

**Reduced default speed limits
in built-up areas in Sweden**

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Summary

As part of its remit from the government, Transport Analysis has studied the effects of reduced default speed limits in built-up areas on Sweden's transport policy goals. It is up to the municipalities themselves to determine what areas constitute built-up areas. Current law sets a default speed limit of 50 km/h in such areas, unless otherwise posted.

Transport policy goals and visions/strategies

The clearest quantifiable positive effects are seen in the area of traffic safety, where speed is of decisive importance. The magnitude of these effects depends in part on what roads are assigned lower speed limits, and on the extent to which drivers actually reduce their speed. Previous experience points to an average speed reduction of 1–4 km/h if the posted speed limit is reduced from 50 to 40 km/h.

Working within the framework of this task, we have modelled and calculated these effects for three different scenarios in built-up areas:

All streets with a 50 km/h speed limit have their speed limit reduced to 40 km/h, reducing the number of fatalities by five.

Approximately 80% of the streets (based on vehicle miles) with a 50 km/h speed limit have their speed limit reduced to 40 km/h while the remaining 20% stay at 50 km/h, reducing the number of fatalities by four.

Approximately 80% of the streets (based on vehicle miles) with a 50 km/h speed limit have their speed limit reduced to 40 km/h while the remaining 20% have their speed limit raised to 60 km/h, reducing the number of fatalities by three.

Positive effects on the numbers of severe injuries are naturally seen as well. The effects on traffic safety are greater if the road operator succeeds in reducing speeds still further. Seventeen lives would be saved in scenario 1 if the speed limit were reduced by 10 km/h, meaning that we have identified a range of three to 17 lives saved. The effects of these scenarios may be considered in relation to the fact that roughly 65 fatalities occur in built-up areas per year in Sweden.

Speed is also significant in terms of the environmental impact of road traffic. Urban areas are distinctive in that how people drive there plays a key role in fuel consumption. Driving more smoothly with fewer accelerations results in lower fuel consumption. High speeds also result in greater road wear and, in turn, higher levels of airborne particulate matter. Lower speeds are especially important with regard to emissions of nitrous oxides. The extent of the improvement in air quality is, however, minor compared with the improvement in traffic safety. Noise is another factor that decreases at lower speeds. Municipal assessments of the effects of lower speeds identify positive effects on residential and downtown environments, with reduced noise probably playing an important part.

Combined with other social planning measures, reduced default speed limits could result in an increased share of pedestrians and cyclists at the expense of vehicle traffic. The positive environmental effects would be enhanced in such a case. Making conditions more favourable for walking and cycling could of course improve public health as well.

Our analyses point in different directions when it comes to accessibility and passability. On one hand, analyses conducted using the Sampers travel-demand forecasting tool indicate that the collective accessibility losses for vehicle traffic are significant; conversely, survey results from municipalities identify no such losses in terms of passability. These different results may be explained to some extent by the fact that two different scenarios are being tested. The main scenario used in the Sampers tool tests the implementation of a new default speed limit in an extreme variant in which all roads with posted speeds of 50 km/h have their speed limits lowered to 40 km/h in urban areas. On the other hand, the municipalities have been more restrained in terms of lowering speed limits and have preserved a higher limit on, for example, major thoroughfares in order to safeguard accessibility.

There are, however, several aspects (i.e., equality of access, infrastructure quality, and transport supply) of the functional goal on which reducing the default speed limit in built-up areas would have a positive impact. One such aspect is the increased security to which reducing the default speed limit would contribute. A lack of security manifests itself in different ways depending on the type of traffic. For example, people worry more about accidents (i.e., traffic safety) in connection with private modes of transport such as cycling and walking, and more about unpleasant incidents (i.e., social security) in connection with public transport and walking.

Car speed is an important factor in determining the traffic safety in an environment, and how secure it is perceived to be. This pertains in particular to children's security and freedom of movement. A reduced speed limit also means that parents can feel more secure and will allow their children to travel independently to a greater extent. Vulnerability theory identifies the elderly as another particularly vulnerable group, along with children. Lower speeds would also enhance security among the elderly. Lowering the speed of vehicle traffic also contributes to greater security among cyclists, which would presumably induce more people to start cycling. The reason that so many refrains from cycling is that they feel insecure about their safety as cyclists in traffic. Lower vehicle speeds make it possible to allow cars and cyclists to interact in more street scenes.

Lower speeds also entail an increased sense of safety in traffic for pedestrians, but social security is important to pedestrians as well. Social security increases in a street scene filled with people and, to some extent cars, assuming that they drive slowly. Conversely, dense high-speed vehicle traffic creates barriers in the city, contributing to greater insecurity.

The greatest potential in terms of enhanced security in connection with reduced default speed limits is believed to apply to women. This is true of both safety in traffic and social security. Women consider the risks to be higher in many situations and are consequently more positively disposed than are men towards traffic safety measures, as they create a safer traffic environment. Women are present in traffic as pedestrians and cyclists to a greater extent than men, which means that safety in walking and cycling environments is particularly important to them. According to vulnerability theory, women are more physically vulnerable and thus more prone to insecurity. We also know that women mobility-compensate to a greater degree than do men, i.e., refrain from trips that do not feel secure. Safer traffic environments thus constitute a gender equality issue as well.

The government has also launched a number of strategies to be assessed collectively. Because the most obvious effects of reduced default speed limits are seen in the realm of traffic safety, these measures are clearly contributing to the "Vision Zero" approach. A reduced

default speed limit also favours Sweden's bicycle strategy, in that cycling is facilitated when the safety of unprotected road users is enhanced. The prioritisation of walking, cycling, and public transport is also evident in the proposed city traffic goals issued by six government agencies.

Municipal work on speed limits

The municipalities play a key role in the current regulation of speed limits. Speed limits appear to be an issue of note, and nearly 80% of Swedish municipalities report having discussed reviewing their speed limits. Speed limit reviews commonly result in a speed limit plan, followed by a reposting process.

The municipalities report that a number of the factors that can be tied to the functional goal of the national transport policy, particularly accessibility and passability, were important in their speed-limit planning efforts. Passability largely concerns preserving stretches of road with higher speed limits for vehicle traffic. Accessibility concerns creating destinations that can be reached by foot, albeit often after travellers use some other mode of transport. A small number of municipalities have also identified public health as a factor that they took account of, probably by facilitating matters for pedestrians and cyclists.

Regarding factors that can be tied to Swedish safety, health, and environmental goals, the factor that, according to the municipality surveys, is considered of supreme importance as a justification for lowering speed limits is traffic safety. There is reason to assert that, from the municipal perspective, lowering speed limits is primarily a traffic safety issue. When it comes to climate and air quality, roughly as many municipalities describe lowered speed limits as an important factor as do not. On the other hand, noise appears to be an important factor in somewhat more municipalities.

Twenty-six municipalities have followed up their speed limit changes in some way. The clearest positive effects were found with respect to safety, residential environment, and reduced risks to unprotected road users, but also with respect to the urban environment in general. Although the results are not entirely clear-cut with regard to the effects on accessibility-related factors, it is in any event impossible to conclude that the changes have had a distinctly negative effect. One possible explanation is that the municipalities have succeeded in striking a balance between local roads on which the speed limits have been reduced and main thoroughfares on which the speed limits have been retained or increased.

Proposals

It is reduced speed that yields the positive effects in terms of Swedish transport policy goals and urban environments. There are methods other than lowering the default speed limit that must also be considered when it comes to achieving lower speeds.

Transport Analysis proposes a five-year implementation period, so that the municipalities have enough time to conduct the necessary studies, repost speed limits, and make street scene adaptations. These measures are also associated with costs to the municipalities.

Transport Analysis recommends that a new default speed limit of 40 km/h be implemented in built-up areas. One distinct advantage of introducing a new default speed limit is that it would impact the entire country quickly. Another advantage of a default speed limit is that could reduce confusion and contribute to the more uniform application of speed limits throughout Sweden. Choosing 40 km/h as the default speed limit rather than 30 km/h offers a way of offsetting the travel-time losses that a comprehensive reduction to 30 km/h would probably entail. However, this report has shown in a number of cases that a speed limit of 30 km/h

yields greater positive effects in terms of, for example, traffic safety and security, which, in combination with an altered urban environment, could induce more people to bicycle and walk in the long term.

One condition for the ability of this alternative to produce the desired effects is that the municipalities can further lower the speed limits on certain streets. At present it is possible to make such changes within the framework of local traffic regulations if they are justified based on traffic safety, passability, or the environment. Transport Analysis proposes that the “passability” prerequisite in the Swedish Traffic Ordinance be replaced with “accessibility”. This would expand the means available to municipalities to reduce speed limits in order to facilitate, for example, walking and cycling, and to create a more attractive, secure, and safe urban environment.



Transport Analysis is a Swedish agency for transport policy analysis. We analyse and evaluate proposed and implemented measures within the sphere of transport policy. We are also responsible for official statistics in the transport and communication sectors. Transport Analysis was established in April 2010 with its head office in Stockholm and a branch office in Östersund.