

Synopsis nr. 1

Mobility to and from, around and about Brussels

M. Hubert, F. Dobruszkes, C. Macharis

• **Michel Hubert** has a PhD in sociology and is a professor at *Facultés universitaires Saint-Louis* (FUSL), where he is president of the Interdisciplinary Brussels Studies Institute (*Institut de recherches interdisciplinaires sur Bruxelles* or IRIB) and runs the Sociological Studies Centre (CES). His research is focused on Brussels issues, mobility being foremost amongst them. He published with B. Montulet et P. Huynen, *Être mobile. Vécus du temps et usages des modes de transport à Bruxelles*, Bruxelles, Publications FUSL, 2007, 208 p. and "L'Expo 58 et le 'tout à l'automobile'. Quel avenir pour les grandes infrastructures routières urbaines à Bruxelles ?", *Brussels Studies*, 2008, n° 22.
Contact : hubert@fusl.ac.be – 02/211.78.53

• **Frédéric Dobruszkes** is a researcher and senior lecturer at the Université Libre de Bruxelles Environmental Management and Spatial Planning Institute (ULB-IGEAT). He conducts research on air transport in Europe, the liberalisation of transports, and travel policies. He is Vice-Chairman of the Regional Mobility Commission of the Brussels-Capital Region. He recently published an article, together with X. Courtois, on "The (in)efficiency of trams and buses in Brussels: a fine geographical analysis", in *Brussels Studies* n°20.
Contact : fdobrusz@ulb.ac.be – 02/650.50.75

• **Cathy Macharis** is professor at the Flemish University of Brussels (Vrije universiteit Brussel or VUB). She holds a PhD in logistics and transportation management, sustainable mobility and operational management. She participated to several Belgian and European research projects regarding location analysis, intermodal transportation, public transport, the promotion of traffic safety through telematic applications, etc. She is president of the Regional Mobility Commission. Recent publications: www.vub.ac.be/MOSI-T
Contact : Cathy.Macharis@vub.ac.be – 02/629.22.86

This paper expresses the personal views of Cathy Macharis and Frédéric Dobruszkes. The authors extend their heartfelt thanks for the useful remarks and comments they received to a preliminary version of this summary from Nicolas Bernard (FUSL), Olivier Colla (STIB), Alain Deneef (Aula Magna), Astrid De Witte (VUB), Patrick Frenay (ULB), Serge Jaumain (ULB), Pierre Lannoy (ULB), Bertrand Montulet (FUSL), Marianne Thys (Bruxelles Mobilité), Philippe Toint (FUNDP), Tom Van Lier (VUB) and Joeri Van Mierlo (VUB).



I. Observations

1. *Preliminary observation: a knowledge base that needs improvement*

A large number of observations and forecasts on which the Brussels-Capital Region (BCR) bases its mobility policy arise from a vision focused on the “transportation” of passengers and goods from a point A to a point B, and rely on data that are often insufficient or on questionable hypotheses. This vision, moreover, does not adequately consider a more global approach to mobility – in particular one that integrates the results of analyses of public action, urban planning, and the sociology of mobility¹.

2. *A mobility that has become multiple, associated with the need for roots*

If we restrict ourselves to studying the *spatial* mobility of people, a certain number of observations relevant for most countries of the West should also be factored in, for example:

- the increase in international migrations, as a flow-volume;
- the stagnation, or even decline, of residential mobility in the same country;
- the sharp rise in the duration of travel and, to a lesser extent, in the time-budget devoted to this travel;
- the growth of the market share held by road and air travel;
- the diversification of motives for travel (the job-related portion – some 30% of total travel – has sharply dropped in relation to the growth of “leisure” travel in the broad sense) and of the times travel occurs (rush hour extending and slack time becoming less pronounced, increase in evening and weekend mobility,...);
- the increase in activity chaining, thus in travel [Hubert and Toint, 2002];
- the assertion of travel time as a social time in its own right.

¹ Examples of such contributions include: Coppe and Gautier, 2004; De Witte et al., 2006; De Witte et al., 2008; Macharis et al., 2007; Montulet et al., 2007; Montulet and Hubert, 2008.

Describing a *sole model* for daily spatial mobility is thus no longer possible, for mobility varies from one person - or one day - to the next. Consequently, although focussing solely on the morning rush hour is surely still relevant to calculate the capacity required by public transport networks, it is now far from sufficient to address the diversity of mobility schedules and practices.

A paradox nevertheless seems to emerge: ample use of the speed potential offered by various means of transport primarily help the users stay in place, in other words maintain their familiar environment and lay down roots. [Schneider and Meil, 2008; Kaufmann, 2008]

3. *Specific contexts in Belgium and Brussels lead to a public space filled with automobiles*

Some of the observations above are particularly true for Belgium and Brussels, especially:

- due to Belgium's small size, the country's linguistic particularities and the high rate of residential homeowners (some 70%, among the highest in Europe), the rate of daily long distance commuters is higher than elsewhere [Montulet et al., 2008]. In Brussels, the share of jobs held by non-residents of Brussels (nearly 60%) partially reflects this phenomenon, whilst the lower rate of homeowners in BCR (some 40%) poses the risk of urban flight²;
- with one vehicle for less than two inhabitants, Brussels has one of the highest motorisation rates in Europe³. This can be partly explained by the fact that, thanks mainly to Expo 58, efficient road infrastructures were quickly available to the public at the very time the automobile "took-off" which reinforced the "4-wheel dream" [Hubert, 2008]. The result is a discrepancy between an over-sized road and parking lot infrastructure in some areas and the capacity of a city where most neighbourhoods were not designed with cars in mind;

Altogether, automobiles (both moving and parked) are excessively present in Brussels, hindering the use of public areas not linked to mobility, hampering other means of moving about, and undermining quality of life in the city.

² See the summary on land purchase controls, public space and housing.

³ See <http://www.urbanaudit.org>

4. An evolution ill-mastered by the Region

The evaluation made by the Iris 2 regional mobility plan [Bruxelles mobilité, 2008]⁴ of the objectives attained under Iris 1 Plan (adopted in 1998, with a 2005 horizon) shows that:

- the increase in road traffic was not curbed;
- consequently, the commercial speed and regularity of the public ground transport system regressed, despite the construction of several dedicated throughways;

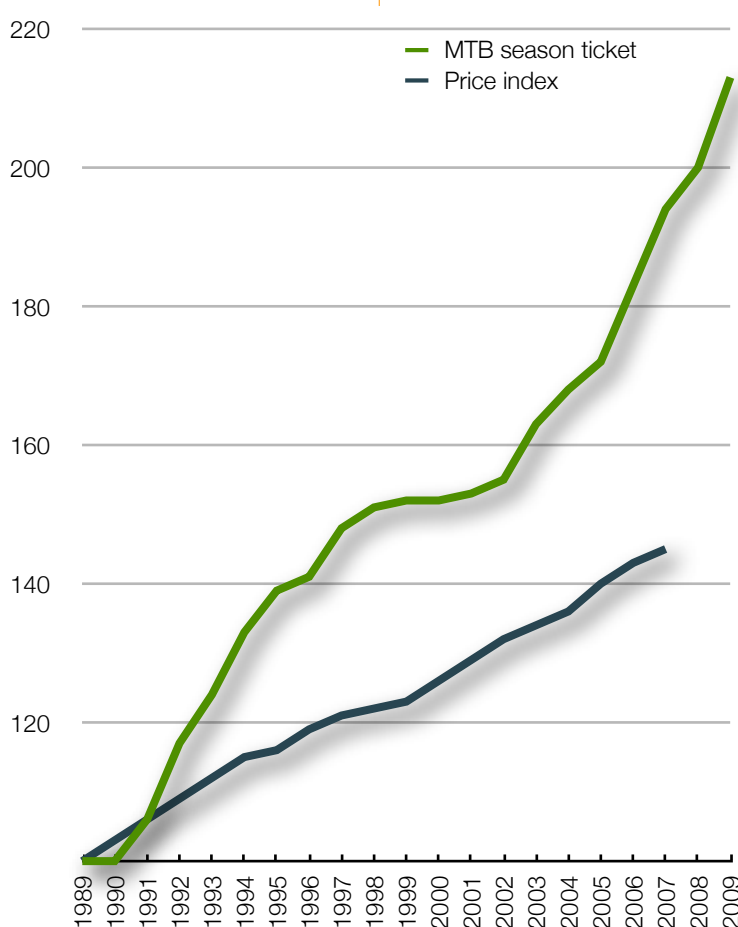


Figure 1. Evolution of the price index and fee for the MTB season ticket (1989=1000) (F. Dobruszkes, ULB/IGEAT)
Sources : SPF Économie and STIB

- measures apparently simple, for example “remote control of traffic lights in favour of public transport is not yet operational”, whilst it was a priority of Iris 1 (“immediate action”);

- the offer in public transport is often not sufficiently adapted to the needs of the population as regards fares, territories covered, running schedule, efficiency, comfort and information;

- “there was considerable delay in the implementation of bicycle paths”;

In the face of these observations, the draft Iris 2 Plan, postpones the target for a 20% decrease in automobile traffic (compared to 1999) to a much later date (2020), while the Regional Development Plan (PRD) had aimed for the year 2010.

5. Public transport fares are... unfair

The fares set for public transport show signs of serious inequalities. Transport free of charge or at a highly reduced rate is offered to some categories based on age (young or old) or status as students (funding from the linguistic Communities), regardless of the person's income. On the other hand, special fares on the basis of social criteria are highly restrictive (social integration income or similar, officially recognised status such as BIM/ex-VIPO or OMNIO, veterans). Those who are obliged to pay the full ticket have seen their fares increase twice the rate of inflation since the Brussels-Capital Region was established.

⁴ Under public enquiry until late November 2008, this 2nd “Regional Mobility Plan” will likely not be adopted during the current legislative session.

6. Urban logistics and distribution, left behind by Brussels mobility policy

Figure 2. Road & rail transport in kilometer-tonnes (x1 billion)

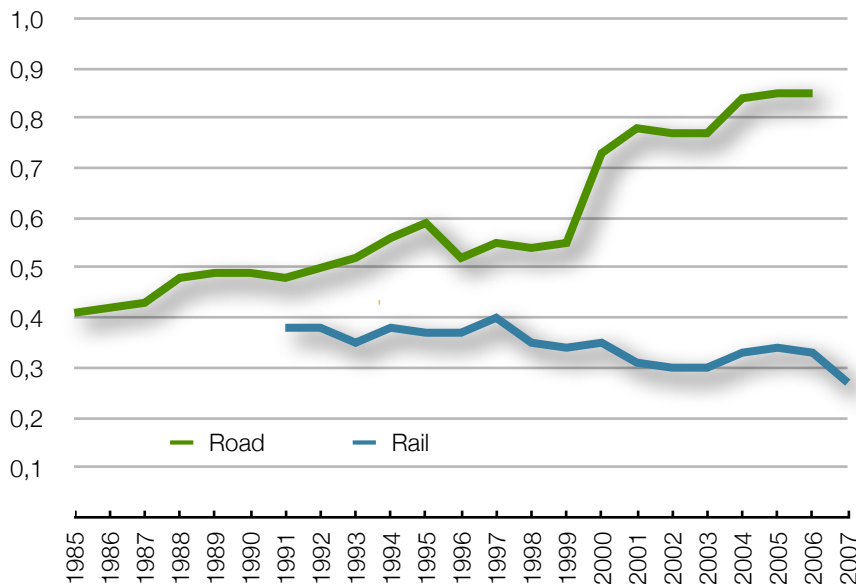
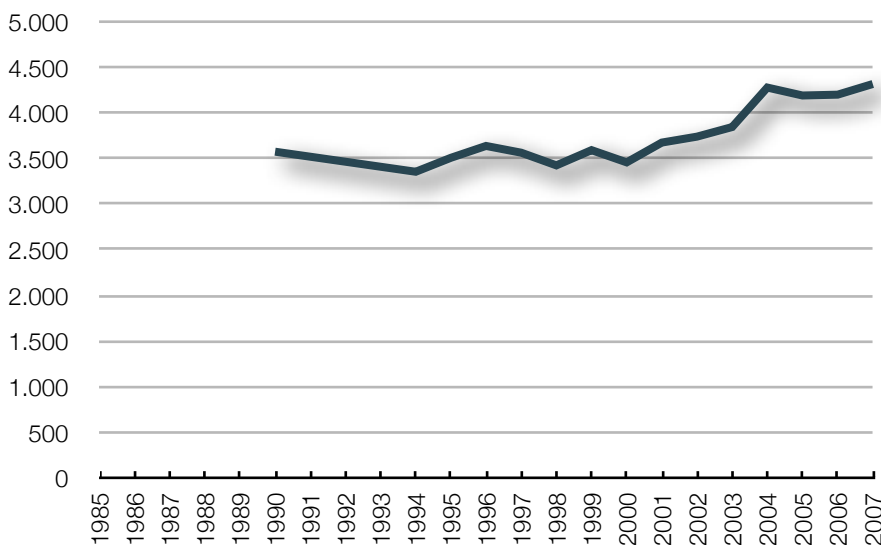


Figure 3. Inland shipping in tonnes (x1000)



Road transport by far represents the primary means to supply Brussels with goods and merchandise, with nearly 80% of the share which continues to grow. Given the increase in the number of containers handled in sea ports, an even sharper rise in long-haul road transport can be expected in the future. While water transport holds its own in Brussels (nearly 20%), the share of rail is declining. This also coincides with the suspension of port activities by the intermodal operator TRW (Transport Route Wagon)⁵.

Urban logistics and distribution are a key element in mobility problems for people (traffic blocked, accidents,...) and goods (lost time, horrendous work conditions for deliverers,...). They also have an impact on quality of life in the city (pollution, noise,...). Nonetheless, Brussels policy in this area is hardly out of the garage.

Figures 2 and 3. Goods transport in the Brussels-Capital Region.
Source: Van Lier and Macharis, 2008 on the basis on figures from the Port of Brussels (inland shipping), Rail and road transport on the basis of figures from Studiedienst Vlaamse Overheid.

⁵ <http://www.trw.be/>

7. *City planning policies and the land and real-estate tax are not coordinated with a sustainable mobility policy*

Brussels' city planning policy, as well as the land and real-estate tax schemes, have hardly been coordinated with sustainable mobility in mind, illustrated by a few examples. The ABC policy, which aims to concentrate office buildings in zone A around the main public transport hubs (North, Midi, Arts-Loi, Schumann,...), was implemented partly at the expense of the expropriated residents. At the same time it allowed a large number of underground parking lots to be built⁶, without precluding

construction of buildings in areas B and C which are hard to reach by public transport. While all metro lines will soon pass through the Gare de l'Ouest/ Weststation and Beekkant, no plan to develop the vacant lots surrounding these stations is in sight. It is foreseen to locate the new stadium in Schaerbeek-Formation, without giving priority thought to its accessibility (other than by car) and without any plan to develop this important real-estate area. Development of the port must compete with building projects (shopping centre, housing,...) and infrastructure (an open-air swimming pool in the same plot where the Port development's Masterplan fore-saw a "construction village").

Symptomatic of this situation, the Iris 2 Plan's priority 6 "align mobility and territorial planning" is just two pages long and is limited to highly general considerations.

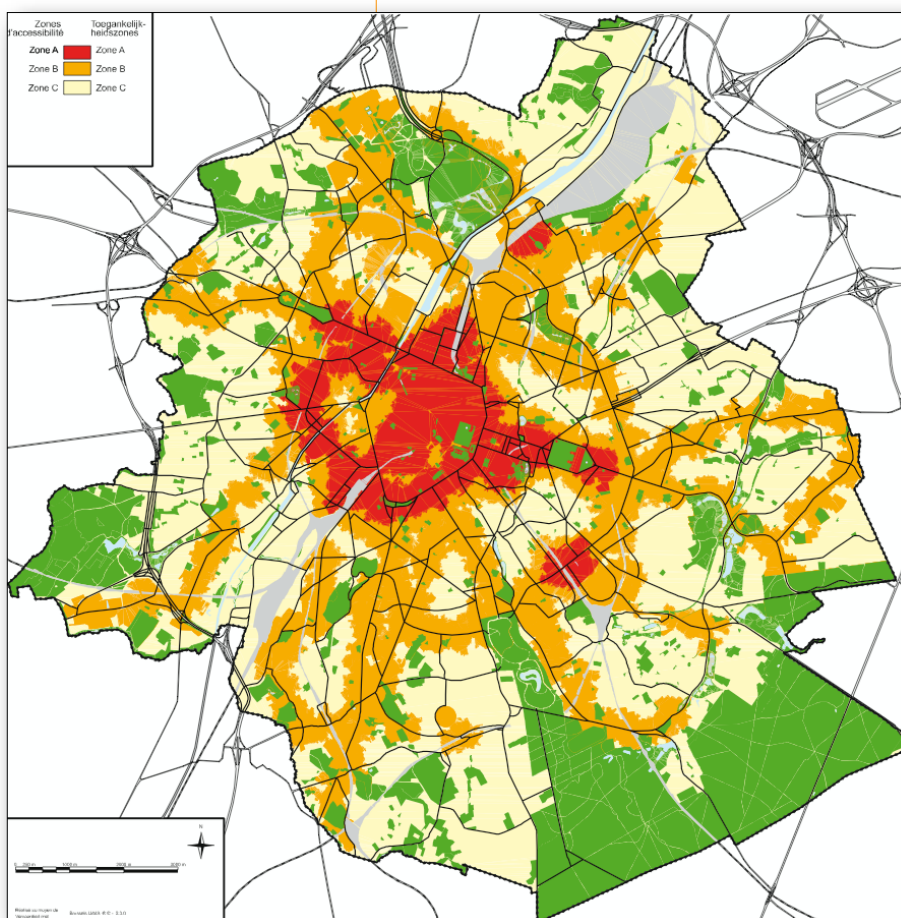


Figure 4: map of the ABC access zones. Source: Regional urban planning regulation. Source: Règlement régional d'urbanisme, Moniteur belge of 19/12/2006

⁶ Since that time the regional urban planning regulation, adopted in 2006, allows, for new buildings only, a maximum of 1 parking space per 200 m² of office space in zone A while the current regulation in the City of London, for example, is a maximum 1 space for 1,115 m² [Brussels-Capital Region, 1993].

8. *Governance in the area of mobility suffers from internal and external shortcomings*

Governance in the area of mobility in BCR suffers from several internal and external shortcomings.

Internally:

- multiplication and dispersion of responsibilities among the Region (and in the Region between ministries, administration and services), STIB/MIVB, the municipalities and police districts;
- the resulting difficulty in mobilising all the actors concerned around a strategic plan;
- the Regional Government's lack of *de facto* autonomy in relation to the municipal councils [Misonne & Hubert, 2003] and lack of the political will to implement the plans it adopts itself.

External shortcomings include insufficient coordination between the service offered by regional public transport (STIB/MIVB) and that of the other operators (De Lijn, TEC, SNCB/NMBS) which leads to a loss of efficiency, difficulties in understanding the overall offer, and a fare/ticketing system that is insufficiently integrated. Moreover, one has the impression that Brussels regional authorities are “putting up” with the RER project rather than appropriating it voluntarily (for example the low profile given to the “article 13” study under preparation⁷). As for the Beliris funds, these are earmarked on the basis of negotiations that occasionally occur outside democratically defined regional priorities.

9. *One fourth of the Region's budget and the means are nevertheless insufficient*

A quarter of the Region's budget goes for transport, with over 8/10 slated for common transport (operational and investments). This illustrates not only how serious an issue mobility is for the BCR, but also how difficult it is to bring radical changes without new additional means. Nevertheless, it should be noted that with no change in the offer, increasing the commercial speed of the buses and trams (by remote control of traffic lights and dedicated throughways) can reduce running costs significantly, or with the same budget increase the offer (frequency, schedules, network interconnections) [Dobruszkes and Fourneau, 2007].

⁷ This study, foreseen by the agreement of 4 April 2003 between the Federal State and the three regions (in order to implement the RER program from, to, in and around Brussels, and published in the *Moniteur belge/Belgisch Staatsblad* of 1 March 2006) is intended to analyse the demand in transport in order to prepare the RER offer in terms of services. It should be finalised within the coming months.

II. Questions-issues

1. *What is the role of expertise in guiding Brussels' mobility policy?*

The first observation highlights the issue of the quality, accessibility and possibility for a scientific debate of the studies which serve as a basis for the BCR's mobility policy (both people and goods). It also questions the role of expertise and universities in the study and follow-up of Brussels' mobility policy.

2. *How to encourage people to return to or stay in the city?*

Observations 2 (final paragraph) and 3 (first indent) are linked to the dual issue of "returning to the city" (in Brussels or, outside the BCR in the more densely populated areas near stations) for populations who have settled in suburbs where driving is almost a necessity, and "staying in the city" (in the BCR) for populations, underprivileged or not, who seek affordable housing.

3. *How to reduce automobile use drastically while simultaneously offering an equivalent capacity of alternative transport modes?*

Observations 3 and 4 pose a heady challenge both for the environment and for the economy. They should draw attention to the fact that in Brussels the task is more formidable than elsewhere. It must not only incite a particularly large number of people to leave their car at home more often (priority 3 of the Iris 2 Plan: "Encourage rational automobile use") or give it up completely; in addition it must reduce the parking lot offer and road capacity and also offer a consequent capacity in alternative means, especially public transport.

4. *How to make quality mobility available to all?*

Observations 4 and 5 relate to the physical and social possibility to move about Brussels in acceptable conditions. This leads to the question of the ambitions and means available to public transport services that are affected by public budget restrictions and poor productivity due to traffic congestion.

5. *How to guarantee a place for urban logistics and make it efficient and environment-friendly?*

Observations 6 and 7 underline the urgent need to guarantee a place for urban logistics as well as to reduce the share of goods transported by road by increasing that of water and rail. These observations also incite a search, benefitting all, for greater efficiency in the movement of goods in the city using means that respect the environment.

6. *How to conduct a mobility policy that is integrated and coordinated with all the agencies responsible?*

Observations 7 and 8 raise the issue of governance of Brussels' metropolitan zone in the realms of mobility, urban planning and land and real estate tax. This relates to governance both internal to the BCR and towards the other two Regions and the federal level, as well as the question of involving all the players concerned.

7. *What new forms of financing can be sought for the mobility policy in Brussels?*

Observation 9, linked to all those preceding, raises the question of the search for new sources of financing to implement a mobility policy that is more ambitious in its environmental and social objectives.

III. Policy options

1. *Establish a Mobility Observatory*

To address question-issue 1, it would be wise for the BCR to analyse why the *Mobility Observatory* set up in 2002 failed and, on this basis, establish a new *Observatory* piloted by a inter-university and interdisciplinary scientific committee. Its mission would be to guide and evaluate the studies commissioned by the Region and provide support for a truly strategic Plan with clear and ambitious objectives towards sustainable mobility in Brussels.

2. *Encourage locations that require less car travel*

In relation to questions-issues 2 and 3, measures – particularly fiscal, should be foreseen to encourage residential mobility if it leads to less need for car travel, in other words measures that encourages residences in city areas that are dense and well served by public transport (close to train stations and public transport stops and stations). These measures however should only apply to the main residence and be subject to income level conditions to avoid pushing the disadvantaged populations outside the city. The measures should also target tenants, whether or not they become homeowners. Lastly, a “portable” property registration tax should be set up (as in Flanders) as long as the individual's residential mobility remains inside Brussels.

Addressing question-issue 2 also implies working on the collective image of the “country home” (in particular, the house and garden model), and seeking new architectural and urbanism solutions in the city that combine homes and public space and serve as worthy alternatives to the ideal of owning a house outside the city.

In addition, policies should be stricter about the location of large flow-generating clusters (offices, collective infrastructure, shopping centres,...) to make sure they are easily accessible by public transport, whilst avoiding new competition with the housing function.

3. *Eliminate motor transport for a maximum number of trips*

In answer to question-issue 3, a maximum number of trips must no longer require motorised transport. This would address the first priority of the Iris 2 Plan “Encourage softer means of transport” and save seats in common transport which constantly needs new capacity. This means promoting pedestrian and bicycle routes as well as setting up an efficient system of shared bicycles combined with a public transport offer.

Another idea along these lines is to develop the Cambio carsharing system, in so far as it reduces the households' motorisation rates and lightens the automobile's hold over public space.

4. *Make the RER a true asset for mobility into and out of Brussels*

Regarding questions-issues 3 and 4, to forestall the risk of urban flight the Brussels regional authorities should adopt a more active role in preparing the future arrival of the RER (2016) and treat this project as a resource rather than a constraint. In particular this includes:

- increasing the number of RER stops in Brussels territory (at present 29; the Regional Development (PRD) and Zoning (PRAS) Plans foresee 17 more; Infrabel considerably fewer) and improving the service they offer while there is still time ("article 13" study); this should be done in the aim to reinforce the use of this new tool for travel within Brussels, serving as an advantageous supplement to the metro network (which is essentially east-west, while the RER will be north-south);
- interlinking the offer in city transport (STIB/MIVB, De Lijn, TEC, shared bicycles, pedestrian paths,...) and taking the future RER into greater account;
- conducting a city planning policy that encourages housing around Brussels' RER stops⁸ to make the main employment centres (in and outside the BCR) accessible, and thus offer Brussels residents a comparative advantage in their choice of residence; along these lines, the RER stations should also be built near peripheral industrial zones (for example nothing is foreseen for Brucargo, a major source of low-skilled jobs for Brussels residents).

5. *Reduce the offer of road infrastructure in step with improvements in the alternative transport offer*

Still in relation with question-issue 3, a mechanism should be developed to foresee a reduction in road infrastructure offer (roads, parking) that is concomitant with each improvement in the offer of alternatives to the automobile. This mechanism should be applied particularly in the framework of the RER "accompanying measures" (still in the air). Financial contribution from real estate investors who benefit from new public transport services could enter into play, as occurs in some countries.

In this context, another problem to tackle is the excessive offer of underground parking lots in office buildings which, together with company cars (and alternatives to this need to be found at the federal level), represent an advantage in kind that undercuts the objective of reducing car use in the city. Compiling a registry of the number and capacity of these parking lots with a schedule for the environment permits granted, as well as drafting a legal framework to amend the regulations in this area, would be more proactive means to achieve progress in this important issue than the method proposed by the Iris 2 Plan (p. 94).

⁸ This policy should apply first to the most heavily frequented stops (such as those at the intersection of two lines). The same idea is also valid for urban public transport stops and stations as well as for RER stops outside Brussels (why not increase population density there too instead of simply building more parking lots?).

6. *Invest in the different forms of public transport, considering all the parameters and the overall urban system*

The matter of developing the metro (in relation to questions-issues 3 and 4) must be evaluated considering the desired market share for common transport, the population and employment densities in the areas to be covered, and the high investment costs this transport entails. To give a better idea, a network of 17 rapid tram lines could be set in place at the same investment cost required for one or two underground metro lines; a metro line is not optimal, in terms of running costs, unless it has at least 8,500 passengers at peak periods [Dobruszkes and Duquenne, 2004]. One must also consider the inconveniences, compared to surface transport, for those who take the metro (time and effort to reach the platforms, especially for people with reduced mobility, no view of the city during the trip, some users not feeling safe,...).

7. *Turn public transport stops into full-fledged urban spaces*

It is now important to turn common transport stops and intermodal hubs into attractive and integrated urban spaces (for example, work completed or under way at the Midi, Central and Schuman train stations,...) that are open to the needs of their neighbourhoods (for example the recent renovation of multi-service areas at the Anneessens station).

8. *Rethink the fare policy of the STIB/MIVB*

The STIB/MIVB's fares (question-issue 4) should be revised to become more equitable, to restore the universal nature of public service, yet without disadvantaging the operator. Fares should not increase beyond the rate of inflation. Low-price or free-of-charge tickets, financed with the help of the Region, should place priority on social criteria (welfare status and/or net income level) or youth in order to reinforce a positive image of common transport, and to a certain extent, avoid turning them into adults who travel only by car.

9. *Maintain the place of urban logistics and promote the use of vehicles that respect the environment*

Addressing question-issue 5 calls for:

- maintaining, as far as possible, the areas occupied by existing urban logistics, as it is very hard to acquire new spaces;
- stimulating the use of rail and water ways;
- locating the TIR centre and the Brussels International Logistic Center (BILC) outside the Region's borders and, as Iris 2 proposes, building an Urban Distribution Centre (UDC) where electric or hybrid vehicles take up the relay for retail delivery;⁹
- using electric lorries for upstream and downstream transport of the containers handled in the intermodal terminal; this also applies for trash collection which as far as possible should employ vehicles that respect the environment (Macharis et al., 2007) ;

⁹ See also <http://www.lapetitereine.com>

- foreseeing specific parking spaces for deliveries outside the public area (as done as City 2) to prevent double parking during deliveries, enforcing respect of the existing parking spaces in the thoroughfare, adapting delivery schedules and imposing heavier sanctions for infractions.

10. *A Regional Transport Organising Authority integrated in an Urban Transport Community*

The BCR, through the *Transport Organising Authority*, timidly evoked by the draft Iris 2 Plan (p. 113), must have available in its territory all the jurisdiction needed to conduct a coherent mobility policy, which includes granting of planning permits, managing traffic lights, transport stops and information (question-issue 6). This implies transferring jurisdiction from the municipalities and police districts to the Region, internal reorganisation of regional administrations to facilitate cross-sector approaches and restricting the power of certain services to block the process.

This Authority should be part of a coordination structure for the whole “RER Zone” that associates the competent Flemish, Walloon and federal agencies. Setting up this entity should be a point in ongoing institutional negotiations.

11. *Get the concerned actors involved*

All actors concerned must be brought on board. In particular this includes using the mobility plans to involve businesses, the retail sector, and schools and higher education establishments (in this area a more restrictive framework should help achieve ambitious objectives).

12. *Find an overall solution to the financing problem*

New forms of financing must be found in view of a “Marshal Plan” to develop an ambitious mobility policy in Brussels. Nonetheless “one shot” solutions (like the Public-Private Partnership to build a metro line) should be avoided for they do not offer global financing. In this area, serious consideration should be given to “road pricing” measures (urban tolls, taxing by kilometre, time of day,...), especially those that have proved successful in other cities and which could be quickly operational.

References

- BRUXELLES MOBILITÉ, 2008, *Iris 2. Projet de Plan régional des déplacements*, Bruxelles, Région de Bruxelles-Capitale, 118 p., www.iris2.irisnet.be
- COPPE A., GAUTIER A., 2004, "Régulation et concurrence dans le transport collectif urbain", *Reflets & perspectives de la vie économique*, XLIII, 4, pp. 65-76.
- DE WITTE, A., MACHARIS, C., POLAIN, C., LANNOY, P., VANDE WALLE, S., STEENBERGHEN, T., 2006, "The Impact Of "Free" Public Transport: The Case Of Brussels", *Transportation Research part A: Policy and Practice*, Vol. 40, Nr. 8, pp. 671-689 (SCI: 0,730).
- DE WITTE, A., MACHARIS, C. & O. Mairesse, 2008, "How persuasive is free public transport? A survey among commuters in the Brussels Capital Region". *Journal of Transport Policy*, nr. 15, pp. 216-224.
- DOBRUSZKES F., DUQUENNE T., 2004, "Métro ou tramway ? De l'effet des densités de population et des répartitions modales à Bruxelles", *Recherche transports sécurité*, 85, pp. 221-240.
- DOBRUSZKES F., FOURNEAU Y., 2007, "The direct cost and geography of Brussels mass transport's operating delays", *Brussels Studies*, 7, pp. 1-19, <http://www.brusselsstudies.be>.
- FRENAY P., 2008, "Entre craintes et espoirs : le projet RER et quelques enjeux de développement autour des gares bruxelloises", *Transport urbains* 114
- HUBERT J.-P., TOINT P., 2002, *La mobilité quotidienne des Belges*, Namur, Presses universitaires de Namur, 352 p.
- HUBERT M., 2008, "L'Expo 58 et le 'tout à l'automobile'. Quel avenir pour les grandes infrastructures routières urbaines ?", *Brussels Studies*, 22, pp. 1-17, www.brusselsstudies.be.
- KAUFMANN V., 2008, *Les paradoxes de la mobilité. Bouger, s'enraciner*, Lausanne, Presses polytechniques romandes, 115 p.
- MACHARIS, C., VAN MIERLO J., VAN DEN BOSSCHE P., 2007, "Combining Inter-modal Transport with Electric Vehicles", *Transportation Planning & Technology*, Volume 30, Issue 2 & 3 April 2007, pages 311 - 323.
- MISONNE D., HUBERT M., 2003, "Les communes bruxelloises et le problème de la mobilité : entre autonomie et convergence", in WITTE E., ALLEN A., DUMONT H., VANDERNOOT P., DE GROOF R. (eds), *Les communes bruxelloises et le modèle bruxellois*, Bruxelles, Larcier, pp. 231-253.
- MONTULET B., HUBERT M., 2008, "Travelling with children in Brussels: A sociological study of experiences of time and the use of modes of transport", *Brussels Studies*, 15, pp. 1-15, www.brusselsstudies.be.
- MONTULET B., HUBERT M., HUYNEN P., 2007, *Etre Mobile. Vécus du temps et usages des modes de transport à Bruxelles*, Bruxelles, Publications des Facultés universitaires Saint-Louis, 208 p.

MONTULET B., HUYNEN P., HUBERT M., 2008, "Belgium - A Society of Commuters", in SCHNEIDER N.F., MEIL G. (eds), *Mobile Living Across Europe I. Relevance and Diversity of Job-Related Spatial Mobility in Six European Countries*, Opladen & Farmington Hills, Barbara Budrich Publishers, pp. 269-304.

RÉGION DE BRUXELLES-CAPITALE, 1993, *Observatoire des bureaux de la BCR*, Bruxelles, n°6.

SCHNEIDER N., MEIL G. (eds), 2008, *Mobile Living Across Europe I. Relevance and Diversity of Job-Related Spatial Mobility in Six European Countries*, Opladen & Farmington Hills, Barbara Budrich Publishers, 318 p.

SOCIÉTÉ DES TRANSPORTS INTERCOMMUNAUX DE BRUXELLES, 2004, *STIB 2020 : visions d'avenir pour le transport public urbain à Bruxelles*, Bruxelles, Département des Etudes générales et stratégiques de la STIB et Association momentanée MS-a/Speculoos/URBA, 127 p.