibility problems were still often regarded as a transport problem, rather than a shared objective. A common example is in the healthcare sector where relocation of services to less accessible locations often takes place due to rationalisation within the National Health Service (NHS), for example in relation to reducing missed appointments: *“for instance do you know what the cost of missed appointments is because if you worse[en] accessibility that’s one of the potential outcomes and you’re going to be paying for more missed appointments, locally there doesn’t seem to be a particularly big grasp of that. They know what the cost of missed appointments is but not what percentage of that is down to people having accessibility difficulties, and so there’s a lack of information for them to make an informed decision on that.”* Demonstrating the benefits of improved accessibility in terms of targets in non-transport sectors would therefore be a useful step in making accessibility a shared responsibility and being able to impact non-transport agendas.

In general respondents were positive in terms of what has been achieved from the process of Accessibility Planning, even if the evidence is not quantifiable: *“I would say there has definitely been awareness benefits in terms of having it there and I think it’s definitely raised the profile of accessibility among planners and engineers... I would say the emphasis that’s been put on the use of mapping and Accession hasn’t had the benefits that were intended, probably because of some of the limitations that it has.”* However, identifying and quantifying outcomes is more difficult. As highlighted by definitions of accessibility (Figure 1), expectations are

broad ranging and multi-dimensional. Expectations of improved accessibility are related to social exclusion and mode shift policy objectives, and it is evident many practitioners envisage a utopia where accessibility can be improved for all. Tensions exist between a desire to improve accessibility for all versus reducing inequalities and improving accessibility for targeted segments of the population.

### **Perceptions, Measures and Realities of Accessibility**

Attempting to understand how well measures of accessibility capture the “reality” and how perceptions might differ from this was a theme running through the design of the interviews. This section therefore draws together examples of where accessibility measures might differ from perceptions and the ‘reality’. While measurement and mapping exercises have been useful in some ways, they can divert from exploring the “real” and more localised issues:

*“so the importance of going to talk to people about accessibility difficulties and the very more localised accessibility differences in terms of the benefit you get from putting seats at all of your bus stops or having pedestrian crossings in particular places and those sort of very localised things.... if you do an accessibility map of this [and it] is within 60 minutes travel time of the hospital say, that may not match people’s impression because it’ll include journeys that people may not be prepared to make or may not be aware they can make.”*

This quotation is one example of many highlighting that an individual’s knowledge and travel horizons can mean perceptions may differ from the official or objective ‘reality’ presented by accessibility measures. The issue of interchanges was mentioned on several occasions. There was concern that journeys may seem possible from model outputs but as there is no limit on the number of interchanges built into these calculations, these may not be realistic options for many. One example given of this was the implementation of a direct bus service between two hospitals, which according to a satisfaction and patronage survey undertaken by the authority had improved perceptions of accessibility and use of the route, but this particular journey when measured using Accession had worsened due it taking longer than a previous journey involving a change. Crime and the fear of crime were mentioned as reasons why some destinations or modes of transport might be perceived as inaccessible, especially at certain times of the day, highlighting factors other than time are considered important by accessibility planners and the public.

While for some respondents there was a clear distinction between the strategic, target setting measurement of accessibility and the local delivery of schemes to improve accessibility, it is clear there can be tensions between these – *“if we were to put a lot of money into say, wheels to work because we thought that was best, you know that was going to meet people’s needs that wouldn’t be reflected when we used Accession.”*

There was recognition that using measures of accessibility only tells part of the story and the real barriers to individuals’ accessibility are much more complex and harder to understand and quantify. Some authorities had considered the use of a perception

based measure, and some have adopted this approach in their accessibility strategies, but they have concerns about the best way to implement this, the expense involved, and how valid such an approach is as compared to existing measures. Such issues raise the point that both “objective” measures and perceptions are needed to understand the whole picture of accessibility issues in an area (Stanley and Vella-Brodrick, 2009).

Drawing from the examples discussed, the reasons for differences between perceptions and measures of accessibility seem to be twofold – firstly, problems with calculations methods and data inputs mean the measures presented are not always considered accurate reflections of the “real” situation and may not capture all aspects important in determining accessibility, and secondly people’s perceptions may not reflect the “reality” due to lack of information, fear or importance of issues not captured in the measures.

## **Does Accessibility Planning Address What Matters?**

This section draws together the findings outlined in the previous section from the engagement with Accessibility Planners and discusses the implications of this.

Accessibility Planning in England is generally viewed positively by the practitioners involved, as it has allowed local authorities to raise the profile of the importance of accessibility in transport planning. The aims, and expected outcomes of Accessibility Planning are broad ranging but can be summarised as being related to quality of life, social inclusion/exclusion and use of non-car travel modes.

There is a clear mismatch between the strategic level measurement of accessibility and reporting of targets, and the individual level improvements expected from many initiatives implemented under the banner of Accessibility Planning. However, this is not always seen as problematic as it is well recognised by accessibility planners. In some cases the requirement for reporting against targets and developing measures is seen to take away resources from focussing on where improvements for individuals are seen to be made, but on the other hand the process has raised the profile of such issues and placed them on the agenda in authorities where they may have previously been given little attention. Initiatives such as walking and cycling infrastructure, smarter choices measures, and demand responsive transport were seen as effective in addressing many of the social-exclusion related issues but quantifying the benefits and outcomes of interventions in terms of the measures used to identify accessibility problems is more difficult.

While practitioners are clear about the outcomes they seek to achieve, less clear is whether these outcomes are realised and how “success” in achieving them is ascertained. The success of interventions in improving accessibility can be measured using the same technical process by which problems are identified. For example, a new bus route will mean a higher proportion of the population can access

destinations within a certain time threshold, or a new GP surgery will increase the proportion of the population with access to GPs, signifying an increase in potential accessibility for a given population. However, such an approach does not determine whether this accessibility is realised, and therefore whether the behavioural outcomes in terms of mode shift or reduced exclusion are achieved. On the other hand, some interventions would not necessarily show an improvement against accessibility measures and success can be measured differently, for example, by using patronage or satisfaction data. Measurement in this way is more closely related to improvement against the outcomes expected from the process of Accessibility Planning. The difference of approach to appraising accessibility problems and outcomes, comes from recognition that improving potential accessibility (against accessibility measures) does not necessarily lead to changes in realised accessibility, or behaviour of individuals. Therefore, if “what matters” is improving individual’s quality of life and reducing social exclusion, efforts should be focused on ensuring this is what is measured so that interventions can be suitably targeted.

It is important to consider not just what matters, but who it matters for. Practitioners optimistically envisioned a global improvement in accessibility, leading to greater inclusion, with less consideration given to the inevitable trade-offs, and potential increased exclusion involved. A policy focussed on improving accessibility for one particular group in society may result in a net reduction in accessibility measured across a geographical area, and likewise policies focussed at improving spatial accessibility over an area may disproportionately impact on different people and therefore be more exclusionary than inclusionary. The Core Accessibility Indicators (CAI) use measures based on the whole population and an “at risk” population so in theory it is possible to examine the impact of a policy on both the population as a whole and a target group, yet there is less evidence of this being used, and again increases in potential accessibility will not necessarily lead to changes in behaviour or realised accessibility. It is therefore important to consider the impact of solutions or policies emerging from Accessibility Planning both in terms of *what* they are addressing and *who* is benefitting or not benefitting. In general, respondents were comfortable in “knowing” how best to achieve their desired outcomes, even if this clearly differed from how they might reach accessibility targets.

A perception – measure gap was recognised and respondents felt their work would benefit from a better understanding of perceptions, but only if their extent could be quantified. Policy requires a robust and quantifiable evidence base and this leads to difficulties when taking public views into account. Concerns were raised regarding how large a particular issue might be and that a few people with extreme views could be over-represented. Emphasis was placed on the importance of local knowledge, with respondents suggesting measures provide background and can be verified and enriched with local knowledge (both of planners and citizens). Measures were in some instances considered a poor reflection of the real situation and seen to over-

estimate the levels of accessibility, for example: “*the results indicate that we have perhaps very good accessibility but the reality may be very different*”

## Implications for Managerial Practice

The advice emerging from this paper is aimed at two separate but related policy domains. Firstly, those responsible for implementing accessibility at the local level, with specific reference to the English experience, but with suggestions applicable internationally. Secondly, and more UK-specific, central government in terms of the advice provided to local authorities and the future direction of Accessibility Planning.

Local authorities need to ensure they have a clear definition of accessibility, and clear objectives for Accessibility Planning, otherwise confusion and contradictions can occur between improving accessibility and achieving the outcomes of Accessibility Planning. As suggested by Preston and Rajé (2007) simply pursuing improvements against accessibility targets will lead to implementing mobility related solutions such as more bus services, which may not best meet the needs of local populations but will show improvement in measured accessibility. It is therefore important to be clear about how such measures relate to the objectives of Accessibility Planning. Many interventions emerging from the process of Accessibility Planning tend to be mobility based and as highlighted by Kenyon (2003) increased mobility for some, at the expense of others can result in the social exclusion issues to which accessibility planning is linked. She therefore advocates long term *reduction* in mobility as the means to address social inclusion. Accessibility solutions therefore need to focus on changes to the land-use system to allow accessibility without mobility.

It is clear from this research with local authority practitioners that the work being undertaken at the local level is heavily influenced by central government requirements and guidance. The Accessibility Planning guidance is widely welcomed by local planners but there is some frustration that the requirement for targets creates an excessive work burden, taking away resource from having ‘real’ impacts on the ground. In a similar vein Marsden *et al* (2009) noted a tension between support for the local transport plan process and the burden placed on local authorities. Despite this there is uncertainty as to what would make a better measure and recognition of the difficulties surrounding use of a perception based measure. Central government therefore needs to ensure the requirement for performance measures does not overshadow the work taking place at a local level. It is important to provide clarity regarding the outcomes expected from the process and ensure the way in which accessibility is measured is commensurate with this. If the outcomes are long-term land-use changes to improve local accessibility, then the use of traditional accessibility measures provide a useful tool to benchmark changes. If outcomes are focussed on individuals or targeted sections of the population then spatial accessibility measures are less appropriate.

In light of discussions about the role of software such as Accession versus local knowledge in delivering Accessibility Planning, it might be suggested the use of Accession as a strategic measurement tool has little benefit over Core Accessibility Indicators (CAI) in terms of quality of output, given its costs. However, this is not recognised by those involved in using Accession as they find the CAI data hard to penetrate and use, as well as having issues with trust and reliability of the data. If the DfT could do more to make this data accessible and more easily manipulated by local planners then this data could be better utilised to deliver time and cost savings compared to use of Accession. This would enable efforts to be concentrated on understanding more localised and individual accessibility problems, hence delivering the kinds of improvements that matter. A detailed review of how CAI compare to Accession outputs could be undertaken to understand the impact of such an approach and this could then be communicated to planners. The use of Accession is seen as useful for planners and has not necessarily resulted in black box thinking (Lucas, 2006). It allows them to make decisions over parameters which may be more appropriate at the local rather than national level, however, it is important to consider the benefits against the costs of using such an approach and ensure the widespread use of such software does not take resource away from where it is best placed, providing valuable local knowledge and delivering small scale improvements.

The involvement of land-use planning and development control could be greater. Some authorities have succeeded in incorporating accessibility indicators into planning guidance and felt this was a positive move. Strategic accessibility indicators might be best applied in this arena, rather than in attempting to solve more individual issues surrounding transport disadvantage and social inclusion, usually best solved by individual mobility solutions, in the short term at least. Ferreira and Batey (2009) suggest a similar approach beginning with a land-use planning approach and using mobility based solutions last.

Both locally and nationally good progress has been undertaken towards raising the profile of Accessibility Planning within the transport planning arena, and it is important not to let this slip in light of economic circumstances, and the reduced emphasis on accessibility and the LTP process in terms of allocation of funding, when in fact Accessibility Planning is well placed to deliver both economic growth and cost savings. Related to this, the focus on access to a range of services, not just employment should be applauded, and is indeed recognised internationally (FIA Foundation, 2007)

## **Conclusions and Recommendations**

By way of conclusion, we suggest Accessibility Planning can and does address what 'matters' (both to individuals and planners) but the measures used to assess and evaluate accessibility changes do not necessarily relate to the desired outcomes and may actually be counter-productive in achieving the kind of change that matters, or delivers real improvements in accessibility where it is needed.

The process of Accessibility Planning has been useful in raising the profile of accessibility and social exclusion related issues within local authorities, although in many cases the work was already being undertaken, albeit under a different label. Nevertheless, it has helped officers to highlight the importance of this kind of work at a corporate and strategic level, as well as with stakeholders. While the work will continue without the formal process of Accessibility Planning it might be harder for planners to justify the need for this and give importance to accessibility-related improvements.

Those involved in Accessibility Planning are aware of multiple non-time barriers to accessibility, and often place emphasis on these; however, they struggle to reflect these in target setting. While setting targets at the strategic level is only a small part of the work undertaken by Accessibility Planners, the government requirement for measurable targets means efforts may be focussed on setting and measuring against these targets, and implementing change that improves against these targets at the expense of other, potentially more beneficial improvements. While such measures are seen as useful for large scale projects, they can be time-consuming and make smaller projects cost ineffective.

Accessibility Planners recognise there is not one single measure of accessibility, but in the absence of an easily quantifiable alternative there is often heavy reliance on time based threshold measures. Perceptions are seen as important but difficult to quantify. This does not however, mean they should be ignored, as simplifying the concept of accessibility into a single measure means some issues are not fully represented.

Accessibility has become a buzzword in transport planning, and while the higher profile this gives to such issues is to be welcomed it is also important not to let this cause confusion. Both central and local government need to be clear what is meant by “accessibility” and what they are trying to achieve through Accessibility Planning. Linked to this is the distinction between accessibility and Accessibility Planning. While the process of Accessibility Planning may lead to reductions in transport related social exclusion and improvements in quality of life, unchecked increases in levels of accessibility, as assessed by some measures will not always lead to the kinds of outcomes sought.

Engagement with local authority practitioners involved in Accessibility Planning in England has highlighted the importance of understanding local level, household and individual accessibilities in addition to the aggregate, national or regional picture if we are to properly understand the relationship between accessibility and associated outcomes, and therefore target interventions appropriately. However, objective measurements, against which progress can be monitored, are a requirement of government policy and their usefulness is recognised by planners.

Stanley and Vella-Brodrick (2009) explain: *“while the subjective perspective is important, such measures do not account for value-based social policy social justice*

*principles....an individual may be personally satisfied with their circumstances if they have diminished capabilities, social justice dictates that they should be offered the choice to be able to participate fully in society. This position subsumes the value judgement that it is not sufficient to allow people to simply adjust or accommodate to adverse circumstances”,* suggesting only using subjective measurements would not be an appropriate alternative policy response, but rather both subjective and objective perspectives are needed. Differences between objective and subjective social indicators are to be expected otherwise one or the other would be rendered futile (Pacione, 1981) and it is therefore suggested a method incorporating both objective and subjective measures would be best placed to deepen our understanding of accessibility and enable interventions to be appropriately targeted to achieve the desired outcomes.

While there is a considerable body of work attempting to develop objective measures of accessibility and equally those seeking to understand people’s perceptions and experiences of travel, there is limited work directly comparing the two approaches to understanding accessibility for the same people or places. If more can be done to understand the difference between perceived and policy measured accessibility, then improvements in perceived and therefore realised accessibility, may be achieved, alongside improvements in how accessibility is measured and assessed by practitioners. Future research should therefore focus on understanding the role of subjective or perception based measures in assessing accessibility, to understand how these vary with the objective measures upon which current practice is heavily based.

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