THE FREIGHT TRANSPORT MASTER PLAN OF THE BRUSSELS-CAPITAL REGION

BESTUFS MEETING
La Rochelle
25-26 April 2002

- AIMS AND METHODOLOGY
- DIAGNOSIS
- ALTERNATIVE SCENARIOS
- STRATEGY AND ACTIONS PLAN

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Mechelen
Haacht
2nd OUTER SUBURBS
1st OUTER SUBURBS
Vilvoorde
Asse
Ternat
Leuven
1ère COURONNE
1st RING
2e COURONNE
2nd RING
1ère PERIPHÉRIE
Halle
Waterloo
Wavre
2e PERIPHÉRIE

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GENERAL DATA CONCERNING THE REGION OF BRUSSELS-CAPITAL

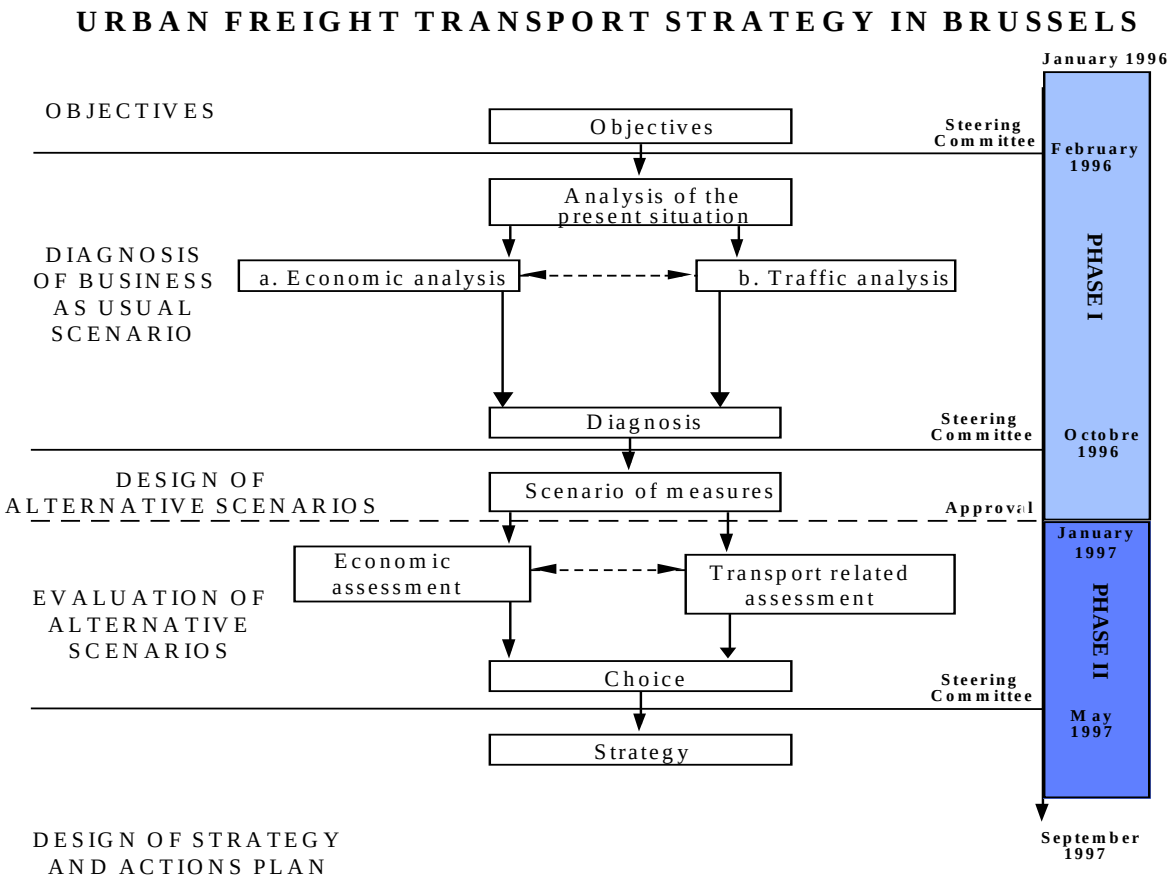
	1971	1981	1991	Variation 71-91
Population				
Population of the Region of Brussels Capital	1 075 000	997 300	954 000	-11 %
Population of the outer suburbs	482 000	549 500	577 600	+20 %
Employment				
Total employment in the Region of Brussels-Capital	627 800	618 500	632 000	+1 %
Total employment in the outer suburbs	143 000	157 300	197 900	+38 %
Economic role				
Portion of gross domestic product attributable to the Region of Brussels-Capital	16,8 %	15,5 %	14,3 %	-15 %
Portion of total personal income tax revenue attributable to the Region Brussels-Capital	14,5 %	11,6 %	9,8 %	-32 %

1971 and 1991 are census years

AIMS

- Diagnosis
  - Improve the knowledge of what goods transport is: volumes and vehicles flows
  - Analyse the economic impacts: added value, employment, trends
  - Analyse the environmental impacts
  - Forecast the 2005 – 2010 evolution
- Design alternative scenarios
  - Assess the socio-economic-economic impacts
  - Assess the traffic and environmental impacts
- Design a strategy and the related action plan

METHODOLOGY (1/2)



METHODOLOGY (2/2)

- Socio-economic assessment
  - Trends analysis and interviews of the most important stakeholders + users group
- Traffic and environmental impacts
  - Setting up of a freight vehicles travel demand model: generation/attraction; distribution; vehicle size
  - Setting up of a path choice model (assignment)
  - Assess the impacts: time spent by all the road users; fuel consumption; pollutants emission; noise

DIAGNOSIS (1/11)

SURVEY RESULTS

- Very fast restructuring sector due to the influence of the Open Market Community:
  - accelerated decline of urban industry
  - growth of « physical services »
  - restructuring of wholesale

- Distribution sector is being relocated outside of city on huge intermodal platforms covering markets areas with radius of more than 200 km. The main location criteria are :
  - accessibility by road
  - airport proximity
  - market proximity

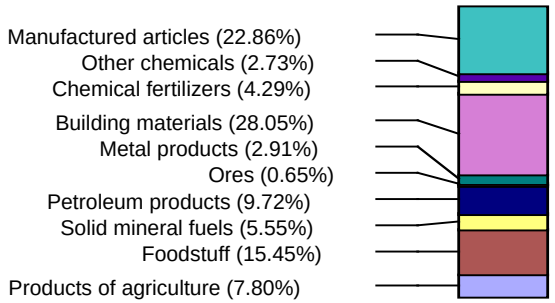
- In the inner city, to much loading and unloading operations are taking place on street

- As long stay parking (24 hours) is banned on street, long distance haulers ask for safe off-street parking places

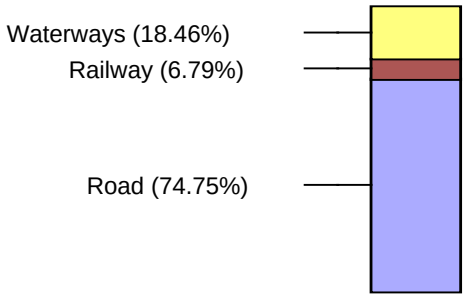
DIAGNOSIS (2/11)

FREIGHT EXPORT AND IMPORT OF THE BRUSSELS-CAPITAL REGION

BCR - Unloading operations (1991)
Categories of goods (tonnes)



BCR - unloading operations (1991)
Modal split (tonnes)



1. Road is the most used mode

2. Railway and inland waterways are long distance modes, specialised in raw materials

3. Main categories of goods :
   - foodstuff
   - crude and manufactured minerals
   - manufactured articles
   - petroleum products

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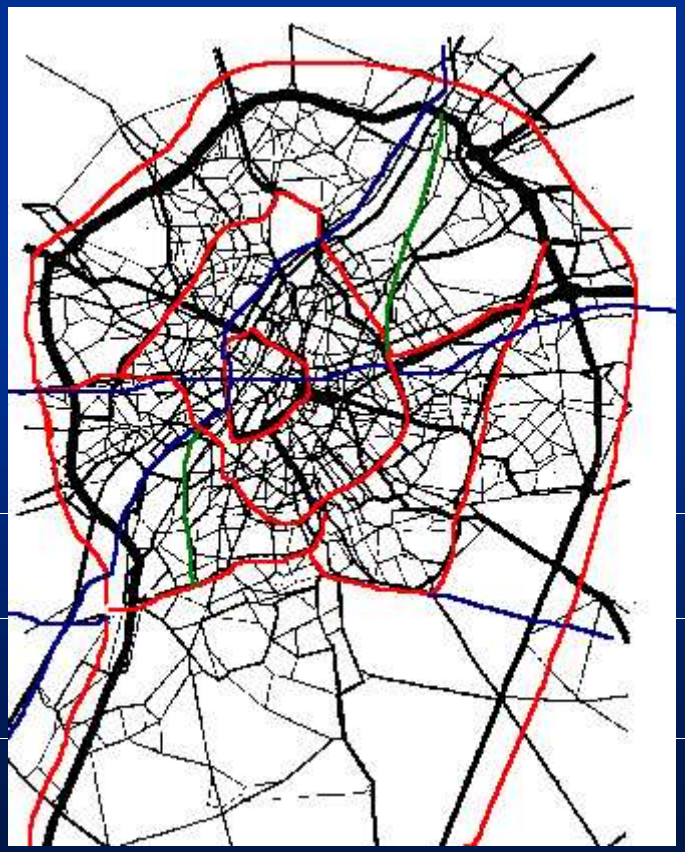
Diagnosis (3/11)

Estimation of the current O-D matrix

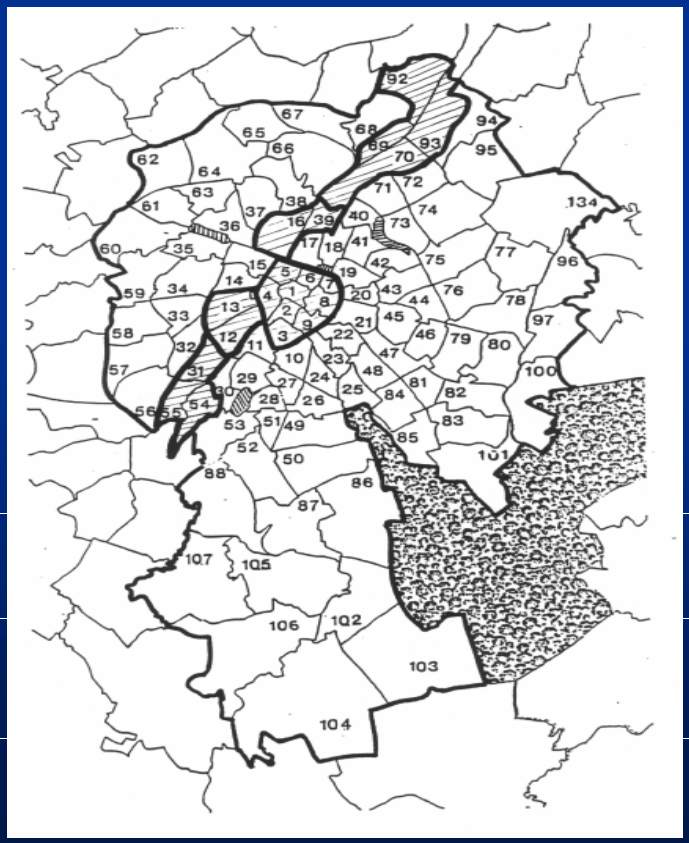
Traffic counts along screen lines and cordon lines

(400 movements)



Registration number survey

on 5 cordon lines



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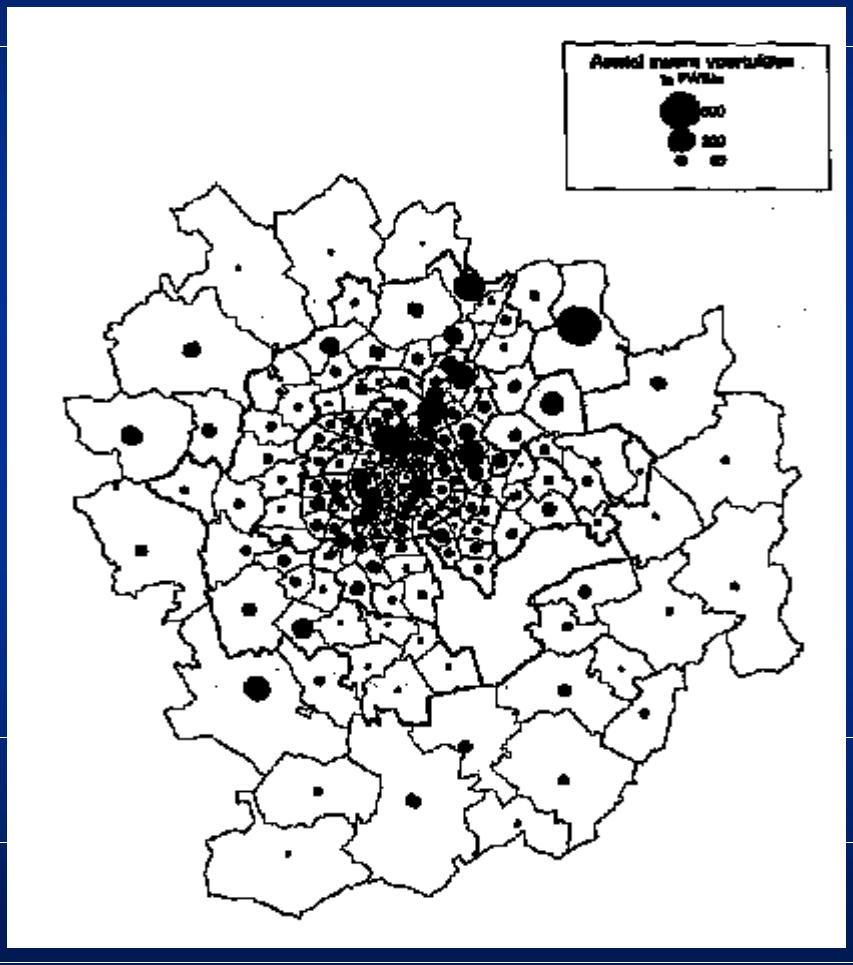
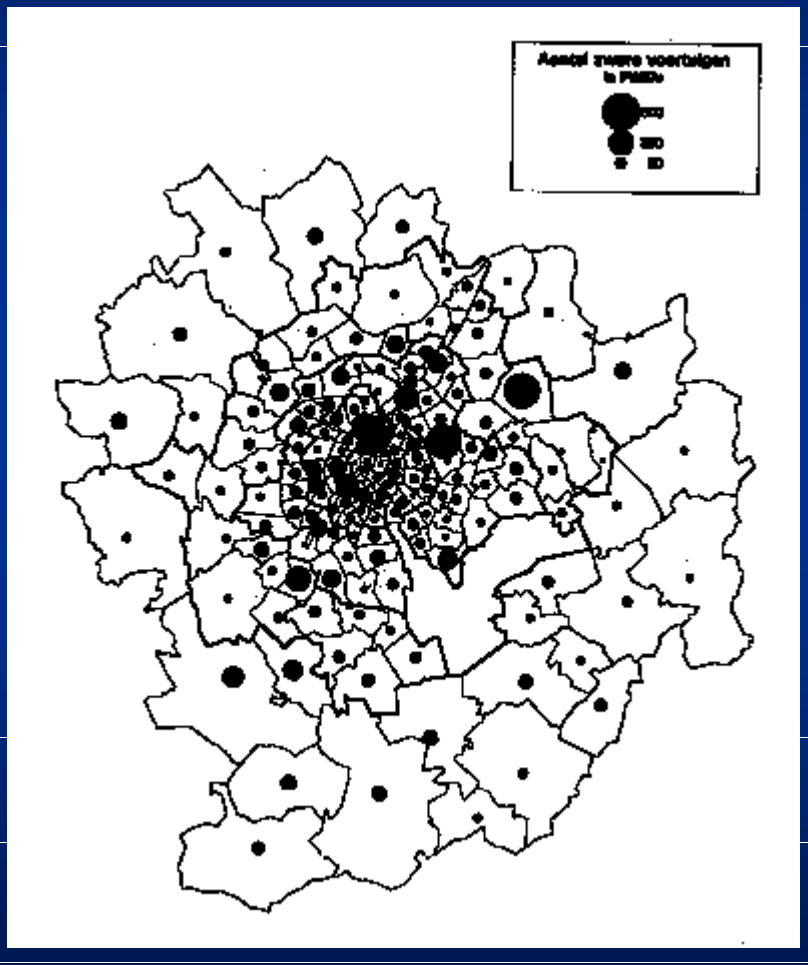
Diagnosis (4/11)

Matrix estimation based on traffic counts and cordon surveys

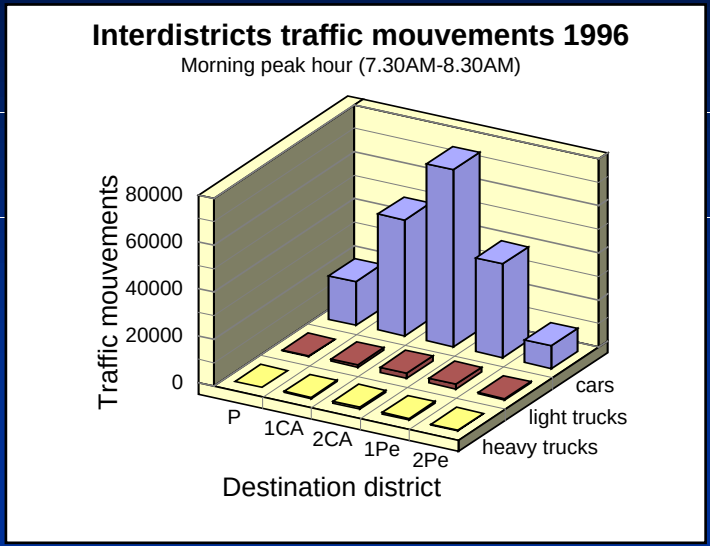
HGV emitted in the morning peak

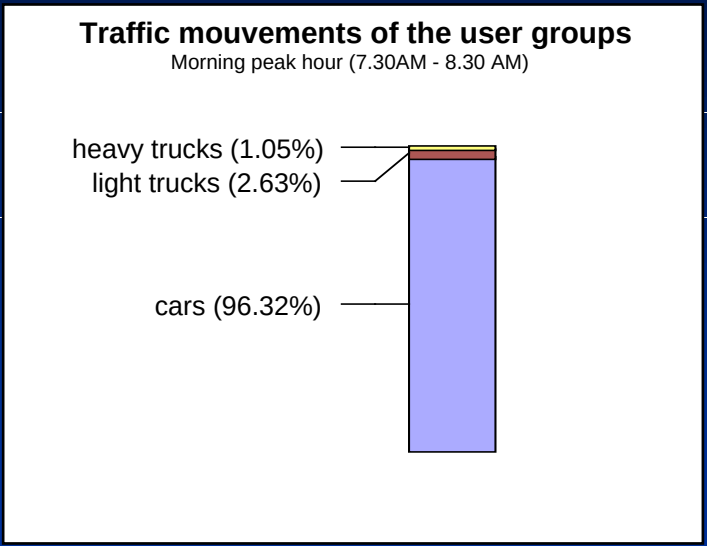


HGV attracted in the morning peak



DIAGNOSIS (5/11)





1. Factors of trucks trips generation during the morning peak hour :

*** population : 1000 inhabitants generate 2 heavy truck trips**

*** industrial employment : 1000 jobs generate 13 heavy truck trips**

*** wholesale employment : 1000 jobs generate 28 heavy truck trips**

! 1 job in the wholesale sector attracts 2.3 times more trucks than a job in the industry

2. Trucks represent only 3,7 % of the total amount of vehicles during the morning peak hour

3. Average payload of the goods vehicles (vans, 2-axles and 3-axles &+) seems to be very low

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Diagnosis (6/11)

Freight vehicles flows
1996 morning peak hour

Legend

Blue: <90 PCU/h
Green: from 90 to 180 PCU/h
Purple: from 180 to 600 PCU/h
Red: more than 600 PCU/h

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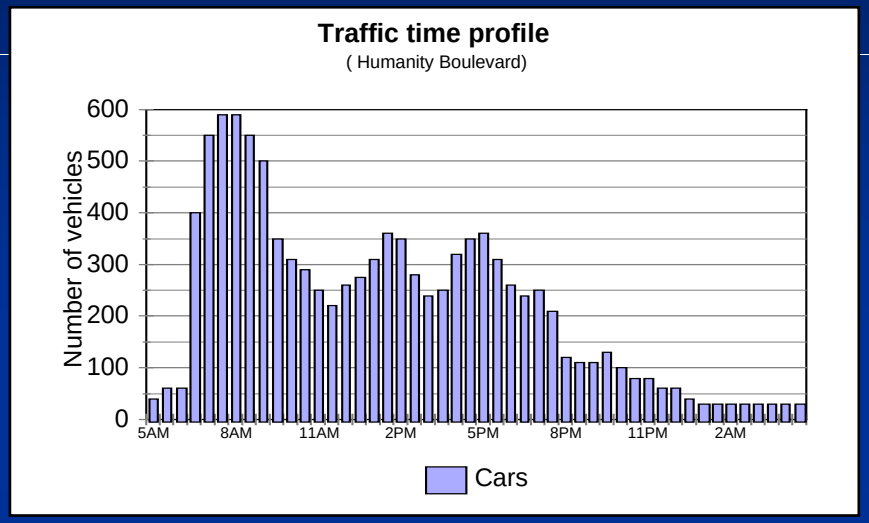
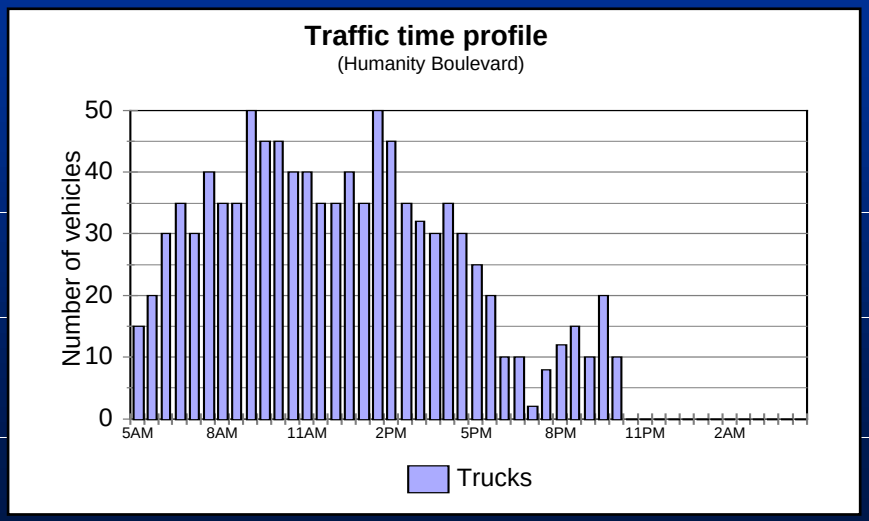
DIAGNOSIS (7/11)





The time profile of the freight traffic differs from the time profile of the general traffic (all users included)

DIAGNOSIS (8/11)

IMPACTS OF THE HGVs ON THE PERFOMANCES OF THE PRIVATE CARS DURING THE MORNING PEAK PERIOD (7.30 AM - 8.30 AM)

INDICATORS	ALL ROADS			REGIONAL ROADS			LOCAL ROADS		
	SC.1	SC.2	Variation %	SC.1	SC.2	Variation %	SC.1	SC.2	Variation %
Overall travel duration (pcv*h)	29200	31968	9.48	23599	25772	9.21	5601	6196	10.64
Average speed (km/h)	27	25	-7.90	29	26	-8.12	20	18	-6.13
Traffic load on the network (pcv*km/km)	543	548	0.83	705	708	0.34	225	233	3.85
Fuel consumption	108985	113526	4.17	91565	94888	3.63	17420	18638	6.99

SC.1 : cars and vans only
SC.2 : cars, vans + lorries

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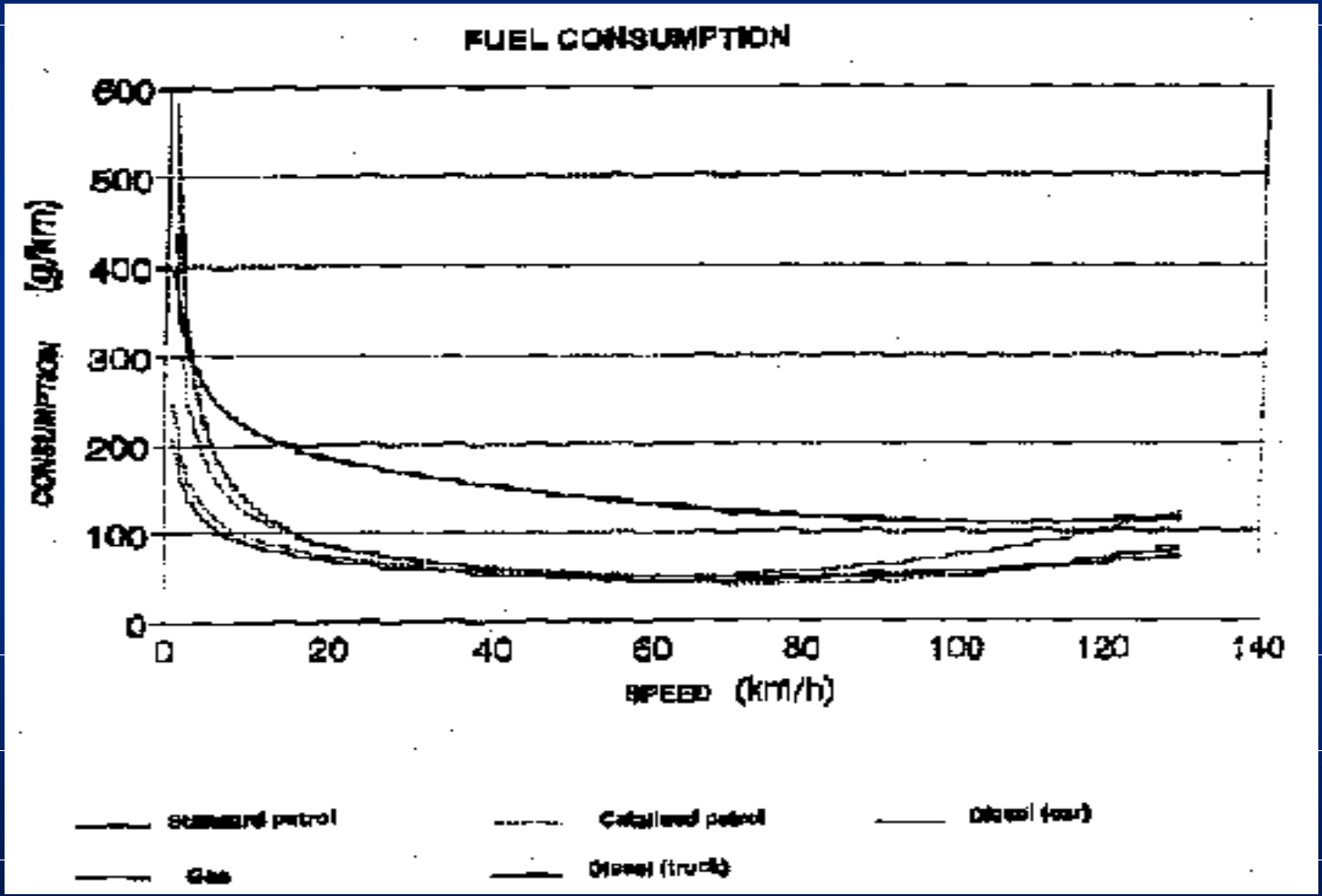
Diagnosis (9/11)

Environmental impacts (pollution)

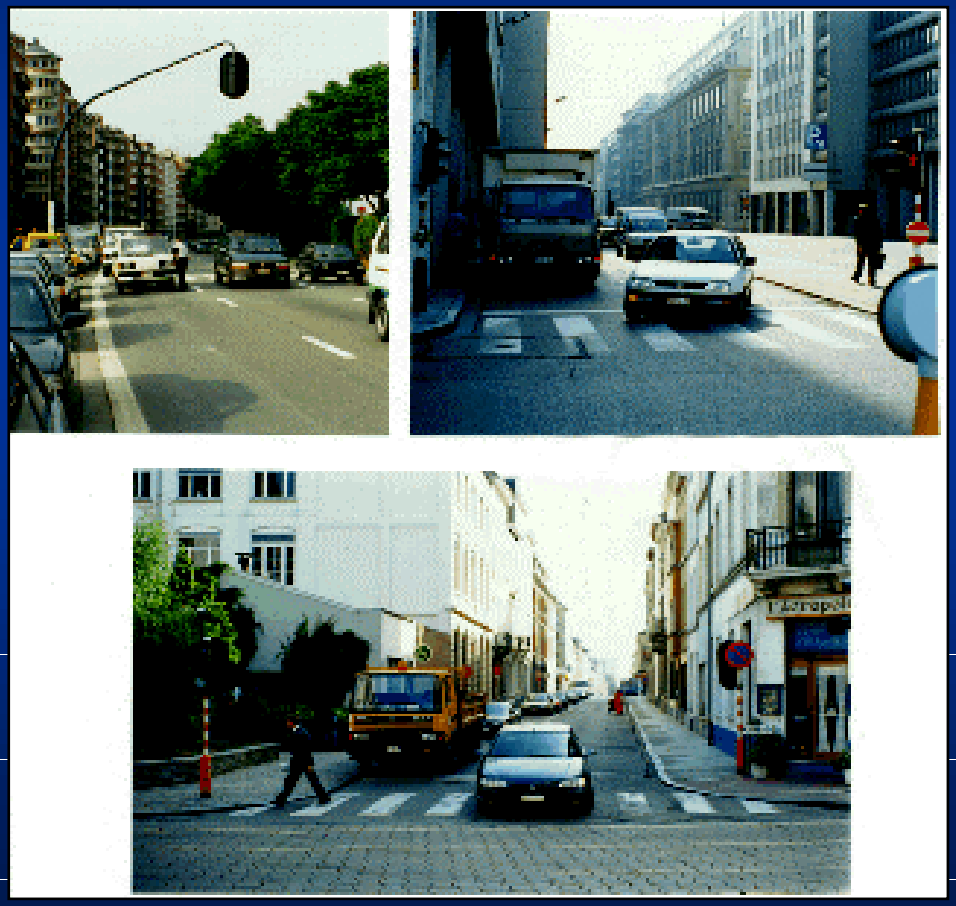


Diagnosis (10/11)

Environmental impacts (noise)

DIAGNOSIS (11/11)

PARKING



1. Trucks double-parking for ~~unloading-loading operations~~ has a very high impact on congestion.

MAIN CAUSE OF DOUBLE-PARKING OPERATING =

- ❍ unauthorized parking of cars
- ❍ parking places rotation is too low

2. ~~The central part of the~~ agglomeration is the most affected

SCENARIOS

Reference : Trends scenario

Scenario 1 : Parking & capacity of the road junctions

Scenario 2 : HGV banning during the morning peak hour

Scenario 3 : Large permanent HGV banning area + large UTC

Scenario 4 : Small permanent HGV banning area + small UTC

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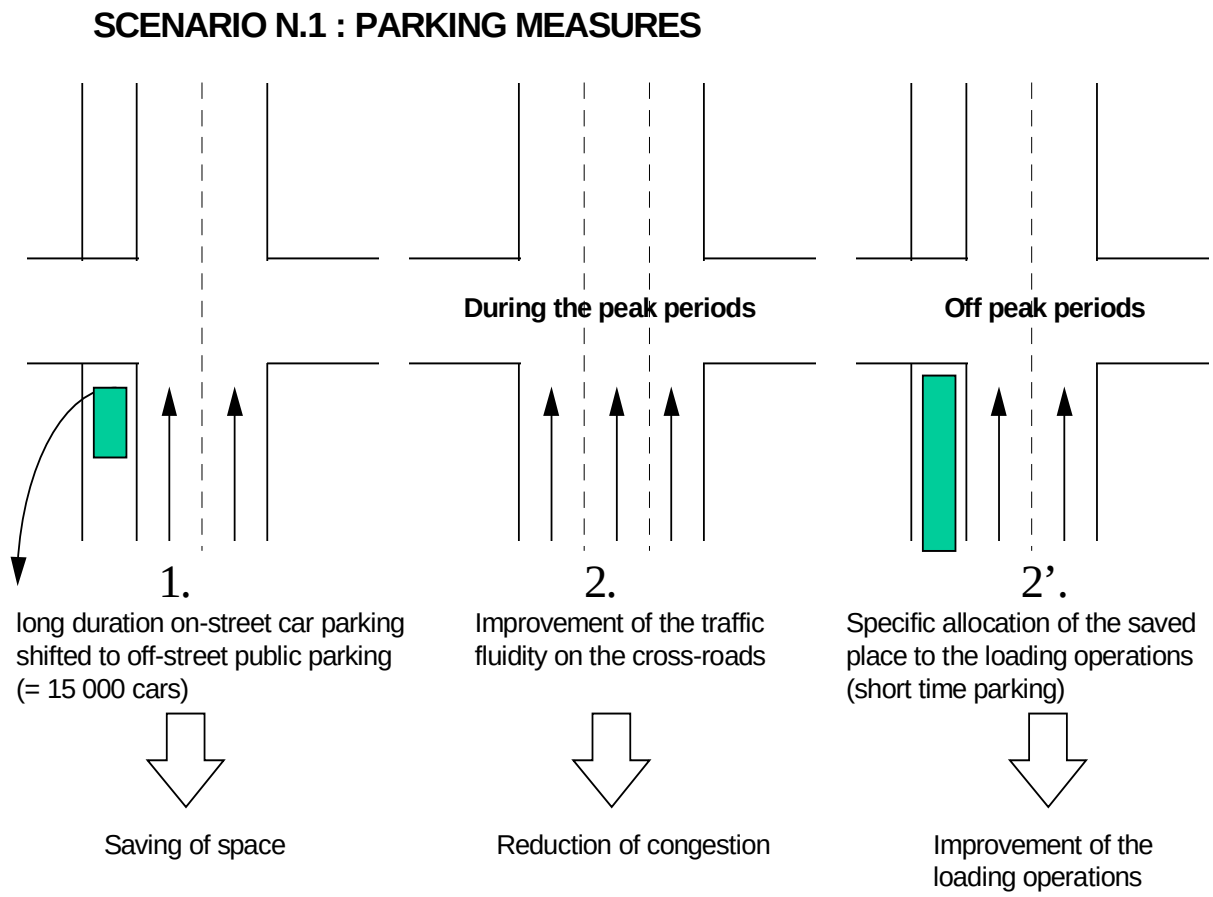
Trends scenario

- Decay of industrial activities in the inner city
- Spatial restructuring of freight distribution
- Reduction of the noise/pollutants emission characteristics of the HGV

INDUCE:

- a high growth of small vehicles (< 3.5T) used for urban freight transport
- a reduction of annoyances caused by the HGV in the inner city

Contrasted scenarios (1/ 4)



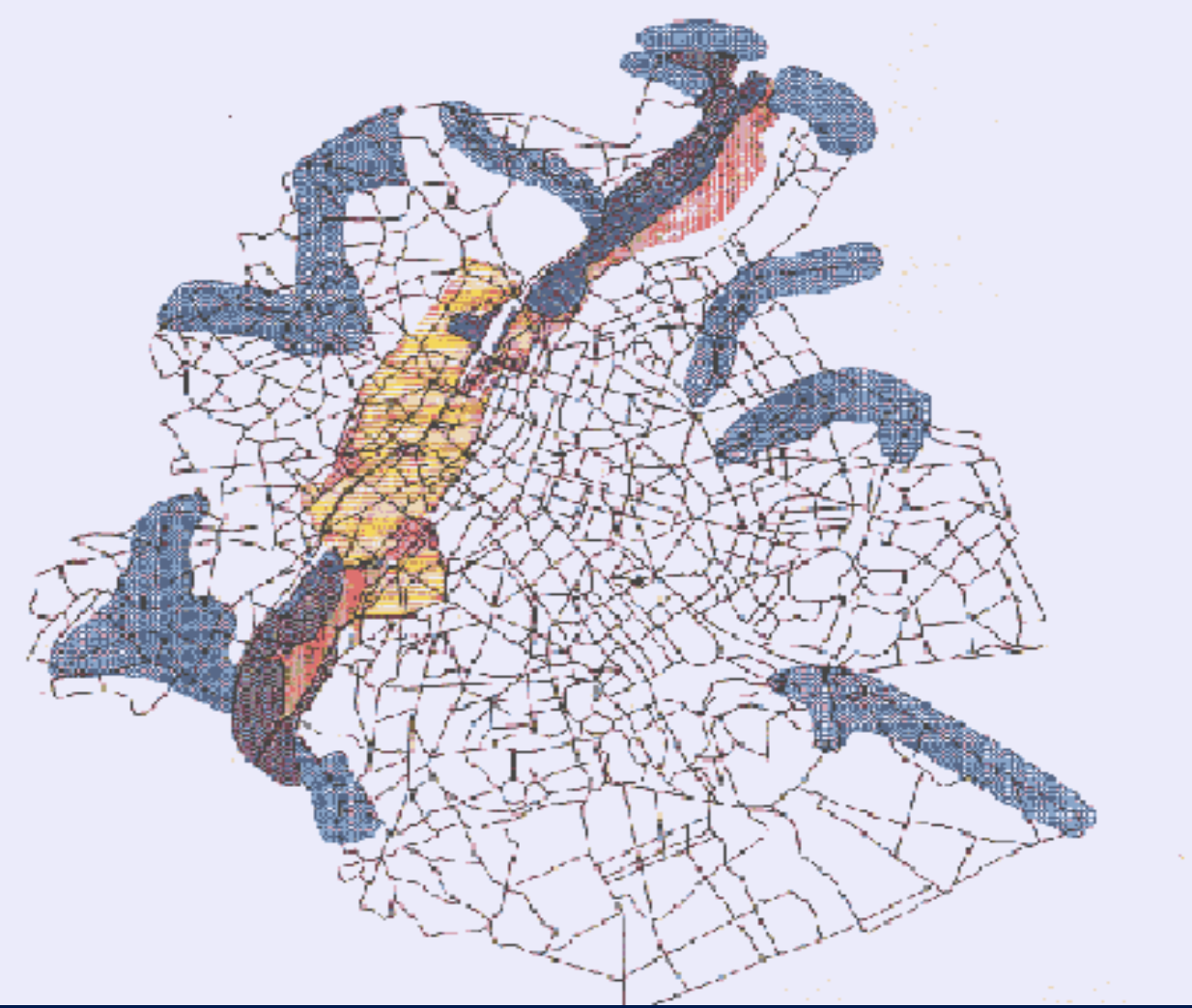
Scenario 1:

During the peak hours,

parking is banned on the approaches to most of the jonctions of the arterial network (- 15 000 pcu)

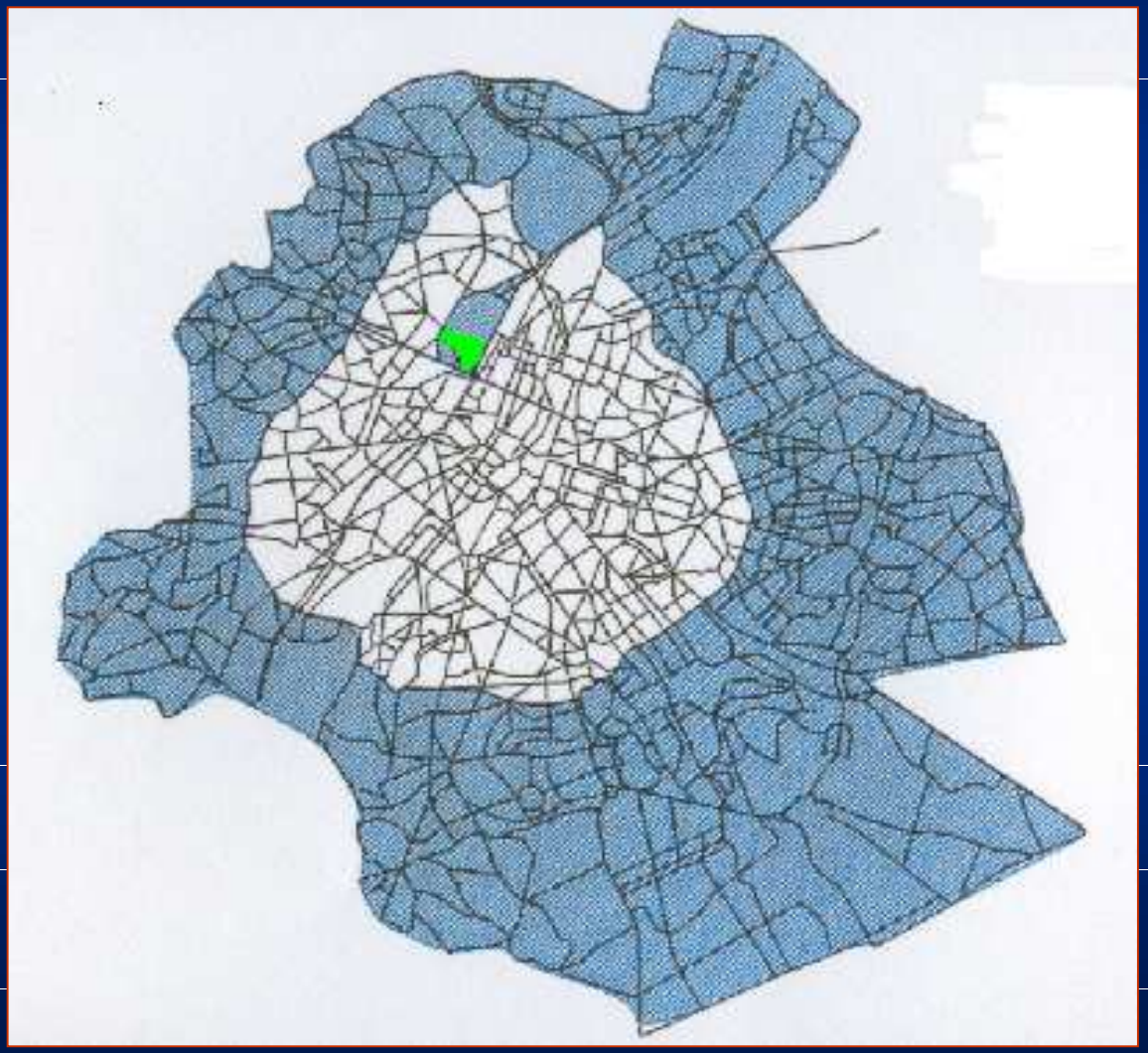
During the off peak hours, parking on these places is only authorised for short stay parking (loading/unloading)

Contrasted scenarios (2/ 4)



Scenario 2: During the peak hours, heavy trucks (3 axles &+) are banned in the whole urban area, except in some peripheral zones and in the old urban industry zone

Contrasted scenarios (3/ 4)



Scenario 3:

. vehicles > 3.5 T

are permanently banned from the inner city (white coloured area) *

. an UTC is created for transhipping trucks to vans (no warehousing facilities)

2-axles HV = 5 vans

3-axles &+ HV = 12 vans

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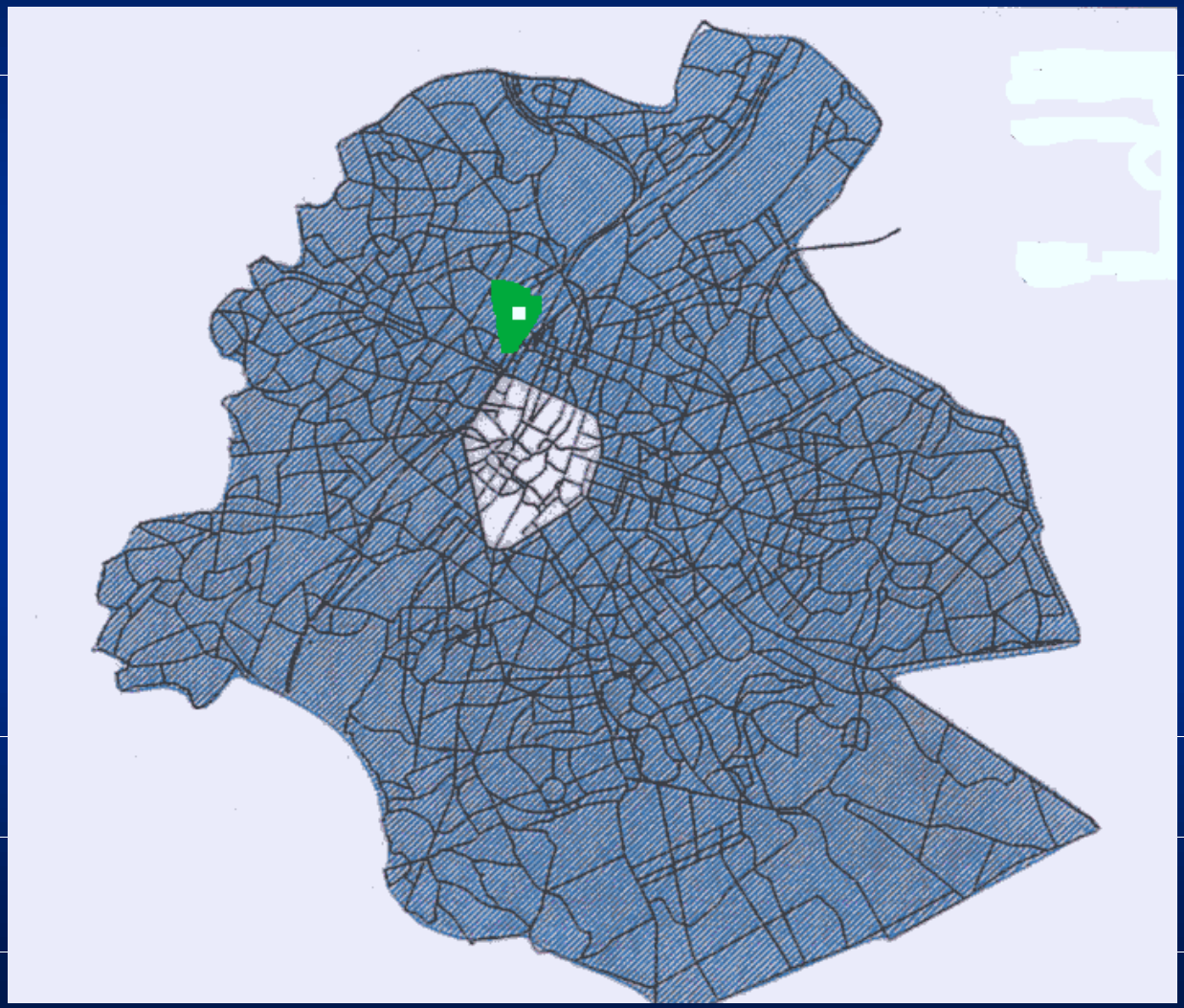
Contrasted scenarios (4/ 4)



Scenario 4:

. vehicles > 3.5 T

are permanently banned from the historical centre (white coloured area) *

. an UTC is created for transhipping trucks to vans (no warehousing facilities)

2-axles HV = 5 vans

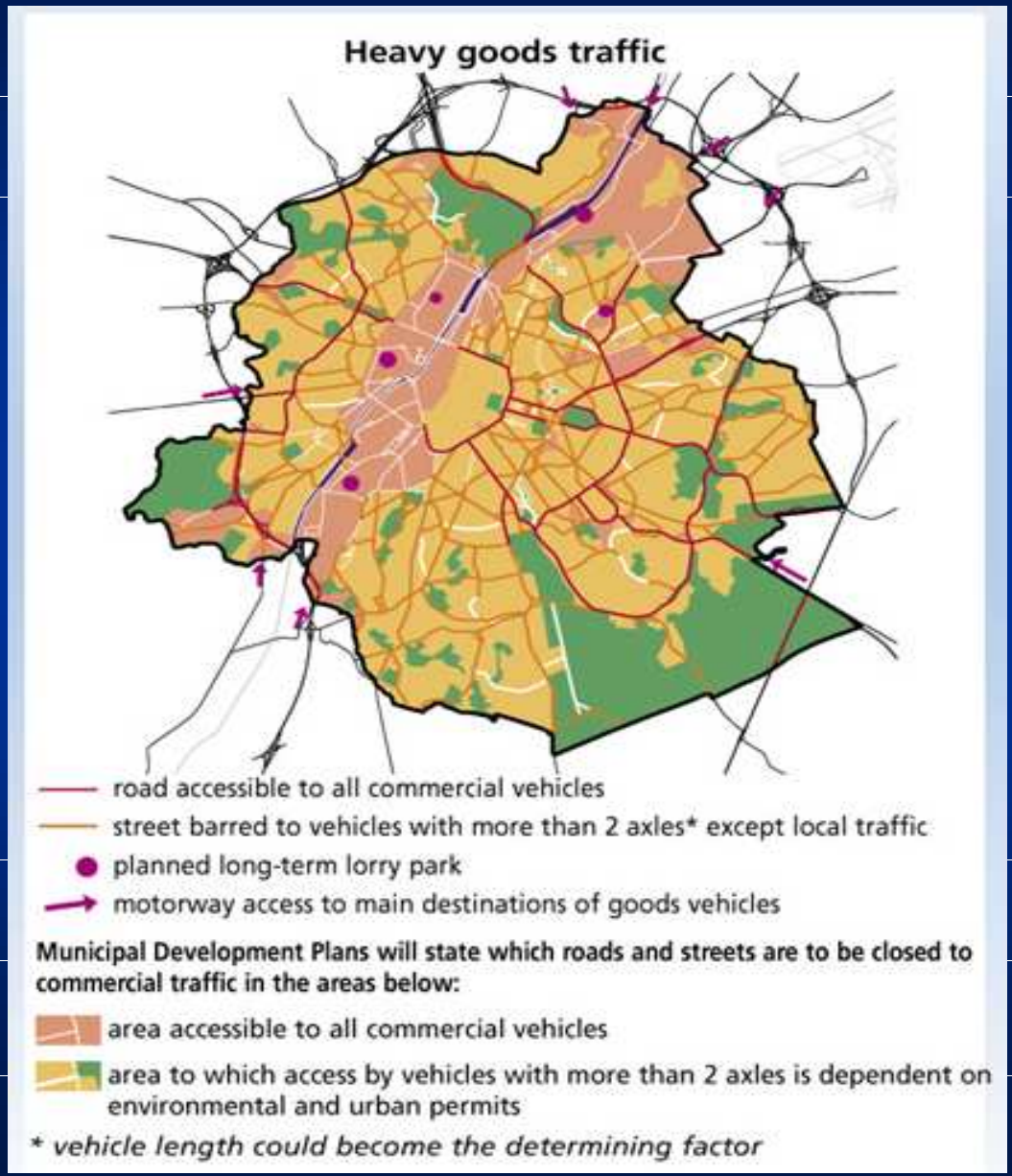
3-axles &+ HV = 12 vans

Comparison of the scenarios

Morning peak hour 2005

SCENARIOS	Total travel length	Average speed	Fuel consumption
Trends Scenario	851 547 PCU*km	20 km/h	134 353 l
Parking	-1,93 %	+29,76%	-12,3 %
Truck banning peak hour	+1,26 %	-1,85%	+2,14 %
Small UTC	+2,91 %	-6,5 %	+6,21 %

Action plan (short summary)



- Traffic rules for protecting residential area from through traffic of HGVs
- Developing a small UTC combined with warehousing facilities in Tour &Taxis
- Signalised acces points
- Long stay HGV parks (but no measures for improving road junction capacities)
- Moving of intermodal transhipment facilities presently located in Tour & Taxis to a more peripheral location (Avant-Port)

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