

THE NORTH WEST INTERCOMMUNAL LINK (LILLE): INTEGRATED PLANNING OF THE PUBLIC ROAD SYSTEM IN THE URBAN ENVIRONMENT

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1. INTRODUCTION

More than a century after the emergence of major Hausmanian roads in the major French cities and with the impetus of the "Solidarity and Urban Renewal" law, the French public authorities are working on regenerating the city by further densifying, modernising and structuring its existing road network. The creation, or the requalification, of major multi-functional roads within the existing urban fabric (particularly in peripheral areas) represents a key factor in the renovation of cities in terms of attractiveness and accessibility.

Rebuilding a structuring road system in a city is not a simple task, especially given that it is aimed for use by vehicles, which are incessantly criticized for the pollution that they generate: noise, air pollution and its effects on health, accidents... On the other hand, it represents an opportunity for urban development projects: real-estate projects, business parks, major urban facilities.

Designing a project for a structuring road system in a city or its peripheral environment will inevitably kindle a significant degree of positive and negative response. It must then respond to a triple challenge: How can the current infrastructure's functionality be preserved, whilst integrating the project into its urban environment without creating disturbance? How can its overall performance be improved in terms of transportation, comfort and security, whilst minimising its negative impact for nearby residents? How can discussion and dialogue be handled with associations, users and residents in a calm manner?

The experiment conducted by the Lille Urban Community in the context of the LINO (North West Intercommunal Link) project, a road system of approximately twenty kilometres located in the first ring of the Lille peripheral, illustrates the benefits of developing an integrated approach into the design of road infrastructures (town planning, transport, environment) as far upstream as possible, whilst taking the time to engage in preliminary studies and implementing wide-scale cooperation in order to diffuse conflict.

2. THE STUDY PHASE

2.1. Background of the project

The LINO (North West Intercommunal Link) project has figured in urban planning documents since the 1970s: it corresponds to a 2x2 lane ring-road, an intermediary between the Lille peripheral boulevard and the North-West ring road. The LINO crosses a dozen districts following a route which runs from the south of the city of Lille to the North-West, passing through districts which are sometimes highly residential. A first section was created in the 1990s between Lambersart and St André (boulevard de l'Alliance Nord Ouest, approximately 2km) but in the form of a 2x1 lane road with a reserve lane dedicated to a green strip and cyclist path. No new sections were envisaged until the beginning of the new millennium.

The Lille Urban Community launched the project again in 2002 in sync with urban requalification projects and started work on definition studies relating to the programme and the land-development element of the LINO project. Following an initial tender phase which involved the participation of multidisciplinary teams, landscape architect Alfred PETER and the RIBI transportation engineering design office were selected as winners, on the basis of their highly innovative vision of the project.

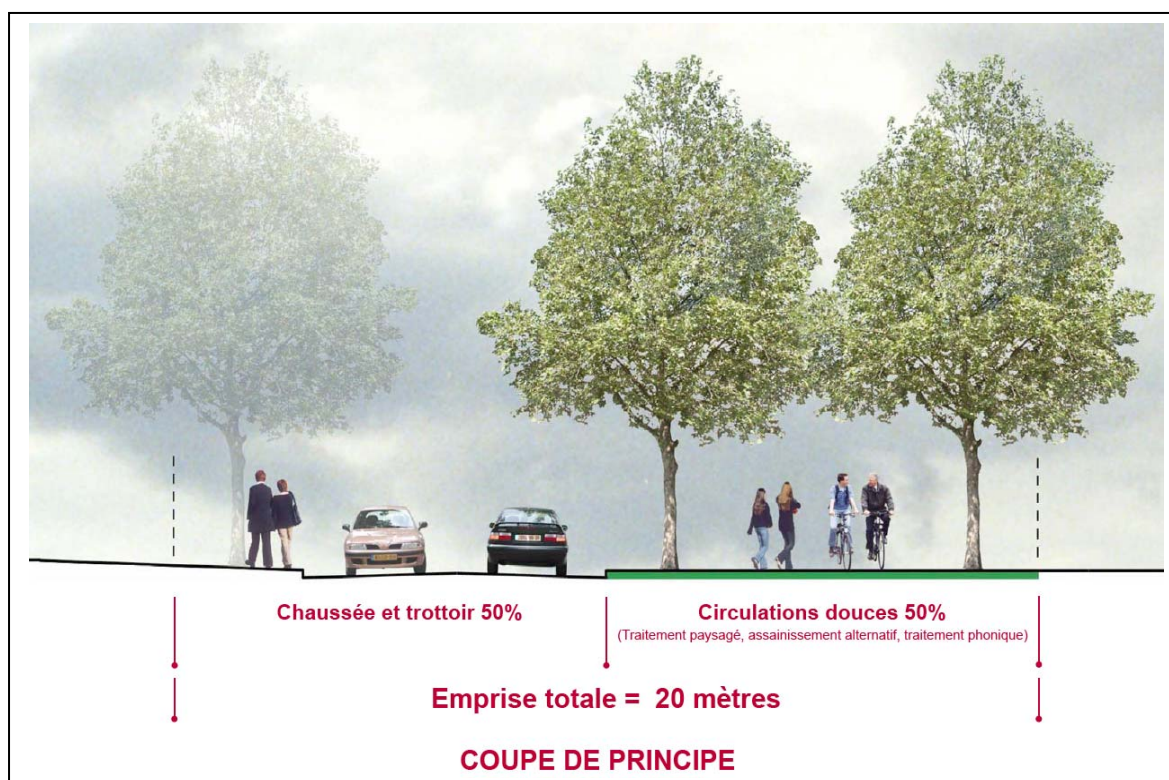


Figure 1 - Standard cross sections proposed by landscape architect PETER at the end of the definition contracts phase: no more than 50% of the landtake for road traffic

In 2003 and 2004, frequent dialogue and cooperation meetings were held between the districts and partners concerned by the project (the General Council, the DDE - Departmental Directorate of infrastructures, the SNCF - French Railways company, the RFF - French Railway Network, Transpole...) in view of drawing up specifications for this new land-development element. In February 2005, the definition studies phase was closed with the issuing of a summary pilot study report and a second report recapping transport schemes to be implemented in conjunction with the project. In June 2005, an initial discussion phase took place with local inhabitants concerning the South section of the project. 2006 was dedicated to the tender phase involving several multidisciplinary teams. Technical studies (Pilot Study) were launched in March 2007.

2.2. "New" objectives

Initially, the LINO project responded to a "functional" strategy whereby solutions in terms of infrastructure needed to accommodate the increasingly high demand of traffic. Its landtake was large-scale - approximately forty metres wide on average. It had significant impact on its immediate built-up environment. Due to financial reasons and local opposition, this version of the project never actually came to light.

From the year 2000, with the adoption of the French "Solidarity and Urban Renewal" law, the Lille Urban Community embarked on a requalification policy concerning the various industrial wasteland areas which pockmark its territory. At present, this involves reclaiming orphan sites by creating housing, businesses, offices and setting up major public facilities. This approach of re-densifying operations towards the city centre justifies by large the decision to re-launch the LINO project, but in the pursuit of slightly different objectives, such as:

- Increasing accessibility to the city's major projects: the Eurasanté business centre, the Pierrette zone (this area contains a factory producing gas from fermentable waste collection, a gas-operating bus depot, and a waste collection annexe building), the site belonging to Lomme-Délivrance's Réseau Ferré de France, the Euratechnologie project, the Saint-André Rhodia site;
- Structuring the road network by creating a new road and instigating, in parallel, traffic restriction measures to deviate parasite traffic in sensitive zones (creation of 30 km/h zones with lanes running against the traffic for cyclists and wider pavements);
- Favouring local links in the West of Lille by creating a new interchange with the A25 motorway, new bridges and footbridges over the Deûle, by elevation of a crossing and the creation of a ring-road bus route.

At present, LINO responds to global urban re-deployment objectives, surpassing by large the "hard-line" domain of the road system.

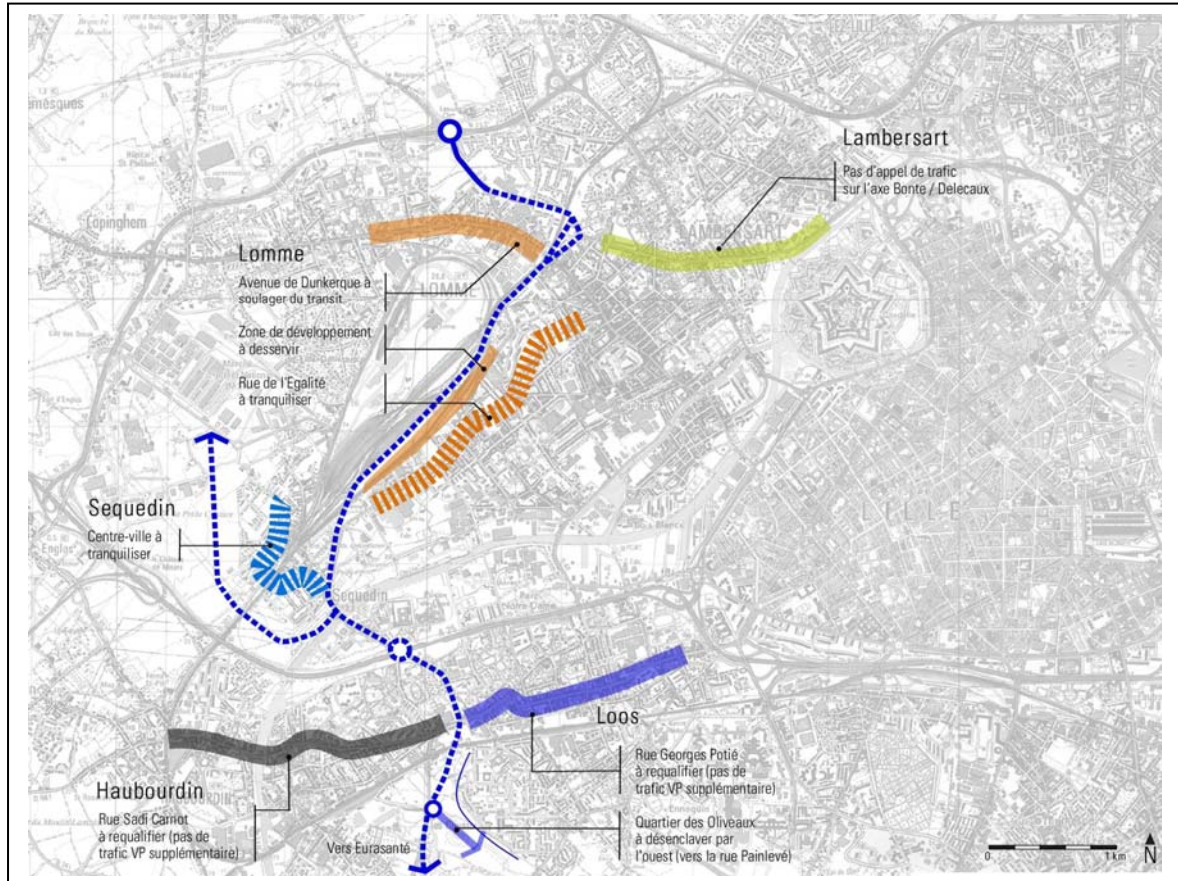


Figure 2 – Synthetic map of the LINO's objectives in its south sector

2.3. "Other" parameters for integration

Between the 1970s and the current period, there is no denying that the French regulatory framework in matters of road infrastructure design has evolved considerably. French laws on water, air, noise and landscape have significantly enhanced reflection on the impact of the integration of new roads on the urban, environmental and landscape context. In 2001, the Lille Urban Community adopted an Urban Transportation Plan, thereby identifying new inter-modal objectives, of sharing streets to the benefit of ecological methods of transport, road safety...

The LINO project had to be re-defined to integrate new parameters in terms of transport, such as:

- The objectives of Lille Urban Community's Urban Transportation Plan, particularly in terms of road traffic stabilisation, moderation of speed and distributing the public road system between different methods of transport;
- Refusal to create a secondary ring-road which would be superfluous with the North-West ring-road;
- Search for synergies with the metro and the tram-train project;
- Creation of bus and cyclist routes.

The technical specifications for the definition studies have taken these new parameters on board. The teams selected to compete for the preliminary phase were

thus required to integrate a "transport" component. In parallel, vehicle traffic counting operations were conducted on a 500-metre strip either side of the project in view of designing a traffic simulation model. Once complete, this model was used to test the proposals put forward by the different teams and contributed largely to the final decision for the selection of the winning team.

3. TRANSPORT FACTORS CENTRAL TO STRUCTURING OPERATIONS

3.1. The traffic re-distribution strategy

Upon completion of the definition studies, the LINO project was re-thought in depth. Its scope now reaches beyond the project for a new road system: half of the available landtake will be assigned to other methods of transport: pedestrians, cyclists, bus lanes but also landscape development. From this point of view, we can say that LINO has become a "multidisciplinary" and "integrated" project. The project also no longer exclusively involves works for new road systems but also includes works for re-defining existing roads in the vicinity of the LINO project. It thereby entails a perfect re-distribution of the traffic by making certain routes one-way, creating "calm" or "30 km/h" zones, widening pavements for pedestrians and local shops in urban centres.

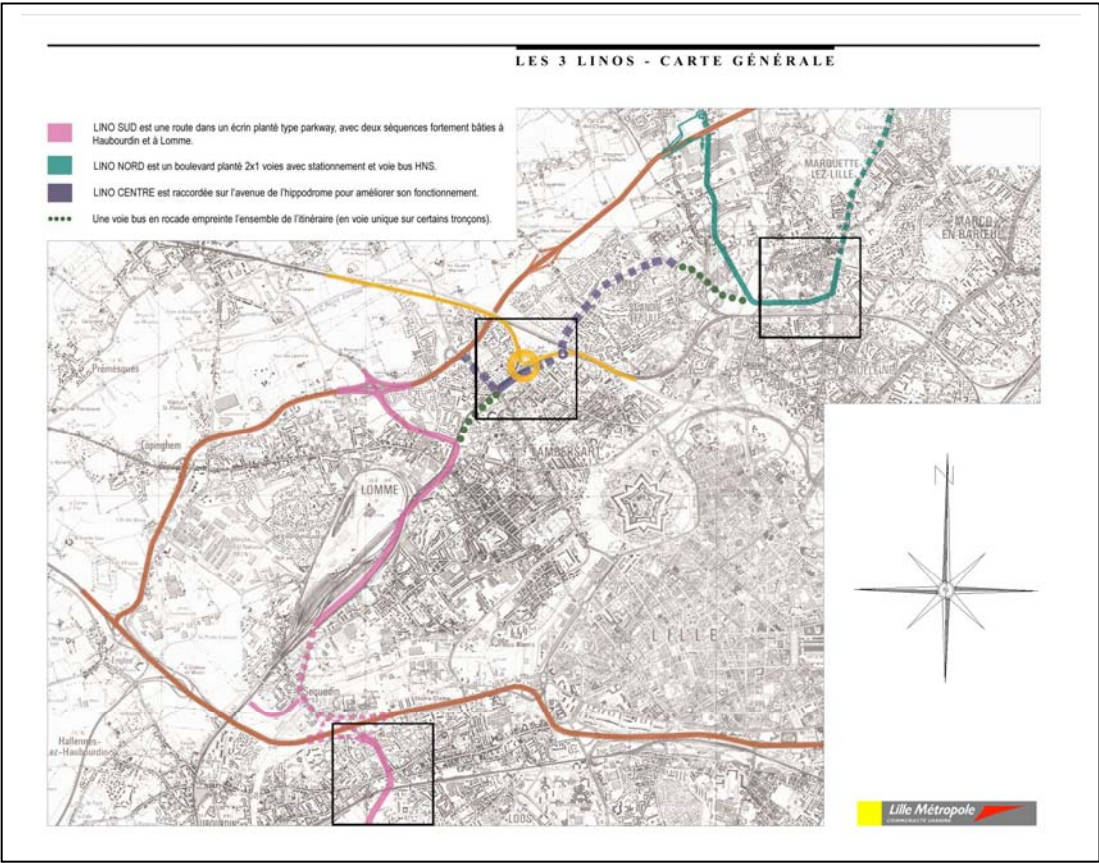


Figure 3 – General map presenting the three sections of the LINO

Lastly, decisions have been made to forgo certain sections of the new road system due to opportunity and feasibility factors. The two sections in question are located in Lambersart and Saint-André, where the LINO's layout comes the closest to that of the existing North-West ring road. Cyclist and bus lanes will be developed instead. Essentially, this means that road traffic will be penalised, by channelling it back to the North-West ring-road, in favour of alternative methods of transport by creating more direct routes.

3.2. Interface with the inter-urban network (A 25)

In the framework of the LINO South project, creation of a full interchange-distributor is planned between the A25 motorway and the current B-road 207 (LINO) which crosses the town of LOOS from North to South. This interchange is justified mainly due to the fact that it provides access to structuring facilities essential for the city of Lille (prisons, Sequedin organic waste recovery centre, bus depot, waste collection annexe building).

The A25 motorway is the sector's most important trunk road. This motorway has a 110 km/h speed limit and links Dunkirk with the south of the city of Lille. It carries 120,000 vehicles per day (counting both directions) and is systematically saturated with traffic during rush-hour (morning and evening) periods. The current B-road carries 8,500 vehicles per day (counting both directions) and is not subject to traffic saturation during the evening rush hour period.

In principle, the saturation levels of the A25 motorway do not justify the creation of a new interchange. Traffic simulations carried out with the EMME 2 software did not show an increase in saturation levels during the evening rush hour: although the interchange provides an additional entrance to the motorway, the new exits optimise the local network. The traffic flow tends to balance itself out. The problem lies more in the risk of generating traffic congestion upstream from motorway exits. This traffic congestion does represent a potential accident factor, but in the present case it is located well upstream from the sector concerned by the study.

For Lille Metropolitan Urban Community, the interchange presents a huge potential for optimising the inter-urban network during off-peak hours (particularly early in the morning or late at night) to improve access for structuring developments constructed by the Lille urban community (nearly 400 buses and waste collection trucks per day). It also provides the city's structuring road network with a degree of clarity. In other terms, the impact of this interchange-distributor is first and foremost of qualitative nature.

Other interfaces between the LINO and the network of main roads are scheduled into the project. Each of the three sections of the LINO link up to the North-West ring-road, a main road (with 90 km/hour speed limit) coordinated by the General Council for the French Nord region (CG 59). The LINO therefore represents a structuring road of intermediary level (with 50 km/h speed limit) between fast urban roads and calm traffic zones (with 30 km/h speed limit).

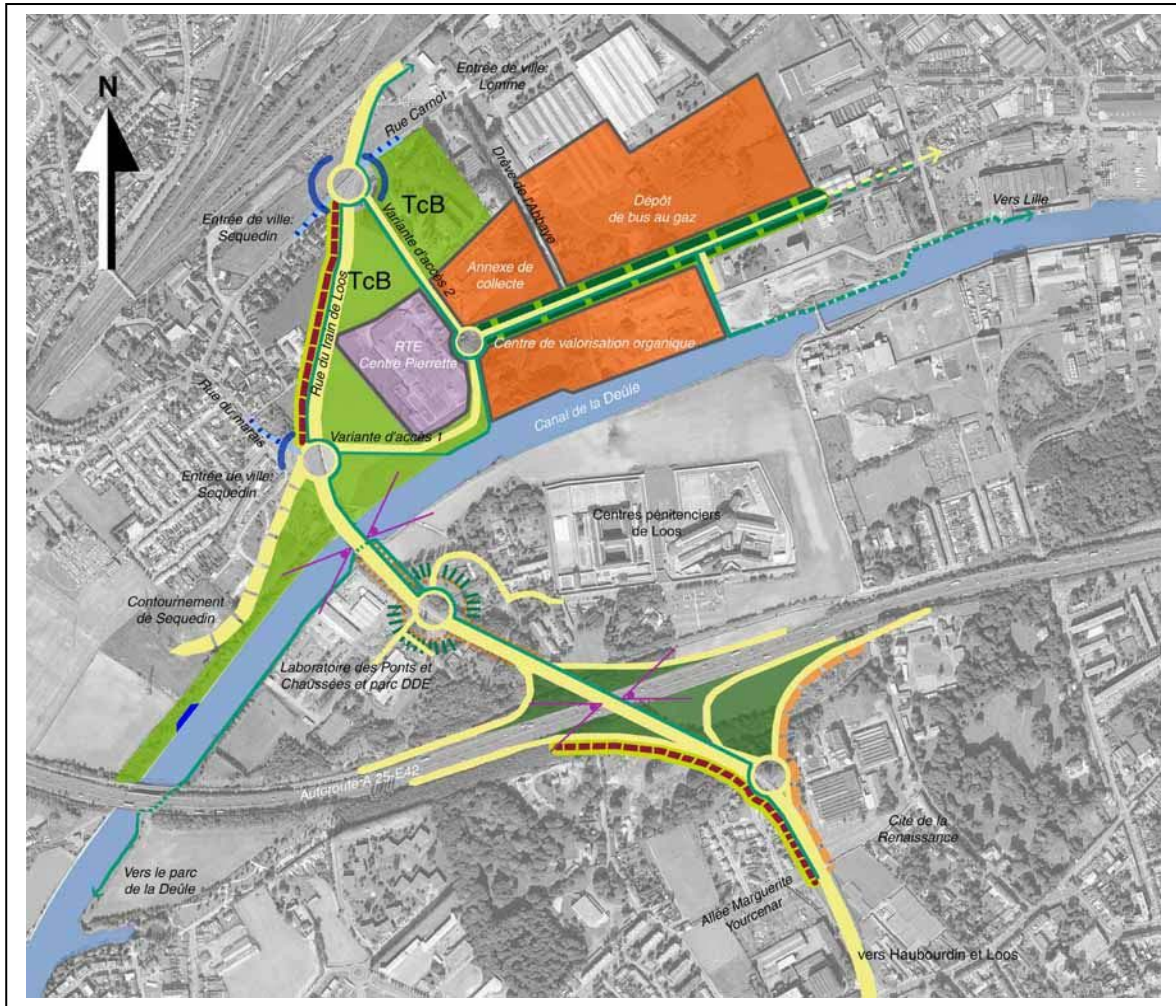


Figure 4 – General plan of the interchange/distributor development on the A25

3.3. Creation of a ring-road bus route

The idea of creating a ring-road bus route in the context of the LINO project was put forward by Roland RIBI & associates' transportation engineering design office during the LINO definition contracts phase. The idea started with the fact that the city's bus network currently operates in star form, whereas direct links between peripheral areas without crossing the Lille city centre would be highly effective.

A bench marking study conducted in 2006 by LMCU (Lille Metropolitan Urban Community) confirmed that this type of ring-road route for buses already exists in several French urban areas. This served as a basis for profitability criteria:

- the presence of a number of schools or secondary education establishments in a 350-metre radius around the bus stations. For the LINO project, this criteria alone justifies the creation of the ring-road bus route;
- the proximity of other traffic-generating areas such as hospitals and council administration buildings, leisure centres and shopping centres which add to the bus route's passenger potential;

- the existence of numerous urban development projects, which rely on the launch of this bus route for access. For the LINO project, a significant potential for urban wasteland areas that are currently under requalification has been identified. These areas represent over 420 hectares in total and are destined for business, housing or community facilities.

The complementary studies specified the characteristics for this future ring-road bus route: Specific developments to the right of crossroads will mean that an average commercial speed of approximately 22 km/hour can be maintained, with buses running every 15 minutes during rush hour and every 20 minutes during off-peak hours.

For operational reasons (phasing of works for the LINO) and in view of the bus service's regularity, this bus route will be split into two different routes with a shared terminus at the Pont Supérieur metro station in Lomme/Lambertsart, which also corresponds to the half-way mark for the LINO road project. On a more general note, this ring-road bus route project will enhance the LINO's impact in terms of re-distribution of the city's urban transport.



Figure 5 – Photomontage of the ring-road bus route in Lambertsart

Summary:

The LINO (North West Intercommunal Link) project undertaken by the Lille Urban Community is an example of integrated design for road infrastructures in the urban environment: the project initially consisted in a 2 X 2-lane ring-road (20 km). Faced with opposition, only a two-kilometre section was created. From the year 2000, after three years of studies, this 120 million euro (net) project was completely redesigned, with only half of the landtake assigned to road traffic, the remaining portion being assigned to other methods of transport (ring-road bus route and cyclist lanes) and to qualitative improvements. A traffic calming programme for existing roads in the vicinity will be implemented in conjunction with the LINO project, in order to structure the road network. The project also includes an interchange with the inter-urban network (motorway A25). At present, the LINO can be summarised as follows: 10 km of new public roads and 8 km of re-developed public roads, but first and foremost: 36 kilometres of calm public roads, 13.5 km of cyclist lanes, 18 km of ring-road bus lanes, 28 km of roadside trees and 420 hectares of accessible land for urban renewal.



Figure 6 – First section of the LINO created in 2006 in Sequedin