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TC B.3 Improved Mobility in Urban Areas Working Group 3.3 Non-Motorized Transports

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GENERAL PRESENTATION OF TC B3 ACTIVITIES

Issue B.3.1 - Integration of the different modes of transport :

Strategies for Balancing of Urban Transport Share to Improve Mobility and to Reduce Road Congestion

Issue B.3.2 - Land use planning and road transport :

Investigate transport requirements and policies associated with planning of new developments in large cities

Issue B.3.3 - Non-motorised mobility



GENERAL PRESENTATION OF TC B3 ACTIVITIES

Issue B.3.1 - Integration of the different modes of transport :

Strategies for Balancing of Urban Transport Share to Improve Mobility and to Reduce Road Congestion

Encouraging modal shift to public transport, cycling, walking, political framework, technical issues : presentation by

Anita CURNOW, VicRoads, Australia



GENERAL PRESENTATION OF TC B3 ACTIVITIES

Issue B.3.2 - Land use planning and road transport :

Investigate transport requirements and policies associated with planning of new developments in large cities, leading to guidance for road administrations for countries in a wide range of stages of development, longer-term in its outlook (future infrastructure development), main focus on the relationship between density (people and employees) and different transport modes outside of the city core : presentation by

Andre BROTO, Cofiroute, France



GENERAL PRESENTATION OF TC B3 ACTIVITIES

Issue B.3.3 - Non-motorised mobility :

Investigate how non-motorised mobility is being assessed and encouraged in planning transport schemes in urban areas

Chairwoman : Emese Mako, Gyor University, Hungary

Presentation by : Marc Ellenberg, ATEC-ITS France



WG 3.3 REPORT : NON MOTORIZED MOBILITY

Compared Strategies on Walking and Cycling in 41 Cities in the World : Surveys, Results and Prospective

- 1 – Surveys
- 2 - Evolution and factors influencing the non-motorized modes share in medium-sized cities over the world
- 3 - Cyclist's and pedestrian's safety
- 4 - Lessons learned about key issues and key decisions about cycling and walking
- 5 - What are the key objectives and measures in the next 10 years in improving of pedestrians and cyclists?

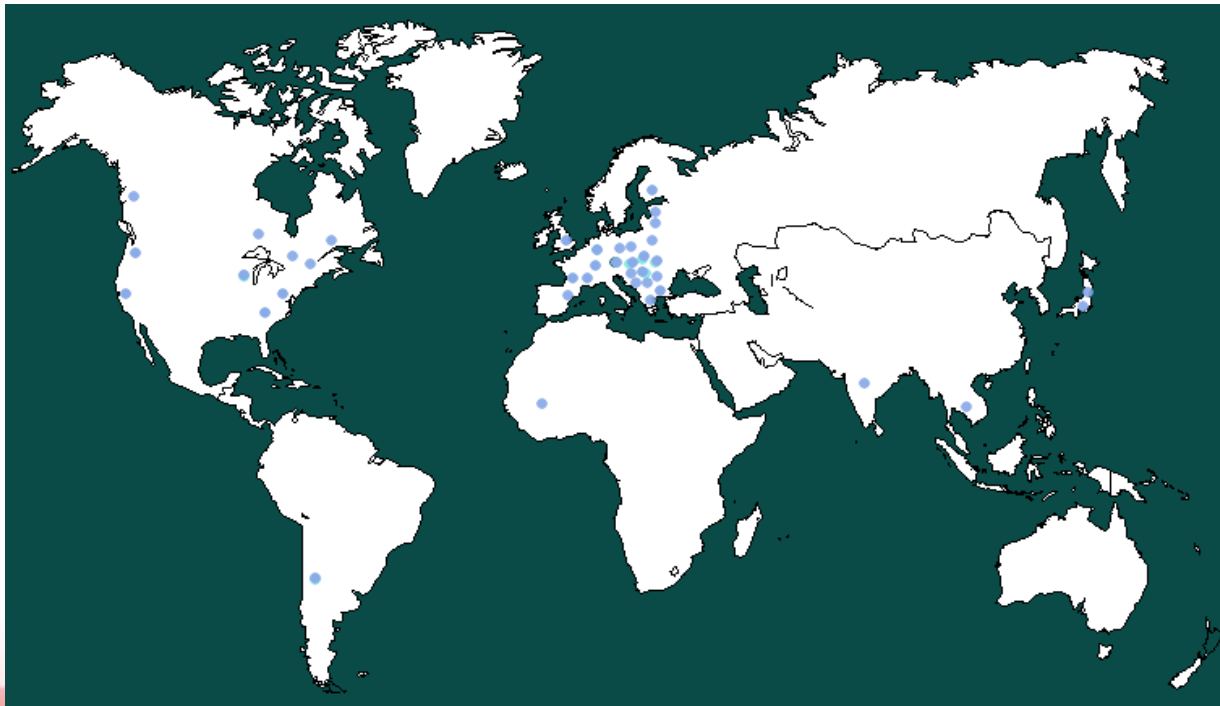


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3 surveys - General, Quantitative, Qualitative

41 cities : Europe : 25 – America : 11 – Asia : 4 – Africa : 1

between 0.5 and 2 millions inhabitants (with some exceptions)



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SURVEYS

1 – General data

Population – Geography – Modal share – Length of cycle routes – Policy

2 – Quantitative surveys

Variation during 10 years of the number of vehicles, safety and infrastructure

3 – Qualitative surveys

Organisation of collection of data, factors, objectives and means



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Results / modal share

Walking

Less than 20% : Low

Between 20% and 30% :
Medium

Over 30% : High

Cycling

Less than 2% : Low

Between 2% and 6% : Medium-low

Between 6% and 10% : Medium-high

Over 10% : High

A threshold seems to exist between the cities which were at the end of the nineties under of 350 cars per inhabitants and those which were above. A similar threshold exists between the cities equipped or not with a significant network of metro or light rail lines.

Note the problems raised in the international statistics comparison process



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Results / modal share / evolution

On a period of 10 years, either for walking or cycling, the evolution is never more than 2%, and in general less than 0.5%, whatever the policy of the city, except for San Francisco (California) where the walking rate went from 24% up to 30%, and for Vilnius (Lithuania) where the walking rate went from 31,3% up to 38,9%. The highest rate of increase for cycling is announced in Portland (Oregon) and went from 2,1% up to 6,4%, followed by Graz (Austria): from 14% to 16% (the highest rate of our survey)



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Results / modal share

In addition to this global vision, some important local evolutions must be mentioned at the neighbourhood and street level. For example, San Francisco mentions that within 3 years, nearly 25% of the population came to ride their bike everyday and that on “Market Street”, the main down town boulevard, there are now during morning peak hour twice the number of bicycles as there are auto mobiles.



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Geography and land use

Two geographical elements make a distinction: the fact the city belongs to a flat or hilly region and the area extension or density of the town.

Nevertheless even if the city has only 50% of its surface considered as flat, it can offer an interesting rate of non-motorized mobility. On the other hand, when the extension area of the town is important, urban sprawl and a low density of housing and employment corresponds to a low rate of walking and cycling. In this aspect, land use planning regulations is a long term factor, which seems able to influence non motorized share on time periods well over 10 years.



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Quality of the network / 1

The physical quality of the network is a major incentive. Even if the cycles are mixed with the general traffic on the pavement, the road surface quality is much more important for the comfort and safety of the cycles than for that of the cars.

When reserved or separate lanes for cyclists exist, the quality, equipment, signing and continuity of the itineraries are important. This is the same for pedestrians, and specifically for disabled people.



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Quality of the network / 2

The equipment of the cycling network is mentioned especially concerning the bike parking facilities.

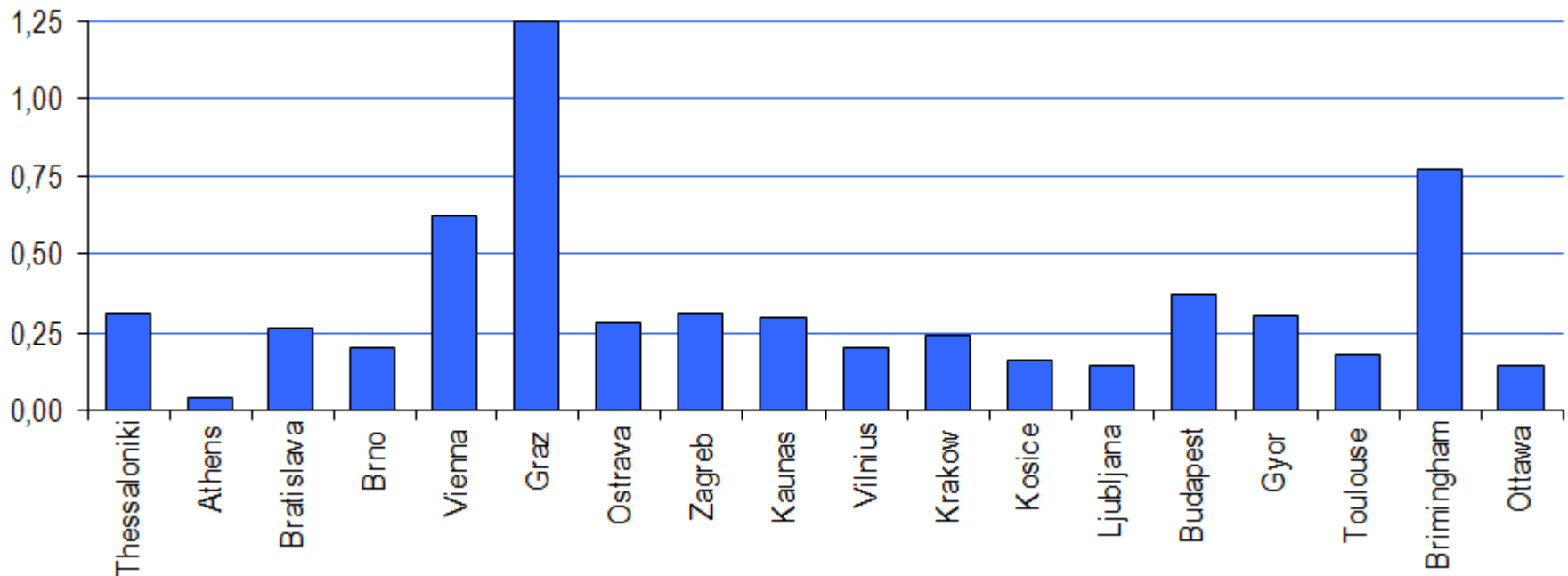
In our survey the highest density of the bicycle road network is in Graz, Vienna and Birmingham, although Thessaloniki, Zagreb, Gyor and Budapest also reach the average of all sites.



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Geography / Land use / Quality of network

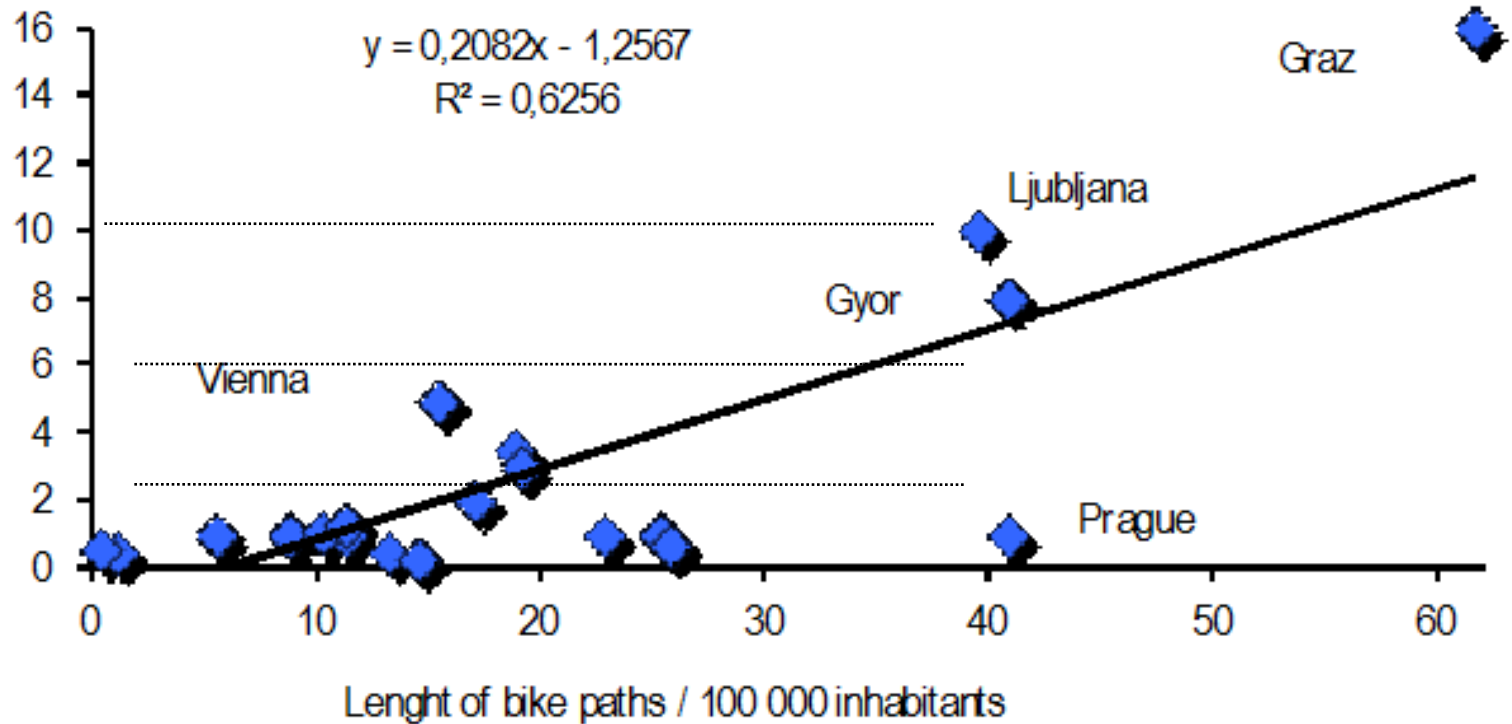
Length of cycle routes (km) / surface of the city (km²).



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Length of network / modal share

Correlation between the density of bicycle road network and modal share.



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Other factors studied

- Global transportation policy
- Public awareness
- Education
- Legal and financial incentives
- Land use



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Other factors studied

- Global transportation policy

A strong effort on public transport is coherent with an increase of walking (access to stations, etc.) and can be combined with an increase of cycling, provided that the global policy includes also parking restrictions for cars. It has also been mentioned that increase in public transport fares leads often to a raise in the cycling rate. On the other hand, some cities mention low taxes on new cars, which favour the motorized mobility.



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Other factors studied

- Public awareness

The social activity of groups of citizens in terms of opinion leading, lobbying, dissemination of information, educational interventions (including adult training), safety promotion, can be encouraged and supported by authorities. They can be helpful in raising the use of non-motorized modes. The impact of walking and cycling on health through a physical activity is often mentioned as a positive topic of information. Some cities organise festive events to promote walking and cycling, such as Car Free Day, European Mobility Week, Walk to School and Bike to work campaigns.



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Other factors studied

- Education

In our survey Niigata, Chicago, Ottawa and Thessaloniki stress the importance of safety education. Enforcing proper cycling behaviours, training in safe cycling, promoting the mode and providing programs to encourage cycling must be undertaken, as it is recognized that more than cycling infrastructure is necessary to increase cycling.

Cycling education must start very early to establish a culture for cycling. For that reason Graz offers programmes for kindergartens and schools even for pre birth courses.



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Other factors studied

- Legal and financial incentives

To provide a high quality of cycle (non motorized) infrastructure and to promote the cycling to the population requires high level of political support (Birmingham). There is also need to involve more the business and residents in the earlier stage of the planning and to have advocates in the process too to provide the support to approve the projects (San Francisco)

The greatest room for improvement is in funding which is the critical factor in the success of implementing of walking and cycling plans (Portland).



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Other factors studied

- Land use

For walking, the critical environmental factors seems to be a connected network of walkable routes, a relatively dense mix of land uses, many destinations within walking distance, and buildings and sites at a human scale. Good transit is also highly correlated with walkability (Portland). In Calgary for example bicycle parking is incorporated in the Land-use By-law (2008).



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Transportation demand management, rent-a-bike

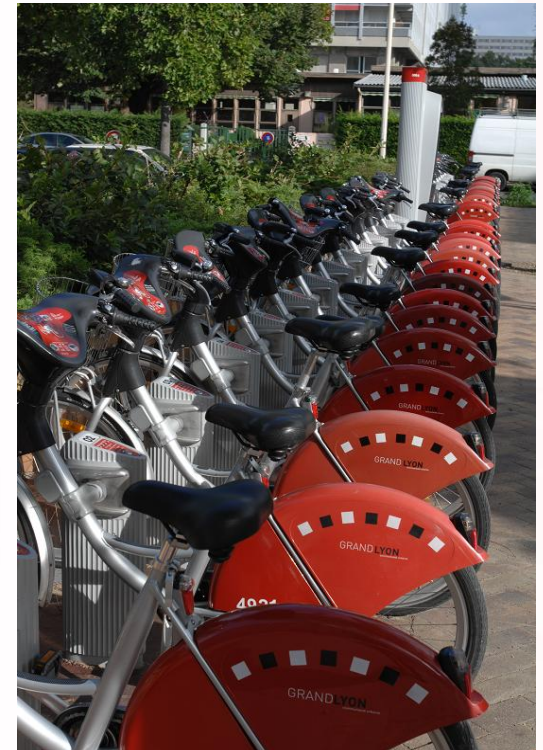
Some cities launched mobility centres, able to give information to citizens about rules and facilities offered, and automatic cycle renting systems, sometimes with more than 2.000 publicly available cycles, e.g. Bordeaux, Helsinki and Montréal or with some hundreds of bikes like in Budapest, Niigata and Ottawa



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Transportation demand management, rent-a-bike

It appears that launching a renting system produces an incentive effect on personal cycle-owners who dare now use their bicycle.



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Transportation demand management, rent-a-bike



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Cyclist's and pedestrian's safety

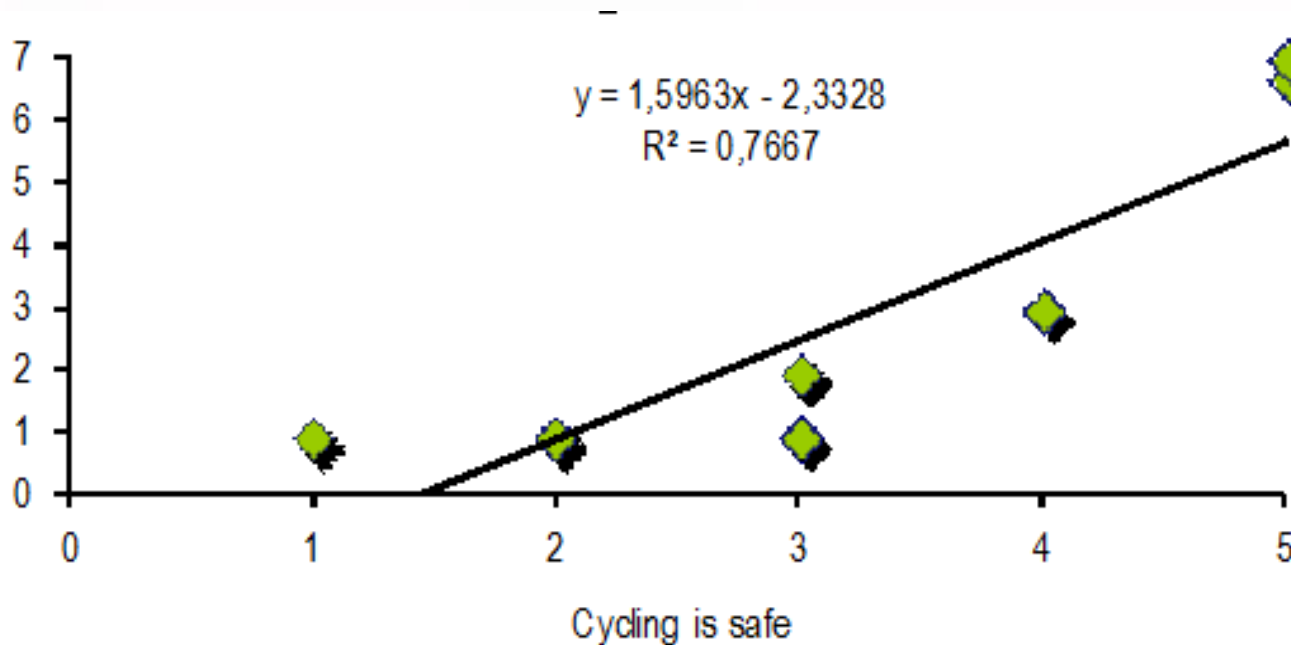
With raising the modal share of cyclists and with reduction of the modal share of cars the traffic safety is automatically improving, as some examples of western European cities show. The traffic safety can be measure objectively by accident data, but in some cases the subjective feeling of safeness can be even observed. In our survey we have studied both approaches.



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Cyclist's and pedestrian's safety

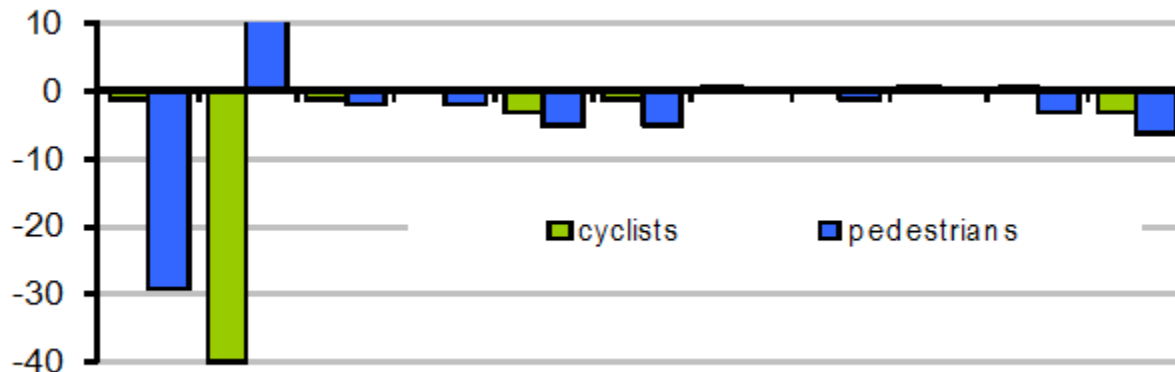
Correlation between the feeling of safeness and the modal share of cycling



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Cyclist's and pedestrian's safety

Change of the number of the pedestrian and cyclist's fatalities in the last decade



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Cyclist's and pedestrian's safety

Change of the number of the pedestrian and cyclist's fatalities

Is NOT correlated with

Feeling of safeness



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Objectives and measures in the next 10 years

Many cities answered that the modal share of bicycle will increase, but few specified numerical target. There was no answer with target of bicycle share at 20% and over in the next 10 years.



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Objectives and measures in the next 10 years

Portland (USA) is a city whose bicycle share increased significantly in the last 10 years, and aims to raise it to 15% by 2020 (currently 6%). “Portland Bicycle Plan 2030” set the target at 25% of bicycle share in 20 years as well.

Besides modal share, New York (USA) is to double the number of bicycle commuters from 2007 to 2015, and triple the number by 2020. (Note: “The number of bicycle commuters” means the number of bicycle traffic that goes in and out of Manhattan core.)



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Objectives and measures in the next 10 years

Maribor (Slovenia) set the target of bicycle share at 10% and over.

Best practice from UK is in cities called Cycling Demonstration Towns that increased bicycle use by 27% in 3 years. If the investment continues, cycle trips can double every 10 years in these towns.

On the other hand, some cities consider keeping the current level of car share a success with a trend of increasing car use and given level of financial aid. Political support and securing funding are the key factors to improve modal share of bicycle



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Objectives and measures in the next 10 years

Development of bicycle route, etc.

Many cities are keen on developing cycling routes and bicycle parking. At the formulation of “Ottawa Cycling Plan” of Ottawa (Canada), total length of bicycle route (including bike lanes, paved shoulders, wide curb lanes, etc.) was 541km. The Plan proposed new cycling routes 896 km in the first 10 years, then, 1,071km in the next 10 years, resulting in 2,508km of cycling routes at completion.

Vilnius (Lithuania), Brno (Czech Republic), and Washington D.C. (USA) are planning to double the length of bicycle routes.



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Objectives and measures in the next 10 years

There are cities planning to increase rental bicycles considerably. Vilnius (Lithuania) plans to increase to 2,000 bicycles, and Washington D.C. to 1,000 bicycles. Brno (Czech Republic) and Thessaloniki (Greece) are about to introduce bicycle rental system. San Francisco (USA) will introduce bicycle sharing program with 200 bicycles at first, then, conduct feasibility study to realize bicycle sharing program at full-scale with 3,000 bicycles.

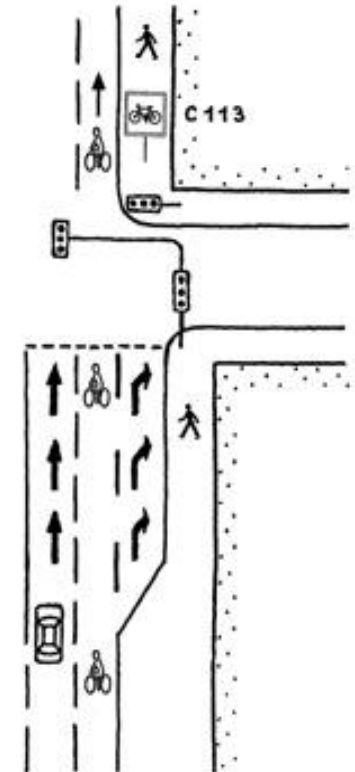
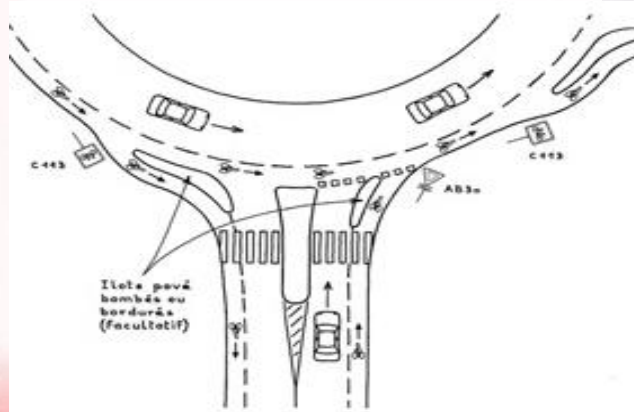
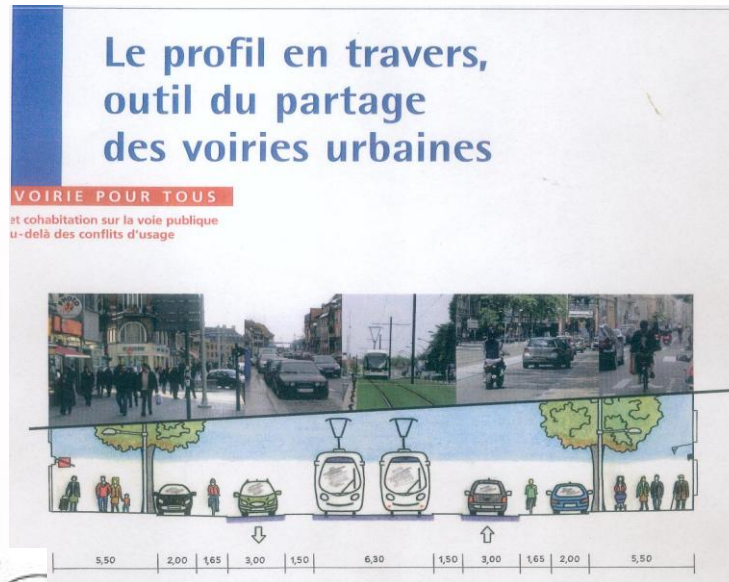
There are different types of operation for rental bicycles such as by public, or private. It is important to select suitable type depending on size of the city. Previous effort such as Paris, gives us ideas that bicycle rentals could be a promising instrument in promoting bicycle use near future.



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Technical issues

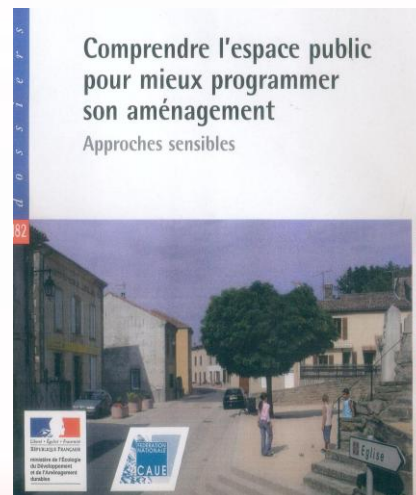
Street design



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Technical issues

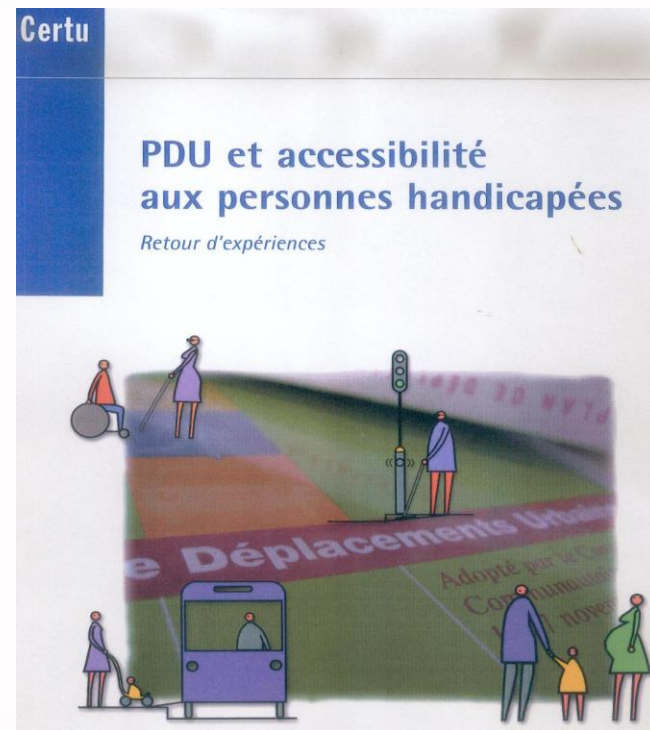
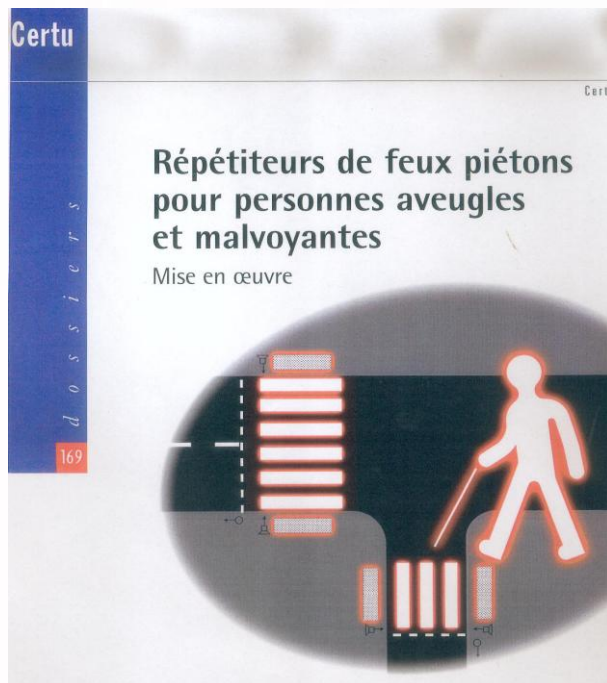
Lane and public space design



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Technical issues

Elderly and handicapped citizens



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Technical issues

Pavement and surface structure

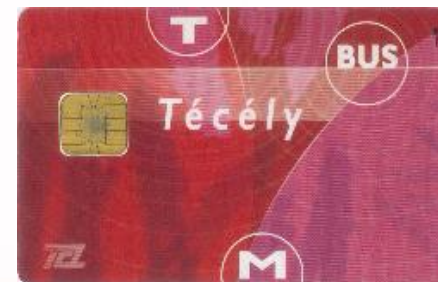
Comparaison des différents matériaux						
	Confort	Adhérence	Différenciation	Résistance au trafic occasionnel	Entretien	Réparabilité
Bétons Bitumineux (1)	++	++	Noirs - Colorés ++	++	Noirs + Colorés +	Noirs + Colorés -
Bétons bitumineux coulés à froid (2)	+	++	-	+	+	+
Asphalte	+++	- Clouté ++	Noir - Coloré ++	+	Noir + Coloré +	Noir + Coloré -
Enduits fins (0/6 à 0/10 maxi)	-	+	+	+	-	+
Pavés béton	-	+	++	-	-	++
Pavés pierre	--	-	++	-	+	++
Pavés terre cuite	-	+	++	-	-	++
Dalles béton	-	+	+	-	+	++
Dalles pierre	-	-	++	-	+	++
Béton de ciment (3)	Lisse ++ Strié + Désactivé +	Lisse -- Strié + Désactivé ++	Lisse + Strié ++ Désactivé ++	++ ++ ++	Lisse ++ Strié + Désactivé -	-- -- --
Sols stabilisés (0/6 à 0/10 maxi)	-	-	++	-	--	+
Coulis et mortier de résine	+	Lisse -- Strié + Clouté ++	++	+	Lisse ++ Strié + Clouté-	+ + +



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Technical issues

Payment, information and booking systems



Finally : Cooperation between authorities in charge of the various branches of transport system is needed



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Thank you for your attention !

