



ECOTALE GUIDELINES

6. SPEED LIMITS

Policy summary

Road traffic management measures can include speed limit reduction on motorways in given sections or the introduction of a variable speed limit system according to traffic density, events impacting road safety (accidents, construction or maintenance work, etc.), air pollution levels or weather conditions (rain, fog, winds, etc.).

Besides main improvements in road safety, proper speed limitations -particularly where applied with variable systems- can reduce stop-and-go with further benefits in terms of congestion (smoothness flows) and reduced fuel consumption and emissions.

To ensure the desired outcomes, however, as for other regulatory measures, speed limit policies usually need adequate enforcement (police patrol, lanes/roadside speed cameras).



SWOT Analysis

<p>Strengths</p> <ul style="list-style-type: none"> • Reduction of accidents • Energy efficiency (reduced fuel consumption) • Reduction of pollution • Easy implementation • Cheap and effective control technologies available 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Possibility of avoidance and evasion • Need of maintenance programs and dedicated staffs • Difficulties in defining and applying speed limit tolerances
<p>Opportunities</p> <ul style="list-style-type: none"> • Promotion of the cooperation among different regulator and stakeholders • Availability of data useful for monitoring and before-after analysis of effectiveness • Educational effects 	<p>Threats</p> <ul style="list-style-type: none"> • EPublic acceptance • Possible difficulties in managing automatic penalties application and noticing • Possible increased congestion and inefficiency if not integrated with other road safety policy measures (road maintenance, infrastructural design, signal control...)

Policy topic

- Air pollution or GH gas
- Land-use/urban planning/ landscape
- Traffic noise
- Congestion
- Traditional fiscal instruments
- **Accidents, transport safety**
- Public transport subsidies/ support
- Infrastructure investment
- Users' behaviour

Level of application

- National
- **Regional**
- **Provincial/Metropolitan area**
- Municipal

External costs

- Congestion and scarcity
- Accidents ++
- Air pollution ++
(human health, material damages, nature)
- Noise +
- Climate change +
- Urban space
- Nature and landscape





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Methodological suggestions

Cost component	External cost	Cost elements	Cost function/ drivers	Suggested estimation techniques	Data needed	Critical valuation issues	
Accidents	material damages, administrative and medical costs, production losses and estimation of costs induced on friends/relatives	medical costs	traffic volume	resource cost for health improvement	database of accidents and of their outcomes (heavy/slight injuries, fatalities ...)	value of human life	
			risk attitude				
		loss of productivity	type of infrastructure	WTP/WTA to estimate the value of statistical life		externalities	
		loss of human life	speed distribution				
day/night							
Congestion	increase in travel time x value of time x traffic volume	travel time (purpose, mode of transport length for passenger trips; mode of transport and commodity type for freight)	type of infrastructure	WTP/WTA to estimate the value of time in case of congestion	relation speed/flow	speed/flow relation	
		safety	amount and composition of traffic flow		demand elasticity	value of time	
		disamenity		kind of network (urban, interurban, metropolitan - n° lanes)	marginal social cost		
		depreciation					
		additional fuel costs					
		environmental costs	capacity level over time	WTP to estimate costs due to scarcity	level of traffic	opportunity cost	
							direct and induced delay
opportunity cost	cost increases marginally with traffic and depending on the situation (time-place)						capacity
Air pollution	"Air pollution costs are caused by the emission of particulate matter (PM), NOx, SO2 and VOC. Air pollution costs arise also from industry, agriculture and private households."	damages to buildings	traffic level	repair cost	emission data per kind of pollutant	damages quantification	
			location - exposure				
		damages to agriculture	population and settlement density		vehicle mix		
		damages to human health	kind of engine - alimentation				network data
damages to ecosystems	driver characteristics						
Noise	Noise can be defined as the unwanted sound that causes physiological or psychological harm to humans. It is recommended to take vulnerable groups, like children and elderly, into account.	annoyance	the annoyance depends on the traffic level	WTP hedonic price for noise reduction	noise exposure data	noise indicator	
		effect on health	resident population and density				
		property value loss	noise indicators			time of exposure	evaluator of annoyance

Recommendations / Comments

Technical feasibility	Easy	Public acceptance	Medium	Equity	Yes
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A number of studies in literature demonstrate the environmental and social benefits of reducing vehicle speed generated by the combination of different effects: improved safety, reduced vehicles' total travel time, improved walking and cycling mobility, change in drivers' behavior, smoother traffic flow at average reduced speed, partial traffic re-routing and reduction of emissions. The effectiveness of this measure is strongly related to the combined action of other traffic calming initiatives: traffic signal coordination, re-design of intersections and route segment or even capacity improvement when possible. A coherent and consistent ensemble of policies will produce better results than a single measure; the speed control package should encompass the following initiatives: education and information campaign to users and policy makers; assessment of appropriate speed limits for each type of road facility and traffic; development of "self explaining" roads; high levels of police enforcement and usage of ITS technologies to measure actual speed and to implement automatic speed control.

Related Good Practices

- Speed limit in Barcellona

