



FACT SHEET H-07 – TRAFFIC CALMING MEASURES

Objectives of traffic calming

Traffic calming includes a variety of useful measures for providing better conditions for safe cycling in the secondary road network. The main goal of traffic calming is the reduction of motor vehicle volumes and speeds. Low car volumes and speeds also directly contribute to an increase in quality of life and a decrease in crashes on those roads.

As cities began implementing traffic calming measures, these were often part of extensive construction works leading to a modification of the road network. However, over the years budget limitations have made it necessary for cities to choose between traffic calming measures in the secondary road network and improvements in the main road network. Speed 30 zones proved to be a cost-effective means of ensuring driver compliance with the speed limit while requiring few modifications to the streets.

In areas where motorised traffic is concentrated on urban arterials and main roads, a large portion of a city's street network (about 80%) will have relatively low traffic volumes. It is recommended that the secondary road network be operated differently than main roads and arterials in order to limit exposure of local residents to negative impacts of car traffic such as crashes, noise and emissions. Speed 30 should be implemented as the standard speed limit of the secondary road network.

To achieve compliance, however, this should be reinforced with other traffic calming measures that help make the situation clear to road users. Traffic calming measures can be divided into two categories: extensive measures, that aim to reduce speed over a wide area, and isolated measures, that serve to lower speeds at one particular point.

Extensive measures

Extensive traffic calming measures aim to reduce speed over a large urban area. The most common form of extensive traffic calming is speed 30 zones.

By reducing the speed differential between cyclists and motorists, a speed limit of 30 km/h makes a street much more suitable for cycling. Therefore the implementation of speed 30 zones in the secondary road network easily creates good conditions for cycling on 80-90% of a city's total road network. Additionally speed 30 improves the general quality of life and reduces risk of severe crashes in streets where it was implemented and accepted by drivers.

Intersections in speed 30 zones should not have a priority direction (right before left rule). Noticeability of junctions and visibility between road users should be ensured by keeping junctions free of parked cars.

Merely posting a sign for 30 km/h might not be enough in all parts of the secondary network, since street design (e.g. very wide lanes) might not properly encourage drivers to drive the speed

limit. Therefore additional, isolated measures might be required to ensure that speed limits are observed.

Isolated measures

It is crucial to properly design **entrances to speed reduced zones** in order to signify to drivers that they are leaving the urban main network. These entrances should clarify the changing traffic rules. Even though the sign displaying "Speed 30 zone" already signifies that the speed limit is 30 km/h and intersections do not have a priority direction, experiences from Germany indicate that it is useful to underscore the change in rules. Entry treatments, consisting of elevated crossings and gateways, increase drivers' understanding that they are leaving the priority road network and entering a traffic-calmed, residential area. In addition, these elements are effective measures for improving road safety at entrances to residential areas:

- Elevated crossings (figure 1) raise the carriageway to the same height as the adjacent sidewalk in order to highlight intersections and their right of way



Figure 1: Elevated crossing in Uherské Hradiště (Jan Schubert)

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rule (turning drivers are required to give way to cyclists and pedestrians travelling straight in the main road). They show calming effects by forcing car drivers to slow down in order to avoid discomfort while driving over them. Elevated crossings can also be implemented at intersections in the secondary road network to increase noticeability of the junction.

- By extending the kerbstone on both sides of the secondary road a so called gateway is created. This effectively narrows the width of the carriageway, which lowers speed. Furthermore, extended sidewalks ensure that cars can not park too close to intersections, which often is a reason for crashes.

Generally streets were often designed to fit increasing traffic volumes in future years, which usually leads to wide road widths. However, research has shown that on **wide, straight streets** car drivers tend to drive much faster than on narrowed, curvy streets. Therefore isolated measures such as speed humps and deflections are useful to lower the speed of cars:

- Horizontal deflection like chicanes or traffic islands can easily be designed in a way that does not negatively affect cyclists. Alternating sides of the street for car parking is an efficient way to use wide streets, provide sufficient parking spaces for residents and at the same time lower speeds and create green islands.
- At Speed humps (also speed cushions) drivers have to slow down in order to avoid discomfort while driving over them (vertical deflection). Bad-



Figure 2: Speed humps leaving space for cyclists passing in the USA (Larry Kelley, onlyin-therepublicofamherst.blogspot.de)

ly designed speed humps may be an obstacle for cyclists. Therefore additional ramps with lower gradient can make speed humps more rideable for cyclists. Critics of speed humps emphasise their negative effects on emergency vehicles.

- Signs are used to implement traffic rules. Besides normal static signs, speed radar signs have been used often to educate car drivers by confronting them with their speeding. Research found that signs showing current speed are not as effective in speed reduction as signs showing smiling or sad faces depending on whether or not a driver complies with the speed limit.

Furthermore repeating speed signs on the carriageway is a useful measure to emphasise traffic rules.

Alternative forms

In recent decades further variations of traffic calmed zones have been established: Already common in Germany and Western Europe are “living streets”. Here, pedestrians can use the whole street area and have priority over cars. Children are allowed to play on the street. In addition cars are not allowed to go faster than walking speed.

In shared space zones demarcations between car traffic and pedestrians are minimised. Therefore such features as curbs, markings, traffic signs and regulations are removed as much as possible. The aim of both approaches is to reduce the dominance and rights of car traffic.

Typically both measures introduced here are only implemented in special environments, e.g. in small dead end roads, narrow streets in the city centre or in front of shopping centres.

Excursus: 20's Plenty for us

“20's Plenty for Us” is a campaign in the United Kingdom for 30 km/h (20 mph) zones in all residential areas. They are a partner organisation of the European Citizen's Initiative “30 km/h – making streets liveable!” and have over 200 local initiatives across the UK. The aim is to make 30 km/h the standard speed limit in residential areas and in the vicinity of shops and schools. Higher speed limits, e.g. on urban arterials, could then only be implemented after special consideration. This would, in effect, reverse the current situation that places the burden of justification on speed 30 zones. According to “20's Plenty”, the 30 km/h speed limit on residential streets in the UK city of Portsmouth has helped decrease casualties by 22%. Speed 30 zones are standard in most residential neighbourhoods in German cities, including Leipzig and Dresden. The Central MeetBike partner city Gdansk has also begun implementing speed 30 zones.

Lessons learned: Traffic calming is used in the secondary road network to reduce motor vehicle speeds and volumes. This makes the secondary road network suitable for cycling without cycling-specific infrastructure. A speed 30 zone is an example of an extensive traffic calming measure over a large urban area. Isolated measures, e.g. horizontal and vertical deflections or speed radar signs, help underscore the 30 km/h speed limit; entry treatments – elevated crossings and kerb build-outs – emphasise the change in traffic rules from the main to the secondary road network.

For further resources, links and best practice examples visit the Sustainable Urban Transport Project website: <http://www.sutp.org/>

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Sources /Further literature:

20's Plenty for Us: <http://www.20splentyforus.org.uk/>

Deffner, Jutta; Ziel, Torben; Hefter, Thomas; Rudolph, Christian (eds.): “Handbook on Cycling Inclusive Planning and Promotion”. Capacity development material for the multiplier training within the Mobil2020 project. Frankfurt/Hamburg, 2012.