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Seamless Journeys Limburg

LiRa-2 Pilot Action Trial

The Pilot Action Trial *Seamless Journeys Limburg* is part of the INTERREG IIIb project LiRa-2. The initiators of the project have identified 'Quality Rapid Transit on an urban and regional scale' as the focus of the project. Promoting one single (light rail) technology seems to be less appropriate.

More information on the LiRa-2 Project can be found on the website: www.LiRa-2.com
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Contents:

1 Introduction

The Province of Limburg is located in the south-eastern part of the Netherlands and it shares borders with both Germany and Belgium. The southernmost section of the province is part of the Meuse-Rhine Euroregion and is the location of the cities of Maastricht (population of 122,000) and Heerlen (population of 94,000; part of the metropolitan region Parkstad Limburg, with a population of 245,000), and Sittard-Geleen (population of 98.000). In connection with its location on the national border, the provincial govenrment has worked for many years within a Euroregional partnership known as the MHAL urban network, consisting of the cities of Maastricht and Heerlen, Hasselt and Genk (Flanders, Belgium), Aachen (North Rhine-Westphalia, Germany) and Liège (Wallonia, Belgium). As these are all industrial and densely populated regions with strong historical ties, the thought of developing public transport into a true Euroregional transit network has circulated for decades. Although many buses and trains do cross the borders, there is no real Euroregional public transport network. The regions used to be nationally oriented, but the 'disappearance' of the national borders due to growing European cohesion, has meant a growing volume of traffic between these cities and regions. The growth in mobility has largely been accommodated by private transport. It is generally accepted that there should be better links between the public transport networks of the various regions.

Figure 1 Meuse-Rhine Euroregion

Source: Province of Limburg

The introduction of the High Speed Train (HST) in Europe calls for more attention to be paid to the links between the main cities in the Meuse-Rhine Euroregion. The construction of the high speed line running from Paris via Brussels, Liège and Aachen to Cologne is well under way, for which reason further consideration must be given to the existing regional railway links between Maastricht and Liège and between Heerlen and Aachen.

Politically, there is a strong wish to arrive at a 'Euroregional' cross-border rail or light rail network linked to the national and international main HST lines, which form the backbone of the railway network in Europe, supported by connecting bus services. The *Aachener Verkehrsverbund* is building a light rail system in the Aachener region (*Euregiobahn*), and the cross-border railway line between Heerlen and Aachen is part of this network. The Province of Limburg (NL) is working on a light rail line between the cities of Maastricht, Heerlen and Kerkrade, with possible future extensions from Maastricht and Heerlen to Sittard-Geleen. The bordering Belgian Province of Limburg and its principal public transport operator *de Lijn* are looking into an upgrading of public transport services in this province, and reactivating abandoned railway tracks as part of their public transport plan *Spartacus*, possibly linking the towns of Hasselt and Maastricht. In 2003 a Euroregional Public Transport Platform was set up. Aim of the platform is to coordinate and tune the different regional plans and projects and to try to integrate them into one Euroregional public transport system. A coordination committee is formulating a joint public transport plan, together with concrete proposals for a step by step approach to integrate the various regional ideas and projects.
Recently these initiatives were extended by the Cities of Maastricht and Liège, which are investigating better rail connections as part of the INTERREG IIIb project HST-Connect, and the cities of Heerlen and Aachen, which have a similar aim with their participation in the INTERREG IIIb project HST-4i.

The current initiatives are important, as they are based on a Euroregional cross-border public transport network/transit concept. Before such a network can be put into place, however, both the existing and the projected situation must be screened and mismatches must be sorted out. It is also necessary to obtain a clear picture of the additional measures and investments required to prepare the existing network for its new role and to come to an agreement between Euroregional partners how such an integrated network can be achieved in a step by step approach.

Integration within Seamless Journeys theme

The aim of the LiRa-2 Pilot Action Trial (PAT) *Seamless Journeys Limburg* was to study which types of barriers hamper the improvement of the cross-border railway lines between Maastricht and Liège, and between Heerlen and Aachen. The purpose of the PAT was further to identify ways of breaking down such barriers and to supply means of improving the cross-border railway network.

2 Summary

As part of the Pilot Action Trial (PAT) *Seamless Journeys Limburg*, the Province of Limburg has chosen to examine which barriers are impeding the improvement of cross-border railway links Maastricht-Liège and Heerlen-Aachen, so that those barriers can be effectively broken down.

To examine the barriers, regular discussions were held with the employees of the railway operators and cities involved, and various other experts. These discussions made clear that of the four types of barriers identified (physical, conceptual, commercial and institutional) the institutional barriers are the most difficult ones to be resolved. Important suggestions for breaking down these institutional barriers are to support regular communication channels within the Euroregion, to obtain the support of the national ministries, and to involve the railway operators from the start of a project when it comes to improving cross-border railway links.

Regularly scheduled meetings of the Meuse-Rhine Euroregion Public Transport organisation provide a forum for communication between the partners in the Euroregion. Part of this public transport organisation is a steering committee, in which the various regional authorities have been invited to participate. The discussion points which are subject to formal decision-making by the steering committee are prepared by the coordination committee. A permanent delegation of officials is represented on this committee. These officials represent their countries in all ongoing and new cross-border public transport projects.

The coordination committee of the Meuse-Rhine Euroregion Public Transport organisation has expressed great interest in a possible second railway line between Heerlen and Aachen. It was therefore proposed to extend the aim of the LiRa-2 PAT *Seamless Journeys Limburg* and to incorporate a study into the feasibility for such a new railway line. The new line would run via the high-tech business park Avantis that is currently being developed, partly using old unused railway tracks. The feasibility study was performed by DHV Ruimte en Mobiliteit BV, and the results have been described in the report *Haalbaarheidsonderzoek tweede spoorverbinding Heerlen-Aachen via bedrijventerrein Avantis* (see section 8).

After the Province of Limburg commenced its work on the LiRa-2 Project, the cities of Maastricht and Heerlen decided to participate in the INTERREG IIIb projects HST-Connect and HST-4i respectively. These projects have in essence the same objective: better transport links between the cities of the Meuse-Rhine Euroregion and better connections with the HST stations Liège and Aachen. The City of Maastricht is working with the City of Liège to improve the quality of the railway link between the cities, to shorten travel times, and to improve connections to Brussels and the HST-network. Discussions are also being held with the Belgian railway company SNCB concerning the use of modern rolling stock in order to increase the level of service, to eliminate differences in tariffs due to the border situation, and to study the possibility of a direct rapid link to Brussels. The City of Heerlen is working with the City of Aachen on the improvement of the existing Euregiobahn light rail system. They plan to open

new stations between Heerlen and Aachen and to see to it that the main station of Aachen can accommodate present and future HST connections.

In connection with plans of the Dutch central government to decentralise the regional railways, the Province of Limburg has studied the possibility of operating a light rail system in South Limburg on the railway line Maastricht-Heerlen-Kerkrade. This study was mainly focused on the line itself, and did only take the cross-border railway links in the Meuse-Rhine Euroregion into account as future possibilities for extending the system. As part of the LiRa-2 project, it was investigated how the South Limburg Light Rail Project could be combined with the participation of Maastricht in the HST-Connect Project and the participation of Heerlen in the HST-4i Project. This study took all the various wishes of the Meuse-Rhine Euroregion partners into account as far as feasible. Based on these wishes and on the information available at the time, a document entitled *Discussion on light rail and cross-border railway links in the Meuse-Rhine Euroregion* was prepared to assist in the dialogue with the members of the Euroregionale Public Transport coordination committee (see section 7). To enable the Public Transport steering committee of the Meuse-Rhine Euroregion to take a decision, another document titled *Initial recommendation for the development of the railways in the Meuse-Rhine Euroregion* was prepared (see section 7). This document summarises the results of the foregoing discussions.

In April 2005 the Province of Limburg decided to give priority to the start of the operation of the South Limburg Light Rail system as part of a step by step approach, formulated in their new public transport plan. Further discussions are required with the Public Transport coordination committee of the Meuse-Rhine Euroregion to decide how and when the *Euregiobahn* light rail system to and from Aachen and the various other plans and projects can be integrated into what someday could be one Euregional public transport system. Such an integrated system can only be achieved in close cooperation with the Euroregional partners.

Result of the Pilot Action Trial Province of Limburg

The document *Initial recommendation for the development of the railways in the Meuse-Rhine Euroregion* is one of the main results of the Pilot Action Trial *Seamless Journeys Province of Limburg*. It received the support of all the officials involved in the discussion on light rail and cross-border railway transport in the Meuse-Rhine Euroregion.

3 Barriers to the improvement of cross-border railway links

To categorise the existing barriers for the various Pilot Action Trials of the LiRa-2 project, the following four types of barrier have been identified:

- physical barriers;
- conceptual barriers;
- commercial barriers;
- institutional barriers.

The barriers are defined in the *Literature Review* report of the LiRa-2 project *Seamless Journeys*. The Pilot Action Trial of the Province of Limburg covers the existing barriers to improving the cross-border railway links between Belgium, Germany and the Netherlands, which are described below.

Physical barriers:

- differences in railway power supply voltages in Belgium, Germany and the Netherlands;
- differences in diesel powered light rail systems in Germany and the anticipated electrically powered light rail system in South Limburg;
- differences in railway detection facilities in Belgium, Germany and the Netherlands;
- limited railway capacity to and from Aachen.

Various modifications were made in the past along the railway connection between Liège and Maastricht. The overhead electrical power supply system along the Dutch part of the line was modified, enabling the Belgian train to drive to Maastricht. The Belgian train has a 3000 V DC power supply and can only run at low speed when using the Dutch 1500 V DC power supply. The low power means that the heating systems on the Belgian trains are unable to generate sufficient heat to warm up the compartments during the winter. Between Liège and Aachen, there is a special track with a Belgian 3000 V DC power supply system. The Belgian train can run at normal speed on this track. A 15000 V AC power supply is used in Germany and German trains cannot cross the borders, unless special electrical equipment has been installed. For the light rail system *Euregiobahn*, in operation from 2001 in the Aachener region, it was decided for finacial reasons to use diesel engines.

It is not likely that the three countries will change to one standard voltage in the future, as this would require significant investments. It is more realistic to install electrical equipment capable of working with both 1500 and 3000 V DC power supply systems for the cross-border trains between Belgium and Holland. The recommendation for the cross-border light rail between

Germany and Holland is to continue with the diesel concept. Changing from diesel to electrical light rail for the cross-border link to Heerlen is unrealistic because it would require a higher level of investment in light rail equipment and make it necessary to install electrical power supply lines along the new or reused railway tracks of the Aachener network.

The ATB railway safety system in the Netherlands requires the installation of many extra detection devices for light rail systems. In Germany, the Indusi railway safety system makes it much easier to use light rail, as it only requires the installation of train detection devices at certain points along the track. In Belgium, light rail is only permitted on separate tracks.

The railway capacity between Heerlen and Aachen is limited. The railway line running from the Netherlands to the border is single track. There are two ways of extending this line by a second track. The first is to change the present single track into a double track with a new railway cross-over in Germany. The second is to extend the present single track railway between Heerlen and Kerkrade to Richterich in Germany via the new high-tech business park Avantis. The former option is preferable because it makes it possible to double the level of service between Heerlen and Aachen and will attract more new travellers than using two different single tracks (the existing track via Herzogenrath and the new track via Avantis).

Conceptual barriers:

- lack of modern train or light rail rolling stock;
- poor image of cross-border railway transport due to the limited service (1 train per hour);
- personal safety issues due to the use by drugs users, that use the train to visit coffee shops in Maastricht and Heerlen;
- no uniformity in cross-border public transport.

Public safety is a key issue. Many of the stations are several decades old and the rolling stock and station facilities must be upgraded to create a more open environment, with surveillance cameras to ensure the safety of travellers. This measure will certainly reduce the number of drugs users and buyers, as projects carried out at the Heerlen railway station have demonstrated.

The introduction of modern trains or light rail vehicles will attract new travellers. It is also important to have a joint cross-border public transport plan, bringing uniformity to the public transport offered. Such a plan must cover the existing links, traveller information, ticketing facilities, tariffs and interchanges. A cross-border public transport plan should also consider how to develop cross-border railway transport in the near future in order to make public transport a rapid, safe and convenient alternative for the ever-growing automobile traffic in the Meuse-Rhine Euroregion.

Commercial barriers:

- differences in international tariffs and tickets;
- no possibility for direct ticketing in the different countries;
- difficulty balancing costs and revenues between the railway operators;
- differences in operation subsidies.

A crucial commercial barrier is the sale of tickets for cross-border public transport and the differences in tariffs. In order to dismantle this barrier, the railway companies must work together and come to an agreement on the tariffs for cross-border public transport. Direct ticketing must be possible in all countries, with computer programmes balancing costs and revenues between the railway companies. It will also be necessary for the railway companies to work out a new, suitable system for the chip card, that will be introduced in 2006 in the Netherlands as a national ticket system.

Institutional barriers:

- no international arrangements on governmental supplementary financial payments;
- no international arrangements on the use of common design rules for railway safety;
- no international guidelines for co-operation between railway transport companies running cross-border railway lines.

Regional cross-border public transport is not considered a crucial matter by the national authorities. Their focus is mainly on the HST-connections between the European regions and cities. It will require much more effort on the part of the regional authorities to convince the national authorities that international agreements are difficult to arrive at without their cooperation.

Since there are no international guidelines for co-operation between the railway companies, it is very important that the regional authorities take responsibility for bringing the different parties together and join forces in order to achieve the most advantageous cross-border public transport system.

4 Breaking down the barriers

To examine which barriers have to be overcome, regular discussions were held with the employees of the railway operators and the cities involved, and various other experts. The discussions revealed that the institutional barriers are the most difficult to resolve. Breaking down institutional barriers will involve regular communication with the partners within the Euroregion, obtaining the support of the national ministries, and getting the railway transport companies to cooperate on improving cross-border railway links.

Ways to break down the barriers:

- communication with the Euroregional partners of other countries so as to prepare a Euroregional Public Transport Plan and to obtain the necessary support of the national governments and institutions;
- closer involvement of the railway transport companies in order to improve the operation of cross-border railway links;
- giving professional, political and financial support to ongoing projects focusing on the development of cross-border railway links.

Regularly scheduled meetings of the Meuse-Rhine Euroregion Public Transport organisation provide a forum for communication with the partners in the Euroregion. Part of this public transport organisation is the steering committee, in which various regional authorities have been invited to participate. The discussion points, which are subject to formal decision-making by the steering committee, are prepared by the members of the coordination committee. The members of the coordination committee include a permanent delegation of officials who represent their countries in all ongoing and new cross-border public transport projects.

5 Ongoing projects for the development of cross-border railway links

After the Province of Limburg commenced the LiRa-2 project, the Cities of Maastricht and Heerlen decided to participate in the INTERREG IIIb projects HST-Connect and HST-4i respectively. The purpose of these projects is to create better links to the HST stations in Liège and Aachen. The City of Maastricht is working with the City of Liège to improve the quality of the railway link between the cities, to shorten travel times, and to improve connections to Brussels and the HST-network. Discussions are also being held with the Belgian railway company SNCB concerning the use of modern rolling stock in order to increase the level of service, to eliminate differences in tariffs due to the border situation, and to study the possibility of a direct rapid link to Brussels. The City of Heerlen is working with the City of Aachen on the improvement of the existing Euregiobahn light rail system. They plan to open new stations between Heerlen and Aachen and to see to it that the main station of Aachen can accommodate present and future HST connections.

Ongoing projects focusing on the development of cross-border railway links:

- LiRa-2 Pilot Action Trial *Seamless Journeys Province of Limburg*: identifying the barriers to cross-border railway links between Maastricht-Liège and Heerlen-Aachen, followed by an initial recommendation for the development of the railways in the Meuse-Rhine Euroregion;
- Meuse-Rhine Euroregion Project: preparing a joint Euroregional Public Transport Plan, including the future development of cross-border railway links in the Meuse-Rhine Euroregion;
- HST-4i project: opening new stations between Heerlen and Aachen and improving the station in Aachen to accommodate present and future HST connections;
- HST-Connect project: achieving a better railway link between Maastricht and Liège and assessing the possibility of a rapid through connection to Brussels.

Within the context of developing cross-border railway links in the Meuse-Rhine Euroregion, interest has been expressed in a second railway between Heerlen and Aachen for the *Euregiobahn* light rail network. The idea is to extend the existing railway from Heerlen to Kerkrade by a new railway to Richterich via the high-tech business park Avantis. As part of the LiRa-2 Project, the Province of Limburg has ordered a feasibility study of this second railway link. The study was carried out by DHV Ruimte en Mobiliteit BV and its results can be found in the report *Haalbaarheidsonderzoek tweede spoorverbinding Heerlen-Aachen via bedrijventerrein Avantis* (see section 8).

6 Recommended railway development in the Meuse-Rhine Euroregion

Between 1999 and 2002, the Province of Limburg studied the possibility of operating a 'South Limburg Light Rail' on the existing Maastricht-Heerlen-Kerkrade line. The project did not study extensively how to integrate the South Limburg Light Rail with the existing cross-border railway links in the Meuse-Rhine Euroregion. As part of the LiRa-2 Project, a study was conducted investigating how the South Limburg Light Rail Project could be combined with the participation of Maastricht in the HST-Connect Project and the participation of Heerlen in the HST-4i Project. This study took all the various wishes of the partners in the Meuse-Rhine Euroregion into account as much as possible. Based on these wishes and the information available at the time, a document entitled *Discussion on light rail and cross-border railway links in the Meuse-Rhine Euroregion* was drawn up to prepare for the dialogue with the members of the Euroregional coordination committee (see section 7). A second document, *Initial recommendation for the development of the railways in the Meuse-Rhine Euroregion,* was prepared, summarising the results of the discussion document (see section 7).

Recommended railway development in the Meuse-Rhine Euroregion:

- Aachen-Heerlen (HST-4i project)
  - three new stations in Heerlen for the Euregiobahn;
  - extend Euregiobahn Aachen-Heerlen to Sittard;
  - second railway link between Heerlen and Aachen via Avantis.
- Liège-Maastricht (HST-Connect project)
  - improve existing cross-border railway link;
  - study possibility of a direct HST or IC link with Brussels;
  - perform marketing activities to increase number of passengers.
- Maastricht-Heerlen (South Limburg Light Rail project)
  - take over operation of the contract sector line Maastricht-Heerlen-Kerkrade;
  - use existing budget for South Limburg Light Rail to extend Euregiobahn;
  - link the train Liège-Maastricht to Heerlen or extend the line.

In April 2005 the Province of Limburg decided to give priority to the start of the operation of the South Limburg Light Rail system as part of a step by step approach, formulated in their new public transport plan. Further discussions are required with the public transport coordination committee of the Meuse-Rhine Euroregion to decide how and when the Euregiobahn light rail system to and from Aachen and the various other plans and projects can be integrated into what someday could be one Euregional public transport system. Such an integrated system can only be achieved in close cooperation with the Euroregional partners.

7 Annexes

The following documents (English versions) have been included with this report:

- Initial recommendation for the development of the railways in the Meuse-Rhine Euroregion *(French, German and Dutch versions available on request)*

- Discussion on light rail and cross-border railway links in the Meuse-Rhine Euroregion *(French, German and Dutch versions available on request)*

INITIAL RECOMMENDATION FOR THE DEVELOPMENT OF THE RAILWAYS IN THE MEUSE-RHINE EUROREGION

Date: 20 September 2004
Mobility department
Province of Limburg

Introduction

To aid the discussion within the Meuse-Rhine Euroregion coordination committee, a document entitled *Discussion on light rail and cross-border railway links in the Meuse-Rhine Euroregion* was drawn up and provided a basis for further coordination between the parties directly involved. The discussions led to an initial recommendation which will be presented to the Meuse-Rhine coordination committee on 30 September 2005 as a proposal for further decision-making by the Meuse-Rhine Euroregion public transport steering committee. Based on its decisions, the initial recommendation for the development of the railways in the Meuse-Rhine Euroregion will be distributed to all parties involved in the Meuse-Rhine Euroregion consultations as a guideline for implementing the relevant plans.

Participants in the discussions

The following persons and parties have taken part in the discussions:

Mr Seijben	Parkstad Limburg
Mr Jansen	City of Heerlen
Mr Nollen	City of Maastricht
Mr Sistenich	Aachener Verkehrsverbund
Mr Clemens	Aachener Verkehrsverbund
Mr Dedye	SNCB Liège
Mr Warroquiers	SNCB Liège
Mr Essers	NS Regio Zuid
Mr Van Vierzen	Province of Limburg

The following key participants were indirectly involved:

Mr Leers	City of Maastricht
Mr Borremans	Wallone Region
Mr Weijnen	Province of Limburg
Mr Van Ginderen	Province of Limburg
Mr Pardon	SNCB Brussels
Mr Jadot	SNCB Brussels
Mr Welfens	DB Regio Aachen
Mr Baartman	ProRail
Mr Köhler	ProRail
Mr Verhoeven	Chamber of Commerce

Individuals who participated in the discussions did so in a private capacity with respect to compiling this initial recommendation, which will serve as a guideline for further discussion and decision-making by the relevant parties.

Following on from the consultations in the Meuse-Rhine Euroregion, other discussions concerning improvements to the cross-border railway links were held by the following participants:

- Parkstad Heerlen as part of the HST Integration Project;
- the City of Maastricht as part of the HST Connect Project;
- the Province of Limburg as part of the South Limburg Light Rail Project;
- the Province of Limburg as part of the LiRa 2 Project.

These projects are referred to in *Discussion of light rail and cross-border railway links in the Meuse-Rhine Euroregion*. Like the *Initial recommendation*, this document is available in French, German and Dutch.

Recommendations

In brief, the recommendations consist of the following:

1 Improve the cross-border railway link between Aachen and Heerlen;
2 Improve the cross-border railway link between Liege and Maastricht;
3 Improve the cross-railway link between Maastricht and Heerlen;
4 Improve the cross-border railway link between Aachen and Liege;
5 Improve railway links to other cities in the Euroregion.

Recommendations four and five have not been described in detail in the *Initial recommendation*, but will be considered at length in the Euroregional Public Transport Plan (EPTP), on which the Meuse-Rhine Euroregion coordination committee has commenced working.
The EPTP will also incorporate the results of the discussion held on recommendations 1, 2 and 3.

Re 1. Improve cross-border railway link between Aachen and Heerlen

This recommendation consists of the following:

1a Construction of three railway stations designated by Parkstad Heerlen: Heerlen-woonbouvelard, Heerlen-Oost and Eygelshoven markt.
Rapid decision-making is desirable in connection with available INTERREG funds. Stations served by Euregiobahn from Aachen, in cooperation with Netherlands Railways (NS).
Parkstad Limburg will work out the details, and the Province of Limburg will contribute financially.

1b Aachen Euregiobahn extended to Sittard.
Discuss willingness to cooperate with NS executives (main railway network).
The Province of Limburg will investigate the costs involved.

1c Construction of a second railway line between Heerlen and Aachen via Kerkrade and the new business park, Avantis. Discuss possibility of having construction and operations fall under the rules of the German railways. Determine costs by inviting tenders for constructing the infrastructure and for railway safety facilities.
Discuss eligibility to receive grants for the construction of an infrastructure for cross-border railway transport, including supplementary payment by the Netherlands and Germany (North-Rhine Westphalia) to increase service to every half hour in both directions.

Re 2 Improve cross-border railway link between Liège and Maastricht

This recommendation consists of the following:

2a Closer consultations between the City of Maastricht and SNCB and NS about creating a rapid transit through connection with Belgium. Discussions are taking place at senior levels and are expected to conclude with a rapid transit line to Brussels.

2b Completion of the HST Connect Project by the City of Maastricht, involving a marketing plan to attract new passengers.

2c Discuss possibility of the national governments of Belgium (SNCB) and the Netherlands making supplementary payments available to extend operations.

Re 3. Improve railway link between Maastricht and Heerlen

This recommendation consists of the following:

3a Use monies available for South Limburg Light Rail to extend the Euregiobahn from Aachen (light rail) to Sittard (coordination with national government).

3b Take over Maastricht-Heerlen-Kerkrade contract sector line from national government, with possible private invitation to tender (up to 2015) for the construction of cross-border railway links. This would involve constructing a second light rail through connection with Aachen via Kerkrade and a through connection from Belgium to Maastricht and Heerlen.

3c Coordinate light rail and train operations with bus and demand-responsive transport operations. The passenger transport cluster of the Province of Limburg is to draw up a public transport plan in consultation with the Cities of Maastricht, Heerlen and Sittard. Initially, invitations to tender for train, bus and demand-responsive transport will be separate.

3d After taking over the train service from the national government, restrict train service to the Maastricht-Heerlen line using modern engines and rolling stock (every half hour in both directions) with the possibility of direct transfers to Liège, Aachen and Sittard. Aachen's Euregiobahn will be used for the connection to Kerkrade (this connection will also be extended to Aachen via the

Avantis business park). Initially, passengers travelling from Maastricht to Maastricht-Randwyck will be able to transfer directly to a Liège train (pending a through connection).

Final comments

The Meuse-Rhine Euroregional coordination committee plays an important role in achieving the necessary coordination of the all the various plans. A leaflet will soon be published explaining the committee's role and reporting the names of all the representatives of the participants in the Meuse-Rhine Euroregion.

DISCUSSION ON LIGHT RAIL AND CROSS-BORDER RAILWAY LINKS IN THE MEUSE-RHINE EUROREGION

Summary

In the past six months, various parties in the Meuse-Rhine Euroregion have held many meetings to discuss plans to develop light rail and cross-border railway services between the different countries concerned. The discussions have allowed them to develop a shared understanding of the potential for such services in the longer term, providing a basis for policy within the Meuse-Rhine Euroregion in the years ahead.

The policy is based on operating a light rail through service between Aachen, Heerlen and Sittard, where passengers could transfer to the Dutch Intercity network. Links will be provided for between Aachen and Heerlen, running via Herzogenrath and Kerkrade. Consideration has been given to an increase in freight transport in the coming years. The Liège-Maastricht line will commence with a through connection to Heerlen, with passengers transferring to the Dutch Intercity network in Maastricht. The purchase of new equipment designed to run on two different voltages is being investigated. Consideration is also being given to the investment required to guarantee interlocking route safety and whether it would not be more economical to use a light rail service on the Liège-Maastricht-Heerlen line.

An official request will also be made to take into account the results of discussions on light rail and cross-border railway transport in the Meuse-Rhine Euroregion. All in all, the policy will require a proposed investment of EUR 22.3m by the joint Dutch partners and EUR 7.3m by the German partners. An INTERREG grant of more than EUR 3m has been awarded to carry out the plans and, given the transnational nature of the investment, further INTERREG grants may be applied for.

A study is also being carried out to see whether a light rail system can be introduced between Liège, Maastricht and Heerlen, but if no funds are available, its introduction is not regarded as essential. The purchase of new light rail or train equipment has not been included as an investment. Such purchases can be financed by separate funds made available for this purpose within the operational budgets set aside for regular services.

Introduction

The Dutch Rover travellers organisation has published a report entitled *Rails that bind* that refers to local services and light rail services on the circle line Aachen-Heerlen-Maastricht-Liège-Verviers-Aachen (p. 14). Rover's proposal corresponds with a proposal made by the German and Dutch Chambers of Commerce, which have conceived of a Euroregion circle line between the cities mentioned, including through connections to the City of Sittard. Representatives of the Province of Limburg (Netherlands) and its partners in the Meuse-Rhine Euroregion have also discussed the same railway lines, although less in

the shape of a circle line. Their emphasis is more on creating cross-border railway through connections. The Maastricht-Liège link is foremost for the City of Maastricht, whereas for the City of Heerlen, a light rail through connection between Aachen and Sittard is more important than through connection to Maastricht. The parties do, however, agree that a good cross-border system will offer twice hourly services in both directions. Based on the wishes of its partners in the Meuse-Rhine Euroregion, the Province of Limburg has several proposals for operating cross-border railway services. These proposals should be discussed with the relevant parties as soon as possible. Such discussions will go to prepare for the decisions that the Province of Limburg must take concerning the final plans to operate a light rail service in South Limburg.

Information for discussions on cross-border railway services to and from Aachen

In the past year, the Province of Limburg, Parkstad Limburg, ProRail and NS Regio-Zuid have investigated the possibility of running a cross-border railway service between Aachen and Heerlen. The studies and discussions have produced the following relevant information:

1. Detection devices will be required to guarantee the interlocking route safety of the light rail system between Maastricht, Heerlen and Kerkrade. An investment of over EUR 13m must be assumed for discussion purposes, of which EUR 1m will be spent on the Landgraaf-Kerkrade line, EUR 2m on the Heerlen-Heerlen woonboulevard line, and EUR 10m on the Maastricht-Heerlen-woonboulevard line;

2. Detection devices will be required to guarantee the interlocking route safety of the light rail system between Heerlen and Sittard. An investment of EUR 8m must be assumed for discussion purposes for the Sittard-Heerlen woonboulevard line;

3. The Heerlen-Sittard line will be operated by NS, as part of the main railway network. There are four stations along this line with fewer than 1,000 passengers getting on and off each day (Hoensbroek, Nuth, Schinnen and Spaubeek). In the new railway concession, these stations are under threat of closure;

4. The light rail Aachen-Heerlen line will be operated by NS and DB jointly. It is conceivable that NS will be prepared to operate local trains on the Heerlen-Sittard line as a light rail service within the same partnership with DB;

5. The Heerlen-Herzogenrath line is used not only for passenger but also for freight transport, the volume of which is expected to increase in the future. The line between Heerlen and Herzogenrath is a single track with limited possibilities to transfer to the multi-track system on the German railway network. The possibility of doubling the track from Landgraaf to Herzogenrath has been investigated. For discussion purposes, an investment sum of
   EUR 5.8m can be assumed.

6. The German railway network at Herzogenrath is extremely well used. By creating a second link to Aachen via Kerkrade, it becomes possible to allow more freight trains on the line to Herzogenrath. To create a new railway link between Aachen and Heerlen running via Kerkrade, a new section of track can be laid through the Avantis business park. The second link would be set up as a Dutch/German

partnership project with an estimated investment of EUR 14.6m. A 50/50 investment amounting to EUR 7.3m for the Netherlands must be assumed for discussion purposes;

7. Despite the intensive use made of the German railway network at Herzogenrath, Germany does not as yet wish to have all passenger transport between Aachen and Heerlen run on the future railway link via Kerkrade. The reason given is the number of passengers currently travelling from Herzogenrath to Heerlen. One possibility is to have passengers transported by express bus from the Herzogenrath station to the station in Kerkrade;

8. The City of Heerlen wishes to open new stations at Heerlen woonboulevard (Terhoevenderweg), Heerlen-Oost (de Kissel) and Eygelshoven markt. An estimated EUR 6m will be involved, with an INTERREG grant of EUR 3m being available. The Province of Limburg's plans for the South Limburg light rail have also taken into account that new stations will be constructed at Heerlen woonboulevard (In de Cramer) and Heerlen-Oost (de Kissel).

Possible investment to improve cross-border railway services to and from Aachen

Based on the foregoing information, it is possible to outline the investment that may be required to improve cross-border railway services to and from Aachen:

- EUR 0m.
  Maintain situation as it is. Risk that cross-border light rail transport from Aachen will cease. Risk of stations along Heerlen-Sittard line closing. Maastricht-Heerlen-Kerkrade would be maintained (whether or not contract sector line is taken over by the Province of Limburg);

- EUR 1m.
  Interlocking facilities installed along Landgraaf-Kerkrade line
  The investment is required to make better use of the lay-over time of the light rail services in Heerlen for light rail services on the Heerlen-Kerkrade line. Possibility of cutting services between Maastricht and Kerkrade by adding on the Heerlen-Kerkrade light rail line;

- EUR 2m.
  Interlocking facilities installed along Heerlen woonboulevard-Kerkrade line
  The investment is required to make better use of the lay-over time of the light rail services in Heerlen for light rail services on the Heerlen-Heerlen woonboulevard line;

- EUR 3m.
  New stations constructed (Heerlen woonboulevard, Heerlen-Oost and Eygelshoven markt)
  Investment needed to increase the number of passengers using light rail from Aachen by adding new destinations;

- EUR 5.8m.
  Construction of double track from Landgraaf to Herzogenrath to increase frequency of service.
  Investment must be combined with other solutions in order to improve light rail services from Aachen and/or to allow more freight trains to use the line;

- EUR 7.3m.
  Construction of second railway line to Aachen via Kerkrade. New stretch of track crossing Avantis business park, with new stations at Spekholzerheide, Avantis and Richterich A 50% investment is required to create new destinations, to improve frequency of services and to allow more freight trains on the line to Herzogenrath in the future;

- EUR 8m.
  Interlocking facilities installed between Sittard-Heerlen woonboulevard by extending the light rail services from Aachen through to Sittard. The investment is required to extend cross-border light rail system from Aachen and to maintain stations along the Heerlen-Sittard line by increasing the frequency of service and delivering a better product;

- EUR 10m.
  Interlocking facilities installed between Maastricht and Heerlen-woonboulevard by extending the light rail services from Aachen through to Maastricht. Investment a potential alternative to extending the light rail services from Aachen to Sittard if NS decides to maintain the local service on the Heerlen-Sittard line.

Choices with respect to cross-border railway services to and from Aachen

Based on the foregoing, it would be possible to come up with various combinations of investment, making it easier, for discussions purposes, to select the best option:

a. Extend the existing light rail system from Aachen by adding the Heerlen-Kerkrade and Heerlen-Heerlen woonboulevard lines;

b. Extend the existing light rail system from Aachen by having a second railway line run from Heerlen to Aachen. Have the line run via Kerkrade by constructing a new stretch of track over the Avantis business park;

c. Extend the existing light rail system from Aachen by adding the Heerlen-Sittard line;

d. Extend the existing light rail system from Aachen by adding the Heerlen-Maastricht line;

e. Combine two or more of the above.

   The long-term proposal is to select options b and c.
   This will mean a second railway link from Heerlen to Aachen over Avantis business park, so that passenger services can run more frequently and the volume of freight transport can increase in the future.
   Extending the light rail system to Sittard makes it possible to have through connections twice an hour in each direction, linking up with the Dutch Intercity network in Sittard. Rail services on the Sittard-Heerlen line can be replaced by the light rail service. That also applies to the Heerlen-Kerkrade line,

so that train services will no longer run all the way from Maastricht to Kerkrade but instead stop in Heerlen.

Option a, extending the existing light rail system to Aachen by adding the Heerlen-Kerkrade and Heerlen-Heerlen woonboulevard lines, is a short-term solution and offers few long-term prospects;

Option d, extending the existing light rail system from Aachen by adding the Heerlen-Maastricht line, makes it impossible to provide a proper service to Kerkrade combined with a light rail line from Aachen via Herzogenrath. Because of the longer route involved, combining option d with b and c does not provide for quicker transport than the existing direct bus service between Maastricht and Aachen. Ultimately, the investment will be EUR 10m higher owing to the need for interlocking facilities along the Maastricht-Heerlen line. It is only advantageous if through connections were to operate to both Maastricht and Sittard twice an hour in each direction. That would produce a frequency of service of four times an hour in each direction between Heerlen and Aachen, of which two trains an hour in each direction via Herzogenrath and two trains an hour in each direction via Kerkrade (alternating from/to Maastricht and Sittard). In addition to the higher cost of investment, it may not be affordable at the moment to run four trains an hour in each direction on the Heerlen-Aachen line. For discussion purposes, it has been assumed that the budget will not make provision for such an amount.

Proposed phased investment for selected option

The following investment phases are proposed:

- Install interlocking facilities along Landgraaf-Kerkrade line (EUR 1m);
- Install interlocking facilities along Heerlen woonboulevard-Kerkrade line (EUR 2m);
- Construct new Heerlen woonboulevard, Heerlen-Oost and Eygelshoven markt stations (EUR 3m);
- Construct second line to Aachen via Kerkrade. New stretch of track crossing Avantis business park, with new stations at Spekholzerheide, Avantis and Richterich (EUR 7.3m);
- Install interlocking facilities between Sittard-Heerlen woonboulevard by extending light rail services from Aachen through to Sittard (EUR 8m);
- Construct double track from Landgraaf to Herzogenrath (EUR 5.8m).

The foregoing sums will lead to an investment on the part of the Dutch parties of EUR 21.3m in total for passenger transport. INTERREG is expected to provide a grant of EUR 3m and the German partners EUR 7.3m. With respect to freight transport, the Dutch parties will invest EUR 5.8m. It is not yet known when the monies will be required.

Information on cross-border railway services to and from Liège

In the past year, the Province of Limburg, the City of Maastricht, ProRail and NS Regio-Zuid have investigated the possibility of modifying the cross-border railway service between Maastricht and Liège. The studies and discussions have produced the following relevant information:

1. The local train from Liège to Maastricht is electrically powered and runs on 3 KV. The voltage runs until Randwyck, where the system switches to Dutch voltage (1.5 KV) and the train continues to Maastricht on a limited output (and at a limited speed).

2. The Thalys high speed train is electrically powered and can operate on both 3 KV and 1.5 KV. Maastricht railway station has a sufficiently long platform to allow passengers to embark and disembark and enough space to park the train at night;

3. Whether or not Thalys services continue on to Maastricht depends on the number of potential passengers, something that the City of Maastricht is investigating;

4. The local train from Liège to Maastricht is old stock and currently operates once an hour in both directions. The City of Maastricht is discussing the possibility with SNCB of upgrading the stock and increasing the frequency of service to twice an hour in each direction;

5. The local train from Maastricht to Heerlen is old stock and currently operates once an hour in each direction as an express and once an hour in each direction as a local. The express and the local operate at alternating times within the hour (0:08 and 0:26).

6. A study carried out on the preferred South Limburg light rail alternative is based on a frequency of twice an hour in each direction as an express and twice an hour in each direction as a local. Frequency would then be four times an hour in each direction, double the current frequency. The study assumes that the national government would increase its contribution to the public transport budget, but under the government's current budgeting system and in view of its recent retrenchment measures, there is no possibility of such an increase. For that reason, new calculations were performed based on a local service operating twice an hour in each direction;

7. It would not be feasible to extend the South Limburg local light rail service to Liège twice an hour in each direction because Belgium has not yet begun to discuss the safety requirements for admitting light rail vehicles on to the tracks. It would, however, be possible to extend the railway service from Liège to Heerlen if the train used were electrically powered and capable of operating on 3 KV and 1.5 KV. Using diesel engine trains is more expensive and undesirable, as the railway is already equipped with an overhead line;

8. The possibility of using better engines and rolling stock on the Liège-Maastricht-Heerlen line must be investigated in more detail. NS has let it be known that it will be purchasing new, modern local trains that are lighter than those currently used and that start and stop more quickly. The floors of these trains are expected to be level with the platforms, so that passengers can get in and out more quickly. They will also have an open hatch for the engineer, with no intermediate compartments, so that they

can be operated by one person (with a 'flying squadron' of conductors). It is important to be able to run the train with a single engineer so as to lower the cost of operation.

Possible investment to improve cross-border railway services to and from Liège

Based on the foregoing information, it is possible to outline the investment that may be required to improve cross-border railway services to and from Liège:

- EUR 0m.
  Maintain situation as it is. Passengers will be using old trains on all local lines. The frequency of service to Liège is inadequate. There is an alternating schedule for the link to Heerlen. There are long waits for passengers transferring to and from other trains. Travellers are not getting a good product;

- EUR 1m.
  With respect to the Maastricht-Liège service, more information about and better connections with the HST in Liège are desirable. The City of Maastricht will be promoting the use of high speed trains around Maastricht in the period ahead. The idea is to recruit enough passengers to make it possible to improve the train link to Liège and to have the first Thalys train depart from Maastricht in the morning and the last one arrive back in Maastricht in the evening;

- EUR 10m.
  Detection devices will be required to guarantee the interlocking route safety of the light rail system between Maastricht and Heerlen. An investment of over EUR 10m must be assumed for discussion purposes.

Choices with respect to cross-border railway services to and from Liège

In order to determine what investment is required, it is important, for discussion purposes, to begin by choosing the best option. The options are:

a. Maintain the existing services on the Sittard-Maastricht, Liège-Maastricht and Maastricht Heerlen lines;

b. Extend services on the Sittard-Maastricht to Liège;

c. Extend services on the Liège-Maastricht line to Heerlen;

d. Extend services on the Liège-Maastricht line via Heerlen to Aachen.

The long-term proposal is to select option c, i.e. extending services on the Liège-Maastricht line to Heerlen. This choice is motivated by the fact that the Province of Limburg has the option of taking over the Maastricht-Heerlen line from the national government as a contract sector line. That means it would be possible, in close cooperation with NS and SNCB, to combine the line into a single cross-border railway service.

Option a, maintaining the current services, is not preferable because, despite the voltage differences in the Netherlands and Belgium, it would then not be possible to provide through connections. Option b is possible but, in view of past experiences, it would be too expensive for the longer Intercity trains to continue their journeys. Another option is to have the local trains from Roermond continue down the line, but the expectation is that there would then be less freedom to choose equipment for such a long journey that deviates from the NS standard.

Option d, extending train services on the Liège-Maastricht line via Heerlen to Aachen, is not an option if the Heerlen-Aachen line becomes a light rail service. Because of the longer route involved, having a light rail service on the Liège-Maastricht line does not provide for quicker light rail transport to Aachen than the existing direct bus service between Maastricht and Aachen. Nor are any through passengers expected to travel from Liège via Heerlen to Aachen. A through connection would be an advantage for passengers who travel from Heerlen directly to and from Liège in order to catch the train to Brussels and Paris. Option c satisfies this demand.

Proposed phased investment for selected option

Technically speaking, it will not be easy to introduce the service selected. Nevertheless, it is once again necessary to make a long-term decision between transport by train or by light rail. Based on a frequency of twice an hour in each direction, fast local services are to be preferred, with a potential increase in the number of stations in the future. If light rail is selected, the Dutch will have to invest in interlocking route safety (the Maastricht-Heerlen line will require an investment of EUR 10m). It has also been announced that NS will soon be purchasing lighter, faster trains that can be operated by a single engineer. The proposal is therefore to discuss whether or not to introduce light rail on the Liège-Maastricht-Heerlen line with NS and SNCB. Another point for investigation is the purchase of light rail or train stock that is suitable to operate on two different voltages.

The following investment phases are proposed:

- Initially, use existing trains on the Liège-Maastricht and Maastricht-Heerlen lines, with the Maastricht-Heerlen train being truncated up to Maastricht central station. Passengers would transfer directly between the two trains by going from one side of the platform to the other, thereby achieving the effect of a through connection. It is assumed that both trains will be locals and operate twice an hour in each direction. Depending on the first and last trains in the timetable, the option will be kept open of allowing limited Thalys service by cancelling one or more local trains in the future. Increasing the frequency of the Liège-Maastricht local service to twice an hour in each direction will depend on cooperation by NS and SNCB. The City of Maastricht is currently discussing this option with the relevant parties, with cooperation being requested at administrative level from the relevant national, regional and local authorities (EUR 1m investment);

- In consultation with NS and SNCB, an investigation is being carried out into the purchase of new light rail or train engines and rolling stock for the future operation of the Liège-Maastricht-Heerlen line. The Dutch have the option of extending the NS's operation of the Maastricht-Heerlen line for another three years. After that period, the Netherlands will be obliged to embark on a European procurement

procedure. There is therefore still time to perform an initial study before it becomes necessary to take a final decision between light rail and train services. That time can also be used by Belgium to explore the size of the investment required to guarantee the necessary interlocking route safety.

At the moment, the Netherlands is not proposing to invest in the infrastructural modifications required to introduce the proposed passenger services. Depending on whether the choice is made for light rail or train service, an investment in interlocking facilities will be required. Consideration must also be given to the necessary investment required to construct a number of new stations along the line. That investment will, however, be based on the advantage gained by replacing the bus services by train services along the main routes. No specific examples of this are known. An investment of EUR 1m will be required to research and promote the Liège-Maastricht link, and INTERREG funding has already been awarded for this purpose. Whether extra financing will be required to research suitable equipment and the use of light rail in Belgium is unknown, but can be discussed at a later stage. No investment has been provided for with respect to having more freight traffic on the Dutch segment of the Liège-Maastricht-Heerlen line.

Opportunities to operate the cross-border railway services proposed

The Dutch government has awarded funding to the Province of Limburg in support of its memorandum *Preferred alternative study on South Limburg light rail*. The Province may use this funding at its discretion. Because it received less money from the national government than it had estimated, the Province of Limburg is currently investigating the most effective means of using this funding. An official request will be made to take the results of the light rail/cross-border railway transport discussion in the Meuse-Rhine Euroregion into account. A total investment by the joint Dutch partners of EUR 22.3m is being proposed, with EUR 7.3m being contributed by the German partners. More than EUR 3m in INTERREG monies has also been awarded, and given the transnational nature of the investment, further INTERREG grants may be applied for. The introduction of a light rail service on the Liège-Maastricht-Heerlen line is being investigated, but the expectation is that it will not be necessary if the necessary financing cannot be found. The purchase of new light rail or rail stock has not been included as an investment. Such purchases can be financed by separate funds made available for this purpose within the operational budgets set aside for regular services.

Such financing has proven to be possible for the Aachen-Heerlen light rail line, and other expenditure on light rail systems in the Netherlands have resulted in the use of new equipment. In view of NS's efforts to purchase lighter and faster engines and rolling stock for its local services, the price differential between such equipment and comparable light rail equipment (with high impact resistance) is expected to be minimal. The proposed services are therefore highly feasible and it will be possible to pursue a specific policy in the Meuse-Rhine Euroregion in the years ahead. At the moment, this policy is based on operating a light rail through service between Aachen, Heerlen and Sittard, where passengers can transfer to the Dutch Intercity network. Links will be provided for between Aachen and Heerlen, running via Herzogenrath and Kerkrade. Consideration has been given to an increase in freight transport in the coming years. The Liège-Maastricht line will commence with a through connection to Heerlen, with passengers transferring to the Dutch Intercity network in Maastricht. The purchase of new equipment designed to run on two different voltages is being investigated. Consideration is also being given to the investment required to guarantee interlocking route safety on light rail lines and whether it would not be more economical to use a light rail service on the Liège-Maastricht-Heerlen line. Finally, the policy

described in the foregoing will be pursued in close cooperation with the Belgian, German and Dutch railway companies. It is these companies in particular which will ensure the most effective long-term coordination, both in the literal and in the figurative sense, and which will be involved, either directly or indirectly, in future railway transport contracting in the Meuse-Rhine Euroregion.

8 Reference document

This report refers to a document entitled *Haalbaarheidsonderzoek tweede spoorverbinding Heerlen-Aken via bedrijventerrein Avantis*. This document, prepared as part of the LiRa-2 Pilot Action Trial *Seamless Journeys Limburg*, can be found on the LiRa-2 website (www.LiRa-2.com). No English version of this document is available. The facts and figures set out in the document are given in the translations referred to in section 7.