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CIVITAS INSIGHT

Road Safety – A key issue for SUMPs

Urban road safety is a persistent challenge for Europe. Europe’s vision to half the number of road fatalities by 2020 is on its way of being implemented, and other targets – such as the decrease of seriously injured - come into view. At the same time European cities are developing SUMPs. This CIVITAS Insight explains how SUMPs can help to reach road safety targets. The Insight is complementary to the CIVITAS Insight ‘Safer road infrastructure for cyclists and pedestrians’.

Road Safety: What is the challenge?

In 2014, 25,700 people got killed as a consequence of road collisions in the EU. 19,900 people were reported to be seriously injured in road traffic accidents. 7,600 people died while walking and cycling on European roads in 2013. Pedestrians make 21 percent of the overall road deaths, whereas cyclists make 8 percent. The total cost of road accidents is currently 2 percent of the European GDP, and is expected to rise by 40 percent by 2050.

In aggregated numbers, 73,000 cyclists and 25,000 pedestrians have been killed in Europe since 2004, together counting for a mid-size European city.

People who walk or cycle do not get a fair share of improvements in road deaths. For cars, the total number of deaths on the road dropped by 53 percent between 2002 and 2012. For pedestrians, this is 41 percent and for cyclists even slightly lower with 37 percent. Countries like Latvia, Slovakia and Lithuania, Estonia and Hungary manage to see high yearly reductions (+/- 10 percent) in pedestrian deaths, where countries like Romania, Sweden, France, Switzerland and Belgium see a reduction of on average 2 percent.

Not all of the latter perform like this because they are at the end of a learning curve. The risk of being killed in traffic as a pedestrian differs greatly among European countries. The Netherlands, Norway, Sweden, Denmark and Finland are on the safer end of the scale. Latvia, Poland, Lithuania and Romania perform poorly.

Most pedestrians and cyclists are killed on urban roads. 69 percent of pedestrians, and 54 percent of cyclists. 68 percent of pedestrians are killed by cars. 22 percent of pedestrians are killed by trucks. For cyclists, figures are similar: 52 percent of cyclists are killed by cars, and 24 percent of cyclists are killed by trucks.

With 11,000 deaths on the road in urban areas across the EU in 2012, improving road safety in cities has been recognised as a political priority. The new Eurobarometer survey also shows that a large majority of European citizens (73 percent) considers road safety to be a serious problem in cities[[1]](#footnote-1).

Road Safety and SUMPs – Examples from CIVITAS I, II and PLUS

What turns a plan into a “sustainable” mobility plan? According to the SUMP guidelines, a Sustainable Urban Mobility Plan aims to create an urban transport system by addressing a standard minimum of objectives, of which the improvement of safety and security is one.

The SUMP planning circle is described in the SUMP guidelines. The SUMP planning process aims at installing a new mobility culture in a city based upon a common understanding of problems, solutions, division of responsibilities and stakeholder dialogue. Road safety is a prerequisite for any urban mobility measure: to put it bluntly - if you don’t survive on the streets as a cyclist or pedestrian, why even talk about modal shift?

SUMPs should address issues such as ‘safe urban infrastructure, especially for vulnerable road users, the use of modern technology for enhanced urban road safety, traffic rule enforcement and road safety education. Also further action should be foreseen in the following areas: Improvement of infrastructure safety design for VRU, especially at junctions, tackling dangerous traffic offences such as speeding, driving under the influence of drugs or alcohol and non-wearing of seat belts, improvement of vehicle safety, especially PTWs and HGVs, improvement of emergency response.

CIVITAS I | Graz (Austria): Reducing traffic speeds and car use.

Graz had 30 km/h speed limits on all streets in the city centre apart from a few where cars were still permitted to go at 50 km/h. Within the CIVITAS project, the speed limit on these streets was reviewed and they were incorporated into the 30 km/h network.

In order to enforce the new speed limits, 13 new devices were installed along the roads that showed drivers their current speed. The devices were moved around each month among

130 specially prepared locations in particularly sensitive areas. Some speed control campaigns were carried out by the police in cooperation with children, who used radar guns to measure the speed of passing cars.

The measure resulted in 80 percent of all roads in the city centre belonging to the 30 km/h zone, contributing to a big reduction in accidents and noise levels, and to a better coexistence between cars, pedestrians and cyclists. With the introduction of the zone, the number of accidents fell by 24 percent, meaning that about 250 people per year have been spared injury in traffic accidents.[[2]](#footnote-2)

CIVITAS II | Burgos (Spain): Safety and accident prevention plan

The measure was implemented in response to the high accident rate in Burgos, due to heavy traffic flows in the city and unsafe behaviour of road users. Activities included road safety campaigns in schools and workplaces; data collection regarding the frequency and location of accidents; improvements to road signs; speed calming measures; and improvements to the timing of traffic lights at pedestrian crossings. Stakeholder groups such as teachers, students and elderly people were involved through awareness-raising workshops, and traffic calming measures were based on the input of affected neighbourhoods. The measure was implemented in the framework of the city’s new Civic Mobility and Accessibility Pact. Measure implementation led to a huge decrease in the number of injuries among children to fewer than 200 per year. The city has continued its efforts to improve safety and security after the end of CIVITAS, as it remains one of the main concerns of the council.[[3]](#footnote-3)

CIVITAS PLUS | Bologna (Italy): Urban traffic safety plan

CIVITAS helped to enhance the city’s efforts to improve road safety. With a particular focus on the 30 km/h speed limit, Bologna tested a range of road safety interventions. Continuous monitoring of black spots bolstered accident and injury data. The city involved citizens and stakeholders to a greater extent in its mobility planning by various communication campaigns. The road safety strategy was part of Bologna’s Urban Traffic Safety Plan adopted in 2003.

Measure results included a 46 percent reduction in accidents at crossings with traffic islands, and a 34 percent reduction in accidents at crossings with traffic lights. Thanks to the designation of a Tempo 30 zone, traffic flow declined by 26 percent. This measure contributed to a 21 percent decrease in accidents and a 22 percent drop in traffic injuries between 2007 and 2010.[[4]](#footnote-4)

What can cities do in concrete terms to develop a long-term vision, an action plan, a structured evaluation and assessment of measures taken, and citizen dialogue?

The road safety baseline as starting point

Local accident investigation should form the basis of factual urban road safety planning. Understanding the geography of occurrence of accidents (so called black spots) on the basis of GIS based accident data can help to avoid the repetition of accidents with similar characteristics and factors that cause accidents. There are local clusters of accidents where factors that causes identical accidents occur. Avoiding these (local) factor increases safety. Typical factors are traffic volume, excessive, unadjusted speed and lack of sight. These black spot maps can be linked to mobility patterns of specific target groups (school children, weekend leisure traffic, freight routes etc.) and can determine a real problem analysis for road safety challenges in the city where planning is due.

Long term vision

The Sustainable Urban Mobility Plan should include a long-term vision for road safety for the entire urban agglomeration, which covers all modes and forms of transport: Public and private, passenger and freight, motorised and non-motorised, based on the problem analysis mentioned before. These are principles that could help to build the vision:

1. Install a modal hierarchy based on safety, vulnerability and sustainability. Urban planning should prioritise pedestrians, cyclists and public transport.
2. Develop a policy of modal priority for road users, particularly in urban environments: the hierarchy being based on safety, vulnerability, and sustainability. Pedestrians should be at the top of the hierarchy, followed by cycling and public transport.
3. Speed Management in combination with safe infrastructure environments

Excessive and inappropriate speed is the number one road safety problem. Speeding is a primary factor in about one third of fatal accidents and an aggravating factor in all collisions. Exceeding the speed limits is widespread. In countries where data are available, in free-flowing traffic, up to 60 percent of drivers exceed speed limits in urban areas.

Road safety measures to implement the vision

The SUMP should contain a plan for the short-term implementation of the strategy, which includes an implementation timetable and budget plan as well as a clear allocation of responsibilities and resources required for the implementation of policies and measures set out in the plan.

Managing speed

Experience shows that there is not one single measure to reduce speed. It takes a combination of measures including credible speed limits, enforcement and education, combined with ‘self-explaining’ roads and vehicles[[5]](#footnote-5). In addition, there is the issue of illegal speeding - requiring a large number of non-compliers to change their behaviour. Examples of measures in this regard are the following:

* Adapt traffic calming measures combined with speed limits of maximum 30km/h in residential areas and areas with high levels of pedestrians and cyclists – reflected in design of urban spaces - and maximum 50km/h in urban areas.
* Increase enforcement of speed limits, especially in areas where there are high numbers of pedestrians and cyclists.
* Support the introduction of Intelligent Speed Assistance (ISA) which, in restricting speed, has the potential to also reduce risks to pedestrians and cyclists – start with the cities own fleet, and the fleets under contract (such as bus fleets).
* Keep and share up to date digital map information on speed limit.

Infrastructure safety

Infrastructure can play a key role in reducing death and the severity of injury when collisions occur. Several countries have guidelines on traffic calming which benefit road users in urban areas, especially the unprotected ones. Additionally, land use plans and SUMPs should adopt a clear hierarchy of transport users, with pedestrians, cyclists and public transport users at the top of the hierarchy.

Cities can install physical measures such as roundabouts, road narrowing, chicanes, road humps and techniques of space-sharing. These measures should be introduced as an integral part of setting up speed limit zones of 30km/h in urban areas.

Assessing and evaluating the efficiency of road safety measures taken is crucial

There are several practices with regards to monitoring road safety on urban roads. Some cities have established specific structures (road safety observatories) to manage the process of improving road safety by learning from evaluation. These indicators are used:

* The recently EC endorsed WBCSD indicators[[6]](#footnote-6) for urban mobility include one indicator on road safety: Fatalities by road and rail transport accidents in the city. This takes into account the number of deaths within 30 days after the traffic accident as a corollary of the event per annum caused by urban transport per 100,000 inhabitants. The data is collected on the basis of raw data from city or national databases. The indicator is based on the existing databases, mainly Statistics of Road Traffic Accidents. Reported data should be in the form of annual transportation fatalities per 100,000 people. This adjustment is needed for the purpose of comparability of data among different cities or with national averages and target values.
* The OECD’s IRTAD[[7]](#footnote-7) uses three indicators:

1. Fatalities per 100 000 inhabitants: the number of inhabitants is the denominator most often used, as the figure is readily available in most countries. This rate expresses the mortality rate, or an overall risk of being killed in traffic, for the average citizen. It can be compared with other causes of death, like heart disease, HIV/Aids, etc. It is useful to compare risk in countries with comparable levels of motorisation. It is, however, not very meaningful to compare safety levels between high-motorised countries and countries where the level of motorisation is low.
2. Fatalities per billion vehicle kilometres: This indicator describes the safety quality of road traffic and theoretically the best indicator to assess the level of risk of the road network. This indicator does not take into account non-motorised vehicles (such as bicycles), which can in some countries represent a large part of the vehicle fleet and of the fatality figures. Only a limited number of countries collect data on distance travelled.
3. Fatalities per 10 000 registered (motorised) vehicles: This rate can be seen as an alternative to the previous indicator, although it differs in that the annual distance travelled is unknown. This indicator can therefore only be used to compare the safety performance between countries with similar traffic and car-use characteristics. It requires reliable statistics on the number of vehicles. This indicator does not take into account non-motorised vehicles (such as bicycles), which can in some countries represent a large part of the vehicle fleet and of the fatality figures.

* Finally, the CH4LLENGE project established four indicators for the safety issue in SUMPs

1. 2 Core indicators: I) Killed and seriously injured persons by mode (Number of persons killed or seriously injured (KSI) in traffic accidents), and II) Accidents by mode (Total number of accidents)
2. 2 Potential Additional Indicators: I) Child KSI by mode (Number of children killed or seriously injured (KSI) in traffic accidents), and II) Perceived safety by mode (Number of people rating it safe to use transport)

Citizens’ first: maintaining the stakeholder dialogue about road safety

A Sustainable Urban Mobility Plan focuses on people and meeting their basic mobility needs – such as safe journeys. Just like SUMPs, the road safety planning should follow a transparent and participatory approach, which brings citizens and other stakeholders on board from the start and throughout the plan development and implementation process.

Participatory planning is a prerequisite for citizens and stakeholders to take ownership of road safety measures within the SUMP. It makes public acceptance and support more likely and thus minimises risks for decision-makers and facilitates the plan implementation.

The fact that road safety policies can based on measurable facts (speed, accidents etc.) makes that actions can be targeted and can be based on demonstration actions (such as temporary experimental road lay-out, targeted enforcement etc.). These temporary and spatially targeted actions can take place in direct dialogue with local stakeholders (schools, neighbourhoods, companies etc.).

Road safety is a crucial prerequisite for sustainable mobility, and not the least for sustainable urban mobility. It is therefore of paramount importance that the SUMP covers in detail road safety aspects. The SUMP planning approach can be applied to road safety: stock taking, vision building, measures packages design, evaluation and stakeholder consultation can build strong road safety strategies. Action is due: Europe wants to reduce fatalities on the roads by 50 percent by 2020, and a new target for severely injured is under development. CIVITAS cities show that integrated strategies are possible, and evaluation results are positive.

1. European Commission (2013) Attitudes of Europeans Towards Urban Mobility, accessed June 30, 2016, http://ec.europa.eu/public\_opinion/archives/ebs/ebs\_406\_en.pdf [↑](#footnote-ref-1)
2. Reducing traffic speeds and car use, CIVITAS Initiative, accessed June 30, 2016, http://civitas.eu/content/reducing-traffic-speeds-and-car-use [↑](#footnote-ref-2)
3. Safety and accident-prevention plan, CIVITAS Initiative, accessed June 30, 2016, http://civitas.eu/content/safety-and-accident-prevention-plan [↑](#footnote-ref-3)
4. Urban traffic safety plan, CIVITAS Initiative, accessed June 30, 2016, http://civitas.eu/content/urban-traffic-safety-plan [↑](#footnote-ref-4)
5. Wegman, F. and Aarts, L (2006), Advancing Sustainable Safety. National Road Safety Outlook for 2005-2020. [↑](#footnote-ref-5)
6. WBCSD indicators, accessed June 30, 2016, http://wbcsdpublications.org/wp-content/uploads/2016/01/SMP2.0\_Sustainable-Mobility-Indicators\_2ndEdition.pdf [↑](#footnote-ref-6)
7. http://www.itf-oecd.org/sites/default/files/docs/15irtadannualreport\_0.pdf [↑](#footnote-ref-7)