

Integrating Safety into the EU's Urban Transport Policy

Introduction

Transport safety is an essential component of sustainable urban mobility and should be firmly integrated into the mobility planning processes by cities. A total of 38% of road deaths occur in urban areas in 2009¹. The EU has set a target to reduce road deaths by 50% by 2020 as well as the longer term "vision zero" by 2050. The European Commission recently adopted its *'First Milestone towards a Serious Injury Strategy'* in March this year. This new initiative is also highly relevant to the urban mobility package as a larger proportion of serious injuries occur in urban areas and involves vulnerable road users².

The European Commission is planning to present an urban mobility package in late 2013. The White Paper included these possibilities within its list of initiatives: to establish procedures and financial support mechanisms at European level for preparing Urban Mobility Audits, as well as Urban Mobility Plans, and set up a European Urban Mobility Scoreboard based on common targets. ETSC's expectations of the European Commission's upcoming urban mobility package is that it will lay out measures that will contribute to reducing road deaths by 50% by 2020 in urban areas.

Transport safety should be considered as an essential component of sustainable mobility and mobility planning. In attempting to secure change in urban mobility patterns, road safety can be regarded as a critical challenge, largely because of the social and economic cost of road collisions. As such, safety should be tackled at all levels of mobility planning. Real and perceived safety can have a profound effect on modal choice especially in terms of the most sustainable modes of travel - walking and cycling and ability to access public transport. ETSC strongly recommends that safety should be integrated not only into the development of Urban Mobility Plans but also into proposed Urban Mobility Audits and Guidelines and be reflected in common targets.

1. Tackling Speed in Urban Areas

Excessive and inappropriate speed is the number one road safety problem³. Speeding is a primary factor in about one third of fatal accidents and an aggravating factor in all collisions⁴. Exceeding the speed limits is widespread. In countries where data are available, in free-flowing traffic up to 80% of drivers exceed speed limits in urban areas. Addressing

¹ European Commission CARE Latest figures from 2009.

http://ec.europa.eu/transport/road_safety/pdf/statistics/dacota/bfs2011_dacota-intras-urbanareas.pdf

² European Commission (2013) Commission Staff Working Document: On the Implementation of Objective 6 of the European Commission's Policy Orientations on Road Safety 2011-2020 – First Milestone Towards an Injury Strategy.

³ Aarts, L. & van Schagen, I. (2006). Driving speed and the risk of road crashes: a review, *Accident Analysis and Prevention*, vol. 38, issue 2, p: 215-24.

⁴ OECD/ECMT (2006) Speed Management.

illegal speeding therefore requires a large number of non-compliers to change their behaviour. Experience shows that there is not one single measure to reduce speed. It rather takes a combination of measures including credible speed limits, enforcement and education, combined with 'self-explaining' roads and vehicles⁵. Promotion of Intelligent Speed Assistance systems as well as infrastructure management will help reduce speed in urban areas, increase safety and thus encourage people to walk and cycle more.

One km/h slower would prevent more than 2,200 deaths a year

While the risk linked to speed varies across road types, a sound rule of thumb is that, on average, a 1% reduction in the mean speed of traffic leads to a 2% reduction in collisions resulting in injuries, a 3% reduction in collisions resulting in severe injuries and a 4% reduction in fatal collisions. This is explained by the well recognised "Power Model" showing the exponential relationship between increases in speed and the probability of collisions and their severity (Aarts and van Schagen, based on Nilsson).

Even minor reductions in mean speeds will therefore make an important contribution to reducing traffic deaths and injuries. 'Low level' speeding is often overlooked but has an important role on safety outcomes as it is far more common than driving at extremely high speeds.

Applying the "Power Model" to current numbers of deaths indicates that if every driver slowed down by only 1 km/h, more than 2,200 road deaths per year could be prevented, among them 1,100 on urban roads, 1,000 on rural roads and 100 on motorways.

2. Walking and Cycling in Urban Areas

The Transport White Paper recognises that *'in urban areas, walking and cycling, together with public transport, often provide better alternatives not only in terms of emissions, but also of speed⁶: they could readily substitute the large share of trips which cover less than 5km.'* It stresses that *"accordingly, facilitating walking and cycling should become an integral part of urban mobility and infrastructure design"*.

More should be proposed to protect pedestrians and cyclists, deaths among pedestrians and cyclists decreased by 34% between 2001 and 2009, compared with 39% for car

⁵ Wegman, F. and Aarts, L (2006), Advancing Sustainable Safety. National Road Safety Outlook for 2005-2020.

⁶ The recent feasibility study for a central London cycle hire scheme considered that cycling is time competitive with all other modes over distances up to 8km.

<http://www.tfl.gov.uk/assets/downloads/businessandpartners/cycle-hire-scheme-feasibility-full-reportnov2008.pdf>. A web based quantitative study amongst both cyclists and non cyclists undertaken in 2006 also found that speed is perceived to be one of the main positive 'drivers' of cycling to work in Central London. Source: TfL, 2008, Cycling in London.

drivers⁷. The risk of being killed in traffic per kilometre travelled is more than 9 times higher for pedestrians than for car occupants and more than 7 times higher for cyclists than for car occupants (ETSC, 2003). The severity of injuries suffered by vulnerable road users is also higher than for car occupants. Non-motorised means of transport, such as cycling and walking, account for only a small share of distance travelled by road.

Walking and cycling should not be discouraged as unsafe transport modes. It is important to remember that they account for much larger proportions of journeys made and time spent using the roads. Additionally more than half of the people seriously injured are pedestrians or other vulnerable road users involved in a collision in an urban area. It is often claimed that cycling or walking should not be encouraged as they are less safe transport modes than cars. But research rejects this argument because the advantages of walking and cycling for public health (a healthy life through regular exercise) outweigh their disadvantages (the risk of death or injury). Increasing numbers of pedestrians and cyclists can result in 'safety in numbers' reducing overall risk as well as risk for individuals. Walking and cycling should be encouraged as travel modes for citizens across the EU, and safety of walking and cycling should be one of the objectives of safety management.

There are a whole range of measures that can be taken to improve vulnerable road user safety and address other elements of the integrated approach (user behaviour and infrastructure) some of which are included in the recommendations below and are covered in more detail in ETSC's Review on Vulnerable Road Users and in ETSC's recent Review of Cycling Safety Policy^{8,9}.

3. Public Transport and Public Procurement

The core public transport modes (bus and rail) are the safest modes of transport. Trips by public transport, including walking or cycling to and from access points are collectively safer than car trips (ETSC 2003). This is another reason why the EU should promote the extension, quality and use of public transport and that conversely more dangerous modes should be discouraged. The Transport White Paper Working Document also recognises that the safety of public transport will be essential to the greater uptake of public transport (EC Working Document 2011:25). The provision of travel information and travel planning should include a consideration of safety in promoting alternatives in terms of both mode choice and route choice.

Non-private customers, such as local authorities, can through their public procurement policies, play an important role by including specific requirements on minimum safety levels in their vehicle purchase and leasing policies. At EU level public procurement can be a major driver for green innovation, providing industry with real incentives for developing

⁷ ETSC (2011) PIN Flash 19 Unprotected Road Users – a Key Concern of Road Safety http://www.etsc.eu/documents/ETSC_PINFlash19_unprotected_road_users.pdf

⁸ ETSC (2005) The Safety of Vulnerable Road Users.

⁹ ETSC (2012) Raising the Bar – Review of Cycling Safety Policies in the European Union.

green products and services – particularly in sectors where public purchasers represent a large share of the market (e.g. construction, health services, or public transport). EU legislation should be updated to include safety which would result in a real boost for safety in public procurement as well as promoting innovation in the area of safety technology and vehicle standards.

4. Infrastructure Safety

Infrastructure can play a key role in reducing death and the severity of injury when collisions occur. Building on its 'Policy Orientations on Road Safety 2011-2020' the European Commission's new document on Serious Injury proposes application of the instruments included in the Infrastructure Safety Directive to the secondary road network and, for the first time, extending them also to the urban environment. ETSC welcomes this initiative and would also like to see the development of guidelines on traffic calming which would also benefit road users in urban areas, especially the unprotected ones.

5. Land Use Planning

The Transport White Paper stressed that *"Demand management and land-use planning can lower traffic volumes. Facilitating walking and cycling should become an integral part of urban mobility and infrastructure design."* The White Paper signals a change of approach to dealing with transport issues – from the traditional single pronged approach of building more and more transport infrastructure to a more multi-faceted approach that also seeks to manage travel demand and make better and more efficient use of existing resources and new technologies. ETSC supports this approach which can also offer benefits in terms of transport safety.

Travel demand management measures are aimed at reducing the growth in travel and encouraging a transfer of trips from the car to more sustainable modes of travel. The impact on safety should be a central consideration in the development of demand management measures which can also contribute to achieving road safety targets.

Transport is a demand derived from the location of homes, jobs, education, shopping and other land uses. As such, transport infrastructure and services cannot be supplied or transport demand managed in isolation from land use planning.

Integrated land use and transport planning should be made a key tool in managing the demand for travel and transport and in influencing transport safety and mobility patterns across the EU. Urban design affects travel patterns. Today the aim is to ensure that walking and cycling are the dominant modes for shorter trips, and that public transport becomes the dominant mode for longer trips. To deliver integrated land use and transport planning there is a need at the national level for greater collaboration between the Transport and Planning Ministries and other ministries that influence transport, such as Finance, Education, Environment and Industry. Without high-level coordination, the delivery of

integrated transport and land use planning will rest in the hands of pioneering authorities rather than being a common deliverable across Europe (EEA 2008).

Plans should adopt a clear hierarchy of transport users, with pedestrians, cyclists and public transport users at the top of the hierarchy. As a general principle, these users should have their safety and convenience needs considered first. It is most important that the hierarchy is applied where a large share of travel is (or could be) made by walking, cycling and public transport.

6. HGVs and VRUs in Urban Areas

Latest figures show that in the European Union 4,254 people lost their lives in collisions involving heavy goods vehicles (HGVs) in 2011¹⁰. The relatively large masses of the HGVs translate into higher momentum when the vehicle enters a traffic collision with another road vehicle or user, which in turn increases the severity for the occupants of the other vehicle involved in the collision. The generally raised cabs of HGVs afford their occupants a relatively higher level of protection than for other vehicle occupants. Improvements in the requirements of the Regulation 2009/661/EC for underrun protection systems in HGVs would be beneficial in reducing the severity of the collisions between HGVs and other vehicles. The European Commission has recently proposed new rules to allow manufacturers to develop more aerodynamic lorries and alter the design of cabins to introduce an energy-absorbing deformable vehicle front.

The larger size of HGVs also results in a comparatively smaller area of direct vision for their drivers than for drivers of passenger cars or LGVs. The new proposals can improve the situation by increasing the 'sideways' vision of the driver. Such proposals would enhance visibility, which will also improve the safety of vulnerable road users.

Other measures, such as route planning¹¹ to avoid urban areas at certain peak times when there are high numbers of pedestrians and cyclists and schemes to insert HGV safety into public procurement contracts should also be promoted¹².

7. Road Charging and Congestion Charging and Road Safety

Recent research 'indicates that transport pricing reforms can significantly increase traffic safety. However, these impacts are often overlooked, both when evaluating pricing reform benefits and when searching for traffic safety strategies¹³.' The economic rationale for fiscal measures is that road users should pay directly for their trips, the service required to

¹⁰ PIN Flash HGV http://www.etsc.eu/documents/ETSC_PIN_Flash_24.pdf

¹¹ ETSC (2012) PRAISE Report EU Social Rules and Heavy Goods Drivers

¹² ETSC (2012) Raising the Bar – Review of Cycling Safety Policies in the European Union.

¹³ Litman, T., (2012) Pricing for Traffic Safety-How Efficient Transport Pricing Can Reduce Roadway Crash Risks Victoria Transport Policy Institute http://www.vtpi.org/price_safe.pdf

carry them out and the resulting associated costs including congestion, environmental damage and collisions. Therefore the transport system efficiency would be improved by aligning charges more closely with these costs. Aims also include changing road user behaviour and cutting greenhouse gas emissions.

Road user charging is usually implemented as part of transport demand management packages alongside other demand management measures such as public transport enhancements. Road user charging can take many different forms including road tolls, cordon or area tolls, congestion charging or distance based charging. The impacts in terms of road safety are likely to vary depending on the form of road pricing introduced, its characteristics and the characteristics of the area in which it is being applied. Such relationships are complex and it would be useful for more evidence based research to provide deeper understanding in this regard. The table below gives a general summary of the benefits of various pricing strategies, including on safety.

Road Pricing Benefits¹⁴

Strategy	Revenue Generation	Congestion Reduction	Pollution Reductions	Increased Safety
Road toll (fixed rates)	3	2	1	1
Congestion pricing (time-variable)	2	3	2	1
HOT lanes	1	2	1	0
Cordon fees	2	3	1	1
Distance-based fees	3	2	2	2
Pay-As-You-Drive insurance	0	2	2	3
Road Space Rationing	0	3	1	1

Rating from 3 (very beneficial) to -3 (very harmful). A 0 indicates no impact or mixed impacts.

Recent examples of congestion charging include the Stockholm scheme (introduced in 2005) which demonstrated a decline in the number of injury collisions. In the scheme, the evaluation of the impact on road safety looked was based on estimates and 'relationships between road safety and changes in vehicle kilometres travelled, traffic flows and speed levels.' Both personal injuries and traffic collisions and an analysis of factors that indirectly affect road safety were considered. 'The combined effect of the Stockholm Trial on road safety is assessed to turn out undeniably positive, since the positive effects of reduced traffic are expected to be greater than the negative effects of increased speeds. A large percentage of the traffic accidents within the charge zone occur during the hours when the charge is imposed. A cautious estimate is that the Stockholm Trial has entailed a

¹⁴ Online TDM Dictionary (2012) Road Pricing Congestion Pricing, Value Pricing, Toll Roads and Hot Lanes <http://www.vtpi.org/tm/tm35.htm>

decline in the number of personal injury accidents of 5-10% within the congestion tax area¹⁵.

8. Commuting and Travel Plans

Commuting is an important road safety risk factor. For example, data from France show that in 2008, out of 956 fatal occupational accidents that occurred, 333 were commuting accidents¹⁶. In some EU Member States, employers have a legal obligation to compensate, through their insurance, road traffic collisions also occurring during commuting time. This means that they also have a very strong interest to apply measures to prevent these collisions from occurring. In many workplaces, the trip to and from work is the most risky part related to occupational safety. The risk of being involved in commuting accidents is increasing as populations decentralise and choose to live further away from work¹⁷. ETSC recommends that every employer should prepare a travel plan which should also include the encouragement of safe modes of transport. Company mobility management can influence travel behaviour by drawing the employee's attention towards sustainable and safe transport options. Employers and public administrations can provide support through financial incentives and parking regulations. Efforts to improve safe and sustainable commuting should also be promoted within the context of the EU's Urban Mobility policy.

ETSC, with the support of the European Commission, ran a three year long project¹⁸ aiming to improve the knowledge base and gather best practice on work related road safety. One chapter of the resulting handbook looked at what the EU, national governments and employers could do to improve the safety of employees on their daily commute.

Recommendations to the EU

Urban Mobility Planning

- Encourage the integration of road safety into land use and transport planning.
- Recognise the benefit that the core public transport modes (bus and rail) bring in terms of transport.
- Recognise that the provision of travel information and travel planning includes a consideration of safety in promoting alternatives of mode and route choice.
- Include Road Safety targets in the European Urban Mobility performance Scoreboard based on common targets.
- Recommend that every employer should prepare a travel plan which should also include the encouragement of safe modes of transport for commuting.

¹⁵ PIARC Technical Committee A3 Road System Economics and Social Development (2012) *World Wide situation of road pricing and assessment of its impacts* www.piarc.org 2012R01EN

¹⁶ CNAMTS (2010).

¹⁷ Fourth European Working Conditions Survey (Eurofound, 2005).

¹⁸ ETSC (2009-2012) PRAISE Preventing Accidents and Injuries for the Safety of Employees.

Vehicle Safety

- Tackle Heavy Goods Vehicles collisions including those caused by blind spots e.g. by improving the design and equipment of HGVs including retrofitting with front-view mirrors (2007 Directive), improved cabin design, installation of cameras and active warning systems and underrun protection.
- Support the development of car windshield airbags by 2015 and introduce their mandatory fitment soon after as a viable safety measure to improve the protection of pedestrians and other vulnerable road users including cyclists.
- Require manufacturers to mention EuroNCAP ratings in all advertisement of vehicles to encourage consumers to purchase safe vehicles (similar to the 'Monroney label' in the US¹⁹).
- Regularly monitor developments in passive and active safety technologies for the protection of unprotected road users and adopt legislation when necessary.
- Support the introduction of Intelligent Speed Assistance (ISA) which, in restricting speed, has the potential to reduce risks to pedestrians and cyclists.
- Introduce minimum requirements for cycle lighting and reflective elements.

Improving Safety of Pedestrians and Cyclists

- Encourage Member States to adopt speed limits of maximum 30km/h in residential areas and areas with high levels of pedestrians and cyclists and maximum 50km/h in urban areas.
- Draft guidelines for promoting best practice in traffic calming measures, based upon 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.
- Support the assessment of the safety impact of new traffic codes, e.g. allowing contra-flow cycling on one-way streets.
- Encourage Member States to increase enforcement of speed limits in areas where there are high numbers of pedestrians and cyclists.
- Support and promote research into effective and innovative methods of enforcing traffic rules for pedestrians and cyclists.
- Encourage the uptake by EU Member States of zero tolerance to alcohol and drugs on the road and extend these principles also to cover cyclists.
- 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.

Recommendations to EU Member States

¹⁹ The Monroney label is an automobile price sticker required by the US Automobile Information Disclosure Act. Manufacturers have to place NCAP star ratings when available on the Monroney label.

Improving Safety of Pedestrians and Cyclists

- In addition to the overall target of reducing deaths by 50% between 2010 and 2020, adopt a specific target of reducing by 50% between 2010 and 2020 the number of pedestrians and cyclists killed in road collisions.
- Match the use of each road to the functions that the road serves in terms of living space, access and through movement (applying the principles of the Sustainable Safety Approach²⁰).
- Separate faster vehicles from slower ones and lighter vehicles from heavier ones, and separate vehicles that are making conflicting movements.
- Make the road system self-explaining to its users.
- Support walking and cycling as modes of transport in their own right and an integral part of all transport systems.
- By providing safe and attractive infrastructure and in other ways encourage more walking and cycling as "safety in numbers" will increase individual safety.
- 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.
- Provide shorter and safer routes for pedestrians and cyclists by ensuring that routes are direct and that the quickest routes are also the safest. Travel time should be increased on unsafe routes and decreased on safe routes.
- Promote "Safe routes to school" schemes to increase the safety of children.
- Support the application of effective traffic calmed zones (with a maximum of 30km/h or less) in residential areas and areas with significant pedestrian and cyclist activity.
- Tackle the high level of underreporting of pedestrian and cyclist collisions.
- Consider the issue of, and absence of data surrounding, other risks to which pedestrians are exposed, such as falls resulting from lack of adequate infrastructure or from poor infrastructure design or maintenance.

ETSC Recommendations to City Administrations

Adopt a strategic approach to road safety

- Consider all kinds of road user, especially the most vulnerable.
- Consider the functions and use of different kinds of road.
- Formulate a safety strategy for the city as a whole.
- Relate road safety objectives to other policy objectives for the city.
- Encourage all professional groups to help to achieve road safety objectives.
- Guard against adverse effects of other policies upon road safety.
- Ensure proper enforcement of speed limits through fix and mobile controls.
- Translate strategy and objectives into actual local area safety schemes.

²⁰ Chapter 3, Reducing deaths on rural roads

- Monitor and evaluate progress in order to learn from experience and keep the strategy up to date.

Promote new patterns of mobility

- Promote localisation of some activities so that they can be reached on foot, by bicycle, or by public transport.
- Improve the quality of public transport.
- Discourage access by car where there are reasonable alternatives.
- Create attractive and safe routes for the journeys on foot or by bicycle.
- Moderate the speeds of motor vehicles where there is still travel in proximity to people walking and cycling.
- Promote 30km/h speed limit zones in residential areas.

ETSC, June 2013

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