Traffic calming and parking

Traffic calming

Aim: a combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour and improve conditions for non-motorized street users (enforcing rule-based traffic – avoiding accidents)

Disadvantages:

- Longer travelling time
- Higher fuel consumption

Measures:

- Road network planning methods
- Traffic management measures
- Constructions

Types of measures

Spatial (physical enforcement)

- o horizontal o vertical o network o visual
- o natural

(e.g.: small radius curve, inverse bus bay, Chicanes, roundabout)
(e.g.: speed bump, road surface increase)
(e.g.: one-way roads, dead-end)
(e.g.: colored surface, changing in the road surface)
(e.g.: plants)

Types of measures

Spatial

o control by traffic lights o restriction of drive-in time o restriction of stay-in time

Financial (road toll, congestion charge, parking fee)

Legal

o home zone ruleso priority-to-the-right ruleo speedometer and speed indicator display

Local traffic calming

- bordered by collecting and main roads
- maximum size 1 km²
- urban stops are available in maximum 500 meter
- hindrance of the transit traffic

Line traffic calming

repeated local tools



- bypasses around cities
- separated path for the public transport
- construction of bike lanes
- creation of middle islands on the road surface to ease the passenger crossings

Measures

1. Bumps, humps and other raised level pavement areas (decreased speed doorsteps)

Speed bumps (vehicle can be damaged) Increasing the road surface level (cca. 4-5 meter long and 0,1 m high ramp) Increasing the road surface to the pavement level (giving priority to the pedestrians)

- Sizing depends on the design speed
- Warning the drivers with signs

2. Slowing cross-sections

- at outskirts/borders of town
- together when creating zebra-crossings
- with increasing the road surface



Examples for moving the axis

Measures

3. Detours (deliberated construction)

Aim: total exclusion of vehicles emitting harmful substances; admission only in special cases (e.g.: rubbish/waste collection, residential moving, etc.

• prevention from transit traffic



detours in housing estates/ residential areas

Parking

Vehicle parking – according to duration

- Parking (condition: permitted, prohibited)
- Waiting (condition: permitted, prohibited)
- Storing

At new buildings

- Apartment building,
- Commercial building,
- Accommodation/hotel/motel,
- Catering facility/restaurant,
- Primary and secondary educational institution
- Higher education (research) institution
- Other social, entertainment and cultural facilities

creation of parking places are obligatory (according to the detailed regulations/specifications)

Aspects of vehicle parking:

- Distance of the destination,
 - o if the parking duration <30 min, max 300 m,
 - o if the parking duration ≥30 min, max 500 m,
- Preservation and creation of green areas,
- Waiting area designation,
- Ensuring designated places for disabled persons.

Basic types of parking:

- along the curb-edge
- in 45 degree bias
- in 60 degree bias
- perpendicular, in 90 degree

aim: maximal number of vehicles in a given area

Multi-story car park

- Ventillation above the ground: mostly without external wall; under the ground: artificial ventillation
- Elevator: automatic loading and unloading the vehicles (space-saving: headroom, roads)
- Types (architectural solutions)

Parking fees – according to the facility (e.g.: purchase, legacy duty, monthly fees)

Parking management – questions about management, ownership, organisation and information handling

Garage – the date of the construction of the building

Pedestrian and bicycle traffic planning



pedestrian movement is part of every travel which requires careful planning



az építmények közterületi elhelyezése

Cross-section design of a road with a pedestrian eye

Aims:

- barrier-free access
- avoid accident situations
- eliminate unnecessary detours

capacity of the walking paths depends on the:

- width
- number of directions
- surface quality
- steepness of the uphill/downhill
- design of the stairs
- weather conditions/protection from the weather effects



Combination of different surfaces

The travel chains depend on the personal characteristics and conditions



permanent features

features for the current trip

basis of planning: traffic records (different types)

Built environment to facilitate the pedestrian movements (e.g.: passages, resting areas, green areas, pedestrian crossings)

Pedestrian movement support with information tools (e.g.: information boards, route planner applications)

Capacity of the pedestrian facilities		Traffic volume	Width	Velocity
		[pass/h]	[m]	[m/s]
Pave- ment	Two-way traffic	2000	0,75	0,7
Corrid- or	Two-way traffic	4000	1	
	One-way traffic	4500	1	
Stairs	Two-way traffic	1700	0,6	0,4
	One-way traffic downward	2300		
	One-way traffic upward	2000		
Escalator		3000	0,6	0,5
		6000	1	0,2
		4000	0,6	0,9
		8000	1	0,9



Capacity of the pedestrian facilities

Conflict points between passengers and vehicle traffic



designated zebra-crossing

width is min 3 meter, extension with 1,5 meter

safety
(feeling/perception of safety)



reasonableness of the pedestrian crossing

underpass

Smaller "lost" height (road gabarite> pedestrian gabarite) don't affect the cityscape; covered usually escalator/ramp/elevator establishment of shops/restaurants



Traditional pedestrian underpass



Zebra-crossing + underpass

overpass

easy to construct (public utility is not replaced) higher public safety "agoraphobia" city-scape "spoiling" effect



Traditional pedestrian overpass



Special pedestrian overpass (China)

Bicycle traffic is getting more and more importance in the mobility

	Advantages	Disadvantages	
~	Competitive for short trips; relatively fast	 Conflicts with pedestrians and other vehicles because of the speed difference 	
		X Not proper for longer journeys	
✓	Fits into the multimodal travel chain	Carrying on other vehicles is difficult	
✓	Requires small road surface	× High accident-risk, vulnerability	
✓	Road congestion can be avoided	× Storage in public areas is less secure	
 Easy to store 	× Sensitive for air pollution		
	Lasy to store	× Sensitive for weather condition	
✓ Sp	Sporty, trendy, supports healthy living	 Particularly sensitive for road surface and condition 	5
		 Sensitive for terrain (topographical) conditions 	
	Favourable purchase and operation costs	X More complicated package delivery	
 ✓ 		 X Limited use of the information 	
0		terminal during the journey	

Cycling networks

- local (town, city)
- regional (sub-regional, county)
- nation-wide
- international

planning:

- Recording the existing situation/condition
- Planning new elements during the road refurbishment

additional facilities:

- resting places
- rentals
- repair shops
- bicycle racks

Fostering measures for cycling

 (e.g.: allow the traffic flow to the opposite way in the one-way road,
 Traffic sign system, bike transport opportunity in public transport vehicles)



Development tools for cycling road network + parking + mode change solutions

ideal solution (accident prevention): physical separation of motorized vehicles, bicycles and pedestrians





Safe crossing point



Cycling road at road crossing



Slowing surface before crossing

Not ideal/constraint solutions – numerous conflicts



Quasi-separated pedestrian and bike path



Shared pedestrian and bike path



Shared pedestrian and bike zone



State-of-the art (novel) solutions

Aim: ease the cycling, improve the visibility



Shared bicycle and bus lane



Bicycle sharrows

Floating bicycle roundabout (Eindhoven, The Netherlands)



Contraflow lanes + changing the parking direction



Advanced stop-lines (bike-boxes) + directions for cyclists



Bike storage

Storage opportunities - secured/protected/capacity



Underground bicycle parking house (Eindhoven, The Netherlands)



Covered B+R (Pillangó utca M)



Covered bicycle parking place (Kelenföld railway station M, underpass)



Bike rack (BKK headquarter)