



Innovative Urban Transport Concepts



Concepts

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Learn from Innovative Experiences with NICHES



Would you like to increase cycling in your city? Do you want to secure the accessibility of remote areas? Are you looking for additional revenues to invest in sustainable mobility? Are you interested in the reconciliation of freight and passengers' transport conflicts or in introducing less polluting vehicles in your city? NICHES can help you to find the right solution for your problem.

NICHES (New and Innovative Concepts for Helping European Transport Sustainability) is a project supported by the Directorate General for Research of the European Commission. Its overall aim is to facilitate the coordination of research activities of academic institutions, industry, transport operators and authorities regarding key urban transport innovations that lack broad deployment. More specifically, NICHES promotes the most promising new urban transport concepts, initiatives and projects (NICHES Concepts) to move them from their current "niche" position to a "mainstream" urban transport policy application. The project thus wants to contribute to a more efficient and competitive transport system, a healthier environment and improved quality of life in urban areas.

This publication wants to help urban transport decision makers and practitioners to find innovations that could be applied in their cities, by providing an overview of some of the most promising innovative urban transport concepts. It includes the results of the practical research carried out, i.e. a detailed description of the NICHES Innovative Urban Transport Concepts. These are innovative urban transport measures that have proven to be successful in (mostly) European cities. NICHES has explored twelve innovative concepts in order to encourage their uptake in different urban contexts. The NICHES Innovative Concepts, selected by European urban transport experts, relate to four themes that are considered to be a priority for a sustainable and innovative urban transport system. The twelve NICHES Concepts are summarised in Table 1.

Table 1: NICHES thematic areas and Concepts

Thematic areas	New seamless mobility services	Innovative approaches in city logistics	New non-polluting and energy efficient vehicles	Innovative demand management strategies
NICHES Innovative Urban Transport Concepts	Urban Lift-sharing Services	Space Management for Urban Delivery	Policy Strategy for Clean Vehicles	Transportation Management Associations (TMA)
	Public Bicycles	Inner-city Night Delivery	Biogas in Captive Fleets	Local Taxes or Charges, Ring-fenced for Transport
	Call-a-bus Services	Alternative Solutions for Home Delivery	Joint Procurement of Clean Vehicles	City-wide Campaigns

The NICHES Innovative Concepts are described in the following pages, providing information on their benefits, the decision criteria for their implementation and contact details for further information. Detailed information on the success factors and transferability of these concepts is available on www.niches-transport.org, as well as a Policy note for each of the Concept.

New Seamless Mobility Services

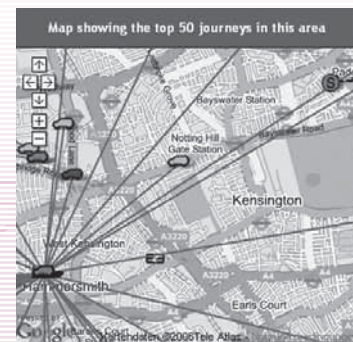
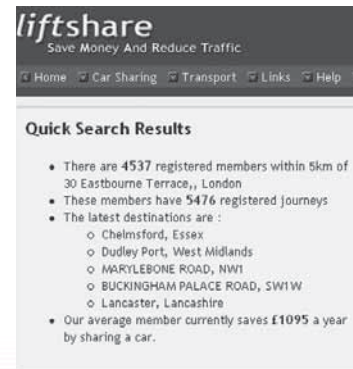
Concept 1: Urban Lift-sharing Services

Key Characteristics

Urban Lift-sharing Services are matching services that bring together people travelling in the same direction, aiming to encourage individuals to share private vehicles for particular journeys. Innovative formal lift-sharing schemes use advanced technologies like matching software, the internet and optional call centres for trip matching, and are open to all. Such schemes have the potential to take the old idea of lift-sharing to a new level and to better reach the necessary critical mass of users to make them work. The main focus of these services is commuter traffic in urban agglomerations and the surrounding regions.

Urban Lift-sharing Services such as Liftshare.com (UK) and Pendlernetz (Germany) have reached a mature status and prove to be reliable. They received positive publicity, for example as response to rising gas prices. However, the concept of Urban Lift-sharing Services is still not widely spread across Europe, although practitioners see no big obstacles to transfer the idea to other countries. The development and implementation of Lift-sharing Services has relatively low costs and entry barriers.

A Policy note with more detailed information on Urban Lift-sharing Services is available on www.niches-transport.org.



Liftshare.com:
**Online matching of people
that want to share a ride**
Source : www.liftshare.com

Benefits

An Urban Lift-sharing scheme

- helps users to achieve considerable cost savings on gas and parking, e.g. in the UK up to 1,500 € a year;
- increases mobility choices and accessibility in areas that are not well served by public transport, with relatively low start-up and running costs;
- has the potential to reduce the number of parking spaces at participating companies;
- reduces the need for a private car;
- has the potential to reduce congestion, energy consumption, air pollution and CO₂ emissions;
- can improve the quality of life through less commuting stress and improved sociability;
- improves work-life balance for lift sharers that are more likely to leave the office on time.

Good Practice: Liftshare.com (UK)

Liftshare is a commercial company that was founded in 1997 by Ali Clabburn, who had the idea of a web-based matching service after using a lift-sharing scheme in Germany. Today, Liftshare is a national service in the UK that also provides separately branded lift-sharing schemes to hundreds of businesses and communities. Users simply enter their liftshare offer or request online via a special portal. Liftshare membership stands at more than 148,000 members and is continuously growing. In 2006, a series of new services, widening the range of modes, was launched (BikeBUDi, WalkBUDi, TaxiBUDi and TravelBUDi).

Key Aspects for Implementation

Check list

City size	At least large regional coverage of journey to work areas required.
Costs	<ul style="list-style-type: none"> ● Relatively low start up and running costs of service; ● Additional marketing costs, which may be higher depending on chosen strategy.
Time horizon	Short term (<3 years).
Stakeholders involved	<ul style="list-style-type: none"> ● Private service provider sets up and operates scheme; ● Public authorities, companies, schools and other organizations buy in; ● Financial and political support from public sector.
Crucial factors	<ul style="list-style-type: none"> ● Creative and cost-efficient marketing; ● Political and financial support from public sector.
Excluding factors	<ul style="list-style-type: none"> ● In principle no big obstacles for transfer (relatively low costs and entry barriers).
Undesirable secondary effects	None



Weblinks

Liftshare.com (UK)

www.liftshare.com

Pendlernetz (Germany)

www.pendlernetz.de

Studies from the Department for Transport (UK)

www.dft.gov.uk/transportforyou/roads/planning/



Pendlernetz liftsharing service. Available in several German regions

Photos: EuropeAlive

Contact Details

For contact details of experts and practitioners on Urban Lift-sharing Services, see last section 'Further Information'.

New Seamless Mobility Services

Concept 2: Public Bicycles

Key Characteristics

Public Bicycles are innovative schemes of rental or free bicycles in urban areas. They differ from traditional, mostly leisure-oriented bicycle rental services as they provide fast and easy access and can be used for daily mobility with one way use being possible. Public Bicycles can be seen as part of the public transport system and offer the user a highly flexible travel option for inner urban trips.

Well working Public Bicycle schemes exist in different formats and the idea is catching up in many European countries, such as Germany, The Netherlands, France and Scandinavian countries. Recently they also started to be implemented in several cities in Spain. Technically simple but theft-sensitive schemes have already been implemented since the late sixties. Today's modern concepts are much more sophisticated and have diversified in organisational layout, business models, and the technology applied towards "smart bikes" (rental process via smart card or mobile phone). The transferability of Public Bicycle schemes to cities with appropriate framework conditions has been proven in many cases.

A Policy note with more detailed information on Public Bicycles is available on www.niches-transport.org.



Vélo'v scheme in Lyon

Photos: Rupprecht Consult

Benefits

A Public Bicycle scheme

- provides a fast, convenient and flexible inner urban transport option;
- can be a "door opener" to increase the acceptance of cycling as a valuable urban transport mode in cities that still lack a good level of bicycle use;
- also makes sense in cities that have a good level of cycling as it adds a valuable element to existing mobility services;
- increases mobility choices, with low costs compared to other public transport measures;
- encourages intermodal travelling in connection with public transport;
- is a wise use of inner urban space, e.g. when bicycle racks substitute parking places for cars;
- strengthens the local identity as it becomes part of the urban landscape.

Good Practice: Vélo'v in Lyon

How did the French City of Lyon encourage thousands of people to use the bicycle as urban transport mode within a few months? Big part of this success story is the introduction of the Public Bicycle scheme Vélo'v. Each of the 2,000 bicycles available at racks throughout the city centre is used 16 times a day on an average summer day. Within the first six months after their introduction, 2 million trips were made with the Public Bicycles, replacing around 150,000 car trips. In combination with the increased use of private bicycles, the scheme helped to increase the bicycle share in the modal split. The use of bicycles increased by 44% within a year.

Key Aspects for Implementation

Check list

City size	Most suitable for medium-sized to large cities (> 200,000 inhabitants).
Costs	<ul style="list-style-type: none"> Compared to traditional public transport relatively cost efficient solution, but depending on the type of scheme low to considerable start-up and running costs; In most cases, financial back up needed to compensate lack of profitability.
Time horizon	Short term (<2 years).
Stakeholders involved	<ul style="list-style-type: none"> Service implementation and operation: public transport operators, street furniture companies, in some cases local authorities; Political support from local authorities; User associations.
Crucial factors	<ul style="list-style-type: none"> Minimum standard of bicycle infrastructure for safe and convenient cycling; Start big with sufficient number of bicycles to achieve a real impact; Resources and space for racks/parking to guarantee the availability of bicycles.
Excluding factors	<ul style="list-style-type: none"> Dangerous cycling conditions; Lack of sufficient financial resources for start up.
Undesirable secondary effects	Potential problems with mutual respect between cyclists and pedestrians as well as car drivers (especially cities with little bicycle use).

Smart card use, Vélo à la Carte, Rennes

Photos : Ronan Mulet,
Clear Channel France



Weblinks

Call a bike (Germany)

www.callabike.de

Vélo'v (France)

www.velov.grandlyon.com

Vélo à la Carte (France)

<http://veloalacarte.free.fr>

OV-Fiets (Netherlands)

www.ov-fiets.nl

OYBike (UK)

www.oybike.com

Contact Details

For contact details of experts and practitioners on Public Bicycles see last section 'Further Information'.

New Seamless Mobility Services

Concept 3: Call-a-bus Services

Key Characteristics

Call-a-bus Services are demand responsive public transport schemes that adapt their itinerary and timetable to suit a particular transport demand. Users need to call and request a pick up in advance. NICHES focuses on selected innovative schemes that provide (nearly) door-to-door services, that have partially or fully flexible itineraries and that use innovative organisational measures to provide their service to the public (e.g. PubliCar Switzerland, MultiBus Germany). Call-a-bus Services are particularly suitable for medium to low density areas. This includes suburban areas as well as small towns and their surroundings in rural areas, where traditional mass transit cannot satisfy the needs of the travellers in a cost-efficient way. They can also be a recommendable option in times of low demand.

Call-a-bus Services have not had a big impact on the overall transport patterns yet. Nevertheless, the idea is spreading and a wide range of schemes exists all across Europe. The general idea behind the concept seems to be well transferable all over Europe, if tailored to the national and local context.

A Policy note with more detailed information on Call-a-bus Services is available on www.niches-transport.org.

Benefits

Call-a-bus schemes

- improve the accessibility in areas where or at times when conventional services cannot do this in a satisfactory way;
- tackle social exclusion of people that do not have access to a car;
- offer potential cost reductions when replacing conventional services in areas or times of low demand;
- can increase public transport use through an improved service quality (flexible and convenient door-to-door transport);
- potentially reduce the need for a private car (or a second family car).



"Our MultiBus": Call-a-bus scheme that gets around difficult licensing issues

Photo: HHS Ingenieure GmbH, Aachen

Good Practice: MultiBus (Germany)

The MultiBus service operates on demand with modern minibuses in an area with approximately 30,000 inhabitants in the district of Heinsberg, which is characterised by a disperse settlement structure. Despite difficult regulatory and legal framework conditions, the MultiBus is operating as (nearly) door-to-door Call-a-bus Service. Pick-up points are located very close to the users' homes, who order the service at least half an hour before the trip via a call centre. The minibus takes the travellers to any destination within the service area and also connects to the main public transport network. The cost advantage to the traditional bus service replaced is approximately 35,000 € a year (42,000 € if newly gained customers are taken into account).

Key Aspects for Implementation

Check list

City size	<ul style="list-style-type: none"> • Suitable for wide range of settlement structures; • Focus on mid to low density areas.
Costs	No cheap solution, but potential to save costs when replacing traditional public transport services in areas and at times of low demand; e.g. the national Swiss PubliCar Scheme showed a 5% increased cost efficiency when replacing conventional bus lines with less than 8 passengers or a cost recovery of <20%.
Time horizon	Short term (<2 years).
Stakeholders involved	<ul style="list-style-type: none"> • Implementation: public transport operators, expert consultants, providers of disposition systems; • Support and funding from public authorities.
Crucial factors	<ul style="list-style-type: none"> • Serve areas and times of low demand where Call-a-bus schemes show their competitive edge; • Availability of public funding for flexible public transport services.
Excluding factors	Prohibitive legal and regulatory framework, which can be decisive for the layout of the service (e.g. possibility of door-to-door service) and the availability of public co-funding.
Undesirable secondary effects	Possible inefficient use of Call-a-bus Services by clients when line bound services could also be used for certain routes.



DrinBus, demand responsive transport in Genoa, Italy

Photos: AMT/AMI, Genoa

Weblinks

PubliCar (Switzerland), Operator Postauto
www.postauto.ch/de/pag_publicar_angebot

MultiBus (Germany) Wuppertal Institut, research
www.wupperinst.org/Projekte/fg2/3203.html

HHS Ingenieure GmbH, Aachen, involved in MultiBus implementation
www.hhs-online.com/download/multibus2004.pdf

CONNECT expert network on flexible transport services
http://projectapps.vtt.fi/Connect/portal/alias_Rainbow/lang_en/tabID_1/DesktopDefault

Demand responsive transport in Genoa, Italy, operated by AMI
www.amt.genova.it/orari/drin_bus.asp

Contact Details

For contact details of experts and practitioners on Call-a-bus Services, see last section 'Further Information'.

Innovative Approaches in City Logistics

Concept 4: Space Management for Urban Delivery

Key Characteristics

Space Management for Urban Delivery is an Innovative Concept that makes efficient use of infrastructure in urban areas taking into account the specific needs of urban goods delivery. The management of infrastructure usage in terms of time and space is a fundamental issue for urban transport planners. Information and communication technologies, together with mechanical access gates or variable message signs, become less expensive and offer a variety of sophisticated new access schemes tailored to individual infrastructures of delivery areas.

One possible solution is the installation of 'multiuse lanes' which can be used for different purposes (e.g. parking, loading and unloading, bus lane, free ride) throughout the day (e.g. multi use lane in Barcelona).

Another solution is the reservation of a dedicated 'delivery area' for loading and unloading at specific times of the day, where delivery equipment and support from dedicated staff is offered to the transport operators (e.g. Espace de Livraison de Proximité (ELP) in Bordeaux).

A Policy note with more detailed information on Space Management for Urban Delivery is available on www.niches-transport.org.

Benefits

Space Management for Urban Delivery

- brings a reduction in travel time for operators between 12 to 15% when applying the multi-use lane concept;
- reduces congestion and delays for freight operators thanks to increased road space for deliveries at certain times;
- reduces energy consumption as the freight vehicle faces less congestion problems or spends less time finding a parking space for deliveries;
- enables a fairer sharing of valuable space/resource;
- reflects a reduction in overall illegal parking activities for both passenger and goods vehicles;
- reduces 'double parking' (parking in the second lane) and leads to improved circulation.



Multi use lane in Barcelona

Photos: City of Barcelona

Good Practice: Multi Use Lane in Barcelona

In Barcelona three lanes have been turned into multi-use lanes with VMS (variable message signs) technology, indicating who is allowed to use them (residents, clear-way, deliveries) according to the time of the day. Transport operators are allowed to use the lane for loading and unloading for maximum 30 minutes. The measure is well accepted by the users and also raises the innovative profile of the city. It represents one of the measures to tackle the problems derived from the uncontrolled growth of private vehicles in the city of Barcelona, which make goods deliveries more and more difficult.

Key Aspects for Implementation

Check list

City size	Rather for medium-sized to big cities (>200,000 inhabitants).
Costs	The equipment for the multi-use lane is quite expensive, adding up to approximately 0.5 million € per route.
Time horizon	Short term (<3 years).
Stakeholders involved	<ul style="list-style-type: none"> • Public authority (city); • Transportation planning agencies; • City and town planning agencies; • Transport operators; • Shops/firms which receive deliveries; • Vehicle drivers; • Public transport operators.
Crucial factors	<ul style="list-style-type: none"> • Commitment of the local authorities, the transport planner, the transport operators, the drivers and the public transport companies; • Enough available space; • Financial support from public sector/public authorities.
Excluding factors	<ul style="list-style-type: none"> • Lack of available urban space; • Lack of authorities' commitment.
Undesirable secondary effects	Less initiative to develop other freight solutions.



Dedicated "delivery area"

Equipment used for city centre deliveries

Photos: ELP Bordeaux



Weblinks

Barcelona -Multi use lane

www.eltis.org/studies/121E.HTM

BESTUFS -see Workshop

Nuremberg, 2005 (BESTUFS II)

www.bestufs.net

Contact Details

For contact details of experts and practitioners on Space Management for Urban Delivery, see last section 'Further Information'.

Innovative Approaches in City Logistics

Concept 5: Inner-city Night Delivery

Key Characteristics

Inner-city Night Delivery concerns deliveries to business (e.g. shops) in the inner-city area during night-time when the city is usually quiet and inactive. Typical times are between 22.00h and 06.00h.

Trials of night-time deliveries in cities such as Barcelona or Dublin have been successful: fewer but larger vehicles operating during the night have reduced the number of vehicles operating during the day.

The Concept of Inner-city Night Delivery addresses the following aspects:

- Delivery during night time using specially equipped vehicles (low noise equipment, CNG etc);
- Allowance for larger trucks to enter the city centre (prohibited during the day).

Within NICHES two different examples have been selected: Barcelona night delivery (Spain) and Dublin night delivery (Ireland).

A Policy note with more detailed information on Inner-city Night Delivery is available on www.niches-transport.org.

Benefits

Inner-city Night Delivery

- reduces delays for the road users during the day by using free road capacity at night;
- reduces emissions and energy consumption because the streets are less crowded and therefore freight vehicles can drive straight to the delivery point with a lower risk of traffic jams;
- improves accessibility of the city for the freight operators, as well as for private drivers and public transport, by shifting trips from the crowded day time to the night;
- enhances road safety, i.e. if more transport vehicles deliver at night, the streets are less crowded during the day and thus safer.



Delivery during night time

Photo : Julio Garcia Ramon, City of Barcelona

Good practice example: Barcelona night delivery

Within Barcelona, a night delivery trial was carried out concentrating the delivery processes between 23.00h and 24.00h in the night and between 05.00h and 06.00h in the morning.

40 ton trucks delivered to grocery stores during the night instead of going to a regional distribution centre. The equipment used was noise adapted, both for the truck as well as the loading and unloading utilities.

As a result the trial was successful in terms of noise intrusion and from the commercial point of view. About 7 trucks were replaced during day time by 2 large trucks during the night.

Key Aspects for Implementation

Check list

City size	Rather for medium-sized and big cities (> 500,000 inhabitants).
Costs	<ul style="list-style-type: none"> • Possible higher costs for low-noise vehicles and equipment, and higher personnel costs; • By contrast, lower transport costs because of a faster and more efficient delivery process.
Time horizon	Short term (<3 years).
Stakeholders involved	<ul style="list-style-type: none"> • Public authorities; • Planning authority; • Transport operators; • Shops/firms which receive deliveries; • Residents.
Crucial factors	<ul style="list-style-type: none"> • Access possibilities; • Commitment of all stakeholders (private side must have a strong interest); • Strong political will and support.
Excluding factors	<ul style="list-style-type: none"> • No access or possible space available for night delivery; • Reluctance of the residents, the transport operators and the businesses; • Lack of public authority will.
Undesirable secondary effects	<ul style="list-style-type: none"> • More noise during the night because of the delivery; • Less investigation into intermodal traffic solutions or inner-city planning solutions.



Night delivery and access restrictions

Photos: PTV Planung Transport Verkehr AG



Weblinks

Night delivery in Barcelona

www.miraclesproject.org

PIEK programme (NL)

www.piek.org

BESTUFS

See Workshop Budapest, 2003

www.bestufs.net

Contact Details

For contact details of experts and practitioners on Inner-city Night Delivery, see last section 'Further Information'.

Innovative Approaches in City Logistics

Concept 6: Alternative Solutions for Home Delivery

Key Characteristics

Alternative Solutions for Home Delivery is an innovative approach for efficiently organising “last mile” processes, i.e. the delivery of parcels to the final customers. Transport operators have a commercial interest to handle the “last mile” efficiently, mainly from a cost perspective.

Compared to traditional doorstep deliveries, the concept considers alternative delivery locations (e.g. locker boxes), time windows for the delivery, as well as alternative redelivery strategies, if the consignee is not at home.

When supported by an efficient transport planning and fleet monitoring system, and ensuring the time windows provided, significant savings in urban vehicle km driven can be achieved.

Home delivery services can be found in different forms across Europe. The most common approach is the delivery of parcels by postal services. Recently, new home delivery approaches have appeared thanks to e-commerce.

A Policy note with more detailed information on Alternative Solutions for Home Delivery is available on www.niches-transport.org.

Benefits

Alternative Solutions for Home Delivery

- improves quality of life and traffic patterns – less congestion in the inner-city, more independence for the user as he does not need to meet the delivery person;
- improves the efficiency of transport – unsuccessful delivery attempts can be avoided, and the last mile costs can be reduced;
- provides more alternatives for private persons (open 24 hours, customers can pick up parcels whenever wanted);
- reduces the number of rides and stops for the delivery vans and gives more independence for the operators in planning tours (less costs for the operators) which results in lower energy consumption.



DHL PackStation (locker box)

Photo : Deutsche Post

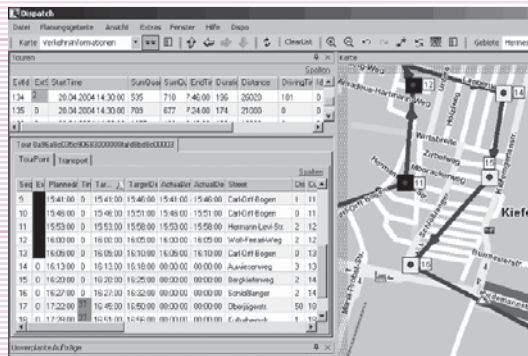
Good Practice: DHL PackStation (locker boxes)

About 1 in 15 cases of home delivery fails in the first attempt because the consignee is not at home. The DHL PackStation was designed to address this issue. It is an unattended delivery location at particular sites (companies, local authorities, universities, other strategic locations) for shipment in the B2C (business to consumer) segment. The PackStation offers the possibility to have access to the ordered parcel on 7 days over 24 hours for a broad range of products (parcels, spare parts for service technicians, online payments with credit cards, return shipment). So far over 700 PackStations have been installed in Germany.

Key Aspects for Implementation

Check list

City size	No restriction.
Costs	Low cost or even no costs for cities, only if some infrastructure adjustments are necessary.
Time horizon	Short term (<3 years).
Stakeholders involved	<ul style="list-style-type: none"> Private company; Private users; Public authorities; City planners.
Crucial factors	<ul style="list-style-type: none"> Positive commitment of private companies; Sufficient number of users who are willing to use the new system.
Excluding factors	<ul style="list-style-type: none"> Lack of initiative of private companies, which need to push the implementation; Problem to finance the project.
Undesirable secondary effects	<ul style="list-style-type: none"> Increase of the use of private cars due to self pick-up; More congestion in the area around the locker box locations.



User interface of the VMTL-system for transport surveillance which supplies the message service with updated information

Source: PTV Planung Transport Verkehr AG



A client is informed by the message service

Photo: VMTL; Hermes

Weblinks

DHL PackStation (Germany)

www.dhl.de

VMTL

www.invent-online.de

Contact Details

For contact details of experts and practitioners on Alternative Solutions for Home Delivery, see last section 'Further Information'.

New Non-polluting and Energy Efficient Vehicles

● Concept 7: Policy Strategy for Clean Vehicles

Key Characteristics

Policy Strategy for Clean Vehicles aims to provide long-term stability for the stakeholders of the Alternatively Fuelled Vehicles (AFV) market and tries to involve new consumer groups. Such a strategy represents a clear vision of how an AFV society would look like, a clear analysis of the obstacles and a systematic approach to overcome barriers. The basis is often a strong political commitment.

The strategy will differ from city to city depending on the type(s) of fuel available, the type(s) of vehicles, target groups etc.

For example, gaseous fuels need expensive infrastructure and expensive vehicles, while natural gas is a much cheaper alternative than petrol and diesel. Ethanol vehicles and infrastructure are relatively cheap but, depending on the taxes, the fuel is more expensive than diesel. A prerequisite to succeed in making private companies choose AVFs is to make this choice more economical. This calls for a number of incentives and disincentives for fuel, vehicles, infrastructure etc. Examples of such strategies are: clean vehicles in Stockholm (SE) and Bremer Offensive – Das Erdgasfahrzeug (DE).

A Policy note with more detailed information on Policy Strategy for Clean Vehicles is available on www.niches-transport.org.

Benefits

A long-term strategy for the introduction of Clean Vehicles

- provides the market long-term stability for investments;
- gives companies security when investing in new technology;
- decreases emissions of greenhouse gases;
- reduces local emissions (amount depending on the kind of fuel);
- reduces dependency on oil;
- reduces noise emissions;
- increases the demand for alternative fuels, which leads to increased availability;
- contributes to clean air management (legislation).



Refuelling methane

Photo: volvocars.com

Good Practice: Clean Vehicles in Stockholm

Since the introduction of electric vehicles in the city fleet in 1996, Stockholm has developed a long-term strategy aiming for a market break-through of clean vehicles (biogas, ethanol and electric/ electric hybrids). This objective is met when such vehicles constitute about 5% of the market share. The number already represents about 10% of all light vehicle sales in Stockholm. To reach the objective, the strategy focused on private companies. The main activities have been:

- Support for building fuel stations;
- Large procurements of clean vehicles to introduce new technology at lower prices.

Key Aspects for Implementation

Check list

City size	No restriction. AFVs can be introduced in all cities. Cooperation between small cities creates a critical mass of demand.
Costs	Medium cost, depending on nature of incentives.
Time horizon	Short term (<3 years). The vehicles exist (biogas, ethanol, very energy efficient vehicles), as well as a broad knowledge and availability of fuels.
Stakeholders involved	<ul style="list-style-type: none"> • Politicians; • National and local authorities; • Private companies; • Car producers; • Fuel distributors.
Crucial factors	<ul style="list-style-type: none"> • Political interest; • Environmental awareness.
Excluding factors	<ul style="list-style-type: none"> • Discouraging taxation/legislation; • Rules and regulations that counteract the use of biofuels.
Undesirable secondary effects	During start-up, service and maintenance may be weak.



CNG limousine service



CNG Bus

Photos: www.greenfleet.info (SUGRE project)

Weblinks

AFVs in Stockholm (SE)

www.miljofordon.se

BEST (EU project on ethanol)

www.best-europe.org

AFVs in Bremen (DE)

www.bremer-erdgasfahrzeug.info

Info on renewable fuels (NL)

<http://gave.novem.nl>

SUGRE (EU project)

www.sugre.info

Contact Details

For contact details of experts and practitioners on Policy Strategy for Clean Vehicles, see last section 'Further Information'.

New Non-polluting and Energy Efficient Vehicles

Concept 8: Biogas in Captive Fleets

Key Characteristics

Biogas made from wastewater or solid biological material is the cleanest vehicle fuel commercially available.

It hardly produces any hazardous emissions and very little greenhouse gases. Producing and using biogas as a fuel is a way to decrease vehicle emissions and can also be used to reduce the waste problem, as well as improve the competitiveness of rural societies. Biogas is suitable for city fleets as it is usually available in all cities from water treatment plants. A big variety of vehicles is available, including buses, garbage trucks, transporters, cars, vans and lorries. Using biogas in a fleet requires no extensive fuelling infrastructure for cities with a natural gas grid, as it is convenient to inject the purified biogas directly into the grid. The use of biogas for fleets thus has the potential to further spread across many countries, but the concept needs more promotion and dissemination. Examples of successful implementation are Svensk Biogas AB in Linköping (SE), Lille Metropole (FR), Gothenburg Green Gas (SE) and BiogasMax (EU project).

A Policy note with more detailed information on Biogas in Captive Fleets is available on www.niches-transport.org.

Benefits

Biogas in Captive Fleets

- provides for a waste disposal and recycling strategy;
- stimulates rural development and the use of agricultural feedstock for biofuel production;
- reduces the dependency on oil;
- reduces noise.



Biogas production plant in Linköping

Photo: Svensk biogas

Good Practice: Biogas bus fleet in Lille

In 1990, Lille Metropole decided to fuel the urban bus service with natural gas. A few years later, Lille learned about biogas and in 1995 a pilot biogas purification plant was implemented, serving 8 buses, with sewage as input. This trial was successful and the decision was taken to build a biogas plant that could serve part of the fleet of 400 buses and waste lorries. A new biogas plant is under construction and will be ready by 2007. Lille will use solid organic waste from restaurants and parks as feedstock and will produce 3.6 Nm³ upgraded biogas/year, which will fuel up to 100 buses. The price will be 0,77 €/km when used in buses.

Key Aspects for Implementation

Check list

City size	No restriction. Cooperation between smaller cities facilitates implementation.
Costs	<ul style="list-style-type: none"> • High investment cost in production; • Low operational costs give payback time 10-15 years.
Time horizon	Medium term (3-5 years).
Stakeholders	<ul style="list-style-type: none"> • Public authority (city); • Company (fuel producer/fuel distributor).
Crucial factors	<ul style="list-style-type: none"> • Political interest; • Confirmed large user of biogas.
Excluding factors	Taxation/legislation and rules and regulations that discourage the use of biofuels.
Undesirable secondary effects	When biogas was used for heating/electricity, replacement by other energy sources is required, in order to use biogas for transport.



Refuelling biogas

Photo: Sven Alexanderson

Weblinks

BiogasMax (EU project)

www.biogasmax.eu

Biogas in Stockholm

www.miljo.stockholm.se

Info on biogas

<http://wikipedia.org/wiki/Biogas>

SUGRE (EU project)

www.sugre.info

Contact Details

For contact details of experts and practitioners on Biogas in Captive Fleets, see last section 'Further Information'.

New Non-polluting and Energy Efficient Vehicles

● Concept 9: Joint Procurement of Clean Vehicles

Key Characteristics

One of the most common problems when introducing Alternatively Fuelled Vehicles (AVFs) is finding appropriate vehicles. AVFs still face an uncertainty of demand and car dealers therefore often abstain from introducing a model in a country. Gathering a substantial amount of buyers can help to overcome this problem. Giving the vehicle sellers a guaranteed demand also makes it possible to lower the unit price.

The market for cars and light duty vehicles is more or less pan-European and consists of about 200 million cars, vans, minibuses and transporters. This means that it is hard for any single actor to influence that market. By gathering a larger number of customers, it is however possible to get the producers interested. Joint procurement can be used to introduce new technologies onto the market, as well as more models, and/or get a lower price for new technologies. Joint procurement can be set up within one country or across countries.

A Policy note with more detailed information on Joint Procurement of Clean Vehicles is available on www.niches-transport.org.

Benefits

Joint Procurement of Clean Vehicles

- shows the market the demand for clean vehicles;
- introduces new models of clean vehicles on the market;
- gives interested buyers the opportunity to buy clean vehicles;
- improves business through introducing new technology;
- can lead to a decreased dependency on oil;
- decreases greenhouse gas emissions;
- improves air quality;
- reduces noise.



FFV car at E85 pump

Photo: Kristina Birath, Inregia

Good Practice: Coordinated procurement of FFV in Sweden

In 1998, the City of Stockholm organised the joint procurement of a car able to use E85 fuel (FlexiFuel Vehicle, FFV).

A list of requirements for the car was developed by a large number of buyers. An information campaign raised the interest of more buyers and resulted in an order of 4,000 cars placed by the buyers. This led to the introduction of the Ford Focus FFV on the Swedish market in late 2001. In 2004 Saab and later also Volvo presented ethanol vehicles (Saab 9-5 BioPower and Volvo V50F). By mid 2006, 38,000 ethanol vehicles were sold.

Examples of ongoing joint procurements: Ethanol buses (SE), CNG/Biogas heavy vehicles (DE).

Key Aspects for Implementation

Check list

City size	No restriction, but national or international procurements create a bigger demand.
Costs	Low cost for the procurement project and a possibility for lower prices of vehicles.
Time horizon	Short term (<3 years).
Stakeholders	<ul style="list-style-type: none"> • Public authority (city); • NGO.
Crucial factors	<ul style="list-style-type: none"> • Leader must have experience with the technology; • Environmental awareness; • Interest from large fleet owners.
Excluding factors	No restriction
Undesirable secondary effects	None



Ethanol bus in Slupsk

Photo: Oleg Lomonos

Weblinks

AVFs in Stockholm

www.miljobilar.stockholm.se

Ethanol bus procuremen

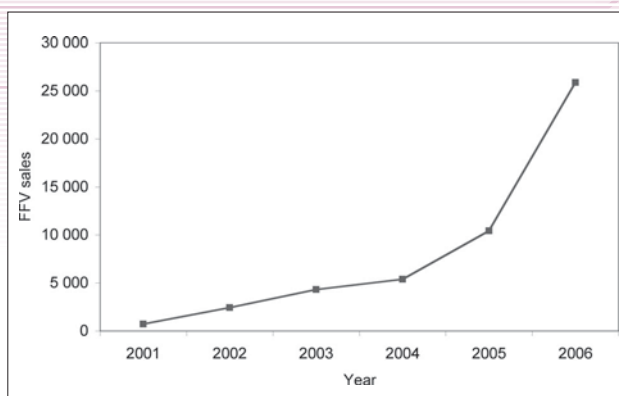
www.ethanolbus.com

Gas lorry procurement

www.bremer-erdgasfahrzeug.info

Ethanol cars sold in Sweden 2001-2006

Graph: Kritina Birath, Inregia. Source of data: www.baff.info



Contact Details

For contact details of experts and practitioners on Joint Procurement of Clean Vehicles, see last section 'Further Information'.

Innovative Demand Management Strategies

● Concept 10: Transportation Management Associations (TMA)

Key Characteristics

Transportation Management Associations (TMA) are public-private partnerships that address local transport related issues and operate under a variety of organisational structures, depending upon the nature and duration of the problems addressed, the mission, the members and the funding sources available. They propose selected approaches that facilitate the movement of people and goods within an area, provide transport demand management assistance and give a voice in transport decision making, including carpooling and public transport services.

TMA's vary considerably from one region to another and it is therefore difficult to elaborate a neat definition. Perhaps the most defining characteristics of TMA's are their diversity and flexibility, which make them easily transferable to other contexts.

Currently, Transportation Management Associations only exist in North America where it is a mature solution that has proven effective.

A Policy note with more detailed information on Transportation Management Associations is available on www.niches-transport.org.

Benefits

The development of a properly conceived, efficiently operated and adequately funded TMA

- solves concrete and perceived problems and proposes practical solutions at an appropriate scale;
- takes into account and integrates the aims of different stakeholders and creates the necessary conditions for an efficient stakeholder involvement;
- ensures better economic cooperation and financial savings to businesses and employees;
- creates good transport infrastructures and alternatives to ease commuting;
- contributes to reducing congestion, parking problems and to improving job accessibility;
- increases accessibility and affordability of transport alternatives;
- ensures acceptable transit/travel times and reliability of transport.



Photo: Stock Xchng, www.sxc.hu/index.phtml

Good Practice: Smart Commute – North Toronto -Vaughan

Smart Commute NTV is a private, non-profit membership organisation located in the Black Creek area, north of Toronto. This area has more than 150,000 employees who currently generate over 62,000 car-commuting trips every working day. The association represents approximately 72,000 employees and students. It operates several trip reduction programmes and supports all forms of sustainable transport infrastructure. It manages transport demand by promoting environmental and financial gains of alternative transport modes and successfully reduces traffic congestion in the defined area.

Key Aspects for Implementation

Check list

City size	Not relevant.
Costs	<ul style="list-style-type: none"> ● Medium range of annual expenditures: between \$150,000 and \$200,000 (€ 120,000-160,000); ● Main incomes: Membership dues, fees for services, public grants, private contributions.
Time horizon	Short term (<3 years).
Stakeholders	<ul style="list-style-type: none"> ● Employers; ● Transportation planning agencies; ● Environmental government agencies; ● Cities' and towns' planning board; ● Universities etc.
Crucial factors	<p>For launching a TMA:</p> <ul style="list-style-type: none"> ● Leadership of a (private sector) champion; ● Core membership and sustained funding. <p>For enabling a continued existence:</p> <ul style="list-style-type: none"> ● Effective public-private partnerships and good lines of communication; ● Market/customer based attractive services.
Excluding factors	<ul style="list-style-type: none"> ● Lack of political will; ● Lack of existence of a clear and common problem to be solved.
Undesirable secondary effects	Solutions can be at odds with government preferences.

Weblinks

Commuter Challenge (USA)

www.commuterchallenge.org

Smart Commute NTV (CA)

www.smartcommutentv.ca

2003 Transportation Management Association Survey (CUTR)

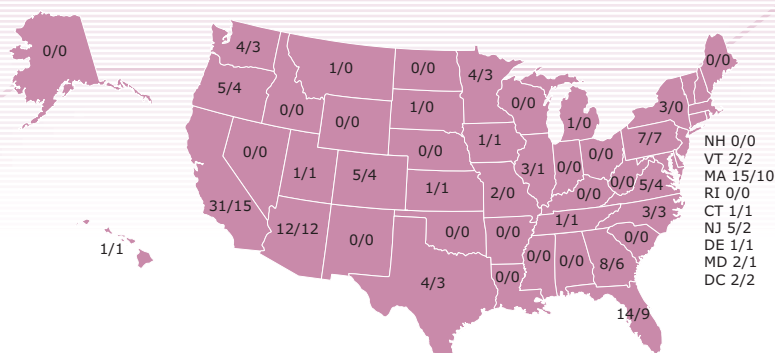
www.nctr.usf.edu/clearinghouse/html/526-101.htm

Transportation Management Associations, a mature solution in the US

With a total number of 146 TMAs in existence, the net number of TMAs increased by less than 5% over the past ten years. Context conditions are different all over the US, and still the TMAs are running almost everywhere. A survey from April 2004 shows that at least one Transportation Management Association is located within the 29 states and the District of Columbia while no TMAs are located within the remaining 21 states (see figure below).

Contact Details

For contact details of experts and practitioners on Transportation Management Associations, see last section 'Further Information'.



Legend: X/X TMAs Identified/TMAs Responded

Source: Centre for Urban Transportation Research – 2003 Transportation Management Association Survey Final Report – April 2004

Innovative Demand Management Strategies

● Concept 11: Local Taxes or Charges, Ring-fenced for Transport

Key Characteristics

This Concept refers to the introduction of taxes or charges at the local level that aim to benefit the urban transport system as a whole. They differ from traditional taxes or charges, as all revenues collected through these taxes are directly reinvested to improve the local transport system. These charges or taxes are policy instruments requiring good cooperation between all levels of governance.

The charges or taxes can take various forms, such as a road user charge, a workplace parking levy or a congestion charge. This particular concept has been extensively analysed over the last few years, yet the number of practical examples available remains quite low. The fact that the schemes in operation are robust and working properly may not be enough to prove that the Concept is already mature.

Research shows however, that this concept is likely to be implemented by more local authorities over time. It is a necessary step, as simply providing new road and/or public transport capacity is not enough to reverse the increasing share of car travel and the decreasing share of public transport journeys in cities.

A Policy note with more detailed information on Local Taxes or Charges, Ring-fenced for Transport is available on www.niches-transport.org.

Benefits

In a market economy, Local Taxes or Charges, Ring-fenced for Transport can

- act as signals to consumers about the real costs associated with particular goods or services;
- generate revenues for the improvement of the overall transport system, encouraging a better modal balance;
- reduce traffic congestion and volumes in metropolitan areas;
- create a better quality of life and public recognition of high environmental and societal costs of everyday mobility;
- elaborate robust technologies to ease commuting and ensure road safety;
- contribute to an efficient distribution of goods and services.



A Congestion Charging sign in London

Photo: Dan Firth

Good Practice: Congestion Charging in London

Congestion Charging was successfully introduced in central London in February 2003. It contributes to achieving four transport policy objectives: reduce congestion, improve bus services, improve journey time reliability and better distribute goods and services.

Concretely, the reduction of congestion has been maintained at an average level of 30%. Ongoing improvements to the bus network continue to bring benefits and quality of life has improved and is acknowledged. London also succeeded in reducing road traffic accidents within the charging zone and on the boundary route. A 12% reduction in emissions of key traffic pollutants has also been achieved.

Key Aspects for Implementation

Check list

City size	Medium-sized to big cities (> 200.000 inhabitants).
Costs	<p>Differ drastically from one scheme to another. Local authorities should foresee a budget for:</p> <ul style="list-style-type: none"> • Equipment costs (camera, tool booths); • Operating costs (call centre enquiries, staff costs); • PT improvement expenses.
Time horizon	The elaboration of a pricing scheme will take some time but impacts will be noticeable quickly after launch.
Stakeholders	<ul style="list-style-type: none"> • National Government; • Regional Government; • Local Government; • Transport authority; • Planning authority; • Transport operators; • Emergency services.
Crucial factors	<ul style="list-style-type: none"> • Political will and strong leadership; • Good management based on clear rules: set the right charge and communicate it well.
Excluding factors	<ul style="list-style-type: none"> • Political fears; • Problem to finance alternative means of transport.
Undesirable secondary effects	Social exclusion could become problematic if the pricing scheme is not designed correctly.

Weblinks

Central London Congestion Charging Scheme, Impacts Monitoring – Third Annual Report (April 2005)
www.tfl.gov.uk/tfl/cclondon/cc_publications-library.shtml#reports

Evaluation of the congestions charging in Stockholm
www.stockholmsforsoket.se

Central London Congestion Charging Scheme – Congestion on the Inner Ring Road

Concerns were raised before the introduction of charging that traffic diverting on to the Inner Ring Road to avoid paying the charge would lead to increased congestion. Congestion on the Inner Ring Road has been measured by dedicated speed surveys.

Values for the surveys following the introduction of charging in 2003 were typically between 1.5 and 1.7 minutes per km, representing reductions between 10-20 % in congestion.

Source: Central London Congestion Charging Scheme, Impacts Monitoring – Third Annual Report (April 2005)



A Congestion Charging line in London

Photo: Dan Firth

Contact Details

For contact details of experts and practitioners on Local Taxes or Charges, Ring-fenced for Transport, see last section 'Further Information'.

Innovative Demand Management Strategies

Concept 12: City-wide Campaigns

Key Characteristics

City-wide Campaigns are innovative awareness raising events and activities that are organised at city level in close cooperation with public and private bodies and that are run on a long-term basis.

These campaigns respond to the need of involving citizens in local mobility policies and raising their awareness on the various transport opportunities that are offered within a city and its surroundings. They aim to disseminate a clear message, promoting sustainable urban mobility, and to inform the local community on the different transport modes at hand. Some of these broad campaigns use the brand of an integrated transport system through different communication tools such as postcards, advertisements on buses, TV commercials etc., which is of clear added-value. They outline benefits of green alternatives to cars and gather all marketing messages into a single and coherent brand.

City-wide Campaign schemes can be found in different forms, but they all encourage public discussions on potential or already existing mechanisms and alternative transport modes.

A Policy note with more detailed information on City-wide Campaigns is available on www.niches-transport.org.

Benefits

City-wide Campaigns

- can improve the effectiveness of most transport-related measures and strategies;
- increase understanding and acceptance of transport measures put in place;
- increase public support and public ownership;
- contribute to stabilising traffic growth;
- increase knowledge and rational planning;
- create the necessary conditions for an efficient citizen participation process.



Big Wheel Campaign illustrations

Source: Greater Nottingham Transport Partnership

Good Practice: Big Wheel Campaign (City of Nottingham)

The government of Nottingham experiences problems with ever increasing road traffic, causing congestion. A comprehensive transport network covering the whole conurbation was built, called the Big Wheel. It is a physical structure with spokes, a rim and a hub. The Big Wheel is a great asset for commuters as it offers necessary facilities, real-time information, personal travel plans, maps on the most suitable and pleasant routes. In order to make this new system work, the Greater Nottingham Transport Partnership introduced marketing and promotional actions with the branding of this new transport system throughout the whole city.

Key Aspects for Implementation

Check list

City size	Not relevant.
Costs	The elaboration of a whole city campaign is costly. It can go up to €400,000 a year.
Time horizon	The impact of such a campaign will be noticeable on a long-term basis (> 5 years).
Stakeholders	<ul style="list-style-type: none"> • City authority; • Metropolitan area authority; • Public transport operators; • Schools; • Employers; • User groups; • Media; • Communication agencies; • Designers etc.
Crucial factors	<ul style="list-style-type: none"> • Product to market and multi-faced promotional materials; • Cultural and target group analysis.
Excluding factors	<ul style="list-style-type: none"> • Insufficient funding; • Changing support of stakeholders.
Undesirable secondary effects	Conflicting or too many messages, which can lead to fatigue amongst citizens.

Weblinks

Big Wheel campaign (Nottingham)

www.thebigwheel.org

Antwerpen (Antwerp)

www.antwerpen.be

Good Going (London)

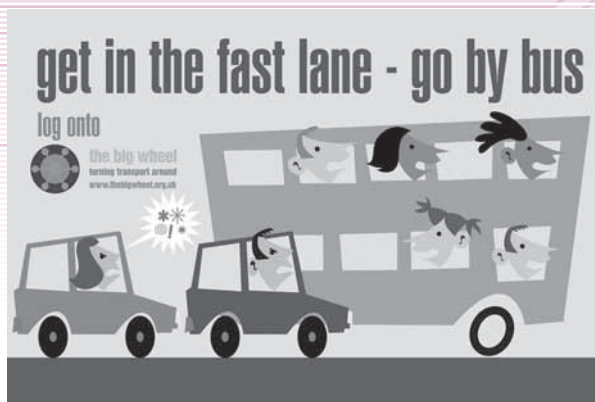
www.goodgoing.co.uk

Big Wheel survey

Surveys conducted in 2001-2003 and 2004 show that the awareness of local transport plans (LTP) has increased from 39% to 71% in the 2004 survey. Around half the respondents aware of the LTP lived in the City with an even split between age groups.

The study also suggests that there is a strong increase in acceptance of the transport measures being implemented in Nottingham, with a steady upward trend in terms of the measures being considered as very effective.

Source: Local transport plan for Greater Nottingham
– Provisional Plan 2006/7 – 2010/11



Big Wheel Campaign illustration

Source: Greater Nottingham Transport Partnership

Contact Details

For contact details of experts and practitioners on City-wide Campaigns, see last section 'Further Information'.

Further Information

In Table 2 you can find the contact details of the NICHES Consortium partners, whom you can contact for more information on NICHES project, its thematic areas and general information on the NICHES Concepts.

Table 2: NICHES Consortium contact details									
surname	name	institution /company	CC	e-mail	tel	address	city code	city	website
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New Seamless Mobility Services									
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Innovative Approaches in City Logistics									
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Wild	Dieter	PTV Planung Transport Verkehr AG	DE	dieter.wild@ptv.de	+497219651 177	Stumpfstrasse 1	76131	Karlsruhe	www.ptv.de
New Non-polluting and Energy Efficient Vehicles									
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Hugosson	Björn	City of Stockholm	SE	bjorn.hugosson@miljo.stockholm.se	+46 70 47 28 940	Box 8136	10420	Stockholm	www.miljo.stockholm.se
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This report has been prepared with the support of urban transport practitioners working in areas related to the NICHES Innovative Concepts (through their participation in the NICHES focus group meetings or through personal interviews carried out by the NICHES Consortium members).

For further information on the specific Innovative Concepts you can contact the **urban transport experts** involved in the NICHES project. Their **contact details** are available on OSMOSE, the portal for urban transport innovation launched in the framework of NICHES (www.osmose-os.org).

The mission of NICHES is:

to stimulate a wide debate on innovative urban transport and mobility between relevant stakeholders from different sectors and disciplines across Europe.

NICHES promotes the most promising new concepts, initiatives and projects, to move them from their current 'niche' position to a 'mainstream' urban transport policy application.

NICHES team

The NICHES consortium is composed of a variety of experts in the field of urban transport, ensuring the knowledge of the academic sector (Warsaw University of Technology), the experience of cities (Stockholm), the expertise of consultants (Rupprecht Consult, PTV Planung Transport Verkehr AG) and the multiplier effect of the networks (POLIS, EUROCITIES, CEMR).



CITY OF STOCKHOLM
ENVIRONMENT AND HEALTH ADMINISTRATION

*For more information contact the NICHES consortium partners
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www.niches-transport.org
www.osmose-os.org

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