

Equipment and Transport  
Administration

# *IRIS Plan*

REGIONAL MOBILITY PLAN



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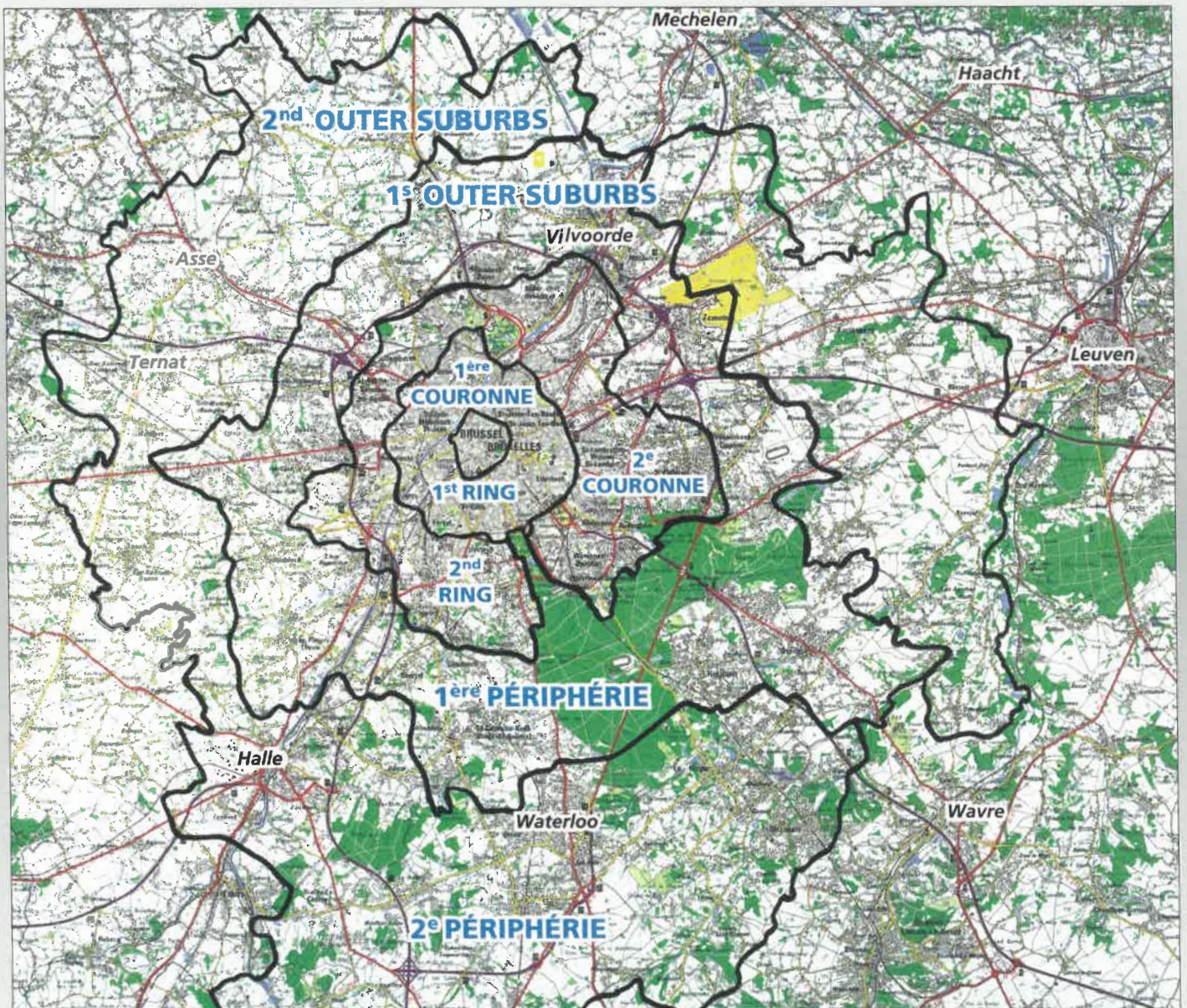
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# GENERAL DATA CONCERNING THE REGION OF BRUSSELS-CAPITAL

## IRIS study zones



## GENERAL DATA CONCERNING THE REGION OF BRUSSELS-CAPITAL

	1971	1981	1991	Variation 71-91
<b>Population</b>				
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 % ↗
<b>Employment</b>				
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 % ↗
<b>Economic role</b>				
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 of Brussels-Capital	14.5 %	11.6 %	9.8 %	-32 % ↘

*1971 and 1991 are census years*

## **AN AREA MOBILITY PLAN FOR THE REGION OF BRUSSELS-CAPITAL**

**"IMPROVING ACCESS TO ALL ASPECTS**

**OF URBAN LIFE IN ORDER TO ENSURE**

**THE SUSTAINED DEVELOPMENT**

**OF BRUSSELS"**



# Foreword

## BY ROBERT DELATHOUWER, SECRETARY OF STATE FOR THE REGION OF BRUSSELS-CAPITAL IN CHARGE OF MOBILITY

*Like all major metropolitan areas throughout the industrialised world, the Region of Brussels-Capital is confronted with the problem of an increasingly congested transport system. The rising flow of road traffic, with the host of nuisances it leaves in its wake, drives residents and business out to the suburbs and contributes to the disintegration of the urban economic and social fabric.*

*Yet mobility has been and continues to be a key factor in our economy, provided it respects certain principles of solidarity and environmental safeguards.*

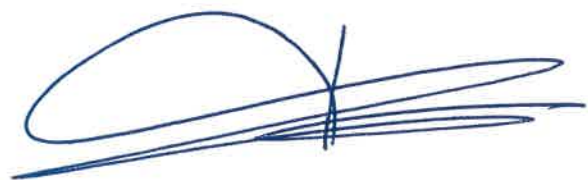
*Briefly stated, it is incumbent upon us to reconcile the notions of mobility and competitiveness with those of environmental protection and sustainable development.*

*This delicate balance presupposes the implementation throughout the Region of the measures singled out in the IRIS Plan, an exhaustive study undertaken jointly by consultants, experts and public servants from the government agencies concerned. The Plan is the backbone as well as the source of reference for all authorities in charge of mobility. The eight lines of action described in its Synopsis are intended to arrest the trends that may otherwise suffocate the Region of Brussels-Capital.*

*The Plan invites us to re-examine some of the ways in which we conduct ourselves in relation to other residents, and to revise our travel patterns – private cars, public transport, parking, persons with reduced mobility, the place of pedestrians and cyclists, etc. – in order to safeguard our way of life.*

*During this legislative term, I intend to put a priority on the promotion and implementation of the IRIS Plan, as well as on its necessary updating. We shall focus in particular on the issues facing pedestrians, cyclists and persons with reduced mobility. We are also going to review the contract with the STIB public transport operator in order to provide for improvements in the quality and frequency of passenger service, develop the RER express rail system and introduce uniform fares throughout the public transport system. We are going to look at company transport schemes and joint projects with municipalities, as well as encourage the use of “clean” vehicles and car pooling.*

*I am convinced that the coherent and comprehensive program advocated by the IRIS Plan represents the proper policy approach and reaffirm my commitment to this course of action as a way to ensure not only a fair balance between need for access and quality of life, but also a fair treatment of everyone’s right to mobility.*



## THE IRIS PLAN – AN AREA MOBILITY PLAN FOR THE REGION OF BRUSSELS-CAPITAL

- FOREWORD BY ROBERT DELATHOUWER  
SECRETARY OF STATE FOR THE REGION  
OF BRUSSELS-CAPITAL

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*"Increasing access to all aspects of urban life in order to ensure the sustained development of Brussels"*

## User's guide

The information in this brochure is arranged as follows:

- |                             |                         |
|-----------------------------|-------------------------|
| - Key notions               | <i>Right-hand pages</i> |
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# IRIS Plan Summary

## MAIN FINDINGS AND KEY PROPOSALS

The IRIS Plan provides an overall approach to the mobility issue in the Region of Brussels-Capital. It does not propose merely temporary solutions to problems but seeks to address their root causes.

### WHAT IS THE SITUATION TODAY?

- The 1991 survey of the travel patterns of 5,000 households showed that, within a single day, per 100 persons 6 years and over,

- 17 did not travel
- 35 travelled exclusively on foot
- 29 travelled by car
- 1 travelled by bicycle
- 18 travelled by public transport.

- The travel modes used by people commuting to work divided up as follows:

- public transport accounted for 27 percent of those using vehicular means in 1991; if the 1980-1990 trend were to continue that figure could decline to 16 percent by 2005
- the proportion of those commuting by private car would correspondingly increase from 73 percent in 1991 to 84 percent in 2005.

- ➔ The consequence would be a increased traffic congestion that would cause travel time to go up by 80 percent.

- Individuals' travel preferences are contributing to the spiralling economic and demographic decline of Brussels:

- the increase in the use of private cars and in distance travelled aggravates urban traffic congestion
- congestion diminishes the efficiency of ground public transport and makes it less attractive, adding a further reason to use private cars
- in addition, road congestion adversely affects living conditions in urban districts and provides a further incentives for people and businesses to move to the suburbs
- the scattering of the population to outlying areas diminishes the effectiveness of public transport and makes the use of a car virtually unavoidable.

## WHAT ARE THE TRAVEL PATTERNS OF BRUSSELS' POPULATION?

- The location of households and of activities is a factor in the modes of transport used. A relationship exists between the use of public transport and the origin and destination of travellers:

- during the morning rush hour, 38 percent of all trips to any destination in the Region are by public transport, although the proportion varies significantly depending on the actual points of origin and departure within the Region
- 56 percent of all trips to the Region's business districts are by public transport
- only 26 percent of all trips to the Second Ring districts are by public transport.

- A comparison of travel time by car and by public transport over the distances covered helps explain the choices made:

- public transport connections to the business districts from other parts of Brussels and elsewhere in the country are excellent, while those to the outer suburbs are not as good;
  - the business districts are not as easily accessible by car and finding a parking space there may be time consuming
  - at rush hour, only a moderate amount of time can be saved by those commuting by private car, i.e.
    - 10 minutes when coming from the Region
    - 18 minutes when coming from the outer suburbs
    - 4 minutes when coming from elsewhere in the country
- Second Ring districts have good public transport connections to the centre only;
  - however, they are easily accessible by car and parking there is plentiful
  - at rush hour, getting there by car can reduce travel time considerably, i.e.
    - by 29 minutes for those coming from the Region
    - by 46 minutes for those coming from the outer suburbs
    - by 51 minutes for those coming from elsewhere in the country
- shopping and cultural facilities are generally well served by the public transport system.

## WHAT MEASURES ARE PLANNED?

• **An overall approach to the matter of mobility requires that a comprehensive set of measures be implemented – the so-called IRIS Plan – for dealing with such issues as**

- 1 - **Urban structures**, so as to reduce the need for vehicular travel, allow easier access to work places, shops, services, public facilities and schools, as well as improve daytime mobility.
- 2 - **Public transport**, through the development of a comprehensive and attractive system, consolidated into a joint operating entity; a Regional Express Rail network (RER) using existing railway, Metro and Light Metro tracks and facilities; a higher commercial speed by streetcars and busses; easier access to taxis.
- 3 - **Automobile traffic**, by protecting the quality of life in residential areas and easing road congestion.
- 4 - **Parking**, through measures in favour of parking for local residents and shops, the creation of park-and-ride facilities in the suburbs and better enforcement of traffic regulations.
- 5 - **Pedestrians**, by improving their safety and comfort and providing more clearly visible street signs.
- 6 - **Bicycle traffic**, by providing for bicycle routes and promoting the combined use of bicycles and public transport.
- 7 - **Goods transport**, with measures concerning deliveries and large vehicles and the promotion of transport by water and rail.
- 8 - **Public areas**, by making quality improvements and striking a better balance between areas set aside for pedestrians and those used by vehicles.

## WHAT ARE THE CONDITIONS FOR SUCCESS?

- 1 - The approach used must be broadened to include exchanges between Brussels and the rest of the country, given that 50 percent of Brussels' working population commutes to work; Brussels is an international administrative, business and financial centre and lies as the heart of Belgium's transport and travel networks (road, air and rail).
- 2 - The projects of various bodies and agencies must be closely co-ordinated.
- 3 - Common structures are needed to oversee traffic and parking.
- 4 - Series of measures must be scheduled and planned in a logical manner.
- 5 - An effort must be made to involve all parties concerned.

**The challenge at this time is to implement the entire range of solutions advocated by the IRIS Plan. There is no easy or one-shot solution to all of the mobility problems faced by the Region of Brussels-Capital. Only by taking action at all levels of authority and by pooling all available resources can the mobility of the population be restored and the way opened to change.**

**Implementing these measures is part of the Government's top priorities.**



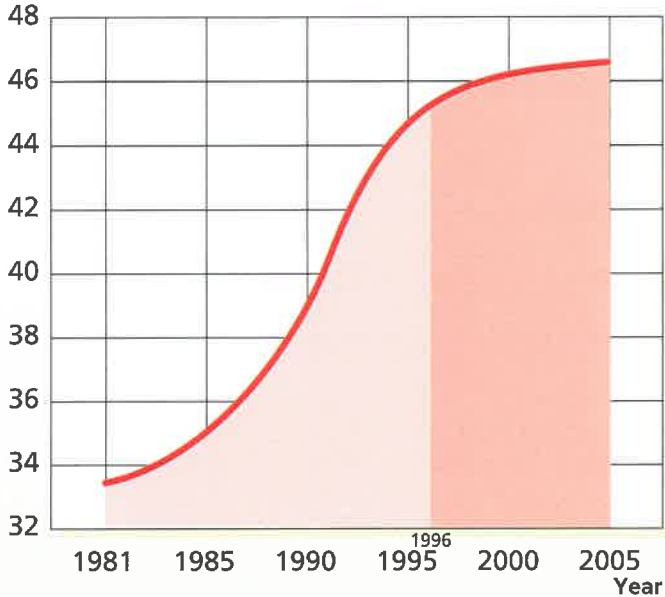
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## General trend in the car ownership ratio of the residents of Brussels and its surroundings, to 2005

By 2005, it is expected that there will be almost one car for every two persons in Brussels and the surroundings area.

Number of cars per 100 population

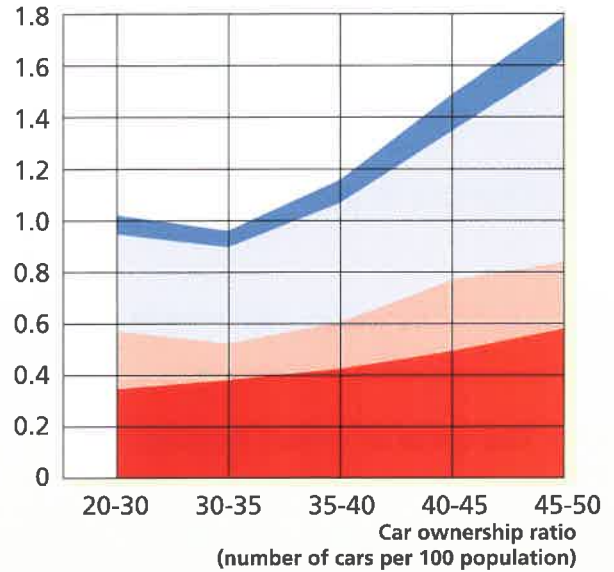


## Average number of daily trips per person by vehicles of any kind

Car ownership is a factor of increased mobility, in particular for travel other than to work or to school.

Chart showing 1991 data for Belgian cities, for people 6 years and older

Daily trips by vehicles of any kind



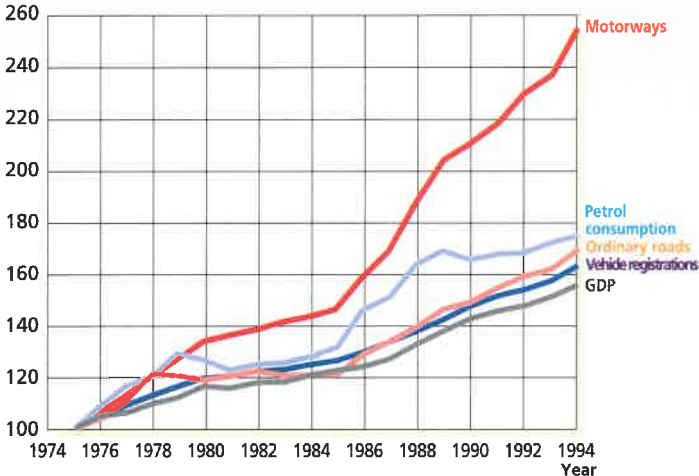
Trips:

- to and from work
- others, to and from home
- to and from school
- to and from other locations

## Increase in traffic flow in Belgium, 1975-1994

Over a 20-year period, all indicators of traffic flow have risen by more than 50 percent in Belgium, with for motorways the sharpest increase of 150 percent.

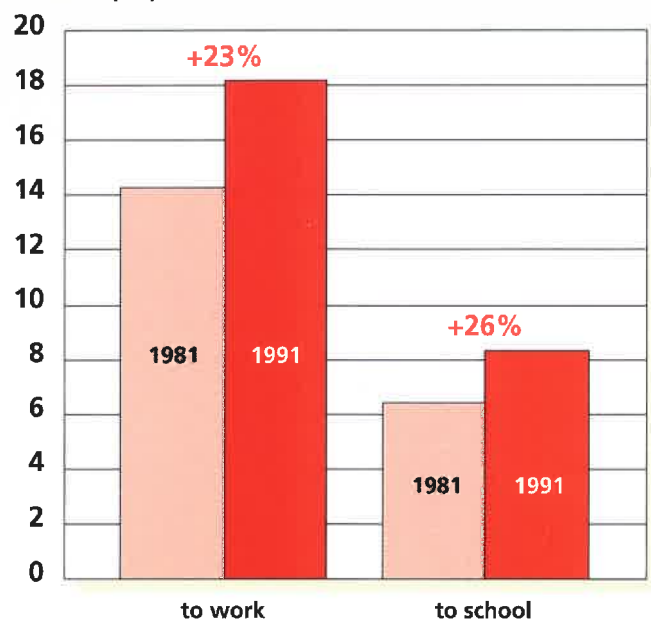
Index (1975=100)



## Change in the average distance travelled in Belgium

Over a ten-year period, the distance over which people commute has increased by about 25 percent, taking into consideration all trips, including by foot.

Distance (km)



- The average number of vehicular trips per person per day rises along with the average income of the population and the ratio of car ownership.
- The average distance travelled on each vehicular trip rises even more sharply than the number of trips, as housing and urban facilities become more dispersed.
- The overall volume of traffic (number of trips x distance travelled) rises very rapidly.
- The excessive use of cars causes
  - the suffocation of urban districts due to traffic congestion
  - rising pollution levels, resulting in a decline in the quality of life
  - a decline in the attractiveness of public transport affected by general traffic
  - a deterioration of economic and social patterns in urban areas (loss of accessibility and incentive for dispersal).
- Thus, in certain European cities without an historically or economically strong centre, the tendency is
  - for people and businesses to move out of the central districts
  - for cities to disintegrate into their suburbs.



*Traffic congestion is a major source of air pollution.*

*A tendency to move out of central urban districts.*



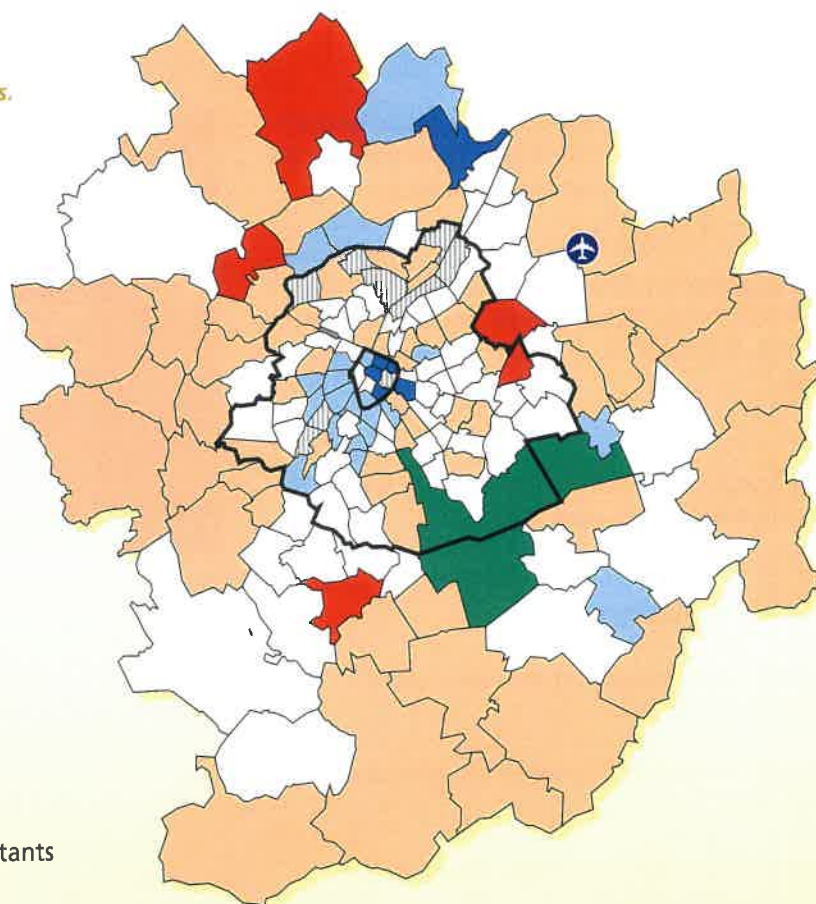
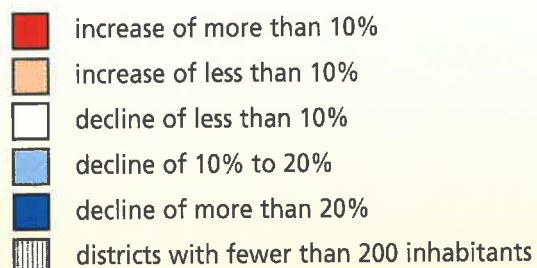
## Estimated changes in population, 1987 to 1996

*The population of the Region is declining and migrating from central districts to the outer suburbs.*

### Average change

Region: - 3.4%  
Outer suburbs: + 0.7%  
Area of study: - 1.9%

### Change in population since 1987



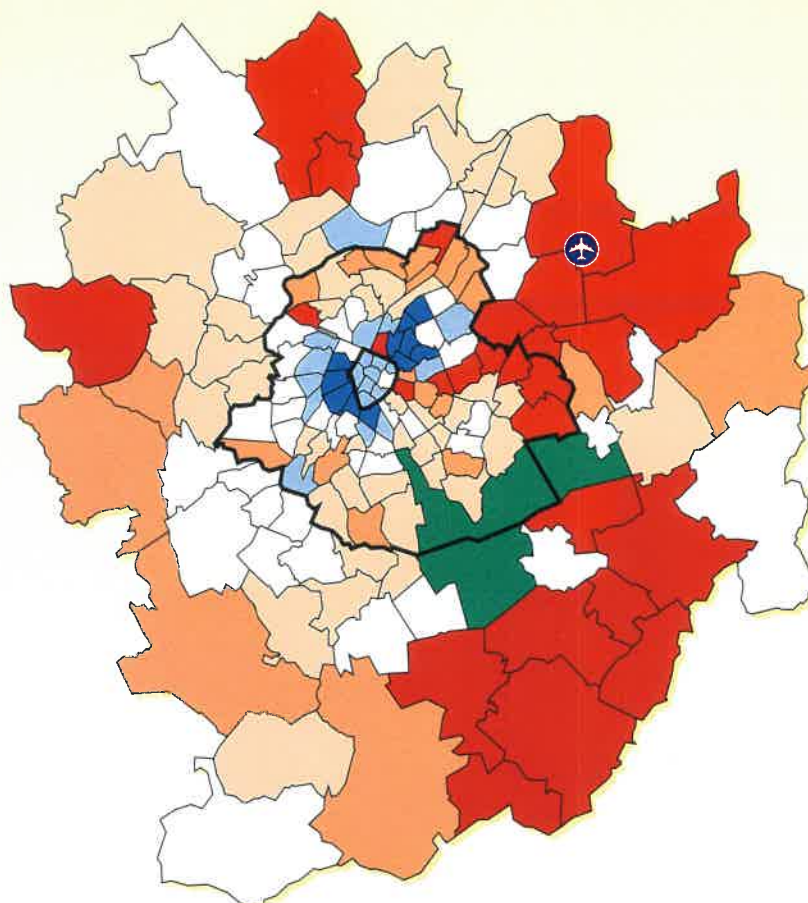
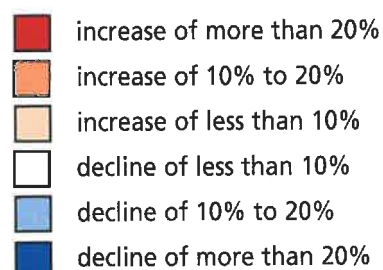
## Estimated changes in employment, 1987 to 1996

*Employment has been increasing faster in the outer suburbs than in the Region.*

### Average change

Region: - 1.7%  
Outer suburbs: + 12.7%  
Area of study: + 1.9%

### Change in employment since 1987



- Over the past 25 years, the population of the Region of Brussels-Capital has declined by 120,000, while fringe municipalities gained in size:

- the general trend toward the break-up of families has caused the average size of households to fall, along with the average number of persons per housing unit
- young, middle-class families migrate to the outer suburbs and contribute to the ageing of the region's population and the decline of per capita income
- the scatter of housing to outer suburbs causes commuting and car driving to increase.

- Over the same period, employment in the Region stagnated, whereas many new jobs were created in the outer suburbs.

Radical changes are under way:

- manufacturers, wholesalers and goods transport companies are moving to the outer suburbs, taking jobs along with them
- the service sector is drawn to the city but the type of skills it requires causes the gap between the supply and demand for labour to widen in urban districts.



*An ageing population.*

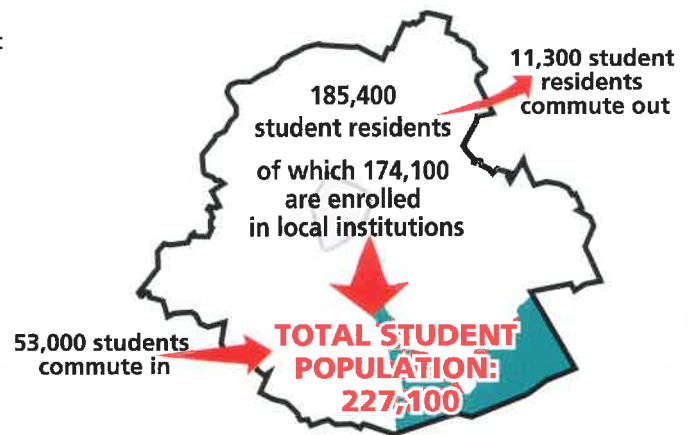
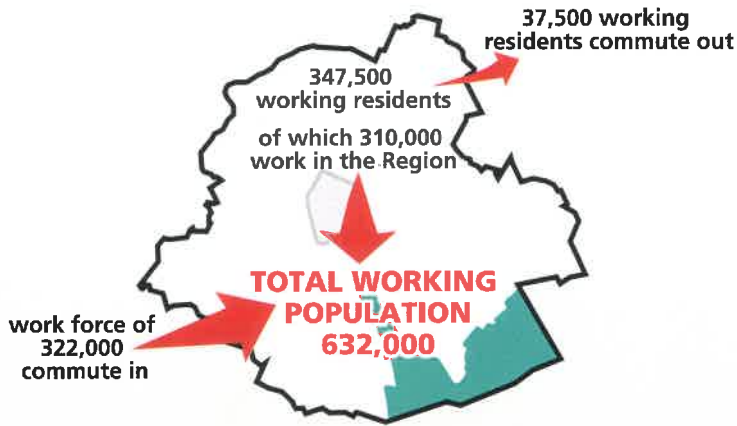


*An expansion of industry in the outer suburbs.*

## Daily movements of the working population between the Brussels Region and the surrounding area in 1991

## Daily movements of the student population between the Brussels Region and the surrounding area in 1991

More than half of all jobs in the Region are held by persons living elsewhere. More than 23 percent of all school and university students enrolled in the Region's educational institutions are residents of the outlying area. The Region acts as a powerful magnet for jobs and services. It attracts a large flow of commuters and visitors during the day but empties again in the evening, losing much of its liveliness.

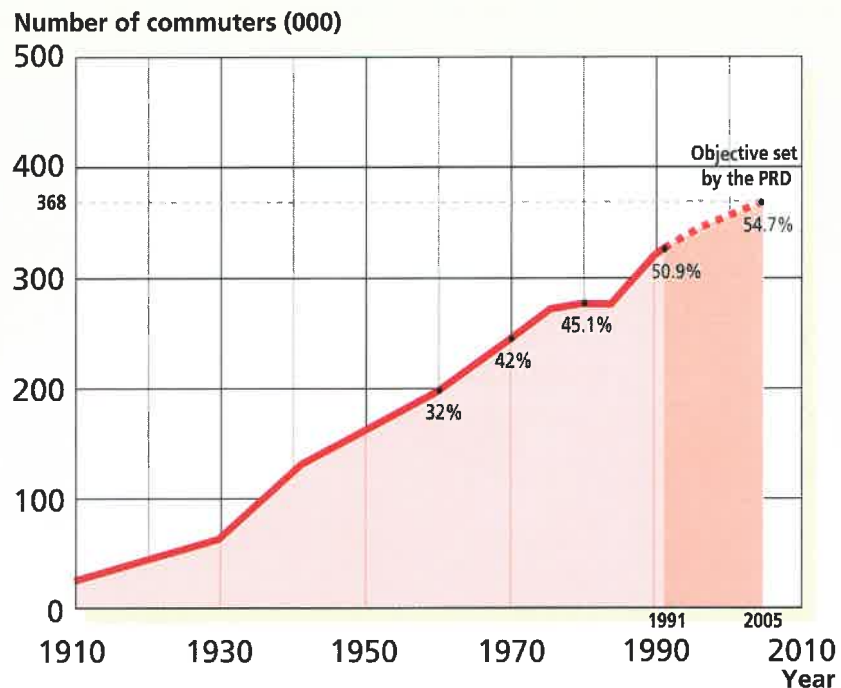


## Change in the number of people commuting to the Brussels Region

Commuters now account for more than one out of every two jobs in the Brussels Region.

In spite of efforts under the Regional Development Plan (PRD) to stem the increase in the number of jobs held by commuters, their proportion is likely to continue to rise.

The percentages reflect the proportion of jobs in Brussels held by commuters



- The two trends are disturbing, because they put the Region's continued prosperity and political autonomy in jeopardy.
- In addition, the migration to the suburbs of people working in Brussels is causing increased congestion on all roads into the city.
- The widening discrepancy between the size of the population and number of jobs adds to the need for commuting over longer distances and is harmful to the quality of life in the Region.



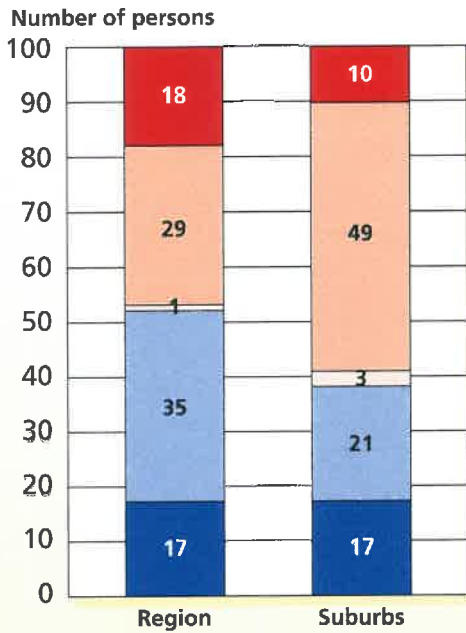
*The morning flow of university students.*



*Commuters on their way to work.*

### Daily mobility (1991) (per 100 inhabitants 6 years and over)

*In urban districts, more than one-third of the population travels exclusively on foot, whereas close to half of the people in the suburbs travel by car.*

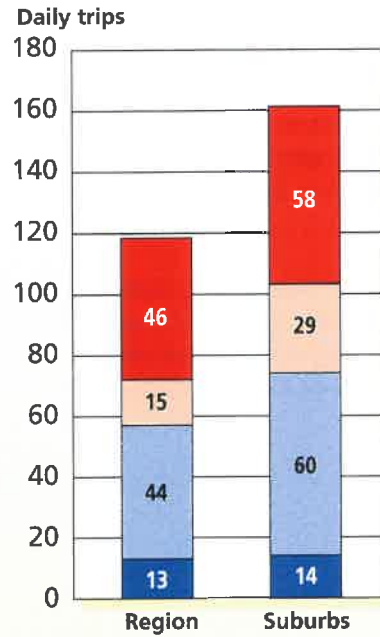


#### Percentage of population travelling

- by public transport
- by car
- by bicycle
- exclusively on foot
- not at all

### Daily vehicular travel, by motives (1991) (per 100 inhabitants 6 years and over)

*Residents of the outer suburbs travel more and use more private vehicles and public transport than those of the Region.*



#### Motives for travelling

- commuting to work
- commuting to school
- going from home and other locations
- travel not to or from home

### Change in the relative use of public and private means of transport (1981-1991)

*Over a ten-year period, the share of commuters using the public transport system has declined sharply, although students have remained major users of public transport.*

Region residents Mode of transport	1981		1991	
	public	private	public	private
To and from work	39.6 %	60.4 %	27.1 %	72.9 %
To and from school	60.6 %	39.4 %	58.5 %	41.5 %

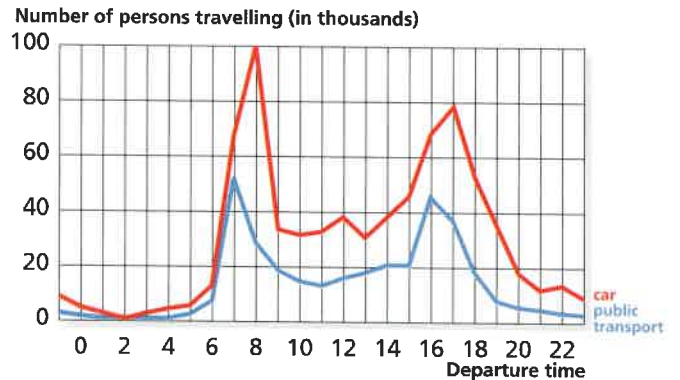
### Ratio of travel by public transport and private vehicle, by motives (1991)

MOTIVE  <i>Percentage for each motive</i>	Region residents				Suburban residents (11 municipalities)			
	All day		7 to 9 a.m.		All day		7 to 9 a.m.	
	Public transport	Private vehicle	Public transport	Private vehicle	Public transport	Private vehicle	Public transport	Private vehicle
<b>Regular commuting</b>								
To and from work	27.1	72.9	26.4	73.6	13.7	86.3	13.2	84.8
To and from school	58.5	41.5	55.1	44.9	23.9	76.1	21.6	78.4
<b>Occasional travel</b>								
Between home and other locations	27.4	72.6	17.9	82.1	6.7	93.3	8.4	91.6
Travel not to or from home	23.5	76.5	31.7	78.3	9.8	90.2	13.5	86.3
<b>Total travel</b>	30.8	69.2	31.7	68.3	12.6	87.4	15.9	84.1

- Over one day (in 1991) out of every 100 inhabitants 6 years and older
  - 18 travelled by public transport
  - 29 travelled by car
  - 1 travelled by bicycle
  - 35 travelled exclusively on foot
  - 17 did not travel.
- In 1991, public transport accounted for **27 percent** of all travel to and from work by the Region's residents.  
Based on the 1980-1990 trend, that share would decline to 16 percent by 2005.
- On the other hand, the proportion of commuters travelling by car would rise to 84 percent in 2005, from **73 percent** in 1991.
- In the absence of any measure to reverse these trends, travel time would increase by 80 percent and traffic congestion would become generalised.

### Hourly fluctuations in travel by Brussels Region residents, by transport mode (1991)

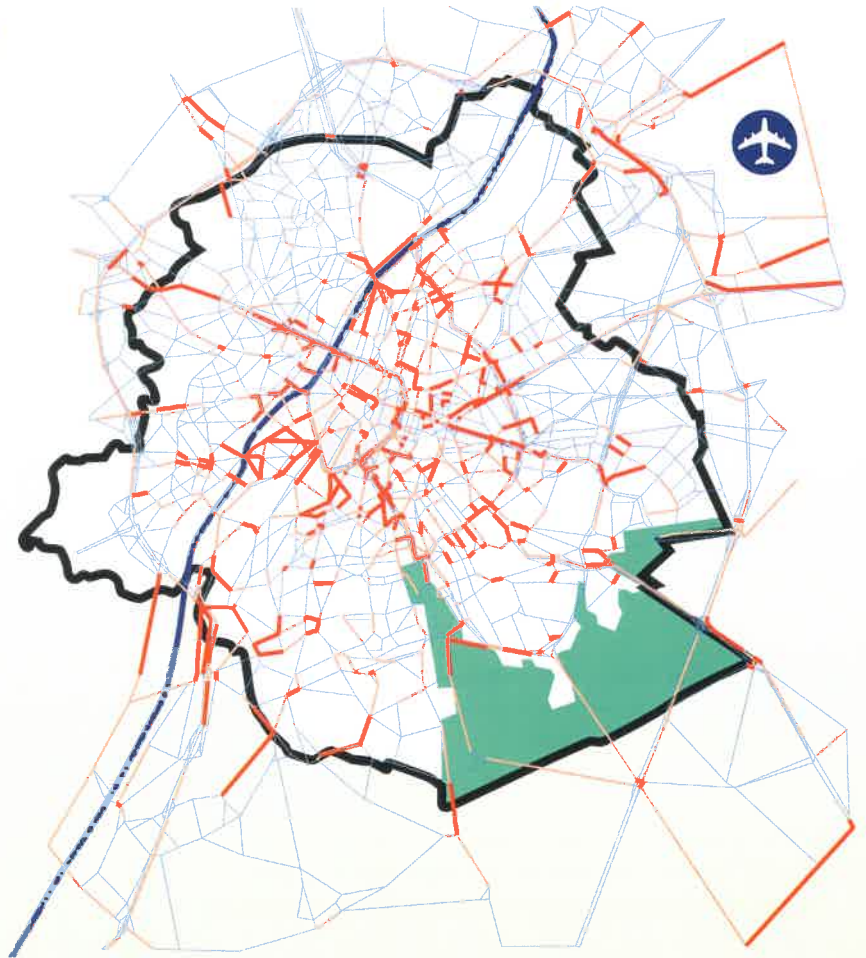
*The peak period is in the morning, from 7 to 9 a.m.. The evening rush hours are spread out over a longer period.*



Everyday mobility.

## Saturation level of the road network at morning rush hour (7.30 to 8.30 a.m.) in 1991

*In 1991, the region's road network was already frequently saturated at morning rush hour.*



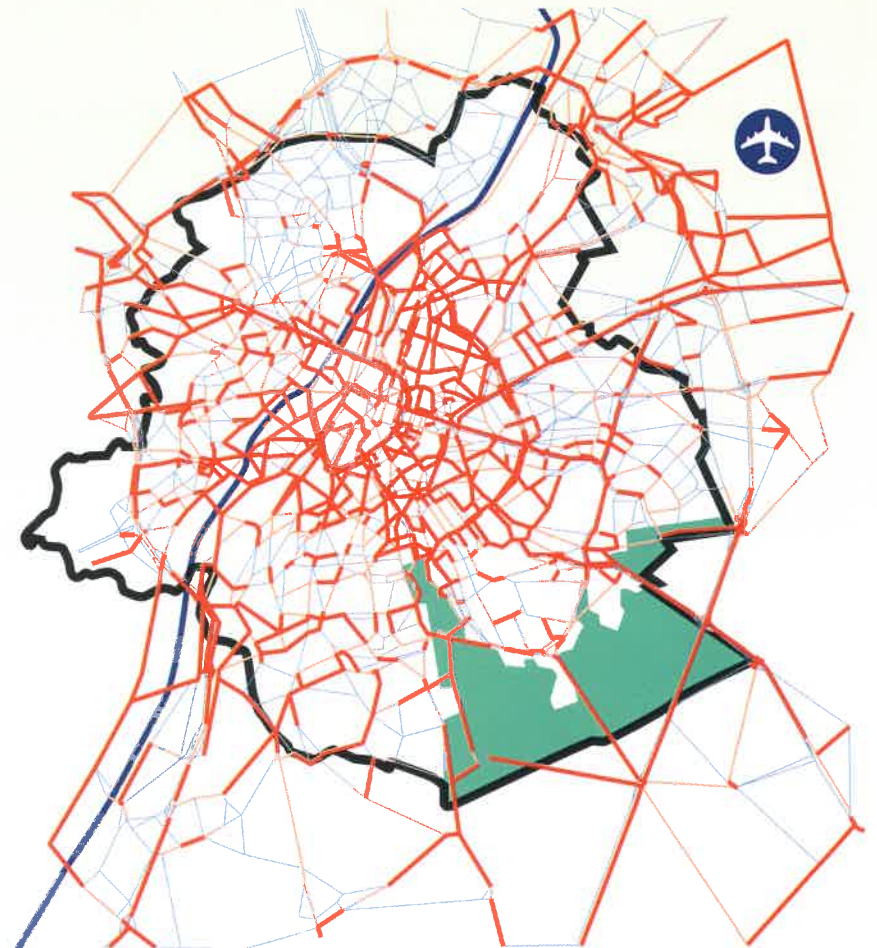
### Saturation level

(traffic volume/road capacity)

- saturated roads (more than 100%)
- roads near saturation (80% to 100%)
- roads not saturated (less than 80%)

## Saturation level of road network at morning rush hour (7.30 to 8.30 a.m.) in 2005

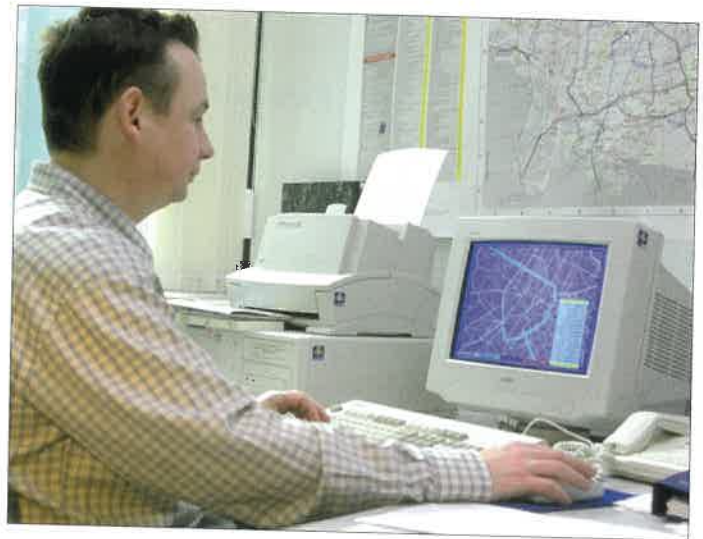
*By 2005, the situation will be intolerable if trends are allowed to continue unchecked.*



- In the past, mobility policy amounted to providing more transport facilities as the demand for travel increased, without anticipating future developments.  
No synergies were developed between this policy and regional development.
- Today, this approach is proving inadequate, owing to space limitations in urban areas and the decline in opportunities for public investment.
- What is needed today is a planning policy designed to control the demand for travel and adapt supply accordingly.
- Mobility can be managed efficiently provided that measures are based on
  - a comprehensive study of people's travel patterns and of the alternatives preferred by business and commercial interests
  - the development of traffic simulation tools
  - the use of these tools to test measures aimed at demand
  - a deliberate and consistent policy of mobility planning
  - specific policies on regional development and the improvement of public areas.



Surveying the travel patterns of the population.



Making computerised dynamic simulations of traffic.

### Data collection

*The quality of a study of urban transport depends in part on the care with which data has been collected regarding demand for travel and traffic flows.*

Surveys conducted in 1990-1991	
1 Survey of households	5,000 households, of which <ul style="list-style-type: none"> <li>• 3,500 in Brussels</li> <li>• 1,500 in the suburbs</li> </ul>
2 Survey of businesses	165 businesses polled
3 Survey of origin and destination of road traffic	17,500 vehicles (1)
4 Survey of origin and destination of railway passengers	8,000 passengers (2)
5 Survey of public transport travel patterns	4,500 riders
6 Road traffic flow	1,700 measurements
7 Public transportation passenger count	800 measurements

(1) one vehicle out of 15 over an entire day  
 (2) one user out of 15 over an entire day

*For the purpose of analysing the existing situation, a **trend scenario** of changes to 2005 was developed by simulation; then, a **planning scenario** was drawn up reflecting all measures designed to have an impact on adverse trends and to improve travel in the Region.*

## Past and estimated future population trends

### Population size

The assumption in the "trend" scenario is that residents of the Region will continue to move to the suburbs. The "planning" scenario rectifies this trend by assuming that the Region will again attract residents, so that the population of the greater Brussels area would increase slightly and the Region would gain 34,000 inhabitants.

The greater Brussels area, as defined in the Iris Plan, includes the 19 municipalities of the Region of Brussels-Capital and 33 suburban communities, for a total of 52 municipal entities.

	Greater Brussels	Region	Outer Suburbs
1981 population	1,546,900	997,300	549,600
1991 population	1,531,600	954,000	577,600
<b>1981-1991 change</b>			
in numbers	-15,300	-43,300	28,000
in percent	-1.0	-4.3	+5.1
<b>Trend scenario</b>			
2005 population	1,546,400	936,200	610,200
1991-2005 change			
in numbers	14,800	-17,800	32,600
in percent	+1.0	-1.9	+5.6
<b>Planning scenario</b>			
2005 population	1,573,200	988,000	585,200
1991-2005 change			
in numbers	41,600	34,000	7,600
in percent	+2.7	+3.6	+1.3

## Past and estimated future employment trends

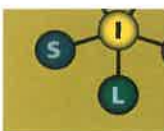
### Total employment

Under the assumptions of the trend scenario, there would be a continued imbalance between the development of the Region and of the surrounding area.

The planning scenario assumes a moderate increase in employment in the Region and a more marked increase in the suburbs, with a total of 900,000 new jobs being created in the greater Brussels area.

	Greater Brussels	Region	Outer Suburbs
1981 population	778,800	618,500	157,300
1991 population	829,900	632,000	197,900
<b>1981-1991 change</b>			
in numbers	54,100	13,500	40,600
in percent	+7.0	+2.2	+25.8
<b>Trend scenario</b>			
2005 population	896,300	652,400	243,900
1991-2005 change			
in numbers	66,400	20,400	46,000
in percent	+6.8	+2.9	+16.5
<b>Planning scenario</b>			
2005 population	900,600	672,700	227,900
1991-2005 change			
in numbers	70,700	40,700	30,000
in percent	+8.5	+6.4	+15.2

# 1.6 THE AIMS OF THE IRIS PLAN



THE CHALLENGE

- **The Plan seeks to end the spiralling economic and demographic decline and to make urban areas attractive again for residents, business and shops, by**
  - diminishing noise
  - reducing pollution
  - improving access
  - lessening stress.
- **It also aims to reconcile economic development with the quality of urban life, by**
  - facilitating access to urban activities (work, shops, services, entertainment, etc.)
  - reducing the overall nuisances caused by automobile traffic and protecting residential areas as effectively as possible
  - preserving the quality of public areas.

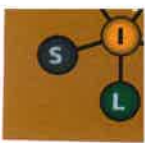


*Quality of public areas and economic development.*



*Making life in urban areas pleasant again.*

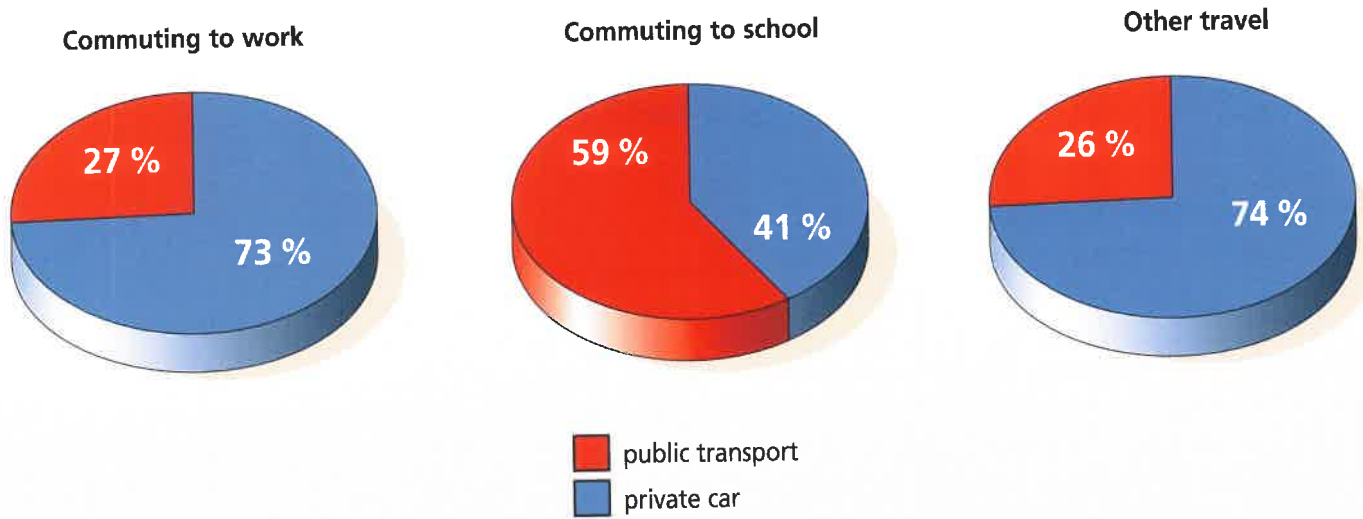




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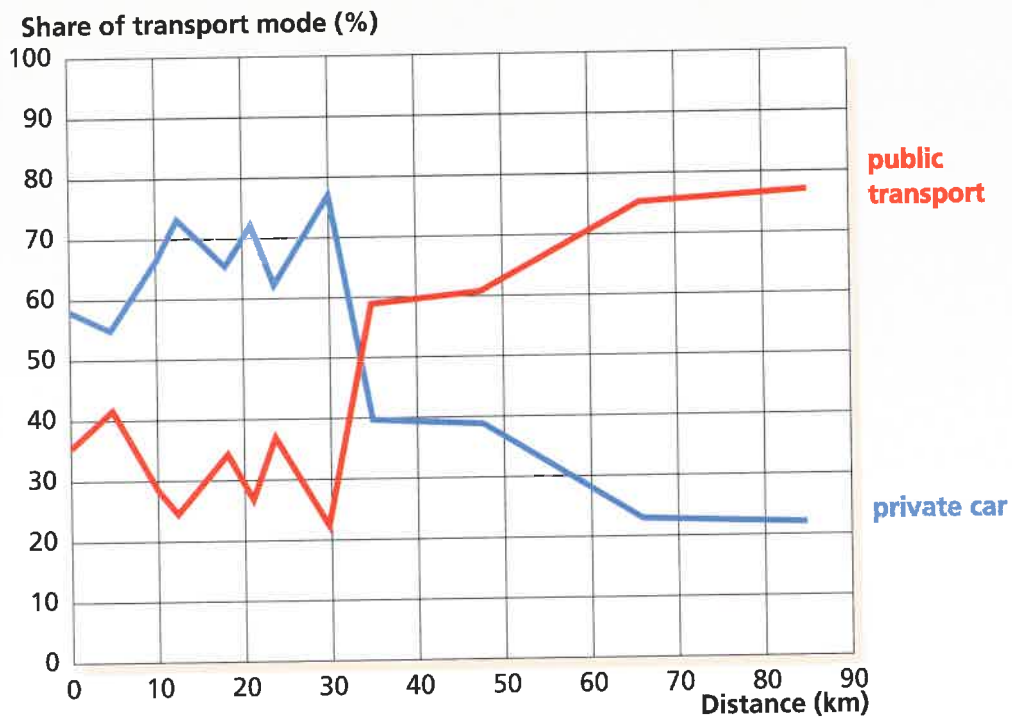
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## Choice of transport mode by Region residents, according to the trip's nature (1991)



## Distance factor in determining the mode of transport for commuting to work

*Private cars are the transport of choice for commuters travelling up to 30 kilometres, whereas a majority of those commuting over longer distances do so by public transport.*



As the mobility of the population rises, the number of motor vehicles and distances travelled increase.

Several criteria come into play when choosing a mode of transport:

- **The trip's nature**

- commuting (to and from work or school) is more likely to be by public transport than casual travel (weekly shopping trips, social calls, etc.).

- **The distance travelled**

- people tend to walk or ride bicycles for short trips in the neighbourhood (a few hundred metres)
- bicycles, taxicabs and public transport are very competitive in relation to private cars for trips within the city (less than 5 kilometres)
- for medium distances (up to 30 kilometres), private cars and public transport are in competition, with cars enjoying the edge in terms of flexibility and comfort
- for longer travel (more than 30 kilometres) public transport is the preferred mode, in particular to congested urban districts.



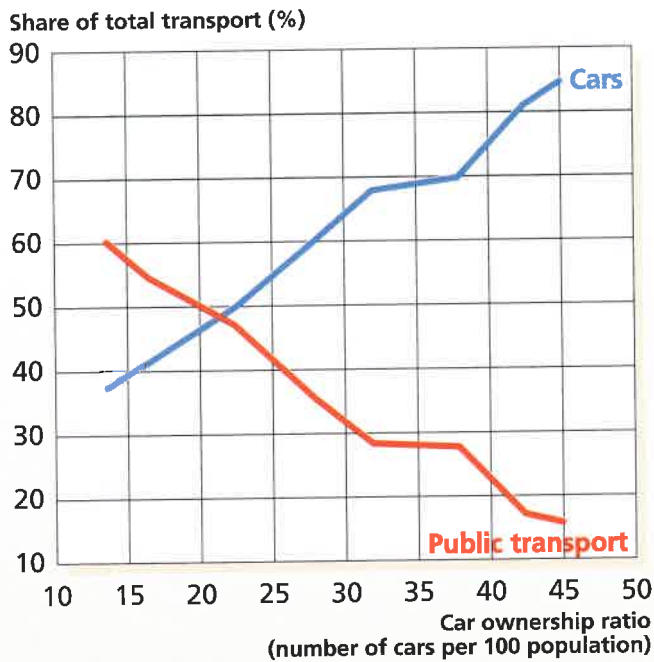
*On the way to school.*



*Travel over medium distances (30 km) by public transport and private car.*

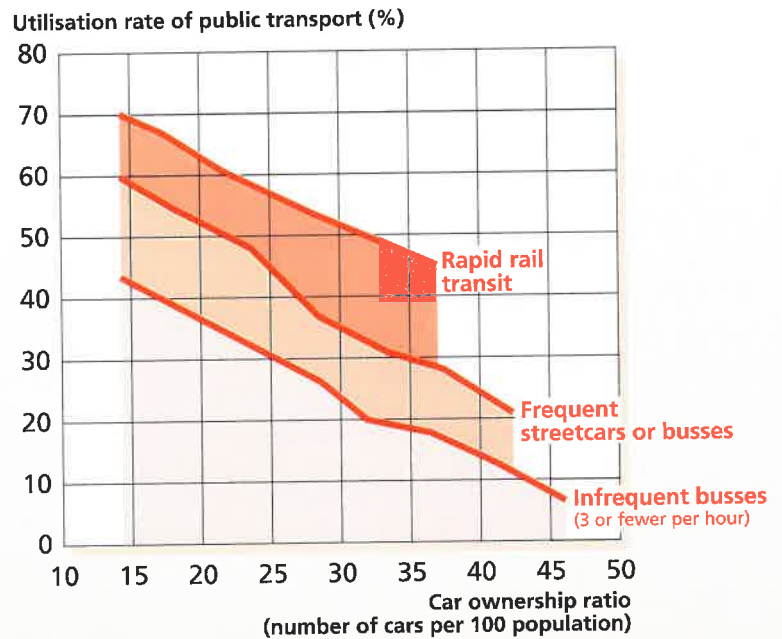
## Impact of car ownership on the choice of commuting mode

The ownership of a car provides an incentive to use it to commute to work.



## Utilisation rate of various modes of public transport to commute to work, in relation to car ownership (over less than 10 kilometres)

Commuters use, in decreasing order of volume, rapid rail transit, streetcars or busses, provided these run with sufficient frequency.



Percentages expressed in terms of the total working population using vehicular transport.

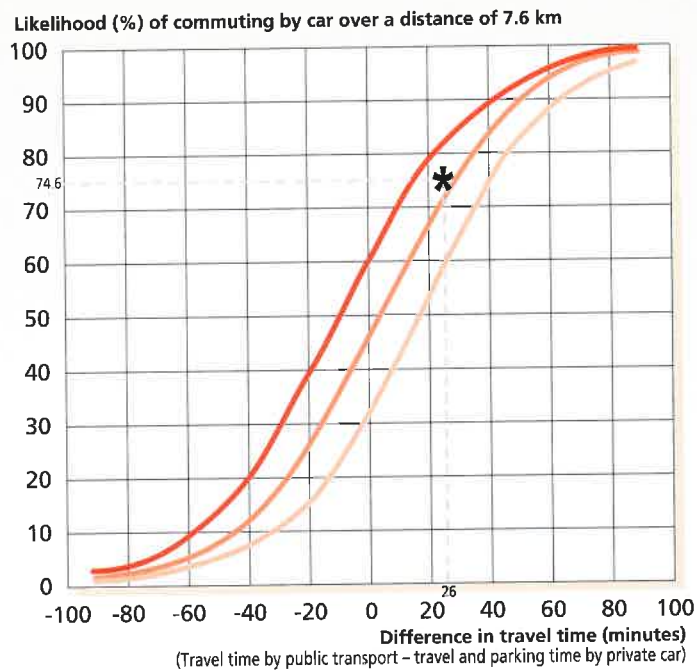
## Likelihood of commuting by private car, as a ratio of the difference in travel time between public and private transport Combined effect

In a district at a medium distance from the centre of Brussels, and with a car ownership ratio of 32.3 percent, for an average commuting distance of 7.6 km, travel by public transport takes 26 minutes longer than by private car. As a result, 74.6 percent of the commuting residents of the district use their cars at rush hour.

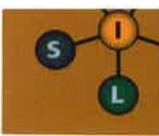
If the car ownership ratio goes up by 10 points (from 30% to 40%), the difference in travel time between public and private transport must be reduced by 13 minutes for public transport to hold on to its share of the commuting population.

Car ownership ratio (number of cars per 100 population)

- 40%
- 30%
- 20%



# 1 INDIVIDUAL TRAVEL PATTERNS AND THE CHOICE OF TRANSPORT (continued)



THE PARTIES INVOLVED

## • Car ownership

- households without cars depend on the availability of public transport for all travel that cannot be done on foot or by bicycle
- for a majority of households, owning a car means having more options in terms of travel and a choice among transport modes.

## • The relative benefits of competing transport modes

- people opt for a transport mode primarily based on the service provided and its quality
- some users behave as informed consumers and compare services in terms of cost and convenience (travel time, dependability, frequency, comfort, etc.), whereas others are poorly informed and are influenced by irrational considerations
- people prefer public transport with its own right of way (trains, rapid rail transit), because service is regular and not affected by traffic congestion
- the private-car option depends in part on parking conditions at the destination point
- the weather also plays a role in the choice of transport.



*Transporting children to their activities.*



*Many people prefer public transport.*

## Survey of households (1990) Why do people move to the suburbs?

*An extensive 1990 survey of 5,000 households provided new information concerning the motives behind their residential choice.*

1. **The primary motive behind the choice of a residence is the accomplishment of a lifetime family project**  
*The choice is based on all important considerations by household members, including such key factors as the safety of children, the proximity of parks and the social environment.*
2. **It is possible to get better housing value for the money in the outer suburbs than within the Region**  
*Affordable housing for middle-class families is what attracts households to the outer suburbs, where they find quality homes at reasonable prices. High-income families can afford to live in the residential districts of Brussels' Second Ring, whereas those with more limited revenues are forced to find accommodations in the central districts' low-priced housing.*
3. **The resulting travel patterns depend on the household members' need for mobility**  
*Age is an important factor in the mobility of adults. The need to travel is determined by employment status and depends very little on income. It is more representative of a lifestyle than of residential location. It reflects people's attitude toward the world at large.*
4. **The choice of transport mode is adapted to the location**  
*In densely-populated areas, people frequently walk; they do so less often as the density drops, preferring vehicular travel. Only people with an income above a certain level enjoy the freedoms associated with cars and have the opportunity to leave behind the nuisances of urban districts, while staying connected to cities, if only through their jobs.  
The paradox is that people who seek to escape those nuisances create new ones, namely more traffic congestion caused by people commuting to jobs in the city from the outlying areas. Thus, the greater the dilution of the urban fabric, the more it requires the use of private cars. Conversely, the greater the use of private cars, the more the constituents of urban life are dispersed.*

## Benefits and drawbacks of life in urban districts

Percentage of households citing benefits or drawbacks	
<b>Benefits</b>	
No benefits	7 %
1 - Access to services	54 %
2 - Ease of communications	38 %
3 - Leisure-time facilities	22 %
4 - Job opportunities	5 %
5 - Quality of the environment	5 %
<b>Drawbacks</b>	
No drawbacks	24 %
1 - Noise	30 %
2 - Pollution	24 %
3 - Transportation problems	24 %
4 - Low quality of the environment	19 %
5 - Lack of security	12 %
6 - High cost of living and housing prices	7 %

Households make decisions regarding the location of their residence in two stages.

**1 - They decide where they want to reside based on their life project and resources:**

- the family projects of middle- or high-income households lead most of them to opt for a non-urban environment, often in the outer suburbs; they are seldom deterred by the need to commute frequently and over long distances to work and public facilities;
  - ➔ they have a high degree of mobility and their car ownership ratio is rising.
- single-parent families, individuals living alone and older people prefer to live in the city so as to be closer to jobs, services, public facilities and entertainment venues
  - ➔ they frequently use public transport, even in the case of young people, but, except for the relatively old, they are also car owners.
- low-income households are forced to live in areas where housing is inexpensive
  - ➔ they have little demand for transport, in part because their members are often unemployed or retired.



*Making the choice of family life in a quality environment.*



*Selecting a stable residential location.*



*Opting for the proximity of the central districts.*

## Motives for the use of vehicular travel by adults (in the greater Brussels area)

The five basic patterns

*So-called commuting households are those whose members must travel to work and back on a daily basis.*

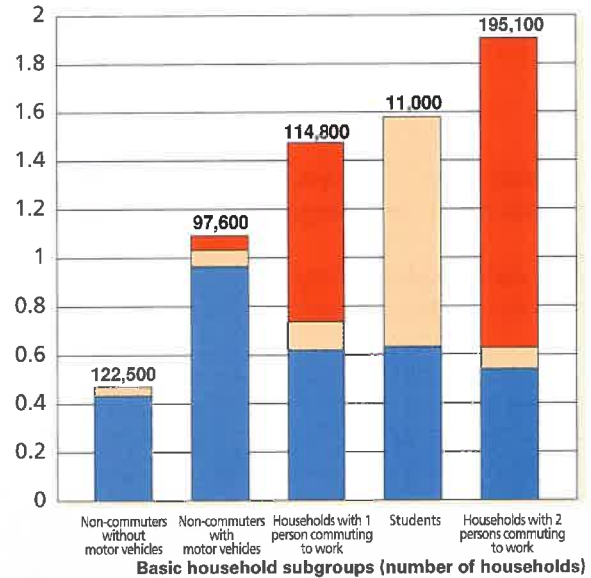
*Non-commuters are those not required to travel on a regular basis.*

*The increased car ownership ratio among older persons the rise in employment rates among women are two major factors contributing to increased mobility.*

### Motives for travelling:

- commuting to work
- commuting to school
- other motives

Number of trips per adult per day



## Modes of vehicular travel by adults (in the greater Brussels area)

The five basic patterns

*Students and people who do not own cars are forced to use the public transport system.*

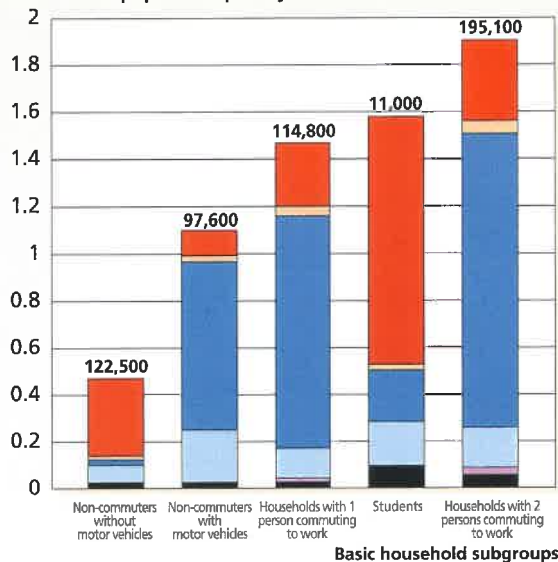
*Households which have a choice opt for travel by private car.*

## Travel mode used according to the location of the residence

Mobility of a middle-class family with two children

*The mobility of families residing in the outer suburbs increases when they have children who must be taken to school or to the venues of other activities on a regular basis.*

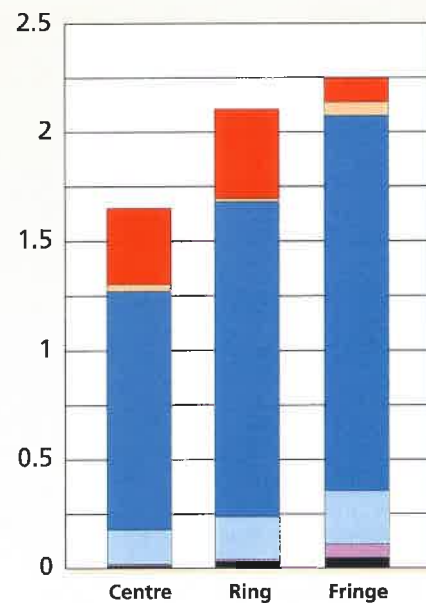
Number of trips per adult per day



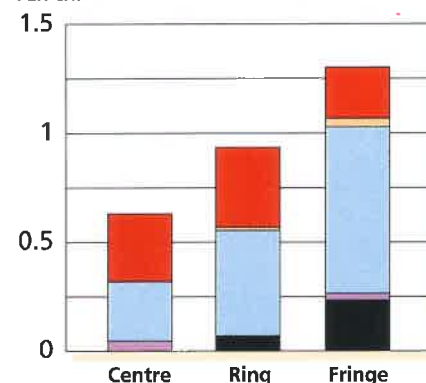
### Travel mode

- urban public transport
- train
- private car driver
- private car passenger
- combined modes
- other modes

Number of trips by vehicle per day, PER ADULT



Number of trips by vehicle per day, PER CHILD



## MOTIVES BEHIND THE CHOICE OF RESIDENCE BY HOUSEHOLDS AND THEIR MOBILITY NEEDS (continued)

### 2 - Households adapt their transport modes to their travel patterns and itineraries

- if they are employed, have children and live in the suburbs, they are more likely to use private cars.

#### ➔ The migration of families away from urban districts and the scattering of housing in the outer suburbs has resulted in

- a loss of resources for the Region
- more frequent travel by car
- an increase in commuter traffic from the suburbs into Brussels, in particular at rush hour



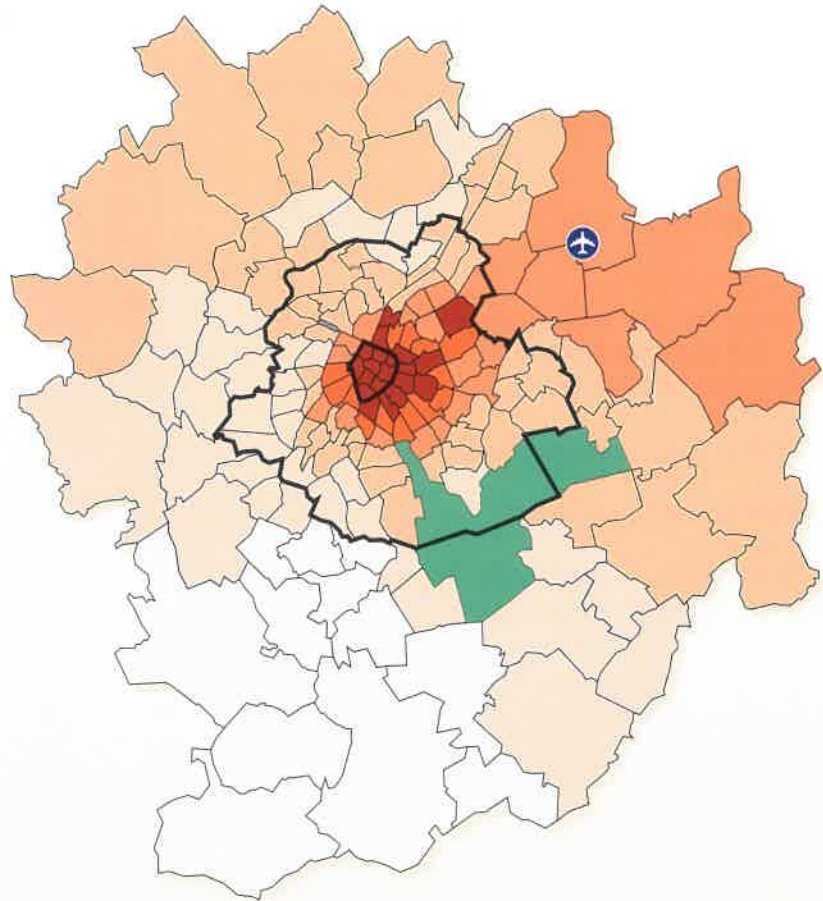
*Private cars are generally associated with suburban dwellers.*

*Rush-hour traffic between the outer suburbs and Brussels.*



## Impact of traffic congestion on access to central urban districts at morning rush hour

*Traffic density adds to the time required to travel to districts of destination, regardless of where commuting originates. Central urban districts are particularly affected.*

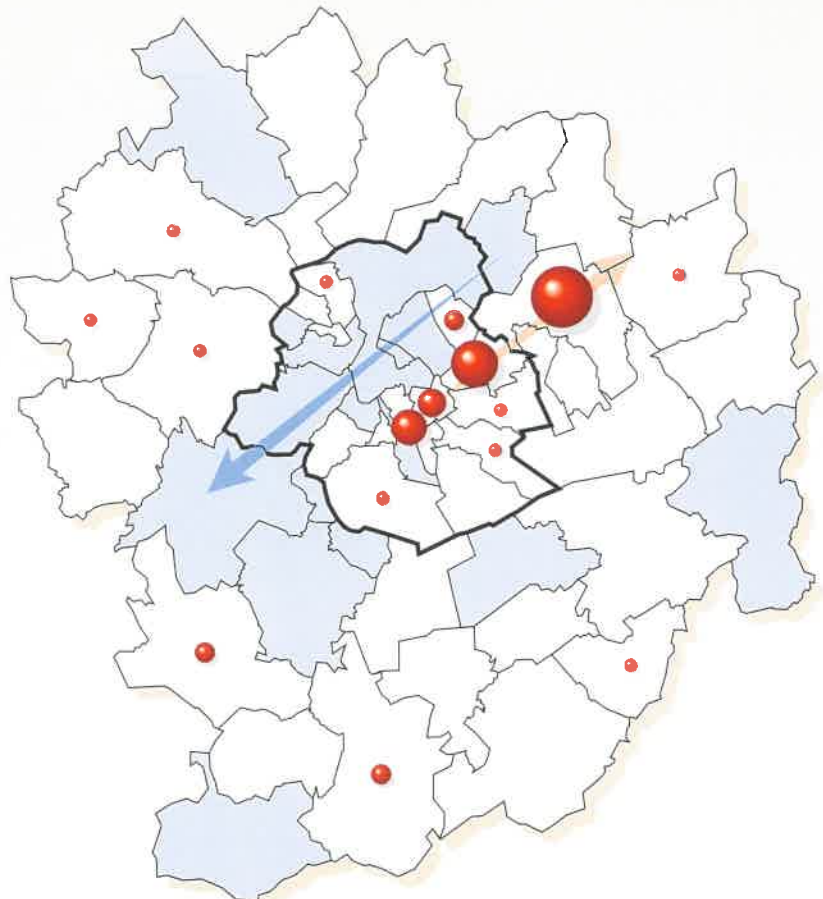


**Increase in travel time caused by congestion:**

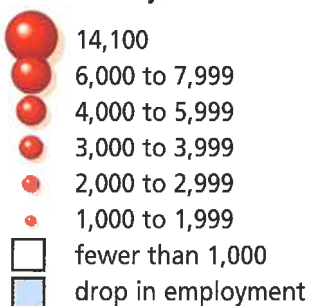


## Change in wage-earning employment from 1981 to 1991

*The Canal area is in decline. New areas attracting business are those on the axis between Ixelles and Zaventem, the Second Ring residential districts, the eastern districts and the fringe satellite districts.*



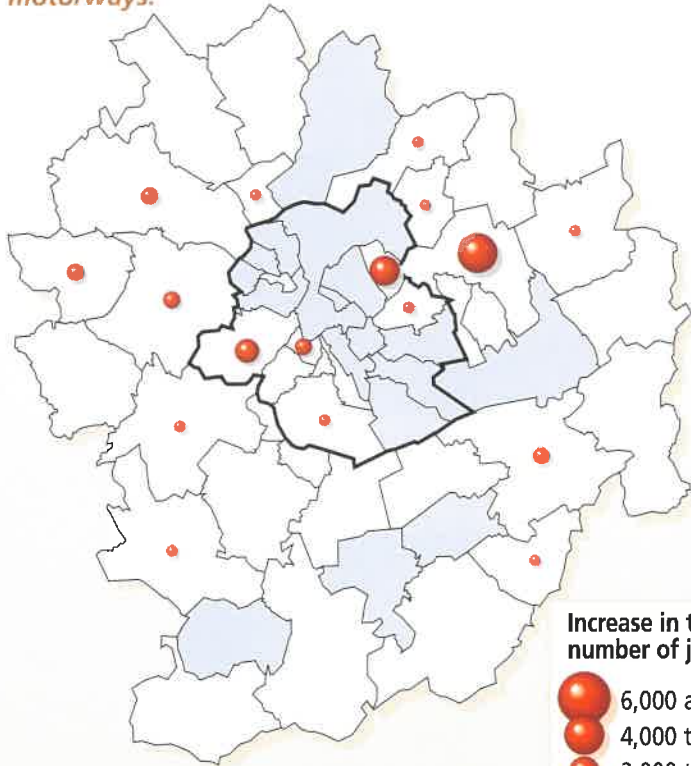
**Increase in the absolute number of jobs**





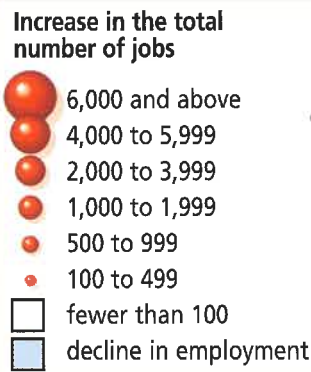
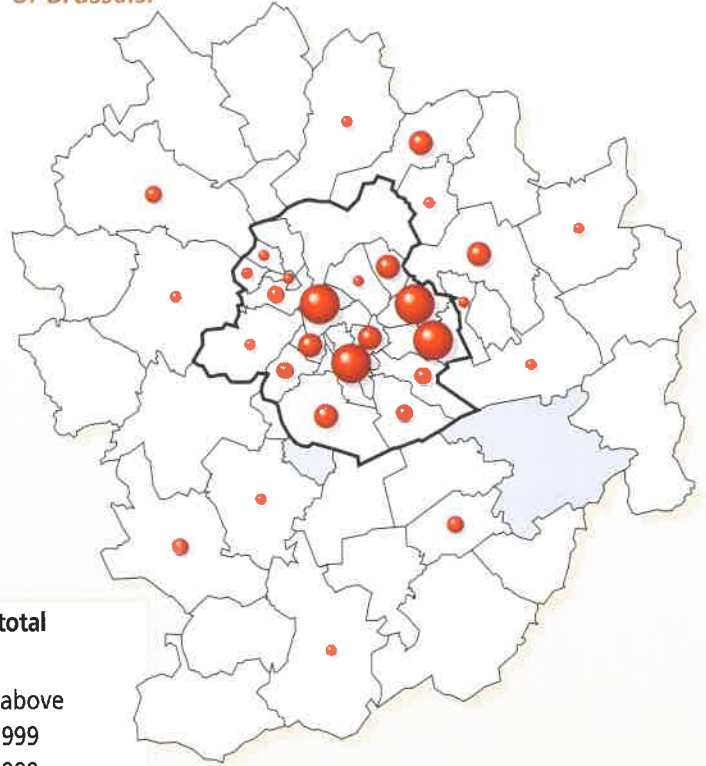
**Change in employment in wholesale and freight transport (1981-1990)**

*The sector has been expanding but tends to move out of the Region and to locate closer to the outlying motorways.*



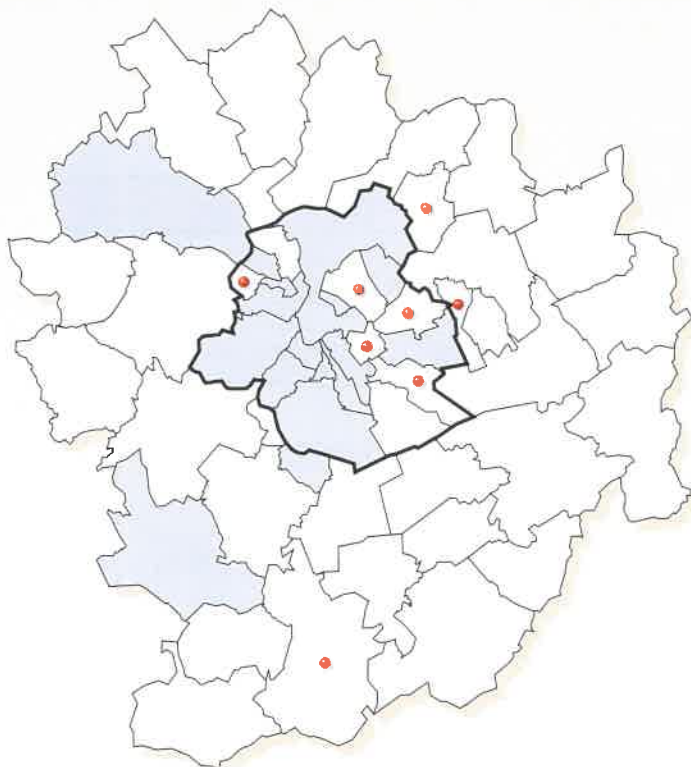
**Change in employment in business management services (1981-1990)**

*The Region attracts many firms from the sector, which tend to locate in the Second Ring districts east of Brussels.*



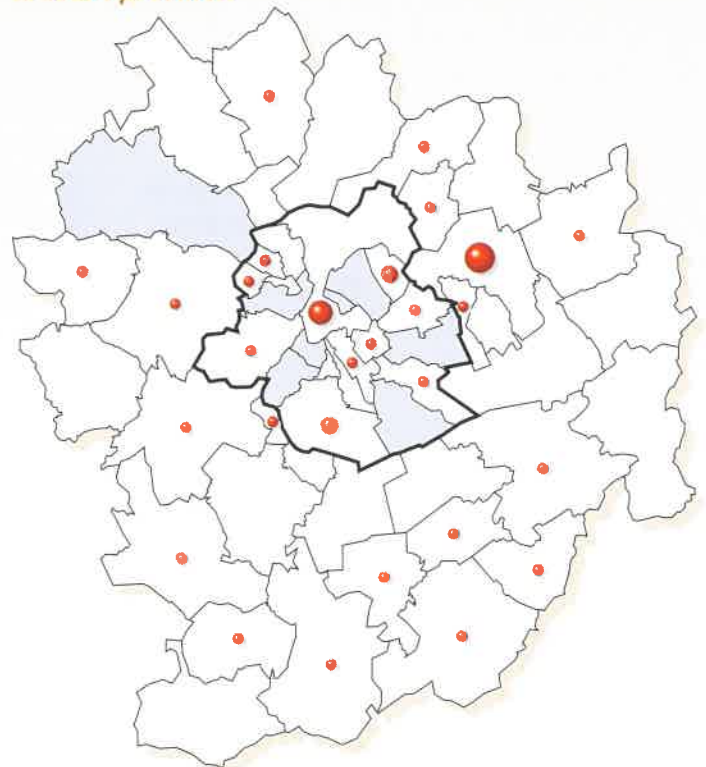
**Change in department store employment (1981-1990)**

*Major shopping centres are expanding mainly in Second Ring municipalities.*

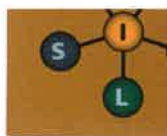


**Change in employment by local retail shops (1981-1990)**

*Smaller retail facilities are opening primarily in the Second Ring districts and in the Walloon section of Brabant province.*



## THE NEED FOR MOBILITY AND CHOICE OF LOCATION BY BUSINESS (continued)



THE PARTIES  
INVOLVED

- **Business firms locating in the Brussels area can be divided into four main groups, based on their transport needs:**
  - **Manufacturing, wholesale and freight transport companies**
    - broad market, goods transported by road
    - need considerable low-priced space as well as excellent road connections to and from distant locations
  - ➔ **Locating in the outer suburbs.**
  - **Business and administrative tertiary sector management offices**
    - extensive scope but require little space per employee
    - limited transport needs but seek prestigious locations with easy road access for a highly skilled staff that travel mainly by car
  - ➔ **Sharp increase in the Region but many locating in primarily residential districts. Urban districts are now in competition with the suburbs.**
  - **Urban retail trade and public and private services, required by the city and its surroundings**
    - large market and broad customer base
    - need for easy access by car and public transport
  - ➔ **Larger facilities and commercial firms tend to move to the suburbs, in spite of less convenient access by public transport.**
  - **Local retail trade and public and private services, required by local districts**
    - exist where there is housing – local customer base
    - need to be accessible on foot, by bicycle or by car
  - ➔ **Shops and service firms are adapting to changes in the profile and purchasing power of the population.**



*Shopping centre in the suburbs.*



*Business and administrative tertiary sector management offices in the central district.*



*Local retail shops adapted to their neighbourhood.*

## Number of trips by public transport and private car, according to origin and destination

Data for 7 to 9 a.m. on an average week-day in 1991.

Origin	Total	Public transport %	Private car %
Travel to all parts of the Region			
Region	271,200	39	61
Outer suburbs	94,200	21	79
Rest of Belgium	113,900	51	49
<b>Total</b>	<b>479,400</b>	<b>38</b>	<b>62</b>
Travel to business district			
Region	56,900	51	49
Outer suburbs	14,200	42	58
Rest of Belgium	31,900	71	29
<b>Total</b>	<b>103,000</b>	<b>56</b>	<b>44</b>
Travel to the Second Ring			
Region	57,900	29	71
Outer suburbs	31,300	13	87
Rest of Belgium	24,100	35	65
<b>Total</b>	<b>113,300</b>	<b>26</b>	<b>74</b>

## Land use: business district and Second Ring

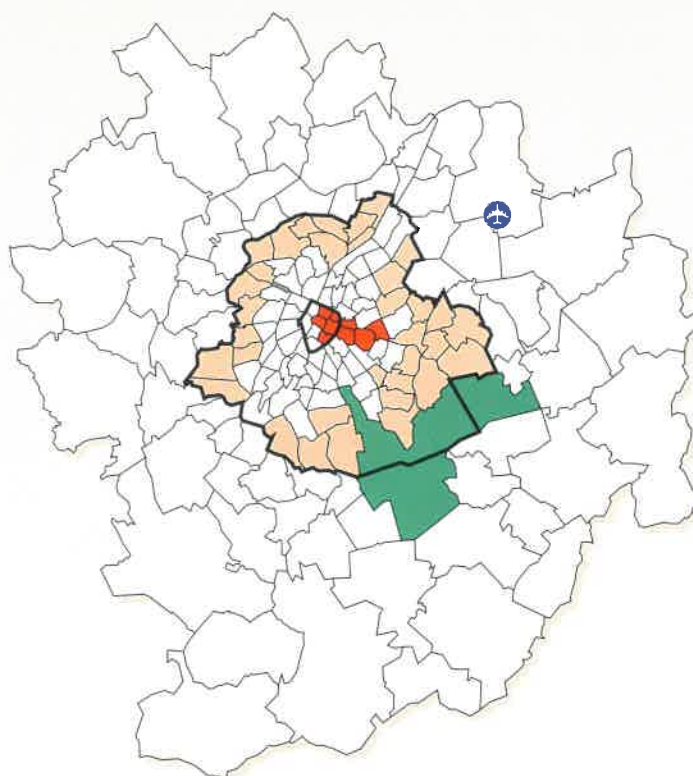
- The business district encompasses the eastern portion of the Pentagon and all of the area where the European institutions are located.

*In the business district, occupation density is very high, with offices taking up most of the space.*

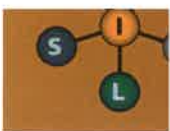
- The Second Ring includes the portion of residential suburbs at the outer edge of the Region of Brussels-Capital.

*Occupation density in the Second Ring is low. Most of the land is used for housing.*

*The quality of the environment and ease of access by car makes it an attractive location for offices.*



## THE IMPACT OF THE LOCATION OF HOUSEHOLDS AND BUSINESSES ON THE USE OF VARIOUS FORMS OF TRANSPORT



THE PARTIES INVOLVED

- The IRIS study provides overall data on
  - travel during morning rush hour on an average day in 1991
  - the origin and destination of travellers
  - the breakdown of travel by private car and public transport.
  
- There is a close correlation between the use of public transport and the origin and destination of travellers
  - **38%** of travel to all points in the Region during morning rush hour is by public transport
    - however, that percentage varies considerably depending on the origin and destination of trips within the Region
  - **56%** of all travel to the business district is by public transport
    - however, there are wide differences related to the point of departure of travellers, with percentages ranging between
      - **51%** for those originating in the Region
      - **42%** for those originating in the outer suburbs
      - **71%** for those originating in the rest of the country
  - only **26%** of travel to the Second Ring is by public transport, of which
    - **29%** of trips originating in the Region
    - **13%** of trips originating in the outer suburbs
    - **35%** of trips originating in the rest of the country.



Most people travel to the Second Ring by private car.

Most people travel to the central district by public transport.



## Average travel time during 7 to 9 a.m. morning rush hour (1991)

Time required to find a parking space is included in travel time by private car.  
Time required to get to the local stop is included in travel time by public transport.

### to any point in the Region

Origin	Average travel time (minutes)		
	By public transport (1)	By private car (2)	Difference (1) - (2)
Region	37	17	20
Outer suburbs	66	28	38
Rest of the country	75	50	25

### to the business district

Origin	Average travel time (minutes)		
	By public transport (1)	By private car (2)	Difference (1) - (2)
Region	34	24	10
Outer suburbs	62	44	18
Rest of the country	69	65	4

### to the Second Ring

Origin	Average travel time (minutes)		
	By public transport (1)	By private car (2)	Difference (1) - (2)
Region	42	13	29
Outer suburbs	67	21	46
Rest of the country	91	40	51

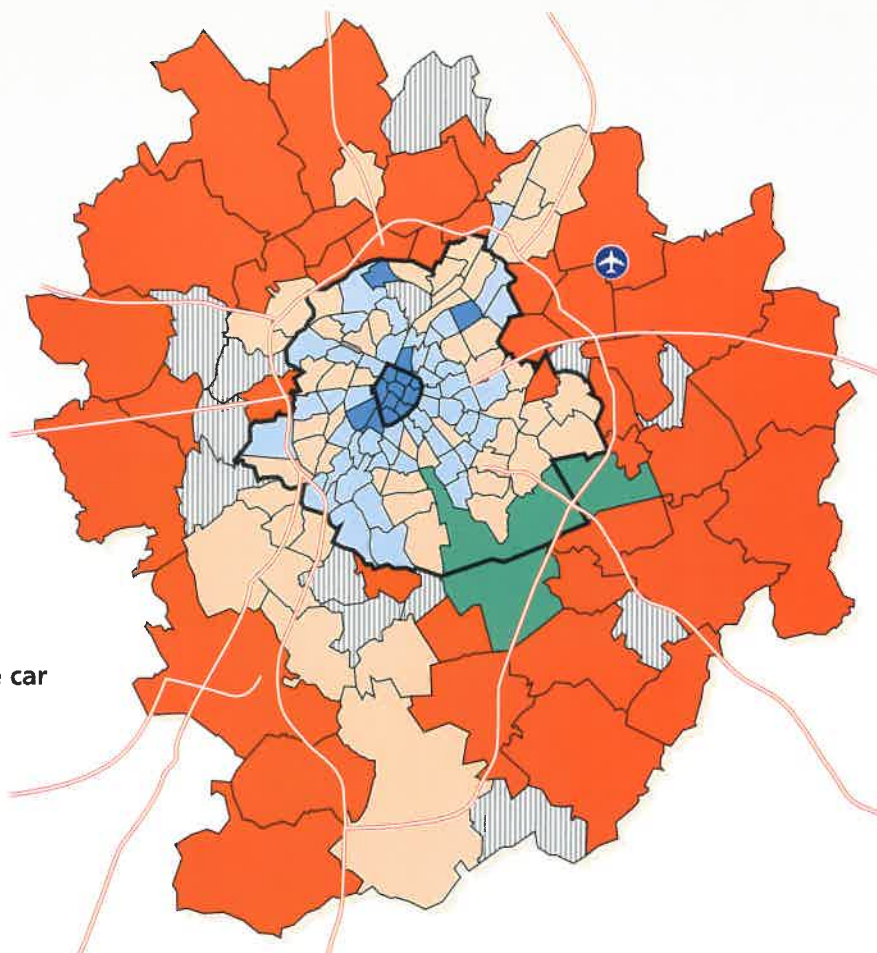
## Travel by private car by the working population residing outside the study area, according to districts of destination (Travel from home to work in 1991)

Thanks to the motorways and the ring road, access by road to Brussels' outer suburbs has become easier from anywhere in the Belgium.

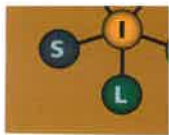
This is one of the main reasons why the region is attracting many business firms.

### Working population travelling by private car

- more than 65%
- 45% to 65%
- 25% to 45%
- 0% to 25%
- districts with a working population of less than 100



## THE IMPACT OF THE LOCATION OF HOUSEHOLDS AND BUSINESSES ON THE USE OF VARIOUS FORMS OF TRANSPORT (continued)



THE PARTIES INVOLVED

• A comparison of travel time by private car and public transport on these itineraries explains the choices made by commuters:

- the business districts enjoy good public transport connections with other parts of Brussels and the country at large, though not as good to the outer suburbs
  - the business districts are not readily accessible by car and finding a parking space is time consuming
  - **during the morning rush hour, travel time by car is only moderately shorter than by public transport:**
    - 10 minutes when coming from the Region
    - 18 minutes when coming from the outer suburbs
    - 4 minutes when coming from the rest of the country
  
- the Second Ring districts lack good public transport connections to the central district
  - even though certain districts are easily accessible by private car and parking spaces are plentiful
  - **during the morning rush hour, travel time by car is considerably shorter than by public transport:**
    - 29 minutes when coming from the Region
    - 46 minutes when coming from the outer suburbs
    - 51 minutes when coming from the rest of the country.

• Under the Regional Development Plan, land use policy for the Region seeks to

- locate major administrative headquarters near central train stations
  
- set aside land in Second Ring districts still available for business and located near motorways for manufacturing firms which must have easy access to road transport facilities.



*Saturated parking facilities in the central districts.*



*Ease of access by car to urban facilities located in Second Ring districts.*

## Sharing of jurisdiction and authority for transport and related matters

Federal government	Regions	Municipalities
<ul style="list-style-type: none"> <li>• Oversight of: - SNCB railways - the national airport</li> <li>• Civil aviation authority</li> <li>• Overall jurisdiction for road traffic legislation</li> <li>• Authority for transport systems in the national or international interest</li> </ul>	<ul style="list-style-type: none"> <li>• Oversight of: - STIB (Brussels Public Transport Company) - the port of Brussels</li> <li>• Layout of urban public transport systems (other than those of the SNCB)</li> <li>• Operation of main roads and motorways</li> <li>• Authority over taxicab services</li> <li>• Regional development</li> <li>• Regional urban planning</li> <li>• Regional environmental matters</li> <li>• Housing</li> <li>• Public works</li> </ul>	<ul style="list-style-type: none"> <li>• Management of local roads</li> <li>• Police authority on roads</li> <li>• Traffic and parking control</li> <li>• Local urban planning</li> <li>• Local environmental matters</li> </ul>



- Public authorities are responsible for protecting the current and future interests of the population and must therefore ensure the sustainable development of urban areas.
- In order to fulfil their duties and issue guidelines for individuals consistent with the common interest, government department and agencies must
  - oversee the locating of activities in urban areas
  - improve public transport and set fare levels
  - set fuel prices and vehicle taxes
  - implement parking regulations
  - plan the use of public space (allocation to public amenities and traffic)
  - inform the population.
- Jurisdiction is divided among the three Regions, the two Communities, the Federal Government and the Municipalities.
- Responding to the demand for travel requires that measures be closely co-ordinated. This can be achieved only if the various government levels work closely together.



Vlaams Parlement



## Instruments used by the Brussels public authorities



- **The principal instruments to which the Brussels public authorities have access for implementing transport policies are described below.**
  - For the purpose of influencing the location of facilities in order to limit the need for travel and promote the use of public transport:
    - the Regional Development Plan (PRD)
    - the Regional Land Use Plan (PRAS)
    - the Municipal Development Plans (PCD).
  - For the purpose of improving the quality and efficiency of the public transport system (STIB), motor vehicle traffic and parking within the Region; promoting walking and the use of bicycles; developing public areas and informing the population:
    - the Regional Mobility Plan (IRIS Plan).



*Co-ordination and co-operation between agencies.*

- **On certain other issues, the Region of Brussels-Capital has to work jointly with the other regions and the federal government.**  
These issues include

- setting fares for certain urban and inter-city transport services
- the road and rail network into and out of Brussels
- the control of traffic and parking
- traffic law
- setting taxes on motor fuel.



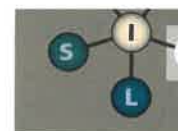
*Municipal traffic plan.*

- **The municipalities are responsible for**
  - enforcing parking regulations
  - regulating through traffic in residential areas
  - specifying, in their Municipal Development Plans, what Regional Development Plan measures affect them in terms of
    - the location of facilities in need of good public transport connections
    - the improvement of traffic and parking control within their perimeter.
  - Local traffic and parking plans must be effectively co-ordinated at the regional level in order to take into account differences between municipalities.



*Municipalities are responsible for enforcing parking regulations.*

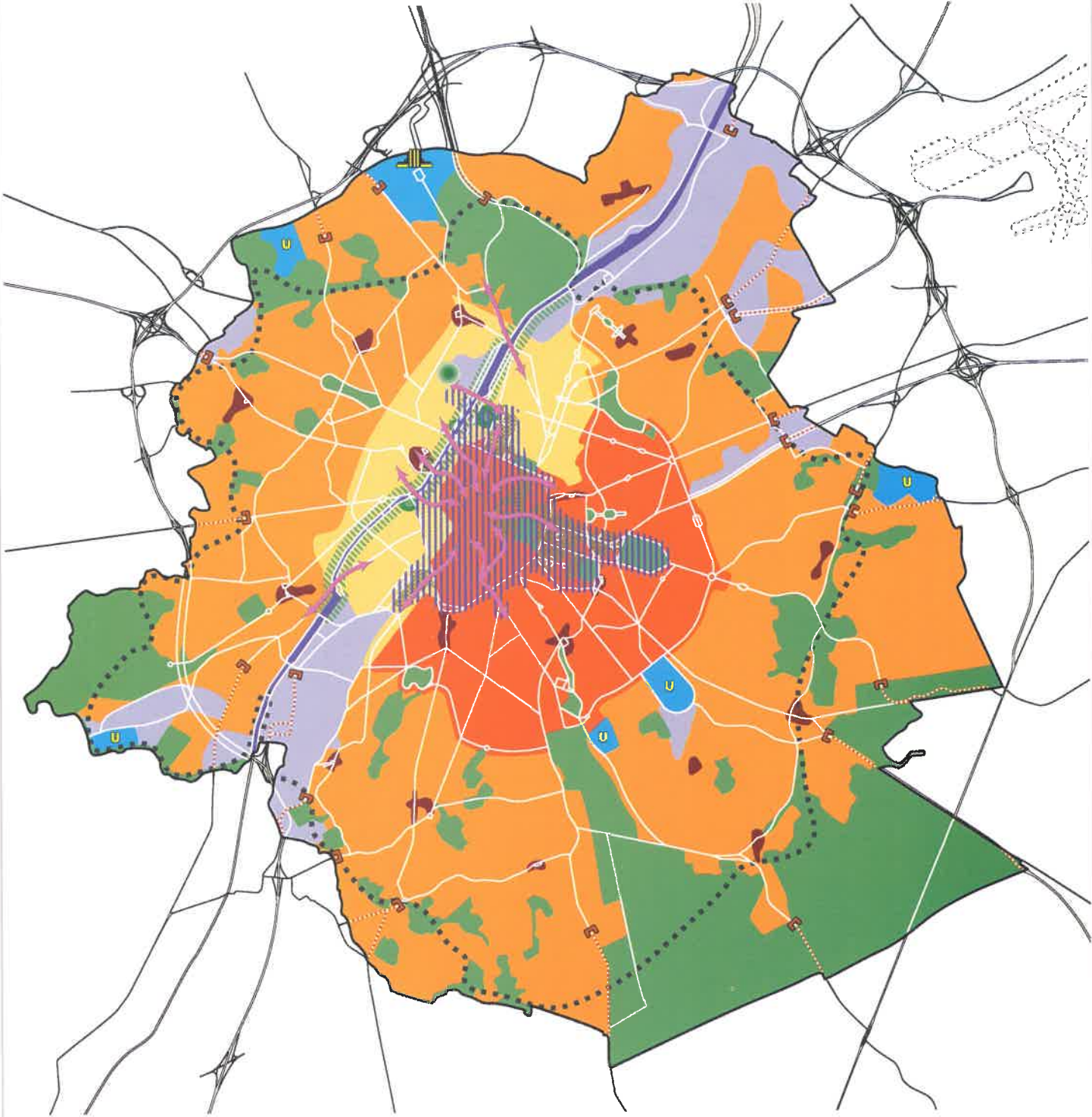




















### *Contents*

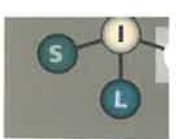
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# Urban project Regional Development Map



- |   |   |
|---|---|
|  centre-driven attraction                    |  park                      |
|  improved housing protection                 |  future park               |
|  housing protection                          |  canal banks               |
|  residential and business development        |  Heysel                    |
|  link  |  university                |
|  old centre                                  |  nature trail              |
|  urban industry, port and transport activity |  structuring space         |
|  metropolitan administration                 |  access to urban districts |

## OVERALL OBJECT: PRIORITIZING THE QUALITY OF LIFE IN BRUSSELS



- Life in urban areas is largely based on exchanges (business, commerce, entertainment, education, etc.), which must be encouraged. Individuals need to be able to move freely for these exchanges to occur.
- Providing for such mobility is a key to improving the quality of urban life.
- A balance must also be found between the conviviality of public areas and the development of a transport system.
- Attention must be paid to:
  - making life in the city more comfortable, especially for children, older people and those with impaired mobility
  - making public areas more convivial, by striking a balance between areas set aside for public facilities and the space needed for traffic
  - protecting residents against noise and pollution
  - paying special attention to living conditions in Brussels, including the quality of the environment, the protection of monuments and sites and the ease of traffic in public areas.



*Safe pedestrian areas.*



*A balance between areas set aside for people and the space required for traffic.*

*The amenities of urban residential areas.*



## Vehicular traffic to the Brussels-Capital Region Morning rush hours (7 a.m. to 9 a.m.)

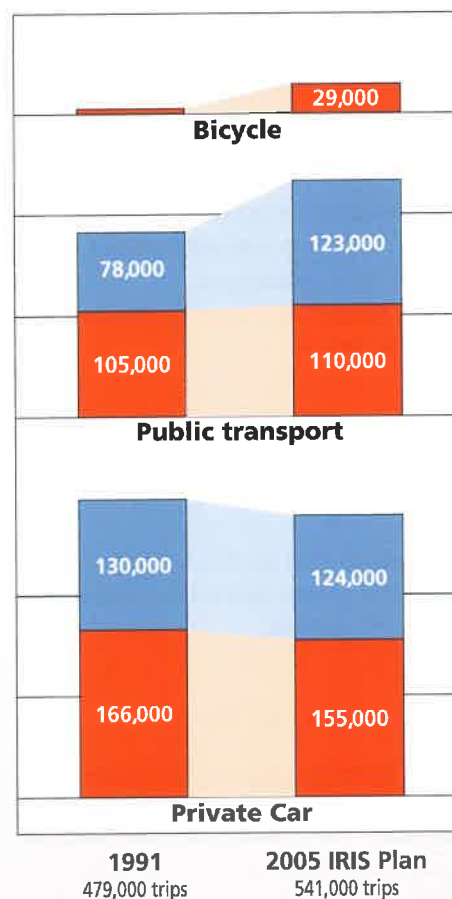
More people must be encouraged to travel by public transport, bicycle and on foot and the complementarities between these travel modes and private cars must be promoted.

Between 1991 and 2005, the number of persons travelling to Brussels by public transport during the morning rush hour is expected to increase by almost 60 percent, from 78,000 to 123,000.

Measures will be aimed principally at people commuting to work from residential areas in the nearest of the outer suburbs.

### Travel from

- within the Region
- outside the Region



## Traffic forecast

By private car				By public transport		
----------------	--	--	--	---------------------	--	--

### Number of persons travelling from one district to another during morning rush hours (7 to 9 a.m.) in 1991

Area of origin	Destination area			Destination area		
	Brussels Region	Rest of Belgium*	Total	Brussels Region	Rest of Belgium	Total
Brussels Region	166,358	36,465	202,824	104,887	9,279	114,166
Rest of Belgium*	129,698	73,830	203,528	78,453	16,176	94,629
<b>Total</b>	<b>296,057</b>	<b>110,295</b>	<b>406,351</b>	<b>183,340</b>	<b>25,455</b>	<b>208,795</b>

### Number of persons travelling from one district to another during morning rush hours (7 to 9 a.m.) in 2005, according to the trend scenario

Area of origin	Destination area			Destination area		
	Brussels Region	Rest of Belgium	Total	Brussels Region	Rest of Belgium	Total
Brussels Region	176,500	50,833	227,333	84,614	8,751	93,365
Rest of Belgium	193,154	122,484	315,638	86,961	15,671	102,632
<b>Total</b>	<b>369,654</b>	<b>173,317</b>	<b>542,971</b>	<b>171,575</b>	<b>24,422</b>	<b>195,997</b>

### Number of persons travelling between districts during morning rush hours (7 to 9 a.m.) in 2005, according to the planning scenario of the IRIS plan

Area of origin	Destination area			Destination area		
	Brussels Region	Rest of Belgium	Total	Brussels Region	Rest of Belgium	Total
Brussels Region	154,743	45,318	200,062	110,198	9,263	119,460
Rest of Belgium	124,076	83,191	207,266	122,610	23,737	146,347
<b>Total</b>	<b>278,819</b>	<b>128,509</b>	<b>407,328</b>	<b>232,808</b>	<b>33,000</b>	<b>265,807</b>

The IRIS Plan is designed to have an impact on trends and stabilise the use of private cars in the study area, or even reduce car use in the Region as a whole.

Restricting car traffic entails a substantial increase (by 27 percent) of the use of public transport.

\* Travel originating or to a destination in the "rest of Belgium" must at least transit through the study area.

- **By 2005, according to the Regional Mobility Plan, travel should be facilitated for all and the various transport modes should be operating in a co-ordinated fashion.**
- **Future generations are entitled to live in a healthy environment**
  - a priority must be given to transport modes that do not harm the environment (public transport, walking, bicycles, electric cars)
  - available urban space must not be squandered
  - the protection of the architectural heritage must be ensured.
- **Urban facilities should be accessible to all.**
- **There must be an overall approach to transport needs, in terms of both space and time, involving selective and consistent measures for the benefit of residents, businesses and institutions.**



*Protecting and renovating the heritage.*



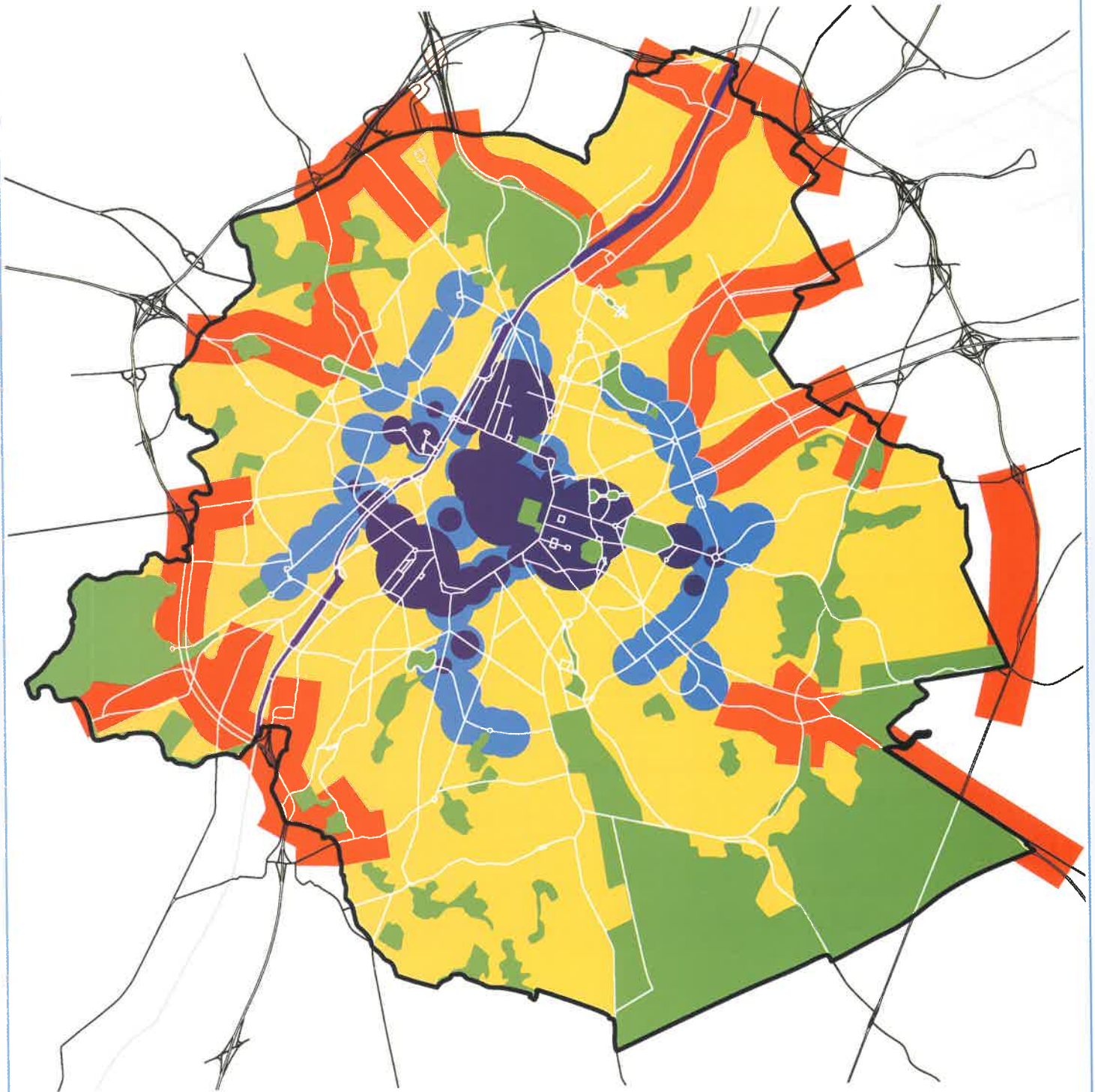
*Future generations are entitled to live in a healthy environment.*







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## Ease of access to urban areas



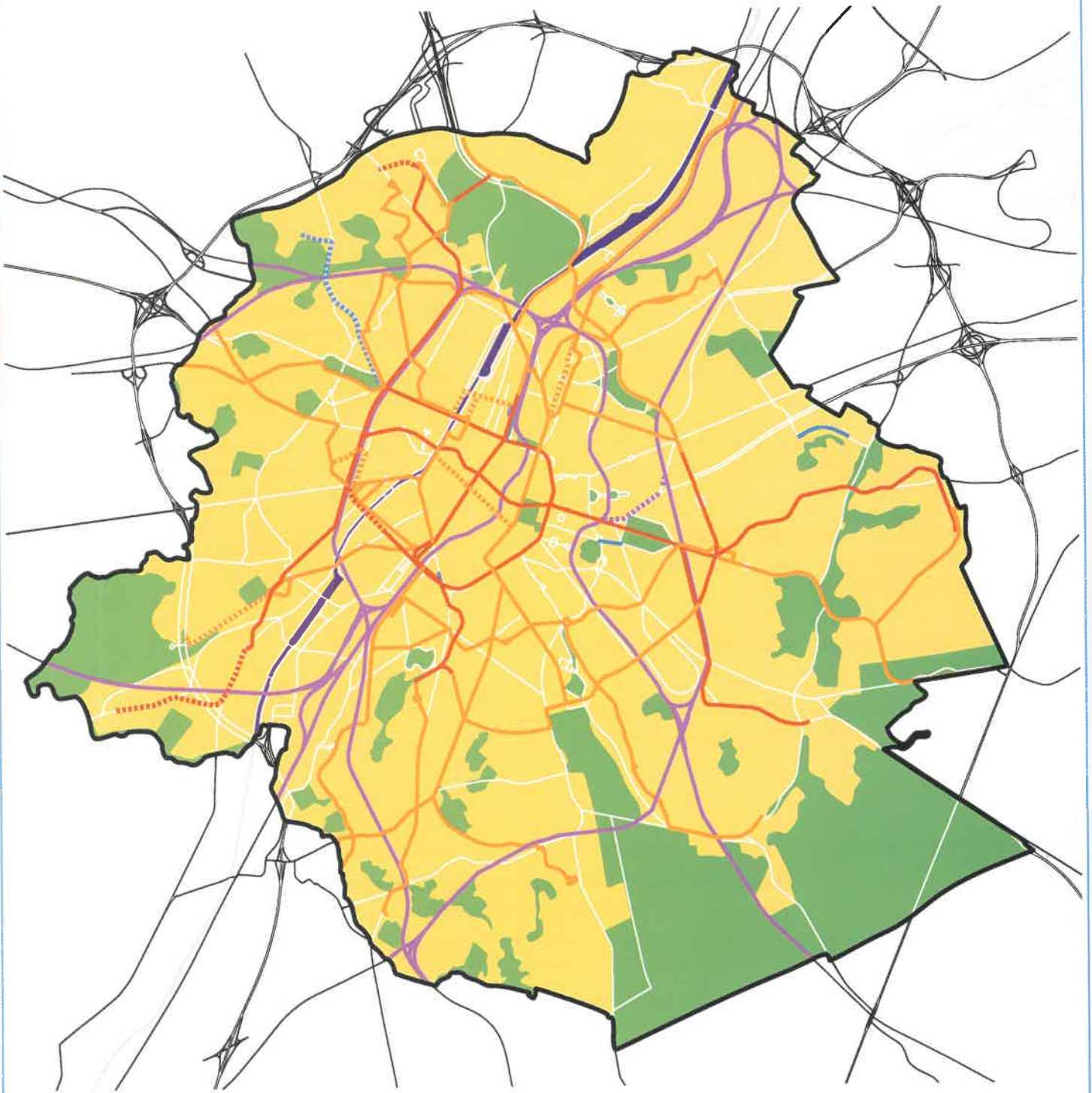
-  Region of Brussels-Capital
-  zone A: easy access by public transport
-  zone B: fair access by public transport and private car
-  zone C: easy access by private car







- **In order to reduce the need for motorised transport**
  - a broad mix of neighbourhood activities should be encouraged
  - the rehabilitation of areas and buildings in central districts has to be accelerated
  - large firms and institutions must be encouraged to locate in the centre rather than in the suburbs, while smaller entities should be spread evenly among sectors.
- **In order to improve access to places of work**
  - activities which require considerable travel by people should be located in districts with good public transport connections
  - incentives should be offered to increase the density of housing in residential areas adjacent to public transport lines
  - parking facilities and drop-off areas should be provided at public transport terminals and stations in low-density residential districts.
- **In order to ease daytime travel conditions during the week,**
  - complementary services should be available in the central business districts, accessible by means other than cars.
- **In order to facilitate access to shops and services,**
  - central shopping areas must be preserved and given a new impetus through the development of appropriate parking facilities
  - the building of new large shopping malls on the outskirts should be discouraged
  - special measures are needed in favour of small local shopping centres.
- **In order to ease access to public facilities and educational institutions,**
  - large public facilities, such as colleges and universities, should be located in central districts
  - ways must be found to discourage large public institutions from locating in fringe areas which favour the use of cars
  - neighbourhood facilities must be promoted, including educational institutions.

**Summary table of mobility and access profiles**  
A, B and C classification

	Mobility profiles	Access profiles	Examples
<b>A</b>	<ul style="list-style-type: none"> <li>• High concentration of employment (1 job per 40 sq.m.)</li> <li>• Large number of visitors</li> <li>• Not very dependent on access by road</li> </ul>	<ul style="list-style-type: none"> <li>• Best access by public transport</li> <li>• Poor access by car</li> </ul>	<ul style="list-style-type: none"> <li>• Government offices</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>• Moderate concentration of employment (1 job per 40 to 100 sq.m.)</li> <li>• Moderate number of visitors</li> <li>• Moderate dependence on access by road</li> </ul>	<ul style="list-style-type: none"> <li>• Fair access by either public transport or private car</li> </ul>	<ul style="list-style-type: none"> <li>• Department stores, Retail shop areas</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>• Low concentration of employment (1 job per 100 sq.m. or more)</li> <li>• Small number of visitors</li> <li>• Heavily dependent on access by road</li> </ul>	<ul style="list-style-type: none"> <li>• Best access by car or lorry</li> </ul>	<ul style="list-style-type: none"> <li>• Wholesale distribution centres</li> </ul>

# Public transport system PRD Map



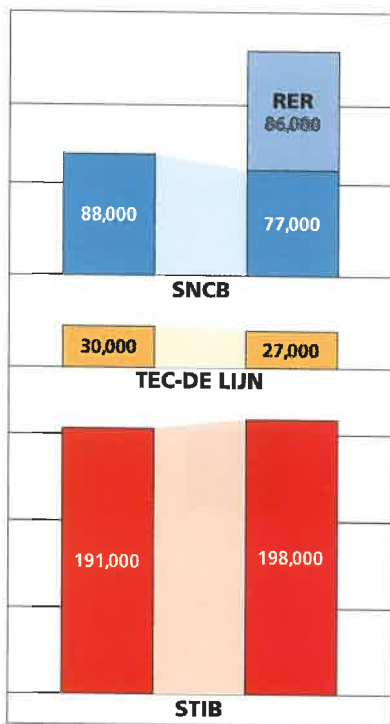
-  Region of Brussels-Capital
-  railway (existing / planned)
-  underground rapid transit and streetcar (existing / planned)
-  streetcars on own right of way and on streets (existing / planned)
-  rapid transit line (planned) from Simonis to the AZ-VUB hospital
-  bus on protected lanes

### GENERAL GUIDELINES

- **Priority must be given to measures aimed at expanding and developing a sound, user-friendly public transport system**
  - in terms of operations (frequency, speed, etc.)
  - in terms of the equipment (infrastructure, rolling stock)
  - in terms of its impact on public areas
  - in terms of passenger information
  - in terms of comfort
  - in terms of fares.
  
- **The Brussels public transport operating companies should work together at improving services,**
  - by offering complementary products, services and fares
  - by making quality improvements
  - by making jointly-planned adjustments .



A single commuter ticket valid on the underground, streetcars, trains and busses.



### Passenger volume on the public transport system during the morning rush hour (7 to 9 a.m.)

*The Regional Mobility Plan prioritises the public transport network, in particular the creation of the RER rapid rail transit system.*

**1991**  
309,000 boardings  
for 209,000 passengers

**2005 IRIS Plan**  
388,000 boardings  
for 266,000 passengers

Passenger information along the public transport network.



### 1994 RER network (Sofretu)

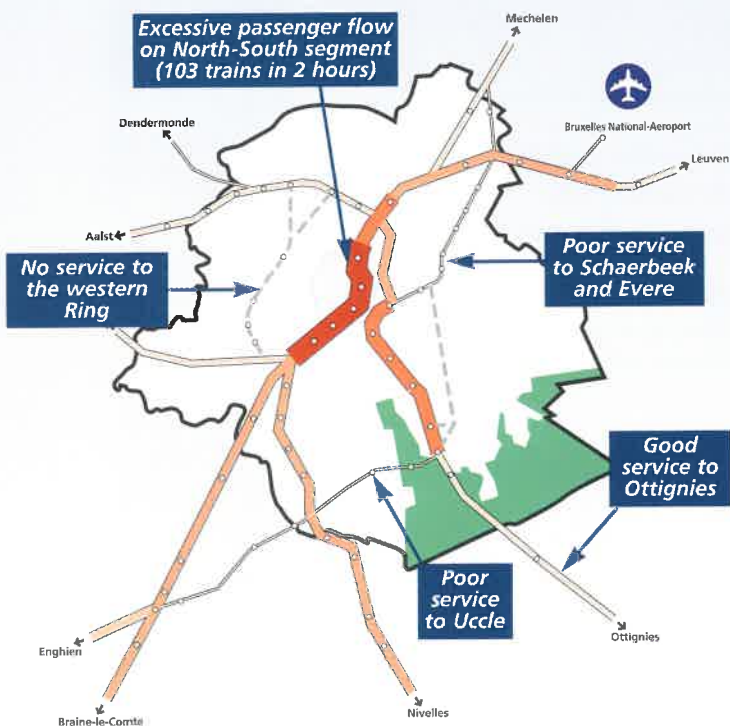


### 1996 RER network (IRIS)



**R0** line number  
 ① hourly frequency, 7 to 9 a.m.

### 1996 RER passenger volume with completion of the Metro loop Morning rush hour (7 to 9 a.m.)



### 1996 RER passenger volume with completion of the Metro loop Morning rush hour (7 to 9 a.m.)



**Passenger flow per 2-hour period**

- more than 25,000
- 15,000 to 25,000
- 10,000 to 15,000
- 5,000 to 10,000
- fewer than 5,000

## THE REGIONAL EXPRESS RAIL NETWORK (RER)

### Objectives

- **Adding the missing links between the outer suburbs and the central districts**
  - by expanding rail service in the suburbs
  - by creating a regional express rail network that operates most efficiently over distances of 10 to 40 kilometres
  - by making train stations easily accessible by public transport as well as on foot or bicycle.
- **Improving rail service to the Brussels Region by using existing tracks, including**
  - the eastern (line 26) and western (line 28) ring lines
  - the connection between the Nord and Midi train stations
  - the Etterbeek-Schuman-Schaerbeek link (line 161).
- **Adding to existing facilities so as to relieve saturated lines.**
- **Improving service to existing or developing business districts (Leopold, Gare de l'Ouest train station, etc.).**
- **Promoting the use of the RER as a rapid transit system by the entire population.**

### Planned service in the Region

- **Two scenarios exist**
  - the 1994 scenario (Sofretu), drawn up on behalf of the RER planning group
  - the 1996 scenario (IRIS), prepared by the IRIS Working Party and consistent with the Regional Mobility Plan.
- **Both are based on the assumption that**
  - the Metro line along the small loop will be completed
  - a better connection will be established between the "Europe" district and the national and sub-regional network through the opening of a tunnel between Schuman and Josaphat.
- **The 1994 scenario (Sofretu)**
  - puts the Nord-to-Midi link at the core of the RER network
  - connects the South and East outer suburbs and links them to the centre.

- **The 1996 scenario (IRIS)**

- provides a connection to the western loop railway line
- provides balanced service to the East-West link and the eastern and western loops, resulting in a reduced passenger flow on the Nord-to-Midi section
- provides better access to new business districts
- anticipates more public transport passengers and allocates a greater share of the traffic to the metro.

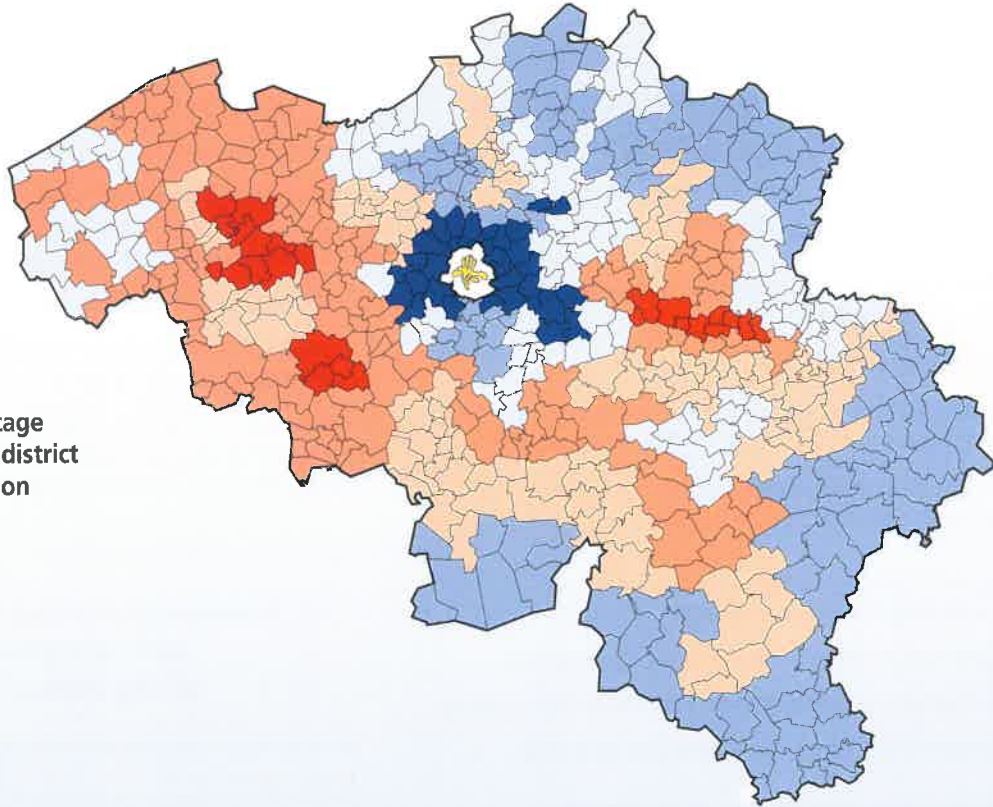
- ➔ **An improved medium and long-term plan has been drawn up and is currently undergoing approval procedures (see network maps in back-cover flap).**

### Assessment of the RER plans with completion of the metro loop

	1994 plan	1996 plan
<b>SERVICE (7 to 9 a.m.)</b>		
Trains x distance (km)	17,000	17,500
Passenger capacity x distance (km)		
• ordinary trains	n.a.	n.a.
• RER	6,600,000	6,830,000
<b>PASSENGER FLOW (7 to 9 a.m.)</b>		
Public transport users	266,900	267,300
Boardings (7 to 9 a.m.)		
SNCB	164,400	162,500
STIB	196,100	197,800
TEC/DE LIJN	27,700	26,900
TOTAL	388,200	387,200
Transfer ratio	1.454	1.449
Passengers x kilometres (000)		
SNCB	5,720	5,680
STIB	723	724
TEC/DE LIJN	248	233
TOTAL	6,691	6,637
Average travel time to (minutes):		
• the study area	53.2	52.9
• the "Europe" districts from beyond the outer suburbs	52.0	50.0
	64.4	56.9
<b>IMPACT ON THE LINK BETWEEN THE NORD AND MIDI TRAIN STATIONS (7 to 9 a.m.)</b>		
• TGV trains	8	8
• ordinary trains	55	55
• RER trains	40	28
TOTAL	103	91
<b>IMPACT ON THE METRO</b>		
• passenger flow, Arts-Loi-Maelbeek	19,600	18,000
• passenger flow, Porte de Halle-Louise	12,800	12,100
• required rolling stock	256	228

*The volume of traffic on a system over a given period of time can be measured by adding up the distances travelled by each moving unit.*

# Percentage of persons commuting to work in the Region of Brussels-Capital by train, from all parts of Belgium



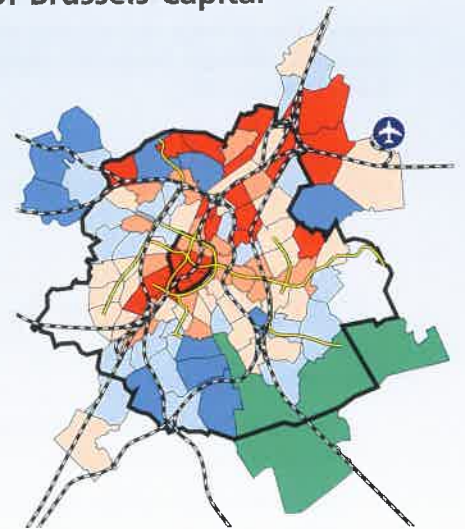
## Persons commuting to work by train to the Region of Brussels-Capital

*Long-distance inter-city train lines are attractive for commuters even when their ultimate destination in Brussels is relatively distant from the train station.*

*Residents of the outer suburbs are likely to use the train only if their arrival station is very close to their ultimate destination.*

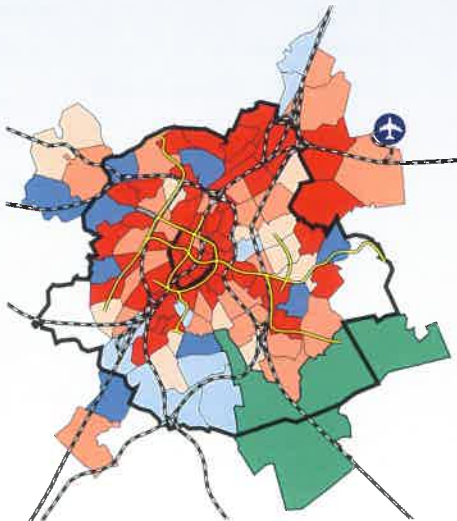
### From Soignies

Commuters travelling from Soignies (35 km) use the railway to get to the centre of Brussels and to districts with metro connections.



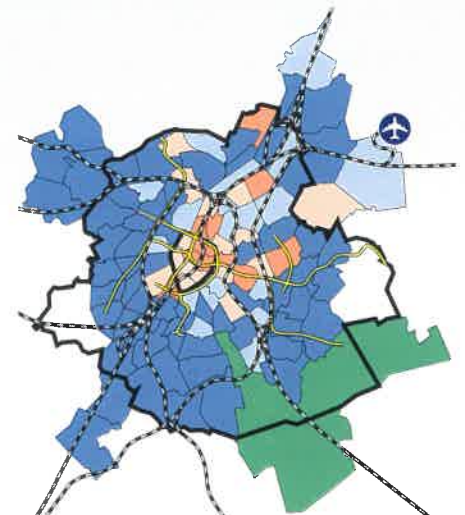
### From Mons

Commuters travelling from Mons (55 km) use the railway to all destinations in the Brussels area.



### From Halle

Commuters travelling from Halle (20 km) use the railway mainly to get to districts with direct train service.



**Train travel as a percentage of total travel from the district of residence to the study area**

- more than 72%
- 58% to 72%
- 43% to 57%
- 28% to 42%
- less than 28%

- Metro
- railway

## The RER's share of passenger traffic

- In the study area (Region of Brussels-Capital and 33 suburban communities), during morning rush hours (7 to 9 a.m.)

- There are currently
  - 209,000 trips by public transport
  - 406,000 trips by private car.
- The aim for 2005 is for
  - 266,000 trips by public transport
  - 407,000 trips by private car.

The number of SNCB passengers arriving in the area between 7 and 9 a.m.

- is currently 88,000
- is expected to rise to 163,000 by 2005, of which 86,000 by RER.

- For the Region of Brussels-Capital, the objective is to

- increase the number of public transport trips from the current 183,000 to 233,000 by 2005
- reduce the number of trips by private car from the current 296,000 to 279,000 by 2005.

## Cost effectiveness

- Investment

- Capital expenditures for the RER lines and rolling stock are estimated at some EUR 1.5 billion.
- This includes EUR 550 million in already budgeted expenditures by the railway.
- ➔ Actual investment required: EUR 950 billion.

- Operation

- The cost of operating the RER is estimated to cost EUR 42.5 million a year.
- However, it will result in annual savings of close to EUR 5 million by the SNCB, STIB and TEC-DE LIJN.

- Saving of time and money

- The RER alternative will be time saving for drivers and users of public transport.
- By also reducing traffic congestion on roads, the RER will
  - make it less costly to drive to destinations
  - cut down on the number of road accidents and reduce pollution.

- ➔ Combined reductions in transport expenditures for the public: more than EUR 250 million a year, if external costs are taken into account.

- Yield

- For the community as a whole, the RER is a profitable project, with an internal rate of return of more than 20 percent.

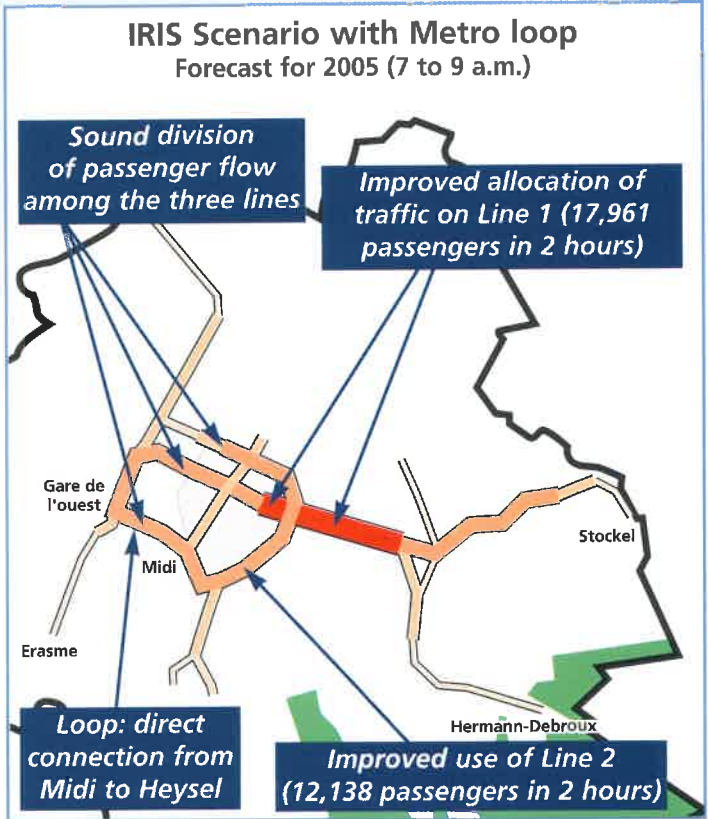
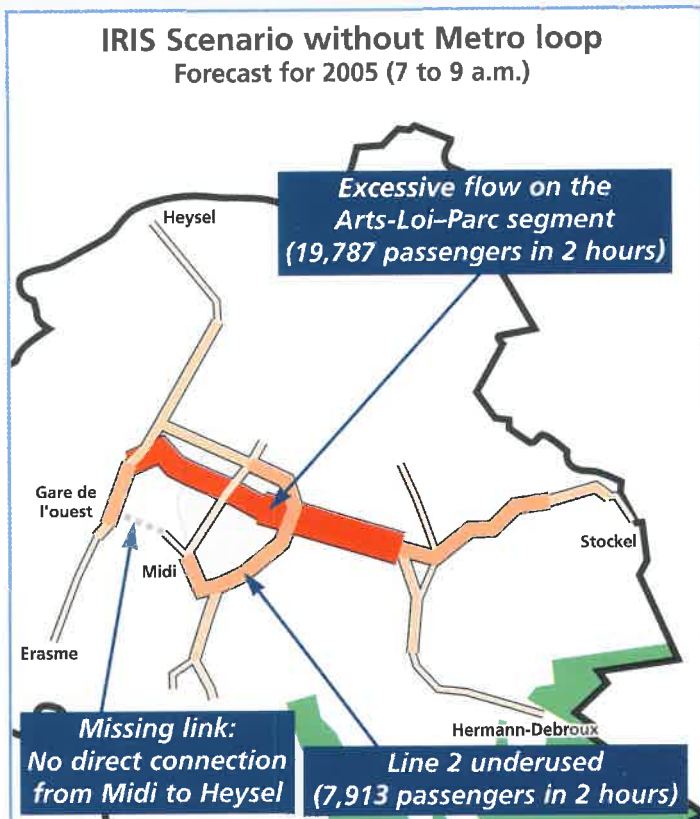
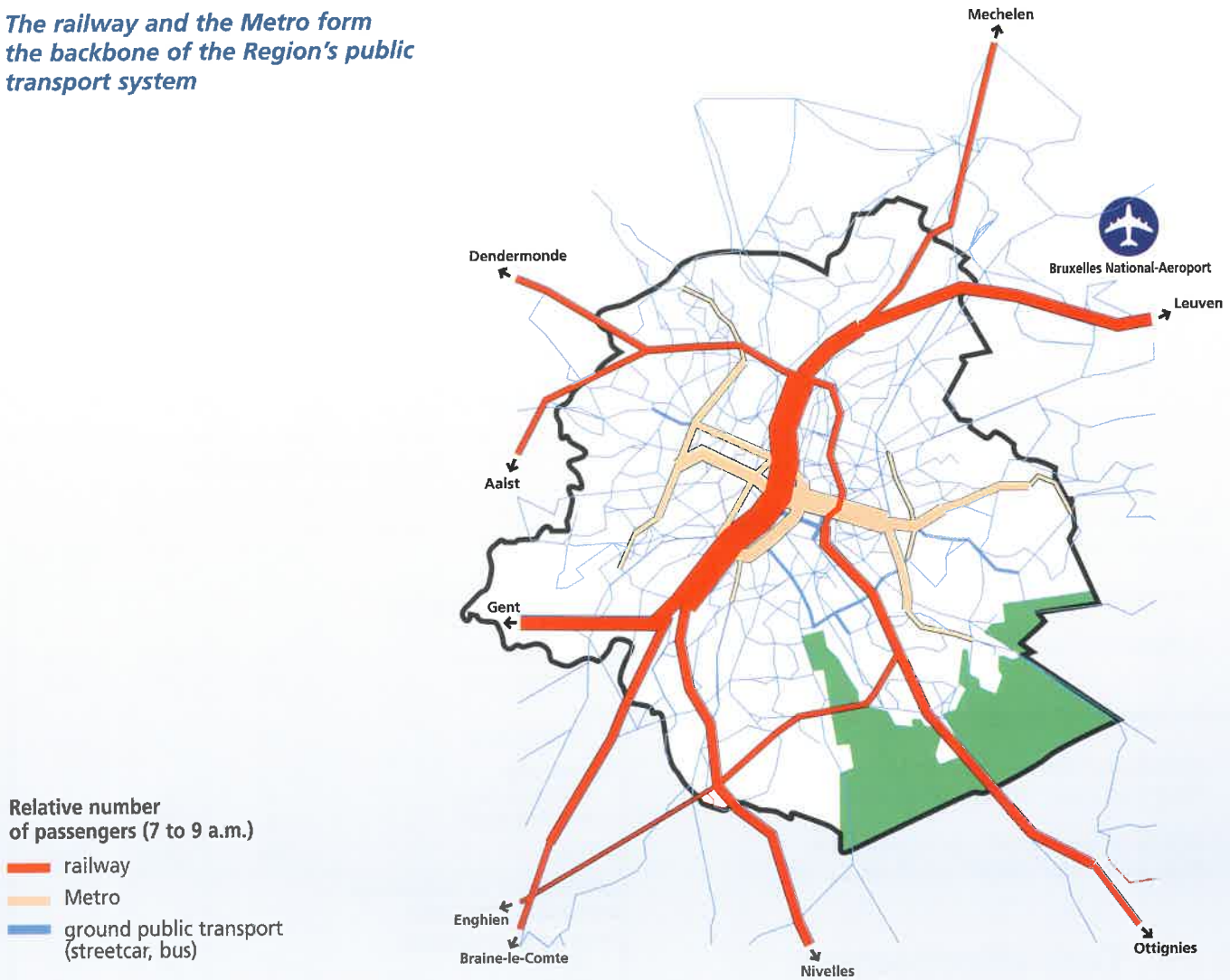
## Costs and benefits of the 1996 (IRIS) RER system

	No RER (1)	RER (2)	Difference (2) - (1)
<b>CAPITAL INVESTMENTS</b>			
<b>SNCB</b>			
• Infrastructure	162	630	468
• Rolling stock	325	725	400
<b>STIB</b>			
• Rolling stock	84	0	-84
<b>TEC/DE LIJN</b>			
• Infrastructure	0	64	64
• Rolling stock	0	38	38
<b>TOTAL</b>	<b>571</b>	<b>1,457</b>	<b>886</b>
<b>DIFFERENCE IN OPERATING EXPENSES, 1991-2005</b>			
<b>Transport companies</b>			
• SNCB	22	42	20
• STIB	3	0	-3
• TEC/DE LIJN	0	16	16
<b>Total</b>	<b>25</b>	<b>58</b>	<b>33</b>
<b>Fuel</b> (difference 220 million litres in 2005)	427	367	-60
<b>Depreciation and maintenance of rolling stock</b>	242	226	-16
<b>TOTAL</b>	<b>694</b>	<b>651</b>	<b>-43</b>
<b>DIFFERENCE IN EXTERNAL COSTS, 1991-2005</b>			
<b>Value of time saved</b>	3,283	3,128	-155
• Private cars (35 million fewer hours in 2005)			
• Public transport (13 million fewer hours in 2005)			
<b>Traffic accidents</b>	435	407	-28
<b>Traffic nuisances</b>	83	78	-5
<b>TOTAL</b>	<b>3,801</b>	<b>3,613</b>	<b>-188</b>
<b>DIFFERENCE IN THE ANNUAL OVERALL TRANSPORT BUDGET</b>			
	<b>4,497</b>	<b>4,265</b>	<b>-232</b>
<b>INTERNAL RATE OF RETURN</b>			<b>+21 %</b>

Estimates in millions of euros, net of taxes.

# The Brussels public transport system in 1991 Forecast for 2005 (7 to 9 a.m.)

*The railway and the Metro form the backbone of the Region's public transport system*



### The Metro and Light Metro system

- In order to make the best possible use of the Metro and Light Metro infrastructure
  - the system needs to be extended wherever necessary
  - trains should run more frequently.
- ➔ Currently, the Metro and Light Metro system alone handle close to half of all STIB passenger traffic.
- In order to improve Metro and Light Metro service in central districts,
  - Line 2 of the Metro should be extended from the Clémenceau station to Gare de l'Ouest so as to close the loop.
- In order to provide better service in the Region and improve links to the outer suburbs,
  - Line 1B of the Metro should be extended to Erasme hospital.
- In order to improve passenger service and increase train frequency,
  - the Metro's rolling stock must be increased.



Improved service by the public transport system.



Adding lines to the outer suburbs.

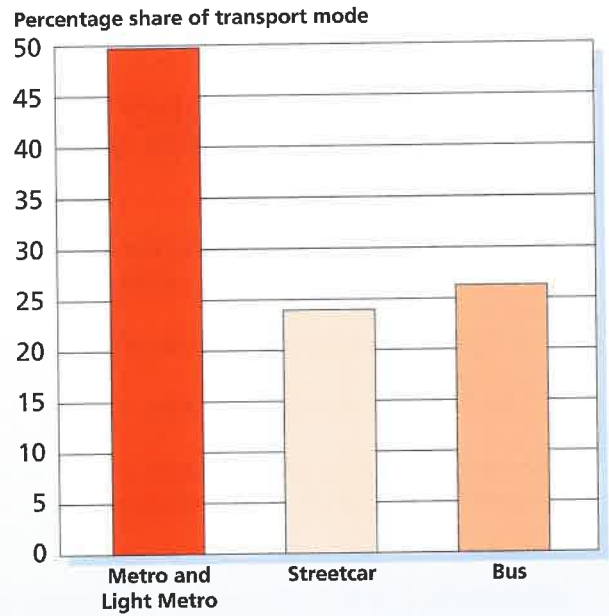
### Estimated impact of the metro loop SNCB service to the Region based on the 1996 RER scenario (IRIS)

	1991	2005 without loop	2005 with loop
<b>SERVICE</b>			
<b>Trains x distance (km)</b>			
• Metro	1,940	2,052	2,308
• Streetcar	6,246	7,240	7,240
• Bus	10,400	10,756	10,756
<b>Capacity x distance (km)</b>			
• Metro	903,840	1,166,000	1,236,000
• Streetcar	589,500	754,000	754,000
• Bus	676,000	699,000	699,000
<b>Commercial speed (kph)</b>			
• Metro	28	28	28
• Streetcar	15	18	18
• Bus	14	15	15
<b>Required rolling stock</b>			
• Metro	166	221	228
• Streetcar	270	258	258
• Bus	517	492	492
<b>Operating cost (EUR millions)</b>	240	245	247
<b>PASSENGERS</b>			
<b>Users of public transport (7 to 9 a.m.)</b>	208,800	266,900	267,300
<b>Boardings</b>			
STIB	190,700	195,700	197,800
<b>Passengers x distance (km)</b>			
STIB	666,000	732,800	724,500
<b>Average travel time (minutes) from all origins to</b>			
• Gare de l'Ouest		45.6	43.3
• Heysel		55.4	54.6
• Gare du Midi		49.2	49

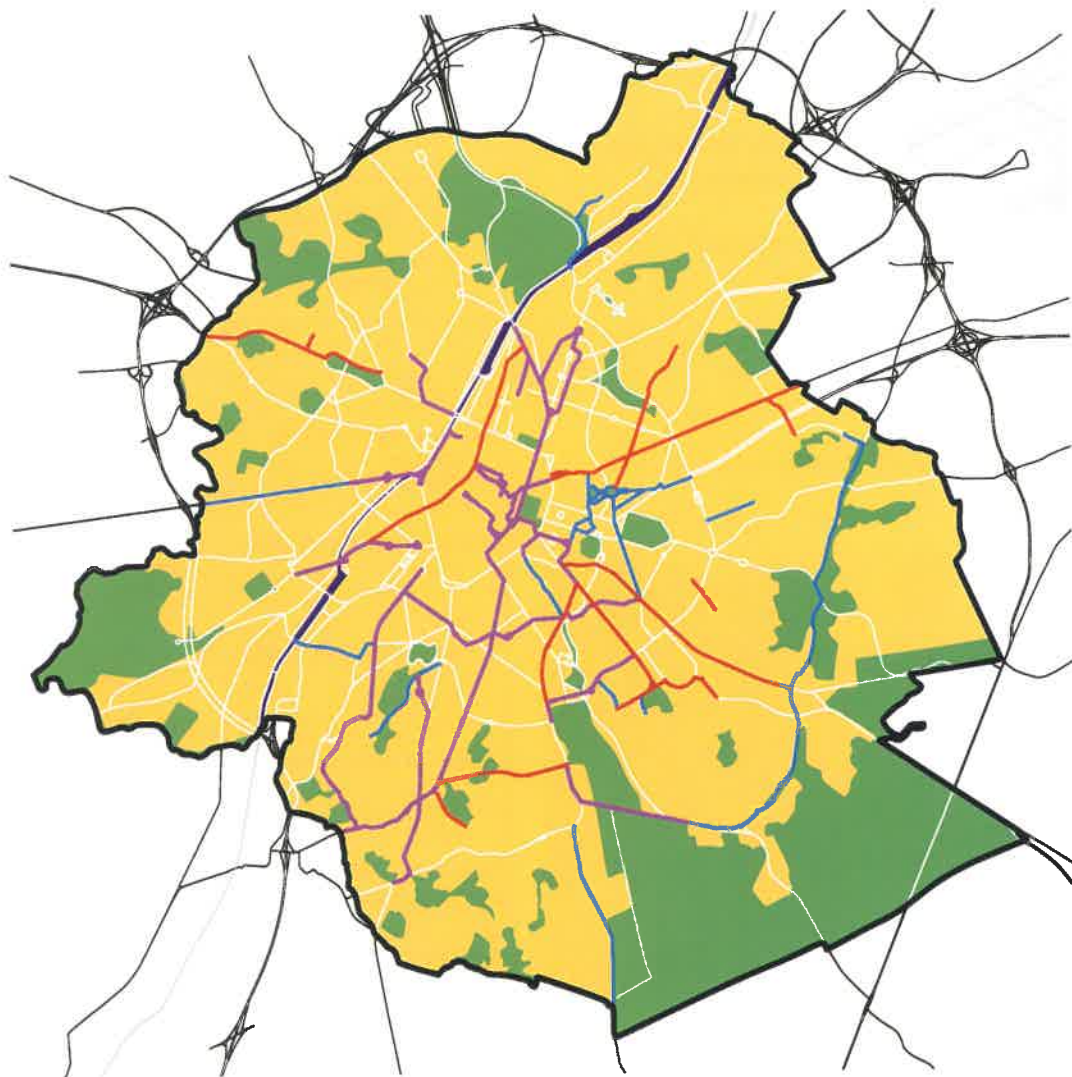
## Utilisation of transport modes The STIB system in 1991

*The Metro and Light Metro carry close to 50 percent of all passengers using the STIB system at rush hour for all motives.*

The STIB in figures		
	lignes	passengers per year
<b>Metro</b>	3	85,000,000
<b>Streetcar</b>	15	65,000,000
<b>Bus</b>	41	63,000,000



### Programme for improving the commercial speed of streetcars and busses



- Region of Brussels-Capital
- initial programme
- priority programme
- additional programme

## Streetcars and busses

- **Commercial speed and frequency of service on the urban ground transport system must be increased by**
  - providing exclusive right-of-way for streetcars and lanes for busses
  - adding improvements at intersections so that public transport vehicles have the right of way over other traffic
  - enabling public transport vehicles to switch traffic lights by remote control
  - renovating the infrastructure (tracks and stops).
- **Frequency of service has to be increased, in particular between the hours of 6 p.m. and 8 p.m.**
- **The restructuring of the ground transport system must be examined and new lines planned for.**



*Public transport vehicles suited to Brussels and protected from traffic.*



*Intersection where public transport vehicles have the right of way.*

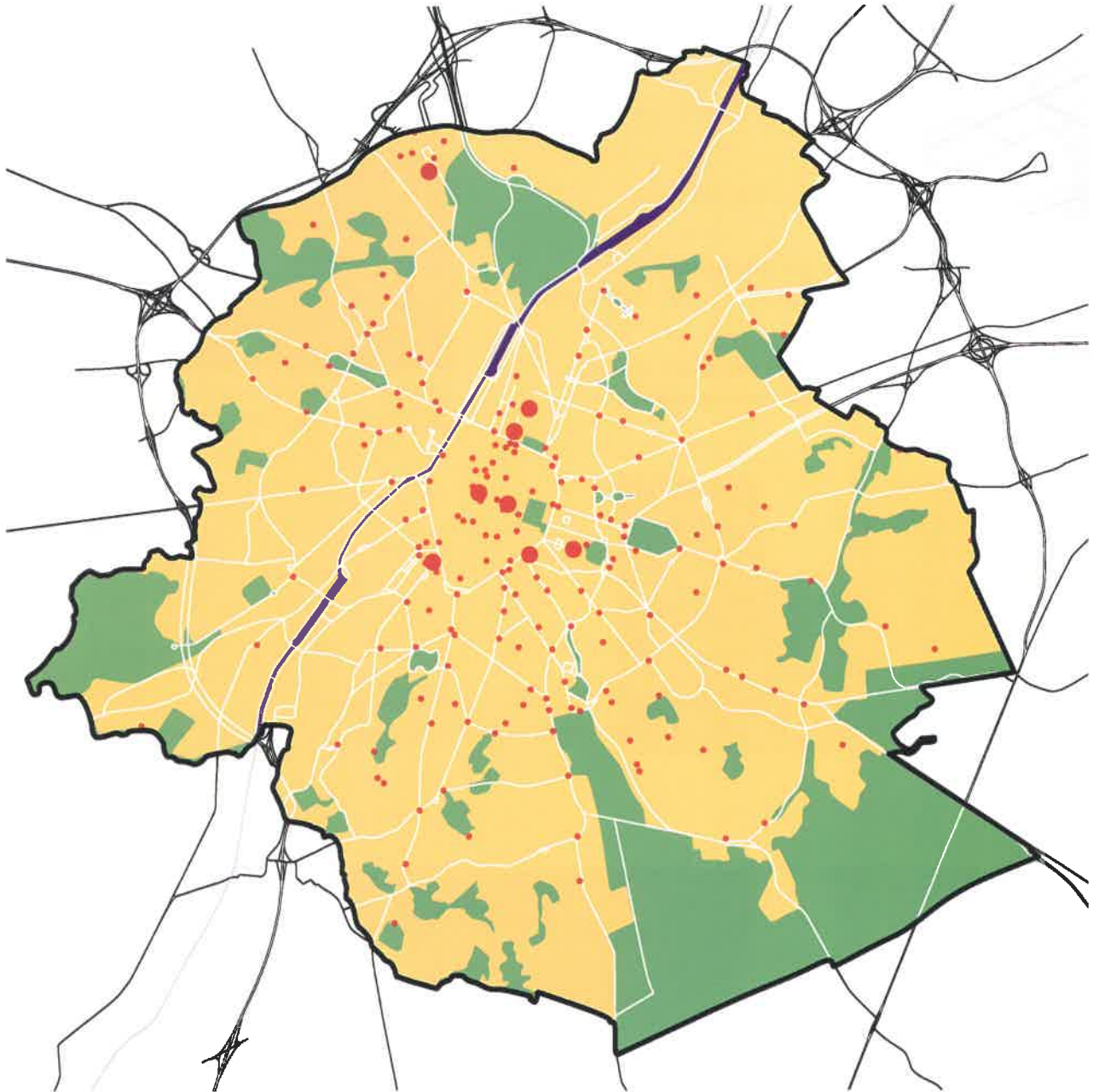


*Exclusive streetcar right-of-way adapted to the cityscape.*

**Taxis**  
as of 1/1/97

Number of drivers	3,962
Companies	980
Licenses	1,013
Vehicles	1,403
Taxi-ranks	830
Average number of kilometres driven per taxi per year	80,000 km

**Location of taxi-ranks**



- Region of Brussels-Capital
- 2-car ranks
- 15-car or larger ranks

## Taxis

**Taxis must be considered part of the Region's transport system**

- they should be allowed to use exclusive traffic lanes
- all vehicles should be of the same colour, so as to make them more visible
- there should be a greater complementarity between taxis and public transport services
- taxis should be used as a substitute whenever they are more efficient than public transport (late at night, for transporting the handicapped, etc.)
- a sufficient number of taxi-ranks, uniformly equipped and identified, should be located throughout the Region
- information about taxi services and fares should be improved
- Brussels taxicabs should be allowed to pick up passengers at the National Airport.

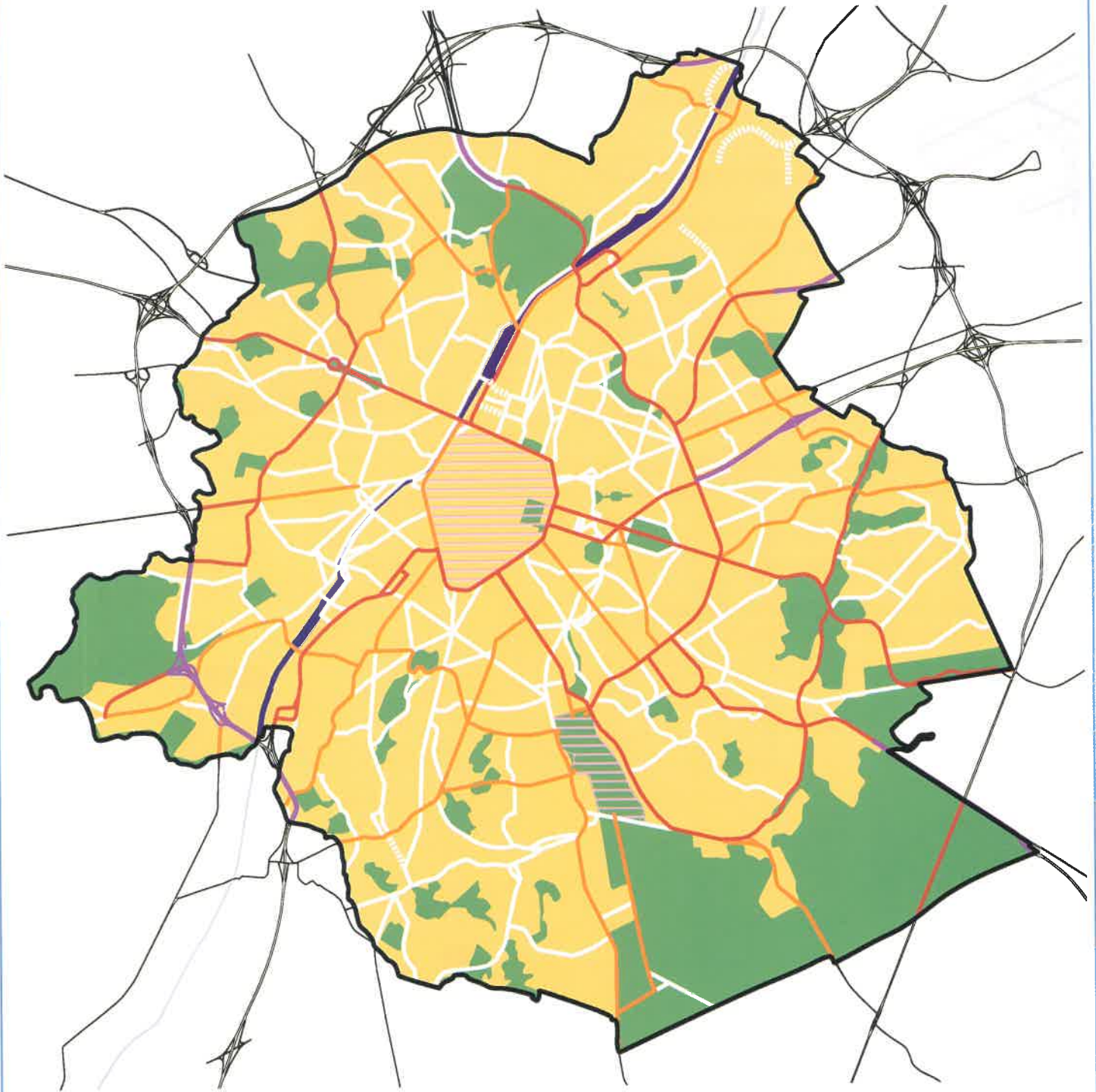









*Taxis clearly identifiable.*

*Complementary  
urban  
transport  
modes.*



# Road specialisation PRD Map

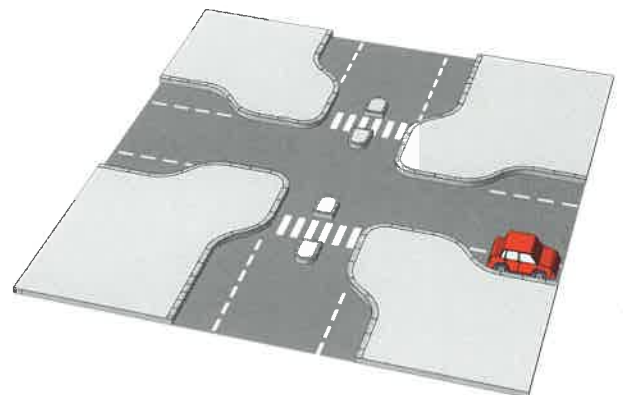
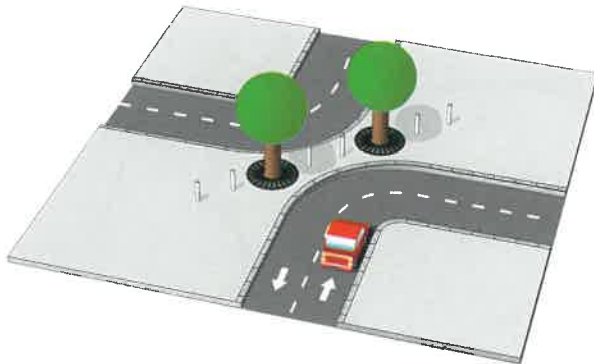
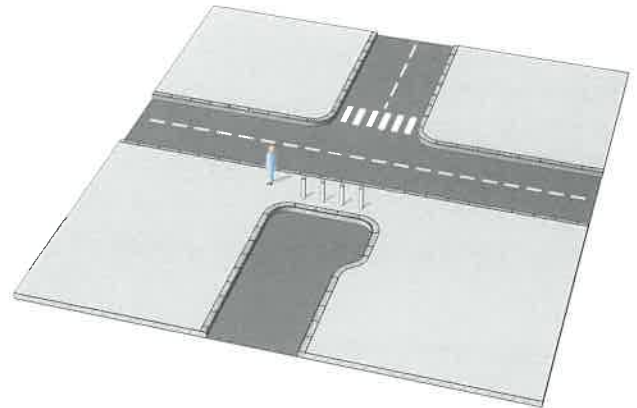
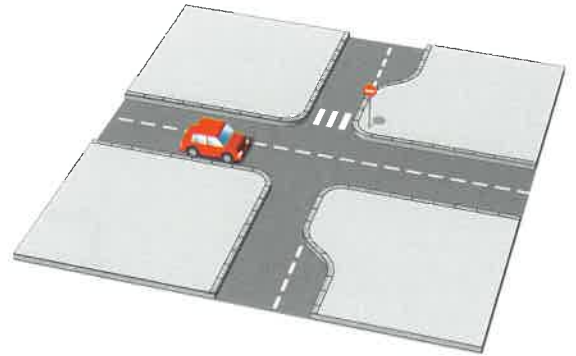


-  motorway
-  metropolitan road system
-  trunk road
-  inter-district road
-  planned inter-district road
-  neighbourhood with local traffic only
-  district under study

• **Safeguarding of the quality of life in residential neighbourhoods**

- The principle of dividing up areas into zones free of automobile through traffic should be extended to the entire Region.
- The specialisation of roads should be expanded (local access streets, through streets, inter-districts roads, trunk roads, metropolitan roads and motorways) with due consideration to the public's need for accessibility and comfort of living.
  - The quality of life in neighbourhoods adjacent to main thoroughfares should be safeguarded and areas should be shielded from through traffic.
- In these neighbourhoods, measures should be implemented to discourage through traffic (traffic "loops", one-way streets, etc.).
- Speed should be limited to 30 kph in residential areas, using speed-control measures and appropriate traffic signs.
- Residential properties adjacent to thoroughfares should be protected (side alley, noise-protecting glass, etc.).

**Examples of measures used in residential neighbourhoods to discourage through traffic**

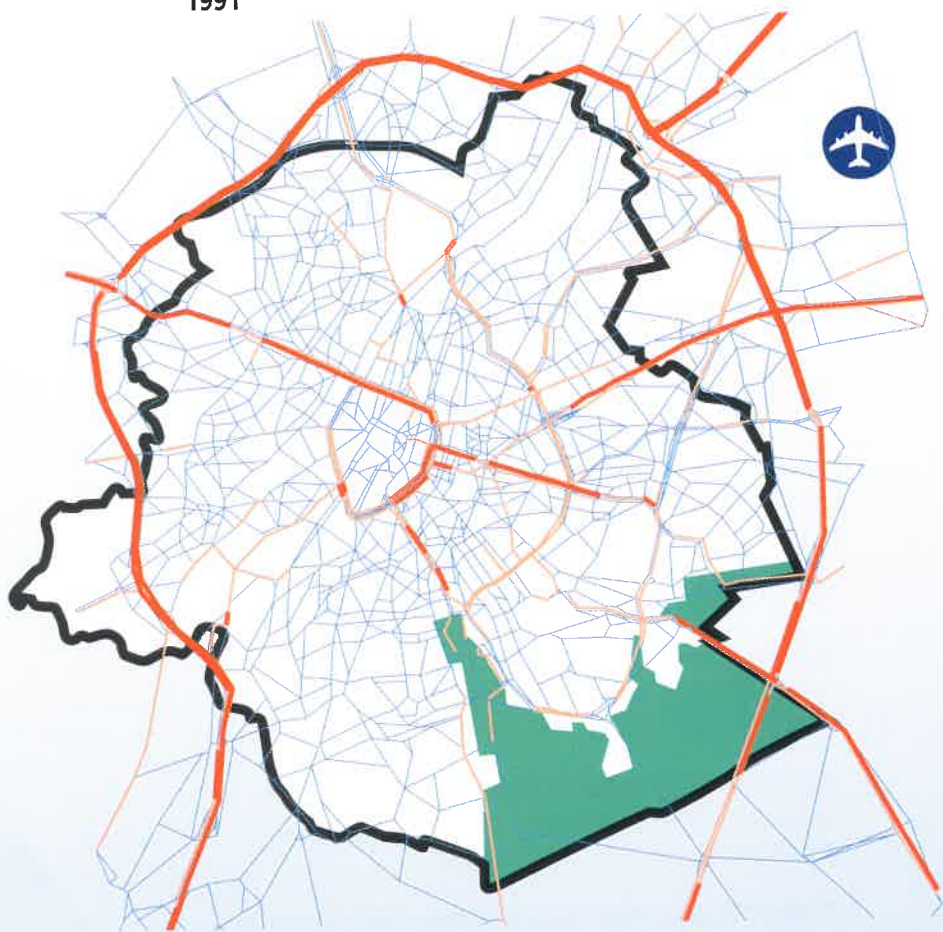


**Road specialisation**

Local streets	Inter-district roads	Regional roads
Local streets must be considered as belonging to residents. Motor vehicle traffic is only tolerated there.	Through traffic is allowed, but streets are not designed chiefly for traffic.	The purpose of the regional road network is to handle most of the urban area's traffic.
Through traffic is prohibited. Vehicles travel at speeds of less than 30 kph.	Traffic limitation measures serve to protect residential neighbourhoods wherever necessary.	The network is designed primarily for vehicular traffic, although adjacent businesses and residences must be protected from nuisances.

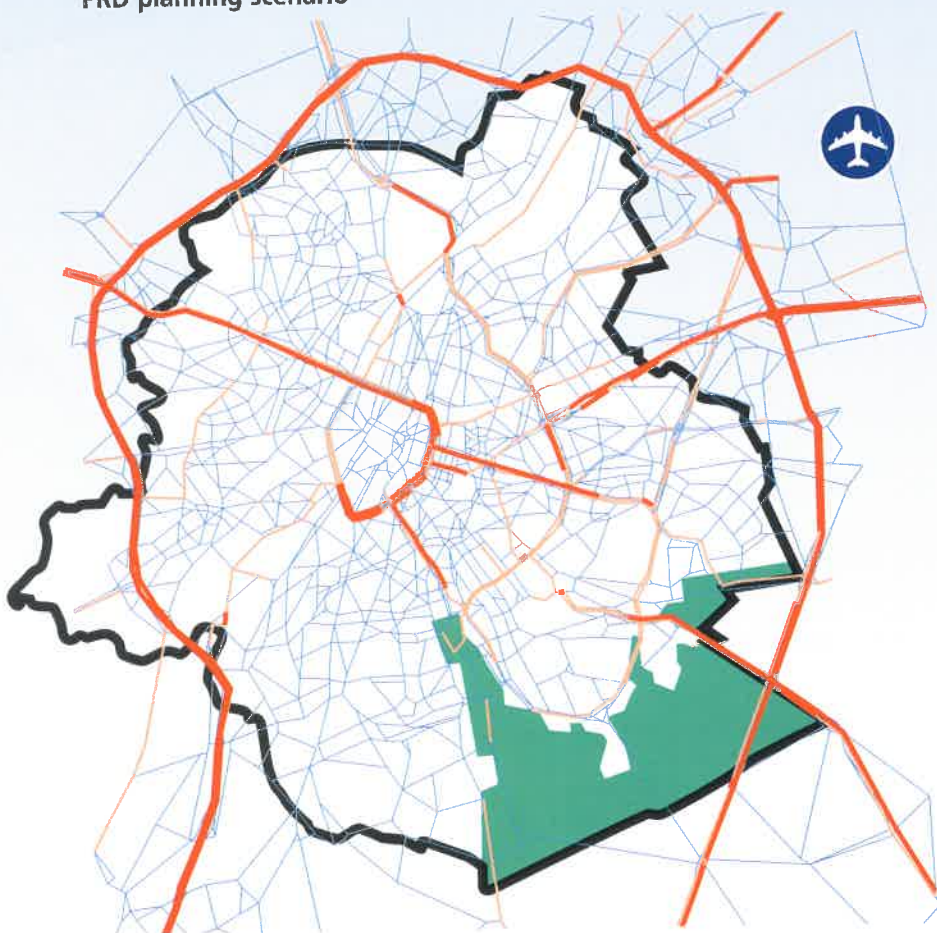
## Vehicular traffic at the peak of morning rush hour (7.30 to 8.30 a.m.) 1991

*Besides the motorways, the trunk roads used by most of the Region's traffic (more than 3,000 vehicles per hour) are the thoroughfare combining Leopold II, Rue de la Loi and Rue Belliard, Avenue Louise and the Petite Ceinture ring road. Traffic remains heavy on local streets.*



## Vehicular traffic at the peak of morning rush hour (7.30 to 8.30 a.m.) in 2005 PRD planning scenario

*By 2005, the implementation of the IRIS plan will have considerably reduced automobile traffic in residential districts. In spite of restrictive measures taken, traffic on the main trunk roads will not rise significantly.*



## MEASURES CONCERNING AUTOMOBILE TRAFFIC (continued)

• **Control of traffic congestion**

- The traffic capacity of roads leading into the centre must not be increased if the morning traffic congestion is to be kept outside the Region's boundaries.
- Conversely, the capacity of roads out of the city must be adapted so as to reduce traffic jams there at evening rush hour.
- The free flow of public transport vehicles must remain unhindered.



Cars and public transport vehicles are affected by the same traffic jams.



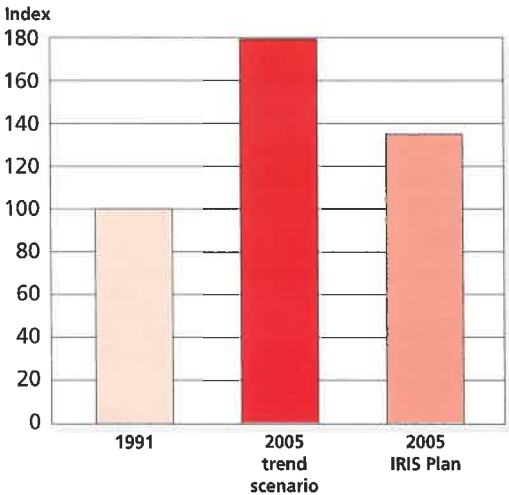
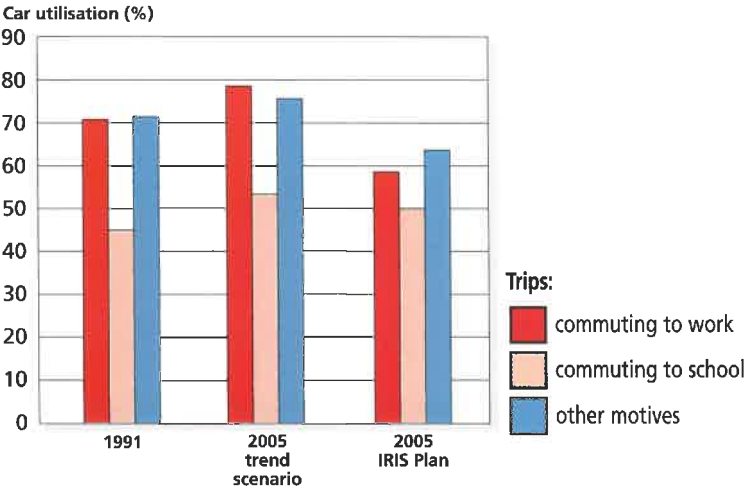
Freely flowing traffic on a trunk road.

### Private car utilisation during morning rush-hour travel (7 to 9 a.m.)

The IRIS Plan seeks to strike a better balance in the use of cars for daily trips. In the case of people commuting to work or travelling for other motives, the aim of reducing the use of private cars in 2005 to below the 1991 level is attainable. On the other hand, in the case of people commuting to school, the prolonging of studies and, more important, the relocation of many educational institutions in districts without easy access by public transport, combine to make the target objective for 2005 higher than the 1991 figure.

### Forecast of travel time in the study area

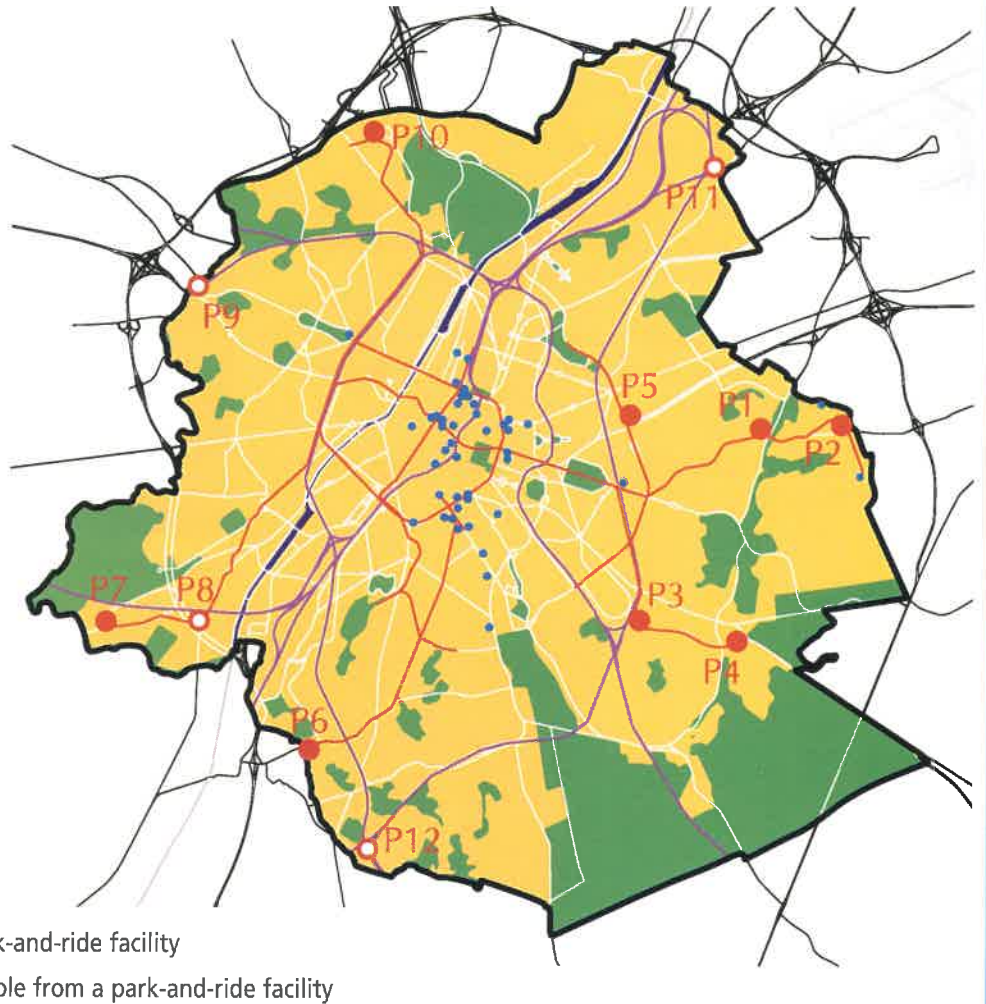
According to the IRIS Plan, the increase in distances travelled and in the number of areas with a 30-kph speed limit, along with the implementation of measures to limit traffic, will cause average travel time to rise by about 35 percent. According to the trend scenario, the increase in travel time could otherwise be as high as 80 percent.



## Parking facilities in Brussels

### Planned capacity

<b>P1</b>	Roodebeek	700 spaces
<b>P2</b>	Kraainem	540 spaces
<b>P3</b>	Delta	1,350 spaces
<b>P4</b>	Herrmann-Debroux	200 spaces
<b>P5</b>	Reyers	270 spaces
<b>P6</b>	Stalle	500 spaces
<b>P7</b>	Erasme	700 spaces
<b>P8</b>	CERIA	1,000 spaces
<b>P9</b>	Berchem	1,000 spaces
<b>P10</b>	Heysel	1,000 spaces
<b>P11</b>	Dobbelenberg	1,000 spaces
<b>P12</b>	Moensberg	200 spaces
<b>TOTAL</b>		<b>8,460 spaces</b>



- Region of Brussels-Capital
- park-and-ride facility
- planned park-and-ride facility
- public car park
- RER line accessible from a park-and-ride facility
- Metro or streetcar line accessible from a park-and-ride facility

### Estimated demand for additional park-and-ride facilities for the Metro and RER

*If there is to be a decline in car traffic, incentives must be offered to encourage people to drive to the railway or metro station closest to their home, by providing adequate parking facilities there.*

	Additional needs
Region of Brussels-Capital	6,050
Study area (RER)	43,800
<b>Total</b>	<b>49,850</b>

### Number of cars in the Pentagon area at the end of morning rush hour (October 1990)

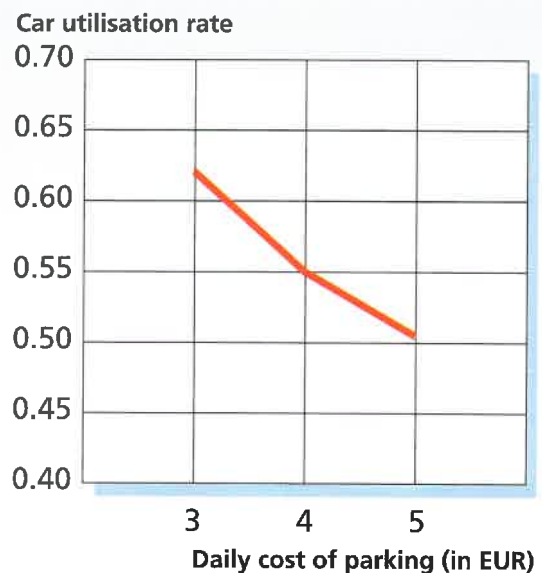
*In October 1990, there were parking spaces for almost 15,000 cars on streets and another 20,000 off the streets in the Pentagon area. However, on-street parking was saturated (124 percent), whereas public and private off-street car parks remained substantially underused. The situation is still essentially the same as in 1990.*

	on-street	off-street
Number of legal spaces	14,500	19,900
Legally parked vehicles	13,600	13,200
Unoccupied legal spaces	900	<b>6,700</b>
Illegally-parked vehicles	<b>4,400</b>	400
Saturation ratio	124 %	68 %

### Impact of on-street parking fees on the utilisation rate of cars for commuting to work

*An econometric study conducted in 1993 measured the degree of sensitivity to parking fees of drivers who park their cars in the central districts.*

*Many would consider giving up driving if fees went up, but only if decent public transport service was available instead.*



- **In order to cut down on long-term on-street parking in the central districts (Pentagon and First Ring) and office areas**
  - the number of long-term parking spaces must be limited
  - fees charged must rise with the duration of parking
  - public areas thus reclaimed will be returned to pedestrians and cyclists, or used for short-term and residential parking.
- **Short-term parking can be promoted in shopping districts through graduated fees and stricter enforcement.**
- **Specific locations must be set aside for short- and long-term parking by coaches.**
- **Dynamic signalling systems should be installed in public car parks.**
- **Facilities must be created to enable people to transfer from their car to the public transport system near districts with a low housing density and without direct connection to the public transport network**
  - car parks must be built near suburban railway stations and at the end of Metro lines.
- **Residents of districts which a shortage of parking garages should be provided with additional parking facilities**
  - on the street
  - in sections of public car parks set aside for this purpose
  - in newly-built private neighbourhood car parks.
- **Regulations and standards governing the building of off-street car parks should be revised with a view to adapting the number of spaces to the size of the working population, the nature of local activities and the accessibility of the area by public transport.**
- **Municipalities should negotiate with the federal government to secure a higher share of parking fines, so as to help them enforce traffic laws, in particular those governing parking.**
- **A consultative body should be set up by the 19 municipalities and the Regional administration**
  - to ensure that municipal parking policies are consistent throughout the Region
  - to improve the enforcement of parking regulations
  - to examine available systems for the joint collection of parking fees (vouchers, parking discs, computerised parking meters, etc.).

*A municipal agent checks how long a car has been parked.*



*Drivers appreciate the availability of free car parks.*



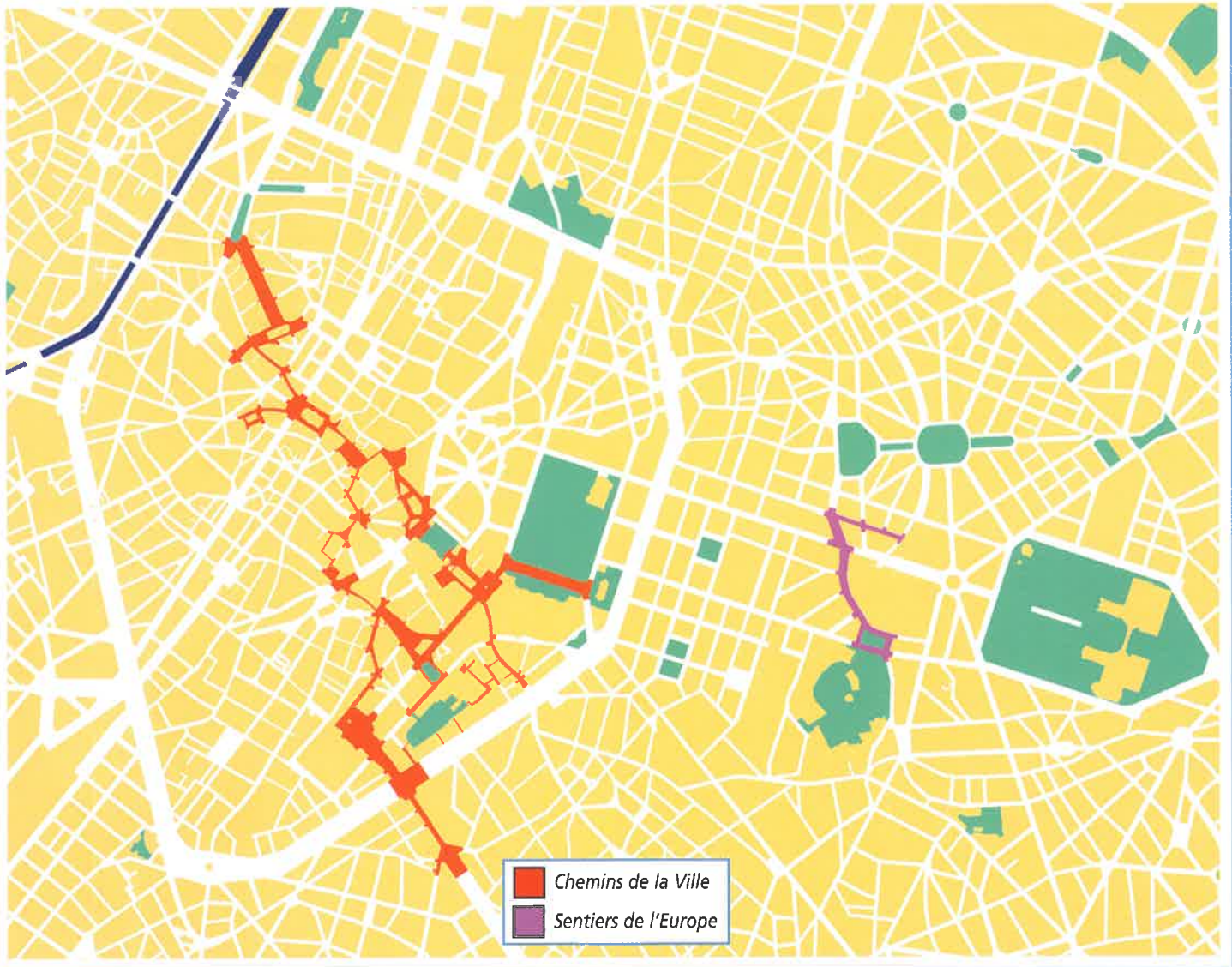


*Pedestrians are an important element of urban life.*



*Pedestrian streets must be pleasant.*

### **The *Chemins de la Ville* and *Sentiers de l'Europe* pedestrian areas**



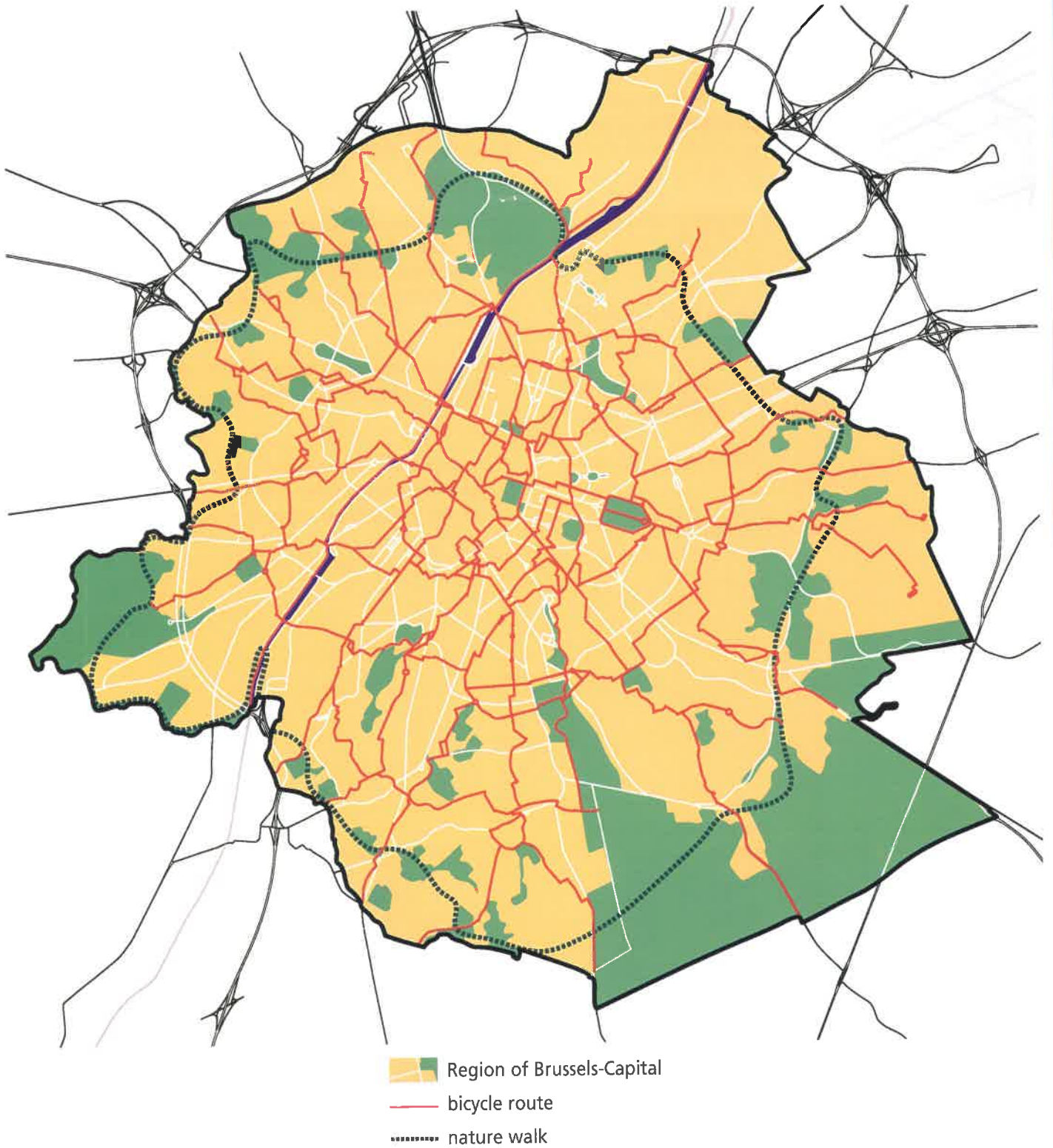
- *Chemins de la Ville*
- *Sentiers de l'Europe*

- The layout of traffic areas accessible to pedestrians must be improved so as to facilitate more direct itineraries.
- Pedestrian ways should be clearly indicated and free of obstacles.
- People must be able to travel on foot in comfort and safety, in particular in terms of
  - space (minimum width of pavements, walkways or passageways adjacent to construction sites, etc.)
  - the surface (stability, non-slippery properties, level or elevated crosswalks, etc.)
  - lights (adequate, uniform streetlights, etc.).
- At intersections, traffic lights should have short cycles so as to reduce waiting time by pedestrians.
- Measures should be taken to ensure that public transport stops and walkways leading to them are comfortable and safe (slow traffic near stops, extended pavements, traffic islands, platforms, etc.).
- Pedestrians areas should be made attractive by the addition of amenities.
- Improvements must be made near schools to ensure the safety and security of the population most at risk.

*Pedestrians must be able to move about comfortably and safely.*

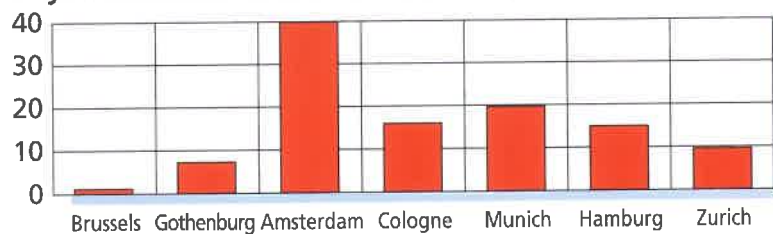


## Bicycle routes



## Bicycles' share of vehicular travel Comparative table for selected European cities

Bicycle utilisation rate in terms of total vehicular travel (%)



- Information campaigns to promote the use of bicycles in urban districts.
- Development of the regional network of bicycle routes, based on existing local lanes and paths, and the gradual extension of bicycle lanes on all roads and streets.
- Creation of links with adjacent Regions and routes to other parts of Europe.
- Implementation of appropriate measures where bicycle routes intersect with regional or inter-district roads.
- Promotion of combined travel by bicycle and public transport.
- Creation of secure, sheltered bicycle parks of adequate size near
  - main public transport transfer points
  - major public and private facilities (schools, sports facilities, housing complexes, etc.)
  - recreational areas, shopping centres, work places.



Parked bicycle.

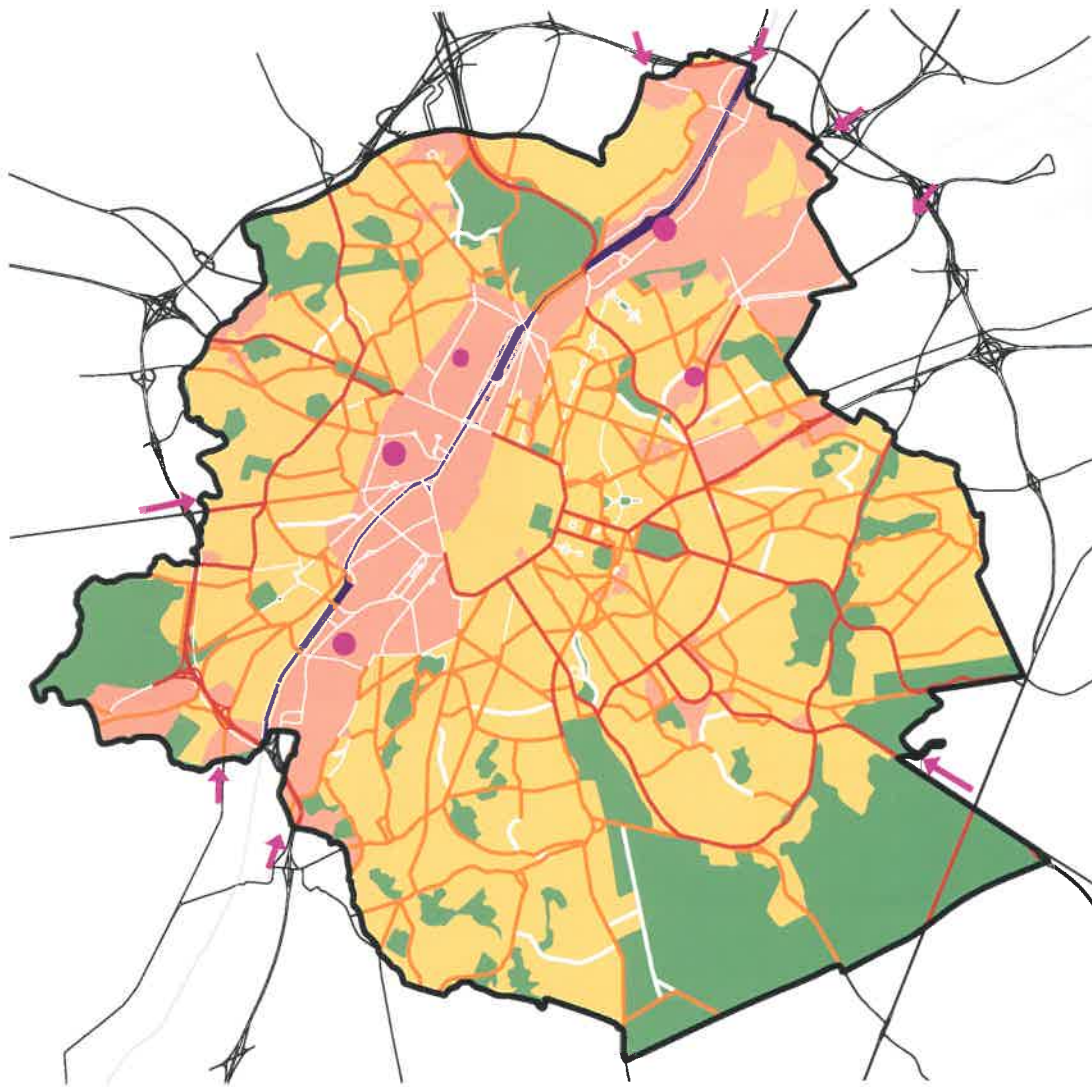


Extension of bicycle routes.



Riding bicycles in the city.

## Heavy goods traffic



- road accessible to all commercial vehicles
- street barred to vehicles with more than 2 axles\* except local traffic
- planned long-term lorry park
- ➔ motorway access to main destinations of goods vehicles

\* vehicle length could become the determining factor

**Municipal Development Plans will state which roads and streets are to be closed to commercial traffic in the areas below:**

- area accessible to all commercial vehicles
- area to which access by vehicles with more than 2 axles is dependent on environmental and urban permits

## Breakdown of goods traffic by transport mode (in thousands of tons)

Types of goods	Loaded for departure from Brussels			Unloaded on arrival in Brussels		
	road	rail	water	road	rail	water
Farm products and live animals	540	9	49	845	19	455
Food and animal feed	1,110	0	103	2,426	26	160
Solid mineral fuel	41	413	67	42	660	236
Petroleum products	1,314	0	32	635	0	1,009
Iron ores and scrap for the metal industry	44	70	73	68	4	37
Metal products	159	18	60	357	88	47
Crude and processed minerals, construction materials	3,692	0	122	4,381	10	352
Fertilizer	685	0	9	463	0	263
Chemicals	331	1	222	285	5	172
Machinery, vehicles, manufactured products and special deliveries	2,448	277	189	3,140	335	391
<b>TOTAL</b>	<b>10,364</b>	<b>788</b>	<b>926</b>	<b>12,642</b>	<b>1,149</b>	<b>3,122</b>



Clearly indicated delivery areas.

#### • Deliveries

- Revision of traffic regulations and legalisation of the "deliveries only" principle.
- Space set aside on streets for deliveries and enforcement of parking regulations, including to ensure that there is a turnover of vehicles.
- Rules governing delivery hours to be set jointly by the municipalities and the police,
  - to avoid rush hour deliveries
  - as best suited to each district concerned.
- Common delivery areas for use by different commercial establishments.
- Use of zoning regulations to incite businesses and shops to build off-street delivery facilities for their own car fleets or deliveries.
- Access to local streets by heavy goods vehicles is to require transport authorisations issued in accordance with environmental permits.



#### • Heavy goods traffic

- Promotion of complementary transport of goods through the development piggyback service, incentives for businesses to locate near the airport and the creation of distribution centres.
- Public areas for the long-term parking of heavy goods vehicles.
- Directions signals for commercial traffic pointing the way to industrial and business districts from the ring road.
- Restrictions on traffic by very heavy vehicles, except in districts with significant goods traffic.
- Improvement of transport and logistic facilities and revision of environmental standards applicable to heavy goods vehicles.

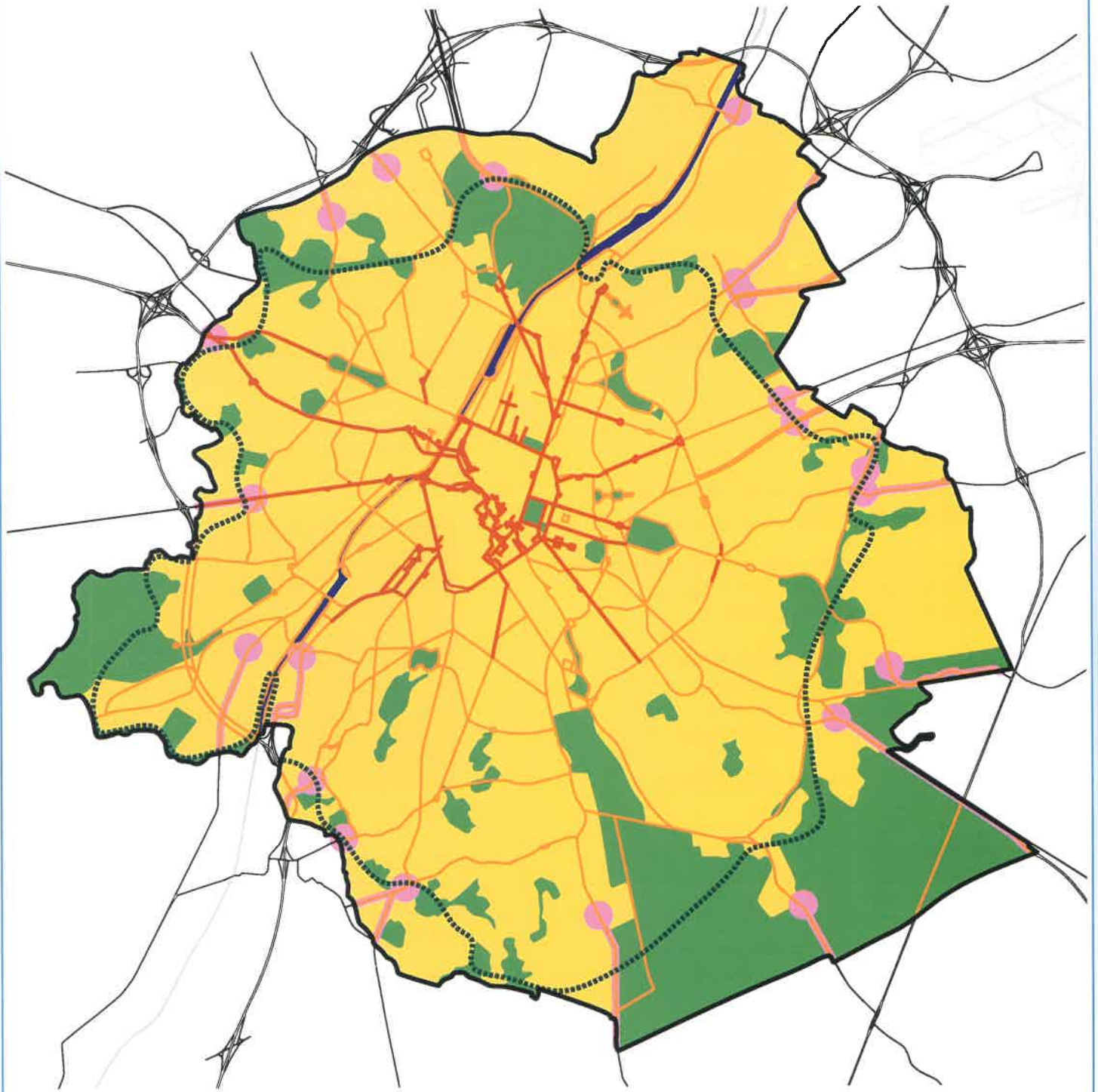







Carriage by water should be promoted.

#### • The use of waterways

- Improved access by road to businesses and harbour areas.
- Building and promotion of a new rail and lorry freight terminal near the access to the harbour.
- Upgrading of the Tour et Taxis warehouses.
- Land to be made available for new intermodal transportation by water and road or water and rail, and an intermodal transport platform to be created near the access to the harbour, along with a container terminal.
- Building of a facility for handling waste construction materials and household refuse at the Canal dyke and examination of the feasibility of transporting rubble and refuse by water.

# Structuring areas PRD Map



-  Region of Brussels-Capital
-  structuring area (outside the Pentagon)
-  priority structuring area
-  nature walk
-  access to the urban districts

### General objectives

- The four public transport operators in the Brussels area should be supported jointly by the federal, regional and municipal governments.
- The operation of transport systems by public transport entities should be co-ordinated, with a view to providing more and better service in Brussels and its surrounding area.
- Employee travel plans should be promoted, prioritising public transport and other alternatives to individual commuting by private car, at the initiative of
  - the private sector
  - the public sector
  - Belgian and international institutions with offices in the Region.
- An efficient body must be set up by the 19 municipalities and the Region to co-ordinate parking policies.
- A Regional Express Rail network (RER) providing service within a 30-kilometre radius of Brussels should
  - be developed in a gradual manner
  - start scheduled service using available equipment on existing tracks and with sufficient train frequency
  - make full use of existing railway stations and add a few new stops at transfer points with urban public transport systems and in certain districts with a high population density and an existing line.
- Co-operation between the federal government and the Region must be pursued and expanded, for the purpose of financing projects related to Brussels' role as a national and international capital,
  - through assistance of a structural nature
  - letting the Region continue to exercise authority over projects.
- Ways must be found to make all users pay for the cost of the transport system, including those residing outside the Region:
  - 21 percent of passengers on the STIB urban public transport system are commuters who live outside the Region (estimated annual cost: EUR 62.5 million)
  - 38 percent of the users of the Region's road system do not pay taxes to the Region (estimated annual cost: EUR 60 million).



*The Metro system must be extended to meet the demand for transport.*



*The RER system around Brussels must be developed.*



## ***Contents***

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## AN APPROACH THAT TAKES INTO ACCOUNT THE EXCHANGES BETWEEN BRUSSELS AND THE REST OF THE COUNTRY

The mobility plan for the Region of Brussels-Capital must take into consideration the relations which the Region has with the rest of the country.

- More than 50 percent of all jobs in Brussels are filled by non residents.
- The federal government, the Flemish and French communities, the European Commission, Parliament and Council of Ministers, as well as many international institutions (NATO, WEU, etc.) are all located in Brussels.
- Thus, Brussels is a major decision-making and financial centre, where many Belgian and international companies have located their main offices (banks, insurance companies, multinational firms, etc.).
- The City-Region is also a leading commercial hub for all of Belgium.
- Many health-care, cultural and other institutions providing services throughout the country are located in Brussels.
- Brussels is the Belgium's main focal point for transportation (by road, rail, air, etc.).



*Shopping centre.*



*The registered offices of many national firms are located there.*



*An international decision-making centre.*

## CLOSELY CO-ORDINATED ACTION BY GOVERNMENT BODIES



CONDITION  
FOR  
SUCCESS

Administrative boundaries have no impact on transport and economic activity. Therefore, a broader social and economic area must be taken into consideration in matters of demand for transport, and all institutions concerned must be involved.

- Transport policies must be set through a consensus between the Region of Brussels-Capital, the federal government and the other two Regions.
- The co-ordination of inter-regional transport services is under the joint responsibility of the federal government and the three Regions.
- A co-ordination centre is needed if transport policies are to be planned jointly and in a cohesive manner.
- The cost of transport services should be divided more fairly between those who use them and those who pay for them.



*Co-ordination among government bodies...*



*... on behalf  
of the population.*

# 5.3

## THE CREATION OF COMMON MANAGEMENT AND MONITORING STRUCTURES FOR TRAFFIC AND PARKING

In order for the action program to be implemented, the Region must have the ability to monitor and manage travel at all times.

- The planning role of the department of public works and transport should be expanded.
- A Regional statistical instrument should be created, which would collect data through frequent surveys of travel patterns.
- A traffic management and monitoring structure must be created.
- A regional parking management and monitoring structure must be set up.
- Road specialisation measures must be implemented.



*A regular monitoring of changes in travel patterns.*



*Controlling traffic the most efficient manner possible.*

The organisation and scheduling of measures called for by the IRIS Plan will have a key impact on the effectiveness of planned changes.

- The travel patterns of the population are quickly and often irreversibly affected by measures implemented in response to the demand for travel.
- The logical order in which measures affecting demand must be carried out must therefore be strictly complied with if the expected results are to be achieved.
- For example, access by road should not be restricted until a public transport alternative is effectively available.



*People often behave in a selfish manner.*



*Consideration must be given to synergies between measures.*

# 5.5 INVOLVEMENT AND PARTICIPATION OF ALL PARTIES CONCERNED

The involvement and participation of all parties concerned is a necessary prerequisite for the success of the IRIS Plan. They will come about if

- comprehensive and clear information is provided to the public
- everyone benefits from the project and endorses it
- the project is realistic and affordable
- the planning and execution of the project are closely co-ordinated by all institutions concerned
- municipalities have a significant interest in the outcome.

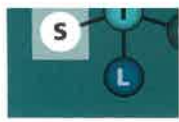


*Conferring about measures makes for more effective action.*



*Participation in a new mobility policy.*

# General Conclusion



GENERAL  
CONCLUSIO

Exchanges are one of the essential elements of urban life.

If the mobility of individuals is to increase, this can be done only as part of a broader effort to ensure the sustained development of the Region and preserve the quality of life in Brussels.

Close to half a million trips occur daily in the Region during the morning and evening rush hours, of which 62 percent are by car. All Brussels residents are familiar with the problems of traffic jams, parking shortages, time-consuming and taxing commutes, pollution and stress.

In the absence of any measures, the situation would inevitably worsen. It is therefore indispensable that necessary changes be implemented.

The public transport system performs as the population demands, but it must be expanded to meet the needs of riders and the development of the city.

The focus must be on the diversification of transport modes.

None of these issues can be dealt with casually or on a case-by-case basis. They require a comprehensive examination and integrated solutions.

The future of the Region is at stake, meaning its economic development, the protection of its environment, its opportunities for exchanges and contacts with the outside. The everyday life of all Brussels residents is concerned, including the daily commuting to work and leisure activities, children's way to school, the safety of persons with impaired mobility and the quality of urban life.

The Region of Brussels-Capital has conducted a comprehensive study of the complex problem of travel in the Region.

A summary of the conclusions reached and of the choices that must be made for the future is now available to all voters, municipal officials and other policy and decision makers.

A Mobility Plan can succeed only if all contribute to it through their travel patterns and daily choice of transport.

<b>First Ring</b> .....	Municipalities bordering the Pentagon.	<b>Pentagon</b> .....	The Region's central district, located inside the "small ring".
<b>Second Ring</b> .....	Residential suburbs at the outside edge of the Region of Brussels-Capital.	<b>Trend scenario</b> .....	Expected situation in 2005 in accordance with a simulation based on existing conditions.
<b>Accessibility</b> .....	Ease of access by vehicles and people (employees, customers, etc.).	<b>Planning scenario</b> .....	Situation in 2005 that would result from the implementation of all measures designed to combat negative trends and improve travel in the Region.
<b>Working population</b> ..	People of working age.	<b>Tertiary sector</b> .....	Major management offices major public administration and business head offices and management services.
<b>Business districts</b> .....	Eastern section of the Pentagon, northern sector and European institutions district.	<b>Non-commuters</b> .....	People who do not travel on a regular basis.
<b>Vehicular travel</b> .....	Travel by public transport, private car, motorcycle or bicycle, by people 6 years of age and older.	<b>Local services</b> .....	Neighbourhood shops and services.
<b>Travel time</b> .....	<ul style="list-style-type: none"> <li>• <b>By public transport</b> includes the time spent walking to the boarding point and from the disembarking point to the destination point, as well as the average waiting time and actual travel time or times.</li> <li>• <b>By private vehicle</b> duration of door-to-door trip, exclusive of time spent finding a parking space or walking from the parking location to the destination point.</li> </ul>	<b>Transfer ratio</b> .....	Ratio of boardings to total number of passengers.
<b>Boarding</b> .....	Initial boarding of public transport vehicle, which may be followed by one or more transfers.	<b>Internal rate of return</b>	The return on an investment can be stated as the rate of interest at which the amount concerned would earn an equal amount if deposited in a bank; that interest rate is referred to as the internal rate of return.
<b>Structuring space</b> .....	Public area of regional significance that reflects and characterizes the urban structure.	<b>Car ownership ratio</b> .....	Number of cars per 100 population.
<b>Commuter households</b>	Households which travel back and forth between their residence and their job on a daily basis.	<b>Commercial speed</b> .....	Hourly speed of a public transport vehicle, including time spent at stops.
<b>Mobility</b> .....	Ability to travel from one location to another.	<b>Travellers x kilometres</b>	Number of travellers time the distance travelled by each.
<b>Commuters</b> .....	Working and student population that travels on a regular basis between the Brussels Region and its surroundings (commuting in and out).		

- DE LIJN** .....Flemish region public transport system
- IRIS Plan** ...Regional Mobility Plan
- PCD** ..... *Plan Communal de Développement*  
(Municipal Development Plan)
- PRAS** ..... *Plan Régional d’Affectation du Sol*  
(Regional Land Use Plan)
- PRD** ..... *Plan Régional de Développement*  
(Regional Development Plan)
- RER** ..... *Réseau Express Régional*  
(Regional Express Rail Network)
- SNCB** ..... *Société Nationale des Chemins de fer Belges*  
(Belgian National Railway Company)
- STIB** ..... *Société de Transports Intercommunaux de Bruxelles*  
(the Brussels Public Transport Authority)
- TEC** ..... *Transports En Commun*  
(the Walloon region public transport system)
- VICOM** ..... Programme for increasing the commercial  
speed of ground public transport vehicles

## CREDITS

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