



Management of noise pollution  
in European cities

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# outline

- Introduction
- About EUROCITIES
- About Working Group Noise
- Noise Management in cities
  - Type of management
  - Some examples
- Questions and Answers



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# Introduction



- Policy officer DCMR EPA
- Chair Working Group Noise
- Chair FONOMOC
- Member Expert Group Noise EC
- Proj. Manager NEPTUNES
- Member advisory/steering board EU funded project

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# About EUROCITIES



- Founded in 1986
- Covers municipal policy domains
- > 130 major European large cities
- Influencing EU legislation/policies
- Reinforce role and position of local government
- Gaining interest sustainability
- Exchange of knowledge/experience

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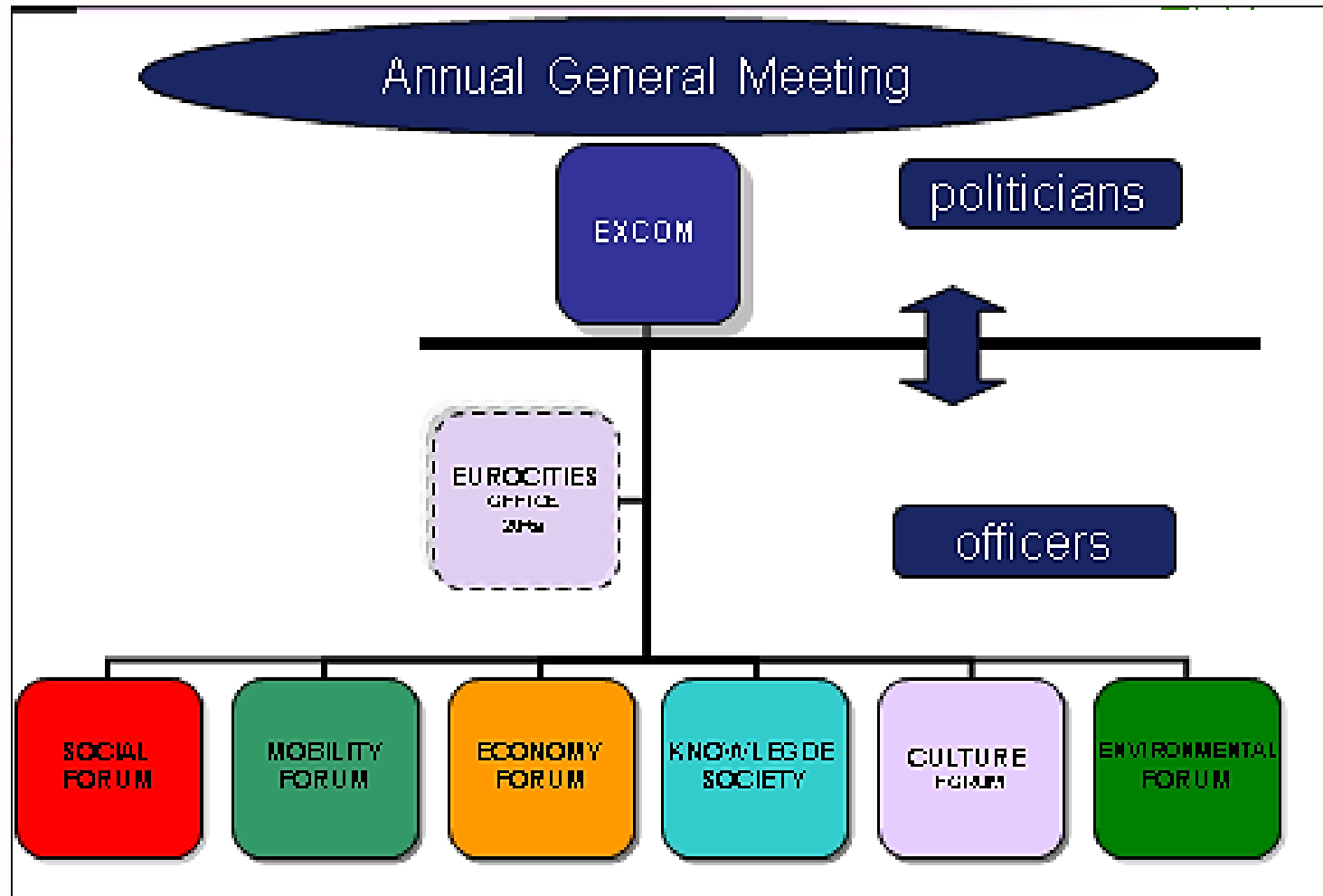
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# organisation



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# EUROCITIES - forums & working groups

## Cooperation - Ghent

ENP & enlargement  
Tbilisi

Public services  
Munich

Urban agenda  
Vienna

Creative citizens  
Athens



### Culture Forum - Ghent

Creative industries  
Ghent

Cultural access & entitlement  
Birmingham

Culture & young people  
Rotterdam

Mobility of artists  
Turin

Resources for culture  
Strasbourg

### Economic Development Forum - Genoa

City branding & attractiveness  
Genoa & Rotterdam

Cohesion policy  
Leipzig & Liverpool

Entrepreneurship & SMEs  
Gothenburg & Lisbon, Barcelona

Innovation  
Helsinki

Integrated urban  
development  
Stockholm

International economic  
relations  
Espoo & Utrecht

Metropolitan areas  
BrabantStad

### Environment Forum - Utrecht

Air quality, climate change  
& energy efficiency  
Birmingham & London

Clean cities  
Copenhagen

Green areas & biodiversity  
Stockholm & Utrecht

Greening the local economy  
Vienna

Noise  
Rotterdam

Waste  
Oslo

Water  
The Hague & Eindhoven

### Knowledge Society Forum - Manchester

Cyber-security  
Tallinn

eInclusion  
Sunderland

Open data  
Ghent

Smart cities  
Manchester

### Mobility Forum - Malmo

Barrier-free city for all  
Berlin

Developing a new  
mobility culture  
London

Road Safety  
Warsaw

TransEuropean Transport  
Networks  
Netwerkstad Twente

Transport & energy efficiency  
Copenhagen

### Social Affairs Forum - Leipzig

Education  
The Hague

Employment  
Malmo

Health inequalities  
Amsterdam

Homelessness  
Utrecht

Housing  
Vienna

Migration & integration  
Helsinki

Roma Inclusion Taskforce  
Ghent

Smart social inclusion  
The Hague

# About Working Group Noise



- 25-30 members (2 meetings annually)
- Contributions to Environmental Noise Directive
- Exchange of knowledge & experience
  - Quiet Road Surfaces
  - Noise Mapping & Noise Action Planning
  - Best Tyres
  - Large outdoor events
  - Construction Noise
  - Waste activities & Noise
- Affecting European Noise Policies
- Gaining awareness
- Identification, initiating, participating and support EU funded projects
- See [workinggoupnoise.com](http://workinggoupnoise.com)

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# Positions Working Group Noise



- Tyres, emission limit values
- Tyre labelling
- Freight trains
- First review END 2002/49/EC
- Motorised two- and three wheelers
- Equipment Outdoor
- Refit END 2002/49/EC
- .....

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# Local noise problems encountered



- Traffic noise
- Construction noise
- Leisure noise
- Airport noise
- Railway noise
- Event noise
- Neighbour (hood) noise

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# CITY NOISE

## SOURCES

### TRAFFIC

Automobiles  
Trucks  
Buses  
Motorcycles  
Horns  
Brakes  
Cut-outs  
Gears  
Defective--  
Mufflers  
Exhaust  
Whistles  
Rattling--  
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### TRANSPORTATION

Trolley Cars  
Trains ---  
Subway  
Elevated  
Railroads  
Turnstiles  
Brakes  
Rattling--  
Wheels  
Bodies  
Defective--  
Switches  
Joints  
Wheel Impact  
Whistles  
Bells  
Steam & Other  
Exhausts  
Lifting --

### BUILDING OPERATION

Pneumatic  
Drills &  
Riveters  
Exhausts from  
Steam &  
Gasoline--  
Hoists -  
Shovels--  
Pile --  
Drivers  
Blasting  
Unloading  
Loading  
Shouting  
Compressors

### HOMES

Loud --  
Speakers  
Pianos  
Phonographs  
Musical --  
Instruments  
Late  
Parties  
Barking Dogs

### STREETS

Radio &  
Music --  
- Stores  
Peddlers  
Loiterers  
Garage &  
- Taxi -  
Stands

### HARBOR & RIVER

Whistles  
Bells  
Sirens  
Motor --  
- Exhausts  
Horns

### COLLECTION DELIVERIES

Ash  
Garbage  
Milk  
Papers  
Food  
Mail  
Express

### MISCELLANEOUS

Airplanes  
Factories  
Restaurants  
Amusement  
- Halls



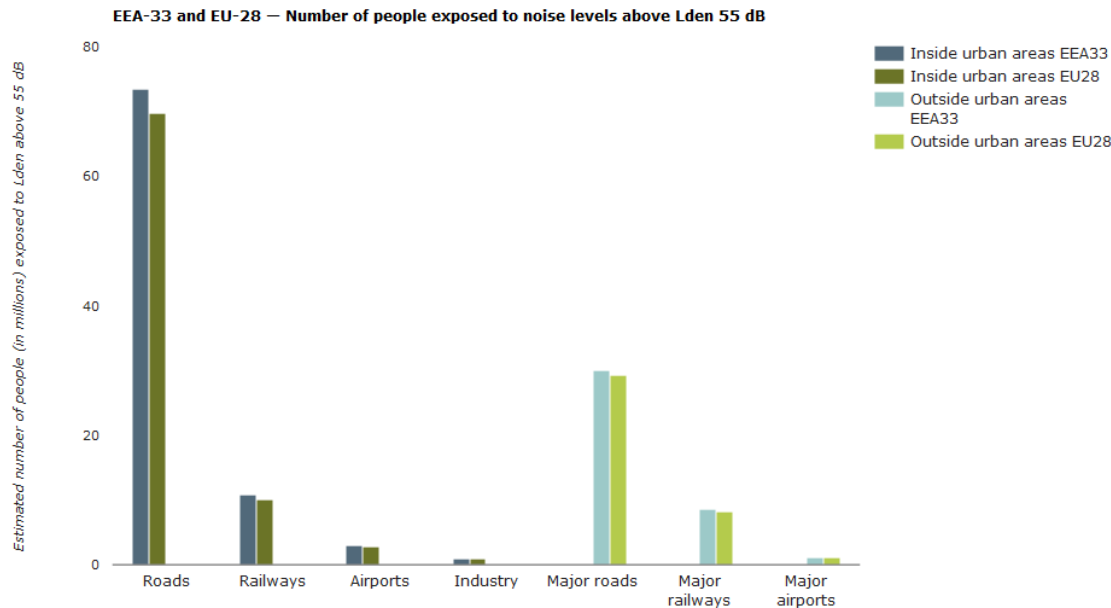
# Noise in EU urban areas



## What is the extent of noise pollution in Europe?

Fig. 1: Number of people exposed to noise levels above Lden 55 dB

EEA-33 and EU-28 EEA-33 EU-28 Table



### Note:

This chart is based on data officially reported by countries under the EU Environmental Noise Directive (2002/49/EC). Due to gaps in the reported data, a gap-filling routine is used to estimate the total population exposure to high noise levels.

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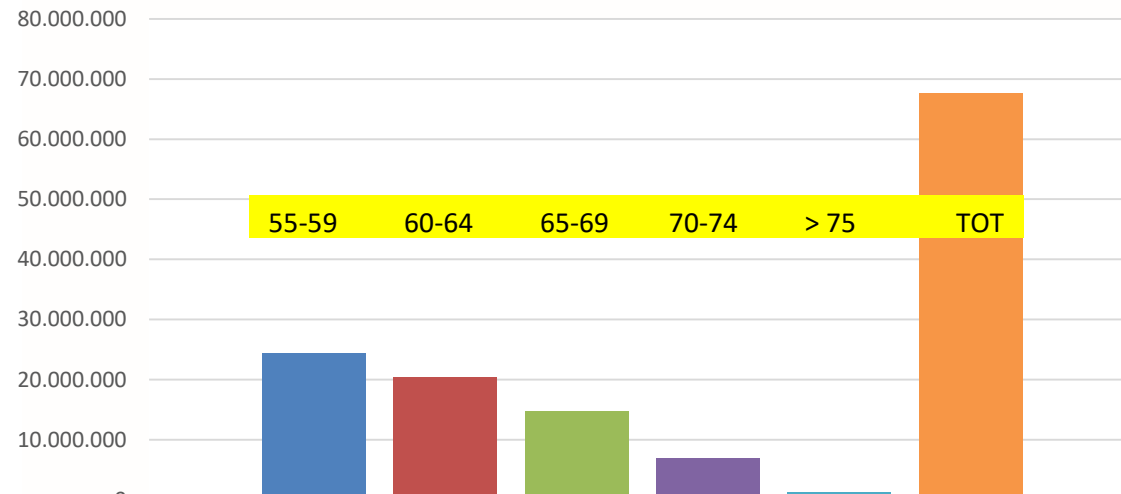
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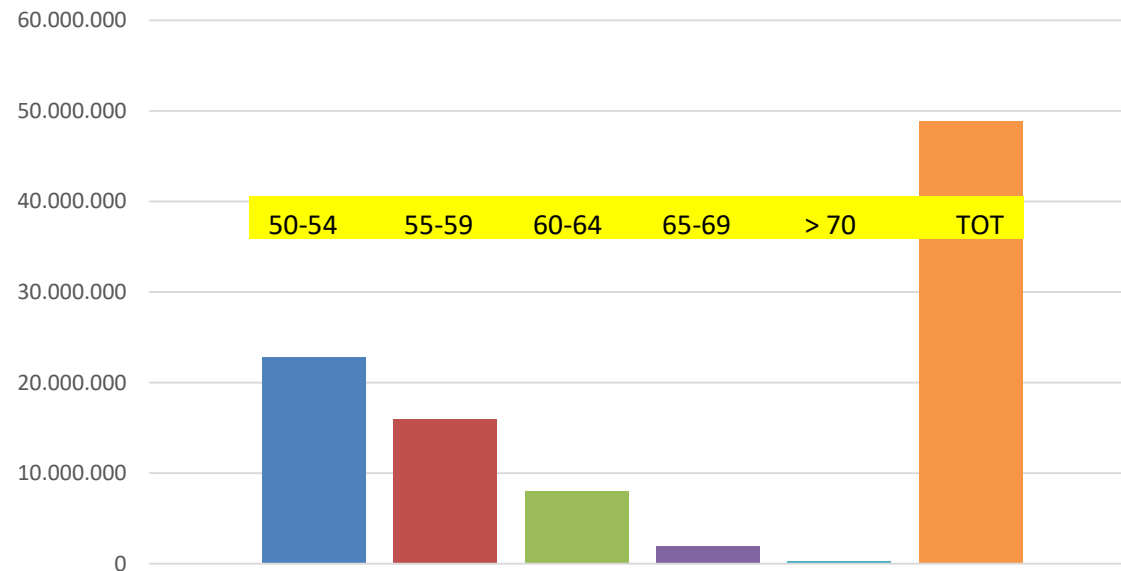
# Urban traffic noise and exposure



road traffic noise in urban areas Lden



road traffic noise in urban areas Lnight



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Societat Catalana  
Consultors Acústics



AJUNTAMENT DE  
Sant Cugat



Ajuntament  
de Sabadell

# Noise impacts in cities and examples of how cities are tackling noise



22.000 DALYs for  
tinnitus

654 000 DALYs for  
annoyance

45.000 DALYs for  
cognitive impairment



903 000 DALYs  
for sleep  
disturbance

61 000 DALYs  
for ischaemic  
heart diseases

**1 DALY** ("Disability-adjusted life years") = **1 year of**  
**"healthy" life lost**



# Traffic noise > 55 dB L<sub>DEN</sub>



Noise levels from road traffic that are greater than 55 dB L<sub>den</sub> affect an estimated **125 million people** – **one in four European...**



## Annoyance



**20 000 000**

Almost 20 million Europeans are annoyed by environmental noise.

## Sleep disturbance



**8 000 000**

At least 8 million Europeans suffer sleep disturbance due to environmental noise.

## Health impacts



**43 000**

Noise pollution causes 43 000 hospital admissions in Europe per year.

## Premature deaths



**10 000**

Noise pollution causes hypertension and cardiovascular disease, leading to an estimated 10 000 premature deaths annually in Europe.

# Types of noise management



Active/ Passive/Preserving/Preventing

- Zoning systems
- Legislation on many noise items
- Measurements/monitoring
- Inspection & Enforcement
- Interventions to mitigate/reduce
- Urban planning & Noise
- Adaptation/resilience

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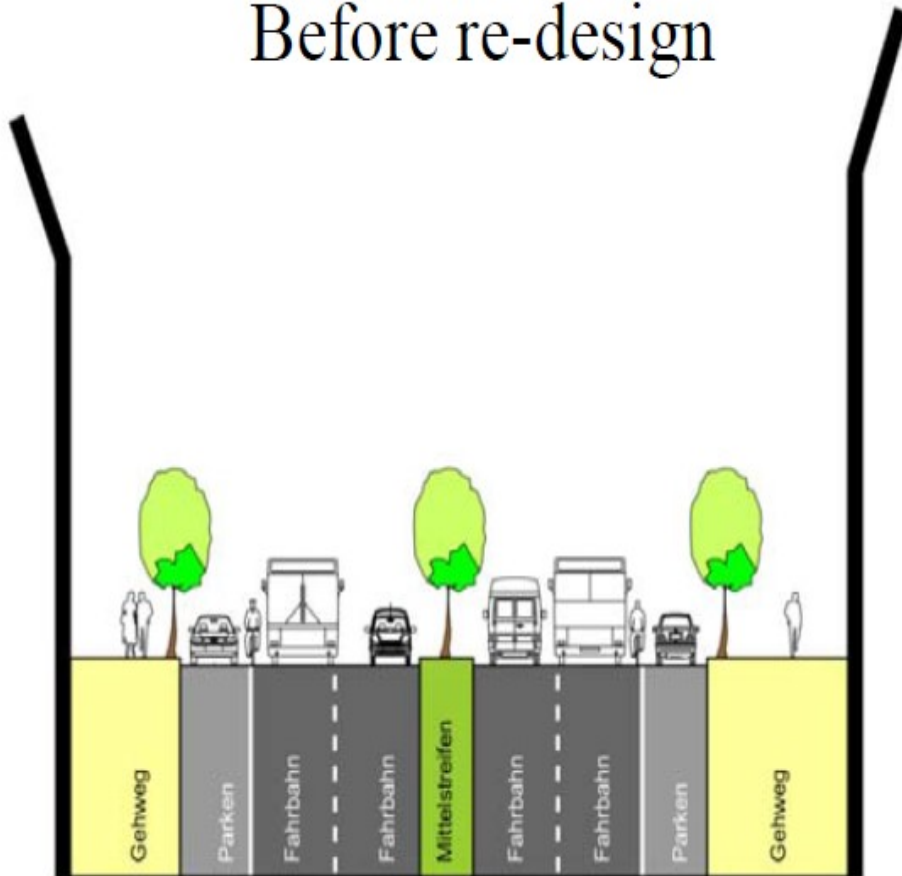


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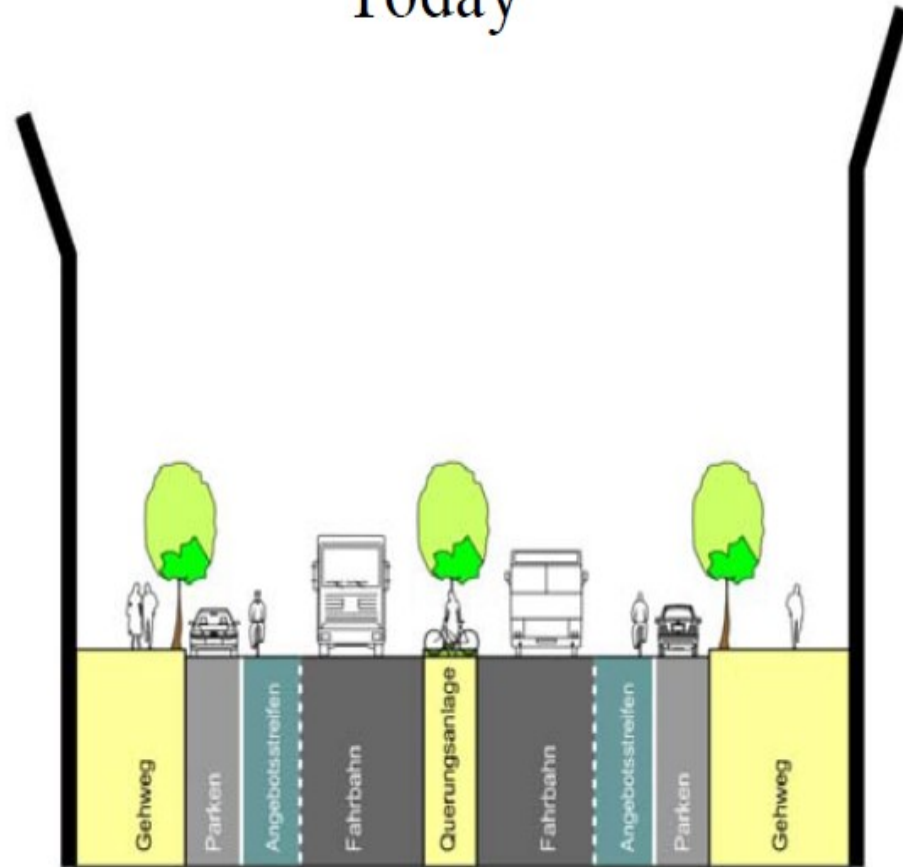
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# Street design

Before re-design



Today





# Street narrowing



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# City Boulevards



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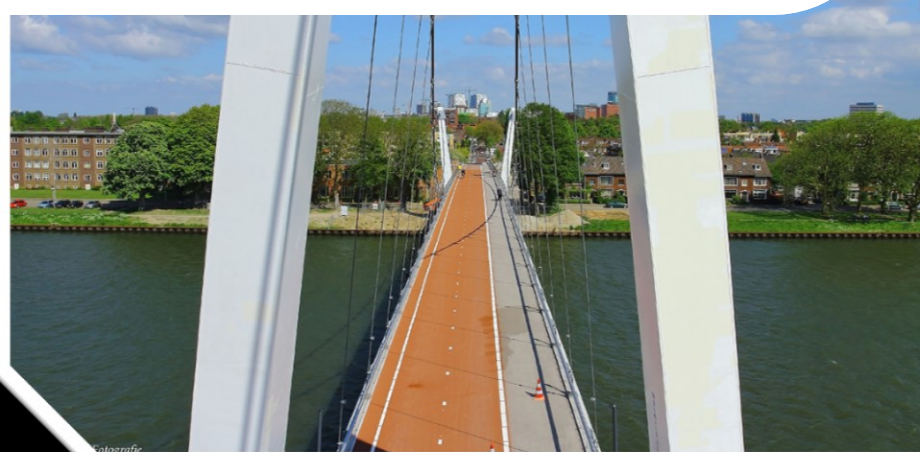
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# Needs



# Dedicated lanes/zones

- restricted zones
- Car-free inner cities
- Pedestrian zones
- Car-free building blocks





# Quiet Road Surfaces



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# Double façades



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# Creative façades



# Quiet (Urban) Places



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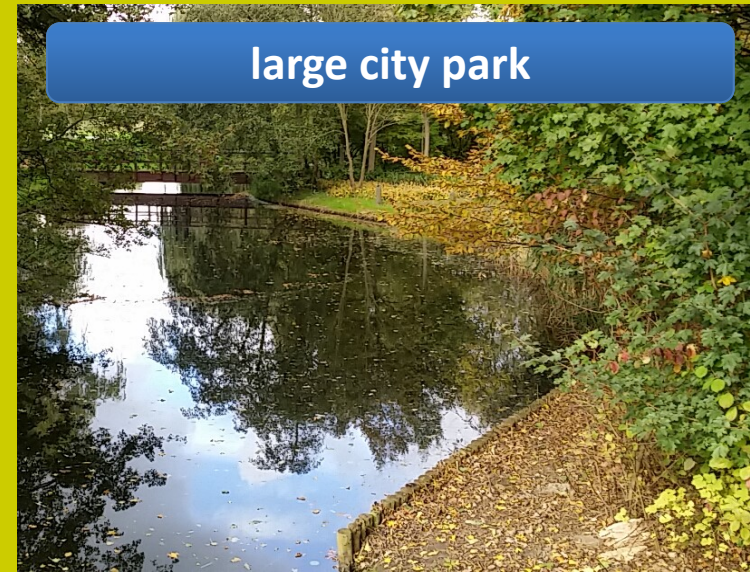
# Green



small city park



pocket park



large city park



Grey





# Blue





# First introduction with soundscapes





# Hamburg

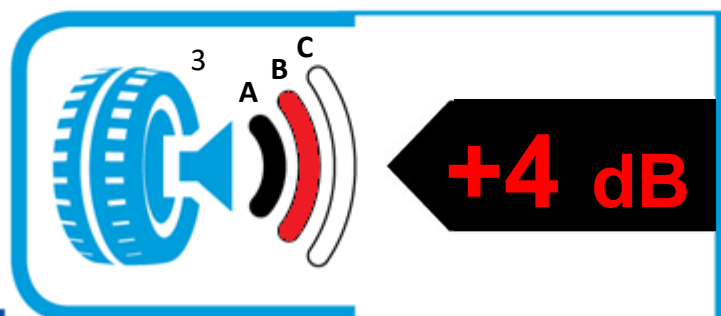
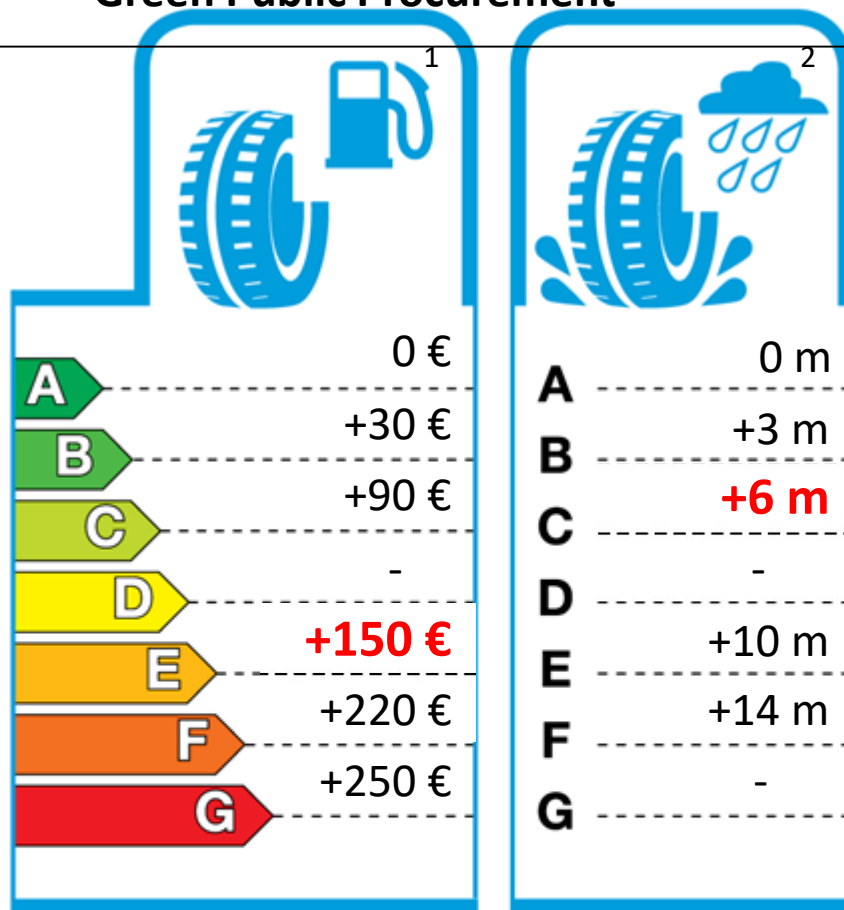


Street View - aug. 2016





# Green Public Procurement



1222/2009 – C1

<sup>1</sup> Extra fuel costs per year (17000 km/yr)

<sup>2</sup> Extra braking distance wet road at 80 km/h (Braking distance A=27 m)

<sup>3</sup> Noise\*

- A: 2 times as quiet
- B: average
- C: 2 times as loud

\* Doubling noise is 3 dB



# Quiet Procurement







*thank you  
for your attention!*

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