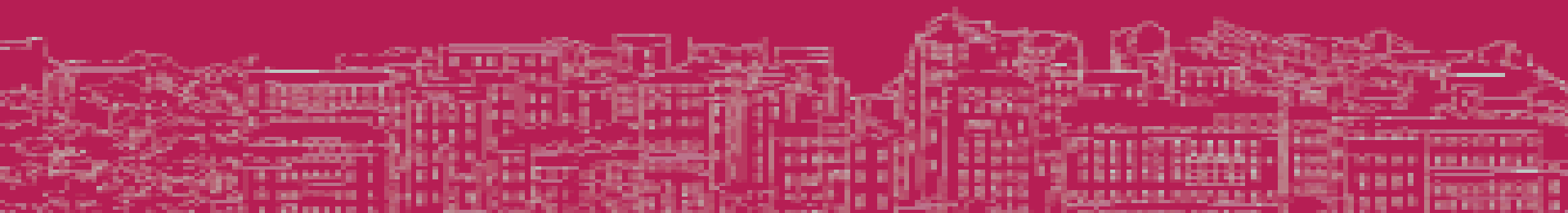


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**Guidelines for noise abatement planning
principles for road traffic at local authority level**



Noise Reduction by reducing the Amount of Noisy Lorries and Trucks

To reduce the amount of noisy lorries and trucks in urban roads means to diminish a very important source of annoyance for citizens.

All efforts to reduce noise impact by urban traffic have to be coordinated in the framework of town and traffic planning in order to make sure, that

- noise impact will not be shifted from one sensitive area to another
- essential transports will remain feasible (if necessary and possible by using modern low-noise vehicles)

Abatement of Road Traffic Noise I

Actions

- technical standards of vehicles / tires
(prognosis for the year 2005)
- traffic calming, 30 km/h
- steady driving
- lorry bans
- reduction of the number of vehicles by
 - ⇒ 20 %
 - ⇒ 50 %
 - ⇒ 90 %

Efficiency

- 2...-3 dB(A)
- 2...-3 dB(A)
- 0...-3 dB(A)
- 1...-3 dB(A)
- 1 dB(A)
- 3 dB(A)
- 10 dB(A)

Abatement of Road Traffic Noise II

Actions

Efficiency

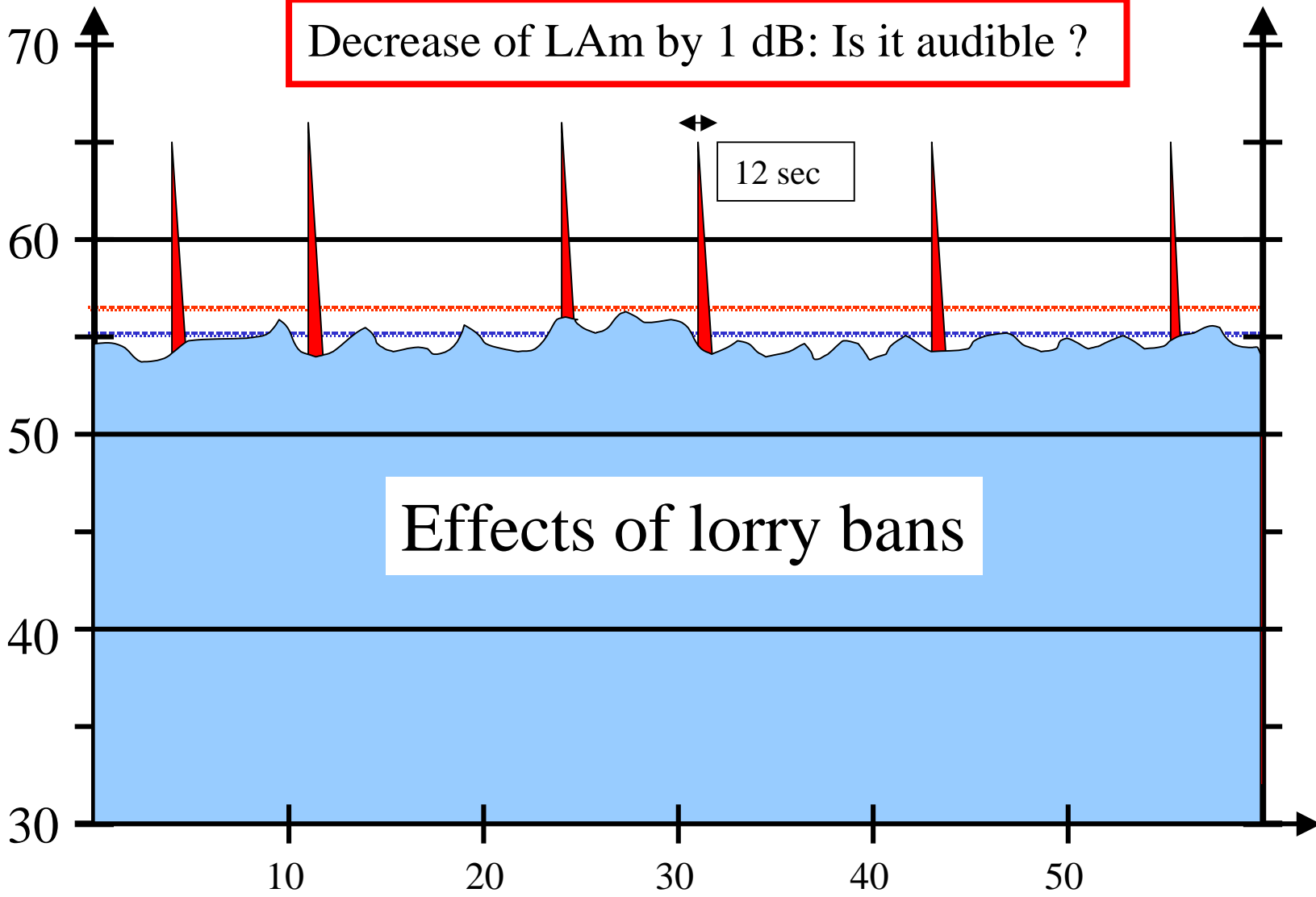
- shift from private car to public transport depending on technical standard and occupancy of the vehicles +6...-9 dB(A)
- redistribution of road space, e.g. bus lanes -1 ...-2 dB(A)
- sound barriers (walls, dams, mounds) +3...-15 dB(A)
- shielding of sound at the backside of buildings (4 storeys) up to 25 dB(A)

Noise reduction by small steps – is it worth all the efforts ?

- Often noise reduction can be done on short term only by small steps.
- Common low cost measures are speed reductions, or lorry bans at night or deviations for through traffic which – as isolated measures - result in noise reductions in the range of 1 to 3 dB each.
- A combination of measures might probably give better results in noise reduction, but often - in the first step - it is not possible put into practice more than one of these measures at once.

Actual Sound Level and Average Sound Level (LAm)

Decrease of LAm by 1 dB: Is it audible ?

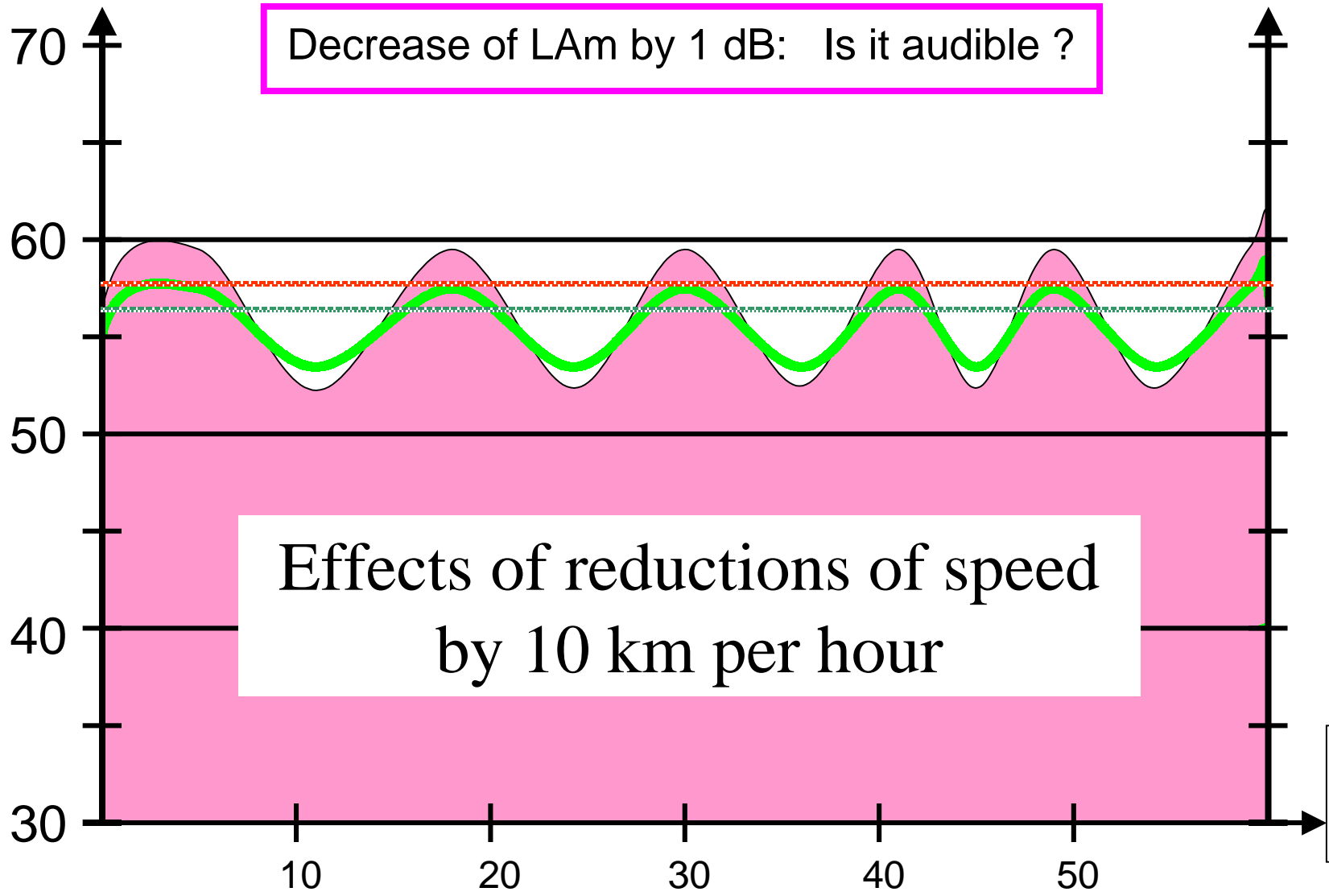


Effects of lorry bans

Time [min]

dB(A) Actual Noise Level and Average Noise Level (LAm)

Decrease of LAm by 1 dB: Is it audible ?

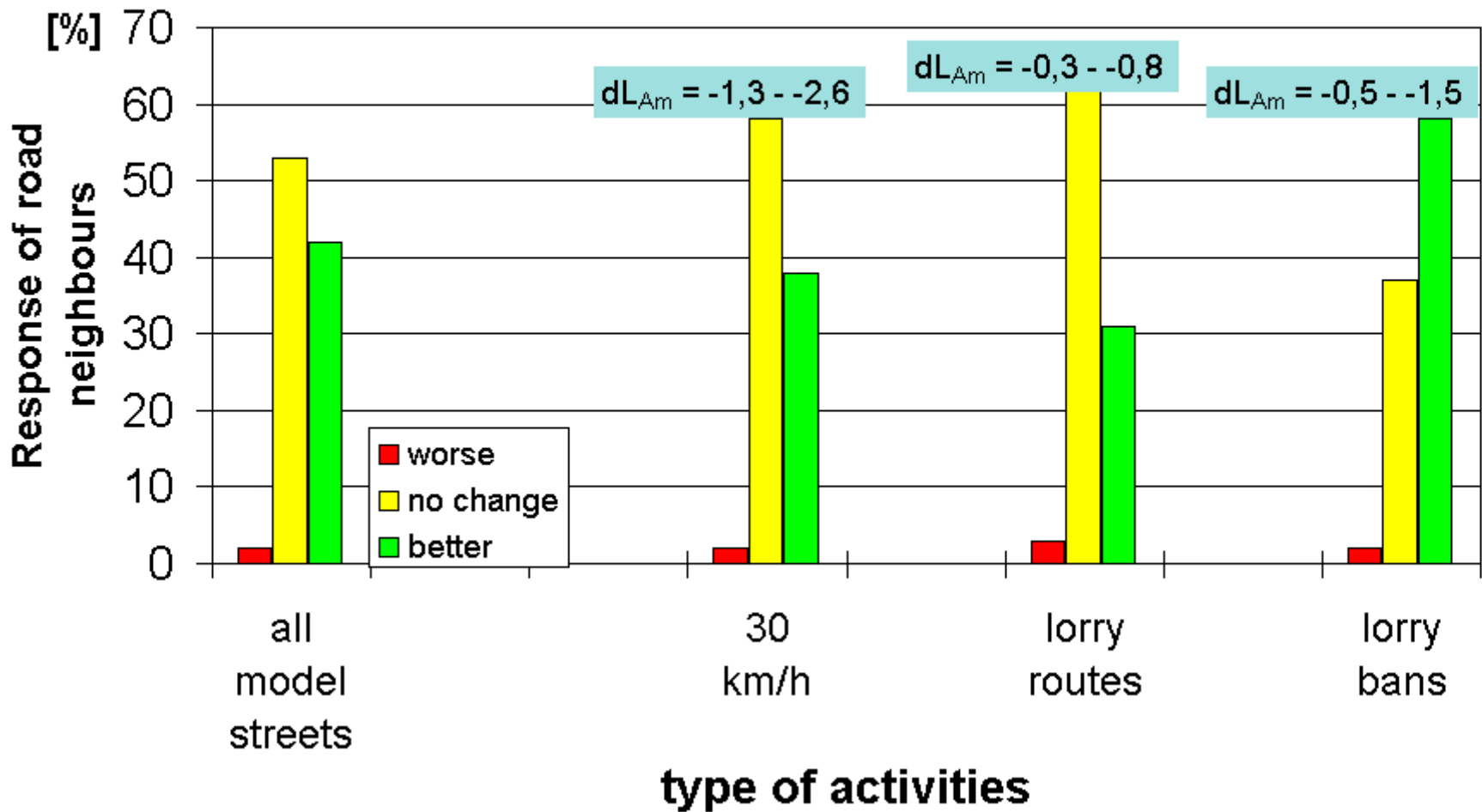


Effects of reductions of speed
by 10 km per hour

Time [sec]

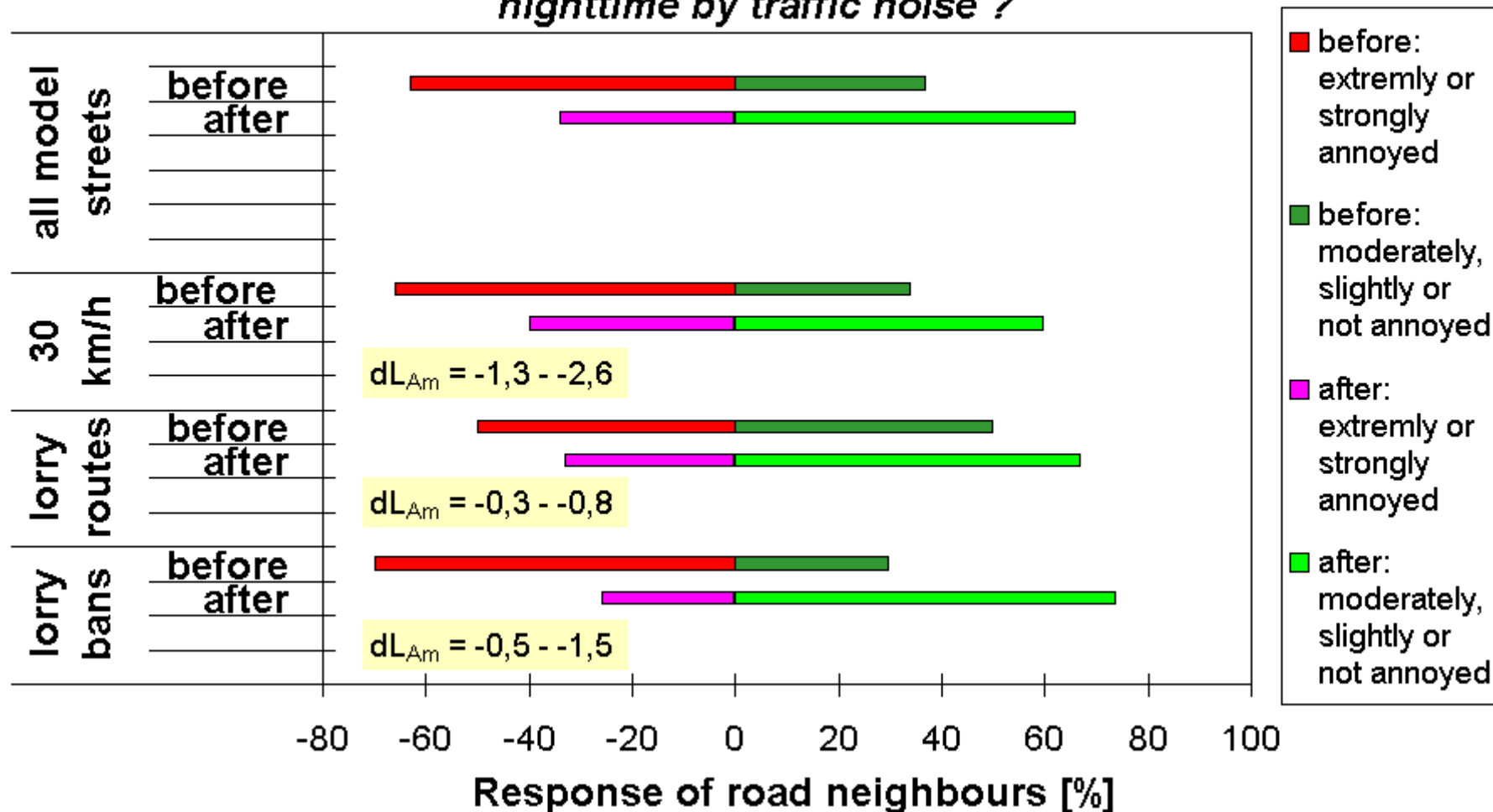
Community reaction to activities of noise reduction

How do you estimate the traffic situation after the start of traffic restrictions ?



Community reaction to activities of noise reduction

To which extend do you feel disturbed or annoyed during nighttime by traffic noise ?



Summary - Recommendations

The results of an model project in Berlin have shown, that it is worth while, to put into practice even minor reductions of the Average Sound Level (LAm) by

- Speed limits
- Lorry bans.

People living in the neighbourhood are able to distinguish the changes in sound characteristics and they appreciate it very much.