



3 From concept to projects: Stedenbaan, the Netherlands

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ABSTRACT As cities tend to spread and coalesce into lower density urban regions, public transport systems are evolving from mono-centric hierarchical structures into multi-nodal horizontal networks. This evolution of metropolitan regions with a multitude of relations and dependencies require not only new forms of transport but also new methods of spatial planning. The biggest danger to an emerging metropolitan area is that of fragmented development and consequently missed opportunities. The project *Stedenbaan* strives to establish a planning context within which cities are not competitors but partners that work on diverse and complementary developments.

KEYWORDS Regional design, transit oriented development, Randstad, the Netherlands

3.1 The South Wing of the Randstad

Zuidvleugel, literally South Wing, is the name given to the densely populated 60-by-40-kilometre area in the Dutch province of South Holland. The South Wing is part of the Randstad conurbation that has historically evolved around the Rijn delta and forms today, with Schiphol (one of the largest airports in Europe) and the harbour of Rotterdam an important link between European and global networks. The Randstad is embedded in a set of other European regions: the regions around Greater London, around Antwerp and Brussels, Lille and the Ruhr.

The Randstad is the largest and economically most important urban network in the Netherlands. However, over the last few years the Randstad's international competitive position has deteriorated in comparison with other metropolitan regions of Europe. This decline is also reflected in the economic development of the southern part of the Randstad, the South Wing. Since 2003, the South Wing Administrative Platform, a partnership of the South Holland provincial council, local and regional authorities in the area, has been carrying out extensive research into the region's problems and future prospects. This research has provided the basis for a number of coordinated operations in which the partners work together to strengthen the South Wing's internal cohesion and economic competitiveness. The South Wing Administrative Platform and the Ministry of Housing, Spatial Planning and the Environment have developed a joint strategy for the area, which gives special attention to the improvement of infrastructural networks; both road and public transport (Bestuurlijk Platform Zuidvleugel, 2006, p.7). The urgency to improve accessibility in an area that functions as an international logistics and distribution centre has been underlined in governmental advice to the region and reports of the Organisation for Economic Co-operation and Development (OECD, 2007, p.102-11).

3.2 Regional transport in the South Wing

The South Wing area has three and half million inhabitants and one and a half million employed people, making it one of Europe's most densely populated regions. This high population density is not concentrated in one centre, but is spread out over a large area. Few places within the urbanized area of the South Wing have a higher

density than 120 inhabitants per hectare, but on the other hand, few have a lower density than 30 inhabitants per hectare. Urbanization in the South Wing has been polycentric; there are multiple centres such as The Hague and Rotterdam, and many smaller subsidiary centres. In this respect the region differs from other metropolises such as London or Paris, which have evolved around a dominant centre with a concentration of inhabitants and jobs.

Mobility within polycentric regions depends on well coordinated, fine mesh networks. The existing infrastructural network in the South Wing largely consists of parallel motorways and railway lines. This primary network is used simultaneously by international, national, regional and local transport, and is rapidly becoming clogged. It has been pointed out that within this situation a switchover to a more extensive and integrated network in which links are differentiated according to travelled distance and types of use is needed (Ministeries van V&W and VROM, 2004, p.58).

Research showed that the predominant amount of trips in the South Wing take place within a radius of between ten and forty kilometres. This connotation led to special attention to measures accommodating these kinds of regional trips within an overall transport strategy. The strategy aspires to give regional public and private transport a position of its own right in between local, national and international connections. In 2006 the opening of *Randstadrail*, a light rail connection between Rotterdam and The Hague, has been an important first step in this direction. Preparations are under way for a next generation of projects that will help create a public transport network at regional level. *Stedenbaan* is one of them.

3.3 **Stedenbaan**

The *Stedenbaan* (City Line) will not implement new rail connections but will improve service on the already existing historically oldest rail lines within the South Wing. The *Stedenbaan* uses free capacity on three trajectories between Schiphol-Dordrecht, The Hague-Gouda and Rotterdam-Gouda. The capacity comes free since international trains will from 2008 run on a newly established high speed train corridor, the HSL line, stretching from the Belgian border to Amsterdam and thus connecting the Netherlands to Antwerp, Brussels and Paris. The extra capacity on the old rail lines will be used to improve regional transport in two ways: a more frequent intercity service will serve the large and medium stations and a more frequent 'Sprinter' service will increase service

from four times to six times per hour and serve, beside the large stations, stations in the smaller cities, the suburban city extensions and the rural villages along the line. Together with the introduction of more modern train equipment, these improvements are supposed to lead to a metro-type service among the 34 existing and 13 potentially new stations along the *Stedenbaan* lines (Figure 3.1).



FIG. 3.1 City Line stations

The improved train service is also supposed to provide a strong stimulus for spatial development in the related station areas. The parties who have initiated the *Stedenbaan* project, regional and provincial governments and the cities of The Hague and Rotterdam, have chosen to include this effect into a development strategy for the project. This strategy of integrated spatial and network development is referred to as the dual purpose strategy. It has two objectives:

- The creation of a high frequency public transport system on the existing national rail network
- An intensification of land uses around the stations on the rail network

The dual purpose strategy rests on the assumption that transportation and spatial development influence each other. To identify the various links between urban development and the development of infrastructure networks and to expose their development potentials, will not only improve overall accessibility in the South Wing, it will also be a crucial element in formulating a growth strategy for the region. In this way the *Stedenbaan* project is supposed to have an important impact on the economic development and physical appearance of the metropolitan region, as well as its environmental, social and cultural potential (Bestuurlijk Platform Zuidvleugel, 2006).

3.4 Planning context

The South Wing has a complex administrative structure. Beside state, provincial and local governmental layers, a range of intergovernmental bodies with a wide variety of responsibilities exist. In the Dutch planning culture many planning and development control powers are devolved to regional and particularly local authorities. The only spatial plans that are legally binding on private parties, for example, are local land use plans. Apart from a few major infrastructure and urban projects of national importance, most urban and infrastructure developments that exceed the boundaries of a single local authority have to be initiated, developed, coordinated and managed by provincial authorities or coalitions of local authorities. These constellations of administrative and political bodies are either statutory or informal arrangements and often in partnership with private developers and other stakeholders such as transport companies. Initiatives by these groups often have to be developed through a complex process of agenda-setting and negotiation in order to find consensus among the actors. The South Wing Administrative Platform who has been establishing the *Stedenbaan* project is an example of such a hybrid coalition. It consists of political representative's of the five involved city regions, the province of South Holland and of the major cities Rotterdam and The Hague. Other crucial parties in the *Stedenbaan* project are the national rail company NS, the private development sector and the national government.

In 2005 the Province of South Holland established the *Atelier Zuidvleugel* (South Wing Studio) to focus on the spatial effects of the increasingly complex and widespread social and economic interactions within the South Wing and to facilitate discussion between the various stakeholders in the area. Apart from the parties involved in the South Wing Administrative Platform the studio is also supported by the Ministry of Housing, Spatial Planning and the Environment (VROM) and a set of research programmes.

The South Wing Studio has been asked to develop the double purpose strategy based on insight into the relations between spatial and infrastructural development into a project involving 20 cities, five city regions, one provincial council, bodies of the national government and private stakeholders.

3.5 Spatial survey

The mandate of the South Wing Administrative Platform to the Studio South Wing has been formulated in a request for a spatial survey of the station areas that are related to the *Stedenbaan*. The spatial survey adds to and builds up upon a series of other studies examining several aspects of the *Stedenbaan* project. The national railway company, who will run the *Stedenbaan* service, carried out a feasibility study. A study on housing offers and demands researched how the *Stedenbaan* project can contribute to the transformation of the station areas that are now, compared to Dutch averages, less multifunctional and more strained by social problems (Mattemaker and Brouwer, 2005). Another study researched the potential differentiation of station areas based on existing facilities and travel patterns (Boelens, 2005).

The spatial survey that has been accomplished by the Studio South Wing between 2005 and 2006 provides an overview of present and future spatial conditions in the station areas along the *Stedenbaan* line and reveals the opportunities for their development. The study also shows the benefits of coordinating development in the 47 existing and potentially new station areas (Atelier Zuidvleugel, 2006a).

The survey was carried out in three stages, examining (a) what developments are feasible in terms of quantity, (b) what developments are most promising, and (c) what local developments are desirable in terms of their contribution to the development objectives for the South Wing region as a whole.

3.6 Feasible developments

As a first step, an inventory was made of the areas within the spheres of influence of the *Stedenbaan* stations that will undergo change between 2010 and 2020. This inventory was based on plans drawn up by local and regional authorities, and hence provides a widely accepted picture of the future development space around the stations (Figure 3.2).

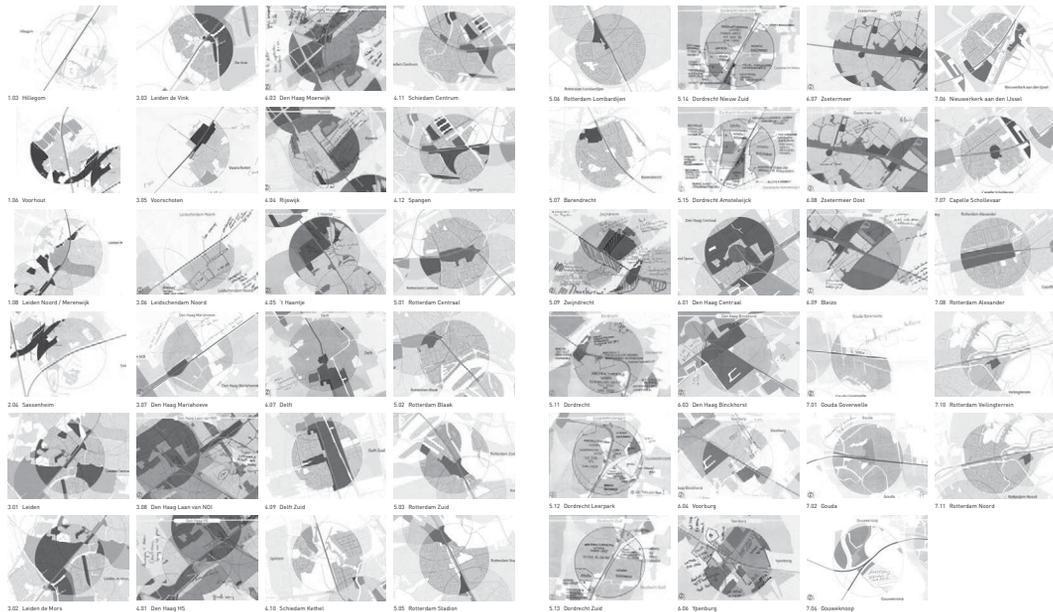


FIG. 3.2 Plans drawn up by local and regional authorities

In order to account for the high amount of cyclists in the Netherlands, the catchment area of *Stedenbaan* stations has been, fixed to a relative to international standards large radius of 1,200 m. The zones within this radius of the *Stedenbaan* stations have a combined area of 18,000 hectares, or about a quarter of the urbanised area of the South Wing. About 20 per cent of this area will be subject to development between 2010 and 2020 (Figure 3.3). The local authorities have designated many of the station areas as housing or mixed use zones. Employment zones are also projected, mainly in the form of business sites rather than single use office parks.

The results of this inventory indicated that the initial targets for new uses set by the city regions can be met in station areas. If the land is developed at the average densities already found along the *Stedenbaan* line, the area around the stations will be able to accommodate more than 40,000 dwellings and 1,000,000 square metres of office space. Besides identifying a feasible development programme, this first step provided an overview of ongoing and projected spatial transformations along the line, a crucial basis for the exchange of ideas in a development project consisting of several dispersed but interconnected locations.



FIG. 3.3 Spatial transformation areas along City Line

3.7 Promising developments

The dual purpose strategy is based on developing a traffic and transport concept in combination with spatial development. However, this integrated urban and network development is not just a simple equation for delivering a given number of trips and more intensive land use. Mobility networks influence a variety of spatial characteristics, such as the size of cities and towns, the intensity of functions, the degree of mixed use and the decentralization of activities (see Banister, 2005, p.7-128). In turn, spatial characteristics influence the development and use of networks.

Most of the station areas along *Stedenbaan* are, although not intensively used at present, already built up. The main uses consist of housing, employment and mixed use functions. The second step of the survey consisted of an inventory of the existing relations between spatial conditions and networks along the *Stedenbaan* line. These relations were determined using a set of indicators which describe the positions of the stations within the network and characteristics of the surrounding areas that are potentially influenced by the network: (a) the degree of access by public transport and (b) by car, (c) local densities of inhabitants and jobs, and (d) the degree of mixed use.

Drawing on existing knowledge about how spatial and network development influence each other, nine potential developments were outlined for nine typical situations found along the *Stedenbaan* (Figure 3.4). These nine potential developments can be seen as '*Stedenbaan typologies*'. They describe development opportunities that are promising since they are based on the expected impacts of the transport network on specific areas and vice versa. The nine '*Stedenbaan typologies*' are described briefly below.

- **Rural Areas:** spaces in the middle of the landscape for housing development in the countryside and recreational use.
- **Small Towns:** new housing sites close to small towns that can expand into autonomous, compact, lively, multifaceted communities set in the countryside.
- **Outskirts of Cities:** restructuring areas on the quiet, spacious and green edges of the cities; these qualities can be consolidated, enhanced and used.
- **Cities of the Future:** easily accessible and dense housing areas; can gradually expand into mixed use developments with their own identity.
- **Business Sites:** extensively used areas along the motorway to be turned into intensively used employment zones.

- **Regional Crossroads:** areas linked to one of the major motorway intersections in the South Wing; highly suitable for developing services with a supra-regional function.
- **Randstad Hubs:** not intensively used areas, but highly accessible by road and local public transport; excellent places for experimental new employment and mixed use areas.
- **Creative Cities:** urban centres accessible by every mode of transport, well suited to new urban-type dwellings and creative workplaces.
- **City Centres:** key sites, well served by every mode of public transport but less accessible by car; will have to be better designed for users of public transport.

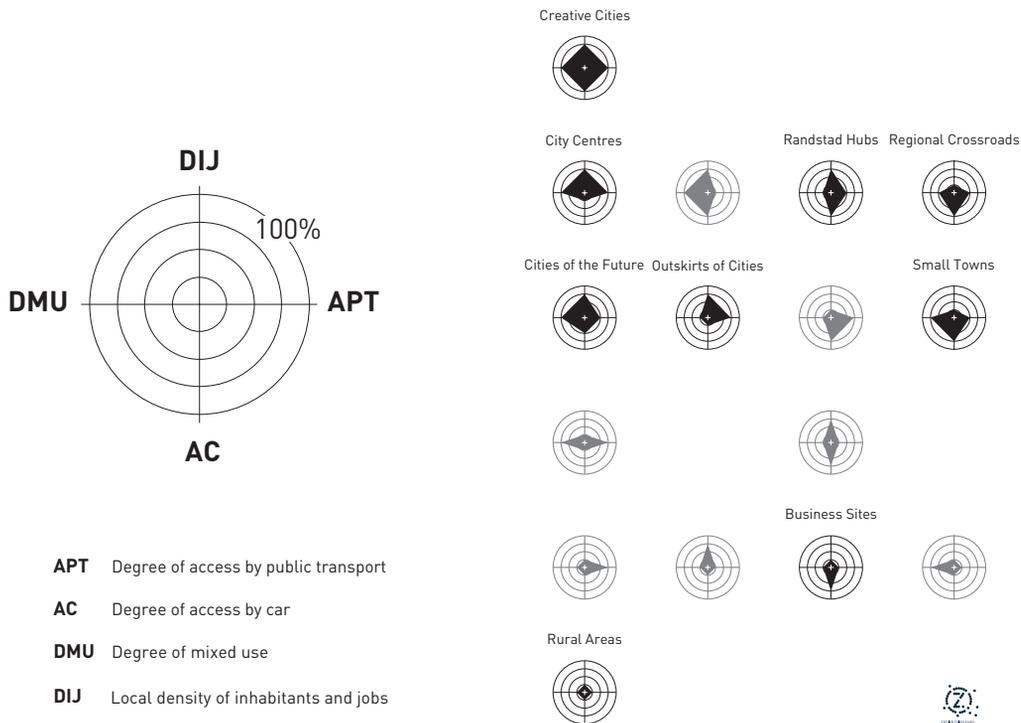


FIG. 3.4 Nine potential developments

The existing station areas often correspond closely to one particular typology. For example, the area around Rotterdam Central Station closely matches the City Centre typology; while a set of station areas that lie in open land between the large cities are more like the Rural Area typology. However, most station areas have a combination of indicators that corresponds to two or more different typologies (Figure 3.5).

by the growth of high speed travel. The low density this creates in turn reduces the support base for services and so generates even more travel. Higher densities will make public transport viable and good multimodal access is an important characteristic and prerequisite for attractive and sustainable mixed use areas.

The coalition of public parties involved in *Stedenbaan* – over 20 local authorities, five city regions, one provincial council and central government – have set a broad range of goals for the future development of the area. Furthermore, commercial and semi public organisations are also interested in a regional coordination of local development owing to ambitions such as the broadening of markets and the therefore required differentiation of housing and working environments within a metropolitan area. Unsurprisingly, there are conflicts between some of the objectives of the various stakeholders in the region and between the different administrative levels (local, regional, provincial and national).

Following the inventory of development sites in the *Stedenbaan* station areas and the review of the potentialities, the last stage of the spatial survey explored possible aspirations for the *Stedenbaan* project. Three scenarios were used to assess how these potentialities of the local areas can be exploited to achieve the goals that are set at the level of the South Wing. The *Stedenbaan* scenarios show how local choices can support objectives at a higher scale, and therefore also show how the ambitions of the *Stedenbaan* project can steer decision making at the local level.

The nine potential developments that were described in stage two of the survey (the typologies) contribute to the higher level goals set out in the scenarios in varying degrees. At the same time the existing station areas often have conditions that correspond to more than one particular typology. In each scenario the typologies are assigned to the station areas based on their best contribution to the goal of the scenario. The scenarios are outlined below.

The Densification scenario

This scenario is in line with the National Spatial Strategy, which states that from a traffic/transport perspective it is important to make maximum use of the potential for densification within the sphere of influence of transport hubs in order to create attractive cities and towns.

The South Wing Network scenario

In this scenario the metropolis is not defined as a single urban planning concept, but as a coherent programmatic whole. The scenario offers maximum diversity of services and locations within given temporal and spatial constraints. The quality of the location is based on accessibility and on the sites designated for housing, recreation and employment. The main goal within this scenario is the formation of networks.

The Sustainability scenario

The aim of this scenario is sustainable development. Great value is placed on the potentialities for densification in existing urban areas, for mixed use, and hence more sustainable, development, and which preserve the characteristic cultural landscape of the South Wing. These potentialities support densification only where it will generate passengers for public transport and not in places where it is also likely to generate a good deal of vehicular traffic.

The modelled scenarios have been explored in a multi criteria analysis. The criteria that were established are the realization of the ambition for new houses set by the city regions, the satisfaction of projected qualitative and quantitative market demands for houses and offices, the increase of diversity of housing and working environments, the increase of public transport trips, an estimated increase of car use based on the supply of regional facilities and the reliance on car accessibility per typology, the use of already built up city area and consequently the preservation of open land.

The analysis shows that in all scenarios the quantitative goals for new housing and employment sites are met. In the Densification scenario the projected amounts for housing are even doubled, however the amounts of new housing in dense urban setting goes far beyond the projected market demand for these types of housing environments. The Densification scenario also demonstrates that, if densification is the leading goal, a one sided supply of working environments develops. The South Wing Network scenario delivers a much lower volume of development in terms of square metres of floor space, but illustrates that a broad variety of both housing and employment environments can be achieved along the *Stedenbaan* line. It also demonstrates how an emerging regional public transport network can contribute to the diversification of uses. However, the high proportion of development with regional functions will generate additional car traffic. The positive effects of the Sustainability scenario can be seen in the outcomes for the environment and the preservation of open landscape. As expected, this scenario generates the least amount of car traffic.

The results of the last stage of the spatial survey create, besides inspiration for a discussion on ambitions that the project *Stedenbaan* can aspire to, the understanding of the benefits of a coordinated development of the 47 local station areas along the *Stedenbaan*. The results also make it possible to pinpoint the strategically crucial station developments. Some of the station areas show, because of their preconditions, an only small variety of potentialities. Other station areas have a broad range of choices among development opportunities and are, since these developments serve different goals, more decisive for the achievement of these goals.

3.9 The process

The spatial survey has been published in 2006 and forms since then content of a broad range of processes that make the project *Stedenbaan* operational. In principle these processes can be distinguished in two consecutive types. In both types the insights into the mutual impact of local and regional developments that the spatial survey provides play a central role.

The first type of processes leads to signed agreements on quantitative and qualitative goals that are aimed at by the *Stedenbaan* project. The agreements are made between authorities and organisations operating on regional or national scale levels such as the city regions, the national rail company and the national government. The spatial survey inspires these processes by defining and refining the goals that the *Stedenbaan* project can strive for. The results of the scenarios, compared to predicted market demands, demonstrate that the coordination of local spatial developments is crucial for achieving a coherent regional development. Specifically the conclusion, that the ambition for densification is not sufficient, but that the diversification of living environments is an equally important objective, gains attention in the resulting documents (Bestuurlijk Platform Zuidvleugel, 2007). The importance of the survey stems from the fact that its conclusions for the regional level are deducted from thorough research on the local conditions of the existing station areas.

A first declaration of the intention to realize up to 40,000 new dwellings and 1,000,000 square metres of new office space in station areas has been signed in 2005 by the members of the Administrative Platform South Wing. This ambition

has been confirmed by the results of the spatial survey and has consequently been adopted by the city regions. The commonly shared ambition for increasing the amount of houses and office space is crucial for the infrastructural development of the *Stedenbaan*. The national rail company NS has, since their feasibility study has indicated the requirement of additional travellers, signed a declaration of intent to increase frequency of service on the *Stedenbaan*. Other future agreements aim to stir the diversification of living environments along *Stedenbaan*, the concentration of commercial and leisure facilities around the stations, the establishing of a coherent regional park and ride system and bike storage system, the realization of four new stations and the increase of track capacity specifically on the intensively used line between Rotterdam and The Hague.

The second type of processes concerns the ongoing negotiation between the local municipalities to assign development profiles to the local station areas. In these processes the objectives that are set out for the project *Stedenbaan* are applied and finally translated into the formal spatial land use plans of the cities. In principle the municipalities tend to take their decisions about land uses according to local market demands. In a metropolitan area as the South Wing, where economical and social parties position themselves in a regional rather than a local context, this practice can become a critical factor. It leads to the repetition of types of developments, consequently a reduced support base for them and little choice amongst them. The negotiation process on quantitative and qualitative development profiles along the *Stedenbaan* line resolves the problem by steering not only for the densification of uses in the local station areas but also for more diversification of developments within the region. Private stakeholders such as large housing corporations underline the importance of this strategy and assure their support.

The spatial survey was an initial to these processes by establishing a broad understanding of the benefits of regional coordination of local developments. It contributes to the negotiation by creating an overview of potential developments in the station areas. The applied station typologies form a robust framework in this negotiation. Since the typologies are deducted from commonly acknowledged development criteria such as density, diversity and the position that a location has within the overall infrastructural network, an examination of all station areas with regards to these criteria delivers the possibility to compare their potentialities to each other. Another important base for negotiation was established through the inventory of the areas within the spheres of influence of the *Stedenbaan* stations that will undergo changes between 2010 and 2020. This research allows all municipalities to relate the results of the spatial survey back to the input that they originally gave.

The municipalities agreed in 2007 on the quantitative benchmarks for the increase of dwellings per city region. In a second phase of the discussion, starting in 2008, they will assign qualitative development profiles to the station areas. This phase of the negotiation will include next to the public sector also private stakeholders. The progress of development will be supervised by *Stedenbaan* coordinators that have been appointed by the city regions in 2007. The development of all station areas will be monitored by the project group *Stedenbaan*. A constantly updated inventory of spatial and infrastructural development will be made accessible to all involved stakeholders through an internet based interface.

3.10 From potentials to concrete ambitions

Western European cities have a tendency to spread and coalesce into low density urban regions. As new centralities emerge within these urban fields, public transport systems are evolving from monocentric hierarchical structures into multi-nodal horizontal networks. The *Stedenbaan* project in the South Wing of Randstad Holland contributes to the emergence of such a regional public transport network and supports a coordinated spatial development of the region. Because interaction within the region transcends traditional planning boundaries it addresses a number of questions, such as: Which developments should be planned and managed at the regional level? How much coordination among government authorities and between government authorities and market players is necessary? Which quality standards should be set and enforced at higher levels? And how can all this be organised and managed?

The spatial survey by the South Wing Studio contributes to the ongoing development of the *Stedenbaan* project and the South Wing as a whole. The first and foremost task of the survey was to put the *Stedenbaan* project onto the regional planning agenda. The survey has been published in 1,200 copies and distributed to all stakeholders. It has been repeatedly presented and discussed in many occasions and in front of a broad variety of audiences, ranging from parliament delegates, local aldermen; scientific staff at conferences to the general public. It has also been published in several national and international magazines, exhibited at the International Architecture Biennale Rotterdam and has been featured in local television broadcasts. Through this publicity campaign, the project received the attention required to perpetuate the political processes that make it happen.

Synergy and commitment can be stimulated by giving all the parties, both public and private, access to the same information and basic understanding. The parties involved do not have to make rash undertakings, but can work in a situation in which plans and development programmes are continually coordinated, refined and readjusted. The stakeholders can work in a network structure whose components are flexible and can respond to new developments. A sound, flexible and transparent process is vital for a project that encompasses the metropolitan area of South Holland, involves a wide variety of actors and will take half a generation to complete.

Last but not least the study assesses the merits of the project not only for the 47 individual station locations but for the entire South Wing. It provides a broad understanding of which qualities can be achieved at the regional level by a large scale project such as *Stedenbaan*: the satisfaction of property market and transport demands within the region, the creation of a variety of complementary living and working environments that offer a wide choice and flexibility to meet changes in market demands, and development that is environmentally and socially sustainable. These qualities are rooted in and steered by the existing potentialities of both, places and network found along the *Stedenbaan* line. They are therefore credible and raise comprehension for the needs and benefits of transforming existing urbanized areas instead of accommodating spatial claims on new land.

Emerging metropolitan regions require not only new forms of transport but also new methods of spatial planning. The biggest danger to the evolution of a cohesive metropolitan area is that of fragmented development and consequently missed opportunities. The project *Stedenbaan* strives to establish a context within which cities are not competitors anymore but partners that work on the basis of diversity and complementarities. It is assumed that with this approach the South Wing can utilize its potentialities better. The Administrative Platform South Wing has made this its core objective. The strategy is thereby not imposed from higher level governmental institutions but instead involves all stakeholders, provides them with information, insights, inspiration and a platform to exchange knowledge. In this sense *Stedenbaan* is a typical product of the contemporary network society, routed in common ambitions and driven by the will to cooperate.