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Roads and quality of life

Abstract

The three Regions of Belgium apply the fundamental principles of the European Union for the free movement of people, goods and capital. They endeavour to create an efficient transport system, which is an essential prerequisite for the good operation of a market economy.

This political system is explained partly in the replies to the six questions asked under this strategic theme. In these replies the Regions were able to expound their views, thus contributing to a nationwide survey of the situation in Belgium. The following are discussed in this survey:

- the transportation plan IRIS of the Brussels Capital Region,
- the “Contract for the Future” and the passenger transport model of the Walloon Region,
- the travel plan and the multimodal transport models of the Flemish Region,
- the contribution of the road branch to the Belgian economy by paying its share in public finance,
- the developments in the budgets and organization of road administrations,
- the consultation with all actors involved,
- the analysis of the territorial, social and political context.

Introduction

Roads and quality of life, the integration of road transport with the other transport modes – how are they implemented in economic, environmental and social terms for the benefit of society?

In Belgium, mobility raises the question of achieving complementarity between the means of transport, and “partnership” is regarded as the key word in this process. There can be no solution without gathering all actors involved around the consultation table.

The quality of public transport services is often questioned, but it is noted that parts of the European plan have already been adopted in the policies of the Regions or the transport companies. The provision of park and ride facilities must be duly considered, to prevent the development of dispersed housing patterns that run contrary to the image of a durable town.

In the area of goods transport, models are developed to predict developments in different scenarios. Generally speaking, the advantages of inland waterway transport have been demonstrated.

Urban travel plans are implemented to make town centres more attractive. Private companies too are seeking solutions to the transportation problems of their personnel. It must be recognized, however, that many industrial parks have been sited near motorway interchanges and not in places where possibilities for transfer to other modes of transport are readily available.

Parking problems and the coordination of road works are investigated, to improve traffic flow conditions.

The development of exclusive cycle lanes helps to improve safety while allowing good use of the asset of railways and waterways.

Many regulatory provisions are made to protect the environment, but as they constantly develop they require regular adaptations of working methods. In this respect a dialogue has been established between “road” and “land planning” people.

In addition to impact assessment, consultation with all the parties concerned is now common practice.

Tender specifications require that owners make provisions for waste management right from the design stages of their projects, by evaluating the amounts of waste that will be recycled or run to spoil.

The care to fit roads into their environment is leading to a different management of green spaces, to preserve plant and animal life. Likewise, storm water basins are now constructed efficiently and in harmony with the environment. Noise levels are measured frequently to assess annoyance, and suitable screens are installed.

From a socio-economic point of view, policies are centred on the development of infrastructures, intermodality, transport plans, and alternative transportation modes.

Another aspect is the socio-economic impact of atmospheric pollution on health and the environment. This is addressed by the public authorities and has resulted in financial measures.

Before discussing the specific strategy for road infrastructure planning in Belgium, a brief review of the national institutional context may be useful. Belgium is a federal state where the powers of policy-making in the fields of mobility and transport infrastructure are shared out to:

- ⊗ a Federal State (Ministry of Transport and Infrastructure) in charge of railways, general road safety regulations, and the national airport of Brussels;
- ⊗ three Regions (Flanders, Wallonia, Brussels Capital) managing their regional road networks, inland waterways and airports, and defining land planning and environmental policies. The Regions have autonomy in matters within their competence and have their own governments. Each Region traces the guidelines of its regional mobility and infrastructure¹ policy (details of their respective plans are presented below);
- ⊗ a sub-regional level (ten provinces) responsible for certain roads of regional or local importance²;
- ⊗ a local level (589 municipalities) in charge of local road networks, police bye-laws and parking policies.

All these levels of administration exert various influences on the provision, development and management of transport infrastructure in general and road infrastructure in particular. The strategies followed in those fields are explained in more detail in the following survey.

Q1. Priority requirements to be met by road building in Belgium

The Regions define the greater part of mobility and infrastructure planning policy themselves through their regional policy plans and declarations. These plans define the actions to be implemented in future. The ultimate aim of these is to privilege the quality of life and to conceive transportation policies in a context of durable development (preserving the right of future generations to a good-quality environment).

What specific strategies do the Regions implement in the field of mobility and, more particularly, of road infrastructure to attain the “federative” objects found in various forms in the three Regions?

The **IRIS plan** for the **Brussels Capital Region** defines a consistent set of actions to be undertaken in the following areas:

- land planning and activity location, especially in connection with mobility requirements. The object is, on the one hand, to reduce the needs for motorized transport and, on the other, to improve the accessibility of places of work, trade and service by non-road transport modes;

¹ Furthermore, each Region has its own land development plan containing a certain recommendations that relate to transport policy.

² There is a proposal to revise this assignment and transfer the management of these roads to the Regions.

- public transport: to improve the quality of public transport services, actions must be undertaken not only in organization, pricing and passenger comfort, but also in matters of infrastructure and public space planning. Many investments have, therefore, been planned to increase the commercial speed of the surface network (VICOM programme for buses), in particular by providing exclusive ways. The plan also includes the development of a regional rapid transit system;
- car traffic and parking: the main efforts in this area relate to the ranking of roads in the network, resulting in the general introduction of a speed limit of 30 km/h except on trunk (radial and access) roads. Parking policy is seen as an essential tool of mobility policy. By controlling the number of on/off-street parking spaces, it aims to stimulate a shift to travel modes that offer an alternative to the individual use of the car;
- soft modes (walking and cycling): the object is, on the one hand, to refine the mesh of trafficked areas accessible to pedestrians and cyclists and, on the other, to improve signing, comfort, and safety;
- goods transport: access restrictions are considered for certain types of vehicle and the use of waterways is encouraged;
- public space planning, in an effort to find an equilibrium between the traffic and residential functions and other activities.

The transport strategy of the **Walloon Region** is stipulated in a “**Contract for the Future**”. Priority actions are:

- increasing the commercial speed and reliability of public transport services by giving them priority in laying out regional roads in built-up areas and by providing road infrastructures where appropriate according to an individual evaluation that includes environmental criteria;
- implementing municipal mobility plans;
- developing car pooling and car sharing;
- developing pedestrian routes and networks of safe cycle paths;
- reducing heavy goods vehicle traffic by encouraging the use of waterways;
- adopting a scheme for the integrated development of freight networks and terminals in order to endow the Region with a tool for managing and planning goods flows;
- installing noise screens to protect the most exposed sites;
- improving mobility in rural areas;
- time-staged improvement of high-risk areas (equivalent to black spots) on the regional road network;
- making school surroundings safer;
- improving the safety of motor-driven two-wheelers;
- optimizing the operation of the road network by using dynamic traffic management techniques for safety purposes (variable message signs, telematics, ...);
- widening motorways that are nearing saturation.

The transport and mobility policy of the **Flemish Region** has been laid down in a **regional travel plan** (“Mobiliteitsplan Vlaanderen”).

The guidelines in this plan were established in close cooperation between scientists and the regional transport department, and cover short (until 2005), medium (until 2010) and long (past 2010) time periods. They set priorities for action in the fields of public transport and infrastructure works.

Five objectives follow from these priorities:

- to selectively ensure the accessibility of economic nodes and gateways;
- to selectively offer each individual in Flanders the possibility to travel (this should enable everybody to fully participate in social life);
- to keep on dealing with road safety problems in Flanders with a view to substantially reducing the number of road casualties;
- to improve the quality of life in spite of growing mobility;
- to reduce the damage to nature and the environment even when mobility is growing.

In the specific field of roads, the following measures are called for:

- optimum use of existing traffic systems by traffic use and management measures (real-time supply of information to drivers coupled with incident detection and queue warning systems, maximizing road occupancy by harmonizing speeds, access control and overtaking prohibitions for lorries, harmonizing speed control in the short term by means of conventional telematic equipment and in the medium term by Intelligent Speed Adaptation (ISA), encouraging the use of in-vehicle electronics, incident management with prompt intervention by rapid towing services);
- completing a road network as suggested in Flanders' regional land master plan ("Ruimtelijk Structuurplan Vlaanderen"):
 - ⊗ providing the missing links by constructing or improving well-defined portions of routes;
 - ⊗ increasing the physical capacity of the network of main roads by constructing additional lanes and adapting interchanges;
 - ⊗ carrying out road works on accident black spots and upgrading existing roads to primary roads by improving crossroads, constructing tunnels in certain sections, improving certain links, widening to 2 x 2 lanes with service roads, replacing cycle lanes with exclusive cycleways, or building ring roads around built-up areas (depending on requirements);
- creating liveable conditions along major traffic infrastructure facilities (noise-abating measures such as the use of low-noise road surfacings and the installation of noise screens, environment-friendly management of roadside slopes).

In conclusion, it appears that mobility policies – both for passenger and for goods transport – give priority to actions aiming at a better management of transport demand and a modal shift. In infrastructure works, non-road transport modes (i.e. waterway and rail) receive special attention. Road works themselves are more directed to fitting the road into its ambient environment and optimizing its use than to increasing the capacity of the network. Moreover, works are planned to benefit not only motorists (dynamic traffic management, black spot treatment, etc.) but also, and especially, the users of public transport (exclusive ways) and "soft" modes (pedestrians and cyclists), as well as roadside residents (30 km/h zones, safety devices).

Q2. Planning and evaluation of the expediency of road building

In Belgium, road infrastructure siting decisions and evaluations are in the hands of the three Regions.

Models hold a privileged position among the planning and evaluation tools. They make it possible to assess how, why and to what extent transport flows are affected by a wide range and combination of social, economic, structural, and other factors. There are also models to evaluate measures in terms of environmental impact (noise or atmospheric emission models).

All the Belgian authorities in charge of mobility policy have traffic models at their disposal. These are developed within the administrations themselves or in co-operation with consultancy firms and/or university departments specialized in the field.

In the **Brussels Capital Region**, various studies and research projects have led to the development of an urban transportation plan named IRIS. The networks and traffic flows of the various transport modes and the Greater Brussels area were modelled with great care to lay the foundations for this plan. A static model of the transportation network and a dynamic model of the road network were developed. Another model integrates the dynamics of urban development. Using these different models, various scenarios for the trend of transport offer and demand were tested, including the redevelopment of road infrastructure (changing the layout of crossroads, restricting access, etc.). Urban models were built and have been used for both passenger and goods transport. They apply to the morning peak hours.

The **Walloon Region** has developed a passenger transport model to avert the risk of a road network capacity overrun that has been suggested by traffic forecasts. It is an interurban model for the morning peak hours (6.30 till 9.30 a.m.), when capacity problems are most severe. In addition to the setting up of a full data base on all the roads in the Walloon network (free speed, capacity, length, etc.) and the urban centres, the model allows applications that are particularly useful in managing road infrastructure:

- estimating traffic flows on the existing network;
- making traffic forecasts based on parameters such as population and industrial development;
- estimating the redistribution of traffic that will result from infrastructural modifications (building, transforming or closing roads, long works, etc.);
- testing route choice scenarios.

A multimodal interurban model has been developed for goods travel as well. One of its modules aims at the exact identification of congestion points in the road network.

The Ministry of the **Flemish Region** is equally working on tools to evaluate transport policies and assess the expediency of creating new infrastructure. In the early nineties a multimodal transport model was developed for the city of Antwerp and the surrounding areas. Models were subsequently produced for the other provinces and then integrated at the level of the whole Flemish Region. The third generation of these strategic and simulation models is currently available.

Together with models, other traditional tools are used to plan or evaluate the expediency of building new road infrastructure: cost-benefit analysis, NPV (net present value), EIA (environmental impact assessment), multicriteria analysis, economic impact assessment, etc.

Q3. Impact of road development on human activities

The road branch takes part in the economic and social development of the country, among other things by employing people in its main and induced activities. In addition, it contributes to the Belgian economy by paying its share in public finance.

Furthermore, the road sector has beneficial externalities that feed the economic growth of the country. On the one hand, it has a cyclical “recovery effect”; on the other, the social utility of new infrastructure and improved conditions of growth make it possible to offer users a higher-performing network – which results in time savings, increased exchanges (of persons, goods and services), higher productivity and competitiveness of economic agents, better returns on investments, the opening up of isolated areas, regional development, flourishing tourism, etc. All these benefits have a long-term structural impact on the economy.

It should be noted, however, that although economic growth and increasing transport are strongly interrelated, the extension of infrastructure alone is no guarantee of regional development. It must be accompanied by concurrent economic and social measures.

In this context, blocking traffic on roads is being increasingly used as a means of expressing one’s dissatisfaction and putting pressure on decision-makers. Also worth noting are the closing of borders by heavy goods vehicles, the occupation of failed enterprises by personnel, civil servants unhappy with their salaries or statuses, local residents demonstrating against new road projects, etc.

Q4. General perception of roads in Belgium – Changes and consequences

The road branch in Belgium lived its golden age in the years between 1965 and 1975, when a major effort was undertaken to modernize the existing network and construct the greater part of the motorway network. This voluntaristic policy has been very instrumental in the economic development of the country, albeit at the expense of the other transport modes – especially rail.

From 1975 onwards, the rate at which the motorway network was completed slowed down, without the driving role of the road being really questioned for that matter. Over the past thirty years 700 km of motorways have been built, which is just as many as between 1966 and 1973. The first economic analyses to justify or rank road projects date back to that time. Budgetary pressure in general became so strong that as far back as in 1985 the road budget (then managed at the national level) was cut back by 35 %, both for investments and for pavement maintenance and rehabilitation. Apart from a few minor variations between years, road budgets have roughly remained unchanged since then.

This sharp decrease has not been due merely to budgetary restrictions. As early as in the late seventies, a resistance to the completion of major motorway projects grew among the general public. As a result, it took twenty years to construct the 45 km of missing motorway between Brussels and Lille (in France) or the 5 km of cross-town motorway link in Liège (Liège-Luxembourg motorway).

Moreover, in this less road-friendly climate various interest groups set up a network of strong lobbies, often casting fundamental political doubts on the part roads have to play in the economic development of a nation. Their influence has increased to the extent of making politicians accept the need for a general speed limit of 30 km/h in built-up areas and 70 km/h on rural roads.

This situation of virtually general public rejection of the road is all the more surprising as 80 % of trips are made by road and people have remained greatly dependent on the road – in spite of all the measures taken in favour of public transport or the slow travel modes –, amongst other things as a result of a housing and land use pattern that make any modal shift highly improbable in the short or medium term.

It must also be recognized that in this more or less adverse context the country's road administrations have sometimes been slow in actually implementing an innovative multimodal policy, in which the road could take an appropriate place. The same has been true all the more so of the implementation of a road operation policy incorporated in a comprehensive network strategy and underlying a new user service strategy (the «Big shift»).

Though too slow and hampered by budget and structural restraints, the changes in the organization (external audits, policy by objectives, strategic plans, quality approach) of road administrations and in their technical approach (better consideration of all client users and the environment) are real. But there have been no real signs to date of any recovery of balance in the public perception of roads.

Q5. Active forces involved and means for implementing a «road and sustainable development» policy

Faced with increasing traffic volumes and their impacts on mobility and the environment, all the actors involved in mobility have, like in other countries of the European Union, become aware that aspects such as urbanism, multimodality, intermodality, and ecology play an important part in the planning, management and operation of infrastructure works.

In each of the three Regions, public authorities have urged the administration to develop an integrated travel plan in order to manage mobility, mitigate pollution an environmental nuisance, and ensure the accessibility of towns and villages. One of the consequent leading objectives is to limit the damage caused to nature and the environment even when mobility is growing.

The implementation of plans and the making of decisions are discussed with the administrations responsible for the environment and land planning, with the provinces and municipalities, and – in the areas of their concern – with the companies offering other modes of transport. Especially in built-up areas, the approval of a road project is legally subject to the participation and even the agreement of the local authorities and advisory councils.

For example, when a travel plan is implemented in Flanders the citizen has been consulted through target groups, and experts and decision-makers have been able to express their views and impart their knowledge to the administration. Likewise, in Brussels any road project of some size must, in addition to going through the conventional stages, be submitted to Regional Mobility Committee and the Monuments and Sites Committee.

Furthermore, like in other countries of the European Union environmental legislation that has been transposed into national laws and regional decrees must be observed: air quality, noise, soil quality, compulsory impact assessment, housing development regulations, and protection areas following the birds directive.

To meet the concerns of action groups, it is important to plan communication activities in time, that is, as soon as the project starts. Experience has shown, however, that the implementation of the project should commence within reasonable time from the first communication, that is, after the various consultation and participation stages have been completed. In this way, major differences of opinion and sensitivities and resistance can be avoided during the procedure. Likewise, failure to strictly observe the procedures enforced by environmental laws and decrees has been found to encourage action groups to slow down or even thwart the implementation of infrastructure projects.

Each of the three Regions is making efforts to attain a range of objects in ensuring mobility while preserving the environment. Details on policy measures have been given supra (see Question 1).

Q6. Formation of road project study teams

The development of a road project involves many aspects such as safety, efficiency, aesthetics, durability, etc. Quality is demanding: it requires everything at the same time and calls for mutual attunement. Interest in a comprehensive approach has grown strongly in Belgium over the past few years. Each Region now has its own land master plan that offers possibilities to create new public property areas in town centres, in residential districts, in privately created and managed spaces, in outskirts of towns, and along motorways. This adds a value to social, economic and cultural conditions in a town or village. But in spite of the fine initiatives and achievements of the past few years, there is obviously still much room for quality improvement.

To deepen the approach, both owners and designers must base themselves on a serious analysis of the specific territorial, social and political context in which they are setting up their projects.

Three frameworks must be developed for that purpose:

1. the theoretical framework, which besides the basic attitude defines the method, objectives and “items to be observed” that follow from it. Comprehensive thinking and integrated work (bringing all aspects such as urbanism, road traffic and landscaping into agreement), strategic choices, and work that opens new perspectives for constant improvement are three themes to be developed as far as the method is concerned.

Four objectives have been defined:

- to guarantee the public nature and public function of spaces (optimize accessibility, stimulate shared use, manage confrontations);
- to activate the interaction between public space and territorial context (utilize the existing or generate a new context (depending on the case), implement typologies);
- to aim at a public space offering a high value for the future (build in adequate flexibility, build in sufficient adaptability, preserve relevant historic features);
- to contribute to a contemporary public space culture (translate social priorities, achieve great functionality, intensify the experience of public space, etc.);

2. the political framework, which comprises the important action programmes such as the municipal land plan, the municipal travel plan, and specific public space policy plans;
3. the process framework, which provides for a structured approach: to attain the object of total quality, it is more than necessary to invest not only in the costs of carrying out projects but also in the overall implementation process. This requires a combined input of adequate competence, actor involvement, budgetary means, and time.

The five crucial stages in the process are:

- a project definition (origin, problem, ambition, vision, programme of requirements);
- a project plan (document describing the objectives, responsibilities, available and necessary means, and actions undertaken and to be undertaken) for quality monitoring and well-calculated communication;
- the appointment of a team of designers;
- a preliminary study to investigate the multiple context of the project in detail and to precisely define the problems, vision and objectives;
- the inclusion of a moment of evaluation in the progress of the project.

This new approach exists in the three Regions. In Flanders it has even been laid down in formal recommendations to all regional and local administrations. In the Brussels Capital Region the resulting procedures are being integrated into an electronic monitoring process. The new approach is already leading to the formation of multidisciplinary planning and design teams, but this is only a beginning. There is a trend to call in private consultants for certain specialist tasks. The role of the road engineer is being extended from the purely technical aspect to that of a team player.

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