CURRENT TOPICS IN TRANSPORT

No CT81.3

SUSTAINABILITY IN TRANSPORT UPDATE

(2004-2005)

This issue of Current Topics includes over 75 abstracts of reports, conference papers, books and journal articles which focus on *sustainable, environmentally friendly transport policy issues, especially in urban areas of the world. Amongst the specific topics dealt with are measures to restrain car transport, to reduce harmful vehicle emissions, and to control the demand for parking. External transport costs, freight transport modes, land use policy and the encouragement of the use of public transport are amongst the topics covered.* These items have been selected from the material added to the Transport Research Laboratory's Library Database in 2004 and 2005. Much of the relevant English language published literature from the UK, USA, Australia and Europe is included; some of the non-UK literature is included courtesy of the OECD International Transport Research Documentation (ITRD) database.

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SUSTAINABILITY IN TRANSPORT UPDATE
(2004-2005)

Ref: E124033

Feasibility study: Highways as renewable energy sources

Carder, DR

Published Project Report PPR031
TRL Limited, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire, RG40 3GA, United Kingdom
2005-01 33p 29 refs
ISBN 1-84608-031-2
ISSN 0968-4093

Renewable energy technologies are likely to become more important as other energy sources become depleted and the cost of power generation rises. These sources of energy have considerable potential for increasing security of supply although, in most cases, they require significant initial investment. Currently the Highways Agency is an energy user and has no significant energy generation capability. This report surveys the different forms of renewable energy and provides a preliminary assessment of the prospects for procuring renewable energy from within the highway network. (A)

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Ref: E124092

Delivering supermarket shopping: more or less traffic?

Cairns, S

Transport Reviews
Taylor & Francis Ltd., 4 Park Square, Milton Park, Abingdon, Oxfordshire, OX14 4RN, United Kingdom
2005-01 v25 n1 p51-84 72 refs
ISSN 0144-1647

Car travel for food and other household items represents about 40% of all UK shopping trips by car, and about 5% of all car use. In the past 10 years, there has been an extremely rapid growth, albeit from a very small base, of home delivery services for such shopping. As this sector has developed, there has been increasing concern about the growth in delivery traffic, countered by the hope that services are reducing personal car travel. The balance between such tendencies is critical to the overall impact of services. The present paper examines a range of international evidence, including the results of nine modelling assessments. The evidence suggests that with realistic levels of take-up, a direct substitution of car trips by van trips could reduce vehicle-km by 70% or more. More complex shopper behavioural responses will occur, but, according to available empirical evidence, overall traffic reductions are still probable. Meanwhile, the benefits of services could be maximized by use of appropriate cost structures, new types of delivery location, less polluting vehicles, greater cooperation or out-sourcing by retailers, and measures to encourage greater consumption of local produce. (A)

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Ref: E125120

Does planning make a difference to urban form? Recent evidence from Central Scotland

Bramley, G
Kirk, K

Environment and Planning A
Pion Limited, 207 Brondesbury Park, London, NW2 5JN, United Kingdom
2005-02 v37 n2 p355-78 72 refs
ISSN 0308-518X

Urban form is changing in Britain, with new patterns of development reflecting economic, technological, and transportation conditions in an increasingly competitive framework. Changes in urban form have implications for the environmental sustainability, integration and cohesion, and longer term quality of life in and around cities. Britain has a comprehensive planning system with a strong rhetoric of policies towards these goals. In this paper the authors draw on evidence from recent research, primarily in central Scotland, to assess how far planning actually does make a difference to urban form rather than simply passively responding to demand. They consider some of the systematic tendencies in decentralised planning decisionmaking, some selected evidence of development outcomes, and some insights from major development case studies. The conclusions highlight the differential influence of planning between different development sectors and the obstacles to achieving a more sustainable pattern. (A)

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Ref: E125904

Sustainable mobility in metropolitan environments in developing countries - Metropolitan Beirut case study

Akkaoui, HH
Topp, H
Hassan, AA

World Transport Policy and Practice
ECO-Logica Ltd., 53 Derwent Road, Lancaster, LA1 3ES, United Kingdom
2005 v11 n1 p34-42 7 refs
ISSN 1352-7614

Viability is among the most characteristic features of developed and developing societies. By its use of resources and its direct and indirect effects on the economy, environment and social lifestyle, it lies along the fault-lines of unsustainability and inequality. The concept of 'sustainable mobility' can offer a framework for redressing a balance of the needs of societies. The paper illustrates this concept, and it focuses on introducing a sustainable mobility plan for Greater Beirut. (A)

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Ref: E125905

Cycling trends & policies in Canadian cities

Pucher, J
Buehler, R

World Transport Policy and Practice
ECO-Logica Ltd., 53 Derwent Road, Lancaster, LA1 3ES, United Kingdom
2005 v11 n1 p43-61 27 refs
ISSN 1352-7614

Bicycling accounted for an average of 1.2% of work trips in Canada in 2001, but with considerable variation by province and metropolitan area. In this study, we chose six Canadian cities for detailed analysis of their cycling trends and policies: Montreal and Quebec City in Quebec; Ottawa and Toronto in Ontario; and Vancouver and Victoria in British Columbia. All of these cities have made impressive efforts to encourage more and safer cycling. Most of the cities report increases in cycling levels over the past two decades but appear to have reached a limit due to lack of funding for crucially needed cycling infrastructure (bike paths and lanes, parking, intersection modifications, etc.). In addition, the low-density, car-oriented suburban sprawl spreading around most Canadian cities has been increasing trip distances, thus making cycling decreasingly feasible outside the urban core. Finally, Canadian cities and provinces have not imposed any significant restrictions on car use or imposed increases in taxes, fees, and other charges for car use, such as most European cities have implemented to discourage driving and increase transit use, walking, and cycling. If Canadian cities really want to further increase cycling levels, they will have to further expand cycling infrastructure, curb low-density sprawl, and impose more restrictions and charges on car use. (A)

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Ref: E126121

Transport, urban design, and physical activity: an evidence-based update

Badland, H
Schofield, G

Transportation Research Part D
Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, United Kingdom
2005-05 v10 n3 p177-96 67 refs
ISSN 1361-9209

The urban environment and modes of transport are increasingly being linked to physical activity participation and population health outcomes. Much of the research has been based on either health or urban design paradigms, rather than from collaborative approaches. Previous health reviews in the urban design area have been constrained to perceptions of the neighborhood or walking behaviors, consequently limiting the understanding of built environment influences on physical activity modalities. This review focuses on existing evidence surrounding various urban design factors and physical activity behaviors. Based on the available evidence, fostering suitable urban environments is critical to sustaining physical activity behaviors. In turn, these environments will provide part of the solution to improving population health outcomes. Key urban design features attributable to transport-related physical activity are density, subdivision age, street connectivity, and mixed land use. Future directions for research include consistent use of transport and health measurement tools, an enhanced understanding of traffic calming measures, and further collaborative work between the health, transport, and urban design sectors. Presenting these findings to transport and urban design audiences may influence future practice, thereby increasing the sustainability of health-related physical activity at the population level. (A) 'Reprinted with permission from Elsevier'.

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Ref: E126128

Sustainable accessibility: a conceptual framework to integrate transport and land use plan-making. Two test-applications in the Netherlands and a reflection on the way forward

Bertolini, L
Le Clercq, F
Kapoen, L

Transport Policy
Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, United Kingdom
2005-05 v12 n3 p207-20 25 refs
ISSN 0967-070X

The integration of transport and land use planning is widely recognized as essential to the achievement of sustainable development. The concept of accessibility - or what and how can be reached from a given point in space - can provide a useful conceptual framework for this integration. More specifically, a shift of focus in urban transport planning from catering for mobility to catering for accessibility helps see how more sustainable transport options can, under certain land use conditions, provide a competitive degree of accessibility that matches less sustainable options. The authors have used the concept of accessibility as a framework for the interactive design of integrated transport and land use plans in two areas of the Netherlands. The objective of these exercises was identifying solutions where economic, social, and environmental goals could be combined, defined as the achievement of 'sustainable accessibility'. The existing situation has been evaluated, and alternative plans have been developed. In this paper we reflect on these experiences and sketch the way forward, with a focus on the methodological aspects of the undertaking. In this respect, a major challenge is finding a workable balance between an accessibility measure that is theoretically and empirically sound and one that is sufficiently plain to be usefully employed in interactive, creative plan-making processes. (A) 'Reprinted with permission from Elsevier'.

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Ref: E126129

What is a sustainable level of CO2 emissions from transport activity in the UK in 2050

Tight, MR
Bristow, AL
Pridmore, A
May, AD

Transport Policy
Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, United Kingdom
2005-05 v12 n3 p245-54 16 refs
ISSN 0967-070X

The paper reports on the development of UK transport targets for CO2 emissions for 2050. Five key studies containing future carbon emissions scenarios for the UK were used to establish targets for overall reductions in emissions to achieve stabilisation at 550 and 450 ppm of atmospheric CO2. Two approaches were used to consider the proportion of total emissions that would be attributable to transport in the future: 26% of total emissions as now and an increase to 41% of total emissions in line with forecasts. The overall targets and expected contributions from transport were used to derive target emissions for the transport sector to be achieved by 2050, which ranged from 8.2 to 25.8 MtC. Even the weakest of these targets represents a considerable reduction from current emissions levels. (A) 'Reprinted with permission from Elsevier'.

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Ref: E126332

Simulating the effects of urban development on activity - travel patterns: an application of Ramblas to the Randstad North Wing

Veldhuisen, KJ
Timmermans, HJP
Kapoen, LL

Environment and Planning B: Planning and Design
Pion Limited, 207 Brondesbury Park, London, NW2 5JN, United Kingdom
2005-07 v32 n4 p567-80 21 refs
ISSN 0265-8135

In this paper the application of Ramblas to estimate the impact of three possible urban development scenarios in North Wing of the Randstad region in the Netherlands is discussed. These land-use scenarios concern the location of dwellings, office buildings, and industrial sites in Amsterdam and its surroundings. The three proposed scenarios differ mainly in terms of the degree of concentration, density of residential development, and the timing of the construction. Ramblas was applied to assess the impact of these scenarios in terms of sustainability criteria such as the number of kilometres travelled. The results suggest that global criteria are not enough to decide whether one scenario is preferable to another. Ramblas can provide more inside information. (A)

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Ref: E126353

A systematic approach to rights of way improvement planning

Parkin, J
Christensen, J
Krause, J
Moores, D

Proceedings of the Institution of Civil engineers. Municipal Engineer
Thomas Telford Ltd., Thomas Telford House, 1 Heron Quay, London, E14 4JD, United Kingdom
2005-06 v158 n2 p123-8 2 refs
ISSN 0965-0903

The Countryside and Rights of Way Act 2000 created the legal basis for rights of way improvement plans (ROWIPs). A systematic approach to the development of these plans has been developed through work on a pilot in Cheshire. A topic reviewed more closely was the way in which a ROWIP might encourage use of sustainable modes of transport. The pilot project comprised extensive user surveys, the results of which were then reviewed in the light of a walkover survey. Generic classes of improvement have been identified which could assist other highways authorities in ROWIP production. In this paper the genesis of the systematic approach is discussed and comments made on its validity and applicability, particularly differentiating between deeply rural and semi-urban areas. Survey and assessment techniques and the appropriate level of detail for user surveys are discussed together with the evaluation of benefits that might arise for different classes of user and journey purposes. (A)

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Ref: E126354

Primary school travel behaviour in Midlothian, UK

Gilhooly, P
Low, DJ

Proceedings of the Institution of Civil engineers. Municipal Engineer
Thomas Telford Ltd., Thomas Telford House, 1 Heron Quay, London, E14 4JD, United Kingdom
2005-06 v158 n2 p129-36 15 refs
ISSN 0965-0903

In the United Kingdom the proportion of children being driven to school, rather than walking, has almost doubled since 1985. This adds significantly to existing peak period traffic problems and may have a negative influence on children's future travel habits. If the reliance on private cars for children's travel to and from primary schools is to be reduced it is vital to understand and learn from current travel habits in a bid to formulate future transport policies. The authors' surveys of 1008 primary school children and 776 of their parents, in Midlothian, Scotland, have facilitated the identification of patterns of transport behaviour related to primary school travel and some of the reasons motivating these travel choices. This suggests ways of encouraging more sustainable travel habits. The results show that travel behaviour is influenced significantly by both age and distance from school, but additional differences between schools are also evident. (A)

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Ref: E126561

The four pillars of sustainable urban transportation

Miller, E
Shalaby, A
Maclean, H
Coleman, J
Kennedy, C

Transport Reviews
Taylor & Francis Ltd., 4 Park Square, Milton Park, Abingdon, Oxfordshire, OX14 4RN, United Kingdom
2005-07 v25 n4 p393-414 82 refs
ISSN 0144-1647

The unsustainable nature of current urban transportation and land use is well recognized. What is less clear is the prescription for how to move towards a more sustainable future, especially given the many interest groups involved, the complexity of urban systems and the fragmented nature of decision-making in most urban regions. It is argued that the process of achieving more sustainable transportation requires suitable establishment of four pillars: effective governance of land use and transportation; fair, efficient, stable funding; strategic infrastructure investments; and attention to neighbourhood design. A review of each pillar identifies key issues. The characteristics of an ideal body for governance of land use and transportation are considered. Trade-offs are identified with: spatial representation; organizational structure; democracy; and market philosophy. Effective financing and pricing of urban transportation may be distorted because responsibility for infrastructure is separated from service provision. Financing mechanisms are categorized depending on vehicle use and location. Investment in infrastructure for alternative fuel

vehicles and intermediate semi-rapid transit may be required in many cities. Major investment in public transit infrastructure will likely not suffice if macro land use and micro neighbourhood designs are not supportive of these investments. (A)

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Ref: E126704

The ecological footprints of fuels

Holden, E
Hoeyer, KG

Transportation Research Part D
Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, United Kingdom
2005-09 v10 n5 p395-403 18 refs
ISSN 1361-9209

This article discusses the use of alternative fuels in the development of the environmentally friendly car and the promotion of sustainable mobility. Based on well-to-wheel analyses and ecological footprint assessments, this article confirms that the environmentally friendly car truly exists. There is substantial potential for reducing the ecological footprint within a decade by using both new and conventional technologies and alternative fuels. In the best-case scenario, a 75% reduction of the ecological footprint would be possible. However, promoting sustainable mobility requires more than just a strategy to develop the environmentally friendly car - it also requires a substitution strategy to encourage new means of transportation and a reduction strategy to reduce the growth of transport. Therefore, only a combination of these three strategies is compatible with long-term sustainability requirements. (A) 'Reprinted with permission from Elsevier'.

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Ref: E126835

Bringing Internet travel planning to the streets

Local Transport Today
Local Transport Today Ltd., Quadrant House, 250 Kennington Lane, London, SE11 5RD, United Kingdom
2005-03-31 n414 p4 0 refs
ISSN 0962-6220

Plymouth City Council, UK, has introduced public internet kiosks in the city to provide access to local information. The I-plus terminals include a journey planner for the south west region of England. The travel details include information on the walking part of a specific journey. Similar kiosks have been introduced in Cornwall. The kiosks are also linked to a CCTV service for security. The difficulties in monitoring the effects of the terminals on encouraging more sustainable travel behaviour are outlined. Usage is monitored by Cityspace, the kiosk providers. The ward with the lowest car ownership has the largest number of hits for the Devon carshare scheme. Usage of the journey planner is second only to the e-government channels that provide access to email and job information.

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Ref: E126748

The validity of food miles as an indicator of sustainable development - final report

Smith, A
Watkiss, P
Tweddle, G
Mckinnon, A
Browne, M
Hunt, A
Treleven, C
Nash, C
Cross, S

Report ED50254
AEA Technology Environment, Harwell B154, Didcot, Oxfordshire, OX11 0RA, United Kingdom
2005-07 103p 106 refs
Over the last fifty years, there has been a large increase in the distance food travels from the farm to the consumer, known as 'food miles'. DEFRA, UK commissioned a study to assess whether a practical and reliable indicator based on food miles can be developed, and whether this would be a valid indicator of progress towards the objectives of the government's sustainable farming and food strategy and the proposed food industry sustainablity strategy. A food miles dataset was compiled for 1992, 1997 and 2002. It was found that a single indicator based on total food kilometres is an inadequate indicator of sustainability. Data is available to provide and update a meaningful set of indicators on an annual basis. Food transport accounted for 25% of all heavy goods vehicle kilometres in the UK, producing 19 million tonnes of carbon dioxide. Air freight had the highest carbon dioxide emissions per tonne and is the fastest growing mode. The direct environmental, social and economic costs of food transport are over £9 billion each year, and are dominated by congestion. Policy implications and further research requirements are discussed.

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Ref: E126749

Fly now, grieve later - how to reduce the impact of air travel on climate change

Sewill, B

Fly now, grieve later - how to reduce the impact of air travel on climate change
Aviation Environment Federation, Broken Wharf House, 2 Broken Wharf, London, EC4V 3DT, United Kingdom
2005-06 47p 106 refs

The causes and potential consequences of climate change resulting from carbon dioxide emissions are outlined. The contribution of air transport to carbon dioxide and water vapour emissions is explained. Because the emissions occur at high altitude, they are particularly damaging, causing smog and cloud formation and increasing the contribution to climate change. Air transport is expanding, assisted by governments desiring economic progress. Air freight is growing even faster than air passenger transport. Technical advances are unlikely to cut the impact of aircraft use. The case for taxing air travel, the reasons why doing nothing about air transport emissions is unacceptable, setting an example to the world and political considerations are discussed. It is considered that unless the growth in air travel is restricted, all other action to deal with climate change will be negated.

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Ref: E126934

Assessing barriers to sustainable UK urban transport solutions

Hull, AD
Tricker, RC

Proceedings of the Institution of Civil Engineers. Engineering Sustainability
Thomas Telford Ltd., Thomas Telford House, 1 Heron Quay, London, E14 4JD, United Kingdom
2005-09 v158 n3 p171-80 57 refs
ISSN 1478-4637

Local authorities in the UK play an active role in ensuring the smooth design and implementation of sustainable transport policy. This paper summarises the findings of a questionnaire survey carried out in 16 local transport authorities, covering the organisational, technical and external challenges faced in the delivery of local transport strategies and schemes. It prioritises the key barriers in the use of decision support tools (i.e. indicators, option generation tools, appraisal techniques, and modelling) and discusses some of the funding challenges which affect the delivery of transport strategies and schemes. The outputs of this research will directly influence the development, practice and use of tools aimed at overcoming these barriers in selected urban transport authorities. This will also strengthen the research evidence base for the implementation of transport policy at a local level in the UK. (A)

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Ref: E127088

Winchester - here MIRACLES just keep on happening

Wren, A

Traffic Engineering and Control
Hemming Group, 32 Vauxhall Bridge Road, London, SW1V 2SS, United Kingdom
2005-04 v46 n4 p150-4 0 refs
ISSN 0041-0683

MIRACLES (Multi Initiative for Rationalised Accessibility and Clean Livable Environments) is a European Union funded project, part of the CIVITAS (City Vitality Sustainability Programme). As part of MIRACLES, Winchester, UK, is a test site for measures designed to neutralise the negative impact of traffic growth. These relate to emissions testing, parking discounts based on emissions, public transport improvements, cycling, freight, integrated transport management systems, and clean public and private fleets. Winchester City Council made a statutory declaration of an Air Quality Action Plan for the city centre, with an automatic number plate recognition system used to identify gross polluters. Public transport improvements include improvements to the bus-rail interchange at Winchester railway station, the formation of a Quality Bus Partnership between local bus operators and local authorities, and extension of park and ride facilities. Ways are being developed to reduce the environmental impact of freight movements, with the aim of developing a clean urban delivery service. Winchester is running a campaign to raise awareness of the benefits of environmentally friendly vehicles. All of the MIRACLES initiatives have been supported by a comprehensive communications programme.

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Ref: E127232

Ticket to a sustainable future: An evaluation of the long-term durability of the Walking School Bus programme in Christchurch, New Zealand

Kingham, S
Ussher, S

Transport Policy
Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, United Kingdom
2005-07 v12 n4 p314-23 50 refs
ISSN 0967-070X

Research was conducted to examine what factors influence the durability of the Walking School Buses initiative in Christchurch, New Zealand. Interviews with the parent co-ordinators of current and former Walking School Buses provided the main source of information. The results indicate that the programme is suffering a significant decline. Parents involved had experienced numerous difficulties, but the main problems were a lack of volunteers to share their workload, and insufficient ongoing support from the school or Council. In order to enhance the durability of the initiative, the Council need to restructure the organisational processes involved ensuring that parents receive all the assistance necessary to sustain their Walking School Buses in the long-term. (A) 'Reprinted with permission from Elsevier'.

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Ref: D355739

Verkehrsplanung in Paris. Technische, organisatorische und politische Neuordnung des oeffentlichen Stadtraums / Transport planning for Paris

Bauhardt, C

Internationales Verkehrswesen, Hamburg, Deutschland BR
2005 v57 n6 p259-62 + refs
ISSN 0020-9511

The Red / Green Government of Paris has, since 2001, sought to further the expansion of local surface passenger transport while improving conditions for non-motorized mobility. At the core of this plan is the re-introduction of tramways in the centre of Paris, which is closely linked to specific changes to the use of privately owned motor vehicles and a re-distribution of space. The success of this transport policy depends on the political courage to restrict the use of private vehicles with the active involvement of residents, backed up by an effective and professionally conceived communications strategy. (A)

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Ref: E127414

Decarbonising the UK - energy for a climate conscious future

Zuckerman Institute for Connective Environmental Research
School of Environmental Sciences, Norwich, NR4 7TJ, United Kingdom
2005 84p 61 refs

This publication considers how the UK could reduce its carbon emissions by 60% in order to counteract global warming. It is considered that the failure of governments to account for emissions from international aviation and shipping has led to a serious underestimation of the actions necessary to achieve a true 60% reduction. The UK Government's Aviation White Paper supports a considerable growth in air travel at the same time that the Governemnt's Energy White Paper emphasises the need for significant carbon reductions. The scenarios in the report illustrate that even a true 60% reduction in the UK's carbon emissions is technically, socially and economically viable. Five scenarios for reducing carbon emissions in the UK are compared and contrasted. Ways of reducing carbon emissions include increased use of renewable energy sources, a hydrogen energy economy, fuel cells, microgrids, reducing carbon emissions from transport, and carbon sequestration. The potential for domestic tradeable carbon quotas is discussed.

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Ref: E211976

Changing travel behaviour

Hidas, P
Ram, S

Transport Engineering in Australia
Institution of Engineers, Australia, 11 National Circuit, Barton, ACT, 2600, Australia
2005 v10 n1 p1-5 9 refs
ISSN 1324-1591

Governments and researchers in Australia generally agree that the current growth in private car use is unsustainable and that the ultimate aim of transport and urban planning activities must be to create a sustainable transport system. An important objective towards this aim is to achieve a significant change in people's travel behaviour. Change in travel behaviour (CTB) can be achieved by a combination of voluntary (soft) and mandatory (hard) measures. Recently, the importance of voluntary travel behaviour change (VTBC) have been recognised in

Australia, and VTBC programs are now underway or about to start in all of the state capital cities in Australia. However, the available evidence suggests that it is highly unlikely that voluntary programs alone would result in the required overall reduction of car travel. The introduction of hard measures, such as road pricing, should be combined with significant investment into better public transport, pedestrian and cycling facilities. (a)

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Ref: E211977

Transport, environment and health

Kilsby, D
Laird, P

Transport Engineering in Australia
Institution of Engineers, Australia, 11 National Circuit, Barton, ACT, 2600, Australia
2005 v10 n1 p7-12 14 refs
ISSN 1324-1591

Sustainability is a word that means different things to different people. The National Committee for Transport (NCTR) of Engineers Australia has been developing position papers on several aspects of sustainability. This paper describes the impacts, at various scales, of transport activities on the environment and on public health. Environmental impacts are distinguished according to their geographic scale -global, regional, local - while public health impacts are distinguished according to their time scale -long term, medium term, short term. The paper reviews estimates of the scales of these impacts in Australia. It pleads for greater rigour when using the concept of sustainability. It concludes with ten pointers which, if followed by engineers, would allow the transport system to perform its functions with lower impacts on the environment and on public health. (a)

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Ref: E127846

In search of sustainable urban transport strategies

May, T

Transport Research Foundation Fellowship Lecture (MISC13)
TRL Limited, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire, RG40 3GA, United Kingdom
2005-12 28p 0 refs
ISBN 1-84608-825-9

This report is a transcript of a lecture given by Professor Tony May on sustainable urban transport strategies in urban areas. The lecture looks firstly at what sustainability is and means, and how it links back to the underlying objectives of transport policy. It goes on to examine the range of available transport policy instruments, and describes in particular the development at the University of Leeds of the 'KonSULT' web-based knowledgebase on urban transport and land use instruments. Work aimed at identifying how best to integrate policy instruments in an urban area to get more benefits from the sum of the parts is then described. Finally, the barriers to implementation are discussed, noting that it is financial and, particularly, institutional barriers that are the most serious. The lecture was followed by a lively debate among the audience on the issues raised by Professor May.

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Ref: E210939

Rail operation and maintenance in an environmental management system context: Current practice and potential improvement

Lundberg, K

Trita-LWR
Kungl Tekniska Hoegskolan. Department of Land and Water Resources Engineering, Stockholm, SE-100 44, Sweden
2005 n2026 17p+app + refs
ISBN 91-7178-072-6
ISSN 1650-8629

The Swedish National Rail Administration, Banverket, has the overarching sector responsibility for Swedish railways, including a responsibility for implementing and managing the government decision for an ecologically sustainable development. In support of achieving ecologically sustainable development and fulfilment of the national environmental objectives and environmental legislation, Banverket initiated the implementation of an Environmental Management System (EMS) in 1998. The overall aim of this thesis is to examine the EMS applied at Banverket with regard to the identification and monitoring of environmental aspects at the administrative Railway Regions of Banverket. The analysis is based on a qualitative approach comprising questionnaires, interviews, document analysis and participating observations. (A) This document is also available electronically via Internet at URL: http://www.diva-portal.org/kth/theses/abstract.xsql?dbid=248

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Ref: E210941

Purchasing practices of environmentally preferable transport services: Guidance to increased shipper considerations

Bjoerklund, M

Lund University, Engineering Logistics, Box 118, Lund, SE-221 00, Sweden
2005 368 p + refs
ISBN 91-628-6433-5

The logistical activity of transport is one of the largest contributors to several environmental problems. One efficient and effective way to decrease the environmental impact from transports is to implement changes in the logistically related strategies and activities applied, such as the selection of transport suppliers. Consideration of the environmental aspect when purchasing transport services is still quite an unexplored area, and the need for guidance is large and desired by many firms. The objective of this study is to provide guidance about how shippers can increase their environmental concern when purchasing transport services. Theory regarding purchasing of environmentally preferable transport services is very limited. As a result, an elaborated frame of reference has been built on the basis of related areas, such as transport, purchasing and environmental practices. A survey study of 50 shippers operating within either the food or forestry sectors in Sweden showed that most respondents take the environmental aspects into consideration to a greater extent than required by law when purchasing transport services. Furthermore, most respondents had increased their environmental consideration when purchasing transport services during the last five years. There exist many practices that can be applied when purchasing environmentally preferable transport services. One common denominator of these practices is that they can be seen as parts of an environmentally preferable purchasing process developed in the present study. An analysis based on the survey study findings and the theoretical frame of reference shows that all survey study respondents can increase the environmental ambition of the practices applied. A further analysis of these potentials to improve the environmental ambition resulted in eight guiding principles. A tool was also developed which can provide guidance as to how shippers in a structural, efficient and effective way can address the first four of these principles. The eight guiding principles that this study suggests are important for shippers to look into are: - To see the environmentally preferable purchasing process for transport services as a whole. - To strive to apply a more uniform level of environmental ambition in the practices. - To know the strengths and weaknesses of the environmentally preferable purchasing practices applied. - To strive to apply similar practices within the company. - To initiate change, if needed and possible, in the internal conditions. - To continuously improve the practices applied. - To be as clear as possible in all communication. - To increase the information exchange with internal and external actors. (A)

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Ref: E211434

Acceleride - Brampton rapid transit initiative

Zbogar, H

2005 Annual Conference and Exhibition of the Transportation Association of Canada: Transportation-Investing in our future; held 18-21 September, Calgary, Alberta
Transportation Association of Canada, 2323 St Laurent Boulevard, Ottawa, Ontario, K1G 4J8, Canada
2005 11p - refs

The AcceleRide bus rapid transit initiative evolved from the recommendations of Brampton's Transportation & Transit Master Plan (TTMP), approved in October 2004. The TTMP defines a long-term, 30-year balanced transportation strategy for managing the implementation of a transportation network that meets the demands of projected population and employment growth, with an emphasis on enhancing the role of transit. An important element of the TTMP is a Strategic Transit Framework that proposes the implementation of high-order transit services along major corridors to sustainable travel demand management. This project was nominated for the 2004 TAC Sustainable Urban Transportation Award.

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Ref: E211435

Halton transportation master plan - 'The region in motion'

Covelli, C

2005 Annual Conference and Exhibition of the Transportation Association of Canada: Transportation-Investing in our future; held 18-21 September, Calgary, Alberta
Transportation Association of Canada, 2323 St Laurent Boulevard, Ottawa, Ontario, K1G 4J8, Canada
2005 11p - refs

The TAC Sustainable Urban Transportation Award is given out to people, projects or activities that promote sustainable urban transportation and TAC's New Vision for Urban Transportation. In keeping

with this vision, the Regional Municipality of Halton developed the Halton Transportation Master Plan: 'The Region in Motion.' The plan incorporated components of the New Vision for Urban Transportation, including an emphasis on more compact mixed-use urban form, less dependence on the single-occupant auto, and sustainable financing methods to implement the strategies in the plan. The purpose of the Halton Transportation Master Plan (HTMP) study was to develop a dynamic integrated transportation strategy that considered all modes of travel. The study provides the Region with the strategies, policies and tools needed to manage traffic safely, effectively and cost efficiently. This project was nominated for the 2004 TAC Sustainable Urban Transportation Award.

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Ref: E211436

Promoting sustainable transportation through site design: CITE's proposed recommended practice

Hollingworth, B
Chartier, G

2005 Annual Conference and Exhibition of the Transportation Association of Canada: Transportation-Investing in our future; held 18-21 September, Calgary, Alberta
Transportation Association of Canada, 2323 St Laurent Boulevard, Ottawa, Ontario, K1G 4J8, Canada
2005 6p - refs

The Canadian Institute of Transportation Engineers (CITE) prepared this Guide to highlight site design practices that can be applied through the land development process to promote the use of more sustainable modes of transportation, such as walking, cycling and transit. Its primary purpose is to assist policy-makers and professionals involved in the preparation, review and approval of non-residential development proposals to identify and incorporate features that make sites more accessible to travel modes other than the single-occupant vehicle (SOV). The Guide is currently available on the internet at http://cite7.org/Technical_Projects/sitedesignreview.htm. This project was nominated for the 2004 TAC Sustainable Urban Transportation Award.

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Ref: E211470

Rethinking transportation targets - a case for moving beyond basic modal share targets

Hollingworth, BJ

2005 Annual Conference and Exhibition of the Transportation Association of Canada: Transportation-Investing in our future; held 18-21 September, Calgary, Alberta
Transportation Association of Canada, 2323 St Laurent Boulevard, Ottawa, Ontario, K1G 4J8, Canada
2005 15p 14 refs

Most Transportation Master Plans for major urban areas in Canada establish targets for transportation demand management. Typically these targets focus on transit modal shares or transit use; however, approaches for developing the actual targets vary considerably. Some municipalities 'back-calculate' required mode split targets by examining future peak hour road capacity deficiencies on a screenline basis. Other areas adopt a broader approach and simply assume that if rapidly growing auto use is bad, than more transit use must be good, and consequently set very high goals for transit mode shares. This paper will present a critical review of how and why traditional transportation mode share targets are failing to result in more sustainable transportation, as measured by reduced growth in auto usage and increased transit use. A proposed approach is outlined for establishing and achieving urban transportation targets, including a framework that bases transportation targets on auto use as well as transit mode shares.

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Ref: E211471

Halton transportation master plan - a best practices approach

Soldo, E
Covelli, C

2005 Annual Conference and Exhibition of the Transportation Association of Canada: Transportation-Investing in our future; held 18-21 September, Calgary, Alberta
Transportation Association of Canada, 2323 St Laurent Boulevard, Ottawa, Ontario, K1G 4J8, Canada
2005 23p - refs

The recently completed and approved Halton Transportation Master Plan (HTMP) adopted a best practices approach to address sustainable transportation principles. The approach included: a comprehensive consultation approach; an air quality strategy; an emphasis on transportation demand management; a transit first strategy; an accommodation for cycling on all regional roads, an infrastructure plan with an annual implementation schedule; and input to a financial plan to ensure affordability.

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Ref: E127773

Accessibility planning and controlling demand

Simpson, B

Traffic Engineering and Control
Hemming Group, 32 Vauxhall Bridge Road,
London, SW1V 2SS, United Kingdom
2005-07 v46 n7 p245-7 14 refs
ISSN 0041-0683

This article discusses the difference between planning for increased mobility (the ability to travel) and for increased accessibility (the ability to reach a given destination). Transport planning for mobility provides for more travel, but accessibility planning focuses on the integration of travel and land uses. Integration in the provision of transport can lead to 'predict and provide' policy which can lead to changes in land use; for example, the dwindling of local communities as facilities become commercially non-viable and are withdrawn. If accessibility planning is the principle followed, catchment areas for services will expand only as far as is compatible with existing land uses. The decline of central areas results in an increase in the need to travel and where mobility is difficult, in social exclusion. Government policy is to maintain sustainable communities but this will need curbs on mobility and the provision of accessibility without excessive travel. Accessibility plans can be formed around either existing or desired locations.

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Ref: E127790

Maximum efficiency

Highways
Alad Ltd., 112 High Street, Lower Halling,
Rochester, Kent, ME2 1BY, United Kingdom
2005-07 p18-90 refs
ISSN 0142-6168

TRL's Local Government Advisory Team works with local authorities to maximise their transport efficiency whilst minimising environmental impact. This paper describes some of the projects that TRL is currently undertaking: a project for a consortium of local authorities into the initial implementation of the County Surveyors Society's Framework for Highway Asset Management; working with nine local authorities on Strategic Environmental Assessments (SEA) and Sustainability Appraisals; TRL's Parking Benchmarking Initiative to help local authorities demonstrate best value in the operation of their parking services; a project to develop new solutions for air pollution problems for the West London Alliance; a project to revise and update the West Yorkshire Strategic Transport Model for West Yorkshire Passenger Transport Executive (Metro); the development of a methodology for local authorities to assess the implications of the Traffic Management Act; and research for the National Salt Spreading Research Group.

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Ref: S405927

Strategic Infrastructure & Transport Plan in Cities: towards an agreed definition for sustainable mobility plans / El Peit en las ciudades: hacia la definicion concertada de planes de movilidad sostenible

Aparicio Mourelo, A

Carreteras, Revista Technica de la Asociacion Esponola de la Carretera
Asociacion Espanola de la Carretera, Goya, 23,
Madrid, 28001, Espana
2005-07/08 n141 p7-22 0 refs
ISSN 0212-6389

The article develops ideas for making the 'sustainable mobility plans' concept effective for cities, putting forward guidelines and proposals for specific action, concentrating on public transport as a priority issue and also acknowledging the enormous steps which still have to be made in Spain to progress in respect of non-motorised mobility. These plans should centre on 'sustainable transport' measures, meaning by that measures that are efficient from the point of view of resource consumption and attending to the needs of the general public, while at the same time are capable of contributing to social cohesion and local development and which, finally, have a friendly impact on the environment. In many cities this city strategy has been embodied in the form of a Local Agenda 21 and the article gives several examples of this. (A).

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Ref: E127967

Transport 2050 - The route to sustainable wealth creation

Royal Academy of Engineering, 29 Great Peter
Street, London, SW1P 3LW, United Kingdom
2005 44p 0 refs
ISBN 1-903496-18-7

The consequences of continued unrestrained growth in the amount of traffic on UK roads are outlined, particularly in relation to increased congestion and global warming. The development of a transport

strategy by 2050 that underpins the continuing prosperity of the UK, supports wealth creation and enhances quality of life, while respecting the environment, meeting social needs and contributing to long-term sustainability. The most fundamental element is a comprehensive revision of the ways in which travel is paid for, by adopting a true-cost charging system. Such a charging system is not expected to remove the need for new infrastructure. Better management of the existing infrastructure is also proposed, particulalry urban traffic management. Changes in the regulation of public transport systems, particularly buses, are suggested. The establishment of public interest corporations to implement transport policy at a national level is proposed. Each region should develop a regional transport and spatial strategy. Public transport planning should occur on a conurbation-wide basis. A charging system is proposed to finance transport. Further research is considered necessary into congestion, accidents and global warming. Partnership approaches to new technologies are suggested.

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Ref: E127975

Evaluating the school travel co-ordinator initiative

Scottish Executive Social Research, 4th Floor West Rear, St Andrew's House, Edinburgh, EH11 3DG, United Kingdom
2005 74p 13 refs
ISBN 0-7559-2718-4
ISSN 0950-2254

In Scotland, School Travel Co-ordinators (STCs) are currently working with 265 secondary schools and over 1700 primary schools. So far, only 15 secondary schools and 179 primary schools have implemented travel plans. Successful areas of delivery have included assistance with school travel assessments, advice on possible measures for schools, financing, negotiating with planners of new schools, developing targets, co-ordinating partners to improve behaviour on school buses, networking and awareness-raising events. Training proved essential for STCs to undertake their role effectively and support from Sustrans was considered essential. Joint working protocols to avoid overlaps between health and road safety initiatives, better monitoring of progress, STCs to manage funding, and a more formal support network are all proposed. It is considered that sustainable school travel issues need mainstream funding from local authorities.

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Ref: E127980

The state of the nation 2005 - an assessment of the UK's infrastructure by the Institution of Civil Engineers

Institution of Civil Engineers, One Great George Street, London, SW1P 3AA, United Kingdom
2005 19p 0 refs

This publication outlines the state of UK infrastructure. It is considered that too little investment has been made in the areas of transport, flood management, water / wastewater, future communities, waste, energy, and sustainability / environment. Areas considered particularly important include improved national railway management, consistent improved funding of the national road network, more research on climate change, major port development, increased spending on water supplies, a consultation on the security of energy supplies, improved flood warnings / management, sites for waste facilities and comunity involvement in developing / managing local infrastructure.

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Ref: E127983

Towards 2030 - Planning a sustainable future for air transport in the Midlands - draft master plan

Birmingham International Airport, Diamond House, Birmingham, B26 3QJ, United Kingdom
2005 145p 0 refs

This publication sets out plans to develop Birmingham International Airport to enable it to meet projected demand for air travel in the English Midlands of the UK. This includes the development of sustainable transport modes and mitigation of the environmental effects of airport expansion. The economic significance of the airport to the region and plans to increase the length of the existing runway and provide a new runway and terminal building are explained. The land ownership of the airport will need to be increased to meet operational requirements for expansion. The second section provides details of the plans for the airport. The third section provides layout maps for intervals up to 2030.

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Ref: E127986

Coming up for air - trips that offer freedom from the car

Broersen, K
Newson, C
Morris, O

Transport 2000, 12-18 Hoxton Street, London, N1 6NG, United Kingdom
2005 8p 0 refs

This booklet offers suggestions for increasing the modal share of sustainable tranport to tourism and recreation areas. Reasons for not using cars to reach such places are listed and examples of areas where effective car-free transport has been developed are given. The steps required to welcome car-free visitors include providing information, improving local transport services, offering incentives, and finding partners that can assist with funding.

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Ref: E128107

Sustainable motorways: a contradiction?

Tomlinson, P

Delegate handbook from the 26th Alan Brant National Seminar - Motorways in the 21st Century - Exploring new ways to improve, operate and maintain, held 10 May 2005, Leamington Spa, UK
Institution of Highways & Transportation, 6 Endsleigh Street, London, SC1H 0DZ, United Kingdom
2005 p65-96 31 refs

This combined computer slide presentation and paper describes sustainable development and considers how this concept may be applied to motorways. The extent to which motorways may be sustainable compared with other highways is assessed in relation to journey time, local air quality, climate change, landscape, nature conservation, accidents, lifestyle, social equity, land take, and energy use. On the basis of the analysis provided, motorways give a positive outcome on most themes, with landscape and social equity being the only negative indicators. It is considered preferable to concentrate and fully mitigate the effects of traffic on a motorway than to disperse its effects across the A road network. Adding to existing motorway infrastructure and making best use through technology can secure benefits across the economy, community and resource sustainability themes. Getting more from a given level of resource use or environmental impact is considered a sustainable outcome provided that it does not lead to an increase in the total distance travelled. Ways of making motorways more sustainable are discussed including managing demand and its adverse impacts.

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Ref: E128114

Introductory report and summary of discussions at the 16th ECMT international symposium on theory and practice in transport economics, held Budapest, October 2003

OECD Publications Service, 2 Rue Andre Pascal, Paris, 775775 Cedex 16, France
2005 552p + refs
ISBN 92-821-2333-2

This publication contains 22 introductory reports covering transport and economic growth and their interdependencies, competition and regulation, and sustainability of transport (the roles of modal split and pricing). Discussions held at the conference are summarised and the concluding remarks of the conference are given in two further papers.

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Ref: E128119

The correlation between freight transport and economic growth

Hiferink, P

Introductory report and summary of discussions at the 16th ECMT international symposium on theory and practice in transport economics, held Budapest, October 2003
OECD Publications Service, 2 Rue Andre Pascal, Paris, 775775 Cedex 16, France
2005 p75-94 5 refs
ISBN 92-821-2333-2

The NEA is working on the STAC project, the main objectives of which are forecasting transport flows in western and central Europe and identifying main corridors and assessing bottlenecks in the infrastructure on the network. The correlation between freight transport and gross domestic product (GDP) is explored. A changing economic structure with less reliance on agriculture and industry and more reliance on services in France, Germany and the Netherlands have reduced flows of bulk goods but replaced them with more long-distance freight of specialised goods. Spatial development is also a factor in transport flows. Technological developments have led to the use of lighter materials reducing the weight to be transported but often the cost of transport is a smaller proportion of the value of higher cost goods. This can result in the transport of lower volumes over greater distances. Economies have become more open, increasing international trade. It is considered that the average transport distance will increase, with increased involvement of Eastern

Europe. In relation to the growth in GDP, the growth of freight transport measured in tonnes is 10-20% lower than the GDP growth; however when measured in tonne-kilometres the growth in freight transport and GDP is almost the same. Factors encouraging this trend include the growth of the EU, globalisation and decreased generalised transport costs. To decouple transport growth and economic growth is considered desirable. The instruments for achieving this include infrastructure charging, promoting a change in modal split, technological developments, and better spatial planning.

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Ref: E128122

Decoupling of economic and transport growth: background, findings and prospects

Rommerskirchen, S

Introductory report and summary of discussions at the 16th ECMT international symposium on theory and practice in transport economics, held Budapest, October 2003
OECD Publications Service, 2 Rue Andre Pascal, Paris, 775775 Cedex 16, France
2005 p143-65 12 refs
ISBN 92-821-2333-2

The arguments in favour of decoupling transport from economic growth are outlined. The concept of decoupling spans a wide range of very different notions. Economic growth is considered as gross domestic product (GDP), although adding the value of manufacturing industry (including construction) and of imports would provide a more precise measure. Appropriate indicators of goods transport growth are discussed and total tonnes per kilometre is considered the best indicator. Data are given from 1980-2001 on the development of road freight transport performance intensity, on rail freight transport performance intensity, on vehicle mileage intensity in road freight transport in the 15 EU and 5 Eastern European countries. The development of all mode goods transport performance and of real GDP in the 15 EU member states is depicted and similar information is provided for 5 Eastern European countries. All mode transport intensity in the five Eastern European countries is substantially higher than in the EU, but declining. In the EU there is no sign of the desired decoupling of economic and transport performance growth in the last two decades. Transport intensity trends differ widely between countries in wester Europe, with low levels in Ireland and Switzerland and high levels in Spain and Finland. This may be because Spain and Finland are large countries with low population densities and have few major centres, separated by large distances. It is forecast that transport intensity will fall sharply in the 5 Eastern European countries but that no decoupling will occur in the EU. Measures suggestd that could be taken in the EU to try to achieve decoupling include changing mobility habits, car-sharing, parking space rationing, road pricing in towns and cities, fuel cell initiatives, high-speed trains and road pricing for goods transport.

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Ref: E128131

Changing location and infrastructure patterns for sustainability

Knoflacher, H
Beuthe, M
Bouffioux, C
Demaeyer, J

Introductory report and summary of discussions at the 16th ECMT international symposium on theory and practice in transport economics, held Budapest, October 2003
OECD Publications Service, 2 Rue Andre Pascal, Paris, 775775 Cedex 16, France
2005 p355-380 18 refs
ISBN 92-821-2333-2

Trends in modal split show increasing car use and whether it is possible to change this by introducing road pricing is discussed. Human behaviour, especially in relation to modal choice, is explained. The strong individual preference for car use is reinforced by easy parking policies. Whether road pricing may be considered a punitive policy is discussed. This depends on whether human behaviour is determined by existing building and land use structures that restrict freedom of choice. It is also suggested that building freight structures inaccessible to the railway system should pay for being in the wrong location since they benefit from cheaper land costs. It is suggested that parking pricing is a more effective way of influencing modal split than road pricing.

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Ref: E128133

Integrated policies for improving modal split in urban areas

Monzon, A

Introductory report and summary of discussions at the 16th ECMT international symposium on theory and practice in transport economics, held Budapest, October 2003

OECD Publications Service, 2 Rue Andre Pascal,
Paris, 775775 Cedex 16, France
2005 p399-422 30 refs
ISBN 92-821-2333-2

The need to shift travel demand onto public transport and to reduce total private vehicle trips in urban areas is discussed. Integrating ticketing, information and fare systems, the role of public transport authorities in coordinating public transport services, and physical integration of services via interchages are all considered important if changes in transport mode are to be achieved. Public transport use in thirteen European cities ranges from 20-60%. All the cities with high public transport use have a good quality service with effective integration along with laws and regulations reducing private car use. The benefits of integrating private transport with public transport, the effects of land use patterns on modal choice, and use of design policy packages are outlined. Case studies of high occupancy vehicle lanes on congested corridors, and of integrated land use and metro extension in Madrid are described.

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Ref: E128135

Scope and limits of charging as a means of promoting sustainable development

Quinet, E

Introductory report and summary of discussions at the 16th ECMT international symposium on theory and practice in transport economics, held Budapest, October 2003
OECD Publications Service, 2 Rue Andre Pascal,
Paris, 775775 Cedex 16, France
2005 p447-467 42 refs
ISBN 92-821-2333-2

The policymaking and economic grounds for congestion charging are discussed. The efficiency of congestion charging is assessed based on what econometrics indicates about elasticities. Congestion charging and other ways of promoting sustainable development are discussed. The co-ordinated use of all available instruments to reduce congestion is recommended, including congestion charging. Charging alone is not considered likely to achieve modal transfer. Cutting down just-in-time delivery practices, spatial planning in urban areas, and vehicle / traffic management research are all considered important.

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Ref: E128231

Summary of discussions

Ruppert, L

Introductory report and summary of discussions at the 16th ECMT international symposium on theory and practice in transport economics, held Budapest, October 2003
OECD Publications Service, 2 Rue Andre Pascal,
Paris, 775775 Cedex 16, France
2005 p521-542 0 refs
ISBN 92-821-2333-2

This paper provides summaries of the discussions held at the conference on: the interdependence of transport and economic growth; competition and regulation; and the role of modal split and pricing on the sustainability of transport. While investment in transport infrastructure can make a large contribution to productivity growth and economic competitiveness, it is not considered an automatic tool for economic growth. The demand for transport investment differs markedly between countries depending on their geographical position and degree of development. Transport improvements do not necessarily mean more infrastructure; controlling demand by road pricing may lead to greater economic efficiency. Decoupling the growth of freight transport from economic growth is desirable and more research is considered necessary in this area.

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Ref: E128232

Concluding remarks

Violland, M

Introductory report and summary of discussions at the 16th ECMT international symposium on theory and practice in transport economics, held Budapest, October 2003
OECD Publications Service, 2 Rue Andre Pascal,
Paris, 775775 Cedex 16, France
2005 p543-552 0 refs
ISBN 92-821-2333-2

Issues considered include: whether investment in transport infrastructure necessarily results in economic growth; whether decoupling of freight and passenger transport is feasible; that reducing regulation may benefit the consumer in some but not all instances; that competition is likely to benefit busy routes but not quieter ones; the role of the regulator including at the European level; ways of increasing the share of rail transport in the modal split; lessons learned from the London congestion

charging scheme; road user charges as an instrument of efficiency; and user charging for basic services.

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Ref: E128219

Evaluating economic feasibility and technical progress of environmentally sustainable transport scenarios by a backcasting approach with ESCOT

Schade, B
Schade, W

Transport Reviews
Taylor & Francis Ltd., 4 Park Square, Milton Park, Abingdon, Oxfordshire, OX14 4RN, United Kingdom
2005-11 v25 n6 p647-68 20 refs
ISSN 0144-1647

The aim of the System Dynamics Model for Economic Assessment of Sustainability Policies of Transport (ESCOT) is to describe a path towards a sustainable transport system in Germany and to assess its economic impacts. ESCOT was developed within the environmentally sustainable transport (EST) project of the Organization for Economic Co-operation and Development (OECD) that was designed to set up the ecological and technical framework of a transition towards sustainable transportation. ESCOT comprises five models: macroeconomic, transport, regional economic, environmental and policy. The economic assessment for environmentally sustainable scenarios shows that the departure from car- and road freight-oriented transport policy is far from leading to an economic breakdown. By expanding the period for the transition, even more encouraging economic results were derived. For the economic assessment, it is important that ESCOT considers not only first round effects, but also secondary effects. This ability makes ESCOT a powerful instrument for the assessment of such large system transitions. (A)

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Ref: E120428

Using the SLEUTH urban growth model to simulate the impacts of future policy scenarios on urban land use in the Baltimore - Washington metropolitan area

Jantz, CA
Goetz, SJ
Shelley, MK

Environment and Planning B: Planning and Design
Pion Limited, 207 Brondesbury Park, London, NW2 5JN, United Kingdom
2004-03 v31 n2 p251-71 33 refs
ISSN 0265-8135

Declining water quality in the Chesapeake Bay estuary is in part the result of disruptions in the hydrological system caused by urban and suburban development throughout its 167 000 km2 watershed. A modeling system that could provide regional assessments of future development and explore the potential impacts of different regional management scenarios would be useful for a wide range of applications relevant to the future health of the Bay and its tributaries. We describe and test a regional predictive modeling system that could be used to meet these needs. An existing cellular automaton model, SLEUTH, was applied to a 23 700 km2 area centered on the Washington - Baltimore metropolitan region, which has experienced rapid land-use change in recent years. The model was calibrated using a historic time series of developed areas derived from remote sensing imagery, and future growth was projected out to 2030 assuming three different policy scenarios: (1) current trends, (2) managed growth, and (3) ecologically sustainable growth. The current trends scenario allowed areas on the urban fringe that are currently rural or forested to be developed, which would have implications for water quality in the Chesapeake Bay and its tributaries. The managed growth and ecologically sustainable scenarios produced growth patterns that were more constrained and which consumed less natural resource land. This application of the SLEUTH model demonstrates an ability to address a range of regional planning issues, but spatial accuracy and scale sensitivity are among the factors that must be further considered for practical application. (A)

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Ref: E120835

The use of modal accessibility gap as an indicator for sustainable transport development

Kwok, RCW
Yeh, AGO

Environment and Planning A
Pion Limited, 207 Brondesbury Park, London, NW2 5JN, United Kingdom
2004-05 v36 n5 p921-36 35 refs
ISSN 0308-518X

Transport plays an important role in sustainable development because it uses a lot of energy. In order to plan for sustainable transport development, there is a need to develop indicators for assessing and monitoring transport development. In this paper we

develop a sustainable transport development indicator by making use of the concepts of accessibility and geographical information systems. A modal accessibility gap index is proposed, which is calculated by finding the difference between the accessibility indices of public and private transport, which are in turn determined by accessibilities to opportunities such as the number of population, jobs, shops, and schools by public and private transport. Considering energy-efficiency, public transport will achieve sustainable transport more than private transport. A higher accessibility gap may mean more sustainable development. In the present study, the accessibility gap of Hong Kong in 1991 is compared with that in 1996 to examine whether transport development has been more sustainable. We also discuss how to use the accessibility gap indicator to test land-use and transport-development policies and scenarios to determine the more sustainable ones. (A)

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Ref: E121222

JR East environmental management

Miyagi, T

Rail International
International Railway Congress Association, 85 Rue de France, Section 10, Brussels, B-1060, Belgium
2004-02 v35 n2 p14-21 0 refs
ISSN 0020-8442

This article outlines the environmental protection policies developed by the East Japan Railway Company (JR East). The company is obtaining ISO 14001 certification for its environmental management system. It has published annual environmental reports, including environmental accounting, since 1996, and a sustainability report since 2002. Initiatives for global environmental preservation include energy-efficient power generating units and railcars, general reduction of carbon dioxide emission by the encouragement of cycling to the station, customer rubbish recycling points, recycling of industrial waste from train manufacturing and track construction work, and office procurement guidelines that include use of recycled materials. Measures for environmental preservation along railway lines include noise pollution reduction, control of toxic substance, trackside tree planting and harmonious building construction, and environmental information through the company's website.

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Ref: E121324

The assessment of integrated land use and transport strategies in European cities

Paulley, N
Pedler, A
Martens, M
Eijkelenbergh, P
Steenberghen, T
Vande Walle, S

TRL Limited, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire, RG40 3GA, United Kingdom
2004 20p 7 refs

The TRANSPLUS (TRANSport Planning Land Use and Sustainability) project is an EC supported project under the 'City of Tomorrow and Cultural Heritage' key action. Its aim was to identify best practice in the organisation of land use and transport measures in order to reduce car dependency in European cities and regions and promote economic, social and environmental improvement. A particular focus of the study has been on policies and measures that are designed to produce a shift towards public transport and/or non motorised modes and reduce the need for motorised transport. This paper is concerned with the assessment of the planning phase of land use and transport strategies, and examines what future scenarios/visions European cities have and how land use and transport planning strategies are used in these visions. The work is based on case studies of 23 European cities. The efforts made in these cities to adapt to their new strategies and predict outcomes through the use of monitoring systems and models are analysed, and the role of monitoring systems and models in the decision-making process is assessed. (A)

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Ref: E121339

New approaches to sustainable tourism in Devon

Chorlton, E

Proceedings of the Institution of Civil engineers. Municipal Engineer
Thomas Telford Ltd., Thomas Telford House, 1 Heron Quay, London, E14 4JD, United Kingdom
2004-06 v157 nME2 p121-7 19 refs
ISSN 0965-0903

Devon can lay claim to being one of England's favourite counties. It possesses an outstanding environment, and also serves as a year-round premier tourism destination. Devon County Council

(DCC) is adopting innovative approaches to providing high-quality sustainable tourism. These approaches promote year-round sustainable tourism through initiatives such as a new customer-focused tourism web portal, managing England's first natural World Heritage Site and integrating tourism and economic development in a remote rural area. Devon is also enhancing opportunities for people to enjoy access to the countryside. Linked to DCC's status as a Centre of Excellence for Transport Planning, the county council's sustainable travel initiatives include improving facilities for walking, cycling and leisure travel by public transport. This paper assesses the successes and challenges of strategic approaches to sustainable tourism with particular emphasis on transport networks. (A)

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Ref: E121360

Influencing travel through mixed use developments

Pedler, A

TRL Limited, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire, RG40 3GA, United Kingdom
2004 19p 1 refs

This research report, commissioned by the Highways Agency in the UK provides greater understanding of the impacts of mixed use on car travel. Initially, a literature review highlighted existing knowledge of the effects of mixed use. Subsequently in 2002, empirical research was carried out to collect primary evidence. Eleven suburban business parks were selected in the south of England to study employee and visitor trip patterns to each site. Data collection methods included automatic traffic counts, manual multimodal traffic counts, employee and visitor questionnaires and developer interviews. The findings of the study were mixed in terms of the benefits of mixed use suburban business parks. It was found that suburban business parks generated a significant amount of traffic. In terms of trip attraction, the mixing of land uses within the business parks had limited benefits on reducing the number of vehicles travelling to the site each day. In general, the mixed use developments within the business parks incurred additional trips rather than assisting in reducing trips. However, the employees of the sites benefited from more facilities being available within walking distance of their workplace. In turn, this may reduce the amount of travel off-site at lunchtime and, to a small extent, encourage the use of more sustainable modes than the private car to commute to work. (A)

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Ref: E210801

Scenarios and structural uncertainty. Explorations in the field of sustainable transport

Dreborg, KH

Trita-Infra
Kungliga Tekniska Hoegskolan, Infrastructur, Stockholm, SE-100 44, Sweden
2004 n04-001 60+app + refs
ISBN 91-7323-068-5
ISSN 1651-0216

The aim of this study was to develop and use scenario approaches and gaming as planning tools, and thereby make a contribution to both planning and research, especially in the areas of application of (1) crisis management and emergency planning and (2) sustainable transport. The analysis of uncertainty and the design of tools to cope with it are core contributions. The thesis consists of four papers. In paper 1 the connection between gaming and tacit knowledge is examined. Based on cases and literature, concepts and typologies that would permit a more accurate analysis of the relationship between purpose, design and validity of games are suggested. In paper 2 the niche for backcasting is identified. Basic assumptions behind it are compared to those behind traditional forecasting. Papers 3 and 4 describe the development and use of mixed future study methodologies. In paper 3 scenarios for a decision support tool for transport policy analysts at the European and national levels are developed. In addition a methodology for the linking of scenarios to a modelling system in such a way that relevant uncertainties could be highlighted is suggested. In paper 4 the main task was to construct scenarios for achieving sustainable mobility and thereby give an input to policy development at the European Commission and at the national level. A combination of external scenarios and backcasting is developed that allows an analysis of how strategies for achieving visionary goals can be adapted to various external developments. In the introductory part of the thesis, a conceptual framework and a perspective on planning, future studies and uncertainty is presented. Structural uncertainty is a key concept. It prevails when there is no reliable model of the systems dynamics that permits predictions over the time frame of interest. In contrast, quantitative uncertainty refers to the development of external variables, while a reliable predictive model of the systems dynamics is assumed to exist. Whereas predictive modelling, probabilistic approaches and sensitivity testing are suitable in the case of quantitative uncertainty, scenario approaches and sometimes games theory are the better choice in the face of structural uncertainty. (A)

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Ref: E122590

Engineering to shape a better world

Langford, P

Proceedings of the Institution of Civil Engineers: Engineering Sustainability
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The historical contribution of engineers to society and to economic and social progress is outlined and the challenges for the twenty-first century are considered. Opportunities for engineers in five key areas, energy, transportation, water resources, health-care and competitiveness, are reviewed. With respect to transportation, the increase in car ownership levels in Ireland and the potential for the management of car use are considered. The technology for satellite-based mileage-related charging schemes, the use of traffic modelling to predict how road networks and junctions will perform, the benefits of sensors and global positioning systems, the AXA Insurance Traksure scheme for young drivers, and the pay-as-you-drive insurance premium offered by Norwich Union are discussed. The responses of the engineering profession on the issues of sustainability, education and competitiveness are outlined.

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Ref: E123058

Globalization, e-economy and trade

Capineri, C
Leinbach, TR

Transport Reviews
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The first position paper of Stella Focus Group 1 on Globalization, E-Economy and Trade aims to highlight the main concepts around which the activities will develop. It addresses the transport and trade implications of the shift from an economy dominated by physical movements to one where electronic communications aid and, indeed, under certain circumstances, eliminate or reduce physical flows. In particular, it points out that the revolution taking place is mainly due to deep changes in distribution processes caused by the spread of e-commerce and by a production system based on networks of different types (production, financial, information, etc.). Major topics for exploration are the specific roles of networks, new interpretations of access and distance in virtual and physical spaces, the adoption, spread and impact of e-commerce, the multifaceted process of integration and Internetworking, territorial competitiveness in the digital economy, intermodality, and the growth of logistical systems and their impact upon supply chains. Factors surrounding the shippers' choice of freight transport services, communications and transport patterns between consumers and businesses, and general sustainability in these increasingly complex systems are also important. All these topics are ripe for research from both theoretical and methodological perspectives. (A)

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Ref: E123060

Societal trends, mobility behaviour and sustainable transport in Europe and North America

Donaghy, K
Rudinger, G
Poppelreuter, S

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Taylor & Francis Ltd., 4 Park Square, Milton Park, Abingdon, Oxfordshire, OX14 4RN, United Kingdom
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It is increasingly evident that modern lifestyles in affluent societies, and the mobility behaviour associated with such lifestyles, are not consistent with the protection of environmental quality, the efficient use of resources, and the promotion of social cohesion and just distributions of opportunities and costs of using transport systems. This paper examines social and behavioural aspects of sustainable transport from a transatlantic perspective. Significant societal trends are surveyed and their implications for mobility behaviour are drawn. The sustainability of this behaviour is considered along with constraints and drivers of this behaviour in Europe and North America. The paper takes up relevant policy issues and concludes with a discussion of a transatlantic research agenda on social and behavioural aspects of sustainable transport. (A)

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Ref: E123061

Impacts of transport on sustainability: towards an integrated transatlantic evidence base

Himanen, V
Lee-gosselin, M
Perrels, A

Transport Reviews
Taylor & Francis Ltd., 4 Park Square, Milton Park, Abingdon, Oxfordshire, OX14 4RN, United Kingdom
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Despite a large body of literature on the negative impacts and externalities of transport systems, it is difficult for policy-makers to infer a coherent message about whether intervention should be considered, and if so, how to weigh the relative importance of multiple domains of impact. This paper examines the extent to which the results of research on the impacts of transport in the European Union (EU), the USA and Canada have been translated into improved public policy on sustainable development. Over 3 years, approximately 100 researchers contributed to a review that focused primarily on the environment, safety, public health, land use and congestion. There were findings on four main issues. First, the understanding of impacts is uneven and, with some notable exceptions, poorly integrated: in particular, where there is no real commitment to internalizing costs, there is little incentive to develop assessment frameworks that support decisions about tradeoffs between costs (and benefits) in multiple domains. Second, the sustainability of transport is often viewed from the policy side as something that has to be 'set off' against affordability, equity and acceptability in a calculus that often treats transport in isolation: a broader view of sustainability might better help identify ways that transport can contribute to a decoupling of economic growth from a growth in impacts. Third, some important gaps in the research base were identified. Broad in nature, they concerned longer-term trajectories, societal learning, increased attention to freight and policy implementation. Finally, activities are suggested to improve the organization of a transatlantic evidence base that benefits from appropriately scaled comparisons between regions of Europe and North America, and which respects the complexity of impact domains and their interactions. The highest priority was given to cross-national analyses of transport and land-use policies relevant to sustainability, and to holistic evaluations of actual implementations of 'wise' policy packages in urban regions. (A)

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Ref: E123062

Institutions, regulations and sustainable transport: a cross-national perspective

Rietveld, P
Stough, R

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This paper examines institutional and regulatory aspects of sustainable transport from a cross-national perspective. While institutions appear to play an important role in the economic success of many countries, it is not so clear that they also support sustainable development. A number of examples of the role of institutions in transport are discussed. Particular attention is focused among others on the themes of institutions and technological change, institutions and the organization of production, and territorial aspects of institutions. Regulatory trends are also reviewed including devolution patterns and the growing importance of supra-national organizations. (A)

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Ref: E122673

Determining optimal integrated strategies for European cities

Paulley, N
Zhang, X
May, AD
Emberger, G
Shepherd, S

TRL Limited, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire, RG40 3GA, United Kingdom
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A regression-based methodology was used to determine an optimal combination of policy instruments using the predictions from a conventional transport model. This method was then applied to eight European cities, using three models. Results are presented for Edinburgh, Leeds, Oslo and Vienna. Sustainability was used as an overarching objective with a cost benefit analysis approach or indicator targets of transport access, accidents, travel time, noise and emissions were selected. Policy instruments included public

transport fares, public transport frequencies, cordon charges to enter the city centre, and low cost changes in road capacity. The appraisal period was 30 years. Well over 100 optimisations were conducted during the project. Outcomes of the project indicated that with the cost benefit analysis approach, increased public transport frequencies in all cities except Vienna and and a consistent reduction in fares (except off-peak fares in Leeds and Oslo) were desirable. Cordon charges were recommended in all cities. With this approach half or more of the targets were incidentally achieved. With the target-based approach the resulting strategies were more variable but half or all of the cost benefit analysis approach benefits were lost. Data are given for the individual cities.

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Ref: E123655

Sustainable future urban mobility: using 'area development negotiations' for scenario assessment and participatory strategic planning

Loukopoulos, P
Scholz, RW

Environment and Planning A
Pion Limited, 207 Brondesbury Park, London, NW2 5JN, United Kingdom
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ISSN 0308-518X

An examination of how land-use planning can proceed while emphasising sustainability in transport objectives is presented in the authors' view. It is vital that citizen preferences are assessed, and the 'area development negotiation' method for obtaining such preferences is detailed within a case study framework. The method permits evaluations by various stakeholder groups of future urban mobility scenarios by means of multiattribute utility analyses. In order to illustrate the method, key results from a Swedish case study are presented, demonstrating that all interest groups - with the exception of business representatives - were aware of the importance of environmental factors and gave these factors greater weight than economic factors. Discussion focuses upon issues relevant to policy analysis, strategic planning including stakeholders, and upon issues relevant to the policy process, such as how the method can support and meaningfully engage the citizen in strategic planning. (A)

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Ref: E123679

Environmentally Sustainable Transport (EST): concept, goal and strategy - The OECD's EST project

Wiederkehr, P
Gilbert, R
Crist, P
Caied, N

European Journal of Transport and Infrastructure Research
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ISSN 1567-7133

OECD countries recognized in the mid-1990s that transport trends were not sustainable and that existing policy frameworks seemed unlikely to be able to move society towards more sustainable transport systems. A new approach to transport policy was required that would be consistent with the broad definition of sustainable development. To this end, the project on Environmentally Sustainable Transport (EST) was initiated to give some precision to the concept of EST through the use of criteria that have environmental significance and can be quantified. A method known as 'backcasting' was used to develop policies and strategies for achieving a desired future state through targeted action. This paper summarizes the results of the project, which involved twelve OECD countries that undertook case studies at local, regional, national and international scales. The project concluded that some 40 per cent of the effort necessary to meet the EST criteria will come from technology and 60 per cent from demand-side management and a shift towards more sustainable transport modes. EST is attainable, but only if a broad range of instruments is deployed. These include regulations and standards, fiscal measures, changes in governance arrangements, and education, the provision of information, awareness raising, and attitude change, all assembled into coherent packages of instruments applied with careful consideration to phasing. (A)

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Ref: E123680

Urban Transport Sustainability: Asian trends, problems and policy practices

Hayashi, Y
Doi, K
Yagishita, M
Kuwata, M

European Journal of Transport and Infrastructure Research
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The paper describes the possible direction of Asian EST, starting with an overview of recent trends and problems in transport systems within Asia, policy practices are also introduced. It was found that although the current situation and trend of transport in the Asian region presents a diverse picture stemming from geographical differences and levels of economic development, most Asian countries share similar concerns about transport-related problems, namely severe congestion, air and noise pollution,. Common patterns can be identified behind these problems, which include: a) large increases in traffic demand, resulting from rapid economic growth, urbanization, and motorisation, b) poor control of vehicle emissions and the absence of effective inspection and maintenance systems, c) lack of adequate and appropriate infrastructures, and d) poor coordination of transport and land-use policies. In the current situation, insufficient understanding of environmental deterioration mechanisms delay the implementation of necessary policy measures in many Asian countries. Each country should find the best way to achieve EST as fast as possible by learning from others' experiences. Existing good examples within the region, such as intermediate public transport systems and electric road pricing, can provide a strong foundation for this purpose. (A)

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Ref: E123681

Backcasting as a tool for sustainable transport policy making: the environmentally sustainable transport study in the Netherlands

Geurs, K
Van Wee, B

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This paper describes the backcasting approach used in the OECD's Environmentally Sustainable Transport (EST) Study, in which several countries participated. The backcasting approach can be seen as an innovative tool for policy making, which aims at generating alternative images of the future. These images have been thoroughly analysed as to their feasibility, consequences and policy implications. Here, results and implications for backcasting shown in the Netherlands case study are highlighted and conclusions drawn that EST criteria will only be attainable if a substantial increase in development of technology and stringent behavioural adaptations, with changes in economic structures at an international level, are assumed. If EST is to be realised, measures will have to be taken and instruments will have to be implemented in the short term. Timely implementation will probably mean a necessary radical change in the current Dutch policy 'life cycle'. (A)

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Ref: E123682

Environmentally sustainable transport in Germany

Verron, H
Friedrich, A

European Journal of Transport and Infrastructure Research
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The study reported in this paper is part of an OECD project with several case studies in different countries. The purpose of the project was to look for possible ways to reduce the environmental impact of transport to a level which is compatible with sustainability. The participants in the case studies agreed upon quantifying criteria for carbon dioxide, nitrogen oxides and volatile organic compounds, which should describe environmentally sustainable transport (EST), and each case study constructed a business-as-usual scenario and three EST scenarios, considering the period from 1990 to 2030. Each EST scenario should meet the criteria in a backcasting effort, EST1 looking for solely technical solutions, EST2 restricting and shifting transport volumes while ignoring technological progress, and EST3 combining components of both strategies. In the German case study criteria were additionally quantified for particulate matter, noise and land-take for transport purposes. The German EST1 scenario is based on hybrid electric hypercars, hydrogen for public transport, freight and aviation, and electricity from renewable sources. In the EST2 scenario total transport activity for passenger and freight transport had to be reduced by 40% and 25% respectively, compared to 1990 in order to meet the criteria. In the EST3 scenario, while highly energy efficient conventional propulsion systems and engines were

used, total passenger transport decreased only slightly and freight transport even increased. Implementation measures were then defined on the basis of the EST3 scenario. Emission regulation, fuel tax, and road pricing for heavy duty vehicles were the key features in order to achieve EST in this case study. They were complemented by additional sets of measures, designed to prevent urban sprawl, diminish freight traffic growth, increase liveability of towns, improve the infrastructure and service conditions of alternative modes as well as provide energy supply by regenerative sources. (A)

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Ref: E123683

Environmentally sustainable transport in the CEI countries

Thaler, R
Wiederkehr, P

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Moving people and freight in an environmentally sustainable manner that reduces environmental pollution and health hazards is a key challenge for transport and environment policies in Europe. Present mobility patterns of passenger and freight transport in Central and Eastern Europe do not correspond to the objectives of sustainable development. This paper presents the results of a transport futures study for the CEI region as a whole using backcasting methodology with long-term sustainability criteria to be met by 2030. Achieving environmentally sustainable transport (EST) doesn't mean less transport and mobility than we have today, but it means primarily maintaining a balanced modal split that results in less environmental and health impacts than it would be under projected future trends. Rail, trams, busses and new forms of flexible inter-modal public transport mobility would have to take a large share and rail transport for passenger and freight as well as inland shipping would have to be nearly doubled by 2030 while road freight could still increase if it is based on alternative fuels reducing its impacts. Technological advancements for passenger cars and lorries, fuels and infrastructure will play an important part to achieve EST, but also 'smart' mobility management (e.g. transport avoidance, increasing load factors and modal shift), innovative mobility services and freight logistics would be critical. The implementation of these policies and strategies will require coherent and comprehensive packages of instruments and measures, including: economic instruments, regulatory instruments, changes in infrastructure investment, mobility management, information and education programmes as well as better integration of land use, transport and environment policies. Realising EST will provide new opportunities for businesses to develop and invest in innovative solutions for passenger and freight transport. Overall, achieving EST would constitute a net benefit for the environment and for quality of life in general. (A)

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Ref: E123684

EST case studies and perspectives in Japan

Moriguchi, Y
Kato, H

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Results and discussion of the Environmentally Sustainable Transport (EST) Case Study for Japan are introduced within this paper. According to procedures defined in the EST project by the OECD, the targets for a major reduction of environmental load within the transport sector are defined to be CO2, NOx, PM, and VOC. Three scenarios to accomplish these reduction targets, with respect to these environmental loads are detailed: a techno-optimistic scenario (EST1), a transport demand management scenario (EST2), and a composite scenario (EST3). All of the scenarios are examined and compared to the business-as-usual (BAU) scenario. Policy instruments to realize these scenarios and their socio-economic impacts were, to date, not assessed within the study. Utilizing a 'back casting' methodology, expected changes in technology and transport behavior in order to meet an ultimate target of emissions reduction were examined by each of the scenarios. The objective areas consisted of a national study, encompassing the whole of Japan, and a regional (Aichi prefecture) study. The forecasts indicate that CO2 emissions increase by about 10% in Japan but are almost stable in Aichi prefecture. NOx and HC emissions in 2030 are about half, and PM emissions around one quarter of those in 1990 in Aichi prefecture. The results of the back casting indicate that CO2 and NOx reduction targets have severely restrictive conditions. The achievement of targets utilizing only EST1 and EST2 is totally unfeasible. Even in the combined

EST3 scenario, and in light of current trends requirements must include strong recommendations for change such as the significant wide spread use of fuel cell vehicles and the reduction of freight transport demands, and hence the scenario still needs to be discussed further. (A)

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Ref: E123685

The economic impact of environmentally sustainable transport in Germany

Schade, B
Rothengatter, W

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The economic assessment of the Environmentally Sustainable Transportation (EST) scenarios developed throughout this paper are part of Phase 3 of the overall project, which is on social and economic assessment and on devising packages of instruments that - if implemented - would result in attaining EST. Two methods were chosen for the assessment of the scenarios: a qualitative evaluation based on a simplified cybernetic model (SCM) and a system dynamics model (SDM). In the assessment with the simplified cybernetic model, a conservative baseline has been chosen in order to start with a scenario that incorporates some pessimistic views of the industry. The aim is to show that, even in this case, an economic disaster will not occur. The System Dynamics Model ESCOT was designed to consider the ecological and technical aspects of a transition towards sustainable transportation. It is important that ESCOT considers not only first round effects but also secondary effects, which makes it a powerful instrument for the assessment of such large ecological changes. The economic assessment of environmentally sustainable scenarios shows that the departure from car and road freight oriented transport policy is far from leading to an economic collapse. The effects concerning economic indices are rather low, even though the measures proposed in the EST-80% scenario designate distinct changes compared to today's transport policy. The impacts on some economic indicators, however, are clearly negative. With an expansion of the time period for the transition in the EST-50% scenario we derived even more encouraging results than for EST-80%. (A)

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Ref: E123925

Urban multifunctional land use: theoretical and empirical insights on economies of scale, scope and diversity

Vreeker, R
De Groot, HLF
Verhoef, ET

Built Environment
Alexandrine Press, 1 The Farthings, Marcham, Oxfordshire, OX13 6QD, United Kingdom
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A recent planning device aimed at dealing with land scarcity is the propagation of multifunctional land use. This paper describes the evolution of urban planning concepts and their links to economic theory. We argue that the most distinctive feature of multifunctional land use is its emphasis on return to diversity. This concept is rooted in the modern economic theory of agglomeration. Empirical evidence is shown to provide some support for the quantitative relevance of return to diversity, but is still to a large extent in its infancy. More evidence is required for policy purposes aimed at identifying the optimal extent to which multifunctional land use projects have to be pursued. (A)

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Ref: E123915

Why mobility does not have a legitimate place in transport objectives

Simpson, B

Traffic Engineering and Control
Hemming Group, 32 Vauxhall Bridge Road, London, SW1V 2SS, United Kingdom
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The differences between mobility (ability to travel) and accessibility (ability to reach what we need to reach) are outlined. The reasons why the fundamental aim of transport planning, to foster sustainable accessibility, is not being achieved in the UK are considered. These have been identified as the accelerating concern about people with accessibility problems and the continued increase in travel. It is recommended that policies to increase mobility in order to reduce social exclusion should be carefully targeted to reduce disparity. Reducing the disparity in mobility can be achieved by ratchetting up or ratchetting down the level of mobility. The benefits of a policy based on reducing travel are considered.

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Ref: E124988

Evaluating urban sustainability using land-use transport interaction models

Spiekermann, K
Wegener, M

European Journal of Transport and Infrastructure Research
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ISSN 1567-7133

The objective of the EU research project PROPOLIS (Planning and Research of Policies for Land Use and Transport for Increasing Urban Sustainability) was to assess urban strategies and to demonstrate their long-term effect in European cities. To reach this goal, a comprehensive framework of methodologies including integrated land use, transport and environmental models as well as indicator, evaluation and presentation systems was developed. Sustainable development is viewed as comprising the environmental, socio-cultural and economic dimension. Thirty-five key indicators were defined to measure the three dimensions of sustainability, such as air pollution, consumption of natural resources, quality of open space, population exposure to air pollution and noise, equity and opportunities and economic benefits from transport and land use. Indicator values are derived from state-of-the-art urban land use and transport models. A number of additional modules, including a justice evaluation module, an economic evaluation module and a GIS-based raster module, were developed and integrated to provide further indicator values. Both multicriteria and cost-benefit analysis methods are used to consistently evaluate the impacts of the policies. The environmental and social dimensions of sustainability are measured using multicriteria analysis for the evaluation of the indicators, whereas cost-benefit analysis is used for the economic dimension. The modelling and evaluation system has been implemented in seven European urban regions: Bilbao (Spain), Brussels (Belgium), Dortmund (Germany), Helsinki (Finland), Inverness (Scotland), Naples (Italy) and Vicenza (Italy). A large number of policies were tested with the modelling and evaluation system in the seven urban regions. Policies investigated are land use policies, transport infrastructure policies, transport regulation and pricing policies and combinations of these. Besides a common set of policies examined in all seven urban regions, also city-specific local policies were assessed in each urban region. The first part of the paper introduces the methodology and the model system developed. A particular focus is on the development of indicators describing urban sustainability derived from different indicator modules in the modelling system. The second part presents selected aggregated results of the policy testing and evaluation for Dortmund as one of the seven urban regions. The paper concludes with recommendations on how successful strategies to enhance the long-term sustainability of urban regions should look like. (A)

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Ref: E124989

Assessment of UK land-use and transport strategies using land-use/transport interaction modelling

Simmonds, D

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This paper considers the contributions to economic assessment that have been achieved in a series of UK studies which have used applications of the DELTA package as the land-use/economic component of a dynamic land-use/transport interaction model. There are three main sections to the paper. The first examines the use of these models as ways of integrating knowledge about spatial and social change for the purpose of examining alternative land-use and transport strategies. The second reviews some of the results obtained from recent projects in relation to current debates about the impacts of transport change. The third considers progress and outstanding issues in relation to the formal appraisal of the costs and benefits arising from transport interventions. The concluding section comments on some of the remaining issues to be dealt with in using these modelling and appraisal methods in relation to questions of sustainability. (A)

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Ref: E124990

Modelling land use - transport dynamics: the London to Ipswich corridor in the United Kingdom

Devereux, L
Jin, Y
Elston, I

European Journal of Transport and Infrastructure Research

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ISSN 1567-7133

This paper describes the use of an integrated land use and transport model in the development of a long-term strategy for sustainable transport in the London to Ipswich Corridor (LOIS) in the UK. The project is one of a number of larger scale corridor studies commissioned by the UK government as part of a major programme of Multi Modal Studies. The application of the model is reviewed in the dynamic interactions between land use and transport policies, and the choice behaviours of the households and travellers in the region. This helps to explain the ways in which policy initiatives may be assessed in terms of the effectiveness in achieving sustainability objectives for the corridor. (A)

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Ref: E124992

Land-use/transport interaction models as tools for sustainability impact assessment of transport investments: Review and research perspectives

Geurs, KT
Van Wee, B

European Journal of Transport and Infrastructure Research
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2004 v4 n3 p333-55 67 refs
ISSN 1567-7133

Interest in the appraisal of the sustainability impacts of transport policies has grown the last few years, expressing the need for a balanced treatment of economic, environmental and social impacts. This paper represents a first step in creating a framework for Sustainability Impact Assessments; it will also review operational land-use/transport interaction models as assessment tools. An in-depth analysis of the potential impacts of land-use and transport policies, and scenarios, on the economy, society and the environment will present new challenges to land-use/transport interaction models. The first challenge is related to modelling behaviour: i.e. the model should estimate land-use, transport and accessibility impacts in a theoretically sound and consonant manner, and consistently link the full set of (long-term) land-use and (short-term) travel-behavioural responses to these policies. The second challenge is to improve methodologies to (better) include the wider (macro-)economic effects and the passive values. The third challenge is to generate more knowledge for understanding ecological and social impacts, and for the development of related indicators and methodologies to calculate them. A fourth, and final, challenge is related to the presentation and integration of the sustainability impacts, not only including the economic, ecological and social impacts, but also finding the 'right' balance between them. Although recent model developments facilitate a far more comprehensive analysis than is common practice today, there is certainly a need for theoretical and practical research for conducting Sustainability Impact Assessments of land use and transport policies and scenarios. (A)

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Ref: E211770

Application of psychological principles to promote travel behaviour change

Seethaler, R
Rose, G

Transport Engineering in Australia
Institution of Engineers, Australia, 11 National Circuit, Barton, ACT, 2600, Australia
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Travel demand oriented policies aimed at increasing the sustainability of urban transport often face the problem of overcoming unsustainable behaviour patterns that are principally centred around the car and largely dominated by routine choices that do not take sustainability considerations into account. However, current research has shown that information-based campaigns, including the use of incentives, are by and large insufficient for stimulating behavioural change of lasting effect. In this context, social psychology offers a series of six specific persuasion techniques that are equally suitable for private sector marketing as for community based social marketing strategies and that are able to reach beyond the mere raising of awareness and knowledge. In the context of the recent travel behaviour change policies implemented in different metropolitan areas of Australia, the present paper proposes a number of ways in which the six persuasion principles can be systematically introduced into the design of such policies in order to increase response by the target population and in order to secure a lasting reduction in vehicle kilometres travelled. (a)

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Ref: E211784

Social exclusion and transport in SA: moving towards sustainable transport?

Nisi, P

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Australian Institute of Traffic Planning and Management (AITPM), PO Box 6684 Halifax St., Adelaide, South Australia 5000, Australia
2004-08 p27-39 + refs
ISBN 0957884044

This paper attempts to shed light on the relationship between social exclusion and access to transport in South Australia. The first part defines relevant terms, draws on Australian Bureau of Statistics Data to outline current transportation trends and uses mapping of Socio-Economic Indexes for Areas to identify vulnerable groups and areas. The next section explores measures, which support a move towards the vision of a sustainable transport system ensuring 'a fair go' for all South Australians. Finally, the paper highlights threats and opportunities for a socially, environmentally and economically sustainable transport future, thus identifying a range of policy options available to Government to achieve its social justice and transport objectives. (a)

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