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**Third Annual Thematic
Research Summary –
Equity and Accessibility**

EXTR@Web Project

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Abbreviations and Acronyms Used

AG	High level Advisory Group (to the EXTR@Web project)
BG	Benchmark Group (associated with the EXTR@Web project)
CEC	Commission of the European Communities (= EC)
CEEC	Central and Eastern European Country
COST	"European Co-operation in the Field of Scientific and Technical Research" research programme
DG TREN	EC Directorate-General for Energy and Transport
EC	European Commission (= CEC)
ECMT	European Conference of Ministers of Transport
EFTA	European Free Trade Association (Norway, Iceland, Switzerland, Liechtenstein)
ERA	European Research Area (EU, EFTA and CEECs)
EXTR@Web	Exploitation of Transport Research Results via the Web (DG TREN FP 5 Accompanying Measure project)
EU	European Union
FP 4 (5, etc)	EC Fourth (Fifth, etc) Framework Programme
IRU	International Road Transport Union
PAG	Programme Analysis Group (part of EXTR@Web project)
RTD	Research and Technical Development
TRKC	Transport Research Knowledge Centre; TRKC website at ec.europa.eu/transport/extra
UIC	International Union of Railways (Union Internationale des Chemins de fer)
UITP	International Association of Public Transport (Union Internationale des Transports Publics)

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1. Introduction

This paper provides a structured guide to the results of Research and Technical Development (RTD) projects relating to **Equity and Accessibility**, carried out in transport research programmes throughout the European Research Area (ERA).

It is one of a series of 28 papers. Two further from an original set of 30 transport themes – i.e. Long-distance Transport and Financing Tools – have been discontinued as separate reports, though all related projects will be covered elsewhere in Thematic Research Summaries.

	Paper no.	Transport theme
Dimension 1	1.1	Passenger Transport
	1.2	Freight Transport
	1.3	Urban Transport
	1.4	Rural Transport
	1.5	Regional Transport
	1.6	EU Accession Issues
Dimension 2	2.1	Air Transport
	2.2	Rail Transport
	2.3	Road Transport
	2.4	Waterborne Transport
	2.5	Other Modes
	2.6	Intermodal Transport
Dimension 3	3.1	Economic Aspects
	3.2	Efficiency
	3.3	Equity and Accessibility
	3.4	Environmental Aspects
	3.5	User Aspects (incl. ergonomics, quality, choice and rights)
	3.6	Safety and Security
Dimension 4	4.1	Decision-support Tools
	4.2	Information and Awareness
	4.3	Infrastructure Provision (incl. TENs)
	4.4	Integration
	4.5	Intelligent Transport Systems
	4.6	Regulation / Deregulation
	4.7	Land Use Planning
	4.8	Transport Management
	4.9	Pricing, Taxation and Financing Tools
	4.10	Vehicle Technology

Of the more than 5600 projects from research programmes covered in the Transport Research Knowledge Centre (TRKC), a total of **361** projects deal partly or fully with the issues of **Equity and Accessibility**.

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1.1 How to use this paper

It is recommended that you use this paper to locate RTD (Research and Technical Development) results on sub-themes where you have a particular interest, rather than reading the paper from start to finish:

- Start in Section 2 to get an overview of the scope of the particular theme.
- Read Section 4 that summarises the findings for each sub-theme of interest to you.
- Consult Annex I to identify the individual projects, be they of European or national origin, relating to a particular sub-theme.
- If this is the first time you have used one of the series of thematic research summaries, it is strongly recommended that you read Annex II. This explains the background and purpose of the EXTR@Web project, and the basis upon which information in this document was selected and analysed.

The other sections of this paper can help you to gain an overall picture of the **Equity and Accessibility** theme, associated policy issues and the background of the EXTR@Web project.

The analysis in this paper is the responsibility of the EXTR@Web project team, and does not necessarily represent the official viewpoint of the European Commission.

1.2 The link to the Transport Research Knowledge Centre website

Further details on individual projects can be obtained from the Transport Research Knowledge Centre (TRKC) website at: ec.europa.eu/transport/extra

The TRKC website includes summaries and full final reports of individual projects, as well as a variety of analyses, and publications prepared by the EXTR@Web project.

How to best use the online resource:

- The 'Projects & Analysis' section allows the user to specify a project-wide search on 'Publication date', 'Origin', 'Document type', 'Mode', 'Sector', 'Geographic area', 'Policy objective' and 'Tool', or any combination of these criteria.
- This may be complemented, or superseded, by the flexible 'Free text search'.
- On the query result screen, free text search criteria may be refined, as appropriate. Further tick boxes here allow limiting query results according to 'Project status' (five levels).
- Query results are presented in a table, which allows for sorting by column (click on relevant column header for alphanumerical sorting).
- Project-specific summaries may include links to project websites, or provide contact details for the project, where available.

It should be noted that the online Transport Research Knowledge Centre will be updated frequently, though dependent on input from project co-ordinators.

Other parts of the TRKC website cover transport research at Programme level, and expand on transport related issues, e.g. in the 'Links', 'Events', 'Glossary' and 'FAQs' sections.

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2. Scope of theme

2.1 Definition of theme

The **equity** objective is concerned with ensuring that the benefits of transport strategies are reasonably equally distributed, or are focused particularly on those with special needs. Among the latter may be included lower income residents, those without cars available, elderly and disabled people, and those living in deprived areas. The equity objective will also be concerned with avoiding worsening accessibility, the environment or safety for any of these groups. One way of considering these equity, or distributional, issues is by reference to an impact matrix, which identifies the impact groups of concern to decision makers (among both residents and businesses) and the objectives and indicators which are of particular concern to them. Social inclusion is a related issue concerned primarily with accessibility (or lack of it) for those without a car or whose mobility is impaired.

Accessibility can be defined as "ease of reaching", and the accessibility objective is concerned with increasing the ability with which people in different locations, and with differing availability of transport ('mobility'), can reach different types of facility. In most cases accessibility is considered from the point of view of the resident, and assessed for access to activities such as employment, shopping and leisure. By considering accessibility separately for those with and without cars available, or for journeys by car and by public transport, the shortcomings of the existing transport system can be readily identified. It is possible also to consider accessibility from the standpoint of the employer or retail outlet, wanting to obtain as large a catchment as possible in terms of potential employees or customers. In either case, access can be measured simply in terms of the time spent travelling or, using the concept of generalised cost, in terms of a combination of time and money costs. Regional accessibility is another issue, concerned with the quality of transport links between remote, rural or island areas to major centres of population. This affects economic development as well as living standards, and links closely with the parallel thematic paper on Regional Transport.

Accessibility versus Mobility: Accessibility should not be confused with mobility, which refers to physical movement, but in general (see below), increased mobility tends to increase accessibility as, *ceteris paribus*, the more you can travel the more destinations you can reach. Thus cities and other major activity centres tend to have a relatively poor *vehicle mobility* (due to congestion), but are economically successful due to excellent *accessibility* (activities are clustered together and there are many travel options). This indicates that accessibility is the more comprehensive measure in the pursuit of economic competitiveness.

Key sources for this theme include: 'KonSULT: Knowledgebase on Sustainable Land Use and Transport' [1], 'Transport in the Urban Environment' [3] and the 'On-line TDM Encyclopaedia' [4].

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2.2 Topics included in theme

Three factors affect physical accessibility and thus must be taken account of:

- *Mobility*, that is, physical movement. Mobility can be provided by walking, cycling, public transport, ridesharing, taxi, cars, lorries and other modes. As mentioned above, increased speed, service quality or affordability of a mode improves access by that mode.
- *Mobility Substitutes*, such as telecommunications and delivery services. These can provide access to some types of goods and activities, particularly those involving information.
- *Land Use*, that is, the geographic distribution of activities and destinations. The dispersion of common destination increases the amount of mobility needed to access goods, services and activities, reducing accessibility. It has been pointed out that when estate agents say “location, location, location” they really mean “accessibility, accessibility, accessibility” [4].

Accessibility also reflects the *generalised cost* (time, money, discomfort and risk) needed to make journeys to reach activities. Where the marginal financial cost of travel is relatively low (for example, for car owners in areas where roads and parking are not charged for), travel time tends to be the dominant component of accessibility. Individuals often evaluate accessibility in terms of *convenience*, that is, the ease with which they can reach what they want: note the use of the term ‘*convenience store*’.

The degree of accessibility varies widely, depending on the location, time and person. Accessibility can affect the types of business, property values and general economic development that occur in an area. This is recognised in the Netherlands where, to combat decentralisation, the Dutch Government has adopted a policy aimed at concentrating employment-intensive land uses around public transport routes and interchanges. The policy, known as ‘the ABC location policy’, is based on establishing and then matching accessibility definitions for locations and mobility definitions for businesses. The policy is furthered through the use of related hierarchical standards for parking.

Accessibility can be viewed from different perspectives, including a particular location, a particular group, or a particular activity. It is therefore important to specify the perspective being considered when describing and evaluating accessibility: this is where accessibility is tied in to the complementary issue of equity.

Both accessibility and equity may be viewed at a large range of scales from international to national, regional and local.

Accessibility and equity are not only related to person journeys but also to freight transport. At international, national and regional level for example, access to particular key facilities such as seaports and airports may be key economic issues.

To evaluate accessibility, a further important question is how it may be measured and how it may be incorporated, perhaps using various accessibility indices, into analytical processes such as land use / transport models.

The measurement of equity is also important, for example, one way of considering distributional issues is by reference to an ‘impact matrix’, which identifies the impact groups of concern to decision-makers against the objectives and indicators which are of particular concern to them.

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2.3 Significance of theme

Transport is a derived demand, that is to say, it is not normally an end in itself but a means to an end. The end that it supports is the provision of access to activities of all kinds. Thus the provision of accessibility may be said to be the most important goal of transport and land use policy. The concern is whether or not people can get to key services at reasonable costs, in reasonable time and with reasonable ease. Lack of access prevents people from being able to break out of the cycle of social exclusion. Transport can be a source of social exclusion in several respects:

- Physical exclusion – physical barriers to transport and other services;
- Geographical exclusion – the lack of transport provision in the geographical area in which the user resides;
- Exclusion from facilities – lack of access to facilities because of lack of access to transport services;
- Economic exclusion – first, someone can be unable to travel because they cannot afford to; second, lack of access to transport can cause income poverty, preventing the user from accessing employment or training;
- Time-base exclusion – people can be excluded from both travel and other activities because of the time that it takes to travel, or because of the hour of day or night they want or need to travel;
- Fear-based exclusion – exclusion of transport, and, consequently, activities requiring travel because of fear of using transport.

Reduction of transport-related inequity is part of a broader agenda to reduce inequity in society as a whole. Equity is an objective which has been growing greatly in importance in the transport policy field over recent years. This is firstly because there is growing recognition of the transport disadvantages suffered by certain sectors of the population. There are evident equity effects of the policy, dominant in past years, aimed at providing indiscriminate access by car for all, because of the environmental pollution suffered by the community, the impacts suffered by the vulnerable road users – pedestrians and cyclists – and the downward spiral of investments in public transport which affects those not having a car.

Traditionally, a policy driven by equity concerns has been to use concessionary fares in public transport to reduce the cost (or provide free travel) to certain user groups. The recent orientation towards opening public transport services up to competition in many countries has raised the issue of how to tackle best the provision of non-profitable lines in public service contracts. Equity concerns are behind the proposed hypothecation of revenue from road pricing schemes to fund improved public transport services.

The other reason for the growing importance of the equity objective is the increasing awareness of the special needs of certain sections of the population, such as the elderly and the disabled. Special vehicle and infrastructure provisions for those with physical disabilities are increasingly implemented in public transport services. Special parking policy arrangements are also dedicated to these segments of the population.

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3. Policy context

European policy objectives related to theme

The car is the predominant means of passenger travel. In 2003, 83% of all journeys made (in terms of passenger kilometres travelled) in the EU25 were by car [5]. However it has to be recognised that not everybody can travel by car or would choose to, nor is it desirable or efficient to have such a predominance of car transport in densely populated regions where capacity is limited and external effects on the population are great. Therefore, the transport system has to ensure that accessible provision is made for all. The policies have to ensure that the benefits of transport are fairly distributed or focused on those with special needs. There is a need to provide access to transport for lower income residents, those without cars, the elderly and disabled and those living in deprived areas, as well as providing an alternative to car owners to achieve greater modal choice and balance. The transport system has to be able to deliver increased 'ease of reaching' different locations and transport facilities with different mobility. Regions with better access to markets are likely to be more productive and more competitive than others.

The Citizen's Network [5] stated that access to passenger transport systems was a crucial issue. The long-term aim of the Commission and of associations of transport authorities and operators is to ensure that public transport is accessible to all. Improving system accessibility covers various areas such as the design of vehicles, rolling stock and (intermodal) stations, linking residential areas to central trip-attracting activities (work places, shopping, leisure activities), serving rural and peripheral areas and meeting the needs of people with reduced mobility. The Citizens Network emphasised its aim to provide opportunities for door-to-door travel without reliance on private car use, in order to support the needs of people who have no access to private cars.

The European Commission adopted a Community Action Programme for Accessible Transport in 1993 giving a list of priorities for accessible transport. The aim of this programme is to increase the usability of transport for people with reduced mobility. It involves a series of Community measures to be taken in relation to technical standards applicable to means of transport and transport infrastructure, facilitating co-operation on information programmes, and co-ordinating research programmes. Other measures envisaged include effective signs and information for travellers, co-operation between the Member States regarding the harmonisation of audible signals at pedestrian crossings, and compulsory training courses on disability awareness and needs. [7]

In recent years there has been an increased emphasis on the protection of passenger rights across all modes of travel. Special attention has been paid to improving the quality of service and increasing the access to transport for passengers with reduced mobility. The European Commission in its Mid-term Review of the 2001 Transport White Paper has flagged for action to "examine, together with stakeholders, how increased quality of service and assurance of basic passenger rights can be promoted in all modes of transport, notably as regards passengers with limited mobility" [8]. This is further reinforced by the European Conference of Ministers of Transport's (ECMT) Working Group on Access and Inclusion which claims that "a higher quality transport system (in terms of vehicle design, infrastructure, driver training, information and many other factors), means a more equitable system, and in this way, accessibility is a key element in ensuring the social sustainability of the transport sector" [8].

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The European Commission remains concerned about accessibility to regions and Member States on the periphery of the continent. The European Commission pointed out that “the outermost regions suffer from a strong accessibility deficit not only in relation to the continental internal market but also in their own hinterland” [8]. Therefore, in order to “reduce the effects of remoteness on their competitive position and to improve connections with the rest of the EU and with neighbouring third countries”, the Commission has decided to “encourage and coordinate when necessary investment in new or improved intelligent infrastructure to eliminate bottlenecks and prepare for the introduction of co-operative systems, to enable co-modal transport solutions and to connect peripheral regions and outermost regions with the mainland”.

The European Conference of Ministers of Transport's (ECMT) Working Group on Access and Inclusion tries to bring together Governments and experts from ECMT Member and Associate Member Countries to exchange ideas on transport for people with reduced mobility and the ageing population. This Group has produced many reports and recommendations which provide guidance on achieving barrier-free travel. Political support for this work has been given through the adoption of several formal resolutions by the Council of Ministers.

ECMT pursues work in the following areas:

- Guidance to ministers on evaluation of the potential impact of transport and land use planning policies on the safety and accessibility of older people (Safety and accessibility audits).
- Development of guidelines on implementation at a national level of policies promoting accessibility and safety. This includes land use and promotion of neighbourhood living, infrastructure, including signs, lighting, intersection design, public transport, including interchange, information and personal security, economic aspects, including cost effective service delivery, and effective driver evaluation and training programmes which are functionally based.

ECMT's 'Charter on Access to Transport Services and Infrastructure' [10] underlines Europe's political commitment to ensuring that all new transport infrastructure takes into account the needs of those with impaired mobility. It emphasised the fact that the number of disabled people is growing, and that everybody has the right to independent living. The needs of the disabled have to be considered when providing new infrastructure and governments must undertake the role of ensuring access. ECMT put forward that the minimum accessibility requirements must include: full access for wheelchair users and include accessible lifts and toilets where appropriate; facilities to aid people with difficulties in walking, gripping, reaching or balancing (including non-slip surfaces, hand rails and handholds); facilities to assist blind and partially sighted people (including consistent use of colour contrast, clear signing and lighting, non-reflective surfaces, audible as well as visual announcements, and facilities for people who are deaf or hard of hearing (including visual as well as audible announcements, induction loops and clear signs).

ECMT's 'Resolution on Accessible Transport' [11] states that the integration of older and disabled people in the occupational and social life of the community depends on whether they are able to move about freely and easily. It emphasised that: all policy initiatives or developments in transport and land use planning should include an evaluation of their potential impact on safety and accessibility of older and disabled people; all links in the transport chain need to be improved so that an accessible environment is created door-to-door and increased efforts must be made to connect the different means of transport and thereby create an integrated, safe and accessible transport system; all new investments in transport must take account of and plan for the needs of older and disabled people in

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accordance with the ECMT Charter in 1999; close co-operation between governments, public authorities, manufacturers, operators and the people concerned is essential.

Most recently, ECMT/OECD outlined the following priority issues to be considered by national governments:

- Accessibility should no longer be seen as an option but as an integral part of a policy framework to promote a high-quality, efficient and sustainable transport system.
- In many countries accessibility is still regarded as low priority and as a problem of only those with disabilities. Therefore, it is important that such countries, to ensure that accessibility is brought into the mainstream of long-term, strategic transport planning, develop and implement supporting legislation and regulation. It is equally important that governments which have already created a sound policy framework for improving accessibility commit to consistent monitoring of its implementation and evaluation of impacts.
- Driver training and the availability and accessibility of information have been identified as fundamental factors that will encourage disabled and older people to travel.
- It was suggested that further work to evaluate the most cost-effective means of meeting the needs of disabled people for separate and specialised door-to-door transport was needed [8].

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4. Synthesis of findings from completed projects

Research projects contributing to the understanding and assessment of **equity and accessibility** can be categorised under the following sub-themes:

- Measurement of equity and accessibility;
- mobility;
- mobility substitutes;
- development control and land use planning to increase accessibility;
- accessibility for freight and for passenger activities;
- incorporation of accessibility into analytical techniques; and
- transport for the disabled, non-drivers and other disadvantaged groups.

You might want to further consult the following Thematic Research Summaries that present research findings which are complementary to those covered in the paper at hand:

- D2.E-1.1 Passenger Transport;
- D2.E-1.4 Rural Transport;
- D2.E-1.5 Regional Transport;
- D2.E-3.5 User Aspects;
- D2.E-3.6 Safety and Security;
- D2.E-4.1 Decision Support Tools; and
- D2.E-4.2 Information and Awareness.

Results from the following projects have been included in the current version of this Thematic Research Summary:

Research sub-theme	Contributing projects
Measurement of equity and accessibility	A11; RURAL ACCESSIBILITY
Mobility	ARTS; COMPASS; LIBERTIN; R000238497; RURAL ACCESSIBILITY; UG171; UG207; Targeted Public Transport
Mobility substitutes	None
Development control and land use planning to increase accessibility	None
Accessibility for freight and for passenger activities	RURAL ACCESSIBILITY; UG325B; Review of Research on School Travel; Targeted Public Transport
Incorporation of accessibility into analytical techniques	None
Transport for the disabled, non-drivers and other disadvantaged groups	UG116; UG325B; UG395; Targeted Public Transport

Detailed findings and policy implications for individual projects can be found in Annex I. Please refer to acronyms and project titles, respectively, listed above.

4.1 Measurement of equity and accessibility

4.1.1 Research objectives

The projects related to this sub-theme aimed at:

- Identifying methods and indicators which allow a better measurement of accessibility of people to various locations and activities by taking into account the location (in the town centre, in suburbs, in the countryside) and the socio-economic characteristics (age, income, activity) factors;
- investigating current and potential use of accessibility indicators or measurement techniques in the rural context;
- utilising relevant accessibility indicators and measurement techniques to assess the transport options and destination opportunities available to rural dwellers; and
- recommending appropriate accessibility indicators or measurement techniques for use in future policy development, monitoring and evaluation.

4.1.2 Main findings

The results from a Swiss project have concluded that:

(1) Findings regarding the modal choice factors

- In the centres the judgement of the conditions of access is slightly better;
- cost of movement is not (or no more) the determining criterion of access;
- the quality of accessibility is better in centre communes, where the supply of transport is more significant; the percentage of the use of the car grows while moving away from the centres;
- in urban environments the time factor is significant;
- general conditions of the displacement (which includes security, reliability, physical comfort, etc.) represent the principal modal choice factor for 38% of work displacements and 42% of displacements related to leisure activities.

(2) Findings regarding the indicator of access. The following elements were considered:

- The concept of actor/user: The access is expressed by a person, and user of the transport system. The characteristics of displacements are significantly related to socio-economic variables characterising the people questioned.
- The needs and waiting of actor/user: qualities of opportunity, but also qualities of movement to reach this opportunity.
- To cancel the distance separating from opportunity, an individual is obliged to spend a certain quantity of four types of resources: time, money, the availability of discomfort and environmental care. The resources represent the factors of access enabling us to appreciate the characteristics of the access.

UK research has concluded that to provide a framework for integrated action on rural transport, national targets should be set for access to employment, hospitals, post offices, shopping and other key services. Achievable and measurable accessibility goals should also be defined within local transport strategies to allow the contribution of public and community transport initiatives to be assessed on a common basis. To set these goals and targets, and monitor progress, consistent and repeatable analysis methods are required at both local and national levels. Assumptions, data sources and calculation methodologies should therefore be set out clearly for all analyses. Accessibility planning approaches for transport and non transport sectors are still evolving, so continuing support is needed to encourage wider use of these techniques and to foster good practice.

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It has been proposed that rural accessibility planning by trip purpose and population group is needed and should be supported by:

- A major culture change in attitudes towards rural public and community transport by both transport users and providers, facilitated through community planning;
- an effective dialogue between all groups encouraging greater "ownership" of sustainable and workable solutions, including some softening of existing boundaries between the administration of public and community transport; and
- a step by step approach towards better co-ordination of rural transport resources and management recognising that, although significant obstacles will take time to overcome, short term progress is possible.

4.2 Mobility

4.2.1 Research objectives

The diverse objectives of various projects related to this sub-theme were to:

- Test and demonstrate the most effective ways of providing rural transport services and, consequently, produce a set of recommendations and guidelines for the planning and implementation of rural transport systems in order to increase mobility for rural dwellers;
- investigate how everyday mobility has changed during the twentieth century;
- investigate how increased speed, service quality or affordability of a mode improves access by that mode;
- investigate how the provision of differentiated public transport services can be improved; and
- identify the factors affecting school travel and the effectiveness of school travel initiatives designed to address obstacles to efficient school travel.

4.2.2 Main findings

European research identified various barriers that hinder the development and the integration of the transport services in rural areas. These barriers were largely concerned with (1) the lack of funds/subsidies for innovative transport services (2) restrictive legal and regulatory framework (3) poor and inflexible image of rural public transport and a very low willingness for private and voluntary initiatives (4) lack of political mood for innovative transport solutions and (5) lack of co-operation between the responsible authorities at national level.

UK research has also contributed to this sub-theme outlining the issues which relate to mobility of people in rural areas. These are:

- **Modal choice.** To overcome accessibility difficulties, car based solutions, with a managed approach to providing lifts for those without their own cars, are generally viewed as the most promising approach, but bus and other community transport initiatives are also suggested, particularly for elderly people.
- **Social exclusion.** Although social exclusion is mostly associated with unemployed and elderly people, other social groups can also give examples of being excluded from some social and leisure activities due to access problems.

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- **Transport planning and monitoring.** Increased public funding is delivering more bus miles, but there are mixed messages about the success of services in delivering accessibility improvements, demonstrating a requirement for more rigorous needs based appraisal in transport planning and monitoring.
- **Underused facilities.** Rural residents, local authorities, and transport operators all highlight concerns about the low use of many rural bus services.

UK research has investigated how the patterns of everyday mobility, especially these of children, have evolved over the twentieth century. The project has concluded that:

- There is a high degree of variability in individual travel needs and behaviour which highlights the need for increased flexibility in contemporary transport policy.
- Most people's everyday travel experiences had changed very little since the 1940s, despite the increase in affluence and car ownership. For children aged 10/11 both the total distance travelled and the average trip length increased slightly, but the mean time spent travelling declined a little.
- There has been a predictable decline in walking and bus travel and increase in car use, but walking still accounts for over 60 per cent of all trips by children aged 10/11 at the time of interview. This challenges some general statements about a decline in the amount of exercise children get through walking.
- Girls are more likely than boys to be accompanied and are more likely to walk or use public transport.

A group of European and national projects investigated how increased speed, service quality or affordability of a mode improves access by that mode. Research focused on the following modes:

(1) Light rail and light metro systems. The project recommended to accelerate the establishment of an Internal Market for light rail/light metro in the European Union and associated countries by fostering harmonisation, interchangeability and modularity of light rail/light metro components, harmonisation of related legislation/regulations and tendering procedures to promote the attractiveness, affordability, flexibility and sustainability of light rail/light metro systems by reducing the costs of modular components, harmonising operating rules and procedures, and enhancing system performance to improve the competitiveness of the light rail mode compared with other transport modes.

(2) Cycling – research provided advice to local authorities and other professional bodies on the design and implementation of cycle facilities.

(3) Walking and cycling – the project investigated the measures required to induce a significant modal change in favour of non-motorised and public transport and reduce the number of short trips made by car. Such measures include:

- Improving bus services in terms of route coverage, frequency and hours of service;
- making car drivers more aware of bus services;
- increasing the perception of the safety and security of children travelling unaccompanied, for example, by re-introducing bus conductors;
- encouraging taxi-sharing;
- introducing demand-responsive public transport services, especially for shopping and social trips;
- making car drivers more aware of the benefits of walking and cycling;
- improving walking and cycling facilities, including better street lighting;
- encouraging employers to provide showering and changing facilities for their employees who cycle and walk;
- ameliorating the effects of bad weather by installing more bus shelters and improving the reliability of bus services;
- making use of neighbourhood planning to help develop more local shops and facilities; and

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- expanding delivery services from shops in a way that ensures that one van trip replaces several car trips.

Norwegian research was conducted into the provision of differentiated public transport services. Targeted (or differentiated) public transport can be defined as public transport provision which is adapted to the market, i.e. oriented towards a defined market and adapted to the needs of existing and potential users. The outcomes of the project, compiled in a handbook, provide good practice examples for further improvements in public transport services.

European research provided insight into the various obstacles to cross-border mobility of people at local and regional level. Three main categories of obstacles were identified that hinder the operation of cross-border public transport, deriving from (1) the socio-economic border barriers (2) the lack of coordination of public transport services and (3) the overall policy framework. The research outlined a set of recommendations directed to policy makers at European, national and local level:

- There is little focus on international short distance transport;
- a cross-border public transport master plan is a necessary planning tool;
- cross-border public transport needs continuity;
- marketing for cross-border public transport issues needs support;
- networking among practitioners is a key-issue; and
- special support for Accession Countries and New Member States is necessary to speed up integration.

4.3 Mobility substitutes

4.3.1 Research objectives

None yet.

4.3.2 Main findings

None yet.

4.4 Development control and land use planning to increase accessibility

4.4.1 Research objectives

None yet.

4.4.2 Main findings

None yet.

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4.5 Accessibility for freight and for passenger activities

4.5.1 Research objectives

The diverse objectives of various projects related to this sub-theme were to:

- Assess the extent of transport based social exclusion in selected rural areas;
- review existing evidence on the role of transport in social exclusion in rural areas;
- review innovation in rural transport and its role in addressing transport disadvantage;
- review current methods for identifying the extent of transport related social exclusion in rural areas;
- improve rural health transport services and make them available to more patients;
- investigate how the provision of differentiated public transport services can be improved;
- develop strategies and concepts for improvements as well as compiling tools for experience based enhancement of cross-border public transport supply; and
- identify the factors affecting school travel and the effectiveness of school travel initiatives designed to address obstacles to efficient school travel.

4.5.2 Main findings

National and European research has contributed to this sub-theme outlining the issues which relate to accessibility difficulties of people in rural and urban areas which prevent them from reaching different types of facilities.

In a rural context, the following issues emerged:

- To overcome accessibility difficulties, car based solutions, with a managed approach to providing lifts for those without their own cars, are generally viewed as the most promising approach, but bus and other community transport initiatives are also suggested, particularly for elderly people.
- Although social exclusion is mostly associated with unemployed and elderly people, other social groups can also give examples of being excluded from some social and leisure activities due to access problems.
- Increased public funding is delivering more bus miles, but there are mixed messages about the success of services in delivering accessibility improvements, demonstrating a requirement for more rigorous needs based appraisal in transport planning and monitoring.
- Rural residents, local authorities, and transport operators all highlight concerns about the low use of many rural bus services;

A UK pilot study has identified a number of improvements in rural health transport which, as a result, have bettered the access to healthcare. These improvements include:

- A more flexible service more able to respond to passenger needs now and better suited to meeting more diverse demands, expected in the future;
- improvements in identification of needs for and provision of social transport;
- improvements in the efficiency of journeys provided by volunteer drivers;
- a reduction in the costs per journey provided by volunteer drivers;
- reductions in the time surgeries spend arranging transport;
- improvements in the quality of booking systems;
- improvements in provider and passenger liaison;
- improvements in journey time and convenience;
- reductions in the time out-patients spend waiting for transport following an appointment;

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- improvements in the recruitment and support available to volunteer drivers;
- increased capacity to provide for after-hours services, transport of samples, hospital transfers, etc; and
- improved co-ordination through base to driver communications.

UK research into access of children to educational facilities considered, in a Scottish context, the lessons from UK and international research on (1) the factors affecting school travel (2) the influence of school travels on children's development and (3) the effects of initiatives to improve school travel safety and efficiency. This project contributed to the understanding of how to increase the ability of people in different locations, with differing availability of transport to reach their educational facilities safely and with less negative impacts on their health, the wider economy and the environment.

Norwegian research was conducted into how public transport can be better adapted to users' needs. Good physical accessibility (low floor buses, etc) and good "mental" accessibility (simple network, easy-to-understand information, simple fares structure, etc) were acknowledged as important factors which increase public transport use.

4.6 Incorporation of accessibility into analytical techniques

4.6.1 Research objectives

None yet.

4.6.2 Main findings

None yet.

4.7 Transport for the disabled, non-drivers and other disadvantaged groups

4.7.1 Research objectives

Research objectives related to this sub-theme were to:

- Study the provision of differentiated public transport services;
- assess attitudes of disabled people to public transport, the current level of use of public transport by disabled people, and the factors, which encourage or discourage disabled people from using public transport;
- review the results of previous research on ergonomic factors concerning the use of public transport by disabled people;
- consider the economic impact of the regulations on both the bus and taxi industries; and

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- suggest ways of providing more rural health transport services, to more patients and to more diverse medical destinations.

4.7.2 Main findings

Norwegian research was conducted into how public transport can be better adapted to users' needs, especially those of older people and non-drivers. Good physical accessibility (low floor buses, etc) and good "mental" accessibility (simple network, easy-to-understand information, simple fares structure, etc) were acknowledged as important factors which increase public transport use by these vulnerable user groups. Although the study fully acknowledged the contribution of information and technologies to the successful operation and improvement of public transport systems, it also insisted that new IT solutions should complement rather than replace traditional forms of information such as printed timetables and network maps. This is because many vulnerable user groups (particularly older people) either do not have access to "advanced" media or have problems in using it.

UK research assessing the attitudes of disabled people to public transport has found that:

- Disabled people travel a third less often than the general public.
- Disabled people drive cars a lot less and are less likely to have one in the household. Despite this, cars are central to disabled people's mobility in England and Wales, with the most common mode of transport being a car driven by someone else.
- Disabled people use buses, taxis and minicabs more often than the general public. There are also encouraging signs that disabled people will use public transport even more if improvements are made.

UK research has been conducted to consider the economic impact of the technical and economic implications of the proposed regulations that were being made under the Disability Discrimination Act 1995 on both the bus and taxi industries. This study has produced:

- An estimate of the additional continuing costs associated with improving access to buses and coaches as well as to fully (wheelchair) accessible taxis;
- an estimate of the additional revenue generated by the fully accessible buses; and
- an estimate of the total capital costs of achieving a fully accessible bus and taxi fleet.

A UK pilot study has identified a number of improvements in rural health transport which, as a result, have bettered the access of vulnerable groups of the population in rural areas to healthcare. These improvements include:

- A more flexible service more able to respond to passenger needs now and better suited to meeting more diverse demands, expected in the future;
- improvements in identification of needs for and provision of social transport;
- improvements in the efficiency of journeys provided by volunteer drivers;
- a reduction in the costs per journey provided by volunteer drivers;
- reductions in the time surgeries spend arranging transport;
- improvements in the quality of booking systems;
- improvements in provider and passenger liaison;
- improvements in journey time and convenience;
- reductions in the time out-patients spend waiting for transport following an appointment;
- improvements in the recruitment and support available to volunteer drivers;
- increased capacity to provide for after-hours services, transport of samples, hospital transfers, etc; and
- improved co-ordination through base to driver communications.

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Annex I: Contributing projects

Preface This Annex lists all the projects (European and national) which belong to the **Equity and Accessibility** theme, in alphabetical order of project acronym (for projects with acronyms), followed by projects without acronyms in alphabetical order of the project's name in English. Where results have been made available to the EXTR@Web project, a summary of key findings and policy implications relevant to this theme are given.

In 'Origin' column, use ISO 3166-1 country designators as follows:

Austria – AT; Belgium – BE; Bulgaria – BG; Cyprus – CY; Czech Republic – CZ; Denmark – DK; Estonia – EE; European – EU; Finland – FI; France – FR; Germany – DE; Greece – GR; Hungary – HU; Iceland – IS; International – INT; Ireland – IE; Italy – IT; Latvia – LV; Lithuania – LT; Luxembourg – LU; Malta – MT; Netherlands – NL; Norway – NO; Poland – PL; Portugal – PT; Romania – RO; Slovakia – SK; Slovenia – SI; Spain – ES; Sweden – SE; Switzerland – CH; United Kingdom – UK; Other countries – Oth

Theme: Equity and Accessibility		Last update: 21 July 2006	
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
A11	Measuring Accessibility	CH	Measurement of equity and accessibility
<u>Key findings</u>			
The principal results:			
<ul style="list-style-type: none"> • More than half of the people interviewed declared to be satisfied with access conditions; • in the centres the judgement of the conditions of access is slightly better; • cost of movement is not (or no more) the determining criterion of access; • the quality of accessibility is better in centre communes, where the supply of transport is more significant; the percentage of the use of the car grows while moving away from the centres; • in urban environment the factor time is significant; • the use of individual transport is predominant; and • general conditions of the displacement (which includes security, reliability, physical comfort, etc.) represent the principal modal choice factor for 38% of work displacements and 42% of displacements related to the leisure. 			
The indicator of access. The following elements were considered:			
<ul style="list-style-type: none"> • The concept of actor/user: The access is expressed by a person, and user of the transport system. The characteristics of displacements are significantly related to socio-economic variables characterising the people questioned. • The needs and waiting of actor/user: qualities of opportunity, but also qualities of movement to reach this opportunity. • To cancel the distance separating from opportunity, an individual is obliged to spend a certain quantity of four types of resources: time, money, the availability with discomfort and environmental care. The resources represent the factors of access enabling us to appreciate the characteristics of the access. 			
The qualitative investigation.			
<ul style="list-style-type: none"> • The great majority of our sample has, at any time, the disposal of a company place offered by its employer or a private place. All the persons having a parking place are said to be ready to pay if they can be ensured of the availability of a parking place at work. • Concerning the reasons to choose the car, the practical sense and the speed are the most quoted factors. 			

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
COMPASS	Better Connections in European Cross-Border Passenger Transport	EU	Mobility
<p><u>Key findings</u></p> <p>COMPASS identified various obstacles to an improved operation of cross-border public transport that fell into three main categories:</p> <ul style="list-style-type: none"> • Obstacles derived from socio-economic border barriers; • obstacles that stem from the lack of coordination of public transport services; and • obstacles that derive from the overall policy framework. <p><u>Policy implications</u></p> <p>The project outlined a set of recommendations directed to policy makers at European, national and local level:</p> <ul style="list-style-type: none"> • There is little focus on international short distance transport; • a cross-border public transport master plan is a necessary planning tool; • cross-border public transport needs continuity; • marketing for cross-border public transport issues needs support; • networking among practitioners is a key-issue; and • special support for accession countries is necessary to speed up integration. <p><u>Project contact</u></p> <p>med@ivv-aachen.de</p>			
COST 349	The accessibility of coaches and long-distance buses for people with reduced mobility	EU	
<p><u>Project contact</u></p> <p>ad.herk@dgp.minvenw.nl</p>			
FOKAT	Conditions and requirements on IT support for demand-responsive public transport	SE	Mobility
<p><u>Project contact</u></p> <p>hakan.bergea@teknikdalen.se</p>			
FRAMSYN	IT-based real time information guidance system for the visually impaired	SE	Transport for the disabled, non-drivers and other disadvantaged groups
<p><u>Project contact</u></p> <p>anna-lena@tfk.se</p>			

Theme: Equity and Accessibility			Last update: 21 July 2006
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
LIBERTIN	Light Rail Thematic Network	EU	Mobility
<u>Key findings</u>			
<p>The project had 10 working groups which all generated particular results, summarized as follows:</p> <ul style="list-style-type: none"> • Access – a key result was a recommendation on the Boarding and Alighting 'Vertical Step and Horizontal Gap' issue. • Derailment Prevention and Ride Quality – The major part of this effort has been focused on producing a specification of the vehicle-track interface, which will facilitate derailment prevention and ride quality with standard vehicle designs. • HVAC (Heating and Ventilation, Air Conditioning) – consensus-building between operators, vehicle manufacturers and HVAC system suppliers regarding cost reduction, modularity and harmonisation of system requirements. • Loading Parameters – agreement that the existing standard (EN 12663), relating to vehicle structural design, should include a fixed value for loading parameters in relation to LRV's. • Fire Safety – Consensus was reached to ask CEN to add or amend a specific category to the prEN45545, which currently does not clearly take into account the specifics of Light Rail vehicles. • Structure Gauging – The structure of the CEN standard was discussed and consensus was reached that several gauging classes should be defined, ideally 2, or max 3 classes related to the insertion capacity in the urban area. • Maintenance Management – a review of current status and developments, best theory and practice was undertaken to serve as practical Guidelines to help new or existing light rail systems reduce their Life Cycle Costs (LCC) and so to improve their viability. • Tendering Procedures – development of a procurement process model to simplify the tender documentation, enabling system interfaces and dependencies to be managed throughout the procurement process. 			
<u>Policy implications</u>			
<p>LIBERTIN was a Thematic Network, providing a tool and a climate to foster dialogue. It has given rise to a number of initiatives to help introduce recommendations at specific national levels and help overcome regulatory obstacles. One example is the recent set-up of UK Tram and the LRT Forum.</p> <p>In addition, the project confirmed that in some areas voluntary agreements were not sufficient to overcome some obstacles and that community legislation was the only way to achieve an appropriate level of technical harmonisation in a number of areas (e.g. Crashworthiness, Power Supply, System Performance). Therefore UITP and UNIFE joined forces to support the commission in drafting a proposal for a directive on urban rail which was the basis for the public consultation phase in late 2004 and early 2005. The proposed directive makes up an overall regulatory framework for technical harmonisation which will be detailed partially by using the output of LIBERTIN working groups.</p> <p>More specifically, some of the LIBERTIN topic groups (Fire Safety, Gauging) provided direct input to the existing CEN/CENELEC working groups to ensure that light rail will be adequately taken into account, which somewhat sped up the CEN-process.</p>			
<u>Project contact</u>			
nils.jaenig@ttk.de			

Theme: Equity and Accessibility			Last update: 21 July 2006
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
RURAL ACCESSIBILITY	Rural Accessibility	UK	Measurement of equity and accessibility; Mobility; Accessibility for freight and for passenger activities
<p><u>Key findings</u></p> <p>On one hand, the project has outlined the accessibility issues and problems in rural areas, namely:</p> <ul style="list-style-type: none"> • Rural dwellers are generally content with the trade off they have made sacrificing accessibility benefits for other quality of life gains. To overcome accessibility difficulties, car based solutions, with a managed approach to providing lifts for those without their own cars, are generally viewed as the most promising approach, but bus and other community transport initiatives are also suggested, particularly for elderly people. • Social exclusion is greatest amongst unemployed and elderly people but most people can give examples of being excluded from some social and leisure activities due to access problems. • Increased public funding is delivering more bus miles, but there are mixed messages about the success of services in delivering accessibility improvements, demonstrating a requirement for more rigorous needs based appraisal in transport planning and monitoring. • Rural residents, local authorities, and transport operators all highlight concerns about the low use of many rural bus services. <p>On the other hand, the project has outlined some recommendations of how to overcome these problems. It is proposed that rural accessibility planning by trip purpose and population group is needed and should be supported by:</p> <ul style="list-style-type: none"> • A major culture change in attitudes towards rural public and community transport by both transport users and providers, facilitated through community planning. • An effective dialogue between all groups encouraging greater "ownership" of sustainable and workable solutions, including some softening of existing boundaries between the administration of public and community transport. • A step by step approach towards better co-ordination of rural transport resources and management recognising that, although significant obstacles will take time to overcome, short term progress is possible. <p><u>Policy implications</u></p> <p>To provide a framework for integrated action on rural transport, national targets should be set for access to employment, hospitals, post offices, shopping and other key services. Achievable and measurable accessibility goals should also be defined within local transport strategies to allow the contribution of public and community transport initiatives to be assessed on a common basis. To set these goals and targets, and monitor progress, consistent and repeatable analysis methods are required at both local and national levels. Assumptions, data sources and calculation methodologies should therefore be set out clearly for all analyses. Accessibility planning approaches for transport and non transport sectors are still evolving, so continuing support is needed to encourage wider use of these techniques and to foster good practice. Effective co-ordination of rural transport has proved to be an elusive goal, so the Scottish Executive should sponsor a demonstration project, or projects, to identify how obstacles can be overcome and to demonstrate practical co-ordination between public, community, health, social work and education transport. Either associated with these demonstration projects or as a separate initiative "dialogue marketing" of rural transport services should be tested in rural Scotland with individual and group action programmes providing practical information to travellers and transport operators on services and travel needs.</p> <p><u>Project contact</u></p> <p>hamish.clark@scotland.gsi.gov.uk</p>			

Theme: Equity and Accessibility			Last update: 21 July 2006
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
R000238497	Changing Patterns of Everyday Mobility	UK	Mobility
<p><u>Key findings</u></p> <p>The results from this research are as follows:</p> <ul style="list-style-type: none"> • The results reveal the high degree of variability in individual travel needs and behaviour and emphasise the need for increased flexibility in contemporary transport policy. • Most people's everyday travel experiences had changed very little since the 1940s, despite the increase in affluence and car ownership. For children aged 10/11 both the total distance travelled and the average trip length increased slightly, but the mean time spent travelling declined a little. • There has been a predictable decline in walking and bus travel and increase in car use, but walking still accounts for over 60 per cent of all trips by children aged 10/11 at the time of interview. This challenges some general statements about a decline in the amount of exercise children get through walking. • There has been a decline in the proportion of 10/11 year olds allowed to travel around the study towns unaccompanied, but even today over 50 per cent of trips are taken without an adult. • Girls are more likely than boys to be accompanied and are more likely to walk or use public transport. • Accounts of children's play experiences have also changed little since the 1940s. Key themes in discussing play include the importance of boundaries, the significance of traffic, the need for children to tell parents where they are going, the nature of rules, and the impact of territorial rivalry between different groups of children. • The area in which children play today seems to have shrunk over time. In the 1940s some children were allowed to roam freely over a wide area. There are signs of a far greater parental control for today's 10 year olds, and most modern youngsters had never had to deal with risk and had therefore not had the opportunity to learn to negotiate and to deal with challenges. • While the children who were aged 10/11 when interviewed said they were nervous of being abducted or run over, respondents who were the same age in the 1940s said they swam in dirty canals and played in air raid shelters and did not tell their parents about encounters with 'flashers'. This is thought to reflect the much greater publicity given by both national and local media to a small number of specific events such as child abductions and related dangers. • People in their sixties are much more mobile than at any time in the past, but older people also adjust their travel because of perceptions of risk. <p><u>Policy implications</u></p> <p>This research will be of interest to academics in a wide range of social science disciplines working on mobility, transport and social change. In addition the research will be of interest to audiences interested in local history. Through conferences and journal articles the research results have been brought to the attention of some groups of transport planners. The following ideas for further research arising from the project have been identified: 1/ Further research on the interaction between residential migration and everyday mobility. 2/ Development of a research proposal on mobility and identity, focusing on the ways in which long-distance commuting impacts upon local and regional identities. 3/ Development of a book proposal provisionally entitled 'Global Mobilities: A history of everyday travel'.</p> <p><u>Project contact</u></p> <p>c.pooley@lancaster.ac.uk</p>			

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Acronym	Project title (in English)	Origin	Research sub-theme
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Key findings / Policy implications / Project website or contact

UG171 Cycling facilities and engineering UK Mobility

Key findings

The main aim of this project is to provide suitable advice to local authorities the Highways Agency and other professional bodies on the design and implementation of cycle facilities. This project will investigate the design of safe, attractive and convenient facilities for cyclists, which have not been researched previously, or where current knowledge of their effectiveness is incomplete. The project is a part of the Equity and accessibility main objective concerned with avoiding worsening of accessibility, the environment or the safety for any groups. The study contributes to the equity and accessibility topic of mobility in relation to service quality of cycling facilities. The project includes an assessment of cycle track crossings of side road junctions, capacity implications of Advanced Stop lines, additional work on vehicle restricted areas, cyclists in with-flow and contra-flow bus lanes and further work on continental roundabout design. Therefore this project especially relates to the equity an accessibility sub themes of: development control and land use planning to increase accessibility; transport for non drivers; and mobility. TRL investigated cycling near road narrowing in the study comprising:

- Consultations with cyclists to ascertain their views on road narrowing features and their experiences of negotiating them in traffic; Video survey of sites where feature were installed by highway authorities to assist cyclists in negotiating road narrowings; Virtual reality simulations of encounters between drivers and cyclist, allowing the reactions of drivers to be measured under a range of circumstances.
- Road narrowings were found to constitute a source of stress to cyclists, particularly when large vehicles were present, although fast traffic and large roundabouts were also thought difficult. Some cyclists avoided narrowings by riding on the footway or selecting alternative routes. The measures to assist cyclists at road narrowings were found to have limited benefit. This included some unexpected effects, such as appearing to encourage more risky behaviour among motorists, including passing closer to cyclists and attempting to overtake cyclists before narrowing.
- The virtual reality testing found that despite some gender differences in behaviour, central islands appeared to have a speed reducing effect on motor vehicles. The provision of a simple advisory cycle lane in conjunction with the traffic island appeared to have little significant effect on behaviour. A cycle lane with coloured surfaces was found to be more effective in promoting safer driving behaviour, reinforcing the finding from the video survey.
- Drivers recognise that cycling on highways was not always pleasant and that narrowing features contribute to that. In general the study concludes that road narrowings contribute to the sense that parts of the highway network are inimical to cyclists and may contribute towards a reluctance to contemplate cycling among some members of the public.
- The study concludes that stress and intimidation of cyclists is an unavoidable result of enforced proximity with motor traffic. Some measures such as speed reduction features and coloured cycle lanes may mitigate the effects of road narrowings, but this research suggests great care is taken in their application.

Policy implications

The results provide advice to local authorities, the Highways Agency and other practitioners and professional bodies on the design and implementation of cycle facilities. The study makes a number of detailed recommendations regarding cyclist, cycling facilities and engineering schemes, in particular:

- The provision of a basic cycle lane was not seen as always positive, given that it encouraged motorised vehicles to take advantage of their 'allotted' space with an intimidating effect on cyclist. Coloured surfaces of cycle lanes somewhat appears to counter this effect by the perceived narrowing of the road.
- Width of cycle lanes (1.5) appears to be wholly not present on sites covered by this study, excepting one. Moreover this study recommends where possible for 2m cycle lanes at road narrowings, unless

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Key findings / Policy implications / Project website or contact			
<p>other traffic calming can be introduced to protect cyclists.</p> <ul style="list-style-type: none"> • Care to be taken in the provision of warning signs at road narrowings to ensure attention is paid to 'exact' location and 'precise' wording. • Prior to a scheme being implemented, attention needed to be paid to the composition of traffic using the road the impact on the comfort o cyclists. • The DfT has recommended that a cycle bypass should be the first option where a narrowing is introduced on a road subject to a speed limit of 30mph or more. • The main overarching recommendation of this study is that guidance should be given significant emphasis by highway authorities in order to avoid risk and intimidation to cycle users. <p><u>Project contact</u> publications@trl.co.uk</p>			
UG207	Potential for mode transfer of short trips	UK	Mobility
<p><u>Key findings</u></p> <p>The objective of this Equity and accessibility research project was to contribute to Government policy to encourage walking, cycling and the use of the bus instead of the car for short trips (less than 5 miles or 8 kilometres). The project complies with Equity and accessibility topic of mobility, especially in relation to encouraging walking, cycling and use of motorised passenger transport. Therefore the sub themes within which this project could make contributions include measurement of equity and accessibility, mobility, mobility substitutes and transport for the disabled, non drivers and other disadvantaged groups. To this end, the project determines, through detailed interview surveys of a substantial sample of travellers, the number of short trips made by car, the circumstances affecting their choice of mode, and how many trips might have been made by other modes e.g. walking, cycling or public transport. Alternatives to the car were identified for nearly 80% of short car trips, with business and work trips the least likely to transfer, and taking children to school the most likely. Of all the short trips by car, about 31% could transfer to walk, 31% could go by bus and 7% could be cycled. The single policy intervention that would do most to attract people out of their cars is to improve bus services that could attract up to 21% of car drivers, particularly increasing route coverage and frequency. There is little in the nature of specific policy intervention that could encourage more walking or cycling, so it would require personal initiative. Hence there is a need to make car drivers more aware of the benefits of walking and cycling.</p> <p><u>Policy implications</u></p> <p>This research made the following recommendations:</p> <ul style="list-style-type: none"> • Bus services should be improved in terms of route coverage, frequency and hours of service; • car drivers should be made more aware of bus services, both specific services and generally; • the perception of the safety and security of children travelling unaccompanied should be increased, for example, by re-introducing bus conductors; • taxi-sharing should be encouraged; • demand-responsive public transport services should be introduced especially for shopping and social trips; • car drivers should be made more aware of the benefits of walking and cycling; • walking and cycle facilities should be improved, including better street lighting; • employers should be encouraged to provide showering and changing facilities for their employees who cycle and walk; • the effects of bad weather should be ameliorated by installing more bus shelters and improving the reliability of bus services; 			

Theme: Equity and Accessibility		Last update: 21 July 2006	
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
<ul style="list-style-type: none"> neighbourhood planning should be used to help develop more local shops and facilities; delivery services from shops should be expanded in a way that ensures that one van trip replaces several car trips. <p>Actions should be targeted where they are most likely to be effective:</p> <ul style="list-style-type: none"> At those using cars to take children to school rather than those on work and business trips; at the young rather than the old; in urban areas rather than rural; at those with multiple car ownership (and therefore those with higher incomes); at those making rather longer short trips rather than those making very short trips; and at young males for cycling initiatives. <p><u>Project contact</u></p> <p>lt.plans@dft.gsi.gov.uk</p>			
UG325B	Social Exclusion – Integrated Transport Systems in a Rural Area	UK	Accessibility for freight and for passenger activities; Transport for the disabled, non-drivers and other disadvantaged groups
<p><u>Key findings</u></p> <p>In August 2002, the UK Department for Transport (DfT) commissioned a consultancy to assist with the development of a rural health transport co-ordination pilot in the South Cotswold District of Gloucestershire. The pilot has achieved some significant success in terms of co-ordination, including:</p> <ul style="list-style-type: none"> A more flexible service more able to respond to passenger needs now and better suited to meeting more diverse demands, expected in the future; improvements in identification of needs for and provision of social transport; improvements (of 11%) in the efficiency of journeys provided by volunteer drivers; a reduction of, on average, around £3.00 in the costs per journey provided by volunteer drivers; reductions in the time surgeries spend arranging transport; improvements in the quality of booking systems; improvements in provider and passenger liaison; improvements in journey time and convenience; reductions in the time out-patients spend waiting for transport following an appointment; streamlined reimbursement of the Hospital Travel Costs Scheme; improvements in the recruitment and support available to volunteer drivers, resulting in an increase in the number of volunteers available from 24 to 64; and increased capacity to provide for after-hours services, transport of samples, hospital transfers, etc; and improved co-ordination through base to driver communications. <p><u>Policy implications</u></p> <p>The pilot has successfully overcome a number of hurdles both during its design and implementation. Overall these have affected the time it has taken to bring about co-ordination and ultimately prevented it achieving the full extent of co-ordination envisaged for the design model chosen. However, despite this there are a substantial range of benefits to emerge from the pilot and it is considered that with the modifications that is now in place and proposed it offers a valuable approach to rural transport co-ordination that could usefully be developed and applied elsewhere.</p> <p><u>Project contact</u></p> <p>Sue.Sharp@dft.gsi.gov.uk</p>			

Theme: Equity and Accessibility			Last update: 21 July 2006
Acronym	Project title (in English)	Origin	Research sub-theme
UG116			
	Accessibility regulations - Economic and Design Specifications	UK	Transport for the disabled, non-drivers and other disadvantaged groups
<u>Key findings</u>			
<p>This project provided information on the technical and economic implications of the proposed regulations that were being made under the Disability Discrimination Act 1995. The project has also provided:</p> <ul style="list-style-type: none"> • An estimate of the additional continuing costs associated with improving access to buses and coaches as well as to fully (wheelchair) accessible taxis; • an estimate of the additional revenue generated by the fully accessible buses; and • an estimate of the total capital costs of achieving a fully accessible bus and taxi fleet. 			
<u>Policy implications</u>			
<p>The project assisted in the preparation of The Public Service Vehicles Accessibility Regulations 2000 and The Public Service Vehicles (Conduct of Drivers, Inspectors, Conductors and Passengers) regulations 2002. It also yielded Regulatory Impact Assessments which permitted to the implementation of the above regulations, but at that time postponed the implementation of equivalent regulations for taxis.</p>			
<u>Project contact</u>			
jim.hand@dft.gsi.gov.uk			
UG395			
	Attitudes of Disabled People to Public Transport	UK	Transport for the disabled, non-drivers and other disadvantaged groups
<u>Key findings</u>			
<p>The objective of this key equity and accessibility research project is to assess attitudes of disabled people to public transport, the current use of public transport by disabled people, and the factors, which encourage or discourage disabled people from using public transport. Transport issues are important to disabled peoples lives – being the single most prominent concern at the local level. Pavement and road maintenance generate the most dissatisfaction, along with access for disabled people to transport vehicles and the frequency of public transport. The project conforms to the Equity sub themes of measurement of equity and accessibility; mobility; mobility substitutes; development control and land use planning to increase accessibility; accessibility of passenger services; and transport for disabled. The research found that:</p> <ul style="list-style-type: none"> • Disabled people travel a third less often than the general public. • Disabled people drive cars a lot less and are less likely to have one in the household. Despite this, cars are central to disabled people's mobility in England and Wales, with the most common mode of transport being a car driven by someone else. • Disabled people use buses, taxis and minicabs more often than the general public. There are also encouraging signs that disabled people will use public transport even more if improvements are made. 			
<u>Policy implications</u>			
<p>It is important to note that disabled people are not a homogenous group, nor are their transport needs and priorities the same across England and Wales. Therefore, plans will need to reflect local priorities – although solutions should be based on national standards, developed with validated research into user needs Disabled people would particularly welcome their views being taken into account in the implementation of transport services.</p> <p>At present, disabled people feel that local and central government, planners and mainstream transport operators are not properly considering their needs. Some disabled people would like the opportunity to work alongside these decision-makers and become more involved in future transport issues, as DPTAC does on national transport policy.</p>			

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
<p><u>Project contact</u> dptac@dft.gsi.gov.uk</p>			
–	Household structure and car ownership	NO	Measurement of equality and accessibility
<p><u>Key findings</u></p> <p>The study found that in Norway's largest cities the increase in the car stock was quite moderate compared with less urbanised categories, and the changes in household structure, seems to be the strongest influence factor, especially after 1990. The data is analysed with respect to different combinations of household types and urbanisation categories and the results are quite plausible. For some combinations the changes in the car stock is mainly driven by household effects and for other combinations the socio-economic influence is greater. For the "single adult household" category the development has been quite extreme (28 % of the households in 1980, and 38 % in 2001). The car stock in these households has doubled nationwide from 1985 to 2001, but the increase has been more moderate in the largest cities. The use of the cars in terms of vehicle-km has increased by 60 % in Norway from 1985 to 2001, but only 27 % in the largest cities. Households without children produce 40 % of the vehicle km in 2001 (32 % in 1985), and the "couple with children" household type produce 39 % (52 % in 1985).</p> <p>In the second part of the study a model system was used to forecast future car accessibility. The model calculations show that changes in the demographic structure will be the single most important driving force on both drivers licence holding, car ownership and car availability in the coming years in Norway, especially for the years after 2010. In 2001, 3 million Norwegians (12 years and older) belonged to a household that owns at least one car (84 % of the national population). In 2020 the number is estimated to be 3.6 million people, an increase of 22 %, and over 90 % of the population will belong to a car owning household. Close to 1.5 million Norwegians (41 % of the population) have full car availability in 2001 (i.e. is a car licence holder, and the number of cars equals or exceeds the number of car licences in the household). This number will increase by 33 %, to 2.0 million, in 2020, and 48 % of the population will then have full car availability. The model shows that the increase in these figures will be stronger in the large cities than in the less urbanised areas. This is partly because the potential in the most urbanised areas is greater in terms of a "lower score" in these figures as a starting point. It could be however, that the model underestimates the effects of higher generalised costs of car keeping in the most urbanised areas.</p> <p><u>Policy implications</u></p> <p>The forecast growth, particularly in cities, has implications on provision of alternative transport services to ensure accessibility for all. However it is interesting to note that even in 2020, over half of Norwegians will not have full car availability, thus highlighting the need for alternatives.</p> <p><u>Project contact</u> jens.rekdal@himolde.no</p>			
–	Mobility Management. An effective strategy for reduced car use in cities?	NO	Mobility
<p><u>Key findings</u></p> <p>The project recommended the establishment of a Norwegian network of cities working with the concept of Mobility Management in order to provide effective exchange of ideas and experiences. It was also recommended that several ministries should co-ordinate their work with transport, land use and environmental initiatives.</p>			

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Key findings / Policy implications / Project website or contact			
<p><u>Policy implications</u></p> <p>National ministries in Norway have become aware of the need to adjust laws and regulations in order to stimulate to more effective implementation of mobility management in cities. Several cities have now employed mobility advisors to work with companies, organisations or individuals by providing information and advice.</p> <p><u>Project contact</u></p> <p>juh@toi.no</p>			
–	Public Transport in the Future	SE	Mobility
<p><u>Key findings</u></p> <p>This project aimed to answer the question about how to increase travel by public transport. The study points out the following areas that could have a positive impact on the subject.</p> <ul style="list-style-type: none"> • Cost-efficient with differentiated rates and marketing; • comfort and safety could have a big effect; and • changes in the route network are efficient. <p><u>Policy implications</u></p> <p>Based on the results from the project, the following is recommended:</p> <ul style="list-style-type: none"> • Give priority to both frequent passengers and infrequent passengers; • simplify the public transport; • make the route network more efficient; • differentiated fare rates and adjusted levels; • more efforts in marketing; • learn from others through evaluation; • make standards for evaluation and follow-up; and • support investments in new technology. <p><u>Project contact</u></p> <p>goran@transek.se</p>			
–	Review of research on school travel	UK	Accessibility for freight and for passenger activities
<p><u>Key findings</u></p> <p>The results of the work demonstrated:</p> <ul style="list-style-type: none"> • The proportion of children in Scotland being driven to school by car is increasing rapidly and reached 20% of journeys to school in 2000. This trend is having a negative effect on many transport, health, safety, and environmental factors, and is impacting on the wider economy through growing road congestion particularly in the morning peak period. Transport, health and education policies therefore all seek improvements in school travel, identifying community-planning approaches to deliver integrated action and best value. • Although levels of car based travel to school are lower in Scotland than in England, they are growing strongly. Trends in school travel are affected by: organisational changes within education, planning policy factors, and social, economic, demographic trends. The growth in car travel to school mirrors substantial growth in car ownership, particularly the number of two car households. • Children in the UK are open minded about transport, and are generally aware of the impacts of travel decisions on themselves and their environment. Whilst they would like to walk and cycle more, the 			

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<p>balance between car travel and other modes still appears to favour the speed and convenience of car travel for an increasing number of trips.</p> <ul style="list-style-type: none"> • Perceptions of safety and risk often do not match actual risk, so influencing attitudes to risk is an important element in changing travel behaviour. • For many school trips in Scotland bus travel is the only practical alternative to car travel and the poor image and travel experiences of children on buses is a major concern. Greater respect for buses as a mode needs to build on the greater social and independence opportunities provided by bus travel when compared with car travel. However delivering the required change in image will require significant changes in the ways that services are provided and operated. • Social factors have a strong influence on travel to school decisions, and where trade-offs need to be made between transport, health, environmental, and social factors the social issues tend to dominate. However travel choice is very complex involving such a large ranges of factors that reliable analysis would require very large studies of behaviour. Non-car travel can have some positive influences on children's development. The school journey offers the opportunity for developing social relationships with adults, and with other children from within and out with normal peer groups. Greater independence helps with the development of spatial skills and may improve organisational skills including time and money management. Regular exercise walking or cycling to and from school also has a positive influence on health <p><u>Policy implications</u></p> <p>When generic solutions are imposed on communities there is a risk of reducing safety or efficiency. If the majority of schools in Scotland adopted community based safer routes to school approaches then there would be many positive economic, social and environmental benefits. Further research is recommended to identify how to galvanise wider support for effective safer routes to school planning, and on how to target action locally through school centred plans.</p> <p><u>Project contact</u></p> <p>info@dhc1.co.uk</p>			
–	Targeted Public Transport	NO	Mobility; Accessibility for freight and for passenger activities; Transport for the disabled, non-drivers and other disadvantaged groups
<p><u>Key findings</u></p> <p>The handbook summarises current knowledge in the field by describing good examples, the planning process and how to evaluate the measures being implemented. It is distinguished between two types of market for the services: public transport services attracting large volumes of traffic, and "tailor-made" services for specific groups of customers.</p> <p>It looks firstly at the evaluation of public transport service provision by its users. A review of current knowledge and previous studies in Norway and elsewhere shows the following key findings:</p> <ul style="list-style-type: none"> • When a journey time component has a high value, walking time to the bus stop is regarded as a major disadvantage; this means that there is a high level of willingness to pay in order to reduce walking time; • journey time when standing is regarded as a greater disadvantage than journey time with a seat; • the longer the journey time, the more passengers are willing to pay more to reduce it; • the higher the frequency, the less passengers are willing to pay more to increase frequency even further; • users are willing to pay more to avoid delays; • changing buses is seen as a disadvantage (in terms of physical changing and the time penalty); • users are willing to pay more for covered stations or shelters at stops. 			

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Key findings / Policy implications / Project website or contact

Analyses of different user groups' preferences vary somewhat (e.g. it was found that men value frequency slightly higher than women, however women are more concerned with improving the waiting conditions at bus stops), however on the whole such differences are small. Thus, targeted public transport should not be over-stretched, as this could make the market base too small.

Key results regarding services which attract large streams of traffic are as follows:

- In Norway (as elsewhere), public transport is facing increased competition from the car, and if public transport service levels and quality (vehicle fleets, fares, frequency, etc) remain constant, public transport use will fall by 1.6% per year in Norway's ten largest urban areas. Therefore continuous, targeted development of public transport is required to maintain (and ideally increase) market share.
- Positive developments in some medium-sized urban areas in Austria, Switzerland and Germany were found to have increase public transport use. Key factors included adapting public transport to users' needs; increased frequency; having fixed timetables; having a simple route network with good area coverage and interchange; standard design of bus stops, information, etc; good physical accessibility (low floor buses, etc); good "mental" accessibility (simple network, easy-to-understand information, simple fares structure, etc); and bus priority measures.
- High priority networks should aim to give bus services many of the advantages of trams, such as bus stops at least 200 metres apart, high frequency, good capacity, separate bus lanes and priority at junctions, and well-equipped bus stops with accessible and visible information.
- High frequency is the most important element, as this reduces waiting times and brings public transport closer to the major advantage of the private car, i.e. allowing people to travel whenever they want. An evaluation of a package of measures in four urban areas showed that frequency was the factor that users value the most. Several Swedish cities have introduced a high frequency public transport network, e.g. in Jönköping.
- City centre oriented bus routes make changing easier. Tests in Stockholm had found ways to simplify bus interchange so that it is no longer perceived more negatively than the in-bus journey time. This included using local feeder buses into a main high-frequency bus route, with changes occurring at a docking terminal so that passengers can transfer directly between buses under cover without having to cross roads or underpasses to another bus stand in the main terminal.
- Local bus operation can learn lessons from the express bus concept in terms of demand-oriented planning and marketing.

Key results regarding tailor-made services are as follows:

- By taking responsibility for their employees' work and service journeys, employers can contribute to improving the company's economy (e.g. need for fewer parking spaces), improve the working environment and develop a good environmental profile. Better dialogue is needed between public transport operators/authorities and companies about measures which can contribute to increasing the use of public transport by their employees to get to work.
- Specific service routes, e.g. services using adapted buses for disabled users, attract relatively few customers and one option is to develop ordinary route-based public transport to deal with some of these service line functions as well (e.g. improved physical access, drivers who can help passengers where necessary). Similarly specific hospital or school routes could be opened to all user groups. Successful examples of this in Norway are described in the report.
- Successful examples are given of replacing the service bus concept with pre-booked demand-responsive transport.

In terms of information, a number of surveys have shown that customers often have insufficient knowledge about their own local public transport services - this can be a considerable barrier which causes many people to use public transport less or not at all. The purpose of public transport information should be to reduce users' uncertainty and to give them sufficient information to plan their trip, but also to ensure that nobody should give up using public transport because they do not know enough about the service. While new technology presents many opportunities, there is a tendency for this to result in the user being faced

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<p>with an endless amount of information. The challenge is to reduce the amount of information to that which the customer needs. Also, new IT solutions should complement rather than replace traditional forms of information such as printed timetables and network maps. Many groups (particularly older people) either do not have access to "advanced" media or have problems in using it.</p> <p>Other project findings and recommendations concern the design of public transport, covering information, bus stops, vehicles, etc, so the system can "speak for itself". Knowledge of the effects of service provision is also important, hence the need for customer feedback exercises and monitoring of public transport use following changes.</p> <p><u>Policy implications</u></p> <p>It is expected that the use of this guidance will provide examples and experiences for further improvements in public transport services.</p> <p><u>Project contact</u></p> <p>aru@toi.no</p>			

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Annex II: General information on the Transport Research Knowledge Centre and analysis process used

The Knowledge Centre's background

The EXTR@Web project – Exploitation of Transport Research Results via the Web – attempts to collect, structure, analyse and disseminate transport research results, covering not only EU supported but also nationally financed research in the European Research Area (ERA), as well as selected global transport RTD programmes and projects.

The EXTR@Web consortium has brought together eight main contractors to combine strong and in-depth technical knowledge of transport technology and of EU and national transport RTD programmes with solid communication and dissemination experience.

The current project's direct predecessor, EXTRA (a Fourth Framework Programme Transport RTD project), co-ordinated dissemination activities on the European level for the first time. While FP4 addressed transport research on a mode-by-mode basis, the current Fifth Framework Programme (FP5) focuses on generic themes that consequently reflect transport policy objectives.

The EXTR@Web project will provide support to research at European and national levels by building up and promoting an electronic hub. The key objectives are:

- To establish a comprehensive web-based Knowledge Centre, providing structured and timely access to both detailed and user-oriented summary information on transport research programmes and their results across Europe;
- to provide an electronic hub for inter-connecting European and national programmes and individual networks concerned with transport research into an easily navigable European network;
- to establish a common best practice scheme for the structure and content of the reporting of transport research results;
- to provide high-quality analytical outputs that are structured and tailored according to the type of stakeholder and medium; and
- to raise awareness of the new service, the implications of emerging results, and the wider opportunities under national research programmes across Europe as a whole.

EXTR@Web will provide a comprehensive pool of programme, project and results related information to users, principally in electronic format via the Internet. The approach is based on three main strokes of work covering:

- Monitoring, analysis and information preparation;
- website and electronic news service, the principal dissemination channels; and
- management of knowledge transfer, including dissemination by non-electronic means, and also the maintenance of a contact database and e-mail enquiry service and evaluation of the performance of EXTR@Web.

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Definition of transport research

For inclusion into the Transport Research Knowledge Centre, Transport research programmes and projects have to be within the definition of research and transport simultaneously. This will define the eligibility of projects.

Definition of research

General OECD definition:

"Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications."

Additional transport research criteria:

- Targeted – in line with transport policy aims, strategies and processes to solve the inherent problems for society.
- Accessible – a public activity, open to scrutiny by peers.
- Transferable – useful beyond the specific research project, applicable in principle to other researchers and research contexts as well as decision-makers in policy, industry and science.

Definition of transport

In order to clarify expectations from the Transport Research Knowledge Centre, and to ensure a common understanding of important terms, the Programme Analysis Group of EXTR@Web has come up with the following definition of transport.

- Transport is the means by which a person or material of any kind is passed from its origin to its destination.
- Transport comprises:
 - the transport users: passenger, business, freight;
 - the transport vehicles (full life cycle issues);
 - the transport infrastructure (full life cycle issues);
 - the transport system: the interaction of users, vehicles and infrastructure;
 - the impacts of transport: contribution to objectives, and hence to overall sustainability; and
 - the transport tools: methods and instruments to help ensure an effective contribution to the objectives.

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Three levels of analysis

Project level analysis

For European, national and international projects the following harmonized process was agreed:

- For each eligible project, the project co-ordinator will be requested to draft a Project Profile;
- the EXTR@Web consortium identifies, for each project all relevant themes (typically up to five), and provides the project linkage;
- for each eligible project, the project co-ordinator will be requested to draft the other elements of the reporting scheme – Progress Summary and Result Summary – due to the project progress and provides the final report;
- projects with highest relevance and best available final results will be selected for analysis;
- for every such relevant theme within each project a short and concise paragraph – structured with bullet points as appropriate – will be written to present the key findings of the project in relation to the objectives of the theme; and
- this information will be searchable on the Knowledge Centre website.

Thematic analysis

The thematic analysis has been exploiting existing project level analysis. The consolidated project wise findings have been structured and analysed along 30 themes, which are fixed for the project life time and fed into annual Thematic Research Summaries and Annual Compendia. However, for reporting purposes Thematic Research Summaries have been limited to 28 volumes (cf. Chapter 1).

The sequence of outputs has been comprising an explanation of the overall structure, and regular reports treating national, European and international research in a comprehensive way.

Deliverable number	Title	Release date (final version)
D2.A	"Thematic structure and definitions – all themes"	August 2006
D2.B	"European, national and international project database"	July 2006
D2.C	"First annual thematic research summary"; 30 vol.	December 2004
D2.D	"Second annual thematic research summary"; 10 vol.	March 2006
D2.E	"Third annual thematic research summary"; 28 vol.	August 2006

Table: The sequence of deliverables

Policy level analysis

Whilst the 30 themes are fixed, this type of analysis should give the flexibility to provide information on ad hoc policy priorities. Hence, policy level analysis will synthesize key findings of projects across combinations of themes. As an output, policy brochures shall be prepared depending on ad hoc requirements by DG TREN or by the high-level Advisory Group (AG).

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Annex III: Editorial team for Thematic Research Summaries

Please note that – in principle – all EXTR@Web partners and sub-contractors will be contributing to a particular Thematic Research Summary because all project level findings that are of some relevance to one of the 28 (30) individual themes are presented in the comprehensive format of these papers.

The following summary of authors and peer reviewers is presented in alphabetical order while the main author of this paper is given on page i of the document.

Fabien Drevetton, ISIS; France

Mr Drevetton has an electrical engineering post-MSc degree, an MBA and over 8 years experience in Intelligent Transport Systems for road transport. He has been a senior engineer with ISIS since 2001, specialising in traffic control, motorway management, ITS standards development process and system architecture.

Co-author: Road Transport

Prof J Augusto Felício, Neptune – CEGE/ISEG; Portugal

Professor Felício, holding a PhD in management, is teaching graduate and post-graduate courses such as 'Maritime transport and port management' and 'Land transport and logistic management' at ISEG, School of Economics and Management (Technical University of Lisbon). His activities include participation in transport research where he has published several related articles and books.

Main author: Waterborne Transport, Intelligent Transport Systems

Peer review: Efficiency, Vehicle Technology

Dr Paul E Firmin, Institute for Transport Studies, University of Leeds (ITS); UK

Dr Firmin has 30 years of experience in transport planning and engineering, including local authority, consultancy and academia. His research specialities are: traffic management, transport survey design & analysis, traveller information systems; driver route choice behaviour and transport telematics. He is currently the MSc(Eng) degree programme leader and international student adviser at ITS, University of Leeds. He teaches computing skills and traffic management, and supervises student dissertation projects.

Main author: Information and Awareness

Peer review: Safety and Security

Dr Nils Gendner, Neptune – University of Bremen, ISL; Germany

Dr Gendner has been working for more than four years at the University of Bremen, Institute of Shipping Economics and Logistics. His main topics include the analysis of processes, functions and data flows in shipping and within the rail sector. He contributes to ongoing efforts in intermodality by participating in several projects dealing with intermodal concepts and developments.

Main author: Intermodal Transport, Integration

Peer review: Financing Tools, Pricing and Taxation

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Wolfgang Helmreich, Industriebetriebe-Betriebsgesellschaft mbH (IABG); Germany
 Mr Helmreich is a civil engineer from the Technical University of Munich. He has more than 15 years experience with transport planning and infrastructure design in the rail, road and air sector, and sound knowledge of vehicle technologies. His expertise also includes project management, web publishing and dissemination skills. He joined IABG in 1999 as a senior transport consultant after working as project manager at several German engineering companies. He is principal editor of all Thematic Research Summaries.

Main author: Air Transport, User Aspects, Safety and Security

Peer review: Regional Transport, Rail Transport, Waterborne Transport, Environmental Aspects, Land Use Planning

Cristina Ivan, Group of Independent Experts Ltd (GIE); Romania

Ms Ivan has a law degree and has graduated a Master course in project management. Ever since 1998 she has participated in various projects financed by international donors in Romania. The main areas of her expertise cover: project management, legal approximation of the EU acquis & drafting of environmental legislation, as well as the carrying out of awareness raising and dissemination activities, including those for the transport sector.

Main author: EU Accession Issues

Peer review: Economic Aspects, User Aspects, Transport Management

Dr Ann Jopson, Institute for Transport Studies, University of Leeds (ITS); UK

Dr Jopson is a Research Fellow whose main interests and expertise lie in the areas of travel behaviour psychology, transport marketing and urban transport planning and policy, with particular emphasis on travel demand management through attitudinal and behavioural measures. Her PhD thesis was based on the role of psychology in reducing car use.

Main author: Environmental Aspects

Peer review: Rural Transport

Dimitris Koryzis, Systema; Greece

Mr Koryzis is a production & management engineer from the Technical University of Crete and holds an MSc in Decision Sciences from Athens University of Economics & Business. He has more than 8 years experience as technical and managerial consultant for 30 European programmes in the transport sector (road, maritime and intermodal) as well as in research and innovation technology EC projects.

Co-author: Pricing, Taxation and Financing Tools

Peer review: Integration

Ulrich Leiss, Industriebetriebe-Betriebsgesellschaft mbH (IABG); Germany

Mr Leiss is an aerospace engineer from the Technical University of Munich. His professional career includes 24 years experience with research, technical analyses, monitoring and managing national and European projects and programmes. These activities cover the areas aerospace, transport, energy and new technologies.

Main author: Other Modes, Vehicle Technology

Bryan Matthews, Institute for Transport Studies, University of Leeds (ITS); UK

Mr Matthews has 9 years experience of transport research and project management in both consultancy and university settings. His research expertise is in transport policy analysis and transport economics. He has worked on a number of EU, UK DfT and Research Council projects. He also contributes to teaching activities, lecturing on Air Transport Systems and supervising student projects.

Main author: Rail Transport

Peer review: Air Transport

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 Professor May has over 35 years' experience in transport planning and traffic engineering. He has been a professor at Leeds since 1977, and has served as Head of the Department of Civil Engineering, Dean of the Faculty of Engineering, Pro-Vice Chancellor for Research and Director of the Institute for Transport Studies. He also has practical experience with the MVA consultancy and the GLC in London. His research specialities include: land use planning, traffic management, road pricing, sustainable urban transport, integrated transport and environmental impacts of transport.

Supervision of entire process of thematic reviews

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 Ms Menaz is a transport economist from the University of Leeds. She has been involved in a number of various projects including research into transport pricing reform issues in air, road and rail for the IMPRINT-Europe thematic network project, and research for the UK Rail Research Centre looking at the alternative visions for the future of the British rail system.

Main author: Regulation/Deregulation

Co-author: Passenger Transport, Equity and Accessibility, Land Use Planning

Peer review: Road Transport

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Ms Paschalidou is a transportation engineer from Aristotle University (Thessaloniki), with a MSc in Urban and Regional Transport from Laboratory of Transport Economics in Lyon. Her field of interest is transport planning and engineering, EU and national transport policies, sustainability issues and research. She joined Systema in 2005, while her previous experience includes an internship in ISIS, traffic studies elaborated individually and research activities in the Aristotle University.

Main author: Transport Management

Peer review: Information and Awareness

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Mr Rada Cotera is a lawyer from Deusto University in Bilbao, holding a diploma and certificate of European studies from Deusto and Saarland Universities, respectively. He has been working on EU projects since 2000. His main expertise is European commercial and regional policy, maritime transport and port affairs, legal aspects of international economic relations, urban planning, regional benchmarking and development.

Main author: Regional Transport

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Mr Salucci holds a degree in mechanical engineering from the University of Rome "La Sapienza". His past research experience has focused on computer modelling of the operations of freight terminals and automatic passenger transport systems, the latter being carried out within EC funded research projects. His current research for a doctorate is in the area of transshipment and information and communication technologies for intermodal freight transport.

Co-author: Freight Transport, Urban Transport, Rural Transport, Efficiency, Decision-support Tools

Peer review: Intermodal Transport

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 Dr Seidel has graduated as economist and holds a PhD from the University of Bremen. He has been working on EU projects since 1988. His main expertise is in European industrial and regional policy, telecommunication research projects, maritime transport and port affairs, evaluation of technical aid, urban planning, regional benchmarking development.

Co-author: Regional Transport

Dr Paolo Delle Site, Università di Roma "La Sapienza", DITS; Italy
 Dr Delle Site holds an PhD, and is a senior research fellow at DITS, Transport Area, University of Rome "La Sapienza". He combines professional experience with research activities, the latter mainly being carried out within EC funded research projects. Related activities comprise urban transport planning, urban public transport design, transport project assessment, and policy analysis. His teaching activities include courses in transport planning. Furthermore, he is author of papers in Transportation Research Part A – Policy and Practice and in the European Journal of Transport and Infrastructure Research.

Co-author: Freight Transport, Urban Transport, Rural Transport, Economic Aspects, Infrastructure Provision, Pricing, Taxation and Financing Tools

Peer review: EU Accession Issues, Intelligent Transport Systems, Regulation/Deregulation

Damian Stantchev, Institute for Transport Studies, University of Leeds (ITS); UK
 Mr Stantchev holds a degree in Economics and Trade from Varna University of Economics in Bulgaria and an MA in Political Science from the Central European University in Hungary. His early research experience was in the area of small business development in transitional economies of Central and Eastern Europe. Damian has also contributed to an extensive report on the role of the logistics and transportation sector in society for the Logistics & Transportation Corporate Citizenship Initiative of the World Economic Forum. His research for a doctorate examines the role of logistics in enhancing the competitiveness of the regional economy and encompasses all aspects of original research and data collection including the design, conduct and analyses of large scale surveys as well as the collection of commercial data and development of case studies.

Main author: Passenger Transport, Land Use Planning, Equity and Accessibility

Peer review: Freight Transport

Andrew Winder, ISIS; France

Mr Winder is a transport planner with a BSc in transport management (Aston University, England) and over 15 years experience in consultancies and public transport authorities covering transport planning and policy, particularly at UK, French and Europe-wide levels. Since 1998 he has been a senior engineer at ISIS, responsible for a wide range of European projects focusing primarily on Trans-European Networks, ITS for road traffic management, urban and regional public transport and EU enlargement aspects.

Main author: Road Transport

Peer review: Passenger Transport, Urban Transport, Other Modes, Equity and Accessibility, Infrastructure Provision

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Ard Wolthuis, Università di Roma "La Sapienza", DITS; Italy

Ard Wolthuis graduated in Science & Innovation Management, in the field of Transport and Mobility, from the University of Utrecht. He has been involved in transport projects and analysed socio-economic, environmental, political and legal aspects, such as the Phileas project, the Fokker bankruptcy, and innovation policy of companies in the Netherlands. Has participated in a European project on innovation in urban public transport systems. Since spring 2005 has joined DITS as a research fellow. His main areas of activities are policy analysis and dissemination of research results.

Co-author: Efficiency, Decision-support Tools

Dr Zhaomin Zhang, ANAST – University of Liege, Neptune; Belgium

Dr Zhang has got the university degrees of Civil Engineering, Mechanical and Marine Engineering; Master of Transportation Sciences and Doctor of Philosophy. He is a senior engineer and led the important projects related to the "Establishment of a mathematical traffic model on the Belgian waterway network" (Belgian national research program "Transport and mobility"), the project called "On computerisation and management in real-time of operations relating to the exploitation of fluvial traffic to organise the waterway transport", Belgian Regional Ministry of Public Works) and the Project related to the development of a transport cost model in the inland navigation sector. He has also been involved in numerous simulation and operation research activities.

Peer review: Decision-support Tools

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