SOLUTIONS Training Kit
Cluster 2: Transport Infrastructures

www.urban-mobility-solutions.eu

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About SOLUTIONS

SOLUTIONS aims to foster knowledge exchange and boost the uptake of innovative sustainable urban mobility solutions through the further exploitation of existing knowledge. The main focus of the SOLUTIONS project is on the exchange between cities from Europe, Latin America and the Mediterranean.

The project looks at the following thematic areas:

- public transport
- transport infrastructure
- city logistics
- integrated planning / sustainable urban mobility plans
- network and mobility management
- clean vehicles

Introduction to Cluster 2: Transport Infrastructures

Transport Infrastructures: infrastructure for public transport (tramways, bus lanes, passenger waiting and boarding areas), infrastructure for soft modes (e.g. cycle routes, pedestrian facilities) and infrastructure for urban freight systems. This element will also include better sharing of road-space.

Issues: improving the quality and safety of road infrastructure, design of cycle ways etc.

Main focus: present summarized information and recommendations about design of urban streets (sharing of road space) and the design for the cycling infrastructure improving the safety of infrastructure.

SOLUTIONS for	Type of impact
Dedicated bus lanes	Improve
Intermodal interchanges	Improve
Pedestrians infrastructure	Improve (avoid)
Improving non-motorised infrastructure – improving public space and urban road designs for cycling and walking	Improve (avoid)
Cycle infrastructure I - Innovative safe cycling infrastructure	Improve (avoid)
Cycle Infrastructure II – cycle highways	Improve (avoid)
Infrastructure for car and bike sharing	Improve (Shift)
Pedestrianisation of city centres and streets	Improve (Avoid)

Solution 2.1: Dedicated bus lanes

Lille, France

Solution 2.1: Dedicated bus lanes

Objectives and implementation

- Dedicated lane for buses (emergency and some other designated vehicles) separated from other traffic
- Counter flow bus lanes, especially in congested urban areas have been shown to be effective in some places
- Can be combined with improvements to public space and improving pedestrian and cycling infrastructure
- Low effort compared to rail bound public transport

Solution 2.1: Dedicated bus lanes

Drivers

- Allow the commercial speed of buses to be maintained so that they run to timetable
- Making services more reliable and help deliver fuel saving due to smoother driving
- Average travel speed is higher than for buses within mixed traffic
- Travel is safer for passengers

Barriers

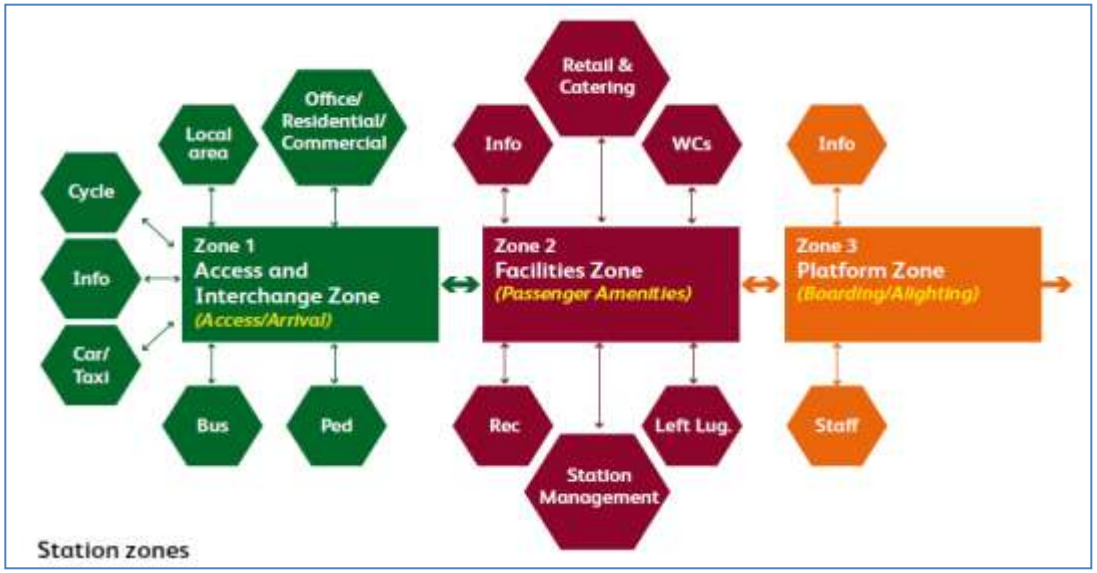
- Lack of space especially in central urban areas and historic city centres
- Resistance from other road users; allowing cyclists & taxis has been successful is some places

Solution 2.1: Dedicated bus lanes

Examples

- Implemented in many European cities especially London, Berlin, Paris, Nice, Nantes, Dublin etc.
- Paris and Berlin: examples for contraflow lanes; can be a useful & low cost way of ensuring that private cars and other traffic do not use the bus lanes

Solution 2.2: Intermodal interchanges



intermodal interchanges scheme

Solution 2.2: Intermodal interchanges

Objectives and implementation

- Allows people to change from one mode of public transport to another
- Provide passengers with convenient & more seamless journeys
- Different types: large and complex (connecting international travel with regional & and local transport); small (bus based route interchanges)
- Crucial for success: understand the requirements of the users, both existing and potential new ones

Solution 2.2: Intermodal interchanges

Drivers

- Sound sustainable urban mobility planning

Obstacles

- Fragmented and uncoordinated transport authorities and operators

Solution 2.2: Intermodal interchanges

Examples

- Moncloa interchange in Madrid (ES)
- St Pancras International, (London, UK)
- Gare du Nord (Paris, FR)
- Köbánya-Kispest in Budapest (HU).
- EU NICHES, NODES and CITYHUBS projects

Solution 2.3: Pedestrians infrastructure: improving the safety of crossing roads using infrastructure measures

Solution 2.3: Pedestrians infrastructure

Objectives and implementation

- Improve safety and comfort of pedestrians
- Increase their visibility
- Examples: central protective islands on roads, extended pavements, narrowing of the roadway, elevated surface of roadway, improved placement of information signs and lighting
- Measures can be implemented individually or combined

Solution 2.3: Pedestrians infrastructure

Drivers

- Considerably improved safety and comfort of pedestrians
- Generally improved quality of life in the locality (reduced noise, aesthetics)
- Low technical and financial efforts

Obstacles

- Funding
- Lack of political will of local authorities

Solution 2.3: Pedestrians infrastructure

Examples

Many cities in Europe have implemented this solution and it can be easily transferred.

Solution 2.4: Improving non-motorised infrastructure – improving public space and urban road designs for cycling and walking

Munich, Germany (Harald Schiffer)

Solution 2.4: Improving non-motorised infrastructure

Objectives and implementation

- Provide guidelines and common standards on the planning and design of urban roads and public space
- Balance the needs of users (motorised, mechanised and pedestrian)
- Planning and design must be based on liveability and quality of life
- Create a culture of shared space and tolerance
- Keeping speeds reasonable for the safety of all users
- (New) materials, colours and designs can be used to enhance the urban transport environment

Solution 2.4: Improving non-motorised infrastructure

Drivers

- Increases the attractiveness of non-motorised transport
- Helps balance people's choice of travel mode (level playing field approach)

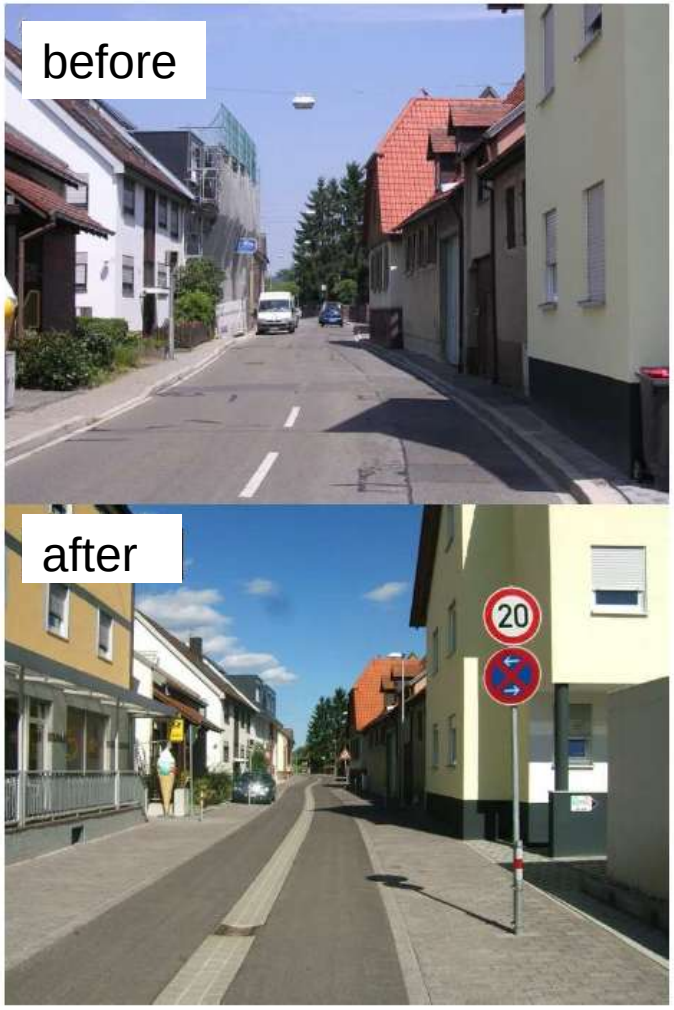
Obstacles

- Lack of recognition of the importance of vulnerable road users

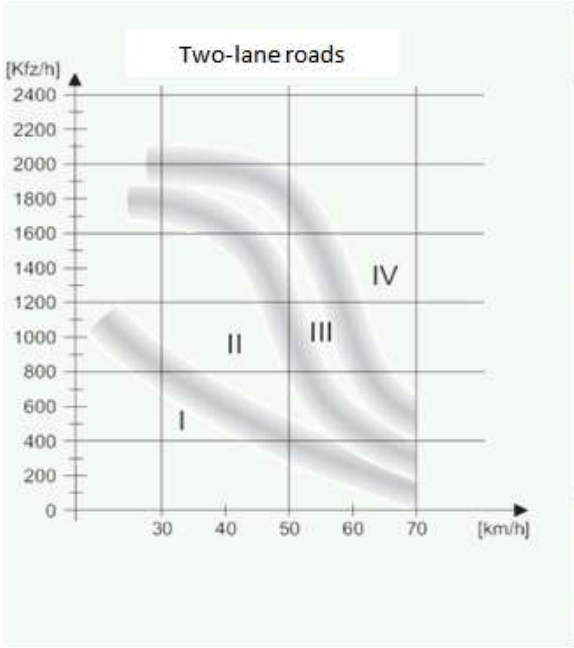
Solution 2.4: Improving non-motorised infrastructure

Examples

- Netherlands, Germany and France (especially where new light rail routes bring public space improvements)



Solution 2.5: Cycle infrastructure I - Innovative safe cycling infrastructure



I	- cycling on the carriageway
II	- advisory cycle lanes which may be used by motor vehicles too, - cycling on the carriageway and shared paths which may be used by cyclists, - cycle paths which may be used by cyclists, - dedicated cycle lanes which may be used by motor vehicles too and and shared paths which may be used by cyclists - advisory cycle lanes which may be used by motor vehicles, too, and existing cycle paths which may be used by cyclists
III / IV	- mandatory cycle lanes which cyclists have to use as well as - mandatory cycle paths

Areas for the pre-selection of suitable forms of cycle facilities types (FSGV 2010)

Solution 2.5: Cycle infrastructure I - Innovative safe cycling infrastructure

Objectives and implementation

- Helps to increase the modal share of cycling by improving safety
- Provides innovative cycle infrastructure
- Segregated cycle lanes, separated lanes using different materials, contraflow lanes, Dutch-style roundabouts, cycle counters
- high and low level cycle signals dealing with ‘right-turn’ traffic/‘left-turn’ traffic (UK)

Solution 2.5: Cycle infrastructure I - Innovative safe cycling infrastructure

Drivers

- Best share space between individual/commercial motorised traffic
- ensure that speed restrictions and safety concerns are fully satisfied

Obstacles

- Political background („motorised traffic more important“)
- Insufficient road width (for segregated lanes)

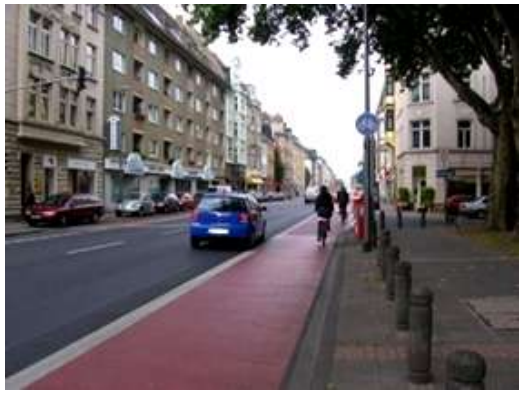
Solution 2.5: Cycle infrastructure I - Innovative safe cycling infrastructure

Examples

- UK
- The Netherlands
- Germany
- Spain

Solution 2.5: Cycle infrastructure I - Innovative safe cycling infrastructure

Examples



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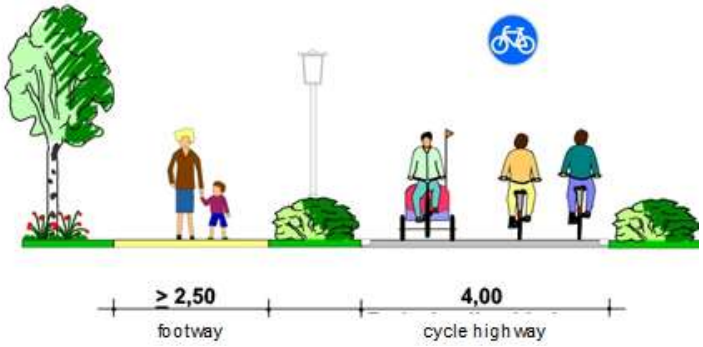
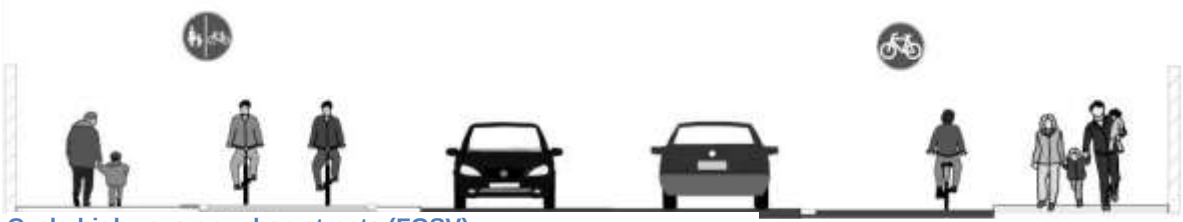
Solution 2.6: Cycle Infrastructure II – cycle highways



Off-street cycle highway (FGSV)



Cycle highways on urban streets (FGSV)

Solution 2.6: Cycle Infrastructure II – cycle highways

Objectives and implementation

- Part of a cycling network in a municipality or an urban-rural region
- Link major target areas over long distances with safe and attractive cycle routes allowing high speeds

Solution 2.6: Cycle Infrastructure II – cycle highways

Drivers

- Makes crossing a city shorter
- Improves cycling speeds in a safe environment
- Health benefits

Obstacles

- Lack of knowledge and responsibility at municipal level (e.g. no cycle infrastructure officer)
- Funding

Solution 2.6: Cycle Infrastructure II – cycle highways

Examples

- Netherlands, Denmark, Germany, UK and Spain

Netherlands (©Jörg Thiemann-Linden)

Netherlands (©Jörg Thiemann-Linden)

Solution 2.6: Cycle Infrastructure II – cycle highways

Examples

Denmark (©Dankmar Alrutz)

Denmark (©Dankmar Alrutz)

UK (©Jörg Thiemann-Linden)

Solution 2.6: Cycle Infrastructure II – cycle highways

Netherlands (©Dankmar Alrutz)

Green Ring in Madrid (Colmenar)

Cycleway in San Sebastián

Solution 2.7: Infrastructure for car and bike sharing

Solution 2.7: Infrastructure for car and bike sharing

Objectives and implementation

- Make car and bike sharing attractive
- Planning and allocation of space in highly visible areas of city centres for car and bike sharing stations
- Usually involves removing parking

Solution 2.7: Infrastructure for car and bike sharing

Drivers

- increases the opportunity for integrated mobility and reduces the need to own a car in cities

Obstacles

- Removal of parking or road space from cars
- resistance from public transport operators if they are not involved in the car or bike schemes
- Political or institutional barriers

Solution 2.7: Infrastructure for car and bike sharing

Examples

- Brussels (co owned car and bike schemes by the public transport organisation)
- London
- Paris
- Berlin

Solution 2.8: Pedestrianisation of city centres and streets

Solution 2.8: Pedestrianisation of city centres and streets

Objectives and implementation

- Improve safety, air quality and the liveability of public spaces
- Restrict access of cars and commercial vehicles to areas or roads in a city
- Allow public transport, emergency vehicles and deliveries (at certain times)
- Restrictions can be implemented by infrastructure measures, retracting bollards or electronic devices

Solution 2.8: Pedestrianisation of city centres and streets

Drivers

- Improvement of the quality of public space
- Improvement of social inclusion
- Noise reduction
- Improvement of local air quality

Obstacles

- Lack of political will
- Poor planning
- Resistance of uninformed retail owners and commercial players
- Lack of parking in area
- Poor communication and stakeholder engagement
- Poor signage/restriction enforcement

Solution 2.8: Pedestrianisation of city centres and streets

Examples

- Most major European cities
- Many market towns and numerous historical cities (especially in Italy)

Thank you!

Contact us:

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