EU-project: CityHush
Objectives and expected results

Brussels, November 23, 2011

Presented by Martin Höjer (ACL, Tyréns)

CityHush

SEVENTH FRAMEWORK PROGRAMME

CityHush – selected project data

- ✓ CityHush – acronym for
  Acoustically Green Road Vehicles and City Areas

- ✓ Duration: January 2010 → December 2012
- ✓ Total budget: 5 MEUR
- ✓ EC-contribution: 3,5 MEUR

Partners

13 partners in 7 countries

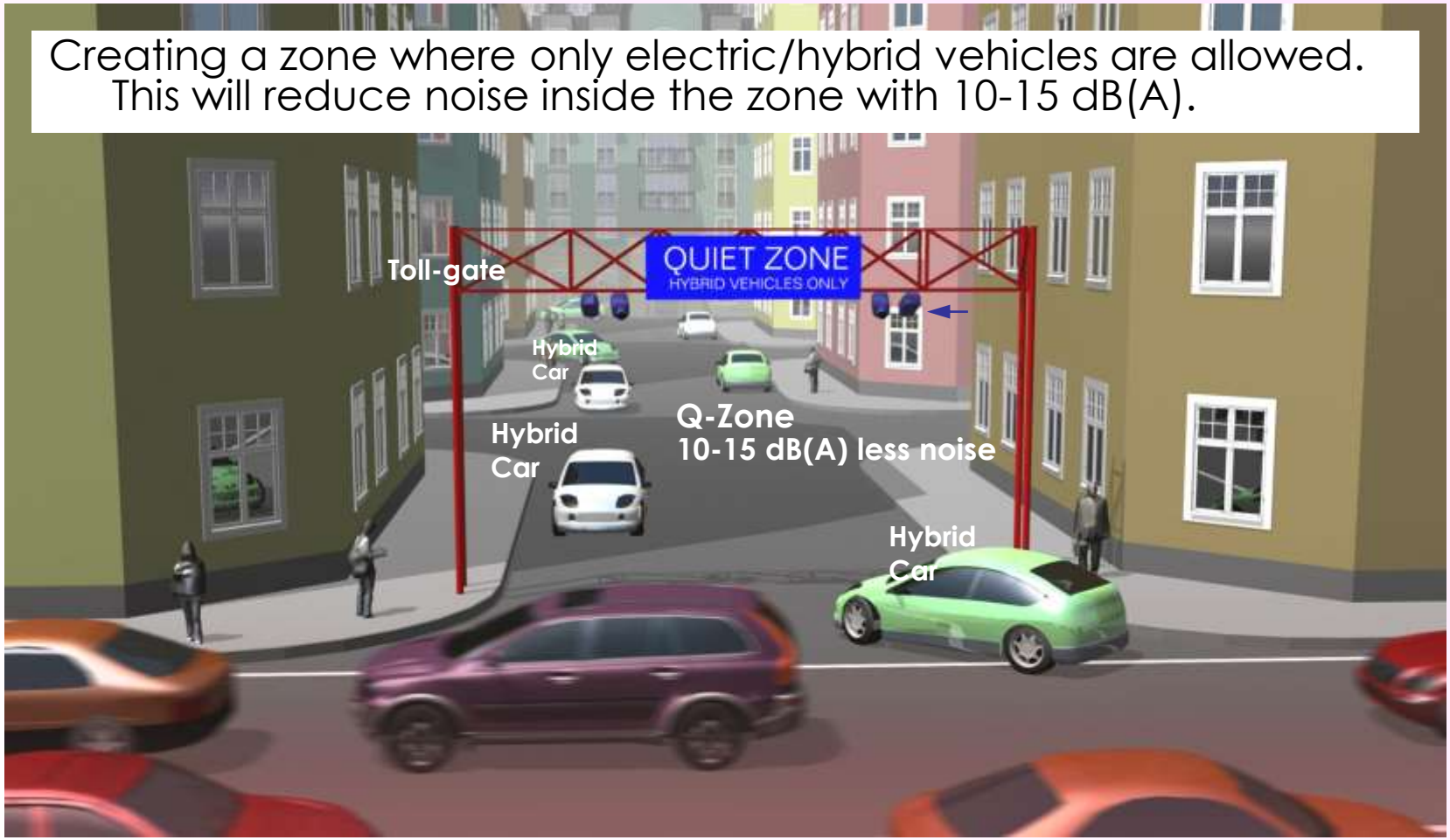
Partner Nr	Partner full name	Short name	Country
1	Acoustic Control AB	ACL	SE
2	Accon	ACC	DE
3	Alfa Products & Technologies	APT	BE
4	Goodyear Luxembourg SA	GOOD	LU
5	Head Acoustics	HAC	DE
6	Kungliga Tekniska Högskolan	KTH	SE
7	NCC Roads	NCC	SE
8	City of Stockholm	SEP	SE
9	Netherlands Organisation for Applied Scientific Research	TNO	NL
10	Göteborgs Kommun - Trafikkontoret Miljöförvaltningen	TPTA	SE
11	TT&E Consultants	TTE	GR
12	University of Cambridge	UCAM	UK
13	Promotion of Operational Links with Integrated Services	POLIS	BE

Statements in the "Call"

- *"Noise reduction within urban areas by 10-20 dB(A) units should be achieved*

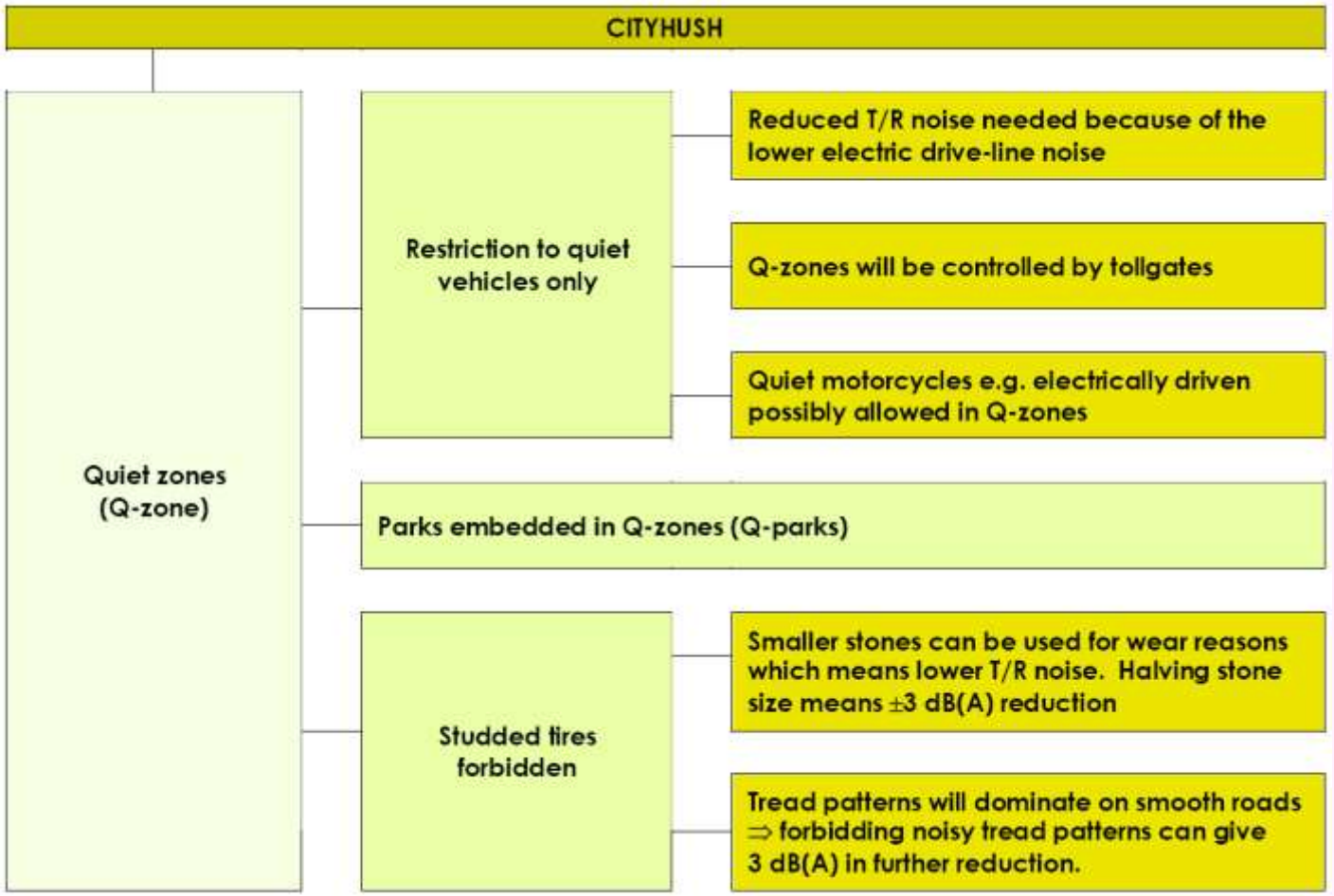
- *New passenger car CO2 emission should be reduced by 40-50% and for heavy duty vehicles by 10-30%"*

A way of reaching the goal



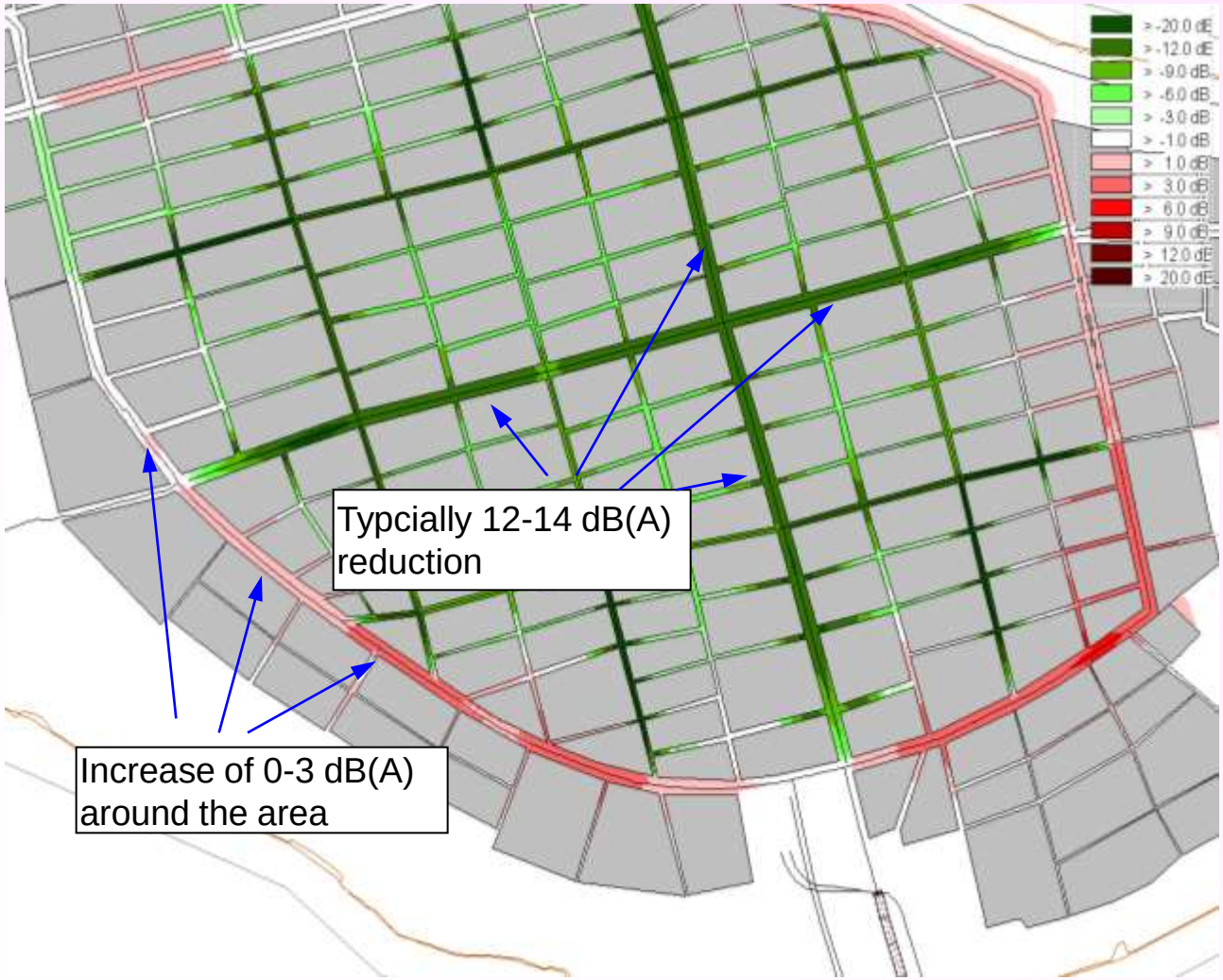
The concept of Q-Zones

WP1



Hybrid cars only is allowed

Overview over the entire quiet zone



Typically 12-14 dB(A) reduction

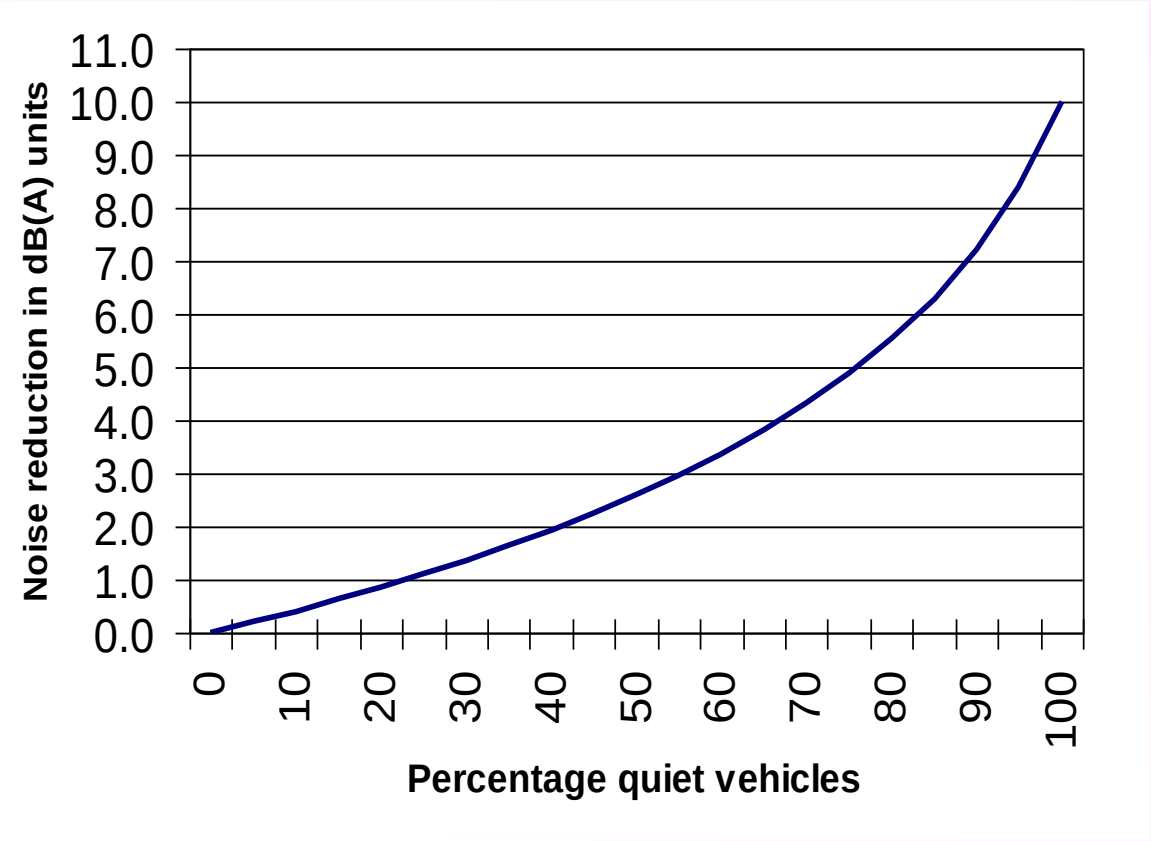
6-7 dB(A) from quiet vehicles

6-7 dB(A) from reduced traffic

CityHush

Mixing normal and quiet vehicles

(assuming that quiet vehicles are 10 dB(A) less noisy than normal vehicles)

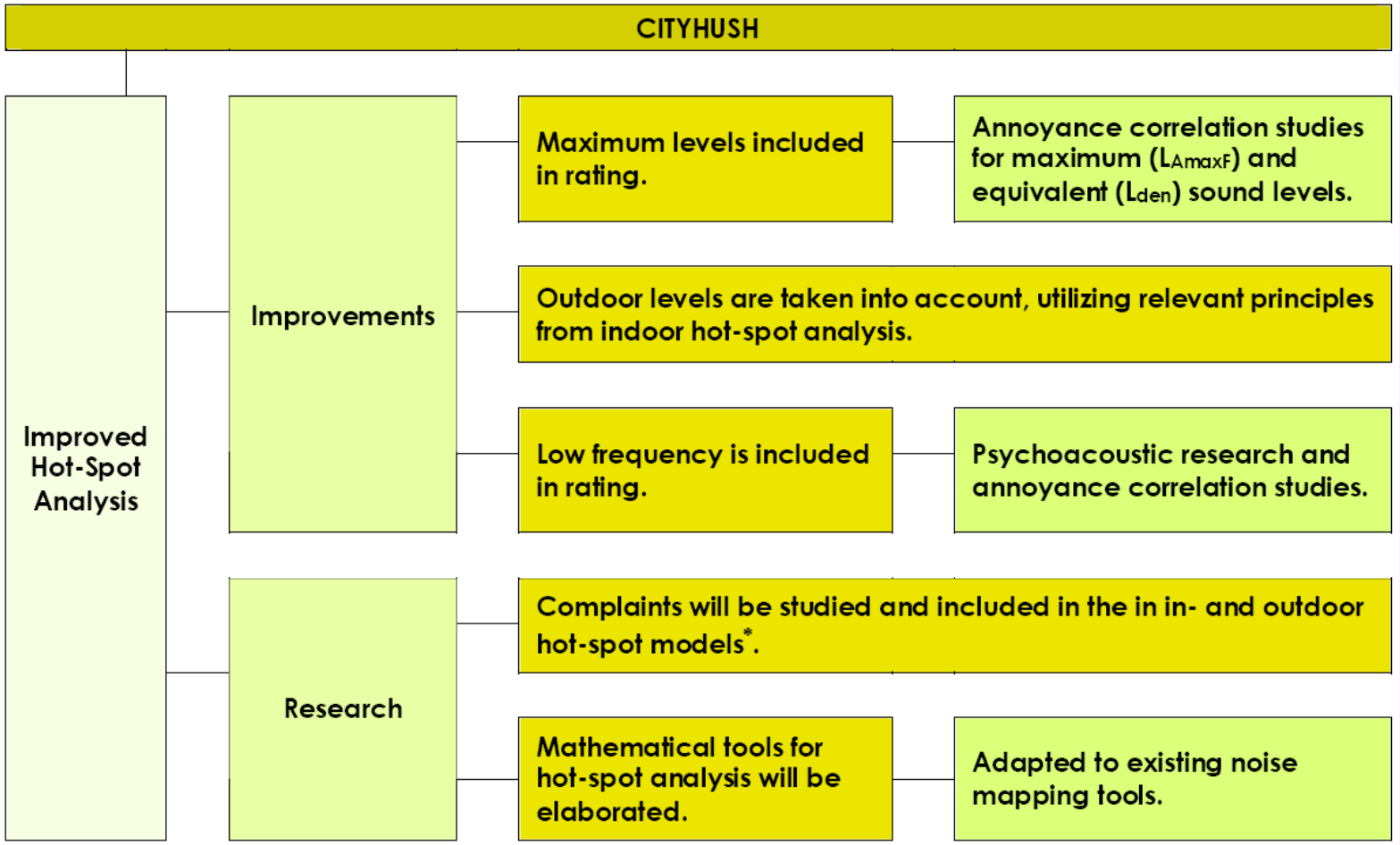


Share of quiet vehicles %	Noise reduction dB(A) units
10%	0.4 dB(A)
30%	1.4 dB(A)
50%	2.6 dB(A)
90%	7.2 dB(A)
100%	10 dB(A)

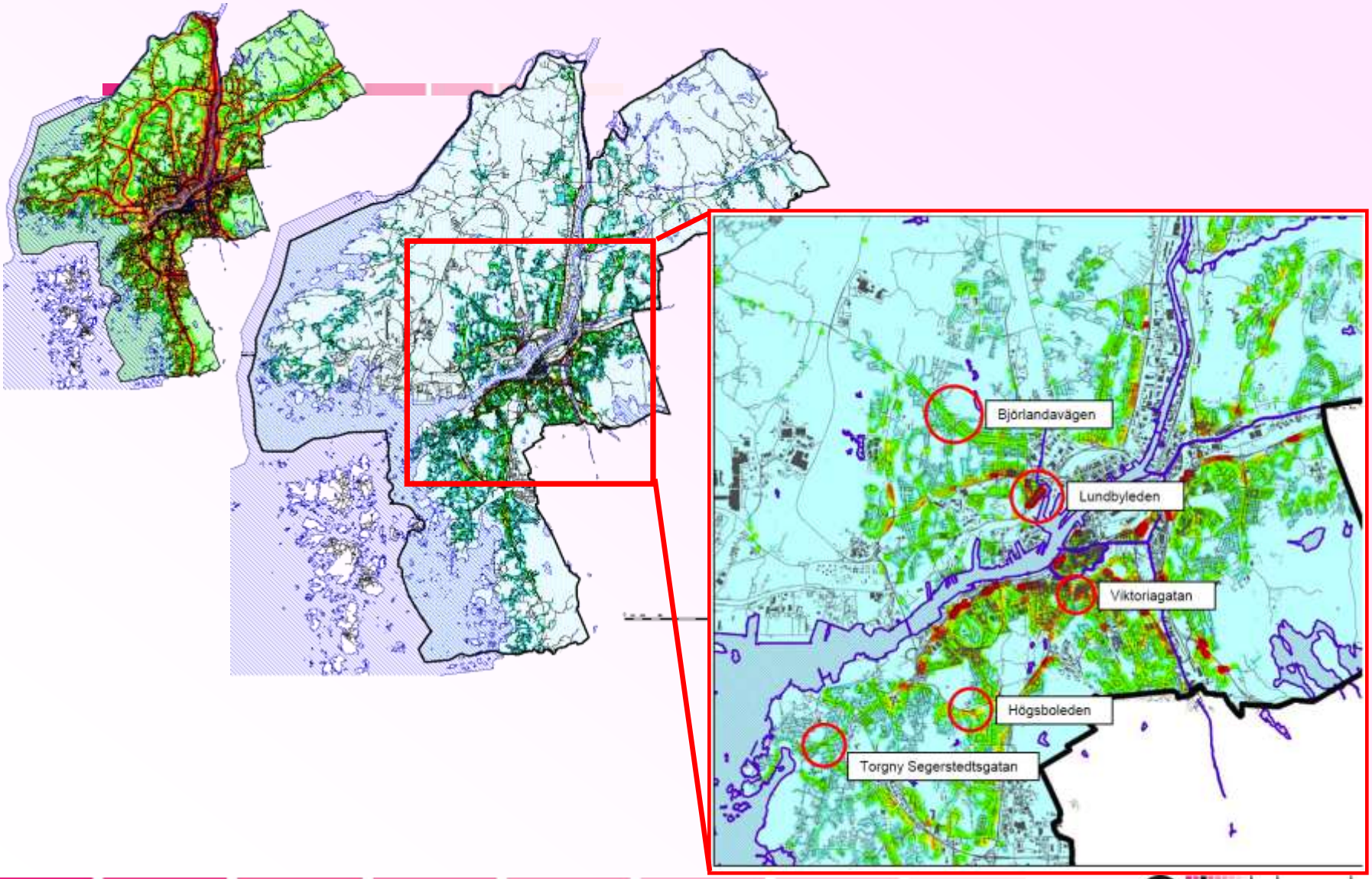
The concept of Q-Zones and embedded parks

Noise rating models and annoyance

WP2



Hot-Spot analysis – a map of noise problems

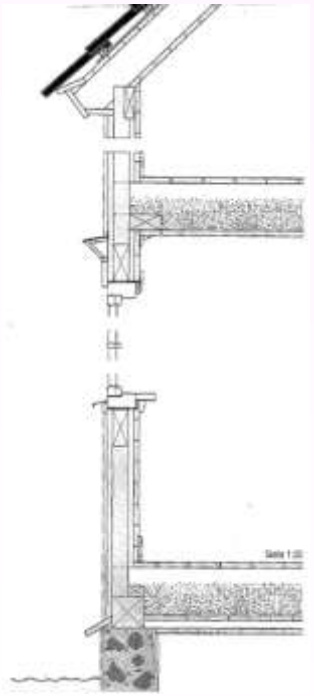


Different house types are handled

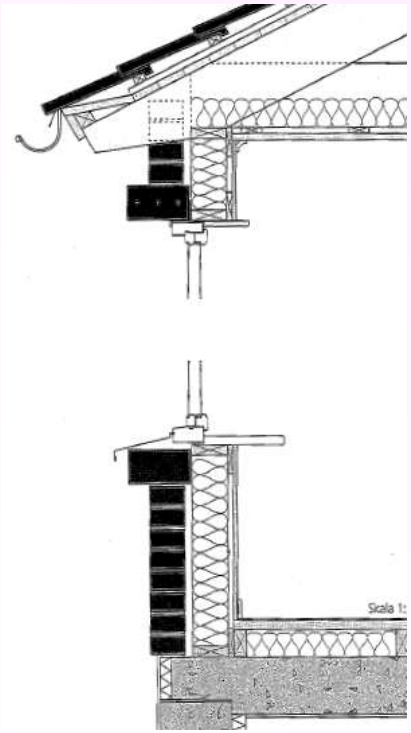
The scoring system takes the number of accommodation into account.

Sound reduction for facades depends on the age of the building

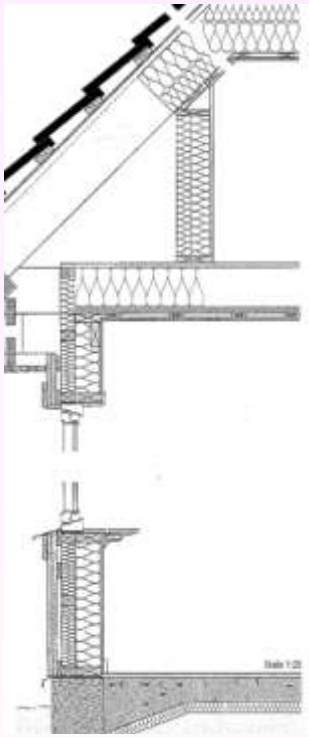
1920



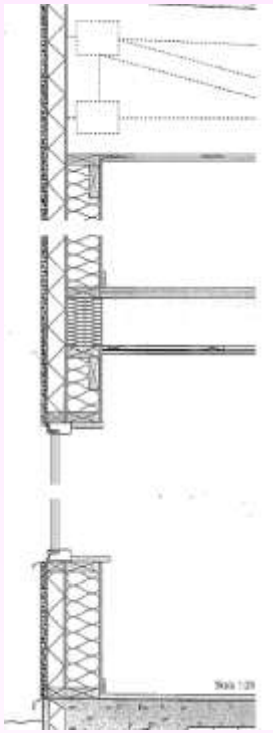
1950



1970

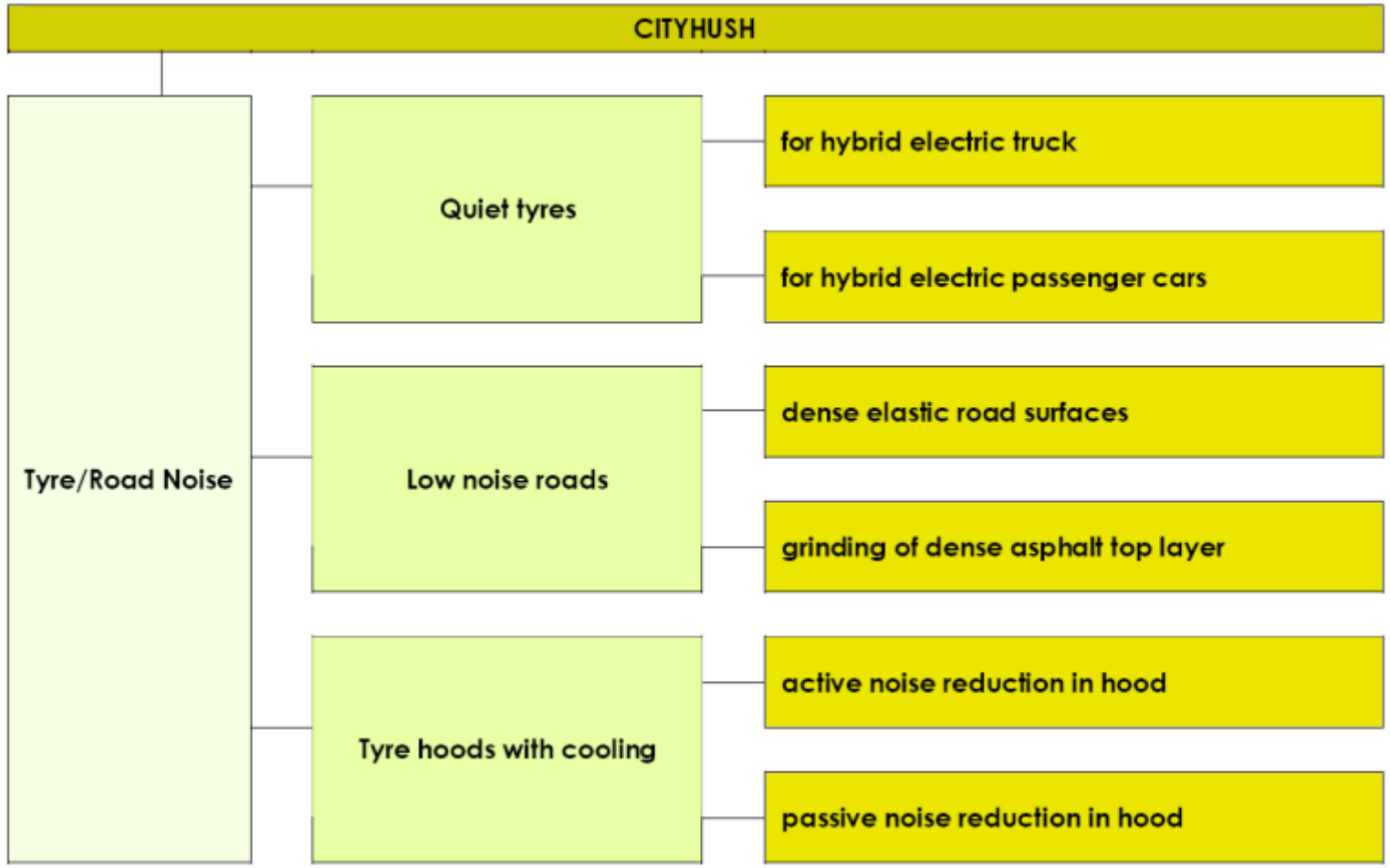


2000

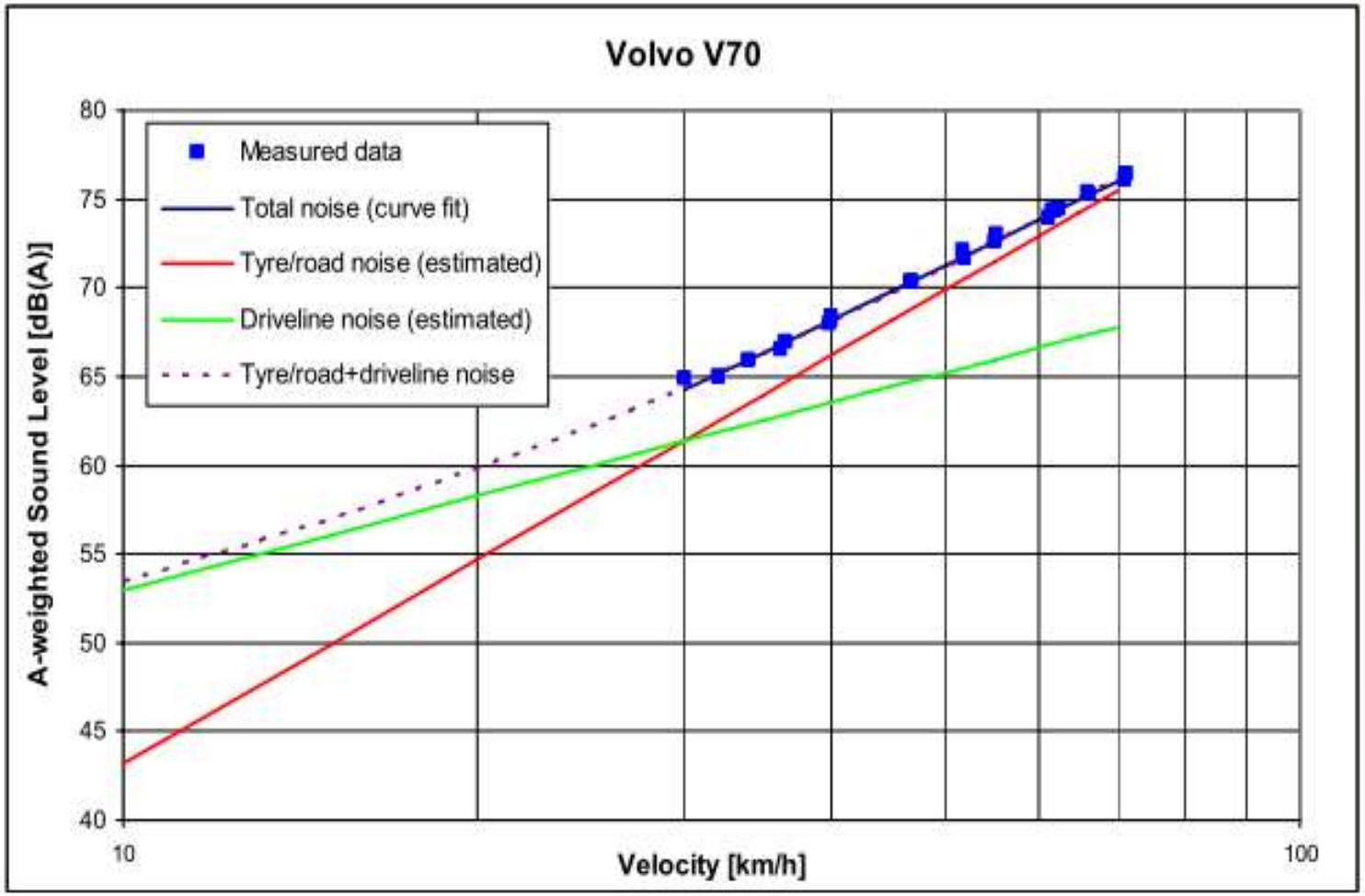


Tyre-Road noise

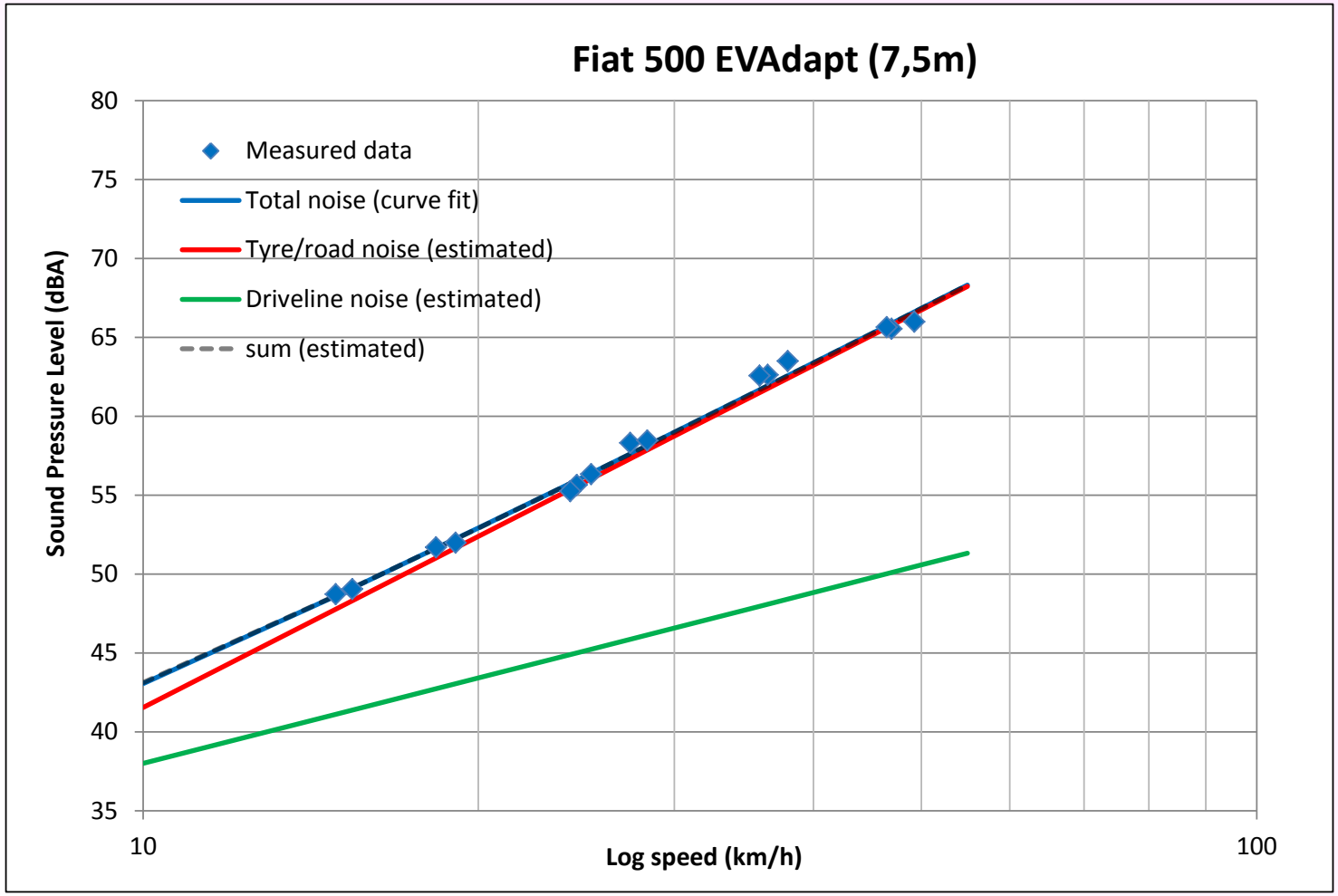
WP3 & 4



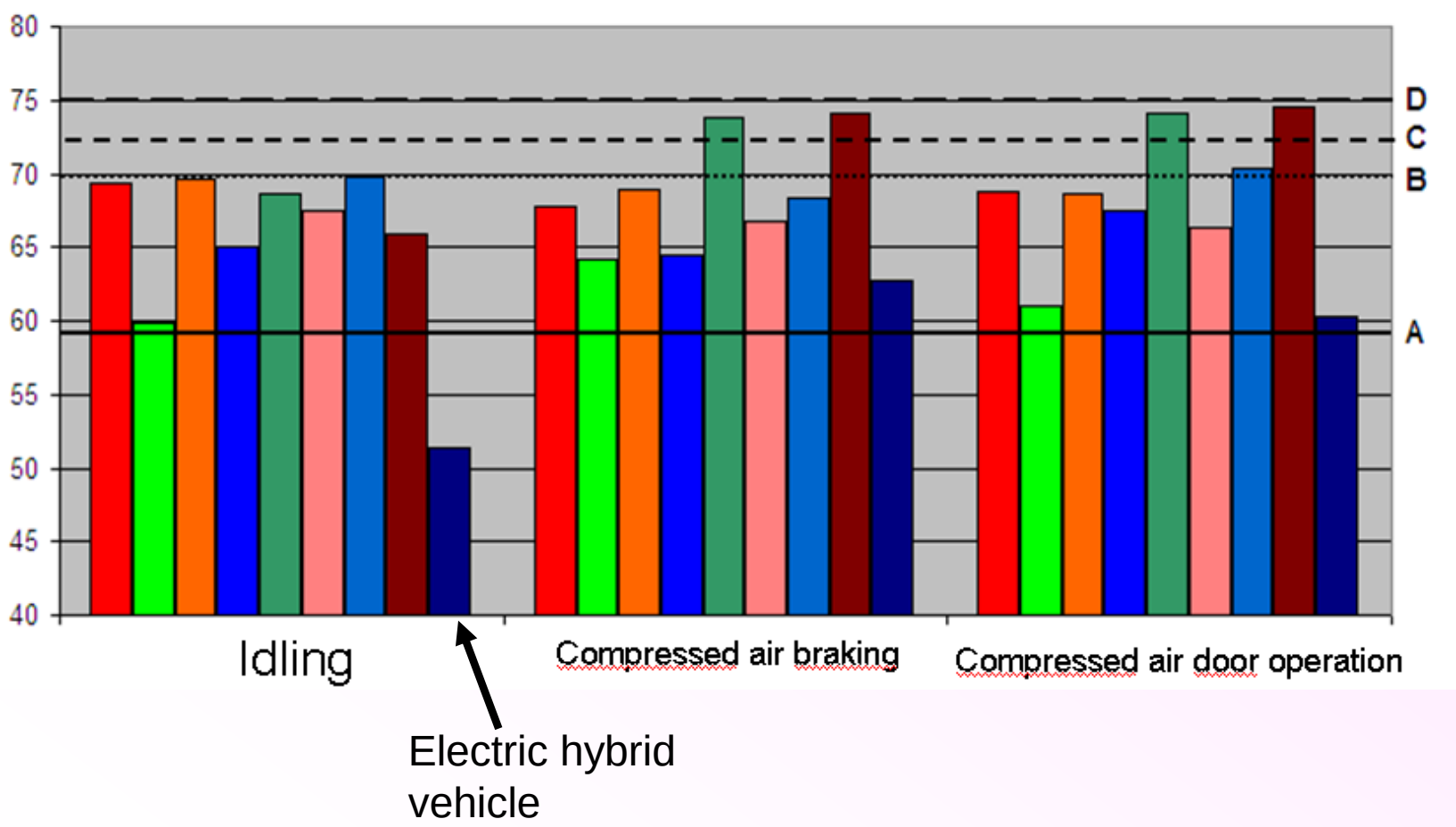
Typical results for standard vehicle



Typical results for electrical vehicle



Spcifications for quiet vehicles -Noise classes



Low noise tire concept design development – ACL

Further development and evaluation of the ”DualQ tyre” with CPX-measurements and with electric or hybrid vehicles

Expected results:

5-8 dB(A) noise reduction
(Other performance parameters needs to be studied)

Goodyear develops improved tyre designs regarding exterior noise.

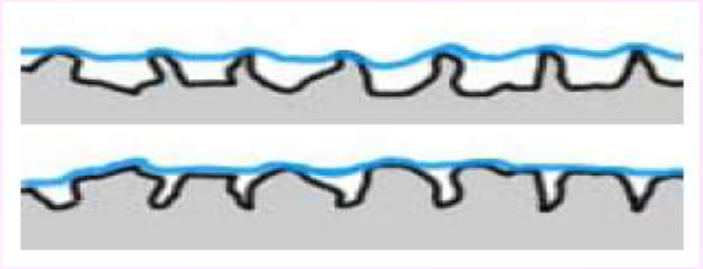
Expected results:

2-5dB(A) noise reduction

Road roughness - texture

Development of a low noise road surface for inner city use.

Optimized texture instead of a porous pavement.



Expected results:

2-4 dB(A) noise reduction with longer lifetime

Evaluation of roadsurfaces and low noise tires using the single wheel trailer

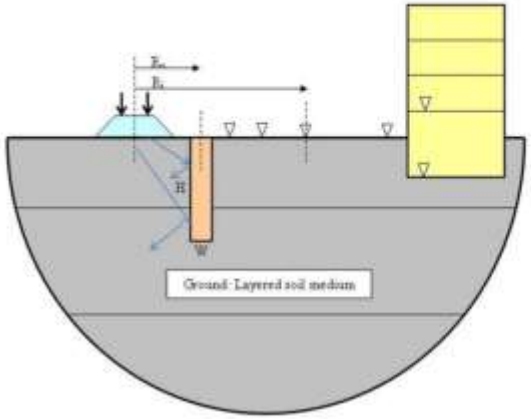
Validation of road pavements and quiet tyres is performed using a single wheel trailer.

Measurements according to the CPX-method

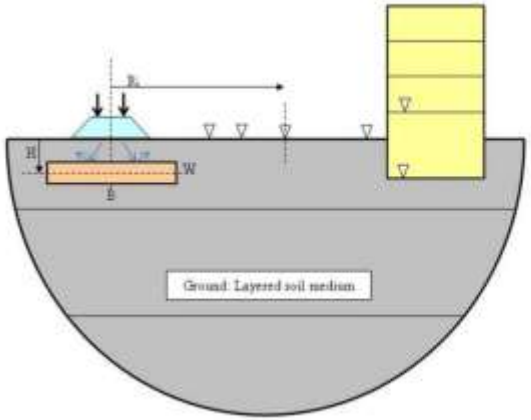
Reduction of structure borne noise

Vibration mitigation techniques

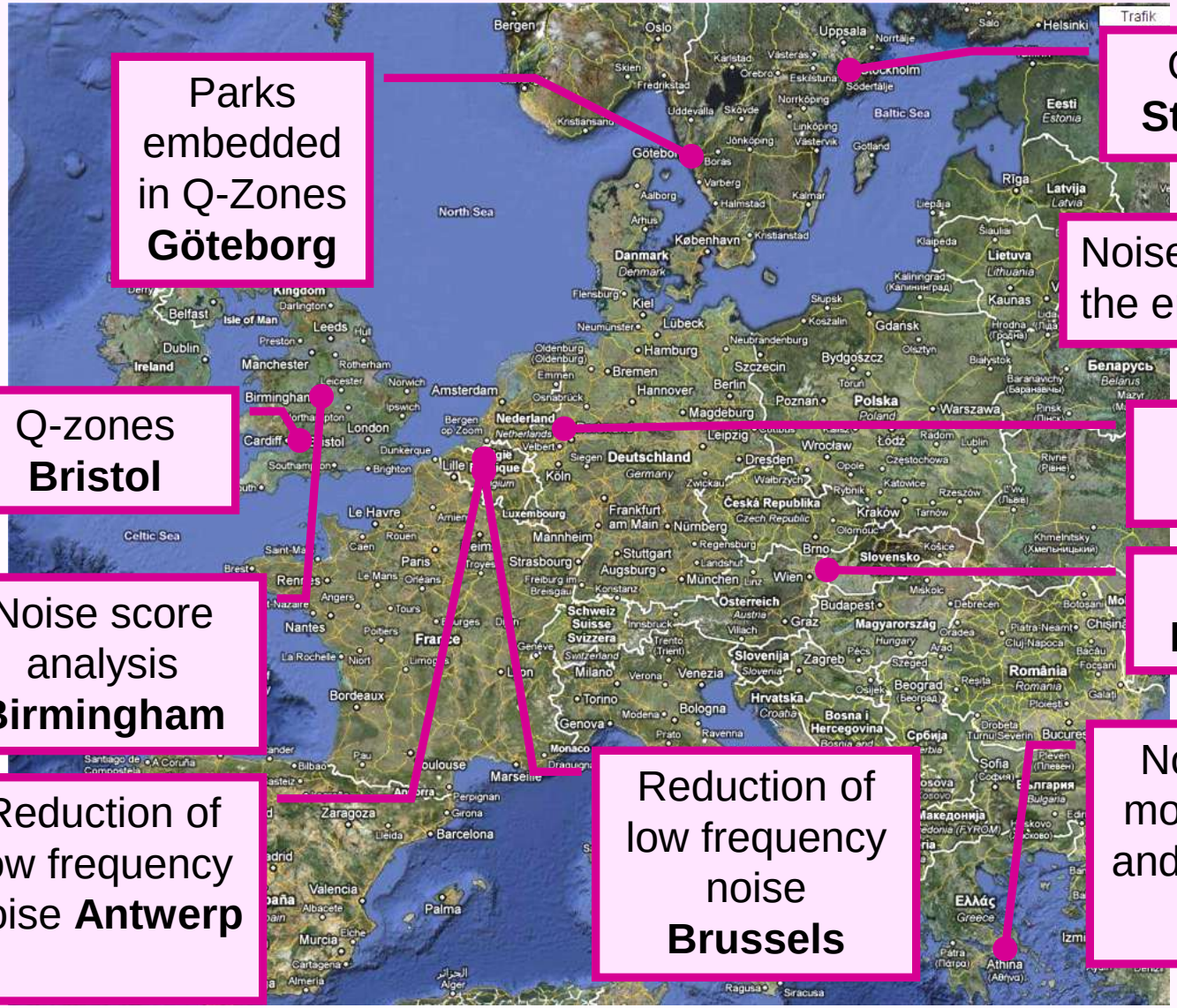
- Isolating screen technique



- Wave impeding technique



WP5 Validation



Parks embedded in Q-Zones **Göteborg**

Q-Zones **Stockholm**

Noise reduction for the entire vehicle

Q-zones **Bristol**

Q-zones **Essen**

Q-zones **Bratislava**

Noise score analysis **Birmingham**

Reduction of low frequency noise **Antwerp**

Reduction of low frequency noise **Brussels**

Noise score rating models for Q-Zones and embedded parks **Athens**