LIVING LABORATORIES
10 YEARS OF CIVITAS FROM AALBORG TO ZAGREB

CONTRIBUTIONS MADE TO SUSTAINABLE URBAN MOBILITY IN 58 EUROPEAN CITIES BETWEEN 2002 AND 2012

THE CIVITAS INITIATIVE IS CO-FINANCED BY THE EUROPEAN UNION
ABOUT CIVITAS VANGUARD

Launched in September 2008, CIVITAS VANGUARD was a 54-month grant-based project of the European Commission’s Directorate-General for Mobility and Transport, funded as part of the CIVITAS Initiative. Funded under the Seventh Framework Programme for Research and Technological Development, VANGUARD focused on the dissemination of research activities, results and experiences from cities and projects participating in the CIVITAS Plus phase of the Initiative.

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www.civitas.eu
ABOUT THIS PUBLICATION

The city stories showcased in *Living Laboratories* are derived from a poster series commissioned between 2008 and 2012 to display a selection of key measures from each CIVITAS demonstration city across all phases of the Initiative. The particular character of each city sets the scene, while the selected measures show how cities embraced innovations in transport practice, infrastructure and technology.

Full details of all CIVITAS cities can be found on the Initiative’s webpage www.civitas.eu. It is here also that readers can find comprehensive information on all measures implemented, including extensive documentation, articles and contact details.

While copies of the posters are not available for distribution, print files can be obtained from the CIVITAS Secretariat upon request. Those interested should contact secretariat@civitas.eu.
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**Conclusion**
Europe’s cities are home to over two thirds of our people, three quarters of our carbon emissions, and four fifths of our economic activity. So if we want to make Europe greener, more pleasant, more prosperous for all its people, then the answer starts in cities.

How we travel around those cities is key. Europe is the home to one of the world’s best transport systems, and to many places that lead the world in urban mobility. But the world is changing: on the one hand, the challenges of congestion, climate change, and scarce resources; on the other, the opportunities offered by new innovation, including digital technology. To meet the needs and expectations of our people, as cities develop and evolve — we need to change, and be open to new solutions.

This is not easy: it needs innovation, resources and technical knowhow. Most of all, it needs leadership. Each city has its own needs and priorities. But together they can help Europe achieve common goals: to become stronger, greener, and more socially cohesive.

For over ten years the European Union has supported and invested in the CIVITAS Initiative, where cities themselves take the lead innovating for cleaner, better urban mobility. Over 800 measures have been developed and implemented – with independent experts monitoring and evaluating, to find out what works and what does not. That experience can then be shared across Europe: all their reports and analysis are available online for free, so every European city can benefit from the wealth and diversity of information. For me this is just one example of how we can all gain by working together.

The case studies presented in ‘Living Laboratories’ show very clearly the success stories across Europe: and show the direct difference the right leadership can bring. From better bike lanes to clean, alternative fuels, this brings a benefit for every citizen and for our whole continent: as I have seen in my own city of Ljubljana.

The best practices are there for us all to see and share. Over the coming years I hope to see more and more cities take them up – so that, by 2020, all European cities are smart, economically strong, and environmentally sustainable.

Violeta Bulc
European Commissioner for Transport
AN INITIATIVE OF MANY PHASES

Running since 2002, the CIVITAS Initiative is now in its fourth phase of demonstration projects. With the most recent set of measures and projects still underway, this publication explores the activities of the first three phases only. Let’s take a closer look.

CIVITAS I

In early 2000, the European Commission recognised the need for action on pressing urban challenges, launching the CIVITAS Initiative (CIty-VITAlity-Sustainability) to help cities test and assess new and integrated approaches that combined urban environmental, energy and transport issues. Running from 2002 to 2006, CIVITAS I was the inaugural phase of the Initiative. Four projects were launched and 19 cities from 15 countries participated.

**MIRACLES**
Barcelona, Spain; Cork, Ireland; Rome, Italy; Winchester, UK

**TELLUS**
Berlin, Germany; Bucharest, Romania; Gothenburg, Sweden; Gdynia, Poland; Rotterdam, The Netherlands

**TRENDSETTER**
Graz, Austria; Lille, France; Pecs, Hungary; Prague, Czech Republic; Stockholm, Sweden

**VIVALDI**
Aalborg, Denmark; Bremen, Germany; Bristol, UK; Kaunas, Lithuania; Nantes, France

CIVITAS I was funded by the Fifth Framework Programme for Research and Technological Development.

CIVITAS II

Running from 2005 to 2009, CIVITAS II saw the work started in 2002 consolidated. Four more projects came online and 17 cities from 12 countries participated.

**CARAVEL**
Burgos, Spain; Genova, Italy; Krakow, Poland; Stuttgart, Germany

**MOBILIS**
Debrecen, Hungary; Ljubljana, Slovenia; Odense, Denmark; Toulouse, France; Venice, Italy

**SMILE**
Malmö, Sweden; Norwich, UK; Potenza, Italy; Suceava, Romania; Tallinn, Estonia

**SUCCESS**
La Rochelle, France; Ploiesti, Romania; Preston, UK

CIVITAS II was funded by the Sixth Framework Programme for Research and Technological Development.
CIVITAS PLUS

In 2008, a third phase of the Initiative was launched, which ran until 2012. The largest phase to date, five projects involving 25 cities from 15 countries were implemented. Two new thematic categories for action were introduced — safety and security; and transport telematics.

ARCHIMEDES
Aalborg, Denmark; Brighton & Hove, UK; Donostia–San Sebastian, Spain; Iasi, Romania; Monza, Italy; Usti nad Labem, Czech Republic

ELAN
Brno, Czech Republic; Ghent, Belgium; Ljubljana, Slovenia; Porto, Portugal; Zagreb, Croatia

MIMOSA
Bologna, Italy; Funchal, Portugal; Gdansk, Poland; Tallinn, Estonia; Utrecht, The Netherlands

MODERN
Brescia, Italy; Coimbra, Portugal; Craiova, Romania; Vitoria–Gasteiz, Spain

RENAISSANCE
Bath, UK; Gorna Oryahovitsa, Bulgaria; Perugia, Italy; Skopje, Former Yugoslav Republic of Macedonia; Szczecinek, Poland

CIVITAS Plus was funded by the Seventh Framework Programme for Research and Technological Development.

CIVITAS PLUS II

In 2012, the fourth and current phase of was launched. It will run until 2016. Two projects involving eight cities from seven countries are active, with all measures and activities accessible via the Initiative’s website, www.civitas.eu.

DYN@MO
Aachen, Germany; Gdynia, Poland; Koprivnica, Croatia; Palma, Spain

2MOVE2
Stuttgart, Germany; Brno, Czech Republic; Malaga, Spain; Tel Aviv - Yafo, Israel

As the measures in these projects have not yet concluded, they are not featured in this publication.
Aalborg within CIVITAS I

Home to 197,000 people, Aalborg is the historic hub of the North Denmark Region. Formerly an industrial centre, the city has evolved into a knowledge-based economy.

Although Aalborg is growing rapidly, it has placed environment and sustainability as core principles in its progress. Over the last decade, Aalborg’s city centre has become more pedestrian friendly. The 1994 Aalborg Charter, adopted during the EU Sustainable Cities and Towns Campaign, is regarded as an exemplary European initiative in urban development.

During CIVITAS I’s VIVALDI project, Aalborg focused mainly on establishing a car-sharing scheme and introducing telematics in public transport.

Infrastructure Developments

New plan for public transport and new coach terminal

- Gearing public transport in Aalborg to market demand by increasing the number of rush-hour departures and integrating the local rail service and coach terminal.
- Creating a new, compact station for coaches and urban buses and providing advanced information technology services.
- Making the station a focal point for public transport.

Results
- A public transport plan was adopted in April 2004.
- The coach terminal opened in 2004.

Technological Developments

Bus priority and real-time passenger information

- Reducing the size of the bus terminal to shorten walking distances.
- Integrating public transport services into a unified system.
- Promoting public transport as a modern mode of travel.
- Ensuring reliability.
- Providing easy access to travel information.

Results
- 248 buses were equipped with computers and connected to a mobility centre operating the real-time passenger information system.
- 46 panels displaying real-time passenger information were installed at major bus stops and at all four city railway stations.
- The number of intersections with bus priority was increased from 28 to 51.
- The frequency of bus departures in key corridors was increased.

Innovations

Car sharing

- Establishing a car-sharing service with two to three docking stations and four to six vehicles to replace up to 35 privately owned cars.
- Making booking possible via Internet or telephone or at the Transport Information Centre.

Results
- Seven car-sharing docking stations were installed, with 11 shared vehicles.
- Within a year of the launch, the cars had been driven 48,700 km, with energy savings of about 2,860 GJ or 1 percent of energy consumption.
- The share of citizens planning to purchase a car dropped from 44 to 22 percent.

More information

www.aalborgkommune.dk
http://civitas.eu/content/aalborg-within-civitas-i
Aalborg within CIVITAS Plus

With its extensive experience in European cooperation, and following its participation in CIVITAS I – VIVALDI, Aalborg was responsible for coordinating the CIVITAS Plus ARCHIMEDES project.

During the project, Aalborg implemented innovative measures in a wide range of sustainable transport areas. The city introduced biofuel-powered buses and improved public transport information through new information technology service solutions, mobile phone applications, on-board information screens and electronic ticketing options.

The project also included the launch of a city bike scheme, the creation of an environmental zone, the introduction of congestion monitoring, a new parking strategy and improved cycling infrastructure.

Aalborg built on its own experiences, as well as lessons learned from other European cities in implementing innovative solutions.

Infrastructure Developments

Cycle motorway

- Creating excellent conditions for cyclists in a corridor from the city centre to the university.

Results
- The number of cyclists using the route rose by 20 to 30 percent.
- General satisfaction was recorded with the cycle commuting route, the initiative, the perceived speed level and the perceived level of safety.
- The number of accidents registered in 2011 was below the annual average between 2005 and 2009.

Innovations

School cycling campaigns

- Building on current national and local cycling campaigns targeted at schools and the users of neighbouring roads.
- Introducing new forms of campaigning, such as mobile phones and viral marketing.

Results
- 22 percent of schoolchildren stated that the campaign encouraged them to cycle.
- The number of children cycling during the winter increased.
- Nearly 20 percent of children stated that they cycled more often following the campaign.

Technological Developments

Pre-trip and on-trip mobile phone information

- Expanding the real-time passenger information system introduced under CIVITAS I VIVALDI.
- Providing real-time passenger information on-board buses.

Results
- By September 2011, the “Take Me Home” application had been downloaded 3,143 times.
- By 2012, there were around 425 daily users of the public transport authority’s mobile phone application NTLive.
- The proportion of passengers using NTLive rose from 9 percent in 2009 to 26 percent in 2012.

More information

www.aalborgkommune.dk
www.civitas.eu/content/aalborg
Barcelona and CIVITAS

The second largest city in Spain and the capital of Catalonia, Barcelona has a population of around 1,620,000.

The city is situated on the east coast of Spain and in economic terms is one of the most important cities in the Mediterranean, due to the strength of both its tourism and industrial sectors.

Barcelona has a comprehensive local public transport network that includes a metro, a bus network, two separate modern tram networks, a historic tram line, and several funiculars and cable cars.

Within CIVITAS I, Barcelona implemented innovative demonstration measures aimed at securing cleaner and more efficient urban mobility.

Compressed natural gas (CNG) buses

- Promoting more sustainable modes of transportation.
- Reducing emissions of pollutants.

Results
- The public transport fleet was extended with 70 CNG buses.
- Reductions were achieved in engine and ambient noise, pollution, fuel odours and vibrations.
- 2.06 kg of carbon monoxide were saved per 100 km.
- Savings were made on the cost of fuel.
- Barcelona Metropolitan Transport became a pioneer CNG bus operator and obtained ISO 14001 certification.

Technological Developments

Introducing automatic number plate recognition along the Rambla

- Restricting vehicle access during peak pedestrian hours.
- Reducing the flow of vehicles along the Rambla.
- Introducing controls on the timing, speed and type of vehicles using the section of the Rambla from Passeig de Colom to Placa de Catalunya.

Results
- Daily traffic was reduced by 43 percent during the period of limited access, with an overall reduction of 10 to 15 percent.
- A speed limit of 30 km/h was introduced.
- Some 3,800 h/day of pedestrian delays were saved.
- Savings in pedestrian travel time amounted to EUR 7.92 million per year.

Integration of new trams in the collective passenger transport network

- Reviewing the performance of an innovative public-private partnership.
- Quantifying the operational, energy and environmental benefits of the tram service.

Results
- MIRACLES defined and oversaw the design of 15 km of tram tracks with 25 stops.
- Signal priority and bus stop information were integrated and the bus lanes were revised.
- Usage reached 41,000 passengers per day by November 2004.
- Operating speed increased from 16.5 to 18.5 km/h.
- A modal shift of at least 3,800 car journeys was achieved, representing a saving of 14,000 motor vehicle kilometres per working day.
- The measure had a positive impact on the social inclusion of wheelchair users, cyclists and people with pushchairs.

More information

http://civitas.eu/content/barcelona
Bath and CIVITAS

Bath is the principal city in the district of Bath and North East Somerset and has a population of 80,000. The city was declared a UNESCO World Heritage site in 1987.

Bath has a variety of theatres, museums and other cultural and sporting venues, which have helped to make it a major tourist centre. The city has two universities and several schools and colleges.

Within CIVITAS RENAISSANCE, Bath introduced a number of innovations aimed at improving transport in the city from both a technical and a behavioural point of view. Measures were designed to enhance quality of life and air quality, making this thriving city an even more attractive place for residents and visitors.

Technological Developments

Low-carbon bus trial

• Demonstrating the feasibility of a hybrid diesel-electric double-decker bus in Bath, something quite innovative in the UK context.

Results

• Emissions of nitrogen oxides were reduced by 37 percent, emissions of carbon monoxide by 80 percent, and emissions of carbon dioxide by 38 percent compared to a conventional bus on the same operating cycle.
• Fuel consumption was reduced by 28 percent and noise emissions were reduced.
• Overall operating costs were cut by GBP 0.02/km.
• The trial vehicle was able to operate for longer periods on electric power than most hybrid buses in the UK.

Innovations

Freight consolidation

• Reducing the number of large delivery vehicles entering central Bath by establishing a consolidation centre.
• Introducing onward goods dispatch by a smaller, electric vehicle.
• Working together with neighbouring Bristol City Council to establish the first urban freight consolidation centre in the UK that serves two cities.

Results

• 20 retail outlets representing 15 businesses participated in the scheme.
• The number of deliveries to participating outlets fell by 76 percent.
• The electric vehicles achieved a 55.7 percent reduction in energy consumption.

More information

www.bathnes.gov.uk
www.civitas.eu/content/bath

Infrastructure Developments

Safe and secure road infrastructure demonstration area

• Establishing a demonstration area in the city centre for best practices in road surfaces, street lighting and furniture.

Results

• Vehicle movements were reduced by 17.5 percent in the demonstration area.
• Pedestrians’ perception of road safety improved by 56 percent.
• Energy-efficient LED lighting resulted in 38 percent lower energy consumption.
Berlin and CIVITAS

The German capital Berlin, situated at the heart of the European Union, is an important node in the Trans-European Network. Covering an area of almost 900 km², Berlin has a population of 3.4 million inhabitants. The city has excellent infrastructure, including road, rail and inland waterways, for passenger and freight transportation. The public transport system is used by 1.2 billion passengers a year.

Berlin has the lowest car density in Germany, at fewer than 350 cars per 1,000 inhabitants. Nevertheless, the city’s traffic-related problems, which include high pollution and noise levels, require urgent action.

The CIVITAS I measures implemented in Berlin during the TELLUS project were aimed at reducing traffic-related emissions, pollution and noise. Most of the demonstration activities therefore focused on technical innovations and soft measures.

Innovations

Freight distribution with compressed natural gas (CNG) lorries

• Encouraging freight distributors to use CNG vehicles.
• Introducing financial incentives and information measures to promote CNG vehicles.

Results
• Subsidised introduction of 206 CNG vehicles for freight distribution.
• Vehicles compliant with Euro IV or enhanced environmentally friendly vehicle (EEV) standards.
• Lower emissions of nitrogen oxides, and particulate emissions almost eliminated.
• Reduction in noise and pollution.
• Marketing measures by the gas supply company continued beyond the project period.
• Groundwork laid for the establishment of the city-centre environmental zone in 2008.

Innovations

Teleparking mobile parking system

• Demonstrating the benefits of a telematics-based solution to parking management for drivers, enforcement agents and the city authorities.
• Demonstrating the use of mobile phone technologies for efficient parking management.

Results
• More than 6,800 registered users.
• Approximately 600 mobile parking transactions per day.
• Pilot ran from February 2004 to March 2006, and in September 2005 was extended to four additional districts.
• Continued operation of the service in all districts of Berlin providing parking space management.

Technological Developments

Inner-City Logistics Centre

• Further developing an existing tri-modal inner-city logistics centre (inland waterway, rail and road) managed by BEHALA, the Berlin harbour and storage company.
• Shifting the modal split in favour of sustainable means of transportation.

Results
• Introduction of lorries operating on CNG for city-centre goods distribution.
• Reduction of lorry-kilometres in the city.
• Centrally located Westhafen tri-modal logistics centre fully operational.

More information

www.berlin.de
http://civitas.eu/content/berlin
Bologna and CIVITAS

The city of Bologna in central Italy is an important hub for passenger and goods transportation. The city centre, which dates back to the Middle Ages, is characterised by narrow streets, arcades and porticoes. Despite its cramped road space, the city centre is the focus of public, commercial and cultural life.

Within CIVITAS MIMOSA, the city aimed to improve its sustainable mobility efforts and promote its role as a pilot site for measures appropriate to other medium-sized cities.

Innovations

Cleaner private vehicles

- Encouraging private vehicle owners to switch to newer, environmentally friendlier options.
- Implementing a comprehensive incentive system to reward environmentally friendly vehicles.

Results

- The number of vehicles running on liquefied petroleum gas or methane rose 8 percent between 2007 and 2011.
- Emissions of carbon monoxide fell by 22 percent, accompanied by a general decrease in emissions levels.
- Utility providers collaborated to provide charging points to all electricity customers.

Infrastructure Developments

Improved park-and-ride system

- Discouraging on-street parking.
- Finding a balance between maintenance costs and promotional fares and services.
- Creating pleasant, friendly park-and-ride facilities to encourage use.

Results

- Between 2008 and 2011, use of the Tanari park-and-ride facilities more than doubled.
- Infrastructure was improved and the number of parking places increased.
- Revenues increased by 34 percent between 2008 and 2011.

More information

www.comune.bologna.it
www.civitas.eu/content/bologna
Bremen and CIVITAS

Bremen is an independent city-state within the Federal Republic of Germany.

The city is a well-known port and trade centre on the banks of the river Weser, near its mouth on the North Sea. With a population of 548,000, Bremen is the second biggest city in North Germany and the 10th largest in Germany.

Besides its port and industrial facilities, Bremen’s economy depends on car manufacturing, electronics, steel making and aircraft production. Bremen is also a centre for the food-processing industry and has a growing service sector.

Bremen was involved in all aspects of CIVITAS I, but achieved particularly good results in the realms of car sharing and public transport.

Innovations

Car sharing and car pooling

- Integrating new, enlarged car-sharing stations with public transport stops.
- Targeting offers towards specific groups (businesses, families, cyclists).
- Setting standards for customer satisfaction.
- Launching a simple tariff structure.

Results

- Car sharing grew and private car use fell by 43 percent.
- Public awareness was raised.
- Car sharing was integrated with the services of the local public transport operator BSAG.
- Car mileage decreased and levels of car ownership fell.
- Nine car-sharing locations were installed, with 33 vehicles.

Infrastructure Developments

Extension of tramline 4

- Increasing public transport usage along the enhanced tramline.
- Reducing energy consumption, emissions and noise from public transport.
- Lowering public transport costs.

Results

- Public transport journey frequencies increased by 12.4 percent.
- Number of tram users increased by 7.5 percent.

Technological Developments

Information and ticketing

- Introducing the “Kundenkarte” along with smartcard-based ticketing.
- Developing the BOB ticket for infrequent passengers.
- Opening a travel information centre with integrated services.
- Attracting the custom of infrequent public transport users.
- Reducing waiting times.

Results

- Waiting times for tickets were reduced.
- In just six months, 13,000 people were registered for the BOB ticket.
- The public transport operator (BSAG) improved its image via the BOB campaign.
- The city integrated information services for sales, annual subscriptions, timetables and fares, and local car sharing.

More information

www.bremen.de
http://civitas.eu/content/bremen
Brescia and CIVITAS

The second largest city in the Lombardy region of Northern Italy, Brescia is situated at the foot of the Alps and has a population of around 190,000.

Lying between Milan and Venice, the city is intersected by several main roads and motorways. Its public transportation system covers a catchment area of 360,000 inhabitants.

Within CIVITAS MODERN, Brescia worked to meet important challenges such as reducing urban congestion and lowering pollution levels.

Innovations

Car sharing

- Reducing the number of private cars entering the city.
- Improving opportunities for car sharing, bike sharing and public transport.
- Stimulating intermodality.

Results

- The car-sharing service was launched in March 2010.
- By May 2012, the service had attracted more than 290 subscribers.
- In an effort to standardise car sharing throughout the country, Brescia’s service was fully integrated within the Italian car-sharing network.

Technological Developments

Electronic ticketing updates

- Improving the electronic fare collection system.
- Equipping all urban buses with electronic readers for the new smartcards.
- Increasing the number of passengers by 2 to 5 percent and increasing modes of transport used.

Results

- An e-ticketing service was launched, integrating bike sharing, urban bus services and car parking in a single card.
- By April 2012, around 1,250 new contactless cards for local public transport had been distributed.
- There was an overall improvement in Brescia’s smart city image and general acceptance of the new integrated cards among the public.

Innovations

Accident risk analysis and road safety monitoring centre

- Increasing public safety awareness.
- Establishing a road safety monitoring centre.
- Creating a road accident database with a geographic information system.
- Organising education and information campaigns.

Results

- A new web platform was developed for the local police to make road accident responses easier, faster and more accurate.
- A road safety urban plan was developed to help the work of local administrators.
- Road accident reporting was improved through GPS technology.

More information

www.bresciatasporti.it
www.civitas.eu/content/brescia
Brighton & Hove and CIVITAS

The historic city of Brighton & Hove in South East England is internationally renowned for its Regency and Victorian architecture. It is a thriving tourist destination, with its 11 km of seafront attracting around 8 million visitors a year.

Continuing economic growth, major developments across the city and a growing population led the city council to adopt a vision for a coordinated transport system that balances the needs of all users and minimises damage to the environment.

Within the CIVITAS ARCHIMEDES project, Brighton & Hove City Council sought to implement innovative tools and measures to support this vision.

### Technological Developments

**Electric vehicle charging points**

- Putting more electric vehicles on the streets.
- Establishing 10 on-street charging points across the city.

**Results**

- The scheme attracted 35 registered users.
- There was a 55 percent reduction in CO₂ emissions compared to the equivalent use of non-electric vehicles.
- 35 percent of registered users used the charging points at least once a week.

### Infrastructure Developments

**New Road clear zone**

- Creating a Clear Zone to revitalise the city centre.
- Reclaiming urban spaces for community use.

**Results**

- 90.5 percent of people surveyed considered the scheme to be a good thing, while 86 percent wanted to see similar schemes implemented elsewhere.
- Drivers and cyclists became more cautious and adapted their behaviour due to the anticipated presence of pedestrians.
- Pedestrians felt greater ownership of New Road due to the shared surface.

### Innovations

**Travel information for blind and partially sighted people**

- Improving accessibility and public transport provision for blind and partially sighted people by providing audio devices, known as React units or talking bus stops, to relay the information displayed on real-time information signage.

**Results**

- The measure had a favourable cost-benefit ratio of EUR 1:11.
- 25 percent of surveyed users said they used the bus more often as a result of the technology.
- 100% of users wanted to see the system extended.
- 12 React units were installed at stops and 200 key fobs, which allow users to access the information, were distributed.

### More information

www.brighton-hove.gov.uk
www.civitas.eu/content/brighton-hove
Bristol and CIVITAS

Bristol is the largest urban area in South West England and a centre of industry, commerce, education and culture. Bristol City Council is responsible for transportation, planning and other public services over an urban area with a population of some 433,000 inhabitants.

The city has a far higher level of commuting than neighbouring cities and transportation is predominantly car based. Car ownership and car use in the city are among the highest in the country.

During the VIVALDI project, one of the most important results achieved by Bristol was a 5 percent shift in modal split away from private car use.

Technological Developments

Promotion of walking and cycling

- Establishing a cycle resource centre with capacity for 30 bikes.
- Improving facilities for pedestrians and cyclists.
- Providing secure parking, lockers and showers.
- Providing an on-site repair service and refreshments.
- Installing a cycling information board.

Results

- Cooperation between local stakeholders was improved.
- Awareness of cycling was raised.
- The city centre became more attractive.
- Businesses benefited from positive impacts.

Infrastructure Developments

Residential traffic management (Home Zone)

- Reducing car dependency.
- Remodelling residential streets.
- Giving priority to soft modes.
- Changing the way streets are perceived and used.
- Providing and promoting quality alternatives to single-occupancy cars.
- Reducing accidents and improving safety and security.

Results

- The community participated in the design process.
- A 5 percent shift in modal split away from private cars was achieved.
- Equal rights were ensured for pedestrians, cyclists and motor vehicles.
- A sustainable urban drainage system was introduced.

Promoting clean and efficient vehicles

- Stimulating the market for clean vehicles in the city (both private and public).
- Contributing to improving local air quality by reducing emissions of NOx and particulates.
- Reducing energy use in the demonstration area.
- Improving the quality of public transport to support a modal shift away from private cars.
- Introducing cleaner vehicle technology.
- Developing the infrastructure for electric vehicles.

Results

- A total of 193 clean vehicles were introduced, including buses, minibuses and cars.
- Emissions of particulate matter, NOx and CO2 were reduced to varying extents, depending on the choice of vehicle technology, such as liquefied petroleum gas (LPG), electric or hybrid.
- The public transport fleet was improved significantly by the introduction of retrofitted, LPG and hybrid buses.

More information

www.bristol.gov.uk
http://civitas.eu/content/bristol
Brno and CIVITAS
Brno, the second largest city in the Czech Republic, is located in Southern Moravia. With its eclectic history, the city is home to universities and important legal institutions.

The city has a well-developed public transport system. Alongside conventional buses, its services include low-polluting trams and trolleybuses.

Within CIVITAS ELAN, Brno aimed to maintain and further increase the number of public transport users and to achieve more sustainable development, enhancing the prosperity of the city’s growing population.

Innovations
Giving citizens a transport planning voice
• Incorporating customers’ needs into transport planning through mobility dialogue.
• Adopting flexible transport plans that accommodate demographic changes.
• Improving communication and customer relations.

Results
• All requests and recommendations related to the transport plan were collected via the Transport Barometer, replied to, and, where possible, accepted.
• Almost half the respondents to a marketing survey were aware of updates and adjustments to optimise the city’s transport system.
• Satisfaction with the public transport system increased.

Helping disabled passengers on board
• Improving public transport services for passengers with reduced mobility.
• Providing better public transport during off-peak hours.
• Reducing fuel consumption compared to standard buses.
• Improving bus design, leading to lower staff costs.
• Creating an attractive public transport system.

Results
• Five new low-floor minibuses with improved fuel efficiency and higher emissions standards were introduced.
• Operating costs were lowered from EUR 0.33/km to EUR 0.20/km.
• The measure was highly appreciated by the target group of disabled citizens.

Diagnostic system — just the ticket!
• Installing more functional ticket vending machines.
• Providing wireless real-time data transfer from ticket vending machines to control centre to improve maintenance.
• Creating an attractive public transport system.

Results
• Self-diagnostic software resulted in a 50 percent decrease in the number of defects reported.
• Ticket sales from vending machines were boosted.
• The downtime of defective ticket machines was reduced by 30 percent.

Technological Developments
Infrastructure Developments
More information
www.brno.cz
www.civitas.eu/content/brno
Bucharest and CIVITAS

The Romanian capital Bucharest lies on the Dambovita River. It has a population of about 2 million inhabitants and is one of the main industrial centres and transportation hubs of Eastern Europe.

Public transportation within the urban area of Bucharest is provided by four major mass transit modes: metro, tram, trolleybus and bus. There are two main public transport operators: RATB (surface public transport) and METOREX (underground).

Within the framework of the CIVITAS I TELLUS project, the municipality of Bucharest aimed to maintain the high level of public transport usage by implementing service quality improvements, providing clean and safe public transport, reducing congestion, prioritising public transport, improving intermodal coordination, and ensuring operational safety.

Infrastructure Developments

Parking restrictions in the city centre

- Improving parking management in the city centre.
- Creating parking facilities and restricting on-street parking.

Results

- 1,000 new parking spaces were created and on-street parking was banned in the city centre.
- Access restrictions were imposed in order to preserve the historical city centre.
- Traffic flow in neighbouring areas improved.

Innovations

Clean and quiet public transport fleet

- Establishing a clean public transport fleet based on low energy consumption and quiet public transport vehicles.
- Extending the use of electric vehicles in public transport.
- Introducing and promoting electric vehicles with improved performance.

Results

- The trolleybus fleet was modernised with the addition of 60 new energy-saving vehicles.
- Eight energy-saving trams were manufactured and put into operation.
- Energy consumption was reduced by 10 percent.
- Trolleybus use rose by 6 percent and bus use by 5 percent.

Technological Developments

Implementation of an automatic vehicle location (AVL) system and real-time passenger information

- Enabling ticketing and payment by smartcard.
- Introducing fare integration.
- Attracting more public transport users by adapting the fleet to demand.
- Increasing public transport efficiency.

Results

- The AVL system was introduced on the bus and trolleybus fleets of RATB.
- The AVL system was integrated with the passenger information system, the ticketing system, and partially with the traffic management system.
- An integrated ticketing system was successfully introduced for RATB and METOREX.
- The attractiveness of public transport was improved.
- Fleet coordination was improved.
Burgos and CIVITAS

Burgos is a vital, medium-sized city of 180,000 inhabitants, situated in north-central Spain in the region of Castile and Leon. The core urban area is 108 km² and the population density 15.84 inhabitants per hectare.

Burgos is well known for its cultural, architectural and artistic heritage. The city has made huge efforts towards sustainable urban growth.

Clean bus fleet

- Purchasing eight new buses running on compressed natural gas (CNG) and 27 new Euro 4 and 5 vehicles running on bio-diesel.

Results
- The city’s bus fleet is 100 percent clean and accessible.

Infrastructure Developments

Revitalisation of the city centre

- Designing access restriction and infomobility tools.
- Developing a parking strategy.
- Centralising private bus services.
- Reforming goods distribution.
- Ensuring safety for pedestrians.
- Raising public awareness.
- Drawing up a safety and accident prevention plan.

Bike-loan scheme and increasing bicycle use

- Implementing the free BiciBUR bike-sharing scheme.
- Building 15 km of safe bike lanes.

Results
- The number of bike paths increased from 110 to 345 (between 2004 and 2008).
- The city now has the highest number of kilometres of bike lane per inhabitant in Spain.
- The number of BiciBUR users doubled (up to 5 percent of the population).

Innovations

- Technological Developments
- Infrastructure Developments
- More information

More information

www.burgosciudad21.org
http://civitas.eu/content/burgos
Coimbra and CIVITAS

Located in the centre of Portugal, Coimbra was the nation’s capital in the Middle Ages. The city boasts countless artistic and architectural treasures and remains one of the most important urban centres in Portugal, with a population of around 150,000.

The city is the seat of many regional administrative offices and home to one of the world’s oldest universities, attracting students from Portugal and beyond. While contributing to the steady growth of the population, this also makes it vital to ensure accessibility.

Within CIVITAS MODERN, Coimbra aimed to increase the quality and effectiveness of the public transport system, improve energy efficiency, and disseminate a positive image of sustainable mobility among citizens, stakeholders and transport operators.

Technological Developments

**Alternative fuels for public vehicles**

- Testing alternative biodiesel fuels in urban and suburban situations.
- Exploring possibilities for using at least 5 percent biodiesel blends, especially those derived from waste oil, in public transport fleets.
- Raising awareness of the use of alternative fuels in public fleets.

**Results**

- Buses running on a 50 percent biofuel mix experienced no perceptible problems.
- Buses tested with B30 and B50 biofuel blends had lower average operating costs than similar vehicles running on diesel.
- The introduction of B30 in the entire bus fleet could result in annual operating cost savings of around EUR 420,000 and the replacement of around 268,000 litres of diesel.

**Innovations**

**Safety-oriented driving training**

- Establishing a modern training centre, equipped with a state-of-the-art driving simulator.
- Creating a safer driving style among drivers of heavy vehicles.

**Results**

- The training led to a 15 percent reduction in average operating costs, when compared with training using real buses.
- Training sessions resulted in a 15 percent reduction in terms of energy consumption per vehicle-kilometre.
- The risk of accidents was lowered.

**More information**

www.cm-coimbra.pt
www.civitas.eu/content/coimbra

Infrastructure Developments

**Renewable energy for trolleybus lines**

- Using an existing river dam to produce electricity for trolleybuses and minibuses.
- Generating revenue by selling excess electricity to the national grid.
- Increasing municipal energy autonomy.

**Results**

- A feasibility study was carried out on the creation of a small hydropower plant to produce energy for Coimbra’s trolleybus lines.
- The study found the measure to be viable at a relatively low cost, with the potential to generate revenue.
- Results indicate that implementation would lead to a significant decrease in greenhouse gas emissions at national level.

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Cork and CIVITAS

With 120,000 inhabitants, Cork is the second largest city in the Republic of Ireland and the capital of Munster. It is situated in the heart of Ireland’s biggest county (County Cork) and has the second biggest natural harbour in the world.

The city is served by bus and ferry networks.

In line with the Cork Strategic Transport Plan 2001-2020, CIVITAS I focused on measures for car traffic reduction, mobility management, network management and clean vehicle promotion.

CIVITAS I measures acted as catalysts for planned major city improvements such as the very successful redesign of St. Patrick’s Street and the construction of new park-and-ride facilities.

Technological Developments

Park by phone

- Reducing paperwork.
- Integrating the parking system with the park-and-ride scheme.

Results
- By February 2006, the park-by-phone system had 100 users per day.
- Ticket-processing errors, tariff collection costs and paper use were reduced.
- The system was rated as easy to use by 70 percent of users.

Biofuel use by Cork City Council

- Researching lower-emission fuel options for five city council vehicles, including compressed natural gas (CNG) and rapeseed oil.
- Promoting alternative fuels nationwide.

Results
- 6 percent of the city bus fleet was converted to run on cold-pressed rapeseed oil.
- Annual CO₂ emissions were reduced by 55 tonnes.
- A duty exemption for biofuels was introduced in spring 2005.

Infrastructure Developments

New bus lines and park and ride

- Reducing traffic from the southeast.
- Integrating the new ring-road system with public transport into the city.

Results
- More than 900 parking places were installed for private cars, motorbikes and bicycles.
- The facility is convenient for disabled users.
- More than 450 daily car trips have been eliminated.
- Emissions were reduced in the city centre.
- The system was rated as very successful by 80 percent of users.
- The number of accidents fell.

Innovations

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More information

www.corkcity.ie
http://civitas.eu/content/cork
Craws and CIVITAS

Craw, which has a population of 320,000, is one of the oldest cities in Romania. It is an important economic, commercial and cultural centre.

After Romania’s accession to the European Union, the city recorded rapid economic growth, a strong increase in car ownership and, consequently, an increase in the levels of air and noise pollution. The public transport system is constantly changing and developing in line with European policy towards cleaner and better mobility. In this context, the CIVITAS MODERN project offered an excellent platform for the implementation of modern and sustainable transport in Craw.

Infrastructure Developments

Public transport security programme

- Installing 20 surveillance cameras in vehicles and stations connected to the police.

Results

- Perceptions of security increased by 6 percent. Public transport users felt better protected from bag thieves and pickpockets.
- Levels of fraudulent and anti-social behaviour fell by 50 percent due to surveillance cameras.
- 95 percent of users surveyed considered the surveillance system to be useful.

Technological Developments

Energy-saving trams

- Decreasing electricity consumption in trams by using electronic chopper circuits.

Results

- Greater efficiency was achieved due to lower energy and maintenance costs.
- Energy consumption in trams featuring the new chopper system was 35 percent lower.
- Passengers experienced greater comfort when travelling in chopper-fitted trams, due to smoother start and stop phases.

Cleaner fleets for Craw

- Improving the environmental performance of Craw’s bus fleet.
- Raising the quality of public transport service through increased traveller comfort and perceptions of safety and security.
- Defining the appropriate funding mix to upgrade the fleet.

Results

- Using a mix of funding sources, 17 new low-emission buses were acquired.
- Emissions of carbon monoxide decreased by 76 percent.
- Emissions of nitrogen oxides decreased by 76 percent.

Innovations

More information

www.primariacraiova.ro
www.civitas.eu/content/Craiova
Debrecen and CIVITAS

Debrecen is the second largest city in Hungary, with a population of 207,000. It is the centre of the North Plain Region and has a widely recognised role in the country’s economic, academic, commercial, cultural and health-care networks.

The recently restored city centre boasts many historical buildings. The main objectives are currently to maintain the existing modal share, improve public transport and introduce demand management schemes such as parking charges and access controls.

Technological Developments

Reinventing public transport

- Developing a clean public transport fleet running on compressed natural gas (CNG) and bio-diesel.
- Installing a vehicle location system for trams and trolleybuses.
- Introducing a tram priority scheme and a passenger information system.
- Developing a real-time passenger information system.

Results

- Automatic vehicle location system developed for 18 trams and 31 trolleybuses.
- Fleet management introduced for trams and trolleybuses.
- Priority requests of tram vehicles handled at selected traffic signals.
- 23 tram stops equipped with information displays.
- Bio-diesel mixture tested.
- Seven CNG vehicles converted and purchased.

Infrastructure Developments

Integrated and extended cycling network

- Establishing an integrated and extended cycling network and infrastructure.

Results

- A 4 km cycle path was created using existing roads.
- 51 bicycle racks were purchased and installed, providing safe storage for more than 350 bikes.

Innovations

Sustainable city traffic development plan

- Ensuring the sustainable development of urban mobility with the supervision of a technical working group.

Results

- The working group for sustainable urban mobility comprised stakeholders and urban transportation experts.
- A sustainable city traffic development plan was developed for Debrecen based on a new conceptual approach.

More information

www.debrecen.hu
http://civitas.eu/content/debrecen
Donostia–San Sebastian and CIVITAS

Donostia–San Sebastian attracts thousands of visitors every year due to its beautiful coastline, architecture and gastronomy. The city is home to 180,000 inhabitants, while the surrounding metropolitan area has a population of 600,000.

The city has a strong, integrated policy that favours pedestrians, bicycles and public transport. With its non-motorised transport network and several bus lanes, the city boasts very high public transport and bicycle use rates.

The CIVITAS ARCHIMEDES project provided an opportunity to achieve strategic results, such as an increase in walking and cycling, a reduction in the number of accidents, and a decrease in the use of fossil fuels in public transport.

Infrastructure Developments

Over the hill with vertical transport

- Installing five new elevators and one escalator in hilly parts of the city.
- Reducing geographical barriers for pedestrians and cyclists.
- Encouraging citizens to change transport mode.

Results

- The majority of the population stated that they were aware of vertical transport options in the city.
- Significant usage levels of up to 4,879 passengers per day were achieved in 2012.
- The extension of the vertical transport network led to a steady increase in the use of non-motorised modes.

Technological Developments

Bus traveller information

- Improving the availability of reliable real-time travel information.
- Providing information in buses, via SMS.
- Making travel information accessible to the visually impaired.
- Introducing a wireless vehicle location system.
- Implementing a passenger counting system.

Results

- A more efficient information system was successfully introduced, enabling passengers to plan their trips and optimise travel times.
- More than 3,500 requests for real-time information were made per day via SMS or website.
- The provision of information by the city’s public transport company was rated highly.

Innovations

High-quality bus corridors

- Creating two high-quality transport corridors.
- Introducing dedicated platforms and traffic light priority system for public transport.
- Installing security cameras in buses.

Results

- The city’s public transport system saw an increase of 2.55 million travellers.
- An excellent punctuality index of 98.2 was achieved on certain lines.
- Perceptions of service quality improved significantly.

More information

www.donostia.org
www.civitas.eu/content/donostia
Funchal and CIVITAS

Funchal is the capital of the Autonomous Region of Madeira and has a population of around 110,000. Located in a natural amphitheatre-shaped valley, it is a major port and has a flourishing tourist industry, which makes significant demands on its transportation networks. The public transport system comprises 66 routes, covers 180 km of road, and carries 30 million passengers per year.

Within the CIVITAS MIMOSA project, Funchal aimed to improve its urban mobility system in order to enhance quality of life for its citizens.

Technological Developments

More sustainable fleet

• Finding a vehicle mix in the municipal fleet that can cope with the island’s rugged topography.
• Bringing new technologies and their environmental and energy-saving benefits to the public’s attention by upgrading the municipality’s own fleet.

Results

• By introducing five minibuses in the public transport network, the average fuel consumption of the entire fleet was reduced by 1.2 percent.
• The minibuses contributed to reductions in traffic-related emissions. Levels of CO₂ fell by 1.2 percent, PM10 by 21.8 percent, and NOx by 10.6 percent.
• A 12 percent reduction in PM10 and a 22 percent reduction in NOx levels were observed in terms of emissions generated by municipal vehicles.

Innovations

Dial and ride service

• Making public transport more accessible for elderly people and those with reduced mobility.
• Testing the new dial-a-ride service in an area with no standard public transport service due to small streets and difficult terrain.

Results

• Santa Luzia residents expressed very high levels of satisfaction with the system.
• 1,384 passengers used the service between October 2011 and May 2012.
• The service reduced social exclusion by connecting areas of the city that had no conventional public transport.

Infrastructure Developments

Giving clean transport the green light

• Introducing a Green Line transport corridor served by low-emission buses operating at high frequency in the main tourist and traffic areas.

Results

• 45 percent of hotels in the Green Line target area are selling the Tourist Kit public transport package.
• Traffic was reduced by 13 percent in the target area. Experts predicted a positive impact on traffic flow and a reduction in traffic jams.
• Operating revenues along Green Line routes rose by 10 percent.

More information

www.cm-funchal.pt
www.civitas.eu/content/funchal
Gdansk and CIVITAS

Gdansk is one of the largest cities in Poland. The historic city is located at the crossroads of important commercial and communication routes. It is a major port and the centre of Polish sea trade.

The city is also an important tourist destination, with millions of Polish and other European citizens attracted to the beaches along the Baltic coast.

As part of the CIVITAS MIMOSA project, the city aimed to promote tram travel, reduce reliance on private cars, and develop innovative promotional tools such as web-based social networks and campaigns.

Infrastructure Developments

Redesigning road infrastructure for safety

- Redesigning junctions.
- Redesigning streets, pavements and pedestrian zones.
- Improving the infrastructure for cycling and walking along the coast.
- Improving integration with the city centre.

Results

- 95 percent of surveyed respondents indicated a very high level of satisfaction in terms of the segregation of pedestrian and cycle paths.
- On the coastal cycle path, satisfaction levels in terms of speeds increased by 20 percent.
- The number of pedestrians using the coastal path daily rose by 24 percent.

Technological Developments

Keeping an eye on vandalism

- Installing surveillance cameras to discourage disruptive behaviour and vandalism on public transport property.
- Developing a new liaison system between public transport drivers and operators and the police.
- Developing a system of penalties that encourages changes in behaviour.

Results

- The overall number of acts of vandalism fell by more than 20 percent compared to 2009.
- Perceptions of security increased by nearly 25 percent compared to the first surveys carried out.
- The Clean PT Stops campaign was adopted across Poland.

Innovations

Making trams more attractive

- Achieving an economically viable number of public transport passengers.
- Reducing dependence on private cars.
- Reducing the number of cars on the road.
- Raising awareness of the tram service through an Internet platform for passengers.

Results

- A positive shift of 10 percent in attitudes towards public transport was measured.
- This attitudinal shift in favour of public transport was observed even among car owners.
- Trams proved to be the most popular means of public transportation in Gdansk.

More information

www.gdansk.gda.pl
www.civitas.eu/content/Gdansk
Gdynia and CIVITAS

Located in the Polish region of Kashubia in Eastern Pomerania, Gdynia belongs to a conurbation encompassing the spa town of Sopot, the city of Gdansk and a collection of smaller suburban communities, which together are known as the Tri-city area with more than a million inhabitants. An important seaport, Gdynia links its transport and development strategies with its maritime economy.

To foster sustainable development, Gdynia took part in the CIVITAS I TELLUS project with the aim of transforming the city centre into a clean urban transport area through a range of investments.

As a result of its CIVITAS I measures, Gdynia has a more attractive downtown with more sustainable transport options.

Promoting modern trolleybuses

- Creating a transport map and customer service point in the city centre.
- Introducing seasonal public transport tickets.
- Promoting public transport through an educational programme.

Results

- Ridership on the Swietojanska Street trolleybus line increased by 13.2 percent.
- The number of private vehicles in the city centre decreased.
- Business activity (cafes, restaurants) along downtown streets increased.
- The number of pedestrians rose.
- Levels of emissions and noise fell.

Infrastructure

Transforming the city centre for clean urban transport

- Modernising a city-centre street.
- Installing bollards and bike racks to limit illegal parking.
- Improving the convenience of public transport.

Results

- The city centre was made more attractive.
- 961 bollards and 12 bike racks were installed.
- Traffic flow was reduced by 9 percent.
- Cooperation among organisations increased.
- Political and public awareness were enhanced.

More information

www.gdynia.pl
http://civitas.eu/content/gdynia-within-civitas-i
Genova and CIVITAS

With a population of 630,000, Genova, popularly known as La Superba (The Proud), is the capital of Liguria Region in northwest Italy. The city boasts one of Europe’s largest historical centres and was designated as a UNESCO World Heritage site in July 2006.

The growing problem of traffic congestion in central Genova is being tackled via a combination of measures, including access restrictions and alternative modes of passenger and freight transportation.

Mobility policies aimed at both private vehicles and public transportation have produced remarkable results, including reduced pollution levels and a shift in modal split in favour of public transport.

Infrastructure Developments

Clean high-mobility corridors

- Ensuring the greater reliability of the bus fleet.
- Improving average bus speeds.
- Providing high-quality information in order to improve public transport services.
- Creating a new clean-vehicle bus fleet.

Results

- A new 5 km mobility corridor was created.
- Real-time passenger information was provided at over 100 stops.
- An upgraded automatic vehicle monitoring system was installed in 131 vehicles.
- 104 new clean vehicles were purchased.

Innovations

Flexible transport system

- Establishing an on-demand minibus service.
- Establishing collective door-to-door taxi services.
- Providing flexible transport services for people with disabilities.
- Introducing flexible services connecting coastal and mountain areas with the city of Genova.
- Creating a car-pooling service for mobility management at the San Martino Hospital in Genova.

Results

- Usage of private cars decreased.
- Parking demand was reduced.

Car sharing with add-ons

- Setting up a van-sharing initiative dedicated to goods distribution via commercial vehicles.
- Introducing specially adapted car-sharing vehicles for disabled people.

Results

- The number of trips rose by 19 percent, and the number of kilometres covered rose by 46 percent.
- The measure focused on hybrid or biofuel-powered vehicles (at least 25 percent of the fleet).
- 6 million km per year were saved.
- 17.2 percent fewer kilometres were driven.
- Savings in fuel consumption of around 477,000 litres per year were achieved.
- 1,067 tonnes of CO₂ emissions were saved each year.
- The scheme attracted more than 2,200 users, resulting in 1,000 fewer cars on the road.

More information

www.comune.genova.it
http://civitas.eu/content/genova
Ghent and CIVITAS

Ghent is a bustling, historical city, with high-quality art and culture, an overflowing calendar of events, and numerous shops, bars and restaurants. Ghent University continues to grow in importance, with the presence of many young students turning the city into an important centre of Flemish culture.

The city has been making efforts to overcome traffic problems and become a more pleasant and attractive place for residents and visitors. Through CIVITAS ELAN, the city hoped to proceed with its plans to become one of the most advanced cities in Belgium in terms of mobility.

Improved public transport service levels

- Improving the quality of the main public transport corridor between the railway station and the city centre.
- Addressing congestion by redesigning several junctions and adapting a number of stops to meet the needs of passengers with impaired mobility.

Results

- 110 bus stops were reorganised for better efficiency and safety.
- The reorganisation of stops within the CIVITAS corridor resulted in increased commercial speeds.
- 166 real-time passenger information displays were installed at stops in the city.

Introduction of hybrid buses

- Using articulated hybrid buses as a transition from existing high-floor trolleybuses.
- Further testing articulated hybrid buses, with a view to purchasing only hybrid (diesel) traction buses in the future.

Results

- Fuel costs per hybrid bus were 17.2 percent lower than for standard articulated buses.
- Emissions from hybrid buses were 17 percent lower than from standard articulated buses, meaning an annual reduction of 271.55 tonnes of CO₂, 1.726 kg of NOx and 18 kg of PM.
- 57 percent of public transport users were aware that they were travelling on a hybrid bus, and 65 percent of public transport users expressed a preference for hybrid buses.

Infrastructure Developments

Technological Developments

IT-based bicycle theft prevention

- Introducing a theft-prevention system for public rental bikes via handheld computers to locate stolen or displaced bicycles.
- Adopting a unique frame design for rental bikes.
- Installing secure storage for rental bikes.

Results

- The use of handheld computers in the StudentENmobiliteit bike rental scheme resulted in increased efficiency in the recovery of stolen bicycles.
- The figures suggest a 2 percent decrease in the number of rental bicycles stolen.
- The number of recovered bicycles increased.

Innovations

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More information

www.gent.be
www.civitas.eu/content/gent
Gorna Oryahovitsa and CIVITAS

Gorna Oryahovitsa is located in northern Bulgaria. A cultural and historic centre, Gorna Oryahovitsa is also one of the most important transport hubs in the country.

The city faces many transport challenges, with low average numbers of public transport users, no alternative fuel technology, and a lack of parking policies and facilities.

Gorna Oryahovitsa is the first Bulgarian town to participate in the CIVITAS Initiative, and within the CIVITAS RENAISSANCE project aimed to achieve a positive influence on public behaviour rather than attempting to transform the transport situation in a short time.

Infrastructure Developments

New traffic strategies

- Elaborating a new traffic organisation scheme.
- Establishing new restricted traffic areas.
- Reducing road traffic in the city centre.
- Improving conditions for slow transport modes in the city centre.
- Reducing the number of heavy vehicles crossing sensitive urban areas.
- Increasing the number of car parks.

Results

- The number of accidents fell by over 50 percent in three years, largely thanks to traffic optimisation.
- The number of heavy goods vehicles in the downtown area decreased by more than 30 percent and car traffic decreased by around 13 percent.
- A modest reduction in emissions of nitrogen oxides was registered.

Conversion of buses to cleaner fuels

- Promoting the transition towards clean-vehicle fleets.
- Converting diesel vehicles to run on liquefied petroleum gas (LPG)/biodiesel.
- Reducing air pollution in the city.

Results

- The five oldest buses in the city’s urban public transport fleet were replaced by four-year-old Isuzu buses, conforming to the Euro 4 emissions standard.
- Experience gathered during the implementation phase was disseminated in other Bulgarian cities facing similar problems.
- Clean fuel information points were established.

Integrated plan for sustainable transport development

- Creating conditions for sustainable transport development.
- Developing an integrated sustainable transport plan.

Results

- Traffic safety improved and the level of awareness and acceptance of sustainable transport greatly increased.
- Gorna Oryahovitsa became the first Bulgarian city to develop, adopt and enforce this kind of long-term strategic document.
- Experiences gained during the development and adoption of the plan were disseminated across Bulgaria and among sister cities.

More information

www.g-oryahovica.org
www.civitas.eu/content/Gorna-Oryahovitsa
Gothenburg and CIVITAS

With a population of around 510,000, Gothenburg is the second largest city in Sweden and the fifth largest among the Nordic countries.

Situated on the west coast of Sweden, Gothenburg is the largest port in the Nordic region and a centre for trade, transport and industry.

Traditionally an environmentally proactive city, Gothenburg’s transport policies have always focused on sustainable development solutions. The city recognises the importance of collaborating with as many partners as possible, including private companies and public organisations at local, national and international level.

Within the CIVITAS TELLUS project, seven demonstration measures were implemented in Gothenburg aimed at identifying transportation solutions guaranteeing accessibility, safety and sustainability.

Technological Developments

Access restriction: Gothenburg low-emission zone extension

- Regulating heavy-duty vehicles in central Gothenburg.
- Stimulating the incorporation of Euro IV engines and testing on-board measurement of NOx.
- Improving quality of life and health of citizens.

Results

- Vehicles have a higher environmental standard and air quality is better than in other cities without environmental zones.
- The statistics are very positive, with more than 96 percent of vehicles authorised to drive in the zone.
- There is improved cooperation on the regulation framework at local and national government level as well as with hauliers.

Inner-city freight distribution

- Designing and introducing incentives for increased load rates in the inner city.
- Developing the communication system to measure and report load rates on vehicles.
- Ensuring acceptance from drivers, transport companies and the municipality.
- Improving public-private cooperation.
- Reducing congestion, air pollution and NOx emissions from heavy traffic.

Results

- A voluntary scheme was designed with the transport industry.
- A communication system was established using GPS and a digital pen.
- Good cooperation was established between stakeholders.
- Incentives and restrictions were combined in order to ensure long-term success.
- Following full implementation, congestion, air pollution and NOx emissions were reduced.

Clean fuels and vehicles

- Developing methods to promote clean vehicles.
- Increasing the number of clean vehicles in the city.
- Converting 90 percent of the municipal fleet to clean vehicles by 2008.
- Reaching a target of clean vehicles representing 5 percent of all new cars sold.

Results

- Promotional activities and events were organised and web-based consultation made available to companies, local authorities and the public.
- Incentives resulted in an increase in vehicles running on compressed natural gas/ compressed bio-gas in private companies.
- The municipal fleet reached the 90 percent goal: 3,000 new clean vehicles were purchased.
- Four clean waste vehicles were introduced with a combination of environmentally friendly technologies.
- Fuel consumption was reduced by 49 percent and emissions of particulate matter, CO, NOx and CO₂ by 50 to 65 percent.

More information

www.goteborg.se
http://civitas.eu/content/goteborg

Innovations

Technological Developments

Images: Klas Eriksson

Inner-city freight distribution

Technological Developments

Inner-city freight distribution

Technological Developments

Access restriction: Gothenburg low-emission zone extension

- Regulating heavy-duty vehicles in central Gothenburg.
- Stimulating the incorporation of Euro IV engines and testing on-board measurement of NOx.
- Improving quality of life and health of citizens.

Results

- Vehicles have a higher environmental standard and air quality is better than in other cities without environmental zones.
- The statistics are very positive, with more than 96 percent of vehicles authorised to drive in the zone.
- There is improved cooperation on the regulation framework at local and national government level as well as with hauliers.

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Inner-city freight distribution
Graz and CIVITAS

With almost 260,000 inhabitants, Graz is the second largest city in Austria. It is the capital and the cultural, economic and university centre of the province of Styria. The city council’s transport policy is based on the concept of “Sanfte Mobilität”, or gentle mobility.

Graz was the first European city to implement a city-wide speed limit of 30 km/h (with the exception of major roads), and the first Austrian city to open a mobility centre.

In CIVITAS I, Graz focused on environment, safety, mobility and awareness. One positive outcome was the implementation of an integrated pricing strategy for parking zones, including a differentiation between polluting and non-polluting vehicles. Car-free day was introduced in Graz via the TRENDSETTER project.

Technological Developments

Customer-friendly stops for buses and trams

- Enhancing the accessibility of public transport stops.
- Making available real-time information at transport stops.

Results
- Many transport stops were improved.
- The image of public transport was improved.
- The number of public transport users increased.
- Disabled people were involved in decision making, leading to better solutions.
- Some of the new stops are equipped with bike racks to encourage people to bike and ride.

Clean fuels and vehicles

- Introducing a bio-diesel bus fleet.
- Improving air quality by reducing emissions.
- Introducing a bio-diesel taxi fleet and service station.

Results
- Graz became a pioneer city in terms of bio-diesel usage in urban public transport: all buses run on 100 percent bio-diesel.
- Transport-related emissions of CO, were reduced by 24,700 tonnes/year.
- Other transport-related emissions were reduced: hydrocarbons by 103 tonnes/year; NOx by 69 tonnes/year; and particulate matter by 8 tonnes/year.
- By 2005, some 60 percent of taxis in Graz were running on locally produced bio-diesel.

Infrastructure Developments

Strolling zones in the city centre

- Promoting sustainable alternatives to private car use in the city centre.
- Extending pedestrian areas.
- Reducing emissions and noise in the city centre.

Results
- The quality of the city space was improved.
- The number of pedestrians increased.
- The number of surface parking spaces was reduced and more underground parking spaces were created.
- Local businesses were boosted.

More information

www.graz.at
http://civitas.eu/content/graz
Iasi and CIVITAS

Located in northeastern Romania, Iasi is the second largest city in the country after the capital, Bucharest. The city has a population of 366,000 and is home to eight colleges and universities.

The city’s objective in the CIVITAS ARCHIMEDES project was to focus on the implementation of existing transport-related plans, such as Local Agenda 21 (approved in 2002) and the Sustainable Socioeconomic Development Strategy.

Public transport priority measures

• Creating a more efficient and attractive public transport service.

Results

• 45 percent of respondents expressed satisfaction with public transport services.
• The punctuality of public transport vehicles improved, with 78 percent arriving on time in 2010 and 88 percent in 2011.
• The average speed of public transport vehicles increased by 5.93 percent (15.90 km/h) during peak hours, and by 7.78 percent (19.40 km/h) during off-peak hours.

Iasi participates in the CIVITAS Initiative for cleaner and better transport co-financed by the EU

Efficient goods distribution

• Achieving economic growth without compromising environmental targets.
• Making freight transportation more efficient and environmentally sound.

Results

• The number of freight vehicles circulating along the corridor fell during peak hours from 109 in 2009 to 33 in 2012, and rose during off-peak hours from 17 in 2009 to 78 in 2012.
• Air quality improved, with a decrease in NOx levels in four monitored locations following measure implementation and a decrease in CO levels in three of the four locations.

Conversion of buses to cleaner fuel

• Demonstrating that the use of liquefied petroleum gas (LPG) can help reduce pollution levels in areas with dense traffic.
• Illustrating the direct link between cleaner public transport and improved public health.
• Meeting and exceeding EU requirements for first-generation biofuels and laying the foundations for the take-up of second-generation fuels and environmentally friendly vehicles.

Results

• Levels of CO fell in three of the four monitored locations by a maximum of 14 percent and a minimum of 4.2 percent.
• Levels of NOx fell in all four locations, with a maximum decrease of 8.8 percent and a minimum of 6.5 percent.
• Levels of particulate matter fell in all four locations by a maximum of 13 percent and a minimum of 7.2 percent.

Technological Developments

Innovations

More information

www.primaria-iasi.ro
www.civitas.eu/content/iasi
Kaunas and CIVITAS

With 356,000 inhabitants, Kaunas is the second biggest city in Lithuania and has a rich history, beautiful landscape and strong industry. It is located at the confluence of the two largest Lithuanian rivers, the Nemunas and the Neris, and near the Kaunas Reservoir, the largest body of water in the country.

Kaunas focused its CIVITAS I activities on the development on its urban transport network, particularly on pricing strategies and the stimulation of public transport use through access and security improvements.

Involvement in the CIVITAS Initiative was a massive leap into European partnerships for Kaunas. The city hosted the CIVITAS Forum conference in 2007.

Innovations

New public transport service: PIKAS software system

- Modernising the public transport network and optimising schedules.
- Eliminating micro-bus transport in the city centre.
- Improving the organisation and quality of public transport.
- Purchasing new SOLARIS buses.

Results

- Traffic timetables were coordinated.
- Working conditions for drivers were improved.
- Micro-bus routes and vehicles were reduced by almost 30 percent.
- Electricity consumption by trolleybuses decreased by 4 percent.
- The number of buses increased by 72 percent.

Technological Developments

Integrated ticketing system

- Introducing common ticket formats and a flexible tariff structure for buses and trolleybuses.
- Revising ticket distribution and sales procedures.

Results

- 309 new ticket punchers were installed in regular buses and 460 in trolleybuses.
- Ticket sales increased by 45 percent for trolleybuses and by 8 percent for buses.

Infrastructure

Access and security improvements

- Ensuring accessibility to information about public transport services.
- Renovating bus stops.
- Adapting vehicles to the needs of disabled passengers.
- Providing information for disabled public transport passengers.
- Making public transport schedules available via SMS.

Results

- 367 bus stops were renovated.
- 1,300 cylindrical holders were installed to display timetable information.
- All stops were equipped with information stands and public transport maps.
- A high rate of SMS usage was achieved among 30- to 45-year-olds.

More information

http://civitas.eu/content/kaunas
Krakow and CIVITAS

Krakow is located in southern Poland on the Vistula River at the foot of the Carpathian Plateau. With almost 800,000 inhabitants, it is one of the biggest cities in Poland. The city is a prominent centre of culture and science, economic activity is very strong and tourism is growing.

The city’s transport policy is aimed at creating an efficient, safe, economic and environmentally friendly transport system for passengers and goods. Key priorities are bus lanes, tram tracks, efficient traffic control that ensures priority for public transport, and access restrictions to the historic city centre.

Technological Developments

Boosting public transport

- Creating an integrated ticket system for national rail services and city transport.
- Developing a new method for the collection of accident data to improve the efficiency of the road police and increase road safety.
- Introducing licence plate recognition cameras to enforce access restrictions.

Results

- A 15 percent increase in public transport journeys using integrated tickets was achieved.
- Trams were made more attractive and operating speeds were improved.
- Fewer cars now enter the historic centre.

Modernised infrastructure

- Introducing the Bike-One system with 120 city-owned bicycles and 16 rental stations.
- Implementing high-mobility corridors, involving dedicated bus lanes, expanded services, improved stops with real-time information, and priority crossings.
- Introducing five brand new buses running on compressed natural gas (CNG).
- Introducing low-floor trams.
- Installing 23 new cycle racks.

Results

- The number of cycle parking spaces rose from 60 to 180.

Infrastructure Developments

On-demand bus service and car pooling

- Implementing the first demand-responsive (bus) transport service in Poland.
- Introducing bicycle carrying facilities on 15 buses in order to encourage the combined use of public transport and cycling.
- Establishing a car-pooling scheme at the Technical University.

Results

- The tele-bus system has a stable monthly average of 1,900 users.
- There has been a 9 percent growth in car pooling.

More information

www.krakow.pl
http://civitas.eu/content/kraków
La Rochelle and CIVITAS

The Urban Community of La Rochelle lies on the French Atlantic coast in the Poitou-Charentes region. It comprises the city of La Rochelle and its 17 surrounding communes, with a total population of 160,000.

La Rochelle is one of Europe’s largest yachting marinas and an important centre of marine industry. It is also recognised for its pioneering transport policies and has succeeded over the years in developing a genuine ethos of urban ecology.

With a comprehensive integrated mobility policy already in place, the CIVITAS measures implemented in La Rochelle represented major progress in the provision of sustainable mobility services by improving the existing public transport solutions, enabling multimodality, and giving greater coherence and visibility to all public transport services.

Infrastructure Developments

Rebirth of the bus service

- Reorganising the bus route network.
- Building new park-and-ride facilities.
- Introducing integrated ticketing and real-time information.
- Introducing new bike routes and bike-on-bus schemes.
- Purchasing new clean buses and opening biofuel filling stations.
- Improving access for passengers with impaired mobility.

Results

- Over 80 percent satisfaction with the new e-ticketing system was achieved.
- Accessibility improved at 107 bus stops within the CIVITAS timeframe.
- 98 percent of users were satisfied with public transport accessibility.
- Fuel consumption and emissions were reduced.

Clean vehicles for goods distribution and public transport

- Introducing goods deliveries by electric vehicle in the pedestrian zone.
- Renewing the bus fleet with clean vehicles.

Results

- Energy consumption in city goods deliveries was reduced by 2.12 percent.
- Emissions of CO₂ were reduced by 58 percent.
- Emissions of pollutants from public transport fell by an average of 65 percent.
- Two hybrid minibuses and 10 buses complying with enhanced environmentally friendly vehicle standards (EEV) were introduced.
- Two biofuel filling stations and a cooking oil recycling unit were built.
- Pure plant oil was used to fuel 10 heavy goods vehicles.

Innovations

More effective use of cars

- Introducing a car-pooling programme.
- Improving the car-sharing scheme by introducing electric vehicles.

Results

- 125 litres of fuel were saved annually.
- A new car-sharing organisation was established as a public service under delegated management.
- The system was successfully adjusted to overcome technical difficulties.
- Car-sharing tools were developed and tested.

Technological Developments

More information

www.agglo-larochelle.fr
http://civitas.eu/content/la-rochelle
Lille and CIVITAS

Lille Metropole is a local authority in northern France encompassing 85 municipalities and 1.2 million people. Lille is on the Deule River near the border with Belgium. It is the capital of the Nord-Pas de Calais region and the prefecture of the Nord department.

The fourth largest French urban area has become a base for distribution in northern Europe and a junction of major European north-south and east-west traffic routes.

Lille Metropole has one of the most modern public transport systems in the whole of France, comprising buses, trams and a driverless metro system.

CIVITAS I supported the introduction of a smartcard system, the enlargement of park and ride facilities, the introduction of company mobility plans and improvements to the overall urban mobility plan.

Innovations

Smart transport options

- Developing innovative technologies for information provision and automatic ticket distribution.
- Promoting intermodality among public transport systems.

Results

- Smartcards and automatic signalling systems were introduced.
- Traffic control signalling was enhanced.

Technological Developments

Promoting clean fuels

- Building an organic waste processing centre.
- Developing biogas processing technologies within the Biogasmax project (under the EC’s Sixth Framework Programme for Research and Technological Development).

Results

- More than 11 million cubic metres of biogas were produced.
- The waste-processing centre opened in 2007.

Infrastructure Developments

Mobility planning

- Establishing a mobility plan as a coordination tool.
- Integrating the mobility plan with other plans, including housing.
- Strengthening urban–rural linkages.

Results

- Connections were established between various transport networks (metro, trams, buses, soft modes).
- Environment, air quality, traffic and health issues were taken into account.

More information

www.lillemetropole.fr
http://civitas.eu/content/lille

Images: Lille
Ljubljana within CIVITAS II

Ljubljana, the capital of Slovenia and the country’s cultural, trade and scientific centre, has a population of 275,000, with a further 130,000 commuters travelling into the city daily. In Ljubljana, Western Europe meets Central Europe and Balkan meets Mediterranean.

During CIVITAS II, the city focused on linking urban and traffic planning; promoting the use of public transport, alternative mobility modes and low-emission vehicles; facilitating civil society engagement; and improving traffic infrastructure.

Infrastructure Developments

Participatory planning and promotion of sustainable mobility, especially cycling

- Introducing a public participation model in the city’s mobility development.
- Improving cycling infrastructure and encouraging cycling in the city.

Results

- 480 new bicycle racks were installed.
- 50 covered bicycle parking spaces were installed in public areas.

Innovations

Information campaign on clean fuels and vehicles

- Setting up information points and campaigning for clean vehicles and alternative fuels in Ljubljana.

Results

- Two info-points on clean fuels and vehicles and sustainable mobility were established.
- Awareness and knowledge of sustainable mobility, alternative fuels in public transport and bio-diesel usage were raised.

Technological Developments

Implementation and large-scale deployment of bio-diesel and compressed natural gas (CNG)

- Testing of 100 percent bio-diesel use in the Ljubljana public transport bus fleet over 500,000 km.
- Improving the quality of locally produced bio-diesel.
- Testing various kinds of rapeseed oil and decentralised bio-diesel production on small farms.

Results

- Vehicle maintenance proved more expensive.
- Levels of methane increased, but lead and sulphur were eliminated from exhaust fumes.
- Fuel consumption was 10 percent higher.
- After the testing phase, the public transport company decided that bio-diesel was not the right choice of clean fuel for its needs and opted for CNG instead.
- Low-cost domestic technology for cold-pressed pure plant oil production (mechanical extraction and filtration) on farms was developed and put into operation.
- The production of pure plant oil started on some farms and one big industrial plant.
- Domestic bio-diesel, produced in a decentralised way, was used in vehicles.

More information

www.ljubljana.si
http://civitas.eu/content/ljubljana-within-civitas-ii
E-ticketing and fare integration

- Creating an integrated e-ticketing system for all public transport operations on the local, and possibly also regional level.
- Introducing an integrated smartcard for ticketing and payment.
- Creating a web page with complete travel information for all modes in Ljubljana.

Results
- Almost a quarter of survey respondents used the public transport planning service Google Transit.
- The new integrated ticketing system was well received by residents of suburban areas, with around 34,000 users per month.
- All 130 bus stations in Ljubljana were equipped with new, station-specific timetables.

Technological Developments

Green procurement for public fleets

- Extending the market for hybrid vehicles in the city.
- Implementing green procurement through purchasing hybrid vehicles for the city’s fleets.
- Promoting the use of hybrid vehicles in the public and private sector.
- Improving air quality by lowering emissions.

Results
- Following the introduction of the new vehicle fleet in July 2009, average fuel consumption fell by around 10 percent.
- Average CO2 emissions fell by 14 percent or 25 tonnes a year for the whole fleet.
- By 2012, around 9,000 km were being travelled by bicycle rather than car each year, and bicycle usage was increasing by 12 percent annually.

Reduced-speed zones

- Making road traffic safer through the introduction and enforcement of speed limits and the reduction of motorised traffic in the city centre.
- Enhancing and redesigning public spaces for the well-being of residents and visitors.
- Improving cooperative efforts among city enforcement agencies.

Results
- The number of reduced-speed zones has increased by 12 percent.
- Average speeds in these zones have decreased by 5.2 km/h.
- The number of minor injuries from traffic accidents has fallen by 33 percent.

Innovations

Ljubljana within CIVITAS Plus

The high urban density in the city centre, an underdeveloped public transport system and modest public transport usage contribute to air pollution, noise and congestion problems in Ljubljana.

Inspired by its time as a follower city during the previous phase, within the CIVITAS ELAN project, the city worked to reverse these negative trends and to make the city more citizen friendly and sustainable. A giant leap forward has been made in terms of concrete improvements and a more intensive dialogue with stakeholders and citizens.

Infrastructure Developments

More information

www.ljubljana.si
www.civitas.eu/content/ljubljana
Malmo and CIVITAS

With a population of around 290,000, Malmo is Sweden’s third largest city and has developed into a thriving industrial and trade centre from its medieval roots.

Since the 1980s, Malmo has reinvented itself as a sustainable multicultural European city of the future by means of major developments such as the opening of Malmo University, the construction of the Oresund Bridge to Copenhagen, urban renewal and attractive new housing and commercial areas.

In terms of reducing emissions of CO₂, the biogas plant and eco-driving training measures proved particularly effective, along with the introduction of 10 biogas-powered heavy goods vehicles at the local dairy company.

Technological Developments

Clean fuels and vehicles

- Constructing a 20 GWh methane gas upgrading plant to support the biogas market connection to the grid.
- Constructing two fuelling stations.
- Purchasing or leasing 430 clean vehicles.
- Introducing 10 trucks powered by compressed natural gas at the local dairy company.
- Introducing clean vehicles in the municipality and local hospital fleet and launching a car-sharing club.

Results

- 50 percent of fuel required for public transport comes from renewable sources.
- Eco-driving training resulted in annual reductions of 634 tonnes of CO₂.

Commercial car-sharing club

- Introducing seven parking locations with between 20 and 30 cars available.

Results

- Car use fell by 7 percent between 2005 and 2007, reaching an 18-year low of 36 percent.

More information

www.malmo.se
http://civitas.eu/content/malmö

Infrastructure Developments

Low-emission zone with priority system

- Extending the existing low-emission zone.
- Installing a bus priority system at 42 traffic lights.

Results

- The expanded low-emission zone resulted in annual reductions of 19,700 kg of NOx and 370 kg of particulate matter.
- Bus use rose by 5 percent between 2005 and 2007.
- The modal share of pedestrians increased and the share of cycling remained stable.
Monza and CIVITAS

Monza is the third largest city in the Italian region of Lombardy and the most important economic, industrial and administrative centre in the Brianza area. Its proximity to Milan creates traffic congestion due to commuters travelling between the two cities. It is also a central node in the region’s railway network.

In this context, the city of Monza participated in the CIVITAS ARCHIMEDES project as a learning city in order to establish an urban mobility system that would reduce the impact of private traffic by creating new and more sustainable offers.

Infrastructure Developments

Car-sharing scheme improvements

- Increasing understanding of the barriers to the use of car sharing.
- Increasing the number of car-sharing subscriptions.
- Carrying out a marketing strategy study to show the advantages of car sharing.

Results

- The number of subscribers increased from 40 to 582 during the project.
- The economic efficiency of the system was determined to be limited, particularly in the context of a challenging economic climate.

Technological Developments

Green light for traffic control systems

- Optimising traffic flow in the city.
- Coordinating controls at major intersections to achieve green waves.
- Prioritising public transport.

Results

- Traffic flow increased by 5 percent and traffic density decreased by 20 percent. Travel times for cyclists in the city centre were also cut.

Innovations

Getting the guide on park and ride

- Providing alternatives for commuters without adequate access to public transport at the start of their trip.
- Introducing dynamic real-time information on free parking spaces.
- Bringing the city’s public parking areas under unified management.

Results

- The introduction of a data-gathering system for parking spaces allowed the municipality to better understand the distribution of parked cars across the city.
- The system was well accepted by citizens, who would welcome further improvements such as a website or smartphone application to help them find available spaces.

Contact

www.comune.monza.mi.it
www.civitas.eu/content/monza
Nantes and CIVITAS

Nantes lies on the banks of the river Loire close to the Atlantic coast.

Nantes conurbation, with its 24 municipalities and 580,000 inhabitants, is the largest urban centre in western France. In the last 10 years, it has seen the second highest rate of growth in France. In 2010, Nantes was named a hub city for innovation in the Innovation Cities Index.

During the CIVITAS I VIVALDI project, Nantes focused on increasing the use of public transport as an alternative to the car. Measures were also aimed at reducing air pollution by deploying clean vehicles in public transport and promoting cycling and walking.

Technological Developments

Access management and parking strategy

- Creating car-free public spaces.
- Enhancing access to the city centre for visitors and discouraging commuting by car.
- Ensuring parking for city-centre residents and increasing their use of alternative transport modes.

Results

- Several on-street parking spaces were removed in order to enlarge pedestrian areas and develop bus corridors and bike lanes.
- Between 2003 and 2005, there was a six-fold increase in park-and-ride facilities.

Innovations

New clean public transport fleet

- Enhancing the image of bus use among the local population.
- Encouraging the use of alternative fuels while being in a position to diversify sources of energy.

Results

- The city rolled out 125 standard and 30 articulated buses fuelled by compressed natural gas (CNG).
- Much of the bus fleet was renewed during the project (increasing comfort, reducing noise and vibrations, and eliminating exhaust gases and smells).
- Energy costs fell by 7 percent.
- Emissions of non-methane hydrocarbons fell by 50 percent; NOx by 43 percent; and PM10 by 90 percent.

Improving the Use of Soft Modes

Bike-and-ride services and bike rental

- Introducing bike rentals with companion services such as electric pumps.
- Publishing a map of the cycle path network.
- Expanding bike parking, including bike racks in public spaces and covered secure parking spaces in off-street car parks and at interchanges.
- Launching the Ville a Velo public bike service with 200 bicycles located in five car parks.

Results

- Around 300 bikes were rented per month.
- It was made possible to return bikes to a different car park from where they were rented.
- Reduced fees were introduced for public transport users.
- The modal share of cycling increased for work- and school-related trips.

More information

www.nantesmetropole.fr
http://civitas.eu/content/nantes
Norwich and CIVITAS

The historic city of Norwich is the economic and administrative centre of the county of Norfolk in the east of England. With a population of over 200,000, the city offers employment to over 120,000 people.

The city is surrounded by an extensive rural catchment area and, proportionately, has the highest level of inward commuting in the UK after London. The city centre is easily accessible by various modes of transport other than the car. Some 20 percent of commuters cycle or walk to work and there are extensive bus-based park-and-ride facilities at the edge of the city providing long-stay parking for commuters and visitors to Norwich.

Clean-fuel trials

- Establishing a sustainable bio-diesel supply chain.
- Producing bio-diesel from used cooking oil.

Results
- Potential annual reductions of around 600 tonnes of CO\text{2} in the Anglian bus fleet were identified.
- It was found that a 20 percent blend of bio-diesel offers an optimum compromise between CO\text{2} saving, fuel economy and NO\text{2} emissions.

Technological Developments

Cleaner and more efficient transport system

- Creating a low-emissions zone.
- Facilitating rail/bus interchange.
- Influencing vehicle choice towards smaller and more fuel efficient vehicles.
- Introducing freight distribution and priority access measures.

Results
- Concentrations of NO\text{2} were reduced from over 50 to 40 μg m\textsuperscript{-3}.
- Bus travel to the railway station rose by 24 percent.
- Parking tariffs were introduced according to vehicle length.
- Journey times for freight delivery vehicles were reduced by 12 minutes.

Infrastructure Developments

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Innovations

Travel planning for less car intensive lifestyles

- Designing school and company travel plans.
- Encouraging car-pooling and car-sharing schemes.
- Promoting individual travel planning.

Results
- 88 schools with travel plans delivered a positive modal shift of 11 percent.
- Single-occupancy travel to/from workplaces fell by 10.75 percent.
- Over 2.2 million fewer kilometres were travelled on the roads as a result of car sharing.
- 50 percent of the university’s community now travel by foot or bicycle.

More information

www.norwich.gov.uk
http://civitas.eu/content/norwich
Odense and CIVITAS

With 190,000 inhabitants, Odense is the third largest city in Denmark. It is the capital of the island of Funen and is known primarily as the birthplace of Hans Christian Andersen, the famous writer of fairytales.

Odense is a relatively low-rise city with a low urban density and ideal topographical conditions for cycling. It boasts more than 500 km of cycle paths. Once a heavily industrialised city, Odense has now become a centre for small and medium-sized firms with a wide range of support and service enterprises.

Infrastructure Developments

Introducing environmental zones

• Testing two pilot areas.
• Developing pedestrian areas and bicycle infrastructure.
• Monitoring cycling traffic.
• Introducing lower speed limits and access restrictions.

Results

• Average speeds dropped by 12 percent and 22 percent in the two pilot areas.
• Through traffic fell by 35 percent.
• 61 percent of residents consider that traffic speeds have dropped.
• The number of residents who feel that crossing the road is safer rose from 24 percent to 61 percent.
• The number of cyclists rose by 62 percent in the two pilot areas.

Improving the quality of sustainable transport modes

• Developing an SMS ticketing option.
• Establishing interactive information points.
• Providing real-time passenger information.

Results

• Some 5,000 tickets per month are purchased via mobile phone (4 to 5 percent of total sales).
• The four information screens at the bus terminal are each used on average 5,588 times per month.
• The bus priority system increased travel speed by 3 percent in the evening and 1 percent during the day.

More information

www.odense.dk
http://civitas.eu/content/odense

Traffic planning

• Producing a traffic planning toolbox.
• Developing a cycle traffic model.
• Producing traffic and mobility plans.
• Developing the cycling infrastructure.

Results

• The traffic planning toolbox, the cycle traffic model, and a plan for traffic and mobility were successfully delivered.
• Six cycle pump facilities were established along the ring road.

ODENSE, DENMARK
Pecs and CIVITAS

With 158,000 inhabitants, Pecs is a centre for education, commerce and health-related facilities. It is located in southwest Hungary near the Croatian border. In November 2000, the Early Christian burial chambers in Pecs received UNESCO World Heritage protection.

In 2010, Pecs was selected as the European Capital of Culture. The city now has a completely car-free centre and there are plans to introduce an environmentally friendly bus fleet.

The main focus of Pecs in CIVITAS I was to introduce a car-free zone in combination with a zone-model parking system with time-limited stays and increased fees.

CIVITAS I measures led to reduced traffic in the city centre and increased use of public transport.

Infrastructure Developments

Car-free zone, extended strolling zone and bike path network

- Introducing a 30 km/h speed limit throughout the centre.
- Introducing access restrictions for freight vehicles over 6 tonnes.
- Establishing a limited access area in the city-centre buffer zone and the car-free World Heritage zone.

Results
- Better conditions were created for protecting the UNESCO sites.

Technological Developments

Zoned city-centre parking system

- Reducing the amount of traffic in the city centre.
- Enlarging the city-centre green zone.
- Registering the reduction in noise and air pollution.

Results
- Emissions were reduced by between 20 and 80 percent within the zone.
- The average parking stay was shortened by 20 to 30 percent.
- The use of private cars decreased.
- Air and noise pollution were cut by 3 percent.
- Conditions for residents, employees and visitors were improved.

Innovations

New traffic and transport strategy

- Preparing a strategy to meet the challenges of the huge increase in traffic, mainly private cars.
- Providing environmentally friendly transport alternatives to citizens.
- Implementing measures to help the city become the European Capital of Culture in 2010.

Results
- The strategy describes the direction of future investments and developments.

More information

www.pecs.hu
http://civitas.eu/content/pecs
Perugia and CIVITAS

Perugia is a classic example of an Italian fortified hilltop city. The capital of the Umbria region in central Italy, Perugia has a population of about 160,000 and is a major educational and medical centre. The city hosts many international festivals each year.

Perugia is well known as a tourist and business centre, although its unusual geographical location makes the city centre difficult to access.

Within the CIVITAS RENAISSANCE project, the city planned an innovative and sustainable transport system that would encourage a cultural change by promoting intermodality and the use of alternative modes of transport.

Infrastructure Developments

PIPE$NET system for city logistics

- Exploring the potential for the PIPE$NET system, comprising vacuum-sealed pipes moved by electrical linear motors, to facilitate freight distribution in the city centre.

Results

- Noise reduction of 8.85 dB was achieved and CO₂ emissions were reduced by 20 percent.
- Freight traffic decreased by between 40 and 45 percent.
- Greater efficiency resulted in a 20 percent decrease in energy consumption.

Technological Developments

Strategies for avoiding travel

- Making access to public transport easier for passengers with reduced mobility in areas with difficult terrain.
- Providing easier access to public transport services for socially disadvantaged groups.
- Eliminating the need to travel to municipal offices by making public services accessible through the Internet.

Results

- 6,748 car trips were avoided, reducing CO₂ emissions by more than 10 tonnes.
- Savings of EUR 19,309 were made in relation to petrol cars and EUR 11,534 in relation to diesel cars.

Innovations

Improvements to bus stops

- Making bus shelters and stops more user friendly, attractive and safe.

Results

- 24 bus stops were renovated, including improvements to pavements and access and the replacement of bus shelters.
- Passengers reported feeling safer at all 24 bus stops.
- The quality of public transport improved.

Contact

www.comune.perugia.it
www.civitas.eu/content/perugia
New concepts for goods distribution

- Developing a strategic plan for city logistics.

Results
- Freight routes and zones were clearly defined.
- The efficiency of goods distribution was greatly improved.

Ploiesti and CIVITAS

Ploiesti is located in the south of Romania, 60 km north of the capital, Bucharest. With a population of 248,688, it is planned to make Ploiesti the nucleus of a metropolitan area covering eight nearby villages.

Within CIVITAS SUCCESS, Ploiesti has implemented concrete measures that have greatly improved environmental and urban conditions in the framework of its Local Agenda 21. Among the most important were the conversion of outdated buses to vehicles running on liquefied petroleum gas (LPG); bus fleet monitoring via GPS; the provision of real-time information for public transport users; improvements to bus shelters; the installation of cycle lanes; and the setting up of a central clean zone.

Technological Developments

A clean city centre
- Developing a clean zone.
- Introducing traffic calming.
- Creating pedestrianised zones in the city centre.

Results
- A clean zone of 1 km² was established.
- 12 km of pedestrian paths were constructed.
- 8 km of cycle tracks were installed.

More information
www.ploiesti.ro
http://civitas.eu/content/ploiesti

Innovations

Improving the bus service
- Improving bus stops and constructing new shelters.
- Equipping buses with GPS and providing real-time passenger information.
- Ensuring that vehicles are clean and refurbished.

Results
- 10 bus stops were equipped with new shelters and better information displays.
- Accessibility to bus stops was improved.
- The introduction of 169 GPS tools means that all 35 routes are equipped.
- 28 real-time passenger information panels were installed.
- 25 diesel buses were refurbished and converted to run on LPG.
Porto and CIVITAS

A World Heritage site since 1996, Porto is one of Europe’s oldest cities. The city is steeped in history and tradition and attracts visitors with its culture, architecture, mild climate and, of course, port wine.

The second largest city in Portugal, Porto has been changing its urban mobility policy to provide better-quality public transport. Despite recent significant achievements, such as the city’s new metro system, public transport is still not fully accepted as an effective and competitive alternative to the private car.

CIVITAS ELAN was seen as an important opportunity to encourage change towards a more sustainable urban transport system, with innovative measures being implemented in a selected test area.

Infrastructure Developments

Mobile mobility information

- Lowering private car usage.
- Reducing congestion.
- Optimising journey planning for passengers.
- Increasing customer satisfaction.

Results

- The Information for Mobility Support system improved the way in which transport information is provided by gathering data from 14 operators in a single platform and centralising functionality.
- People gave good feedback about the MOVE-ME mobile phone application and also suggested a willingness to pay for the service.
- 21 percent of surveyed users stated that they had used their car less since MOVE-ME became available.

Contact

www.cm-porto.pt
www.civitas.eu/content/porto

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Contact

www.cm-porto.pt
www.civitas.eu/content/porto

Innovations

The Mobility Shop

- Providing innovative mobility services.
- Improving customer satisfaction.
- Encouraging citizens to use public transport.

Results

- A large increase in the number of visitors to 1,100 per month was recorded after the Mobility Shop was redesigned in May 2011.
- The number of visitors to the Mobility Shop website increased following the launch of its new design in May 2012.
- Visitors expressed great satisfaction with the services offered by the Mobility Shop, giving an average score of 4.73 on a scale up to 5 (completely satisfied).

Contact

www.cm-porto.pt
www.civitas.eu/content/porto

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Contact

www.cm-porto.pt
www.civitas.eu/content/porto

Light-weight shuttle bus

- Reducing the weight and production costs of urban buses through new bus construction technology.
- Reducing CO₂ emissions.
- Promoting a modal shift towards cleaner modes of transport.

Results

- The composite bus bodywork was 380 kg lighter than a standard bus and the main structure comprised only two bonded parts.
- 14,000 passengers were carried on the bus during the project period.
- Reductions in CO₂ emissions of between 7 and 36 percent were recorded under various test conditions.
Potenza and CIVITAS

The southern Italian city of Potenza is the capital of the Basilicata region and has a population of around 70,000. The historical centre is situated 820 metres above sea level.

As a “vertical” city, Potenza has overcome its mobility obstacles by the construction of a system of escalators, which, at 1.3 km, is the longest in Europe. Its old narrow-gauge railway has been converted into an urban subway system.

The ambitious local policy goal is to create an integrated urban mobility system comprising road transportation, railways and mechanised systems, under a unified management.

Infrastructure Developments

A boost for car pooling

- Introducing a car-pooling system with a web-based matchmaking tool.
- Providing designated parking places for car poolers.

Results
- 69 percent fewer trips are made by single-occupancy cars.

Technological Developments

Clean and flexible public transport

- Introducing four new buses powered by compressed natural gas (methane).
- Introducing a demand-responsive transport system for peri-urban areas.

Results
- Annual reductions of 3,933 kg of NOx and 63 kg of particulate matter (PM10) were achieved.
- Annual fuel costs fell by EUR 30,357.
- Accessibility was improved and an integrated transport system was developed for peri-urban users.

Innovations

Establishment of the Mobility Centre

- Promoting stakeholder support for sustainable urban transportation.
- Developing technological solutions for traffic management and monitoring.
- Coordinating passenger information systems.
- Providing travel planning support.
- Promoting road safety.

Results
- Understanding of the potential for a modal shift towards public transport has improved.
- Understanding of potential benefits in terms of economy, environment, transport and society has improved.

More information

www.comune.potenza.it
http://civitas.eu/content/potenza
Prague and CIVITAS

Prague, with approximately 1.3 million inhabitants, is the capital and largest city of the Czech Republic. Lying on the Vltava River in central Bohemia, Prague is a political and economic centre as well as a cradle of industry, trade, education, research and tourism. All this activity requires a large, well-managed transport system.

Since 1992, the historic centre of Prague has been under protection as a UNESCO World Heritage site, making it one of the most popular tourist destinations in Europe. Prague’s CIVITAS I measures focused on restricting access to heavy vehicles and introducing and improving bus lines. Emphasis was also placed on shifting modal share from private cars to public transport.

Technological Developments

Enlarging the restricted environmental zone for vehicles heavier than 6 tonnes

• Creating a cleaner city centre.
• Limiting the number of heavy goods vehicles transiting densely populated parts of the centre.
• Reducing the negative impacts of traffic flow.

Results
• Emissions of CO₂, NOx and particulate matter were reduced.
• Energy consumption and noise decreased.
• A favourable modal shift was achieved.
• Modern vehicles compliant with Euro standards were introduced.
• The city centre was made more attractive.

Infrastructure Developments

Flexible signal controls for bus priority system

• Addressing public transport priority problems from the car drivers’ perspective.
• Achieving a faster and smoother bus flow.
• Eliminating time losses at intersections with a signal control system.

Results
• Time was saved by allocating priority only to selected vehicles.
• The prioritisation system was substantially enlarged.
• 100 percent reliability was achieved.

Innovations

Public transport in the Karlov district

• Promoting the use of public transport and other alternatives to private cars among residents of Karlov.
• Providing transport services for specific groups, particularly those with reduced mobility, facilitating access to medical services in the city centre.

Results
• Services were provided for passengers with reduced mobility.
• Three new vehicles were introduced.
• Up to 2,400 customers were transported daily.
• 98 percent of users indicated satisfaction with the quality of service.

More information
http://civitas.eu/content/praha
Innovative soft measures

- Introducing personalised travel planning.
- Promoting business and school travel planning.

Results
- The number of car trips fell by 10 percent.
- All local schools have a travel plan.
- The use of sustainable transportation modes has increased.

Infrastructure Developments

Safer and less-car-intensive transport

- Introducing traffic calming measures.
- Improving pedestrian infrastructure.
- Installing cycle racks.
- Improving the quality of highways and junctions.

Results
- Traffic speed on city streets has been reduced.
- Public spaces have been made more attractive.
- The number of accidents involving pedestrians has fallen.

More information

www.lancashire.gov.uk
http://civitas.eu/content/preston

Innovations

Collective and alternative modes of transport

- Promoting the use of high-frequency bus services in 18 corridors.
- Improving facilities for bus passengers.
- Providing new infrastructure and information for cyclists and pedestrians.

Results
- Car usage fell by 5 percent.
- The use of buses and non-motorised transportation modes rose by 25 percent.

Preston and CIVITAS

With a population of 129,000, Preston is the administrative hub and largest commercial centre in Lancashire, northwest England. The ancient town of Preston was granted city status in 2002, making it England’s newest city.

The city’s strategic location makes it an important transport hub on the UK Trans-European Network between London and Scotland. It has key rail and road links, including the West Coast Main Line and M6 motorway.

Preston participates in the CIVITAS Initiative for cleaner and better transport co-financed by the EU.

www.civitas.eu
secretariat@civitas.eu

More information

www.lancashire.gov.uk
http://civitas.eu/content/preston

Image: Alexander P. Kapp
Rome and CIVITAS

The Rome Metropolitan Area hosts about 3.7 million residents and comprises the municipality of Rome and 120 small satellite communities. The city is located in the central-western part of the Italian Peninsula on the Tiber River within the Lazio region of Italy.

During the CIVITAS I MIRACLES project, Rome implemented 19 measures including the development of access restrictions, promotion of public and non-motorised transport, adoption of clean vehicles and fuels, development of mobility management and improvement of the transport network through information technology services (ITS). Rome sought to reduce energy consumption, improve air quality, reduce noise, increase accessibility to public transport and reduce private car use.

Innovations

Car sharing

- Providing an alternative to car ownership.
- Helping to change urban travel habits.
- Enhancing public transport use.

Results

- After 17 months, 290 subscribers registered and more than 860 people indicated their intention to join.
- Each car owner registering for car sharing reduced their fuel consumption by 30 to 50 percent.
- About 14 percent of the public were aware of the system and had a positive perception of it.
- Concentrations of benzene decreased by over 30 percent.
- Concentrations of CO decreased from 56.88 to 11.21 kg/h during peak hours.
- Concentrations of particulate matter decreased from 35.35 to 21.2 kg/h during peak hours.

Technological Developments

Access restrictions

- Reducing peak-hour traffic in a pilot limited traffic zone (LTZ) by restricting the number of highly polluting vehicles.
- Reducing illegal entry into the LTZ.
- Encouraging a shift towards sustainable modes.

Results

- Traffic fell by 10 percent during the day.
- Even outside the restriction period drivers opted to avoid the LTZ.
- Traffic flow during the restriction period decreased by 20 percent.
- Traffic flow during morning rush hour (08:30–09:30) decreased by 15 percent.
- Two-wheeled traffic increased by 10 percent.

Infrastructure Developments

On-line multi-modal information

- Encouraging residents and tourists to use public transport rather than cars.
- Improving access to mobility information via new media and mobile devices.
- Increasing the number of occasional public transport users.
- Enhancing flexible transport services.
- Improving information provision on the web through the INFOPOINT.

Results

- Multi-modal information was made accessible through mobile devices.
- Information helped users to combine transport modes in personalised journey planning.
- The modal share of cycling increased.
- Visits to the transport operator’s website increased by 197 percent.
- Website and kiosks were made available in French, Spanish, English and Italian.

More information

www.comune.roma.it
http://civitas.eu/content/roma
Rotterdam and CIVITAS

Rotterdam is the second biggest city in the Netherlands, with more than 600,000 inhabitants. The city is the economic, social and cultural centre of the Rijnmond region and is the industrial heart of the country. As the largest port in Europe, Rotterdam generates a lot of traffic and is undergoing continuous redevelopment, especially in the city centre.

During the CIVITAS I TELLUS project, Rotterdam focused on a modal shift towards cycling and public transport and on promoting cleaner transport alternatives.

Today Rotterdam has the cleanest public bus fleet for local transport in Europe.

Infrastructure Developments

Dedicated bike lanes and park and ride expansion

- Introducing new bicycle lanes into the city centre and to the central train station.
- Promoting cycling as an attractive, cheap and clean means of transport.

Results

- 6.5 percent more cyclists used the new route.
- 1,195 people switched to bicycle travel from other modes.
- Bicycle trips increased by 16.7 percent.
- Safety and road quality improved.
- There were reductions in noise and emissions of CO₂, NOx, particulate matter (PM) and other pollutants.
- The number of cars per day fell by approximately 5.2 percent.

More information

www.rotterdam.nl
http://civitas.eu/content/rotterdam

Technological Developments

Automated people movers (APM)

- Increasing public transport modal share.
- Improving public-private cooperation.
- Integrating APM with public transport.

Results

- The infrastructure was extended by 1 km.
- Six electric vehicles were introduced, each with a capacity of 20 passengers.

Clean and silent public transport fleet

- Establishing a clean public transport fleet.
- Converting 212 buses to Euro IV/V standard.
- Increasing the attractiveness of public transport by fitting selective catalytic reduction (SCR) filters on newly procured buses.
- Reducing road noise.

Results

- 73 buses were retrofitted with SCR filters.
- The overall efficiency of buses with SCR filters increased by 60 to 85 percent.
- After conversion to Euro IV/V standards, NOx emissions were reduced by 58 tonnes per year per bus; and PM10 emissions by 1,500 kg per year per bus (0.39g/km).

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Skopje and CIVITAS

With around 600,000 inhabitants, Skopje is a meeting point of many roads and cultures.

The city’s public transport system is currently characterised by an outdated transport concept, but efforts are being made towards improving the quality of the service.

Within the CIVITAS RENAISSANCE project, the city implemented many firsts for transport in the former Yugoslav Republic of Macedonia. The focus was on developing a sustainable urban transport system, renewing the public transport vehicle fleet and introducing real-time passenger information. The city also prioritised the reduction of pollution from public transport vehicles.

Technological Developments

Retrofitting buses to run on compressed natural gas (CNG)

- Reducing fuel consumption and emissions of CO, NOx and PM.
- Encouraging the use of CNG retrofitted vehicles in the municipality.
- Preserving cultural heritage and enhancing quality of life for residents by using clean-fuel vehicles.

Results

- 12 buses in Skopje were retrofitted to run on CNG.
- A policy was proposed regarding the further retrofitting of the bus fleet and a potential contribution to the retrofitting of private cars.

Innovations

Developing a sustainable urban mobility plan

- Defining a vision for future sustainable development that improves quality of life.
- Developing a well-defined, long-term, viable transport plan to support the sustainable development of the city.
- Overcoming the negative impacts of the existing transport system.

Results

- Understanding of the concept of sustainable transportation increased steadily over the project duration.
- The plan attracted full support from 86 percent of surveyed citizens, exceeding initial expectations.

Contact

www.skopje.gov.mk
www.civitas.eu/content/skopje

Infrastructure Developments

Real-time passenger information

- Encouraging public transport use by displaying real-time information at bus stops.
- Keeping citizens informed about available transport options.
- Achieving better traffic circulation.

Results

- More than 85 percent of respondents considered real-time passenger information to be a positive development that would help to increase the attractiveness of public transport.
- More than 97 percent of respondents wanted to see the system expanded to the entire network.
- As a result of the successful demonstration of the system at 10 selected bus stops, the system will be expanded to the city’s entire public transport network.

Contact

www.rotterdam.nl

More information
Stockholm and CIVITAS

The city of Stockholm, with 740,000 inhabitants, has a well-functioning, accessible and safe public transport system. Stockholm has replaced much of its municipal fleet with clean vehicles, including vehicles powered by electricity, biogas, ethanol and other clean fuels.

As a pilot project, Stockholm established infrastructure for alternative fuels on a scale to service its present fleet. The initiative helped promote the use of clean vehicles by the public and, as of March 2011, Stockholm had 120,000 clean vehicles, 12 percent of all those in the city.

Stockholm has an extensive public transport system, comprising one metro; two urban and suburban rail systems; three light rail systems and a tramway; several bus lines; and an inner-city boat service.

The city’s CIVITAS I measures aimed to reduce the number of vehicles, congestion on main roads and heavy-duty traffic. CIVITAS work also sought to improve the capacity of the rail network.

Technological Developments

Cycling promotion

• Increasing the use of bike-and-ride facilities.
• Increasing cyclists’ satisfaction with traffic conditions.
• Making a shift from cars and public transport to bikes, reducing fuel consumption and negative environmental impacts.
• Promoting bike and ride on the Internet by suggesting the fastest and safest paths.

Results
• Energy consumption and noise were reduced.
• Emissions of CO₂, NOx and particulate matter decreased.
• Commuters switched from other transport modes to cycling.
• Cooperation increased between cyclists and other stakeholders.

Infrastructure Developments

Congestion charging

• Improving traffic conditions on the busiest roads during peak hours.
• Reducing congestion and increasing accessibility.
• Reducing emissions of CO₂, NOx, particulate matter (PM) and noise.
• Saving energy.

Results
• Traffic was reduced in the inner zone by 30 percent during rush hours.
• Emissions of NOx were reduced by 110 tonnes and PM10 by 37 tonnes.
• Noise levels were reduced.
• The use of public transport, cycling and walking increased.
• Interest in clean vehicles increased.

Innovations

Clean fuels and vehicles

• Introducing the common procurement of clean vehicles (biogas, electric, electric hybrid, ethanol) in city fleets.
• Introducing clean heavy-duty vehicles and light-duty vehicles.
• Building three refuelling stations.
• Making clean vehicles less expensive.

Results
• 324 new clean vehicles were procured.
• Total energy consumption was reduced by 20 percent.
• Emissions of fossil CO₂ were reduced from 700 to 561 tonnes per year; emissions of NOx and particulate matter also fell.
• Fuelling costs for electric hybrid vehicles were 30 percent lower than for the corresponding petrol cars.
• 100 clean vehicles were procured by private companies.
• Nine biogas garbage trucks were rolled out.
• 26 clean and efficient heavy vehicles were rolled out (buses, lorries and/or garbage trucks).
• 3,000 clean vehicles were substituted for petrol ones in company fleets (biogas, electric, electric hybrid, ethanol).

More information

www.stockholm.se
http://civitas.eu/content/stockholm

STOCKHOLM, SWEDEN
Stuttgart and CIVITAS

Stuttgart is the capital of Baden-Württemberg and the centre of one of the most important economic areas in Germany.

With a population of 577,000, the city of Stuttgart forms the centre of the densely populated Stuttgart region, a conurbation with 2.7 million inhabitants.

The city is well acquainted with the kind of problems that arise from high mobility demand and has developed solutions aimed at decoupling economic growth from rising traffic congestion in order to improve quality of life and avoid negative environmental impacts.

Results

• Introducing maps with geographically referenced information.
• Providing door-to-door route planning.
• Enabling data transfer to public transport timetables.
• Providing users with a free service.
• Creating an events data pool.

More information

www.stuttgart.de
http://civitas.eu/content/stuttgart-within-civitas-ii

Innovations

Low-emission city centre

• Banning heavy traffic in the centre of Stuttgart.
• Creating an environmental zone.
• Improving pedestrian crossing facilities on an urban highway.

Results

• Levels of NOx and particulate matter (PM10) have fallen by between 5 and 30 percent.

Integrated traffic management

• Introducing event-oriented traffic management.
• Ensuring cooperation between the city of Stuttgart, the police and the public transport operator.

Results

• Congestion has been reduced and parking facilities empty more rapidly following an event.
• Journey times have been shortened and emissions resulting from traffic congestion during major events have been lowered.
• Journey comfort has been improved.
Suceava and CIVITAS

Suceava is situated in northeastern Romania, 450 km from Bucharest. Together with its suburban areas, it has a total population of 118,500. The city is located at an important junction of two European routes and five national roads.

Suceava began introducing clean vehicles and high-quality public transport services in 2000. The municipality of Suceava owns the local public transport company and has participated in several projects implementing measures to reduce the negative impacts of traffic and improve public transport services.

Results
- Annual average reductions of 6.02 percent NOx and 21.6 percent particulate matter (PM10) were achieved.
- Passenger satisfaction improved by 6 percent.

Innovations

Giving priority to buses
- Creating bus priority lanes at intersections.
- Installing new traffic lights and introducing “green wave” technology.
- Introducing GPS equipment on buses.
- Developing new ticketing and public transport safety systems.

Results
- The implemented measures have been well received.
- The quality of public transport services has improved.
- The number of public transport passengers has risen.

More information
www.orasulsuceava.ro

Low-emission zone

- Reducing traffic emissions and improving air quality.
- Improving quality of life in the city centre.
- Implementing an awareness-raising campaign.
- Extending pedestrianised areas.

Results
- Annual average reductions of 6.02 percent NOx and 21.6 percent particulate matter (PM10) were achieved.
- Passenger satisfaction improved by 6 percent.

Alternative fuels for the bus fleet

- Purchasing 15 new buses powered by liquefied petroleum gas (LPG).
- Introducing and promoting LPG and biogas as viable alternative fuels for public and private vehicles.
- Improving comfort levels on buses.
- Improving accessibility and providing better travel information.

Results
- Sales of LPG fuel rose by almost 40 percent in two years.
- An annual reduction was achieved of 370 tonnes of CO₂, 6,163 kg of NOx and 386 kg of particulate matter (PM10).
- In the course of the project, there was a 750 percent increase in the number of public transport passengers.

Technological Developments

Giving priority to buses
- Creating bus priority lanes at intersections.
- Installing new traffic lights and introducing “green wave” technology.
- Introducing GPS equipment on buses.
- Developing new ticketing and public transport safety systems.

Results
- The implemented measures have been well received.
- The quality of public transport services has improved.
- The number of public transport passengers has risen.

Infrastructure Developments

Low-emission zone

- Reducing traffic emissions and improving air quality.
- Improving quality of life in the city centre.
- Implementing an awareness-raising campaign.
- Extending pedestrianised areas.

Results
- Annual average reductions of 6.02 percent NOx and 21.6 percent particulate matter (PM10) were achieved.
- Passenger satisfaction improved by 6 percent.
Szczecinek and CIVITAS

Szczecinek, which has a population of almost 40,000, is located in the Drawskie Lake district of northern Poland. A busy commercial and industrial centre, the city is also a popular tourist attraction.

Within CIVITAS RENAISSANCE, the city focused on the development and expansion of transport infrastructure related to tourism, as well as the expansion of the existing bus fleet.

Technological Developments

Traffic surveillance at selected intersections

• Improving road and traffic safety in the city.
• Raising awareness of the importance of cautious driving by motorists and sensible road behaviour among pedestrians.

Results
• The level of public acceptance among surveyed citizens rose to 84.5 percent, an increase of 13.6 percent compared to the baseline value and exceeding the target value of 75 percent.
• Perceptions of security rose to 46.5 percent, an increase of 14.5 percent compared to the baseline value and slightly exceeding the target value of 45 percent.
• The measure contributed to reducing the average time of a police intervention from 16 to 5 minutes at locations covered by monitoring.

Innovations

Promoting public transport use and cycling

• Introducing new means of information dissemination.
• Establishing a new mobility culture and encouraging increased public transport use.
• Reducing the ecological footprint of mobility.
• Creating incentives for sustainable mobility.
• Using the Internet to promote public transport use and ecologically sound behaviour.

Results
• Active and passive acceptance of ecological modes of transport increased.
• Small but positive changes in transport behaviour were achieved.
• There was a noticeable increase in awareness of innovative and ecological transport solutions/behaviour in society.

Contact

www.szczecinek.pl
www.civitas.eu/content/Szczecinek

Infrastructure Developments

Development of waterborne public transport

• Promoting the introduction of energy-efficient waterborne transport.
• Integrating water trams and water taxis with other public transport modes and bicycle rental points.
• Using water trams and water taxis to promote less-car-dependent lifestyles.

Results
• The use of water trams and water taxis increased.
• Improvements were achieved in terms of the quality of water transportation and fuel consumption.
• A cost-benefit analysis revealed negative economic results, indicating that investment and maintenance costs are too high to be compensated by the benefits of use.

SZCZECINEK, POLAND
Tallinn within CIVITAS II

The Estonian capital, Tallinn, is situated on the country’s northern coast and has a population of 400,000 inhabitants. The historic city centre has been included on the list of UNESCO World Heritage sites.

Since Estonia gained independence in 1991, Tallinn has undergone considerable changes. Infrastructural improvements have changed the appearance of the city, making it more attractive and giving residents better access and commuting routes.

Infrastructure Developments

Priority for public transport

- Giving priority to public transport on 63 bus lines and 48 trolleybus lines.
- Ensuring public transport priority at 26 junctions.
- Creating priority lanes.
- Improving traffic flow.

Results
- Journey times were cut.
- The modal share of public transport remained stable.
- User satisfaction increased.
- The attractiveness of public transport increased.

Innovations

Automatic passenger counting (APC) system

- Equipping vehicles with infrared sensors and on-board computers with GPS support.

Results
- New devices were successfully tested on six buses and six trolleybuses.

Multimodal information system

- Installing on-board displays showing route number, destination, stop name and connections to other public transport options.
- Installing information panels indicating line number and route at public transport stops.
- Providing audio information devices for passengers with impaired hearing.

Results
- Satisfaction among public transport passengers rose by 35 to 60 percent.
- The number of disabled passengers using public transport services rose.

More information

www.tallinn.ee
http://civitas.eu/content/tallin-within-civitas-ii
Tallinn within CIVITAS Plus

In the last number of years, reconstruction and developments to infrastructure have improved the look of the city and enabled better access and commuting for inhabitants.

Having participated in CIVITAS, the CIVITAS Plus MIMOSA project was an opportunity for Tallinn to take another step towards becoming a more sustainable, smart city offering good quality of life to all its citizens.

Infrastructure Developments

Improved safety for cyclists and pedestrians

- Providing attractive, safe and high-quality infrastructure for pedestrians and cyclists.
- Promoting healthier lifestyles.
- Improving the safety of pedestrians and cyclists.

Results

- Driver behaviour, in terms of giving way to pedestrians, improved by 53 percent.
- The number of cars exceeding the speed limit while approaching a pedestrian crossing fell by between 3 and 9 percent, depending on the implemented solution.
- 40 percent less light was emitted from dimmed traffic lights compared to normal traffic lights, causing less distraction to drivers in poor visibility.

Innovations

Eco-driving training for bus drivers

- Reducing fuel consumption in public transport vehicles through energy-efficient driving.
- Reducing emissions of pollutants.

Results

- Fuel consumption was reduced by an average of 3.9 percent among participants in the training, and by 0.9 percent in the public bus company as a whole.
- The measure was highly effective in both socioeconomic and financial terms. The cost-benefit analysis indicated a net present value of EUR 67,657 over three years, with a cost/benefit ratio of 1:6 in the case of a social discount rate of 5.5 percent.

Technological Developments

Real-time information

- Creating a passenger-oriented information system to make public transport more attractive.
- Providing reliable, high-quality passenger information at public transport stops.

Results

- Awareness of the plan to introduce electronic real-time public transport information displays at bus stops rose by 37 percent.
- Acceptance of the need for electronic real-time public transport information displays and their potential impact on public transport use increased by 8 percent.

Contact

www.tallinn.ee
www.civitas.eu/content/Tallinn
Towards a 100 percent clean public transport fleet

- Ensuring that, out of the city’s fleet of 550 buses:
  - two-thirds are low-floor vehicles;
  - 38 percent run on compressed natural gas, with access to appropriate filling stations;
  - 15 percent have Euro 5 engines; and
  - 40 percent are equipped with particulate filters.

Results
- Emissions of pollutants from the bus fleet as a whole decreased during the MOBILIS project (NOx by 30 percent; methane by 50 percent; hydrocarbons by 40 percent; and particulate matter by 80 percent).

Innovations

Developing sustainable mobility services
- Setting up mobility agencies and customised services to promote alternatives to the private car.
- Creating a dedicated website and management tool to promote car pooling.
- Implementing workplace mobility plans.
- Establishing a new car-sharing service (14 stations in Toulouse in 2011).
- Providing free and secure bicycle parking at metro stations to encourage bicycle use.

Results
- Between December 2009 and March 2011, the number of registered car poolers doubled (from 1,140 to 2,266).

Intelligent transport systems
- Developing a new contactless and interoperable ticketing system.
- Developing an integrated multimodal traveller information system.
- Implementing a bus priority scheme.

Results
- 380,000 “Pastel” smartcards were distributed among holders of yearly public transport passes.
- 70 percent of the bus lines benefited from the traffic light priority system, with the aim of equipping all of the 30 bus lanes and 150 traffic junctions with the system by 2013.

More information
www.toulouse.fr
http://civitas.eu/content/toulouse
Usti nad Labem is situated in the north of the Czech Republic, close to the German border. It is known as the Gateway to Bohemia.

The city was once a base for a large range of heavy industries that caused damage to the natural environment. This is now a major focus of improvements, the main objective of participation in the CIVITAS ARCHIMEDES project being to develop a better transport organisational structure, reduce traffic intensity and improve access to public transportation.

Reducing traffic noise

- Mapping areas affected by noise pollution.
- Identifying future actions on the basis of the noise map.

Results

- Achieving the target reduction of 65 dB would demand radical measures and significant investment.
- Seven scenarios were tested, which, among other outcomes, revealed that reducing traffic speeds alone is not an efficient tool for noise reduction.
- More extensive measures in conjunction with demand-management strategies are needed to have a lasting and noticeable effect.

Making cycling easier

• Increasing the amount of road space dedicated to cyclists.
• Developing a network of cycle routes connecting neighbourhoods.
• Making cycle route information available online.

Results

• Better conditions for cyclists and the provision of suitable infrastructure and services will lead to an increase in the number of trips being made by bicycle.
• The introduction of new cycle routes was recommended.

Increasing pedestrian safety

• Reducing the number of road accidents.
• Shifting the modal split towards walking and cycling.
• Cutting traffic speed in selected areas.

Results

• Traffic calming solutions have significant potential to improve safety levels in the city’s road network.
• Recommendations were included in the action plan for the implementation of the city’s sustainable urban transport plan.
• Campaigns were organised to raise awareness of road safety issues and the causes and consequences of traffic accidents, thus helping to improve road users’ behaviour.
UTRECHT, THE NETHERLANDS

Utrecht and CIVITAS

Utrecht is the fourth largest city in the Netherlands, with a population of 300,000. The city centre dates back to Roman times and features a variety of tourist attractions.

Utrecht is currently being redeveloped, with plans to construct the largest housing area in the Netherlands and completely renovate the area around the central station.

As part of CIVITAS MIMOSA, Utrecht focused on the part of the city between these developments, which forms an important traffic artery linking the inner city with national motorways. The city made huge efforts to ensure accessibility during the redevelopments and aims to develop more sustainable approaches to transport.

Innovations

Road safety label

• Improving road safety in urban areas, focusing on schools.

Results

• 67 percent of Utrecht's 104 primary schools took part.
• 78 percent of school journeys are made by non-motorised modes.
• The measure made clear to schools and parents the city’s investments in the safety of school children on the roads.

Infrastructure Developments

Deliveries by boat

• Decreasing road freight traffic in the city centre.
• Promoting the use of waterborne transport.
• Opening a new market for waterborne goods supply.

Results

• CO₂ emissions decreased by 13 percent, NOx emissions by 6 percent and PM10 emissions by 10 percent.
• The Beer Boat measure yielded a net present value of over EUR 420,000 at a 3.5 percent discount rate.
• As a result of the Beer Boat’s success, a second multi-purpose vessel was launched in 2012 to collect waste from businesses on the canal’s wharves.

A new perspective on parking

• Implementing an efficient parking policy in the urban area of Utrecht that will manage scarce parking space and reduce car traffic in the city centre.

Results

• Digitising the parking system in the city centre had a dramatic effect on parking behaviour.
• 15 percent of parking payments were made via mobile phone and over 10,000 fewer visits to the parking office were recorded.
• Implementation of further digital parking infrastructure will continue with 150 new machines planned after the conclusion of the project.

Contact

www.utrecht.nl
www.civitas.eu/content/utrecht
Venice and CIVITAS

Venice comprises the historical centre, the islands of Lido and Pellestrina, the islands of the Lagoon, as well as the mainland urban areas of Mestre and Marghera, each with well-defined needs in terms of mobility and transportation. The city has a population of 271,000, and every day 47,000 employees and 16,000 students commute in and out of the city, which also attracts millions of tourists each year.

In addition to waterborne traffic in the lagoon and canals of island Venice, there is a connection to the mainland part of the city via a bridge that carries trains, buses and cars, adding to the city’s many challenges in terms of sustainable mobility.

**Innovations**

**Car-sharing scheme**

- Purchasing 20 new cleaner-fuel vehicles with on-board computers.
- Adapting cars for use by disabled drivers.

**Results**

- 4,600 users were registered.
- A car-sharing scheme for businesses attracted 494 firms.
- Annual reductions of 79 tonnes of carbon dioxide; 218 kg of carbon monoxide; 19 kg of nitrogen oxides; and 18.8 kg of hydrocarbons were achieved.

**Water traffic navigation control system**

- Installing automatic monitoring of waterborne traffic.
- Introducing deterrents against breaches of the regulations.

**Results**

- The measure achieved a reduction in wave motion at crucial points in the city of Venice.

**Technological Developments**

**Alternative fuels for mainland traffic**

- Purchasing 35 new buses operating on compressed natural gas (CNG).
- Purchasing five CNG minibuses to connect park-and-ride facilities with the city centre.

**Results**

- Emissions of carbon monoxide fell by 16.3 tonnes; hydrocarbons by 509 kg; nitrogen oxide by 75 tonnes; and particulates by 3.5 tonnes between 2005 and 2008.

**More information**

www.comune.venezia.it
http://civitas.eu/content/venezia
More space for pedestrians and cyclists

• Creating a new pedestrian and bicycle network to complement the superblocks model.
• Minimising conflict between pedestrians and private car users.
• Improving pedestrian connections within the city centre.

Results
• 25 km of bicycle lanes were constructed.
• Pedestrian surface increased from 45 percent to 74 percent within the superblocks area.
• The number of cyclists has quadrupled in the last five years.

Infrastructure Developments

New public transport network

• Increasing network frequency and speed.
• Increasing the number of public transport journeys.
• Making mobility safer.

Results
• Frequency improved to 11 minutes from the previous 20 minutes.
• There was a marked increase in the average speed of public transportation from 10.77 km/h to 12.73 km/h.
• Passenger numbers increased by 60.31 percent.

Innovations

Superblocks for success

• Dividing the city into 68 superblocks with boundaries defined by certain streets.
• Reserving space for pedestrians and cyclists.
• Reducing noise levels.
• Reducing emissions of polluting gases.
• Reducing the number of surface-level car parks.
• Maintaining accessibility.
• Promoting the use of public transport.

Results
• An impressive reduction in emissions was achieved, including a 42 percent reduction in CO₂ and NOx and a 38 percent decrease in particulate matter.
• The reduction of vehicles in the superblocks areas saw noise levels fall by 5 dB.
• Average speeds in the city centre were reduced by 8 percent.

Contact
www.vitoria-gasteiz.org
www.civitas.eu/content/Vitoria-Gasteiz

Vitoria-Gasteiz and CIVITAS

With a population of 233,399, Vitoria-Gasteiz is the capital of the Autonomous Community of the Basque Country in northern Spain. Unspoiled by urban sprawl, the city has been noted for its careful planning and the efforts taken to balance new development with environmental concerns and social initiatives.

In March 2006, Vitoria-Gasteiz prepared a sustainable mobility and public space plan in order to reorganise its traffic systems, redefine its public transport networks, improve pedestrian paths and reduce the city’s environmental impact.

The plan was continued as part of the CIVITAS MODERN project, which saw the city tackle new challenges relating to mobility management and the consolidation of an efficient model for public spaces developed jointly with citizens.
Winchester and CIVITAS

The cathedral city of Winchester has a population of around 32,000. It is the county town of Hampshire and the ancient capital of England. With its many historic buildings and ancient street pattern, this major tourist attraction has to cope with heavy traffic on a daily basis.

The focus of the CIVITAS I MIRACLES project was to support the local transportation strategy as well as the wider social, environmental and economic policies for the area. One important measure was to encourage the use of more sustainable transportation modes (including park and ride) and to discourage city-centre parking.

Infrastructure Developments

New cycling opportunities in Winchester

- Increasing public acceptance of cycling.
- Encouraging the use of sustainable transport by residents and tourists.

Results
- An even split was achieved in terms of the age and gender of cyclists and journey purpose.
- The scheme was rated as very good by 83 percent of scheme members.
- Valuable experience was gained and lessons learned.
- Citizens’ awareness was raised.

Technological Developments

Collective passenger transport

- Improving bus service quality.
- Improving the quality of information services.
- Integrating public transport services.

Results
- The service was rated as good or very good by 87 percent of passengers.
- Punctuality improved, with one bus every 10 minutes.
- The proportion of early or late buses fell from 0.95 to 0.34 percent.
- A high-frequency, high-quality service was introduced.

Innovations

Pricing strategies

- Developing and promoting an environmentally based parking policy.
- Discouraging heavily polluting vehicles from entering Winchester city centre.
- Making free parking available for electric and hybrid vehicles.

Results
- The pricing strategy achieved considerable changes in parking patterns.
- The profile of low-emission/electric vehicles was raised among the local population and further afield.
- Fuelling costs for electric hybrid vehicles were 30 percent lower than for the corresponding petrol cars.
- Park-and-ride usage rose by 43 percent, while usage of city-centre car parks fell by 16 percent.
- A high level of awareness was achieved.

More information

www.hants.gov.uk
http://civitas.eu/content/winchester
Zagreb and CIVITAS

The capital and largest city of Croatia, Zagreb is the cultural, scientific, economic and administrative heart of the country and has a population of around 800,000.

Zagreb has a rich cultural life and is home to many theatres, concert halls, museums and art galleries. Its favourable geographical position between Central Europe and the Adriatic Sea creates great potential for tourism and investment.

In order to address traffic congestion problems, the city aimed to restrict car use, change mobility behaviour among citizens, improve links between transport modes, and create more attractive public transport services as part of its work within the CIVITAS ELAN project.

New tariff system

• Increasing the efficiency of the ticketing system in the city.
• Simplifying the ticket-buying process for public transport users in the Zagreb region.

Results

• The new electronic ticketing system and tariff union was introduced successfully.
• The number of pre-paid tickets sold increased by 19.6 percent, while the number of e-purse tickets increased by almost 11 percent.
• Users reported high levels of satisfaction with both the ticketing and the supporting information.

Energy recovery on the tram network

• Gradually substituting the existing tram fleet with state-of-the-art air-conditioned and energy-efficient low-floor trams.
• Improving customer service levels.
• Increasing the number of tram passengers.
• Reducing pollution caused by private motor vehicles.

Results

• The number of new vehicles in operation increased from 70 in 2008 to 140 in 2012.
• Electricity consumption per passenger in the tram fleet as a whole increased by 25 percent (the target was a decrease of 7 percent per passenger).
• Tram noise on corners decreased from 85 dB to 76.7 dB (the target was a reduction of 5 dB).

Infrastructure Developments

Security improvements for public transport

• Curbing instances of violence and vandalism on public transport.
• Identifying safety blackspots in order to take remedial action.
• Raising public awareness.

Results

• CCTV cameras were installed in 214 new vehicles and a safety education programme for citizens and drivers was launched.
• The number of vehicles damaged was reduced by 40.5 percent.
• A reduction of 54.5 percent in the number of attacks on bus drivers was achieved.

Contact

www.zagreb.hr
www.civitas.eu/content/zagreb

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ZAGREB
Zagreb participates in the CIVITAS Initiative for cleaner and better transport co-financed by the EU

Contact
www.zagreb.hr
www.civitas.eu/content/zagreb

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Technological Developments
CONCLUSION

The innovative urban mobility measures detailed in this publication deserve to be commended, not only for the benefits that they have brought to residents, but also for the important precedent they have set.

These activities have been brought to fruition through a mixture of vision, political will, financial investment, technical know-how and leadership. Rather than being one-off occurrences, they represent a widespread commitment to improving transport in European cities. Crucially, they form a basis on which further improvements can be made.

For hundreds of towns and cities in Europe, the CIVITAS Initiative has been fundamental to improving urban mobility in both theory and practice. In many cases, the Initiative has helped facilitate the switch to viewing transport as an essential element in the fabric of liveable, productive and efficient cities.

Cities participating in CIVITAS have found highly creative ways to overcome their specific mobility challenges. Though no two cities are the same, the examples explored by the participating cities provide inspiration for others in similarly challenging situations and show that with innovative thinking and political support, urban transport policies can be successful even if not all of the ideal parameters are in place.

When planning urban mobility, it has been shown that cities willing to embrace sustainability enhance the economic and social well-being of inhabitants. A multi-modal mobility mixture that includes walking, cycling, passenger transport and low-emission vehicles can make a significant difference to the carbon footprint of urban areas, as well as improving the health of the local population.

Additionally, finding greener ways of getting around can help cities meet the EU 2020 goals, particularly those on energy efficiency and renewable sources, carbon emissions, and economic prosperity and growth.

With 80 percent of Europeans predicted to live in cities by 2020, the need for sustainable transport solutions is pressing. With the support of Horizon 2020, the CIVITAS Initiative will continue to play an important role in empowering local governments to create transport systems that are fit for the future. The largest EU research and innovation programme yet, it will offer financial and political support to a new generation of CIVITAS projects that will, in turn, help Europe to meet its economic, social and environmental commitments.

We encourage you to follow the story as it unfolds by visiting the CIVITAS Initiative website regularly, taking advantage of the CIVITAS training and exchange opportunities and supporting cleaner and better transport in cities by joining the CIVITAS Forum Network.