

## Noise

Traffic calming generally reduces vehicle noise (28).

Generally, the only factor which tends to increase noise is the use of granite rumble strips, which are now employed with caution in most schemes. The factors which help lessen noise are reduced vehicle speeds, increased separation of footpaths and buildings from carriageways through reclamation of road space and absorption of high frequency noise by increased use of trees and other vegetation. Fears that traffic calming would increase noise through more gear changes and speed variations have not been borne out. (29) Rather, noise increases as vehicle speeds increase.

## Air pollution

It is commonly believed that slowing down traffic will tend to increase vehicle emissions. The evidence shows the reverse. According to Hass-Klau, central European research shows that in built-up areas the higher the vehicle speed, the greater the proportion of acceleration, deceleration and braking, all of which increase air pollution. By contrast, research on traffic-calming schemes in some German residential areas shows that idle times are reduced by 15%, gear changing by 12%, brake use by 14% and petrol use by 12%. (30)

A slower, calmer style of driving tends to reduce air pollution, as detailed work in Buxtehude, one of the German demonstration projects (pop. 33,000), shows. The following table shows changes in different types of emissions under two styles of driving when the speed limit is cut from 50 km/h to 30 km/h. With both aggressive and calm driving, emissions are reduced at 30 km/h, even though calm driving generally reduces emissions further, and uses less fuel.

**Changes in vehicle emissions and fuel use from 50 km/h to 30 km/h (31).**

Type of emission	Driving style	
	2nd gear aggressive	3rd gear calm
Carbon monoxide	- 17%	- 13%
Hydrocarbons	- 10%	- 22%
Nitrogen oxides	- 32%	- 48%
Fuel consumption	+ 7%	- 7%

Even where traffic calming does cause individual vehicles to use more fuel and increase emission output (e.g. through drivers indulging in more acceleration, braking and use of second gear), that won't increase overall local pollution and fuel use if the

traffic-calming scheme has reduced the number of cars on the roads. In other words, if traffic volume is reduced sufficiently, overall pollution levels will be reduced, even if individual vehicle emissions increase.

## Pedestrian activity

Since traffic calming seeks to make the public environment safer and more attractive, it usually results in a greater level of pedestrian and cycle activity.

European traffic calming is generally designed to encourage people to stay and enjoy urban public space, rather than just using it as a passage or to gain access to nearby places. Anyone who has experienced European traffic-calmed environments at first hand will have little doubt about traffic calming's ability to revitalise the public realm. Streets which were formerly just traffic arteries have been turned into living places while still performing a traffic function.

In Berlin's Federal demonstration project, non-motorised traffic on a wide range of streets increased by between 27% and 114%. In the Danish village of Vinderup, where the main through road was traffic-calmed, outdoor activities increased by up to 47% (32). Similar results have been found in both residential areas and along main roads in German cities. The evidence of increased outdoor activity is more mixed, however, if one looks at residential areas across European cities: some show little effect.

Traffic calming also tends to increase the areas used by pedestrians and cyclists and the extent to which streets are crossed. Instead of confining themselves to footpaths, pedestrians and cyclists extend their territory to the carriageway. Some very interesting and novel evidence as to the ability of traffic calming to change the whole psychology of the use of streets in favour of 'soft users' is provided by a German Federal Government study which looked at the effect on drivers of traffic calming in Nordrhein-Westfalen. Badminton players were set up in nine streets before and after the introduction of traffic calming. Before, drivers tended to act aggressively towards players, approaching them quickly and only braking at the last minute. They sounded their horns, and reminded the players of their right of way. 'After' studies showed the drivers braking much earlier - up to 40m away - giving players ample time to move. Vehicles were generally driven more slowly, and there was greater preparedness to slow down. Fewer drivers used their horns, and they did not accelerate away aggressively after passing the players (33). This would indicate that pedestrians tend to be more accepted in traffic-calmed areas.

