City of Almelo ***Traffic & Transport*** ***Paper***

Thredbo 8

8ª Conferência Internacional sobre Competição e Propriedade em Transporte Terrestre de Passageiros
8ste Internationale Conferentie over Marktwerking en Eigendom in het Vervoer van Personen te Land

---

Public Transport

The comprehensive and cooperative approach of

Almelo, the Netherlands

Author: Rob Hulleman, MSc

Address: City of Almelo, PO box 5100, 7600 GC Almelo, The Netherlands
Telephone: +31 (546) 54 1183
Fax: +31 (546) 54 1076
E-mail: r.hulleman@almelo.nl

Bionote on the author

Rob Hulleman finished his study of Social Geography and Transportation Planning at the University of Utrecht, The Netherlands, in 1982. He is head of the Traffic & Transport Team of the department of Urban Planning and Environment of the City of Almelo, the Netherlands. He is manager of the public transport scheme since 1994.

1. Introduction

Public transport is of increasing importance to maintain and improve quality of life in the densely populated areas in the world. Amongst others, it provides mobility, accessibility and helps to secure the environment. Moreover, a good public transport system in a metropolitan area has an impact which goes far beyond. It helps economic development and social cohesion.

Key factor of success in achieving this is embedding the public transport system in a comprehensive planning concept, as the success in the Brazilian city of Curitiba shows. Transportation is part of the (metropolitan) society and public transport is part of transportation as a whole. To play its role, public transport must be in the middle of society and the minds of the people living in it. Therefore it is very important to relate planning of public transport to spatial and functional urban planning, and to policies regarding housing, industry and commercial services, education, health-services, environment and so on. As a consequence, there is no blueprint for public transport which can be used in any situation. To the contrary, in every country, in every metropolitan area, situations are different and so are the solutions.

Of course, we should learn from each other, but always keeping in mind that successful solutions cannot be copied without adapting them to the specific situation in which they should be implemented. The subject of this paper is the comprehensive and cooperative approach of the Dutch City of Almelo. The primarily objective of this paper is to make a plea for the use of a comprehensive and cooperative approach. The second objective is to provide an example of specific solutions which may, in one way or another, be useful in other circumstances or projects.

2. Developments in the Netherlands since the mid-nineties

In the Netherlands, the way in which public transport is regulated and organized has been dramatically changed on all relevant levels and topics. The roles of central, regional and local governments, transportation companies and other parties involved have been changed. These changes applied to planning, financing and contracting public transport services as well as public transport infrastructure. As a consequence, the parties involved did not only change their roles, but also their organizations. In addition, new parties came into the field. In the public transport market, really nothing is the same any more and the parties are still seeking their optimum position. This conversion-process, which was initiated by the central government in the mid-nineties, will probably last until the end of this decade.

The central government, which traditionally had a key role in Dutch public transport initiated these changes. Basically, the government wanted to reduce costs and improve quality of services in three ways.

- First, it shifted responsibility regarding regional and local public transport upon the regional governments, which were not equipped for these tasks. Regional authorities, never engaged in public transport and some of them even being completely new, had a hard time taking over the tasks and responsibilities. The national train system, operated by the Dutch Railway Company (NS, Nederlandse Spoorwegen) was split into a national backbone-system and regional train services. Only the national backbone remains full responsibility of the central government. The regional train services must be transferred to the regional governments, a difficult process, still in on its way.
- Second, all public transport services except the national backbone system, must be put out for contract every 4-6 years. The central government decided on tight regulations in the Public Transportation Act 2000, leaving the regional governments very little freedom to decide on their own policy. The major transportation companies started splitting up, merging and reorganizing. In the meanwhile they tried to pick up any crumble in the market that became available.
- Third, as part of the new regulations, the way services and infrastructure are financed has been changed, causing the regional governments and the transportation companies being in uncertainty for years. This led to reluctance and resignation.

During this organizational transition, a lot of circumstances changed. The nature of the circumstances were wide-spread and included politics, economy, finance, organization, public opinion, modal split and technology. This led to changes in policies and objectives of all parties involved which made the transition process even more complicated.

In my opinion, the central government made some serious faults in this transition process, which was in its basics really overdue. These faults caused the process to be less effective than possible and even hindering necessary developments.

- The most important fault was not recognizing that the key market to focus upon is the intermodal competition between the private car, the bicycle and public transport. The government is blinded by the desire to improve competition between transportation companies for contracts which were issued by regional governmental agencies. However, in the Netherlands the real market is out on the streets and the public transport must fight for market shares and sometimes for its survival.
- The overregulated Dutch central ticketing system for bus-, tram- and subway-services was not replaced. As a consequence, the regional authorities cannot use fares and conditions to make public transport more attractive. Nevertheless, several experiments were held and most of them were successful. However, due to the tight regulations, only a few were continued. Furthermore, in the back-office the way the revenues are divided among the regional authorities is so complicated, that it takes more than one year (!) before financial effects of implemented changes become visible.

3. Almelo: the case

In the second half of the nineties, against the background of these changes, the Dutch City of Almelo designed a significant and comprehensive scheme to improve the quality of public transport. This scheme was presented by the Ministry of Transport in 1996 as an example scheme for the upgrading of public transport in mid-sized cities in the Netherlands. See figure 1.

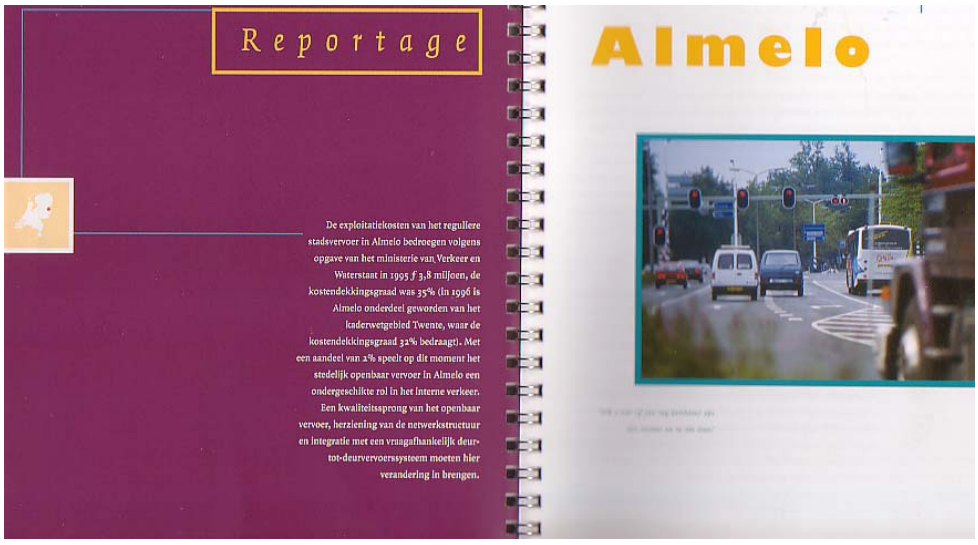


Figure 1: The Almelo-scheme presented as an example (1996).

Almelo is a mid-sized city in the east of The Netherlands, near the German Border. The City has 70,000 inhabitants and is part of the Twente metropolitan area, in which about 300,000 people live. The public transport scheme had three main goals:

- Improving the share of public transport in the modal split, especially in the relations with the city-centre and the adjacent cities within the Twente metropolitan area, thus slowing down the increase in car-use and growth of congestion.
- Improving the receipts of the public transport services from 35 % of operational costs in 1995 to 50 % in 2005.
- Improving the mobility of those people that have no access to alternative modes of transport like bicycle or private car.

The scheme was basically designed in 1995, with several sub-schemes and plans following in the years after. It consisted of several key-elements:

1. A central public transport axis from north to south. This axis connects the two major residential areas with the city-centre and the train-station.
2. An integrated public transport network based on this central axis.
3. An additional service-network with on-demand services for elderly and handicapped people.
4. A new fare system.
5. A concept of traffic flow management and dedicated infrastructure for buses
6. A concept to provide real-time information to travelers.
7. A special designed bus stop and low floor buses.

3.1. Public transport axis

Traditionally, public transport in Almelo was designed to cover the whole urban area. Thus, bus lines were running through streets which were not suited for that purpose, for instance because they were too narrow or because traffic was too jammed. As a result, the travel speed was low and delays were frequent. The public transport axis was designed to cope with these problems. The axis connects the largest residential areas of Almelo to each other and to the city centre. The train and bus station Almelo-Centraal is the main node on this axis. See figure 2. Along the axis important public destinations like the main hospital, a shopping mall and the soccer-stadium are located.

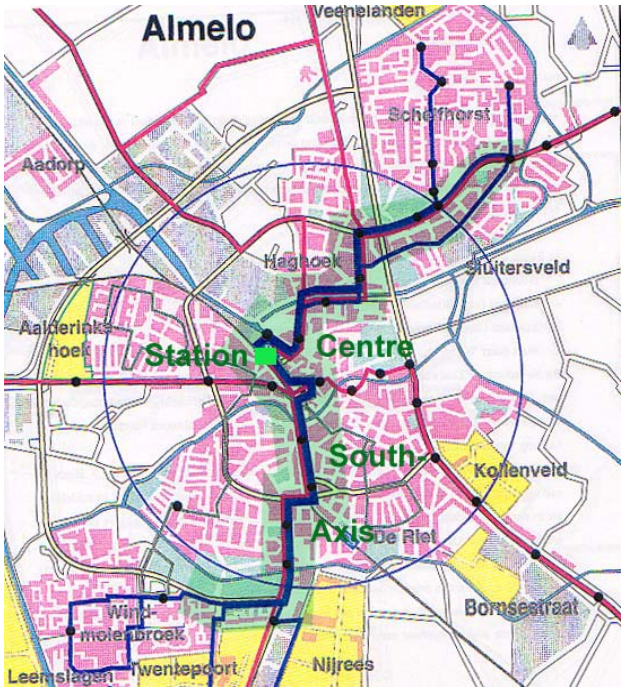


Figure 2: Public transport axis (1995).

A few years later, in 1997, the overall urban structure plan of the city upgraded the southern part of this public transport axis into a so called special development axis. This means that along this part of the axis urban development will be more intensive than elsewhere, including new urban functions,

high-rise residential and office-buildings and so on. The urban concept of Curitiba was the most important example on which this plan was based.

The public transport axis is in use since 1997. The largest part of the infrastructure was completed in 1999. Unfortunately, the most important element in the southern part of the axis, the construction of a dive-under for the railway, substituting a level railway crossing which causes a lot of delays for the buses, has been postponed several times. Up to now, it is still uncertain when the works will start. As a consequence, the bus lines on the southern axis cannot run at the designed speed.

3.2. Integrated public transport network

Based on the public transport axis, a new integrated public transport network was designed. The main objective was to provide fast and frequent bus services, with excellent interchange opportunities. The main bus lines should operate at a speed of at least 25 kilometers per hour, compared to 18 kph in the existing network. See figure 3. Service-lines with small buses and on-demand services in the evenings and weekends were planned for those areas which could not be connected to the fast and frequent bus services.

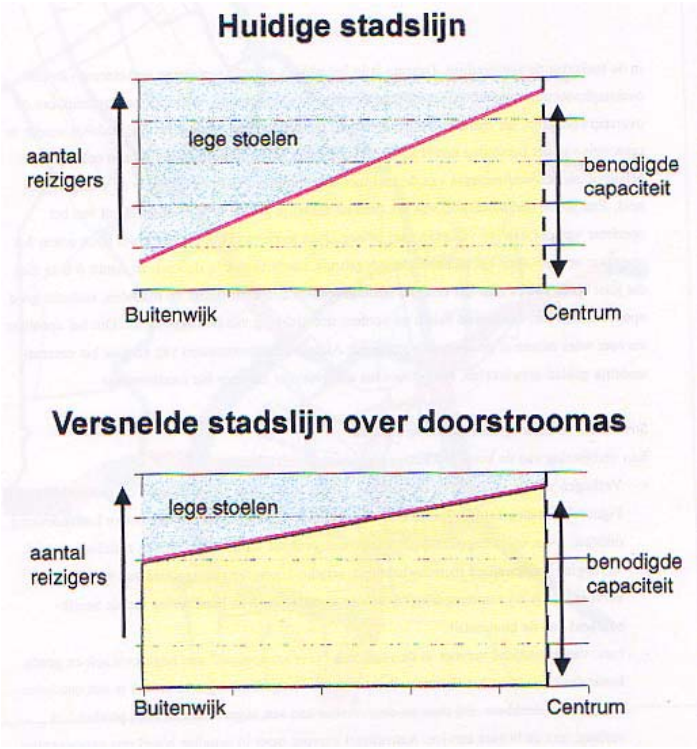


Figure 3: Analysis on the effect of increasing operational speed (1995).

As a result, travel speed for passengers increased on the main bus lines. Buses are often faster than private cars, thus making traveling by bus more attractive. More important however, was another effect. Due to an increase of congestion, travel speed was decreasing in the nineties. The bus network was based on a half hour basis. Buses returned often too late at the train station, causing an multiplier-effect in delays. In stead of increasing the number of buses in operation, the increase in travel speed was used to cope with this problem. The result was an increase in services with the same number of buses and drivers and, of course, operational costs.

The integrated network has been implemented phase by phase since 1997. Unfortunately it has not been possible to put it into full operation until now. There are two reasons for this.

- The level railway crossing in the southern part of the axis, which should be substituted by the dive-under of the railway mentioned in paragraph 3.1, is causing to much delays.
- The on-demand services in evenings and on Sundays for certain areas of the city did not come into service because of government-regulations on fares and financing.

As a result, although the quality of services has been increased, the result is not yet on the high level that was the aim of the planned network. Bus service in the southern part of the city is still too slow and cannot run through an import new residential and office area. People living in this area do not use the bus and do not contribute to the operational revenues. On the other hand, operational costs are larger than planned, because extra buses are needed to run the scheduled service. And in the evenings and Sundays normal services are still running in the areas where an on demand system was planned.

3.3. Additional service network

Almelo has been experimenting with additional services for elderly and handicapped people since 1993. In that year the Octobus (Octo = 8, referring to the maximum number of passengers per verhicle) came into service. It was a public transport service without bus stops. Passengers could ask for the service by telephone, minimum one hour in advance. The fare of the Octobus was f 3,50 ($ 1,60), about double the fare of a normal bus ride. The Octobus was a huge success, but it was illegal. It was a taxi-service because it had no bus stops and it was a public transport service because there could be passengers with different origins and destinations in the vehicle at one time. In other words, it did not fit into Dutch legislation at the time and thus it was illegal. The mayor of Almelo had to intervene to prevent the Octobus to be stopped by the transport agency of the Regional Government.

This event led to a discussion in the national parliament in The Hague. The parliament concluded that this kind of services were very promising and urged the government to change legislation. This led to legislation that legalized on demand services like the Octobus, but also stimulated the development of those services. The Octobus was continued until the service was out for contract in 1997, although passengers were still very happy with the service and the costs were very reasonable. New contracting was obligatory in the new legislation, so there was no choice. As a result, another company continued the services offering a very low price. Unfortunately, this company could not meet the quality-demands in the contract. Legal action was started, but a few months after taking over the services, the company fell apart and ceased transportation activities. On short notice, another company filled the gap and the on demand services were continued. This unfortunate event learned government an important lesson. During contracting, it is not enough to specify the quality of services that are demanded. It is also very important to be sure that the company which makes the best offer, is capable of meeting the demand.

After 1997, the City tried to develop an integrated on demand transportation system. Being not only a public transport facility for the elderly and handicapped people, but also providing services for pupils of primary schools and for sick people that do not need an ambulance. This effort failed, because of two reasons:

- Legislation (again) and finance of the three transportation services was different and thus complicated to fit into one system.
- The roles of central, regional and local government were changing at the time, but the outcome of the process was unknown. The parties involved were reluctant to overcome the problems on legislation and finance, because they could not anticipate on their future role.

Since 1998 the existing on demand service stayed successful. However, the outcome of the process of changing government-roles was that the regional government gained the most important role. (This also applies to the normal public transport services). The cities in the metropolitan area and the regional government developed a regional on demand system. The main goal was to enable the elderly and handicapped to travel in the whole region and to lower costs. The new contract which came out as a result was implemented on April 1st. Although soon problems on the quality of services

rose again, like in the city's contract in 1997, this time the company made an effort to improve the quality and succeeded.

3.4. Pricing

The bill of fares in The Netherlands is centralized since the beginning of the eighties. The Dutch national ticket ('Nationale strippenkaart') enables travelers to use on ticket on all bus, tram and metro-services in the country. The railway system is the only exception to this rule. All revenues of tickets go to one central agency. This agency pays every company and regional government its share of the total revenues. These shares are calculated on the basis of a very complicated system called WROOV. Every two years, the share of every city and region in the national 'production' of public transport trips is investigated. Many complicated and time consuming calculations are made to give everyone its fair share of the total revenues. As a result it is not possible to distinguish the results of specific efforts in a specific region on the revenues gained in that specific reason. Moreover, it is not possible to have specific fares for specific situations.

In conjunction with the cities in the metropolitan area and the public transport company, the City of Almelo introduced an experiment on reduced fares. These fares were only valid outside rush hours and could only be obtained on the bus. Although these reduced fares were a higher than the price of a national ticket in forward sale, they were much cheaper than the price of a national ticket on the bus. This experiment was supported by the national government and was a huge success. The number of passengers as well as the total revenues increased. Unfortunately, one problem was not solved. The revenues of the experimental tickets did not fit into the national WROOV-systems calculations. This was the main reason why the central government, in denial of the success of the experiment, ceased its support, making the experiment illegal and forcing it to stop in 1998.

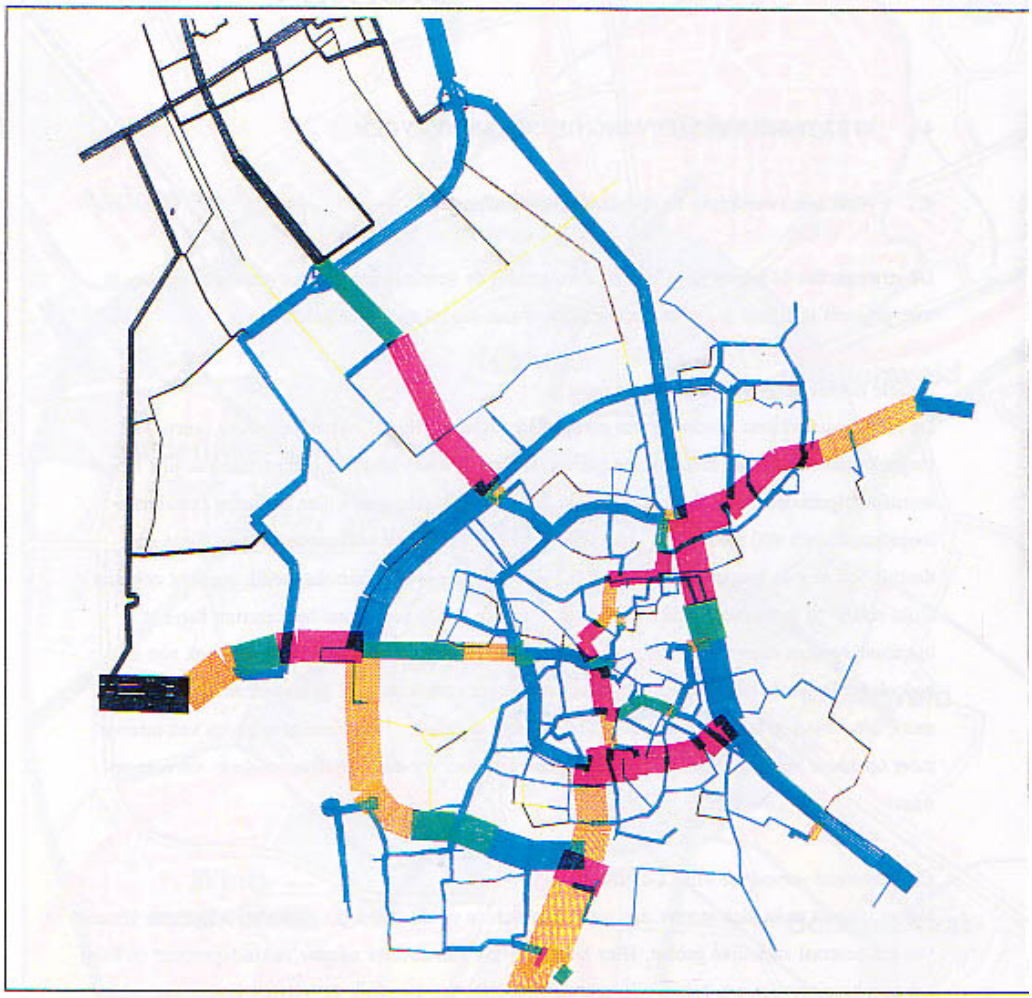
Since, several efforts have been made to start new experiments. For instance, the City of Apeldoorn ran a similar experiment, being also very successful. By now, central governments policy has been changed, enabling more local differentiation in fares and accepting that they are not compatible with the national WROOV-system. On this basis, a new regional experiment was launched in 2002. Although basically similar to the earlier experiment, this time it is specially designed to stimulate the use of public transport to access the city centers within the metropolitan area. Results from this experiment are not available yet. It is expected that the results will be similar to those of the first experiment.

3.5. Traffic flow management and dedicated infrastructure for buses

Growing congestion in the city caused a decrease of travel speed of buses in the early nineties. This tendency had to be turned around. As explained before, increasing travel speed was a key factor to provide better service at lower costs. So in 1995, the City developed a comprehensive plan to upgrade the infrastructure for buses, including traffic flow management and dedicated infrastructure. The infrastructure of the central public transport axis was not based on dedicated bus lanes on the whole route, like for instance in Curitiba, but on the combination of short bus lanes and priority at traffic lights. There were three main reasons to choose this combination:

- Construction of bus lanes is very expensive. The combination of short lanes and traffic flow management is more cost-effective.
- Construction of bus lanes in the city-centre is very complicated because there space is limited.
- Widening streets by knocking down buildings and felling trees was not considered. The quality of urban space would suffer too much and the opposition against the project would cause a lot of legal procedures and thus delays.

As a result, bus lanes were only designed along a few road sections. On the other road sections, where buses and other traffic use the same lanes, the number of private cars should not exceed the existing capacity. Thus, congestion is avoided and buses can flow with enough speed. Prognosis on traffic volume were made and showed that by the year 2003 buses would stuck in congestion on several road sections in the inner city. See figure 4.



Figuur 6: *Wegvakbelasting 2005 bij laag autoscenario: SVV-II / RVVP-beleid slaagt volledig.*
(inclusief doorstroomassen en doortrekking RW 35 naar Wierden)
Bron: Verkeerskundig onderzoek Nijreessingel, BGC 02-02-'95

Figure 4: Prognose of traffic volume and congestion 2005 (1995).

A special solution was developed to avoid this congestion. The traffic light controllers at the end of the bus lane sections were designed to dose the number of private cars into the following road sections in such a way, that on those following road sections the number of cars would not exceed the capacity. In all other traffic light controllers along the bus routes in the city, priority systems would be installed. These systems would be connected to a central traffic light control system, enabling coordination of

traffic management in the city and providing remote access to the controllers to ease maintenance and operation.

The priority system that was available in the Netherlands in 1995 was VETAG (VEhicle TAGging). All buses were provided with the transponders of this one-way communication system. However, VETAG was developed by the end of the seventies and in 1995, it was coming to the end of its product life-cycle. It is expensive in installation and maintenance and only a few data (only 21) bits are send from the bus to the road side equipment. This means that VETAG is not really suited to serve intelligent bus flow systems, nor to provide the data for real-time information for the passengers. The more sophisticated two-way VECOM system (VEhicle COMmunication), which was based on VETAG and developed in the eighties, was no alternative, because of the huge costs. To provide the priority needed, VETAG was indeed installed in several traffic light controllers. At the same time, research started to find an alternative.

This alternative was found in a GPS-based system and in 1996 the city initiated the development of the SABIMOS-concept (Satellite Based Information and Management Operating System). SABIMOS is an information system for both traffic management purposes and real-time data for information services. These services include information to passengers, to transportation companies and to contracting authorities and synchronization of departure of vehicles, so that even when delays occur, passengers have a fair chance to make it to their connecting service. Buses monitor their location, even when they are off route, by GPS. On specified locations, the on board computer is triggered to send a message to, for instance, the traffic light controller at the next intersection. In this message, which is transmitted by short range radio, a lot of information is provided, including actual GPS-position, line number and trip number, vehicle length and delay in minutes. Technically, SABIMOS was a new combination of existing systems. For instance, the GPS systems on the buses were used in Atlanta during the 1996 Olympic Games to provide information to dispatchers and travelers. In 1999 a pilot was held in Almelo, including seven buses and three traffic light intersections. The pilot was conducted in cooperation with the Dutch Ministry of Transport, the University of Twente, a bus company and several suppliers of equipment. The result was, that SABIMOS was proven technically successful. In the meanwhile, a national standard for short range radio communication has been developed, to which, amongst others, the City of Almelo has contributed. This year, SABIMOS is implemented in the whole Twente-region, including Almelo as a comprehensive system of information and traffic management. See figure 5.

Figure 5: Sabimos-equipped bus (2003)

Since 1995, most road works are completed and the traffic management systems have been installed. This year, 2003, the first traffic dosing systems will come into serve. The major bottle-neck in the infrastructure is the railway crossing, mentioned before.

3.6 Real-time information for travelers

Providing real-time information to travellers was another key-issue of the integrated public transport scheme of Almelo. In the western society, information is of increasing importance. In Dutch public transport, traditionally only de railway system provides real-time information. In the eighties and nineties, real time information for motorists emerge. Both in car information, starting with traffic information on the radio, and road side information, like parking guidance systems and variable message signs.

Aiming at providing a public transport system that is competitive with the private car, the City of Almelo considered the provision of information to travellers to be a key factor to success. So, within the city's scheme, information was very important. Information however, can only be provided to the travellers if real-time data is available and can be processed. That is why the city's effort at first was on the development of SABIMOS (see paragraph 3.5). Since the SABIMOS pilot has been successfully finished in 1999, the efforts were directed to distribution of information. Information must be available anywhere, for instance at home, at the bus stop in the vehicle and at the interchange node. So an integrated information network is needed. Based on the SABIMOS-concept, SABINET (Sabimos-Internet) was developed in 2001. SABINET, technically developed by a Belgium company, gathers data from (amongst others) SABIMOS-buses, upgrades these data to passenger-information and makes this information available for a wide range of media, including internet and mobile phone. Again, the technical and organizational development of these information-facilities was the work of several governmental and private parties.

All new developments were included in the design of the new bus station at the transportation-node Almelo-Centraal, which was completed in spring 2003. Starting point in the design was the philosophy the passenger's interest. So easy access to busses (see paragraph 3.7.), ample shelter, amenity and accurate real-time information were put to front.

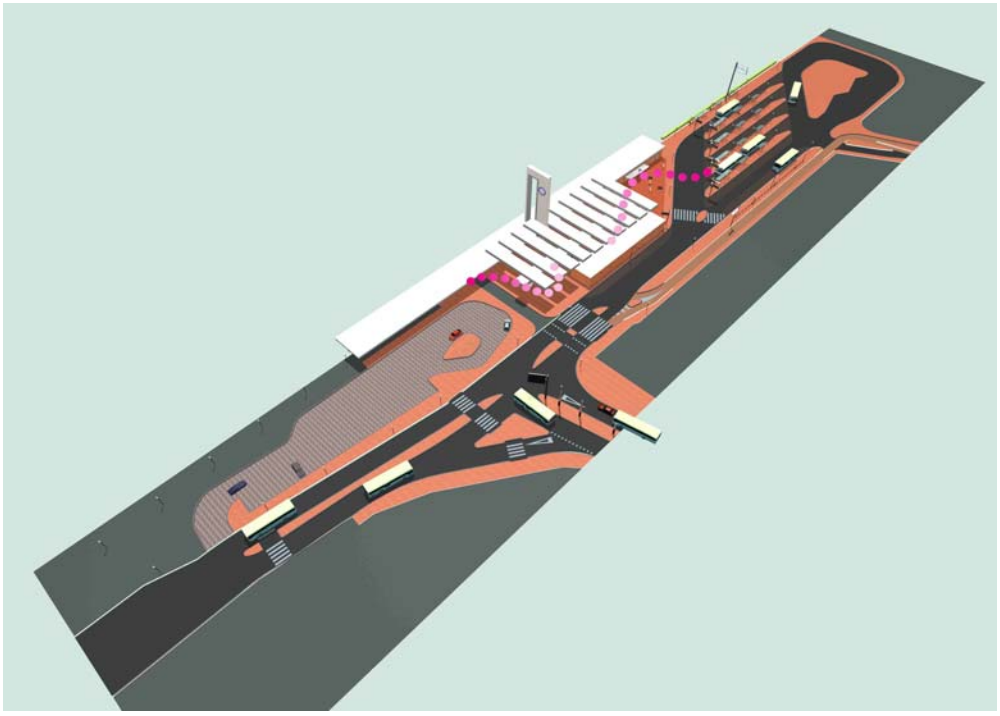


Figure 6: Bird's eye view of Almelo-Centraal (2003). Upper right corner: the new bus station.

Accurate information is provided by the SABINET-server and distributed by several types of displays. An analysis was made on how passengers behave when passing through the transportation node of which the bus station is a part and what information they need during the time they are at the station. This was done for all passengers, arriving, departing or changing. One major outcome was that passengers seek information of the connecting service as soon as the leave the vehicle they arrived with. For this reason, all bus platforms are provided with flat-screens, showing the buses and trains that are due to depart within (at least) half an hour. See figure 7.

Figure 7: Flat screens, showing bus-information and train-information (2003)

Showing information about buses as well as trains is an important innovation. In the city's view, the bus station is part of the transportation node called Almelo-Centraal, which includes the adjacent train station, car parks, taxis, bicycle shelters etcetera. This transportation node must be considered as an intermodal access and interchange point. Such a point may have several 'terminals', like the train platform and the bus station, but from the point of view of the passenger, the user, it must be considered as being one. This point of view, which may sound quite sensible, is revolutionary in The Netherlands. It caused many and long discussions among all parties involved. Due to the changing circumstances in public transport mentioned earlier, the parties had a lot of difficulties to make up their mind and to decide whether to cooperate in this concept or not. For instance, the Dutch Railway Company, needed several years to finally agree on the concept and cooperate in an integrated train/bus information system. Now, they consider integrate the 'Almelo information concept' in their project for a new national information concept for railways.

At the bus station, departure-displays using LED-technique (Light Emitting Diode) and interchange displays consisting of flat-screens provide travelers with accurate real-time information. In addition, interactive touch-screen displays are available to search for more detailed information on schedules, services etcetera. These touch-screen displays also provide information like a city map, events taking place in the city etcetera. In the future, they will also provide a multimodal advise for those who do not know how to reach their final destination. One of the flat-screen displays is adapted to children and people in a wheelchair. The design of the interactive displays has taken into account future use as points of information along the major roads in the city. Thus, motorist can find their way in the city, can find and reserve parking space, get information on shuttle bus services, events that take place etcetera.

Finally, in 2004/2005, the information facilities in Almelo will be further extended. A Dutch expert institute called CROW has done research on a comprehensive mobility information centre (MIC). MIC is intended to gather real-time data on all kinds of modes of passenger transportation in The Netherlands, and, after upgrading and combining this information, make it available in very different ways. The CROW-institute has chosen the metropolitan area of Twente to run an extensive pilot. This

pilot will be preceded by a small pilot in Almelo, based on the SABIMOS/SABINET systems for public transport. In this Almelo-pilot, real-time information about the flow of car traffic and availability of parking space will also be available, but these systems cannot be described within the scope of this paper.

3.7. Bus stops and easy access

An important issue in public transport is access of elderly and handicapped people. In Almelo, the policy is directed towards full access for those people in the regular public transport services. This is beneficial for the persons involved, taking part in 'normal' life as much as possible. And it reduces expenditures on the on-demand services.

For this reason, the gap between the bus platform and the vehicle-floor must be a small as possible, both horizontal and vertical. The platforms of all new build bus stops build since 1995 are 17 centimeters high. In addition, the floors of the new buses (coming into service in 2002) are 32 centimeters high. The buses can kneel to the right side, leaving a vertical gap with the bus platforms of only 6 centimeters. The width of the horizontal gap depends on the accuracy of the driver's approach to the platform. Several measurements were taken to improve this accuracy:

- Bus platforms are preferably located along the bus lane or road.
- When the bus must stop in a bay, the bay must be designed in such a way that the driver has enough space to maneuver the bus along-side the platform.
- Since 2002 a new curbstone, developed in Germany, is used, which allows the driver to push the wheel of the bus against the edge of the platform. As a result, the curbstone guides the wheel of the bus, making the gap as small as possible, without damaging the tire.

In addition, to overcome the remaining horizontal and vertical gap, the buses are provided with special electrical folding steps, that can be operated by the driver.

Figure 8. Design bus stop (1998)

The bus stops are equipped with shelters, light poles a clock and seats. All objects on the platform, including the pavement, were specially designed to ensure that the high functional demands were packed in a high quality visual design. Furthermore, the dimensions of the bus stop platforms was of importance. On the main public transport axis, a length of 26 meters was set as minimum to allow two standard buses (12 meter) to stop at one time. The platform itself has a minimum width of 3 meters to allow many people to wait for the bus at the same time. Obstacles are integrated at the

backside of the platform where, in most cases, a special designed fence limits the bus platform. This fence also prevents passengers to cross bicycle-paths, which in a lot of cases are situated behind the bus platforms. The fence also provides an excellent leaning support for waiting passengers who like to stand rather than sit. Finally, a lot of bus stop shelters are prepared to install displays which can show real-time information, including the cables for power and data transmission.

4. Working together

In designing the comprehensive scheme as well as designing and detailing all the elements involved, the cooperation of other parties is inevitable. In the case of Almelo these parties were (amongst others) included:

- Several ministries and agencies of the central government, two regional governments, the local governments in the metropolitan area.
- Transportation companies like the Dutch Railway Company and several bus and taxi companies.
- Experts-institutes and consultants.
- Industry.
- Service providers like telecom companies, advertising agencies and a national public transport information agency.
- Last but not least, the inhabitants of the city, the entrepreneurs, the travelers and their committees and associations.

These parties all have their own role and their own interests. Some are needed for permission, others for funding, cooperation, design, technical development and production and so on. It turned out to be very important to involve these parties early in the processes. A good concept or design was very hard to put into reality without excellent communication, convincing the other parties of the quality of the concept or the design. Especially in cultural setting of The Netherlands, were every party has its own role and responsibility and where plans must be developed on the basis of consensus, this is very important.

5. Conclusion

Eight years ago, the city of Almelo decided to take leading role in the organizational, conceptional and technical development of public transport facilities. The impacts of the developments the city has initiated or conducted rise far beyond the local responsibilities, interests and scale. As the case of Almelo shows, this may be sometimes necessary to achieve the goals that were set on the local level. It must be done in cooperation with all other parties involved and with full recognition of the role and responsibilities of these parties. Make the other parties partners in your developments rather than your opponents. Of course, a good, comprehensive scheme is very important to convince the other parties, but excellent communication is, in my opinion, even more important.

References

Berkum, E.C. van, Witbreuk, M.J.G., Sinnema, H.H., Hulleman, R.P., 1999, Sabimos zet het licht op groen – groen licht voor Sabimos (Enschede/The Netherlands, Universiteit Twente; Almelo/The Netherlands, Gemeente Almelo).

Gemeente Almelo, 1995, Doorstroomassen in de Bandstad – Uitwerking Project Almelo periode 1995-1997 (Deventer/The Netherlands, Goudappel Coffeng; Almelo/The Netherlands, Gemeente Almelo).

Govers, B, Hulleman, R.P., 1995, Doorstroomassen in Almelo. *Bijdrage openbaar vervoer colloquim,* 1995.

Hulleman, R.P., 2000, Public Transport by Satellite. *Preprints of the IFAC Conference Technology Transfer in Developing Countries – Automation in Infrastructure Creation*, Pretoria/South Africa, SACAC, July 2000, pp. 119-124.

Hulleman, R.P., 2003, Almelo prioriteert informatie. *Verkeerskunde*, nr 6, 29 juli 2003.

Platform voor Duurzaam Stadsverkeer, 1996, Structuren naar de toekomst – Kansen voor openbaar vervoer in de stad (Ede/The Netherlands, CROW).

Regio Twente, 1996, Doorstroomassen in de Bandstad – PIOV-toetsingsvariabelen (Deventer/The Netherlands, Goudappel Coffeng).

Stuurgroep Vinex Twente, 1994, Doorstroomassen in de Bandstad – Uitwerking hoogwaardig openbaar vervoer 1995-2005 (Deventer/The Netherlands, Goudappel Coffeng).