



**TOPIC 34**  
URBAN PUBLIC  
TRANSPORT

## **THE EUROPEAN UNION: MOVING TOWARDS FULLY ACCESSIBLE URBAN TRANSPORT SYSTEMS**

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### **Abstract**

Mobility of disabled people has become a major transport issue in EU countries and the authors will discuss legislation whereby the EU will require operators to provide accessible vehicles to improve mobility. Using recent research the authors will challenge the accepted view that accessible vehicles will improve mobility.

## **INTRODUCTION**

New designs of urban low floor vehicles—minibuses, conventional buses, articulated buses, trams and metro carriages—are coming into operation in many European cities. The reasons for the introduction of accessible vehicles are rather complex and would seem to be a pot pourri of image enhancement, quicker embarking/disembarking, widening the customer base, helping mobility impaired people and the requirements of new legislation.

This paper will be largely concerned with the latter two considerations as the authors believe that there is some degree of naivety with regard to the impact that accessible vehicles, and in particular buses, will have on actually increasing the overall travel of mobility impaired people.

It should be pointed out at the beginning of this paper that the authors have a personal commitment to improving the quality of life of mobility impaired people and have been closely involved with improved service provision within Northern Ireland. However, our own rather simplistic approach has developed during the decade that we have been conducting research of this nature and we have come to the conclusion that the main travel problems of mobility impaired people are more to do with the *built environment* than the actual vehicles.

The importance of accessible vehicles should not be minimized but the authors believe that the beneficial impact will not be as great as some legislators seem to believe. However, before pursuing that argument it is necessary to first briefly examine that social and legislative considerations that are the background to the “requirements” to accessible vehicles in the European Union.

### **Social/economic considerations**

It is generally accepted that in Europe at least 10 per cent of any population has some degree of mobility problems which makes it difficult, if not impossible, for them to use conventional public transport. The 10 per cent consists of people with a wide variety of functional impairments and it must be noted that only 2 to 3 per cent of disabled people are in wheelchairs. The majority of disabled people are elderly, but disabled people who have the potential for employment or education expect to use public transport (the new Grenoble tramway has one terminus at a university which enables the university to attract more students).

In general the populations of “developed countries” are getting older due to lower fertility and longer life expectancy. “In terms of elderly people alone, the number of people in Western Europe over the age of 65 seems likely to grow by about 40 percent between the years 1985 and 2020”, (ECMT 1991). In 1994 over 69 million EC residents were over 60 years of age and the proportion of elderly people in the population will increase from the present levels of 10-15% to 20-30%, indeed, of the total EC population (in 1993) of 344 million, approximately 100 million people are aged over 50.

This social factor could become an economic factor of major importance for European transport operators as the fastest growing “market segment” is that segment which includes the greatest number of mobility impaired people.

Many operators have been reluctant to order low floor buses but it would seem that operators will be given little option by legislators but to purchase such vehicles.

## Political/legislative considerations

### *A European Overview: the European Conference of Ministers of Transport (ECMT)*

The ECMT, an inter-governmental organization which was established on 17 October 1953, constitutes a forum for the Ministers of Transport of thirty-one European countries. The purposes of the Conference are:

- to take whatever measures may be necessary to achieve, at general or regional level, the most efficient use and rational development of European inland transport of international importance;
- to co-ordinate and promote the activities of international organizations concerned with European inland transport, taking into account the work of supranational authorities in the field.

The ECMT established a Working Group on "Transport for Disabled People" in 1985 and the fact that eleven publications on different modes under the general theme of "Transport For People With Mobility Handicaps" have been published since then shows that the ECMT places a high priority on accessible transport.

In a 1986 publication, *Transport For Disabled People*, the ECMT suggested that the following measures be taken by Member Countries with regard to local public transport services:

- "design local buses to be as easy as possible for people of reduced mobility to use, although not necessarily to make these accessible to people in wheelchairs";
- "where existing public transport is not accessible to disabled people in wheelchairs, other local transport services to be made available, using accessible, or other special transport services, depending on what is most appropriate in local conditions, at reasonable fares."

The ECMT's Council of Ministers approved a Resolution on 22 November, 1990, "Transport for People with Mobility Handicaps: Access To Buses, Trains and Coaches". This Resolution called for the needs of people with mobility handicaps to be fully taken into account and it also stated that "international regulations should be drawn up as rapidly as possible to ensure that new buses are designed with low floors, level access and no steps inside the vehicle". The Resolution wanted the bus industry to take steps towards improving accessibility "in advance of regulations" and called for all new rail stock to be designed and built to be accessible to disabled people and for common international standards to be drawn up. The resolution recognized the particular problems of coach design but recommended that high-floor coaches should have lifts.

It could be argued that the ECMT is an organization which is more concerned with policy than with legislation and countries have flexibility in introducing its recommendations, but the indications are that operators will be required to comply with EU "accessibility" regulations within a few years.

It could also be argued that the ECMT is not as "dogmatic" as the EU in that it seems to accept that buses should "not necessarily" be made "accessible to people in wheelchairs" and that "special transport services" could be used to provide public transport for disabled people. This stance probably makes more operational sense if one is trying to provide an "origin to destination" service for the more severely mobility impaired person than a prescriptive "totally accessible public transport service". A study of ECMT recommendations in comparison with proposed EU legislation might lead one to suspect that the former is more practical whilst the latter suffers from the "political correctness" that is so prevalent in so many areas of life.

### *A European Overview: the European Union*

The present situation within the EU with regard to mobility is somewhat confusing, indeed it could be said that the EU itself is confused on the issue of mobility, as three Directorates have been involved in proposals which are concerned with personal mobility and accessible transport.

It should be pointed out that the author of this paper has no legal training and he finds it difficult to chart a course through the maze of documentation but what appear to be the main documents are briefly mentioned below.

In August 1990, the Social Affairs Directorate-General, DGV, published a proposed Directive on mobility for disabled workers which proposed “ minimum requirements to improve the mobility and the safe transport to work of workers with reduced mobility”. This Directive seems to have had its origins in “fundamental social rights of workers” rather than in transport and it received much criticism for apparently ignoring the major operational problems of meeting the suggested requirements. It is also possible that the Transport Directorate felt that the Social Affairs Directorate was exceeding its authority.

DGIII, the Internal Market Directorate-General, issued a proposed Directive in October 1992 to harmonize bus and coach construction—“Special provisions for buses and coaches”. The proposed Directive seems to have produced much adverse reaction and in June 1993 the EC Transport Directorate-General, DGVII, published its version of the Directive.

The Commission published a proposal for a Council Directive “on minimum requirements to improve the mobility and the safe transport to work of workers with reduced mobility” in February 1991 (amended in December 1991) which has as its aim ensuring that workers with reduced mobility can travel safely and thus make it easier for them to gain access to employment. The important point of this document is that the purpose of the Directive is not to adapt all means of transport but to enable mobility impaired workers to travel safely by means of public transport, special transport services for disabled people, transport provided by employers, or by other equivalent measures (eg subsidies for taxi fares, adaptation to private cars etc).

Perhaps the clearest document so far is the *Report from the Commission to the Council concerning the actions to be taken in the Community regarding the accessibility of transport for people with reduced mobility* of November 1993 (COM 93 433 final). The Report recognizes the complexity of actual transport supply as it notes that implementation of Community Action “will need to be accomplished ... in some countries at national level, in others at regional level” and it also points out that “in some Member States, local authorities are responsible for some forms of transport and transport infrastructure”. Thus, the “Commission has concentrated on what measure are needed and how soon” and “does not stipulate how measures should be implemented”.

The Commission also believes that “it has an important role to play in encouraging pilot projects, exchange of information and funding of initiatives designed to enable people with reduced mobility to use public transport”. The “actions to be taken are described in very broad terms in the Report under the categories of:

- Technical standards;
- Access to, and funding for, transport infrastructure;
- Information/signs;
- Training;
- Research and development; and
- Other actions.

Three time-spans are envisaged for the actions: short-term, medium-term, and long-term.

No actual time scale is discussed in the Report, some actions have already commenced in the different categories and the Report should be referred to directly as DGVII “would welcome comments from all groups and people concerned to ensure that Transport will be more accessible for everyone” (the contact person is Mrs Danae Penn).

Thus, although the “legislation picture” is still somewhat unclear, what is very clear is that the joint issues of personal mobility and accessible transport will be of major importance in the future. It is quite possible that within a few years a disabled “worker” will have the right to accessible travel within urban areas and between the major cities in the European Union, but changing a “right” into full mobility/full access is a more complex operation than some legislators may be aware of.

The “right” to use public transport is a very contentious issue or, to put it another way—how “Public” should “Public Transport” be? If 95% of the public can gain access is the transport “public”, or do we aim at 97%, surely one cannot aim for 100%. In practical terms what is probably needed is a balance or compromise between a person’s right to be able to use public transport and the practicality of public transport being able to meet that right. A disabled person with access to a private car can have more mobility than a member of a one car family when another member of that family is using the car. A “financially impaired person” without a car may be more mobility restricted than a mobility impaired person with a car. What use are accessible buses to mobility impaired people if there is no bus service in one’s area, or no evening or Sunday service, or what use is an accessible bus service if a person cannot get to the bus stop or bus route? Thus, it is very necessary to look at accessible transport services with reference to the “Transport Chain” within the context of the “Transport Environment”.

## THE TRANSPORT CHAIN

The Transport Chain is a well known concept whereby the journey is divided into three components:

- the person;
- the vehicle; and
- the built environment.

Each component must interlock and the problem has, of course, been widely recognized and there is an acknowledgment that every link must be effective so that a complete journey can be made.

Research into the travel problems of mobility impaired people shows the overall problem is complex and that many of the barriers to travel could be said to be outside the responsibilities of public transport operators.

Mobility impaired people have a wide variety of functional impairments and it was noted above that only 2 - 3 per cent of disabled people are in wheelchairs. Many people with mobility problems do not wish to be classed under de-personalizing terms as “disabled” or “handicapped” and sometimes they are reluctant to disclose that they have mobility problems. However, any disorder that prohibits the free movement of a person does mean that the person has a mobility impairment. It is very difficult to “categorize” impairments but the following sub-divisions give some indication of mobility problems.

- a) blind/partially sighted people
- b) people who have hearing problems
- c) people unable to walk, ie wheelchair users
- d) people who have difficulty walking and bending limbs
- e) people who have medical problems affecting balance and stamina

In addition, many people who have mobility impairments cannot avail of the opportunity to travel by fixed route services because of travel barriers

## BARRIERS TO TRAVEL

The main “Barrier to Travel” has often been expressed as the “walking distance” to public transport but research has shown that many “barriers” exist and the relationship between people and barriers can be complex. As a method of identifying and classifying the barriers so that the problems can be reduced the PET Framework (Personal, Environmental, Trip Related) has been developed, Meadows (1992). Space does not permit extensive discussion of the barriers but typical barriers are noted below:

<i>Personal</i>	<i>Environmental</i>	<i>Trip Related</i>
Health related	Bad paved surfaces	Length of trip
Frailty	Topography	Time of trip
Limited endurance	Rest facilities	Mode access
Fear	Lighting	Staff attitudes
Money to travel	Weather conditions	Information

The barriers need to be considered in the context of the "Transport Chain" as one barrier could be the weak link in an otherwise accessible transport system that could prevent travel. It is also vital that the potential for increasing peoples' mobility by means of accessible transport needs to be critically examined not only as part of the "Transport Chain" but also within the context of the "Built Environment" or the "Travel Environment". Inaccessible buses are, indeed, a major problem but other major problems may negate the benefit of accessible buses.

The British National Travel Survey, NTS (1994), figures show that the three greatest barriers to bus travel are as in Table 1.

**Table 1 Difficulties of using a bus by level of disability: 1991/3**

<b>Difficulty</b>	<b>All with disability</b>	<b>Slight disability</b>	<b>Severe disability</b>
Getting to bus stop	56.1%	28.6%	79.3%
Waiting at bus stop	64.5%	46.2%	79.9%
Getting on or off	71.9%	59.7%	82.2%

Thus, in the "League Table" of barriers to bus travel only one of the top three barriers is to do with the actual vehicle!

**LEVELS OF BUS USAGE BY DISABLED PEOPLE: A CAUSE FOR CONCERN**

The National Travel Survey 1991/93, NTS (1994), in Section 5, in its initial table, uses five classes of disability for mobility impaired people (Table 2).

**Table 2 Proportion of adults with disabilities**

<b>Disability</b>	<b>% of adults</b>
All with disability	12.8%
Difficulty with buses/cars only	1.1%
Has difficulty: walks unassisted	6.7%
Has walk difficulty: needs help or spec. aid	1.8%
Doesn't go out on foot, could do with difficulty	1.4%
Unable to go out on foot at all	1.5%

*Source:* NTS (1994); (N.B. Journeys under 1 mile are excluded by the NTS).

Subsequent tables combine the first two categories into a "Slight disability" classification and the other three are classified as "Severe disability". An examination of the "Journeys per adult by main means of transport and level of disability" data reveals a disturbing low level of bus usage, especially when compared with car usage (Table 3).

**Table 3** Journeys per adult per year by main means of transport and level of disability : 1991/3

	No disability	All with disability	Slight disability	Severe disability
Car Driver	502	169	208	108
Car Passenger	116	127	136	113
Local Bus	67	65	89	27

This data gives a very low bus usage of an average of 1.25 bus journeys per week by mobility impaired people!

The above data supports the findings of research carried out in Belfast, (Lavery 1992), which was within the time frame of the above NTS survey. As part of a TRG research project one hundred retired people completed a Travel Diary for a week in April 1991 in a middle class area of South Belfast. The respondents lived within one kilometer of the home of one of the authors (this was deliberate to give a good like-for-like comparison with 100 non-retired people in the same area who also completed a Travel Diary) and were residents of sheltered dwellings or private houses. Approximately half lived in their own homes and half in sheltered dwellings. It is worth noting that very few of the respondents could be classed as "medically" disabled, all were ambulant and any mobility impairments were generally "age-related". The area is well served by bus services and most of the houses (with the exception of one sheltered dwelling complex) were within a few hundred meters of bus stops.

Although the research was carried out by a specialist in the subject, the low bus patronage, given the above good Travel Environment conditions, came as some surprise. In general, there was a great disparity of travel between different individuals with 10 people not leaving their residence at all that week and only 29 going out on all seven days (Table 4).

**Table 4** Total number of days in one week that elderly people left home

Number of respondents	Number of days
29	7
18	6
9	5
9	4
12	3
6	2
7	1
10	0

The overall travel of the retired people was approximately half that of non-retired people and that is in line with national data:

**Table 5** Total weekly journeys by all respondents

Weekly journeys	Total	Average
Journeys of non-retired people	1585	15.9
Journeys of retired people	722	7.2

The detailed analysis of the Diaries revealed that "the bus" was a minor mode of travel, both for people with and without access to private travel.

**Table 6 Car owning households—bus journeys by retired people (41 people)**

Number of bus journeys in the week	Number of people making those journeys
0	35
1	4
2	1
3	1

Thus, a total of seven bus journeys by 49 people, ie 0.14 journeys on public transport by each person that week.

One would expect a difference in public transport patronage between residents of car owning and non-car owning households but in this particular study the difference was minimal.

**Table 7 Non-car owning households—bus journeys by retired people (59 people)**

Number of bus journeys in the week	Number of people making those journeys
0	43
1	5
2	5
3	2
4	1
5	1
6	1
10	1

A total of 46 bus journeys by 59 people, ie 0.78 journeys on public transport by each person that week.

One should be cautious in constructing general conclusions from a particular study but one of the reasons why the study was carried was the paucity of information on detailed travel by older people. However, the National Travel Survey data corroborates the Belfast local study and the figures should give some cause for concern.

## **DO ACCESSIBLE VEHICLES MEAN ACCESSIBLE SYSTEMS?**

There is some evidence which illustrates the problem of good transport services which are accessible but which are not fully utilized because of weak links in the transport chain.

### **Accessible Airbus service in Belfast, United Kingdom**

A regular half-hourly Airbus Service operates between Belfast International Airport and the Europa Bus Centre in the city centre. The vehicles are minibuses and a new design went into operation during the summer of 1990 which has a passenger/wheelchairs lift and wheelchair accommodation. The Bus Centre, which opened in 1991, embodied disabled customers' requirements in the design by carefully providing all facilities, including toilets, at ground level. Low gradient ramps overcome the difference in floor level and automatic doors ensure easy access. The International Airport provides good access for disabled people who board the planes by means of a wheelchair lift. However, the wheelchair lift facility of the Airbus is seldom used as no other wheelchair accessible services link with the Europa Bus Centre. A new train station beside the Bus Centre will open in 1995 so another link in a complete transport chain has been put in place.



### **Accessible tramway in Grenoble, France**

The tramway system in Grenoble was designed to be a totally accessible system (the term "wheelchair accessible" is starting to be replaced by "fully accessible" or "totally accessible") and all 30 stops on the 15 kms of track are accessible. All tickets machines can be used by people in wheelchairs and the platforms at the stops are low and are linked to the pavements by low gradient ramps. To allow access to the vehicles by any type of wheelchair the four doors along the centre section of the carriage are equipped with automatic retractable ramps. The carriage interiors have specially designed places for wheelchair use. Line 2 of the Tramway, which opened in 1991 has a terminus at the SNCF station which provides an excellent inter-modal link. The Grenoble Tramway is considered by many people to be of a very high standard but it is expected that all new LRT/Tramway systems will be accessible.

A paper published in 1990, Barham et al. (1990), revealed a disappointing level of use by mobility impaired people and one of the disturbing aspects of the research was the indication that many of the disabled people had changed from another mode to the Tramway without actually increasing the number of journeys that were made. The research also found that: "the vast majority of tram users had origins and destinations that were within (their) 'walking' distance of the tramline". There was also some evidence that a few mobility impaired people had moved to be close to the tramway.

### **Volvo City Bus and elevated bus stop system in Halmstad, Sweden**

Halmstad is a small town of 52,000 inhabitants on the west coast of Sweden. In 1979 a development project began with the objective of making it possible for all passengers to board buses without steps or lifts. The "elevated bus stops" are concrete and form a platform 53 cms above street level, the approach is via ramps which form part of the platform and which have an incline of 1:12. The buses, which were specially designed by Volvo, are equipped with extendible landing stages for use at the platforms and retractable steps for use at conventional stops. The bus drives closely up to a bus stop platform which is the same height as the floor of the bus (the work of the driver is made easier by an electronically controlled steering system which assists him in steering the bus in towards the stop). The side of the bus is about 40 cms from the platform and as soon as the driver activates the door-opening mechanism a "landing stage" moves out horizontally from the bus to permit level boarding. The service was evaluated by the Lund Institute of Technology and in addition to the social benefits the service did reduce the time spent at the bus stops. An important observation was made as part of the evaluation:

"It is important, however, to bear in mind that for special needs groups, all the difficulties connected with travelling by public transport are not solved by this bus system. For example, problems on the way to/from the bus stops as well as anxiety during the journey are not taken care of. These problems are as important to many disabled and elderly people as the problems of embarking/disembarking the bus" (Stare et al. 1991).

## **REDUCING THE BARRIERS TO BUS TRAVEL FOR OLDER PEOPLE**

The Travel Environment for mobility impaired people is a specialist area of research within the University of Ulster and for some years staff have worked closely with local bus companies, government departments and voluntary agencies. The bus company in Northern Ireland, Ulsterbus/Citybus, has made a block order of 60 low floor buses from Alexanders (probably the largest order yet for a United Kingdom operator) and the first will go into operation in 1996. However, research indicates that it is possible that the introduction of low floor buses in urban areas of Northern Ireland may not increase bus patronage by older people because of built environment problems. Many of the problems are outside the responsibility and control of the bus operator and in order to influence professionals so that a friendlier built environment can be created, Age Concern (Northern Ireland) commissioned the Transport Research Group to produce a *Guide to Good Practice to Remove Barriers to Bus Travel by Older People*.

The Guide is still being written but it is based on the actual experience of older people. Different techniques were used to obtain information on travel problems and a summary of the results of some of them are described below. A series of Group Discussions were held in three market towns and the main problems were categorized using the PET Framework.

**Table 8** Main barriers described in group discussions (PET)

Barriers	Market town			Total
	Coleraine	Bangor	Larne	
<b>Environmental</b>				
It's too hilly for me to get to the bus stop	1	2	2	5
It's too hilly for me when I get off the bus	1	-	2	3
I can't stand at the bus stop	5	-	-	5
It's too far to walk to the bus stop	1	4	2	7
I can't cross the road to the bus stop	1	2	-	3
I'm frightened of tripping on something	1	1	2	4
No problem in the above	4	5	3	12
<b>TOTAL</b>	<b>14</b>	<b>14</b>	<b>11</b>	<b>39</b>
<b>Personal</b>				
Nervous about using buses	-	-	-	-
My health is poor	7	1	2	10
I'm afraid that if I go out something bad will happen to me	-	-	-	-
I'm afraid that if I go out something bad will happen to my home	1	2	-	3
I'm not as strong as I was	1	6	1	8
There's nowhere for me to go to	2	1	1	4
No problem in the above	3	4	7	14
<b>TOTAL</b>	<b>14</b>	<b>14</b>	<b>11</b>	<b>39</b>
<b>Trip related</b>				
The bus journey is too long for me	1	-	-	1
I don't know how or where to change buses	1	-	-	1
Buses don't turn up on time	4	2	-	6
I don't know when the buses run	-	-	-	-
I don't know where the buses go to	-	-	-	-
I'd need to change buses and it's too far to walk between buses	-	1	-	1
No problem in the above	8	11	11	30
<b>TOTAL</b>	<b>14</b>	<b>14</b>	<b>11</b>	<b>39</b>

A number of interviews were held in peoples' homes using the "open questioning" technique, ie having a general chat, and the Table 9 gives the "Perceived Problems" experienced by the 'Home Interviewees' (total 38).

**Table 9** Perceived problems experienced by 'On-bus Interviewees' (total 48)

No.	Perceived problem	Frequency
1	Health (some degree of immobility)	21
2	Infrequent service	16
3	High steps on buses	9
4	Lack of shelters/seating at bus stops	6
5	Bus stop too far to walk to	6
6	Health (partially sighted or blind)	5
7	Lack of night service	5
8	Lack of buses to hospitals/clinics/doctors	5
9	Buses will not always pull into the kerb to aid embarking	5
10	Not all drivers will wait for you to sit down	4

On-bus interviews which were also open provide more information and Table 10 shows the "Perceived Problems" experienced by the "On Bus Interviewees" (total 48).

Table 10 Perceived problems experienced by On-bus Interviewees

No.	Perceived problem	Frequency
1	High Steps	9
2	Infrequent service	6
3	Lack of night buses	5
4	Too far to walk to/from bus stop	3
5	Lack of shelters/seating at bus stops	3
6	Boisterous children	3
7	Poor Sunday service	2
8	Bus doesn't serve all the places that they would like	2
9	Parking at bus stops	1
10	Buses are not always reliable	1

The research project did corroborate the hypothesis that many of the problems that older people encounter when trying to use buses are outside the responsibility of the public transport operator. Another recent project also indicates that built environment barriers are a major problem.

## A WHEELCHAIR ACCESSIBLE SCHEDULED NON-MAIN ROUTE BUS SERVICE

Other data was obtained from an evaluation, commissioned by the Department of the Environment in Northern Ireland, of an experimental wheelchair accessible bus service that commenced in Belfast in November, 1994. The Belfast service was based on the "Service Route" concept that was pioneered in Boras, Sweden, over a decade ago.

Boras is a town of about 60,000 people which is located 70 km east of Gothenburg. The Service Route concept was created in 1983 with the aim of providing a bus service for mobility impaired people. Each route was carefully planned and the route structure takes into consideration:

- demography, with particular attention to elderly people;
- housing, retirement homes, houses for disabled people;
- topography, hills etc; and
- important destinations, clinics, care centres, shopping areas.

The Belfast service is centered on a major inner-city shopping complex and it has been carefully routed past sheltered dwelling residences etc and passes Health Centres and other destinations used by older people as well as the shopping complex.

This "Easibus Service" is in the nature of an experiment and if successful it will become the model for other similar services elsewhere in Northern Ireland.

Extensive research is presently being conducted on all aspects of the service but some details from one question on one of the questionnaires used to interview mobility impaired people are noted below (Table 11).

The question was, "Reasons bus not used to reach places they would like to visit" and was part of a Home Interview Questionnaire (this question was "closed" and used the classified barriers which the researchers perceived as being the major PET barriers).

Thus, once again it can be seen that when access to bus barriers are removed there are still many more barriers which people have to overcome.

**Table 11 Reasons bus not used to reach places people would like to visit**

PET framework category	Total 95 (100%) all categories
<b>Environmental</b>	
Too hilly for me to get to the bus stop	3 (3%)
Too hilly when I get off the bus	6 (6%)
Can't stand at the bus stop	21 (22%)
Other	25 (26%)
Don't know/NR	47 (49%)
<b>Personal</b>	
Nervous about using buses	9 (9%)
Health is poor	30 (32%)
I'm afraid that if I go out something bad will happen to me	4 (4%)
I'm not as strong as I was	16 (17%)
Can't walk to bus stop	14 (15%)
Too difficult to get onto bus	37 (39%)
Too difficult to get off bus	31 (33%)
Other	6 (6%)
Don't Know/NR	30 (32%)
<b>Trip Related</b>	
Bus journey too long	4 (4%)
Don't know how or where to change buses	3 (3%)
Buses don't turn up on time	6 (6%)
Don't know when the buses run	9 (9%)
Don't know where the buses go to	2 (2%)
I'd have to change buses and it's too far to walk between buses	22 (23%)
Other	9 (9%)
Don't know/NR	49 (52%)

## **CONCLUSION**

At the moment it is too early to reach firm conclusions as to the impact that accessible vehicles, especially buses, will have on the travel of mobility impaired people. One could say that the jury is still out. Research on fixed route accessible services in the United Kingdom should be published in 1995 but the indications are that public transport alone will not be able to deliver the mobility requirements for disabled people that some legislators require.

The data acquired within the research projects described above are limited in size and are lacking in "generality". Thus, there is not yet sufficient depth of knowledge that would support the contention that aspects of the Built Environment need to be included within Urban Integrated Transportation Strategies. However, as can be seen from proposed legislation the travel requirements of mobility impaired people is being addressed as a major issue in Europe and it is important to note that accessible vehicles do not necessarily mean accessible transport systems. The "Non-Transport Barriers" to travel may in many circumstances prevent people from actually getting to public transport vehicles.

It is important that Built Environment problems be examined in other European cities in greater depth than has been the case in Belfast. If the proposed European Union travel requirements for mobility impaired people are to be complied with it may need a close level of planning and operational co-ordination between "mainstream" public transport and specialist and voluntary transport and between town planners and transport operators to developed truly accessible urban transport systems for mobility impaired people

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