National-Regional Programme for Amsterdam, Almere and Markermeer (RRAAM)

International Review Panel Report

LSE Cities

AN INTERNATIONAL CENTRE SUPPORTED BY DEUTSCHE BANK

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Acknowledgements

This report is the result of a close information exchange between LSE Cities and representatives from the RRAAM programme and the Municipality of Almere.

We would like to thank Mr Bram du Saar & Ms Anita de Zeeuw from the RAAM Programme and Mr Wiebe Oosterhoff & Mr Bart Teulings from the Municipality of Almere.

Finally, we would like to thank Mr Adri Duivesteijn for hosting us in Almere on two separate occasions.

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Executive Summary

The RRAAM programme has set a target to improve the competitiveness and quality of life in the North Wing of the Randstad. Central, regional and local governments aim to achieve this through a growth strategy driven by 60,000 new dwellings and 100,000 jobs in Almere and an extensive ecological and recreational strategy around the Markermeer & IJmeer lakes.

Our report assesses the strengths and weaknesses of the programme in reaching its objectives of better live-work, mobility and environmental conditions in the region and in Almere.

Our findings are as follows:

1. Improved natural amenities as set out in the TBES and recreational strategies can act as a pull factor for households. However, research shows that natural amenities, which are linked to improvements in quality of life are unproven drivers for the competitiveness of firms.

2. To meet its objectives of regional competitiveness, the RRAAM programme should concentrate on more important drivers such as research and development, skills upgrading and innovation. The programme is too focused on housing with a less clear programme on jobs and the clustering of firms.

3. The four options diversify the housing mix of Almere and there is a strong business case for the proposed suburban and rural type housing. However, scattered low-density development will divert investment and focus away from the centre of Almere.

4. Almere must first grow from its existing centres and from Almere-Weerwater through transit oriented mixed use developments that take full advantage of water amenities. This will help existing businesses and build up land values in the Pampus area.

5. In the short term the Holland Bridge option can support this expansion from the existing centres, which can be served by further investments in Almere's dedicated bus lane feeder system. Once these developments have been fully exploited the region can consider development in the Pampus.

6. In the long term, the region can benefit from a second IJmeer link, which can divert commuter traffic away from the east of Almere if it is backed by a coherent road pricing policy. This will help congestion levels for regional and commercial traffic on the A6 and OV-SAAL network.

7. Making an IJmeer link however cannot be justified on residential use alone. The western development of Almere-Pampus must be used as a major mixed use centre able to offer work and recreational services to residential areas in the MRA via a new link. This vision is not evident.

8. If Almere wants to become an important centre in the Amsterdam-Almere-Utrecht triangle as set out in the Randstad 2040 vision, it must follow a path of high density mixed use development, starting from its existing centres and backed by a double connection in the long term.

The International Panellists

Peter Bishop:

Peter trained in town planning at Manchester University and has spent most of his career working in London. Over the past 25 years he has been a planning director in four different Central London Boroughs and has worked on major projects including Canary Wharf, the development of the BBC's campus at White City and the Kings Cross developments, one of the largest and most complex sites in London. He was appointed as the first Director of Design for London, the Mayor's architecture and design studio, in 2006. In 2008 he was appointed the Deputy Chief Executive at the London Development Agency. In 2011 Peter took up a directorship at Allies and Morrison-Urban Practitioners architects and also works as a consultant for Berwin Leighton Paisner. In 2011 he carried out a review of national architecture and design policy on behalf of the Government and the Design Council. Peter lectures and teaches extensively, is a visiting professor at the faculty of Architecture and the Built Environment at the Nottingham Trent University, is a design advisor to the Mayor of London, chair of the National Network of Architecture Centre's, an honorary fellow of University College London, and an honorary fellow of the RIBA. His book, *The Temporary City* has recently been published by Oxford Routledge.

Mark Brearley:

Mark has been the Head of Design for London since 2008. He has worked for the Mayor of London since 2001; firstly with Richard Rogers and the Architecture and Urbanism Unit, and from 2007 with Design for London. He is also a member of the Mayor's Design Advisory Panel.
He is an architect who has concentrated on urban projects and the management of urban change. He was a partner for six years with an urban strategy consultancy, gaining a reputation for a patient and provocative role in regeneration and planning. He has extensive experience as a teacher and is currently a visiting professor at London Metropolitan University. Mark has made a major contribution to the planning and steering of development across London. In his current role, he has been closely involved with more than 200 live projects, has worked on the formulation of policy, and the creation of numerous planning frameworks and masterplans. He has defined and is pushing forward several major initiatives including the London Green Grid, the Mayor's Great Spaces and the Outer London Fund.

Ricky Burdett:

Ricky Burdett is Professor of Urban Studies at the London School of Economics and Political Science and director of LSE Cities and the Urban Age programme. His research interests focus on the interactions between the physical and social worlds in the contemporary city and how rapid urbanisation affects social and environmental sustainability. He is a Global Distinguished Professor at New York University and a member of Council of the Royal College of Art. Burdett is involved in major regeneration projects across Europe and was Chief Adviser on Architecture and Urbanism for the London 2012 Olympics and architectural adviser to the Mayor of London from 2001 to 2006. In addition to leading interdisciplinary research and teaching programmes, Burdett has curated numerous exhibitions including 'Global Cities' at Tate Modern and was the Director of the 2006 Architecture Biennale in Venice. He is co-editor of two books based on the Urban Age research project - The Endless City (2007) andLiving in the Endless City (2011) - and a regular contributor to journals, books and media programmes on contemporary architecture and urbanism.

Dieter Lapple:

Läpple, Dieter (1941) is Professor emeritus of International urban studies at the HafenCity University Hamburg and Nonresident Senior Fellow in the Metropolitan Policy Program of the Brookings Institution in Washington.
For many years he was directing the Institute for Urban Economics and Sociology at the University of Technology Hamburg. He worked as lecturer and visiting professor in Berlin, Paris, Aix-en-Provence/Marseille, Amsterdam and Leiden (NL) amongst other places. He is contributor to the "Urban Age Programme" of the London School of Economics and he is member of the board of trustees of the "Internationale Bauausstellung - IBA Hamburg", member and co-chair of the scientific advisory board of the "Singapore-ETH Centre for Global Sustainability" (SEC – Singapore) and member of the "Expert Commisson: Cities and Climate Change" of the World Future Council. Furthermore he is Co-Initiator and Executive Member of „NesTown – New Ethiopean Sustainable Town". In 2007 he received the Award for Urban Culture of the Architectural Association ("BDA Hamburg "Baukulturpreis").

Figure 1: Almere hosted the panellists on the 16th & 17th of September, 2012. The trip included a bus tour of key areas in the programme and four panel sessions that included the participation of Dutch experts.

Anne Power:

Anne has been involved in European and American housing and urban problems since 1965. In 1966, she worked with Martin Luther King's 'End Slums' campaign in Chicago, and, on her return to Britain, organised community-based projects in Islington, Hackney and Tower Hamlets. From 1979 to 1989, she worked for the Department of the Environment and Welsh Office, setting up Priority Estates Projects to rescue run-down estates all over the country. In 1991, she became founding director of the National Communities Resource Centre at Trafford Hall in Chester which provides residential training and pumps priming support for people living and working in low-income communities, and is currently Chair. From 2000 to 2009, she was a Commissioner on the Sustainable Development Commission (SDC). She was awarded an MBE in 1983 for work in Brixton, and a CBE in June 2000 for services to regeneration and resident participation. Anne is also a member of the Early Action Taskforce, the Igloo Regeneration Sustainable Investment Committee, the Islington Fairness Commission and the Academic Consultative Committee at Cumberland Lodge. Anne became a Professor of Social Policy at the London School of Economics in 1996 and is Head of LSE Housing and Communities, a research group based within the Centre for Analysis of Social Exclusion. She works across Europe and in the USA and is a Senior Fellow of the Brookings Institution and an Honorary Fellow of the Royal Institute for British Architects. She is author of many books, reports and articles on housing, cities and low-income communities.

Philipp Rode:

Philipp Rode is Executive Director of LSE Cities and Senior Research Fellow at the London School of Economics and Political Science. He is Ove Arup Fellow with the LSE Cities Programme and co-convenes the LSE Sociology Course on 'City Making: The Politics of Urban Form'. As researcher and consultant he manages interdisciplinary projects comprising urban governance, transport, city planning and urban design. Rode organised Urban Age conferences in partnership with Deutsche Bank's Alfred Herrhausen Society in ten cities bringing together political leaders, city mayors, urban practitioners, private sector representatives and academic experts. The focus of his current work is on cities and climate change which includes his role as coordinating author of the cities and buildings chapters for UNEP's Green Economy Report. He manages the Urban Age research efforts and recently co-authoredTransforming Urban Economies (2011) and The Global MetroMonitor (2010); and published the reports Cities and Social Equity (2009) and Integrated City Making (2008). He has previously worked on several multidisciplinary research and consultancy projects in New York and Berlin and was awarded the Schinkel Urban Design Prize 2000.

Introduction

The National-Regional Programme for Amsterdam, Almere and Markermeer (RRAAM) is a development, environmental and transportation strategy for the North Wing of the Randstad, which seeks the city of Almere to double its size by 2030. The strategy involves the provision of 60,000 dwellings and 100,000 new jobs in Almere, the revitalisation of the IJmeer and Markermeer lakes (the so-called TBES programme) and a transportation strategy that improves the connections of centres such as Schiphol, Amsterdam, Almere and Lelystad. These projects form part of a much larger strategy for the North Wing in accordance to the 2008 planning framework for the entire Randstad region with the aim of improving its overall economic competitiveness (Metropoolregio Amsterdam, 2007).

LSE Cities has put together an International Panel of Experts, that looked at the existing plans and alternatives in order to assess the programme from a more qualitative and international perspective. LSE Cities was asked to answer the following questions:

1. How is the RRAAM programme going to improve the international competitiveness of the region?
2. What type of city will Almere become following new investment in housing, transportation and recreational infrastructure? How will the four developmental alternatives for Almere, help both the region and Almere realise their objectives of excellent living & working conditions, excellent mobility and excellent recreational and ecological infrastructure?

To back their findings, the panellists, helped researchers at LSE Cities identify comparable international projects and key research strands, which form the basis of this report. Where possible, the research utilises an information base, compiled by LSE Cities, which was monitored for impartiality and correctness by representatives of the RRAAM programme and the Municipality of Almere.

The first section in this report introduces the concept of international competitiveness from an economic perspective and discusses how the RRAAM programme can help improve the business climate in the region.
The second section focuses on the four development alternatives and discusses their main contributions to the improvement of the economy, development, mobility and the environment of Almere and of the region.

Methodology

This report is the result of a two month research project led by Dr Savvas Verdis and Anna Dekker from LSE Cities.

The first stage involved the writing up of the brief and scope for the project, which were agreed by the client (The Dutch Ministry of Infrastructure and the Environment) as well as representatives from Almere and the RRAAM programme.

The second stage involved a knowledge transfer of exisiting reseach on the RRAAM programme, which was translated by LSE Cities.

This was followed up by a fieldtrip to Almere on the 16th & 17th of August 2012, where LSE researchers met with key public and private sector stakeholders. This helped us identify the key challenges and opportunities of the programme.

The fourth stage involved the writing up of an information base, with key statistics and a narrative on the key challenges in transportation, economic development, development and ecology in the region. This information base was distributed to RRAAM and Almere representatives who approved the data and the content.

The panel sessions were held in Almere on the 17 September, 2012 where the international and Dutch panellists identified the key threats and opportunities of the RRAAM programme.

Using the information base and key findings from the pannel sessions, LSE Cities put together this report, which includes some key recommendations for the future of the RRAAM programme. The report was delivered on October 1st 2012.

A short addendum was added on October 18, 2012, with some clarifications following feedback on the report by the RRAAM group.

Readers who are not familiar with the RRAAM programme can access a full Information Base on the project in English:

https://www.dropbox.com/s/1yab407qlmbawqa/InformationBase.pdf

Chapter 1
Driving Competitiveness in the North Wing

Introduction

Economic competitiveness in a region is sector specific and there are important drivers such as research and development and innovation that would significantly improve the competitiveness of the North Wing that are not addressed in this programme. Although the RRAAM programme will improve the quality of life, through the provision of natural amenities as a backdrop for live, work and recreation, this remains an uncertain driver to competitiveness. The North Wing region suffers from low levels of agglomeration but increased transport connectivity between Amsterdam and Almere, will increase the interaction of complementary firms in the region in the long term such as Lelystad and Schiphol airports.

Cities immersed in global networks of capital and labour often rely on measures of urban competitiveness as an indication of their relative performance to other regions. Although there is no clear consensus on the definition of urban competitiveness, two main strands are particularly notable. One that looks at competitiveness from the economic performance of a city and the second that includes social and environmental performance criteria into the equation.

Studies that look at urban competitiveness from an economic perspective focus on the necessary conditions (inputs) that regions provide for the operation of firms. The degree to which a city is deemed as competitive is understood by its economic performance, its ability to attract foreign firms and its level of foreign exports which are aggregated from the outputs of firms and businesses in an area (Begg, 1999; Deas, 2001; Kresl, 1995). Inputs that are particularly relevant to firms are factors of production, innovation, access to markets and the quality of transport infrastructure. Factors that are not directly linked to the economic performance of firms are not taken into account (Jiang, 2012; Kresl, 1995). There has been extensive research highlighting the discrepancies of such an approach, mainly that it formulates the problem from the perspective of businesses alone and that it does not take into account negative externalities of economic competitiveness such as pollution (Hall, 1998; Krugman, 1996; Lever, 1999).

An alternative approach, influenced by more comprehensive sustainable practices, considers the contribution of the city's ecological, social and economic dimensions to urban competitiveness. Numerous studies have looked at the role of quality of life (QOL) in a city's competitiveness as well as the role of urban amenities in attracting creative classes and knowledge workers (Begg, 1999; Florida, 2002; Lever, 1999). These factors however, rely on less documented quantitative data and are often under-weighted when combined with more traditional economic parameters to create a more 'comprehensive competitiveness' index (Jiang, 2012). This is particularly important in the context of competitiveness as it is understood by government agencies in this RRAAM programme.

In a conversation, with representatives of RRAAM and with Almere, it was stressed that the programme is to be first assessed in terms of its contribution to the economic competitiveness of the North Wing and only subsequently to consider its contribution to the development, mobility and environmental patterns for both the North Wing and Almere. This is an important distinction as it presents the panellists with a narrower evaluation framework than say a triple bottom line (economic, social and environmental) sustainable development analysis, which would take parameters such as energy into consideration and underscores some of the RRAAM programme's key contributions such as the ecological leap-forward in the Markermeer lake.

What are the drivers of competitiveness in the North Wing region of the Randstad? An influential study by PBL, a government funded research centre, looked at the ability of regions in the Netherlands and in 256 competing regions in Europe, to attract firms in the ten targeted economic sectors. Performance of regions was measured on levels of exports of goods and services together with the ability of a region to attract foreign firms. More specifically, it utilised results from business climate surveys for each of the sectors across Europe to determine the specific pull factors of Dutch regions such as North Holland (Planbureau voor de Leefomgeving, 2012). Each region was given a competitiveness score based on the ten most important measurable regional features. It is important to note that although the index attempts to account QOL parameters together with negative externalities such as congestion, these take a lower weight in light of the definition of competitiveness.

Main Indicators	*Urbanization*	*Concentration*	*Public knowledge*	*Private knowledge*	*Infrastructure*	*Labour*	*QOL*
Share of exports Percentage of companies with offices abroad Share of foreign companies % Foreign-owned companies % Production serving export	Population size Density	Clustering network Orientation	Human capital Rank Score university R&D public sector	Patents R&D private sector	Connectivity by road Connectivity via the air Near Airport Congestion Connectivity of seaports	Participation Unemployment	Life expectancy GRP per capita

Figure 2: Key drivers of competitiveness used by a PBL study to investigate the performance of Dutch regions with respect to other European areas. Drivers on the right are weighted the least. (Source: PBL 2012)

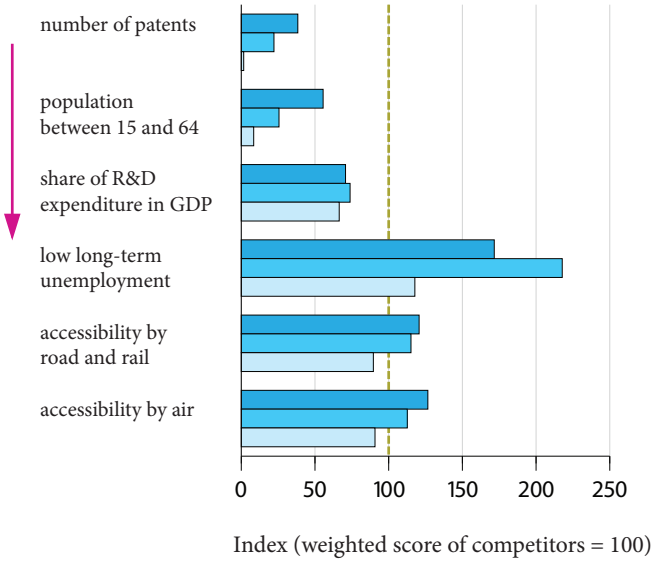
These drivers coincide with the work on urban competitiveness led by Michael Parkinson at Liverpool John Moores University. This research group has detected the following six characteristics of competitive regions in Europe. The first is innovation in processes and products, which typically drives over half of all growth in gross value added (The Compete Network, 2007). The second are cities that have diverse economies and that do not rely on a single sector. Munich remains the 'model city' in terms of diversity with an excellent balance between manufacturing and services. The third key driver is a skilled workforce underpinning knowledge intensive services (KIS), which is directly correlated to GDP growth (The Compete Network, 2007). The fourth is connectivity, predominantly through airports and ICT, which facilitate both face to face and technological communication. In their interviews with public and private stakeholders in a range of European Cities these researchers have found that the quality of place was an important factor in attracting a highly mobile workforce, who prioritise the quality of life of their families. Aspects contributing to quality of place include a good environment, distinctive architecture, cultural facilities, diverse housing and access to natural amenities (The Compete Network, 2007). Finally, strategic capacity or governance and decision making structures are important drivers of competitiveness through the design and backing of long term structural strategies in a region or city.

If these drivers are applied to the North Wing region, one observes that its key competitive sectors are finance & business services, as well as the agriculture and industry sectors (Planbureau voor de Leefomgeving, 2010, 2011).

The key competing cities of the North Wing are Paris, the Ruhr, Milan and Barcelona but these vary according to sectors (Planbureau voor de Leefomgeving, 2011). Looking at the North Wing's main competitors in figure 3, it appears that they benefit from larger agglomeration economies, better levels of innovation and research and development. The North Wing performs better in less important drivers of competitiveness such as levels of unemployment and rail and air transport infrastructure. In order to improve the competitiveness of the region, policies and strategies that tackle these deficiencies must be of top priority.

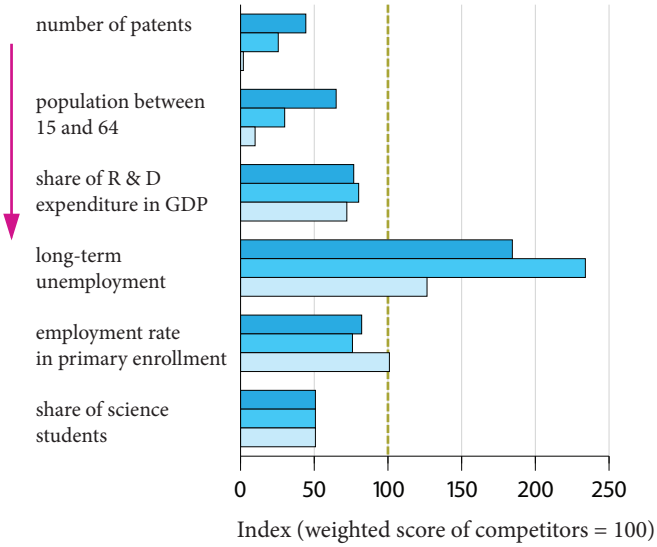
Other Sectors

Paris, Milan, Dublin



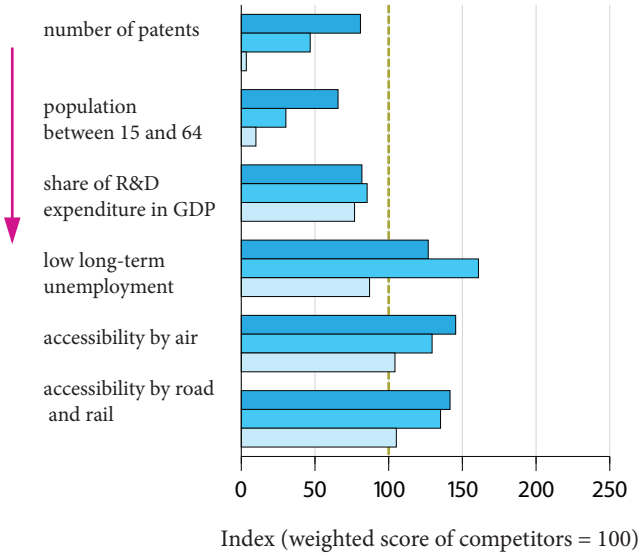
Agriculture

Aalborg, Odenburg, Dusseldorf



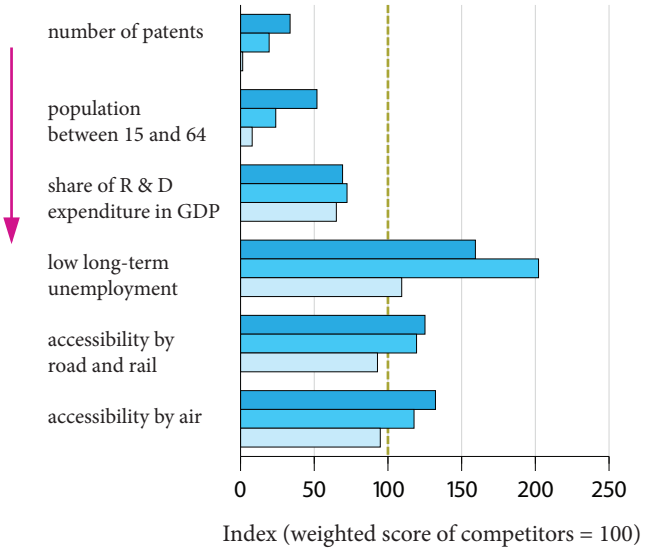
Financial & Business Services

Paris, Dublin, London and Luxembourg



Industrial Sector

Stuttgart, Frankfurt and Cologne



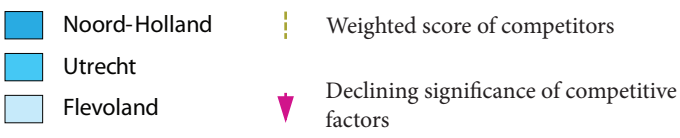


Figure 3: The North Wing's performance on sector specific drivers of competitiveness against European regions. (Derived from Source: PBL 2011)

Primary PBL model of competitiveness and the RRAAM programme

Urbanization	*Concentration*	*Public knowledge*	*Private knowledge*	*Infrastructure*	*Labour*	*QOL*

Contribution of the RRAAM programme to aspects of the regional competitiveness. Red is negligible, orange is considerable, green is significant. More important contributors to the business climate are on the left.

Alternative model of competitiveness and the RRAAM programme

Innovation	*Diversity*	*Skills*	*Connectivity*	*Strategic Capacity*	*QOL*

Contribution of the RRAAM programme to aspects of the regional competitiveness. Red is negligible, orange is considerable, green is significant. More important contributors to the business climate are on the left.

Figure 4: Schematic test on how the RRAAM programme is influencing the key drivers of competitiveness.

How is the RRAAM programme able to improve those drivers that are important to its three competitive sectors? As a place-based strategy focusing on mobility, housing and the natural environment, we believe that the programme will not significantly improve drivers such as urbanisation, clustering, research & development and an improving skills base but this does not mean that the region is not tackling these issues through other programmes. Earlier regional assessments carried out by the OECD in 2007 and reviewed in 2010, have inspired cross-sectoral programmes and strategies such as Randstad Urgent and the Peaks of the Delta Programme by the Ministry of Economic Affairs and more recently the Top Sector policy. These strategies aim to turn a region's existing strengths into economic 'peaks' of international recognition with strategies for improved levels research and development, macro-economic and fiscal policies and policies on the labour market.

The tables in figure 4 show the key drivers of urban competitiveness according to the PBL and Compete Network research groups and our view of how the RRAAM programme contributes to each driver. In red are drivers that are negligibly affected and in green are drivers of competitiveness that are significantly affected by the RRAAM programme, which we will focus in depth in the section below.

1. Connectivity

Congestion remains one of the major challenges of the region with the labour force experiencing some of the longest commuting times in Europe. The RRAAM programme will help the competitiveness of the region by reducing the social costs of congestion through improved public transport services between Almere and Amsterdam, which remains one of the major commuting flows in the MRA. Future prospects of increased public transport provision in the triangle Amsterdam-Almere-Utrecht and expanding links between Schiphol, Amsterdam, Almere and Lelystad will help both international, regional and local travel movements. We consider a second link across the IJmeer as an important addition in separating local traffic in the west to regional traffic in the east. More however is needed in tackling congestion due to high car dependencies. The programme lacks a comprehensive road charging strategy and any attempts to widen existing roads is problematic due to long-term economic and environmental costs.

Agglomeration economies are typified by three key characteristics. Firstly, there are economies of scale resulting from urban size and density. Secondly, there are economies of scale associated with companies in a sector clustering in the same area. Finally, there are economies of scale associated by the location of companies in different sectors clustering in the same area, where complimentary knowledge spillovers occur. Having a multitude of sectors in a region is also helpful in that the regional economy is not over-dependent on a single sector. The North Wing of the Randstad has three main competitive clusters contributing to high regional growth rates. These include the Schiphol airport cluster, the life sciences and energy cluster. However, compared to its key competing cities in Europe, such as Paris in the financial and businesses services sector, the region suffers because of low levels of agglomeration and economies of scale (LSE Cities, 2011; Planbureau voor de Leefomgeving, 2010, 2011). To make up for this and increase the complementarity of firms, the region must rely on the proximity of its key economic centres and those of the wider Randstad by further investments in transport connectivity.

As a polycentric system of cities, the Randstad often underutilises the close proximity of its specialised centres. Numerous studies have stated that the Randstad and to a lesser degree the North Wing cannot be considered as

functional areas or daily urban systems with the majority of activities still taking place at the metropolitan level. On a macro level, this creates some deficiencies in that there is duplication of activities between metropolitan regions and to a lesser extent within metropolitan regions (OECD, 2007). Closer connectivity between these centres can make some of these replications non-viable.

The principal public transport networks of the North Wing is composed of four parts:

1. An intercity connection linking the centres of Schiphol Airport, Amsterdam, Almere and Lelystad known as OV-SAAL.
2. A high speed network connecting to wider European high speed network linking Schiphol Airport, Amsterdam, Utrecht and Arnhem before connecting to the German rail network.
3. Amsterdam's extensive tram and bus network and more limited metro system.
4. Dedicated bus lanes for high frequency services in municipalities such as Almere, with services both within the municipality and connecting to Amsterdam.

The RRAAM programme will, in the long term, be the main catalyst for further improvements in the connections between Amsterdam, Almere and Lelystad as investing in the OV-SAAL network after 2020 relies partly on the success of Almere's growth. This Almere-Lelystad axis connection is very significant for the economic competitiveness of the North Wing region on two fronts. Firstly, it will allow better connections between Lelystad airport and the North Wing, which in turn will make the viability of Lelystad as an alternative airport for charter and low-cost air travel possible (Hans Alders, 2012). This will take pressure off Schiphol, which is one of the most important regional clusters. This is a direct strategy where the RRAAM programme improves the conditions of an existing competitive cluster and hence of regional competitiveness.

Secondly, continued investment in the Almere-Lelystad axis through the Holland Bridge can deal with one of the key obstacles to competitiveness in the MRA region which is congestion between Almere and Amsterdam. Today the city relies entirely on a single rail and road connection via the A6 motorway and Holland Bridge. The road is often congested with Almere residents spending some of the longest car trips when commuting to Amsterdam when compared to other MRA residents, with a travel distance of 36km (Gemeente Amsterdam, 2007). Over 19,000 Almere residents commute to Amsterdam on a daily basis and over half spend more than 45 minutes to get to their place of work. To improve congestion on the Almere- Amsterdam connection, the government has already approved a road expansion project for the A6 motorway and Holland Bridge. From the current levels of 2 x 2 lanes, the capacity will be increased to 4 x 2 lanes separating regional and local traffic and two further interchangeable lanes on the Holland Bridge. The use of two hard shoulder lanes on busy periods will take the overall capacity to 12 lanes. This does not take into consideration two further lanes that are access roads to the project area. This plan however can only be considered a short term solution. Although, we consider the time gains for passengers using the improved OV-SAAL train network to be significant any gains due to increased road capacity are limited to the time it will take for increased road usage to occupy the space in the next decades. Congestion around Amsterdam is a problem with yearly social costs as high as €1bn and negative effects on the mobility of the labour market.

The public transport infrastructure is partly to blame for the road congestion because it cannot meet the transport demand from neighbouring municipalities to areas of work. Commuting trips in the North Wing fit a general pattern that is similar to that in the wider Randstad: three quarters of the population work within their city region such as the MRA, only 15% work in a neighbouring city region and only 10% outside of the Randstad (Gemeente Amsterdam, 2007; OECD, 2007). When one focuses on Amsterdam more specifically, 49% of its workforce live in neighbouring municipalities such as Almere (Gemeente Amsterdam, 2007). Compared to European regions, the Randstad is heavily reliant on car usage between the municipalities and the urban centres, leading to higher congestion and air pollution levels (Economist Intelligence Unit, 2009). In the metropolitan region of Amsterdam, 67% of all individual journeys are made on the road with a smaller proportion travelling by rail. To take an example, the travel time from Purmerend to Amsterdam during rush hour is double that of the median travel time between these cities (OECD, 2007). In planning terms, whereas the region has been very progressive in land use policies through its green strategies, in transport terms, it has allowed the expansion of residential areas close to highways but not to public transport (Gemeente Amsterdam, 2007; Snellen, 2005). Moreover, a large proportion of this DUS traffic uses national highways, as only 42% of these have parallel regional roads compared to 55% in the Rhine -Ruhr area for example (OECD, 2007). Moreover, local public transport networks such as Amsterdam's limited metro and more extensive tram system, do not make it to surrounding municipalities such as Almere. The RRAAM programme's future strategy for a second IJmeer link tackles this problem face on. It utilises Amsterdam's local transport network to connect to one of its major municipalities, thereby capturing its real functional area. Moreover, it connects Almere directly to residential subcentres in the MRA thus increasing the potential of future public transport commuting into Almere. Finally, it takes local traffic away from regional channels such as the A6 and OV-SAAL. These aspects will be discussed in greater detail in the second chapter.

2. Quality of Life

The greatest contribution of the RRAAM programme to the region is its contribution to the improvement of its housing quality and its natural amenities. Although this is traditionally conceived of as a soft contributor to economic competitiveness, its impact should not be underestimated if Amsterdam wants to remain competitive in knowledge intensive services, where there is increasing correlation between the level of amenities and the attraction of households. Moreover, if the housing programme is delivered at the levels that planners are expecting, this can encourage greater mobility in the labour market. However this will be at a great cost to the sustainable development of the region and of Almere.

What the region lacks in agglomeration forces it partly compensates by its planned public transport investment and it's potential for unique quality of living. With the ever increasing mobility of capital and labour over the last thirty years, cities have increasingly adopted strategies to differentiate themselves. Quality of life ratings have often been used to market places in order to attract this inward investment but too often QOL parameters such as cultural offer and housing are under-weighted in business climate surveys. There is simply not enough data to weigh QOL fairly with respect to a firm's other location decisions such as taxation and flexibility of labour. The research that does exist is often derived from surveys from leading companies on their location decisions. Research carried out in 1993 across Europe, showed that over 10% of the top 500 business firms included QOL in their location decisions. When one looks at the same surveys today, this level has increased to over 20% (Cushman & Wakefield, 2010; Rogerson, 1999). So-called 'resource seeking' firms will tend to locate in areas with an existing highly qualified labour force, who tend to put more emphasis on the QOL of the city where they and their families locate (Florida, 2002). Amongst European cities, Cushman & Wakefield's 2010 survey of business leaders puts Amsterdam in 17th place in Quality of Living for employees and Mercer's index which looks solely at QOL puts Amsterdam in 6th place (Cushman & Wakefield, 2010). Key areas of improvement in QOL in the North Wing include the lack of owner occupied quality housing and congestion levels, which we have addressed in the earlier section (OECD, 2007).

2.1 Housing

Housing markets in the Netherlands are relatively rigid, which adds pressure to commuter flows because people are not able to relocate closer to places of work. The market is not able to meet the demands of lower income groups because social housing is often occupied by middle and high income families. The RRAAM programme is better able to deal with the demands of middle income families looking for greater amenities. The link between housing provision (specifically at low densities) and economic competitiveness however, is not backed by reliable data. For short term competitiveness in QOL, the provision of housing in Almere may work but for long term competitiveness the region must look to Almere as a higher density, mixed use developmental area.

The Amsterdam housing market suffers from a mismatch in supply and demand. The OECD estimated that around 60% of the housing in the city is suitable for those on lower incomes, whereas only 35% of the city population belong to this income group (OECD, 2007). The majority of housing in Amsterdam is available on the social rented sector and home ownership levels of 20% are some of the lowest in Europe. The market must meet the demands of a more affluent population. In turn, lower income groups themselves do not get the appropriate housing because social housing rents are means adjusted. This means that as a household's income increases so does their social housing rent, which prevents the stock becoming available for lower income groups leading to low levels of housing mobility.

More crucially, the Amsterdam Metropolitan Area and the wider North Wing of the Randstad, which includes the north part of Utrecht, is facing a housing shortage. A recent government-sponsored study, has shown that based on future projections to 2030, there will be a further 344,000 dwellings in the North Wing of the Randstad (ABF, 2011). As of 2010, the region was facing a shortage of around 45,000 units. The drivers for this shortage are an ageing population, a decreasing household size and an increasing rate of internal migration with people moving into the Amsterdam area for training and employment opportunities. Due to constraints such as natural corridors and development buffers, protected natural areas and flight paths, Almere is seen as one of the key areas to accommodate the extra dwellings . This shortage of land is not only specific to the residential sector. Both the North and South wings of the Randstad have for many years relied on a high volume economic strategy for both sea and air traffic (OECD, 2007). This puts large pressure on land, with new housing often pushed to the urban fringes and often without the right levels of public transport provision. From its early foundations, Almere has been utilised as a site to accommodate the expansion of Amsterdam and too often at low densities. Already, Almere is having to expand its administrative borders in order to accommodate the plots in the new Almere- Oosterwold district that is being planned. How can one balance the desire for more dwellings and yet deliver these in a sustainable way both in terms of land and transit use? We believe that the RRAAM programme is only dealing successfully with the first part of this challenge.

The RRAAM programme is well positioned to make a significant contribution to the region's housing challenge and is responding well to market demands in the region.

The table in figure 5 highlights the housing typologies that were most under stress in 2009. In Amsterdam there are severe demand pressures on single owner occupied and rental dwellings below the €225,000 and €632 per month brackets on a green-urban lifestyle typology. In Almere there are severe demand pressures on family owner occupied dwellings above €350,000 both on an urban and on a green-urban lifestyle typology (RIGO, 2011). The RRAAM's housing programme is particularly suited to the provision of green-urban lifestyle dwellings at relatively affordable prices particularly around the Almere-Oosterwold site and the existing Almere-Poort development. The current housing stock of Almere is focused on single-family homes, so the programme is well suited to balance this offer through developments in the Pampus and Weerwater areas.

There is no doubt that there is a very strong business case for Almere-Oosterwold. The development of Almere-Oosterwold will specifically target the regional demand for larger size owner-occupied accommodation. Moreover, the 30% affordability target can capture some of the demand from the metropolitan area and provide Almere residents with an offer for cheaper and larger dwellings. However the position of the longer term sustainability in Almere and Flevoland remains weak. Developing at densities of 5 dwellings per hectare as in Almere-Oosterwold is unsustainable, on two fronts. Firstly, it decreases the opportunities for future generations to tackle their own problems of housing shortage. Secondly it makes the servicing of this land with public infrastructure and amenities very expensive. If the RRAAM programme is seeking the long term competitiveness of the North Wing region, it must transfer developable land assets to future generations and start providing higher density dwellings next to natural amenities. In the next chapter we will present one such typology in Copenhagen's Orestad development.

2.2 Environment

The IJmeer and Markemmer lakes form a significant part of Netherlands' Natura 2000 conservation areas, which are an important site for migratory birds (RRAAM, 2011a). The site is extensive and covers over 113,000 hectares. Conservation is under pressure because there will soon be around 1.5 million people living around the lakes- which places demand on the surroundings. Already migratory patterns of birds are affected as well as the numbers of water species such as the zebra mussel and the sand eel (Werkmaatschappij Markemmer - IJmeer, 2011). International research shows that the majority of natural amenities such as wetlands, forests, parks, rivers and lakes have a positive economic impact in a region. There is more reliable data linking economic growth to direct employment in the tourism sector rather than because of firms locating to an area seeking high skilled workers that were initially attracted to the area's natural amenities. The TBES strategy provides a good balance between recreation and preservation with direct benefits to the tourist sector. More importantly it provides the MRA and Amsterdam the first real opportunity to add lake facing activities to their existing offer of green, canal and sea activities.

Although considerable research exists on the economic benefits of a green and blue infrastructure in cities, such as lake and river front developments, there is less evidence-based research on the economic benefits of areas of conservation and recreation, which is closer to what the Markermeer Lake has to offer. As a more intangible component of economic development, to what extent do natural amenities and areas of conservation lead to the economic competitiveness of regions and how is the TBES strategy going to improve this? Natural amenities directly impact population, income and housing development and have been linked to the attraction of human capital and creation of knowledge clusters, but the extent to which this has been overestimated is still debated (Clark, 2004; Florida, 2002; Marcouiller, Kim, & Deller, 2004). The studies that do exist look at the role of green amenities to population growth and employment and their role in attracting firms and people. These studies point to a shift in thinking from household migration decisions based purely on economic reasons to one where amenities also play an important role. Firstly, a study conducted on over 2000 rural areas in the US, linked the levels of climate, land, water, winter recreation and developed recreational infrastructure to changes in income and employment. It found that none of these five attributes were correlated to negative population, income and employment growth and that each was correlated to at least one measure of growth (Deller, 2001). The study however, did not look at the value for money of investing in the protection of these areas versus the long term returns on investment. Until recently, the link between amenities and inward migration was focused on American regions with scholars underplaying such factors in a European context because of the difficulty of accessing areas of natural beauty in a deeply urbanised continent (Faggian & McCann, 2008). However a recent European study looking at the role of amenities and migration patterns in 133 European regions between 1990-2006 has been able to highlight which place-specific characteristics are important for the location decisions of individuals at a regional level (Ketterer & Rodríguez-Pose, 2012). Results based on a regression analysis found the following:

a. Access to sea is positively correlated to inward migration although this is statistically more significant if that is the main natural amenity in the region.
b. Natural conservation areas as an indicator of natural beauty are highly correlated with inward migration.
c. Areas with a high recreational offer or aesthetic appeal are positively correlated with a net in-migration of people.

The study concluded that development policies designed to improve the attractiveness of places to migrants are

Supply & demand by tenure type (2009)

Area	House type	Total demand	Supply	Shortage	Demand Pressure
Amsterdam	owner-occupied single-family	12.480	3.190	-9.290	3,9
	single-family rental	11.570	2.100	-9.470	5,5
	multi-family owner-occupied	19.220	8.770	-10.450	2,2
	multi-family rental	46.990	42.770	-4.220	1,1
Almere	owner-occupied single-family	6.060	4.140	-1.920	1,5
	single-family rental	2.210	2.400	190	0,9
	multi-family owner-occupied	1.900	230	-1.670	8,3
	multi-family rental	3.650	4.270	620	0,9

Supply & demand by price bracket (2009)

Area	House type	Total demand	Supply	Shortage	Demand Pressure
Amsterdam	Rental below €535	40.690	35.490	-5.200	1,1
	Rental below €632	10.790	3.440	-7.350	3,1
	Rental above €632	7.070	5.940	-1.130	1,2
	Own < €225.000	13.100	3.090	-10.010	4,2
	Own < €350.000	12.510	5.670	-6.840	2,2
	Own > €350.000	6.090	3.190	-2.900	1,9
Almere	Rental below €535	4.200	5.150	950	0,8
	Rental below €632	1.310	820	-490	1,6
	Rental above €632	340	710	370	0,5
	Own < €225.000	4.870	2.640	-2.230	1,8
	Own < €350.000	1.900	1.450	-450	1,3
	Own > €350.000	1.190	280	-910	4,3

Supply & demand by lifestyle type (2009)

Area	House type	Total demand	Supply	Shortage	Demand Pressure
Amsterdam	centre urban	35.510	20.130	-15.380	1,8
	outside center	47.690	35.620	-12.070	1,3
	green-urban	6.400	1.070	-5.330	6,0
Almere	centre urban	1.610	270	-1.340	6,0
	outside center	8.500	9.810	1.310	0,9
	green-urban	3.010	960	-2.050	3,1

Figure 5: Supply & demand of housing in Almere and Amsterdam by tenure, price & lifestyle. High demand pressures are highlighted in red. Derived from Source: (RIGO, 2011)

likely to be more successful when combining economic as well as amenity-based conditions. Regions with lower supplies of natural amenities would have to provide better economic incentives or provide a greater variety of man-made or cultural amenities in order to compete with natural-amenity-rich regions (Ketterer & Rodríguez-Pose, 2012). More crucially, the authors also conclude that with greater economic integration, and rising incomes in Europe, quality-of-life considerations may become more important in what differentiates one region from another (Ketterer & Rodríguez-Pose, 2012). Of course, the role of natural amenities acting as pull factors for businesses is more difficult to quantify and the hypothesis that human capital is drawn to areas with natural amenities with jobs following later is not well tested. For example, a recent study that looked at the role of natural amenities in attracting high technology firms across counties in the US found no correlation, however the relationship became more significant in smaller centres and in rural centres where natural amenities become more important (Dorfman, Partridge, & Galloway, 2011; Mcgranahan, 2007). Our own interviews with the CEO of Endemol, revealed no clear link between the location decisions of media and creative companies in Amsterdam and the city's natural amenities.

The government's 'leap forward' known as TBES, which is budgeted at €850m spread over 25 years, will go a long way in balancing the ecological and recreational strategy of what is one of the most important wetland areas in Northwest Europe. It is one of the very few large freshwater areas in the temperate climate of Europe, which rarely freezes and plays a vital role in the transcontinental migration of birds (DHV & Ministerie Van Infrastructuur, 2012). The lakes need to be revitalised because the Houtribdijk dike built in the 1960's is acting as an obstacle to the health of the Markermeer and IJmeer lakes, which face the following problems:

1. Sludge is blocking ecological processes
2. There is a lack of land-water transitions- the system remains incomplete
3. Deterioration of smelt numbers due to climatic changes (Ministerie Van Infrastructuur, 2012; Werkmaatschappij Markemmer - IJmeer, 2011)

The TBES aims to tackle the three key problems of the lakes in several phases that will see increased sheltered areas along the North Holland shoreline, large areas of dynamic marshland and a better interface between land and water. Phases for the revitalisation of the Markermeer will develop over 20-40 years. An extensive marshland will be developed together with primary banking- this will create transitional zones which provide extra habitats. The marshland in itself will improve bird life. So, important is this bird habitat that the region has an international responsibility for its protection (DHV & Ministerie Van Infrastructuur, 2012). Another pillar is sludge management- with zones sheltered from wave action and sludge creating clear water. This increases biodiversity- because the landscape is more appealing to plants animals and people. The phasing strategies deliver all these programmes simultaneously but at greater quantities. For example, phases 2 & 3 of the TBES will scale the wetland area around the Houtribdijk dike, from 1,500ha to 4,500ha (DHV, 2012).

The recreational strategy splits the lakes into 10 recreational zones, bringing together 13 coastal municipalities is extensive. The plans include the provision of more than 2,700 hotel rooms, 730 bungalows, 4200 marina spaces almost 8,000 m2 of conference and meeting rooms and over 4 km beaches (LA Group, 2011). A recent economic assessment of the proposals has shown that there is enough overall demand for this infrastructure with net economic benefits and the creation of 4,000-8,000 jobs in the environmental and leisure sectors. To integrate the recreational and ecological strategies, the authorities are looking at several options including, opening up protected areas to tourists for half of the year (demand for lake side recreation increases in the summer months, whereas bird density in the lakes increases in the winter months), expanding infrastructure in areas that are already developed (e.g. existing marinas). In any case, without the TBES ecological strategy only parts of the recreational infrastructure will be allowed to go ahead. It is estimated that the TBES will attract €50m and €290m of private recreational investment. This accounts to an increase of 40% over a period of 25 years (LA Group, 2011). We believe that the combined recreational and ecological strategies will greatly improve lake facing activities in the North Wing. There is simply not enough of this type of recreational provision, partly because, Amsterdam, with the exception of IJburg, was never really structured around the IJmeer lake. In spatial terms the western part of the North Wing, which is composed of old country green landscapes, includes recreational spaces such as the 21st Century Park, the West Gardens (open landscape for hiking and picnicking) and the canal network. North of Amsterdam is the Waterland area next to Pumerend, which offers a combination of water and green areas next to older houses but the MRA and specifically Amsterdam can improve their recreational offer by lake front activities. This demand is reflected by the market potential of 2000-2500 extra boat berths in the lakes areas (LA Group, 2011). The potential for Amsterdam, Almere and North Holland to open up to a rejuvenated lake area is considerable both in terms of the value of lake facing developments and the recreational potential of day long and longer stay activities. Because most of the recreational plans are lake side rather than land side, these will impact the Natura 2000 areas. Piecemeal mitigation on a project basis will severely delay the recreational potential of the region as projects will be considered on a case by case basis with mitigation costs being variable. Starting the phased strategy of the TBES will increase investor confidence by future proofing the lakes

to a variety of recreational and residential programmes. Based on European wide evidence such programmes have a positive correlation with net in-migration of residents in an area and can thus act as an important pull- factor.

Conclusion

Improvements in the economic competitiveness of the North-Wing must be geared to those drivers of competitiveness that have the greatest impact on the region's strong sectors. On a European level, the North Wing is competitive in financial and business services as well as in the agricultural and industrial sectors (Planbureau voor de Leefomgeving, 2010). Research and development, innovation and agglomeration forces remain the single most important driving factors. As a housing, environmental and transportation strategy, the RRAAM programme is not directly geared to improve the region's competitiveness, however it can indirectly contribute to it through improvements in the quality of life and connectivity. Improved connectivity along the Almere-Lelystad axis will play a major role in the complementarity of the Lelystad and Schiphol clusters. Furthermore, because the IJmeer option in the RRAAM programme provides improvements in local rather than regional public transport provision, decreases in time lost due to car congestion can be expected if wider road charging strategies are adopted. There is increasing evidence that knowledge intensive services firms value quality of life as an important aspect in their location decisions and there is increasing evidence at a European level that links migration patterns to amenities (something that was more traditionally linked to US metropolitan areas). The RRAAM programme is able to contribute to the quality of life both in terms of its housing and environmental strategies. However, whereas the first strategy is geared to meet market demands by scattering development, which cannot be sustainably connected to the economy of the region, the combined TBES and recreational strategies are able to improve the region's untapped potential of lake facing activity.

To further improve the competitiveness of the region, the RRAAM programme must adopt a phased development strategy. Firstly, it must take full advantage of the current investments along the OV-SAAL and A6 networks by intensifying the Weerwater and other urban centres. Further intensification along the Almere-Lelystad axis will also help Almere's existing clusters and improve the competitiveness of Schiphol airport. Secondly, release land incrementally at higher prices in the West, which can become an important urban centre providing recreational and business services to the MRA via an excellent new metro link. If and when there is demand, release land in the east in a clear transit oriented development model.

Chapter 2
The contribution of the four alternatives to Almere and the Region

Panel 1: Transport

Introduction

How will the transport strategy in the RRAAM programme improve Almere's and the region's mobility patterns? In this section, we summarise existing mobility patterns in the region and in Almere and use international precedents in order to provide an assessment of the four alternatives being suggested. The chapter specifically looks at the key challenges of congestion and unbalanced modal split in the region and identifies the advantages and disadvantages of each of the options. It finally assesses the 'last mile' conditions of Almere and discusses the type of city that Almere will become if a second link is built. The panel suggests that although the IJmeer link may in the long run play an important role in connecting Almere to sub-centres in the MRA, the Holland Bridge option, provides the best immediate solution to promote intensification around the Weerwater Lake. A phased approach of both alternatives will help Almere and the region meet their goals of excellent connectivity.

Comparing the four Alternatives

Almere's current transport infrastructure is heavily determined by the South-North axis of the OV-SAAL network with commuter trips from the east and west of the city needing to reach the central axis before making the connection to Amsterdam. This pattern is sustainable because of Almere's excellent bus feeder system, however it has some limitations in opening up Almere to residential areas and sub-centres of the MRA, beyond the centres of Schiphol, Amsterdam- Zuidas, Amsterdam and Lelystad.

The first option uses the existing Holland Bridge in its expanded road and rail capacity together with High Occupancy Vehicle lanes (HOV) connecting the new development sites and the rapidly developing Almere Poort area in a new east west axis. Projections show that there will be an overall increase of 2% in people using public transport in Almere and an increase of 5% in public transport usage across the Holland Bridge (DHV, 2012). The Holland Bridge option has some clear benefits. Firstly, the upfront infrastructure costs and running costs are the lowest amongst all of the options, which make it the most viable alternative in the cost benefit analysis with benefits of €100m (ECORYS, 2012). Secondly, it follows Almere's pattern of connecting new urban centres via dedicated bus lanes to the central OV-SAAL spine. Irrespective of Almere's success in growing into a city of 340,000 people, the OV-SAAL network has already received a €600m investment for the period 2010-2016 that guarantees a capacity expansion from 6 to 12 trains per hour improving connections to Amsterdam and Amsterdam Zuidas (the city's expanding business district). Almere must take full advantage of this regional transport investment by exploiting development opportunities around the central spine. Thirdly, it integrates better to Almere's transport logic of feeder route systems. In transport terms, the first and last mile refer to the movement of people to/ from a transport hub. It is an important planning term in sustainable urban development as it indicates how easily people can access public transportation from their home or workplace rather than relying on a car for the entire journey. It is specifically relevant to suburban areas, which are served by regional rail services. The user can cover the distance by any means of private transport such as a bicycle or a car or by means of public transport such as a bus or tram service, which forms a public feeder system to the regional connection. The feeder system that exists in Almere is highly efficient with bus and cycle lanes given priority through smart traffic light systems. A recent survey of 35 BRT (bus rapid transit) or BHLS (bus of high level of service) across Europe showed that Almere, possessed one of the better integrated and extensive BHLS systems and an example of a service that covers the entire public transport network of the city. The majority of Almere residents are only 300 metres from a bus stop and the 8 city and 11 regional lines are closely integrated with built up areas as well as the Intercity rail network (Kerkhof & Soulas, 2011). The whole network is based on a few transfers with high frequency services and an average travel time of 24km/h. When comparing the four alternatives in terms of their feeder systems, it appears that the Holland Bridge option will improve what is already an excellent BHLS network by providing further links between urban centres and the railway system. However, this must be weighed against the poorer accessibility that this option offers to the wider MRA area. This last point is crucial, if the RRAAM programme is to increase the current number of commuters working in Almere, the deficiency of the Holland Bridge is that it does not open up Almere enough to residential locations and sub-centres in the MRA.

The second and third options involve a new IJmeer connection by tunnel or by a new bridge giving Almere a direct connection to Amsterdam's local metro network. On Almere's side, the metro line will start in the central railway station, and continue to Almere Pampus. On the Amsterdam side, the metro line stops first in IJburg (a

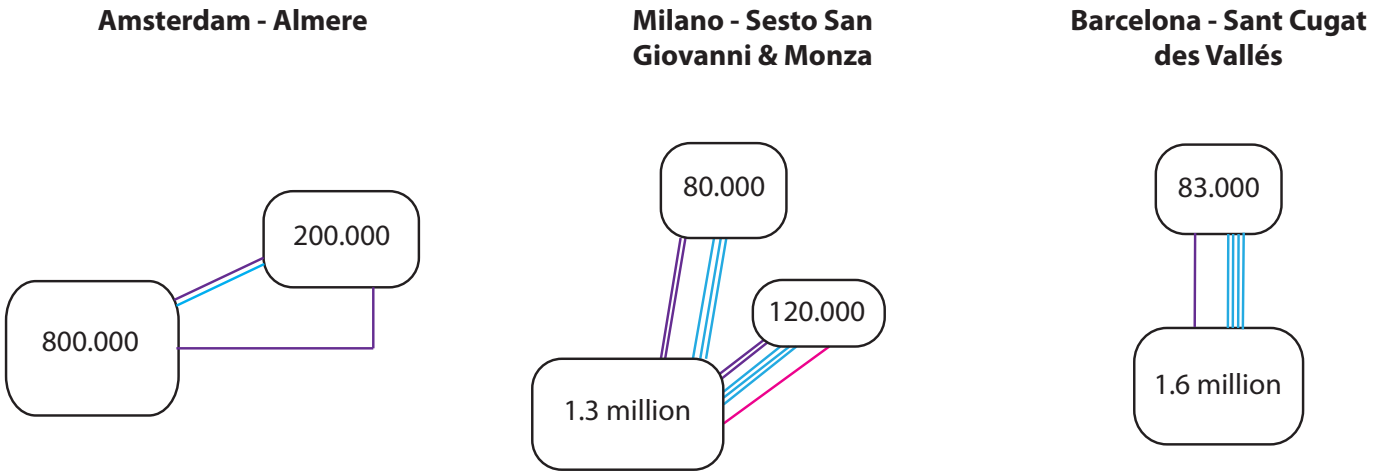


Figure 6: Chart comparing road (purple), train (blue) and metro (pink) links between Amsterdam, Milan, Barcelona and important municipalities with approximate population sizes. Although Sesto San Giovanni, Monza and Sant Cugat des Valles have multiple connections, these do not cross major natural barriers such as a lake.

recent high density residential development) and joins metro line 51 in the Diemen Zuid metro and rail station. Projections show that around 46,000 commuters will be using the new metro connection (DHV, 2012). The travel time benefits from existing centres in Almere cannot justify the very high upfront investment costs for either a bridge or a tunnel although there are considerable benefits of overall time saved amounting to €330m (compared to €110m in the Holland Bridge option). Both the bridge and tunnel options have negative social benefits in the region of €850m and the bridge option specifically, has the largest environmental costs (DHV, 2012; ECORYS, 2012). However, an IJmeer connection can have large positive contributions to the daily urban system and the opening up of Almere to sub-centres in the MRA. This is a very important determinant that keeps the IJmeer link viable despite the fact that it does not make economic sense in the cost benefit analysis. Opening up the future Pampus area to residential locations in the MRA (rather than urban centre locations such as Zuidas and Schiphol, which are covered in the OV-SAAL route) will increase the potential of Almere as a work and recreational destination for MRA residents.

The fourth option makes the crossing closer to the Holland Bridge and connects Pampus to Muiden across the water. Compared to the IJmeer crossing, this connection is both shorter and further away from the viewing corridors of IJmeer lake. On Almere's side, this option is identical to the IJmeer connection and connects the central railway station to Almere Pampus . On the Amsterdam side, the rail connection first stops in Muiden and later joins metro line 51 in the Diemen Zuid metro and rail station. Projections show that around 43,000 commuters will be using the new rail connection (DHV, 2012). The environmental costs of the Southern expansion are prohibitive both in their impacts to Natura 2000 and Dutch EHS protected areas (DHV, 2012). Moreover, the Southern Expansion misses the opportunities of linking IJburg & IJburg2 to the wider MRA area via a metro line.

We believe that the current transport options do not considerably change the development patterns in Almere. All four options rely on the same development sites in the Pampus, Weerwater and Oosterwold areas with only the number of dwellings being affected in each of the options. A sustainable long term transport option will involve the full exploitation of the Holland Bridge option that can kick start further residential investment in the Weerwater area. It can further promote business investment by small start-ups on the North South axis and in the longer term by larger firms connected to the expansion of Lelystad airport. Almere's expansion can act as a catalyst project for development in Flevoland with Almere and Lelystad becoming important economic centres surrounded by more accessible towns and municipalities. Although this question is beyond the remit of this project, Almere's expansion today can improve future transport investments that will have wider impacts on the wider Flevoland province and the region as a whole. If this South-North axis is fully exploited, its regional character can be complemented by a new local link across the IJmeer, which will see further investment in the Almere Pampus area because of the city opening up considerably to the MRA and particularly to its residential locations. The opening up of Almere, should not be underestimated. Almere residents are more familiar with the concept of the MRA rather than the other way around (Jong & Oosteren, 2010). The transportation options are very important as these will determine the extent to which metropolitan residents feel that Almere is part of their region and a direct way of doing this is by including Almere into Amsterdam's daily urban system through its own local transport network. The proximity of Almere is drastically improved through the introduction of a new link. This will greatly impact the number of workers that can commute to Almere for work and make some of Almere's natural attractions more accessible to MRA residents.

Travel Time (m) (**no pass per day)**	Holland Bridge	IJmeer Link	Southern Expansion
To Amsterdam Centre			
Almere Pampus-Amsterdam Centre	48 **(1.400)**	40 **(1.000)**	44 **(1.400)**
Almere Poort-Amsterdam Centre	43 **(1.200)**	43 **(1.200)**	41 **(1.500)**
Almere Centre-Amsterdam Centre	46 **(1.500)**	45 **(1.400)**	46 **(1.400)**
To Amsterdam Zuid			
Almere Pampus-Amsterdam Zuid	49 **(1.000)**	37 **(1.600)**	41 **(1.500)**
Almere Poort- Amsterdam Zuid	45 **(700)**	44 **(700)**	39 **(1.400)**
Almere Centre- Amsterdam Zuid	45 **(1.600)**	41 **(1.900)**	44 **(1.600)**
To Amsterdam IJburg			
Almere Pampus-Amsterdam IJburg	59 **(60)**	25 **(500)**	43 **(270)**
Almere Poort- Amsterdam IJburg	54 **(180)**	32 **(400)**	42 **(300)**
Almere Centre Amsterdam IJburg	56 **(400)**	28 **(1700)**	46 **(900)**

Figure 7: Average door to door travel times from one zone towards the other. This includes access/ regress times, waiting time if a change of mode is needed. In brackets is the number of passengers per relation per day. The results show that the improvements in travel time with an extra connection are minimal, with the exception of travel to IJburg, which is significantly improved for a smaller number of passengers. This table however does not include sub-centre destinations in the MRA, which also benefit from a second link (Compiled with data submitted from the RRAAM programme and the Municipality of Almere)

A second link will drastically re-configure Almere. It will act as a leap forward in Almere's current development pattern. Historically, Almere has grown from South to North along the OV-SAAL route, which has allowed Almere's regional economy to expand. A second link will open up Almere to back and forth local traffic between the MRA and itself. The emphasis here is on the 'local' link. If Almere wants to become an important centre in the North Wing, the second link will connect the western part of the city to residential areas around the Amsterdam metro area. The beneficiaries are not only Almere's 40,000+ residents that will be living in the Pampus but metropolitan residents that will have local access to business and recreational facilities across the IJmeer as long as the Pampus development programme is diverse enough to attract businesses and recreational uses.

	Strengths	Weaknesses
Holland Bridge	Less upfront infrastructure investment Can support higher densities in Weerwater Lower environmental costs Continues the expansion of Almere's excellent bus feeder routes to the railway line	Low density development in Oosterwold defies the point of infrastructure investment Does not link Almere to local sub-centres in the MRA. Rather, it focuses on connecting Almere to major centres on the OV-SAAL network. This blocks regional networks with local traffic.
IJmeer Bridge	Improving connections for MRA residents who work in Almere and vice versa A local connection to Amsterdam A visible connection (symbolic/ identity)	Large environmental costs Large upfront infrastructure investment A visible connection (IJmeer views) Low density development in Oosterwold defies the point of infrastructure investment Potential backwash effect of new link with Pampus residents but this will be reduced if Pampus has a mixed use programme offer
IJmeer Tunnel	Improving connections for MRA residents who work in Almere and vice versa A local connection to Amsterdam	Large upfront infrastructure investment Low density development in Oosterwold defies the point of infrastructure investment Potential backwash effect of new link with Pampus residents but this will be reduced if the Pampus has a mixed use programme offer
Southern Link	Improving connections for MRA residents who work in Almere and vice versa A visible connection (symbolic/ identity)	Misses the opportunity of connecting to IJburg Large environmental costs Large upfront infrastructure investment A visible connection (IJmeer views) Low density development in Oosterwold defies the point of infrastructure investment

Figure 8: Key strengths & weaknesses of the transport options in each of the alternatives.

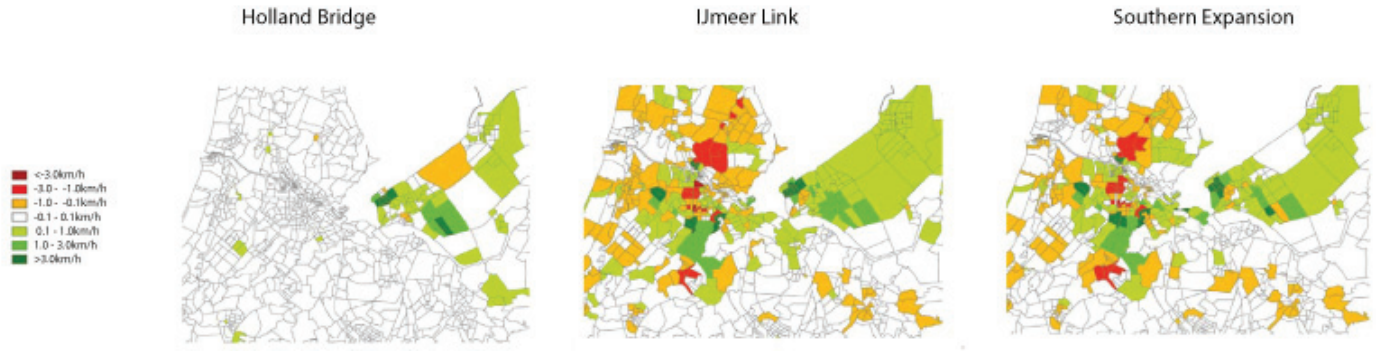


Figure 9: The maps on the top show the increased accessibility of different areas in the MRA for each alternatived compared to a base case. The greener the area, is an indication of the travel time gained compared to the current transport provision. In the Holland Bridge option, only Almere itself become more accessible because of the new HOV bus system investment. The IJmeer connection and Sourthern Expansion options both show incresed accessibility to the wider MRA and its sub-centres (Amended from source DHV 2012)

Learning from Orestad, Copenhagen

There are multiple European transportation case studies such as in Barcelona and Milan where a satellite city or commuter town is connected to the main city via a double connection, as is being considered in the RRAAM programme. The choice of having regional and local transport connections, greatly increases the choice for commuters and for businesses. In the case of Almere for example, although a regional connection makes sense to firms who want to be connected quickly to major centres such as Zuidas and Schiphol, a local connection will allow commuters next to a local metro stop in Amsterdam direct access to Almere and vice versa. The majority of these international precedents do not involve crossing a major natural obstacle such as water as in the case of the RRAAM programme. Indeed for the infrastructure costs of a second connection to become viable, much higher densities and passenger numbers are needed in order to achieve net social benefits. A phased strategy may be one of the ways that the benefits of extra accessibility can start catching up the upfront infrastructure costs of a second connection. The development of Orestad in Copenhagen provides a good best practice precedent.

Orestad is a recent transit oriented development in Copenhagen located at the crossroads of local (metro to Copenhagen), regional (rail and road connections to Denmark) and international (airport and Malmo via Orestund bridge) transport networks. The origins of Orestad go back to 1991 when following the sluggish growth of the 1970's and 1980's, the Danish government decided to restructure Copenhagen as an international city capable of attracting new knowledge intensive services. The site which is being developed in four phases seats on Amager island, across the water from Copenhagen and will eventually house over 20,000 residents, 60,000 jobs & 20,000 students (Danish Ministry of the Environment, 2010). The combination of a local metro connection to Copenhagen, which has increased the catchment area of the city together with the international road network to Malmo across the Orestund bridge and the proximity to Copenhagen airport have brought investment into the development (Knowles, 2012). From the outset, locating Orestad in the middle of as many transport connections was seen as a key constituent of its success. The unique process of the Orestad development is that a single development corporation was given the task to develop both the Orestad sites and the metro. The site was developed on low value reclaimed land, which was sold to part finance the first phases of the metro. The incremental development of the metro meant that later land sales achieved higher prices through the better connectivity achieved in the earlier phases (Danish Ministry of the Environment, 2010). Only later, and after further investment by private developers did a second bridge connection become viable as well as the extension of the metro system. From the outset, the strategy has been to release land that is well connected to the metro system as well as to water, which remains Amager's and Orestad's key identity and amenity.

The Orestad development provides the North Wing of the Randstad with a better strategy than the case study of the Malmo – Copenhagen bridge, which actually seats very close to Orestad. The original intentions of the Orestund bridge were to improve the international competitiveness of the area, by making Copenhagen a more dynamic city region and to integrate the housing and labour markets of both Malmo and Copenhagen. A review of the impacts of the Orestund bridge carried out in 2006, showed that the national boundary remained persistent, the existing ferry boat service particularly for commercial traffic remained competitive and that overall passenger projections were overestimated (Knowles, 2006). The Malmo-Copenhagen project faced larger obstacles of integrating the two cities because of the international nature of the boundary (this includes but is not limited to labour, tax differences across boundaries) however the key lesson is that visitor numbers from Sweden to Denmark by far outweigh the visitor numbers from Copenhagen to Malmo and the Orestund bridge has not had much impact in these dynamics

Figure 10: Transit oriented high density development next to green areas. Orestad, Copenhagen (Source: Jens Lindhe)

(Knowles, 2006). The success of a new connection is reliant on a coherent development & amenity infrastructure on both sides. The Orestad example was able to achieve this through an integrated transport and development process giving Amager island the necessary activity levels that make multiple connections to Copenhagen worthwhile.

Key lessons for Almere:

1. Phase your development and public transport strategy by releasing incremental plots of land, which become more valuable as these become better connected. The Holland Bridge option and expansion of the A6 increase the development value of the southern side of the Weerwater lake, which can immediately take higher density development of the type and quality of the 2007 OMA development.
2. Consider making a second connection across a natural obstacle, only after the first phase has been fully taken up by the market. Start with the Holland Bridge option and allow the full take up of the system by local businesses using the A6 and regional businesses connected to the future expansion of Lelystad airport. This will increase the demand for a local metro connection to the MRA, but only when existing development opportunities have been fully exploited.
3. Use your key natural amenity, which is water in the case of Orestad, to underpin the urban design. The main lake fronting centres of the North Wing have a very weak relationship to the lake. This has the potential of increasing the value of land and can be capitalised by Almere.
4. Make the metro line as visible as possible to promote public transport usage.
5. Make parking prohibitively expensive.
6. Assign a development corporation to take responsibility of both the metro and development project.

Conclusion

With the exception of the Weerwater development, which will benefit from the increased investment in more frequent train services along the OV-SAAL network, too much land, as in the case of Almere- Oosterwold, is released without the necessary densities necessary to support a frequent feeder system for 10,000-17,000 new dwellings. In the absence of a regional road pricing structure, these types of development will only add to the heavy car usage in the North-Wing, which will prevent it from reaching its excellent mobility objective. Investments in the A6 road network will however be important in supporting business oriented traffic both for SME's reliant on the road network and the expansion of larger firms associated to Lelystad airport. When the North-South axis develops into a regional connection to main centres in the North wing, the viability of a metro connection to sub-centres in the MRA area will become increasingly important. Adopting a transport oriented strategy in the Pampus similar to that of Orestad's will prove to be the most sustainable development and transport strategy for the region by opening up a new urban centre to MRA residents. For Almere to become a strong regional player and remain sustainable, development must start in the centre and eventually move to the west.

Panel 2: Economy

Introduction

Almere has an ambition to bring in 70,000-100,000 new jobs to the city, with strategies that focus on specific sectors and the growth of SME's. How will Almere's economic strategy strengthen the competitiveness of the region and attract new firms and promote new talent and enterprise? In this panel, we will focus on the sectoral approach undertaken by the municipality focusing specifcally on the ICT sector and on the potential economic development leading from investments in the RRAAM programme. We will analyse how the four options will help the mobility patterns of important sectors in Almere, which can rationalise regional & commercial movement to the east of Almere and commuter movements to the west. Finally, we will present a case from Hamburg where a similar programme that is trying to push the growth of the city across a water barrier is helping revitalise Wilhelmsburg across the Elbe river.

A sectoral approach

In 2011, Almere had a labour force of 113,000 people, half of which worked in Almere. 65,000 of these jobs were full time spread across 14,000 firms and institutions based in the city. Out of these, 34,000 jobs were in the public sector and 31,000 jobs in the private sector (Metropoolregioregio-Amsterdam, 2012). There are 200 foreign firms in the city employing some 7,000 individuals. Although Almere is often perceived as a commuter town, the majority of its population works within the city. This is very much closer to the characteristics of Amsterdam rather than areas that export the majority of their workforce such as Pumerend, Zaandam and Amstelveen (Gemeente Amsterdam, 2008). Furthermore, Almere's economy has been one of the top performing areas in the Amsterdam metropolitan area with growth rates of 3.7% and 3.0% in 2010 and 2011. Between 1995 and 2009 the Almere economy grew twice as fast as the MRA average (RRAAM, 2011b). This growth has attracted people from neighbouring municipalities who come and work in the city. Most people come from Lelystad, Amsterdam and Weesp and work primarily in the healthcare, business services and wholesale sectors. In terms of output growth, Almere is a regional success story with annual increases in employment of 7% compared to 1.5% nationwide (RRAAM, 2011).

Despite this performance it is important to stress that Almere's ratio of Gross Value Added to it's population is one of the lowest in the MRA (Metropoolregioregio-Amsterdam, 2011). For example, Haarlemmermeer contributes 15% of the MRA's GVA compared to Almere's 8%. There are ambitions therefore for Almere to become more innovative. One of the key obstacles to this is the talent pool of the area. When compared to neighbouring municipalities the education levels in Almere are some of the lowest in the MRA with only 23% of the population with a university level degree (Gemeente Amsterdam, 2008). The RRAAM programme remains deficient in tackling this problem through the provision of further higher education facilities such as technical universities. However, Almere does have some strong cluster strategies that will be impacted by the four transport alternatives.

On average Almere has outperformed the MRA in increase in gross value added in sectors such as ICT, wholesale and financial and legal services. In terms of degrees of specialisation, the area is only significantly more specialised than the Dutch average in the ICT & wholesale sectors (Metropoolregio-Amsterdam, 2012). If the degree of specialisation is measured by the clustering effects of firms in an area, then Almere is not particularly suited to knowledge based sectors or those sectors that rely on face to face interaction. Our interviews with the CEO's of IBM and Endemol (one of the Netherlands largest media production companies) revealed that the key strengths of Almere lie in its low input costs but they both believed that Almere is too far away from the main areas of activity of Amsterdam. In fact both IBM & Endemol, which were attracted to Almere in the mid 2000's when speculation was high that this was going to become the next business destination of the MRA, have now entirely left or retained only some back office functions. Other companies that have left Almere include the life science firm Genzyme. Firms that are doing well in Almere include Yakult, who find Almere attractive for cheap land, good logistics and the proximity of a low and semi-skilled workforce in the area. The Economic Development Board of Almere is focusing on five key sectors of growth:

1. Health & Life sciences: Almere is one of the few cities in the Netherlands with a long standing provision of care through general practitioners at the neighbourhood level. Almere has become a testing ground for this type of provision and a new health school was set up to disseminate such practices and which is now part of the new Windesheim Flevoland university in Almere. The municipality is further investing in elderly care through 'home to health-practice' communication via the city's excellent fibre optic network. The provision of healthcare services for an expanding population in Almere is viable but the extent to which this can be grown and drive the regional competitiveness is untested. The RRAAM programme has no specific scope to contribute to this cluster through further investment.

2. ICT & Media: The city invested early in a fibre optic network and has signed a letter of intent with companies such as Cisco, IBM and Philips to buy in to smart city technologies. A report recently published by the municipality also focuses on Almere becoming a hub for start-ups and entrepreneurs in the ICT sector (RRAAM, 2011b). Currently, Almere has the Netherlands' larg-

Almere	Flevoland	Amsterdam Metropolitan Area	Netherlands
ICT & Media		ICT Creative industries	Creative industries
Trade & Logistics Lelystad Airport	Lelystad Airport	Transport & logistics	Logistics
Health, wellness &l ife sciences	Life sciences & care	Life sciences	Life sciences
Sustainable construction and land development			Energie Water
		Financial & business services	Headquarters
	Agribusiness	Food & flowers	Agrofood/ horticulture
	High tech & materials		High tech & materials
			Chemicals
	Tourism & recreation	Tourism & conferences	

Figure 11: Avoiding replication of activity. Sectoral specialisation in Almere, Flevoland & the MRA

est proportion of freelancers and a high rate of starters (around 1500 per year) but these are in a variety of semi-skilled and high-skilled sectors. Almere and its economic development board recognise that the current and future strengths of Almere remain in small and medium sized enterprises rather than large employers and see the potential of ICT start-ups as a realistic strategy. The RRAAM programme is flexible on the provision of live-work units in Almere, which may house some of these new businesses.

3. Sustainable development and renewables: As a new town, Almere has been a test bed for new building technologies and sustainable urban development. The self-build phenomenon in Almere Poort is one such example and the development of over 60,000 homes will help local businesses export their knowledge in building technologies. The RRAAM programme can be the key driver in this sector. It can underpin jobs in the construction sector, which are aligned to the current skills base of Almere residents and allow the expansion of indigenous firms that can offer their services to the wider MRA. Strategies to maximise local returns of major redevelopment programmes include the the creation of building skills colleges, part financed by developers as has been the case in the King's Cross redevelopment in London. This is important as the complexity of mixed-use developments in the Weerwater and Pampus areas will attract large scale developers that may or may not positively impact the local labour market. The greatest benefits to the local economy from this sector lie with retrofitting existing buildings as well as the construction of over 19,000 dwellings in smaller plots in existing areas. As was the case with the development of the 2007 Almere-Weerwater development, existing Almere residents relocated to the newer stock leaving behind the older stock, whose potential for retrofitting and improvement will increase in time. Moreover, because most of Almere's stock has been built in large chunks over different decades, the demand for retrofitting will be considerable in the coming decades. Returns to the economy from retrofitting Almere's older stock rely on wider government incentives that can kick-start the process (Dowson, Poole, Harrison, & Susman, 2012).

4. Trade & Logistics: Almere seats in a good location for the operations of logistics companies such as warehousing and distribution. The expansion of the A6 road network will support such firms.

5. Lelystad Airport: For many years, Lelystad airport has been considered as a potential overflow solution for Schiphol airport. This project can drive the regional demand for transport connections in the North Wing. As discussed in the previous section, the RRAAM programme's investment in the OV-SAAL and A6 road networks will increase the complementarity and competitiveness of this cluster of international importance.

How are such strategies suited to achieve the projected aim of 70,000-100,000 new jobs in Almere by 2030? If the residential population of Almere is set to double, a large proportion of these jobs (around 50% based on the current split) will come from public services functions. The types of jobs matter as the success of firms locating in Almere will also play a role in the diversity of uses that the Almere programme is envisaging. Almere, does not want the new developments, particularly in the Pampus, to be simply residential and retail districts but also provide good business space. Furthermore there are risks in investing in office space as was done in the early 2000's. As the CEO of Endemol suggested, Almere needs to first transform its image before it can be considered as a viable destination for client facing services. We believe that the

strategy of focusing on small start-ups first and providing incentives for these firms to remain in Almere in the long term can minimise the risk of a property-led office development strategy. More importantly, Almere's targeted sectors for growth avoid regional replication with other sectors in the MRA (Metropoolregioregio-Amsterdam, 2011).

Comparing the four Alternatives

Although the four alternatives were not initially designed to be drivers of the local and regional economy, they will impact the area in different ways.

The Holland Bridge option is better able to capture the existing pattern of activity of firms and small business in the area. Furthermore, it can support the expansion of Lelystad airport, which can become one of Flevoland's leading clusters. All of Almere's key economic clusters in ICT, Trade & Logistics, Lelystad Airport and Health & Life sciences will benefit from the combined road and rail connectivity already planned along the OV-SAAL route and A6 highway. In the long-term, we consider that households, which rely on self-employed members working from home and needing a commercial vehicle will find the central and eastern parts of Almere convenient because of the quick access to the A6.

The IJmeer link can in the future drive the development of economic activity in the Pampus area but this relies entirely on the extent to which the area provides scope for mixed use activities. Making the additional link to Pampus will inevitably open up Almere's other economic centres to further municipalities in the MRA as is shown by the improved connectivity in the daily urban system. More importantly, with the development of a second link across the IJmeer, the A6 road network can focus on accommodating regional traffic helping the logistics and Lelystad sectors as well as small firms.

The Southern Expansion does not lead to any considerable benefits in Almere's economic sectors over the IJmeer link. Moreover it reduces the capacity of Almere tapping directly into the recreational and work demands from the IJburg and IJburg2 developments.

Learning from Hamburg & Wilhelmsburg

The Leap across the Elbe (LAE) programme is a long term vision for the future competitiveness of Hamburg. Since the release of the strategy 'Hamburg – The Growing City' in 2002, the Elbe islands Kleiner Grasbrook, Veddel, and Wilhelmsburg have moved into the focus of Hamburg's urban development policy. As a wish to connect two existing development projects North and South of these areas (Hafencity to the North, adjacent to city centre, and Channel Harburg to the South), the leap across the Elbe and the upgrade of Kleiner Grasbrook, Veddel, and Wilhelmsburg were considered natural steps to further expand and connect the metropolis (Daamen, 2007).

Wilhelmsburg (49.000 inhabitants) is the largest municipality in the project area, and is often perceived as a neglected part of the city with a working-class resident profile. It also features rural areas and large tracts of wasteland that have large development potential. The aim is to develop more new residential patterns, in particular for families, as well as more varied access to the river and leisure uses – and generally to improve measures of quality of life. Wilhelmsburg is currently connected to the Hamburg via a 10 lane road and bus bridge (8 for roads, 2 for bus). This bridge runs to the East of Hamburg and the travel time from central Hamburg to central Wilhelmsburg via this bridge is 10 minutes. As part of the LAE project, a new bridge will be built from the central city of Hamburg, across Hafencity to Kleiner Grasbrook. This second connection is seen both in its symbolic value as well as in its contribution to travel patterns.

Key lessons for Almere:

The LAE project has similarities to the case of Amsterdam – IJburg – Almere on many levels. In terms of geography, it is overcoming a water barrier on two occasions; first for the development of Hafencity – a project area very similar to IJburg albeit more commercial and less residential, and second for the (re)development of the Wilhelsmburg area. In terms of its aims, the project is expected to increase the international competitiveness of Hamburg. In terms of project contents, the project consists of a recreational strategy, the diversification of the housing offer, the improvement of quality of life, and the provision of attractive areas for business and living in the midst of a green landscape.

The LAE is a Hamburg initiative. Increasing inclusivity of the Amsterdam municipality in the infrastructure project decisions in Almere could emphasize the interdependencies, shared responsibilities, and shared benefits and therefore broaden the base of support for a second connection between the two cities.

Furthermore, the LAE project aims to bring Wilhelmsdorf, physically and symbolically, within the confines of the urban system of Hamburg. A bridge across the Elbe is deemed necessary for the success of the LAE project. The winning design by Hadi Teherani is not just any bridge but one that "like no other releases fantasies and claims special meaning" (Daamen, 2007). Reminiscent of the Erasmusbrug connecting Central and South Rotterdam, the design of the 'Living Bridge' across the Elbe aims to exude a message of prosperity and innovativeness, thereby persuading visitors and developers to leap across the river. Indeed the Erasmus Bridge in Rotterdam is seen as a precedent to the LAE programme because of its success in revitalising the old disused port areas of Rot-

terdam, which has now become the new district of Kop Van Zuid. The costs of a new link across the IJmeer dwarf the investments in the Erasmus Bridge and the proposed Living Bridge across the Elbe, but they show the potential of an integrated approach between land development and new infrastructure.

Conclusion

The expansion of the North-South link along the Holland Bridge option is best able to continue supporting firms in the axis and the long term growth of firms associated to Lelystad airport. The benefits of a second link include taking commuters away from the A6, where improved levels of congestion will help local firms and businesses. The RRAAM programme is heavily focused on housing and on Almere remaining a residential destination for the region with little attention paid to the clustering of firms. Unless the Almere-Pampus development becomes a mixed use residential and work destination, a second link will provide negligible benefits to firms and clusters. Changing the perception of Almere to MRA residents may prove to be the most important driver to new residential and business demand in the city. Unlike the scenarios of Hamburg and Rotterdam, which have or are trying to turn around neglected parts of their cities through new symbolic bridge connections, the infrastructure costs for a second link are too large in the case of the RRAAM programme. As we will argue later in this report, focusing on Almere's natural amenities and increasing urban development around the Weerwater lake may prove more efficient short-term city marketing strategies that can impact levels of inward investment.

Panel 3: Ecological and Recreational Strategies for the Markermeer and IJmeer

Introduction

In the first part of this report, we argued that a phased strategy for the TBES can have a major impact on the ecological and recreational quality of the North Wing but we were unable to consider the strategy as a pull factor for firms. When the programme is phased and considered as an investment in the region over a 40 year period, the annual investment is €15 million. (Ministerie van Infrastructuur en Milieu, 2012). A return on investment for an ecological programme is hard to determine but this is made more viable because the returns from the recreational activities in the RRAAM programme are so interlinked with the ecological revitalisation. The section below looks at how the four alternatives may impact this recreational strategy focusing on how these can provide access to some of the areas of natural beauty that are being revitalised in the programme. It is important to note that the four alternatives will predominantly impact the Almere section of the wider environmental and recreational strategy but that the TBES covers thirteen municipalities in three provinces (LA Group, 2011).

A problem of amenities

A 2010 survey that looked at the location of activities of MRA residents showed that although the majority of Almere residents stayed within their city for sports they chose the wider MRA region for museums, recreation and recreational exercise (Jong & Oosteren, 2010). For all its rich availability of land, Almere is poorly served by urban parks and green landscapes of regional significance. One exception is the Oostvaardersplassen lake to the north of Almere and the marshland area between Almere and Lelystad, which are designated Natura 2000 protection areas and have the potential of becoming national attractions, although on a very controlled basis (DHV & Ministerie Van Infrastructuur, 2012). Another attraction is the cable water-ski facility in the Weerwater lake, which attracts MRA residents. The city and the wider Flevoland province is currently unable to expand its recreational offer to visitors because of a lack of overnight accommodation. A report estimates that projected demand by tourists can absorb a 15%-30% increase in the supply of hotel beds and bungalows. That is an extra 900 to 1800 extra beds, to compensate Flevoland's very low supply of overnight accommodation – 2.5% of the Netherlands' total supply (LA Group, 2011). The potential for extra day visitors however should not be underestimated and Almere can provide better access to some of its unique locations for day trippers from the MRA region. For example temporary uses, events, festivals and beach front activity around the Pampus area can be used in the next years to popularise the area's unique panoramic views of the IJmeer lake and of Amsterdam. The lack of recreational amenities however is not only a problem in Almere. Amsterdam residents often rely on over crowded water facing facilities in the North Sea and with the exception of IJburg and proposed IJburg2, the city does not have great access to the lakes (DECISIO, 2011; LA Group, 2011). The potential for Almere to provide such access both to its own citizens and to visitors from the MRA must be fully exploited for the North Wing to meet its recreational objectives.
The proposed recreational plans for Almere-Flevoland are split into three zones along Flevoland's coastline on the Markermeer. To the south, in the Pampus area, a recreational area centred on urban-type waterside activities such as a marina and a new beach of metropolitan significance. Further north is access to the Lepelaarsplassen marsh and lake area, which is a significant location of bird habitats. Finally resort facilities for longer term stays are planned for the Lelystad area (LA Group, 2011). Overall, Flevoland's supply of hotel accommodation can increase by 324%. Flevoland is the single most important area in the region that can absorb extra hotel beds (LA Group, 2011).

Comparing the four options

All of the four alternatives can be realised despite the conservation demands of EHS & Natura 2000 directives. However, the mitigation demands of each of the options varies, with further and upfront mitigation required for the options where bridges are suggested. The Almere programme for 60,000 new dwellings cannot progress without some type of mitigation of its environmental impacts as the lakes form part of the European Natura 2000 directive. The areas under conservation include the Flevoland and North Holland coast but do not cover the Amsterdam coast. The four development alternatives for Almere were recently tested in an Environmental Impact Assessment, using a base case of 60,000 dwellings, thereby focusing predominantly on the impact of the transport infrastructure (DHV, 2012). That said, the four development alternatives put different pressures on the local ecology. For example, the Southern Link option will put considerably more housing on the Pampus area compared to the Holland Bridge by adding 5,000 more dwellings on a reclaimed island, which will impact the lakes and existing protected EHS & Natura 2000 sites (RRAAM, 2011a). The results of the assessment show that the Holland Bridge option scores the least negatively with considerably less noise pollution in the lakes, which is an important deterrent to recreation in water areas. These environmental costs must be balanced with the recreational benefits that each option has to offer.

	Strengths	Weaknesses
Holland Bridge	Lowest number of persons affected predominantly due to noise levels Combined marina & urban beach recreational provision	Does not open up Almere's recreational areas to residential areas in the MRA
IJmeer Bridge	Opens up Almere's recreational areas to MRA residents and those from IJburg Combined marina & urban beach recreational provision	Affects noise levels in lake area Inhibits views across the IJmeer Increases building vibrations in Pampus area
IJmeer Tunnel	Opens up Almere's recreational areas to MRA residents and those from IJburg Combined marina & urban beach recreational provision	Impacts archaeological areas Increases building vibrations in Pampus area
Southern Link	Viewing corridor of IJmeer from residential areas around the lake is less affected. Opens up Almere's recreational areas to MRA residents and those from IJburg	No planned urban beach Impacts EHS & Natura 2000 conservation areas. Affects noise levels in lake area

Figure 12: Key strengths & weaknesses of the environmental options in each of the alternatives

Similar to the Orestad example presented earlier in this report, the North Wing must fully utilise its blue network. Although the canal network of Amsterdam is fully exploited by residents and visitors, the potential that the lakes can offer is under-exploited. The IJmeer link is the best way for the majority of Amsterdam residents to enjoy the lake facing capacity of both the IJburg & IJburg2 developments as well as of the future Pampus areas because it gives direct access from residential locations in the MRA to lake facing activities on the IJmeer and Markermeer and specifically direct access to one of the planned recreational zones (LA Group, 2011). The proposed marina and the new beach running in the south of the Pampus area can form a large attraction for MRA residents and the potential of a direct local connection from existing residential areas straight to the beach is best captured by this link.

Furthermore, the IJmeer link will allow the development of further hotels in the Pampus area to tap into what is already a pressurised market in Amsterdam, with visitors staying as far as Almere to access the historic centre (LA Group, 2011). Although the Holland bridge option offers excellent connectivity to major centres such as Schiphol and Zuidas, direct access via a local metro connection to residential areas can only be achieved via a new IJmeer link. Because of the environmental costs and potential opposition to a visible connection, the tunnel option will provide better results if integration between the ecological and recreational plans are to be realised. In our view, the environmental costs of the IJmeer bridge and of the Southern Expansion together with the potential delays in planning approval due to damage of viewing lines make these the less favoured options. Furthermore, the Southern Expansion has no provision for an urban beach in the Pampus area, which we consider a very important recreational resource for the entire MRA and which further disadvantages this option.

Figure 13: Low cost access projects to areas of natural beauty have helped the popularisation of neglected parts of East London. (Source: Design for London)

Learning from the the East London Green Grid

The East London Green Grid (ELGG) strategy aims to change the perception of East London as a declining area with low-quality environments. As such it is a recreational and environmental strategy used to popularise neglected spaces of natural beauty. Similar to the North Wing's strategy of improving the competitiveness of the region through QOL upgrading, the ELLG is looking for environmental and social benefits – or improvements in quality of life – serving as a pull factor for business and inward investment. A direct way of achieving this, is through land markets. The ELGG network is entangled with developed areas of the city (residential and business locations) that can profit from their proximity to high quality, multifunctional open spaces (Mayor of London, 2008). Some of the key benefits that are expected from the ELLG programme include:

Economic:
The ELLG strategy attracts inward investment in the tourist and real estate sectors. For example, London Riverside Conservation Park (developed by a number of partners) has the potential to become a major destination in London. The ELLG strategy improves the access to such locations both through physical paths and place marketing. Such strategies improve levels of business trading and the rise of property values next to improved natural amenities.

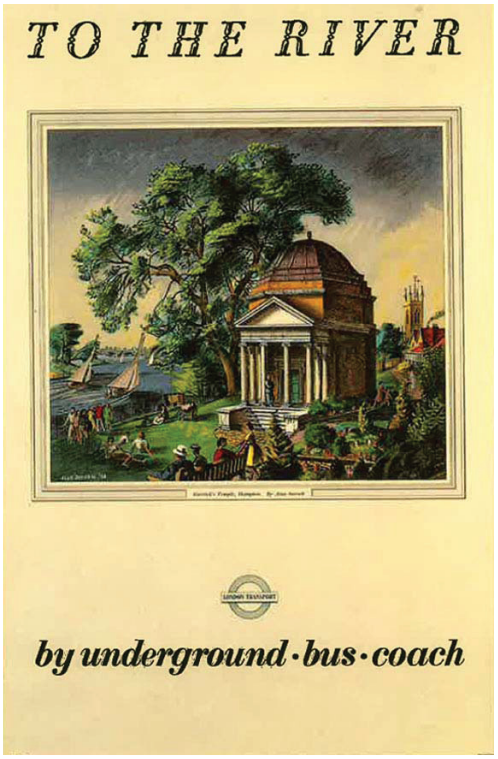
Social:
The ELLG strategy improves public access to a variety of open spaces for sports and recreation and encourages pedestrian and cycle route use, thereby reducing levels of local traffic. There are also physical and mental health benefits and education opportunities through contact with nature ('flora and fauna').

Environmental:
The environmental benefits of the ELGG strategy underpin economic and social benefits. Improvements in air quality and biodiversity lead to better places that people want to connect to.

Key lessons for Almere

The ELGG strategy is underpinned by the idea that landscape and recreational assets play a key role in the formation and promotion of a cultural identity. Not only do the benefits of an ecological and recreational strategy serve as a retention mechanism for locals, thereby creating sustainable local communities, they also increase awareness of, and interest in, these local assets within a wider geographical area. They popularise what appear to be disused areas. For Almere, a city struggling with its image, such a recreational and ecological strategy has the potential to create new associations, adding a layer to the image of the city.

The ELGG strategy aims to extend, and alleviate pressure from, the existing network of London open spaces, particularly in the west and centre of London. The extension of ecological and recreational areas in Almere can also respond to the pressure on the existing recreational destinations in the MRA and accommodate further ecological projects. Almere can serve as an alternative destination to the heavily overcrowded beach destinations for Amsterdam residents (DECISIO, 2011; LA Group, 2011). Almere does border a lake rather than a sea and as such cannot truly compete with popular North Sea beach areas for Amsterdam residents such as IJmuiden, Zandvoort and Bloemendaal. On the other hand, Blijburg, a popular ur-



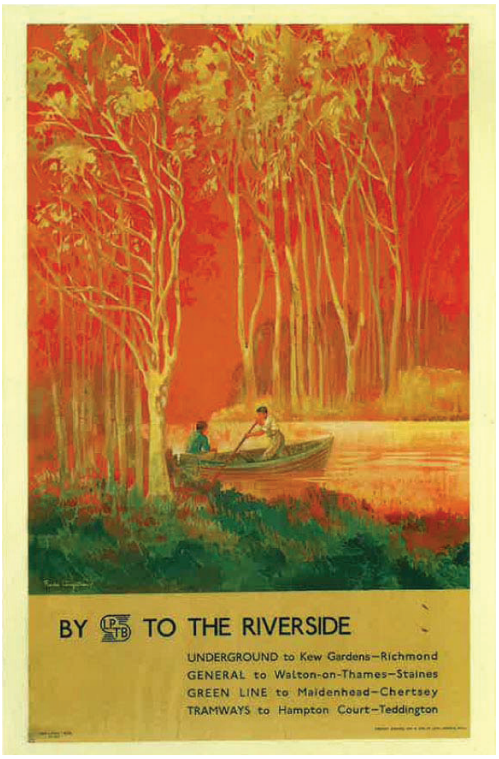


Figure 14: Easy access by tube to recreational areas. Almere's proposed beach on the sourthern part of the Pampus can offer metropolitan residents a unique resource (Source: Design for London)

ban beach on the artificial islands of IJburg sitting across the water from Almere represents a strong argument for the creation of beach areas along the Markermeer "coast" line. The LAGroup report also identifies the potentials for Almere to become an alternative beach destination (LA Group, 2011).

The ELGG report's proposals for interventions in and creation/extension of open spaces for each Green Grid area are based on an investigation of deficiencies in open space provision in a wider London area. There are studies that have investigated the current provision and diversity of the recreational offer in areas surrounding the Markermeer/IJmeer (LA Group, 2011). However, such studies do not extend to the scale of the MRA – and as such does not take into account the recreational options west of Amsterdam. There is thus potential for further integration of the Almere recreational strategy with the metropolitan region of Amsterdam, further improving insight into how Almere may contribute to the competitiveness of the region.

Based on identified deficiencies, The ELGG strategy emphasizes the importance of providing access to a diversity of open spaces - from pocket parks, to cycling routes, to regional park areas – performing a wide range of functions and attracting a diversity of publics. The ELGG makes a strong case for ensuring the provision of a broad range of open spaces in Almere, allowing for a variety of uses and users. The importance is that access to areas of natural beauty such as Pampus and the northern lakes can be improved through small investments in events and place marketing strategies that have been extensively used in the ELGG.

The ELGG framework sets out the desire for an implementation that is collaborative. As it cuts across administrative boundaries and responds to regional deficiencies in open space provision, the ELGG is an integrative strategic planning framework that requires negotiation and the formation of partnerships. The ecological strategy for the IJMeer/Markermeer has similar qualities, but the regional linkages concerning recreational objectives and projects may be improved. Furthermore, the ELGG framework emphasizes the necessity for public private partnerships. Further inclusion of private actors into the implementation of recreational and ecological strategies of the Almere and MRA is also voiced in the Optimalisatierapport Werkmaatschappij Markermeer-IJmeer .

Conclusion

The Almere programme cannot proceed without some type of environmental mitigation on the effects of development on the waterfront. Rather than opting for a mitigation strategy that follows on the footsteps of a development strategy, the TBES programme aims to 'future proof' the IJmeer and Markermeer lakes through three phases. Rather than seeing the Almere & the TBES programmes in isolation, the panel agrees that the environmental and recreational strategy will make a significant impact to the region's as well as Almere's recreational offer. The main contributing factor to this is the rejuvenation of the lakes that can kick start lake facing activities and residential developments that the MRA has never truly exploited. Place marketing strategies centred on natural amenities can be used to change the perception of a place. London's ELGG strategy often uses low cost access routes to natural amenities in run down areas that allow visitors from the rest of the city to change their perceptions of an area.

Panel 4: Development futures

Introduction

Since its early foundations, the MRA has turned to Almere to accommodate its housing shortage. This section will look at how the four alternatives will meet the short term demand for housing in the region and assess to what extent the housing strategy is integrated with the environmental, economic and transport plans for Almere and the North Wing in meeting the objectives of excellent live-work environments. One of the city's key problems is one of perception. Currently Almere does not fair very highly when it comes to MRA residents perceptions of what makes a beautiful place. A further survey carried out amongst residents of the MRA in 2010 found that places such as Waterland and Gooi en Vechtstreek, which offer a mix of residential and natural landscapes are the most favoured, with Almere perceived as the least attractive (Jong & Oosteren, 2010). Currently, the city is still branded as a sleeping-commuter town despite a large revitalisation urban centre scheme that took place around the Weerwater in 2007.

The right type of housing versus longer term sustainability

In contrast to Amsterdam and typical of its neighbouring municipalities, Almere provides lower levels of social rented housing and a greater offer of lower density owner occupied suburban housing. Home ownership is used by the Netherlands Institute for Social Research as one of eight life situation indicators, with a clear correlation between home ownership and happiness (Pellenbarg & Van Steen, 2011). Almere, provides some of the best housing options for families, looking for extra space but who cannot afford to live closer to Amsterdam or in more expensive suburban areas such as Huizen. This is reflected in Almere's median house prices as well as in levels of household income, which are close to MRA averages. Furthermore, Almere has relatively low GINI coefficient levels, and with the exception of Almere-Hout to the west, the city does not comprise the most or least deprived areas of the metropolitan region (Gemeente Amsterdam, 2008). The RRAAM programme is playing a 'business as usual' model of accommodating the region's housing shortage. Out of the 60,000 proposed dwellings in the Almere programme, 25,000 are required for growth in the Amsterdam region and 15,000 to compensate for growth in the Utrecht region. The remaining are allocated for growth and housing demand in the Almere area over the next 20 years but in general Almere is again asked to take a role in the North Wing's housing strategy.

The RRAAM programme is hoping to change Almere's mono-functional use by providing a greater mix-use typology and a greater balance of housing types (urban or suburban in the Pampus and Weerwater areas and more rural to the east in Oosterwold) built both by developers as well as by home owners themselves. New development will be composed of 70% market rate housing and 30% affordable housing. The location of the proposed development sites is predominantly determined by land availability, which is mainly owned by central government in the following three areas:

1. Almere Pampus to the west: A large piece of land at the tip of Almere (currently used as a low output wind-power farm) with frontal views to Amsterdam across the IJmeer lake. Most alternatives seek urban density levels of 40-45 dwellings/ha, which are comparatively larger than what is currently available in Almere (average density of 30 dwellings/ha) but lower than the IJburg development in Amsterdam (70 dwellings/ha).
2. Almere Weerwater around the Weerwater lake seating next to the A6 motorway and across the 2007 Almere Centre development. In all of the options Weerwater will take the fewest number of dwellings ranging from 1,000 to 4,000.
3. Almere Oosterwold to the east, which is currently used as agricultural land owned by the national government development company and private holders, who will be offered to sell their land for any future development. The alternatives show Oosterwold take a rural development pattern of 5 dwellings/ha. Oosterwold will accommodate 10,000-17,000 dwellings dependant on the public transport options.

What is the market for these three development zones compared to other possible housing markets in the area? Two precedents are here relevant and which may indicate future market demand for housing delivered through the RRAAM programme. First, the expansion and revitalisation of a new city centre at the northern part of the Weerwater lake in 2007 and the current expansion of Almere Poort predominantly with low-rise detached and often self-built units .

Firstly the 2007 OMA development in Weerwater. Although, the number of residential units was quite low compared to the Almere programme of 60,000 new dwellings by 2030, it does show an overwhelming trend that the units were taken up by existing Almere residents rather new residents moving from the Amsterdam Metropolitan Area. What keeps MRA households from moving in to Almere? One reason may be that people are looking for a specific type of urban living in Amsterdam, which is oversubscribed with people willing to pay very high prices to stay in the historic city centre and in surrounding neighbourhoods of Oud-Zuid and Oud-West. Another reason may have to with the image of Almere. A national index on the living attractiveness of the Netherlands' 25 largest municipalities shows that Almere is considered as one of the worst performers on eight parameters that include

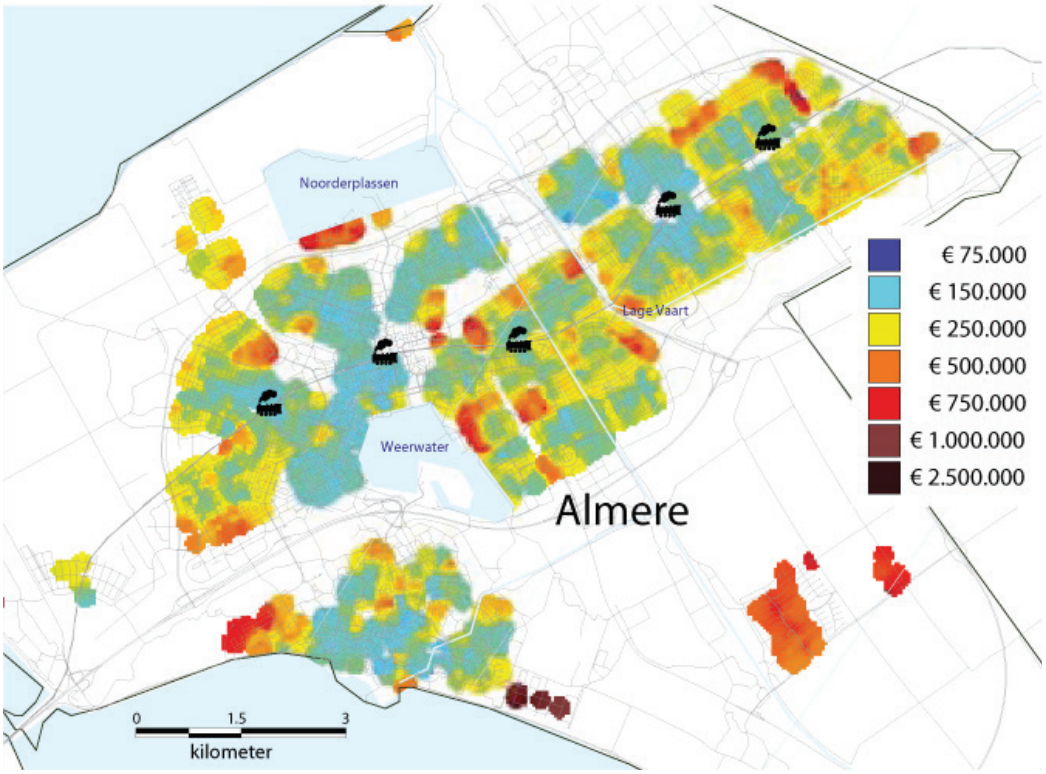


Figure 15: House Prices in Almere 2004-2009. These show some correlation with proximity to rail and lake infrastructure (Metropoolregio Amsterdam 2008 Arm en rijk in beeld)

accessibility to jobs, cultural offerings, safety, proximity to nature, presence of a university and the proportion of pre-war homes (Gemeente Almere, 2011). The panellists saw the 2007 OMA development as a good point of departure to re-imagine Almere but found the relevant densities and volume on offer was relatively low to make a considerable city-wide impact. Dismissing this type of development because of the low take-up from MRA residents will be premature if it is based on just 200 property transactions.

Secondly, the development around Almere-Poort. Out of the 19,000 proposed dwellings in existing areas of Almere, 11,000 are planned for Almere-Poort and some of these through a new trend in detached self-build homes currently taking place in Almere-Poort. This more organic growth in development, which relies less on large scale developers entering the market has gained traction in the current economic downturn and is seen as a lower risk strategy than higher density developments in Almere, which will be competing with IJburg2. This logic has led to regional and municipal authorities considering the next stage of development to begin from Almere-Oosterwold which can capture a similar market to Almere-Poort's both on the demand and supply side. This is not surprising. The position of the Almere-Oosterwold development fairs better when compared to other planned residential developments in the region. It has a comparative advantage over any other development site in the MRA, by providing ample and affordable space next to natural amenities. A type of rural living backed by an urban farming paradigm (5 dwellings/ hectare) is proposed in Oosterwold, which is being described as truly unique to the MRA. The eastern expansion relies less on large scale developers participating in the development and rather sees Almere adopt a more organic growth of single units.

However, although the site can meet the demands of low density suburban housing in the MRA and tackle the problem of institutional financing, in the long term, it cannot change the mono-functional identity of Almere as a residential centre and at times works against the municipality's vision of the future. A business case can be made for rural type housing in Oosterwold, but why should Almere release its land assets, without intensifying its current stock? There are many international precedents from Bogota in Colombia to Shanghai in China where land asset management can determine the success or failure of city finances for decades (Peterson, 2007). Releasing land before existing development sites are fully exploited, releasing land all at once or releasing it for low intensive uses greatly reduces the capacity of future generations to fulfil their potential and this is exactly what we see in the Almere-Oosterwold site.

Although we have not been asked to provide recommendations for an alternative development strategy, we believe that the housing challenge can be met in Almere's existing centres and in Almere-Weerwater with a long term strategy to develop Almere-Pampus at even higher densities. Almere-Oosterwold must not be developed, at least not in the short term and not at the densities proposed.

Comparing the four alternatives

The four alternatives, which are based on different transport options do not drastically affect the development

	Strengths	Weaknesses
Holland Bridge	Can support the expansion of existing centres and kick start the high density development around Weerwater lake.	Option includes Almere Oosterwold, which although contains an HOV+ link, is not a transport oriented development.
IJmeer Bridge	Can help promote high density mixed use development in the west. Price premium of transit oriented lake facing development Increased revenue from land sales	Option includes Almere Oosterwold. Even though the provision of dwellings in this option is lower, this site will not benefit the long term interests of the North Wing Development will be affected by greater noise pollution
IJmeer Tunnel	Can help promote high density mixed use development in the west. Price premium of transit oriented lake facing development Increased revenue from land sales	Option includes Almere Oosterwold. Even though the provision of dwellings in this option is lower, this site will not benefit the long term interests of the North Wing
Southern Link	Price premium of lake facing development Can help promote high density mixed use development in the west.	Option includes Almere Oosterwold. Even though the provision of dwellings in this option is lower, this site will not benefit the long term interests of the North Wing Development will be affected by greater noise pollution

Figure 16: Key strengths & weaknesses of the development options in each of the alternatives

scenarios. All four alternatives utilise the same three development sites but in different density levels. As we have argued before, we consider Almere Oosterwold the biggest weakness of all four alternatives. Although it can meet the supply and demand characteristics of today's market, it will deprive the North Wing of further expansion options in the future.

The Holland Bridge option is the best point of departure for a mixed use development around the Weerwater Lake. It provides the greatest provision of dwellings in the lake area, which will be better served by the improved OV-SAAL network. Because of the legacy of the 2007 OMA development to the north of the Weerwater, this option can attract sustained investment from the private sector at even greater densities than are currently proposed. Furthermore, the Holland Bridge option is best able to underpin the expansion of the 19,000 dwellings in Almere's existing centres because of the improved bus feeder system that can connect centres such as Almere-Poort, where the provision of a new bus stop is included in the option (Ministerie van Infrastructuur en Milieu, 2012). The strongest aspect of this option is that it creates a development axis along a public transport network. However, when the development of Almere is seen in a more holistic way, the weakness of this alternative remain the very low densities proposed in Almere- Oosterwold and the development of Almere- Pampus on new land before growth in existing centres such as Almere- Weerwater has been fully exploited. Although the Pampus area with its open vistas across the IJmeer will make for a different urban environment to Weerwater-south, we believe that a phased approach starting from the latter will reduce the risks of cross-overs and competition between the two

Figure 17: The London Thames Gateway has been built incrementally according to market demands, prioritising development in existing centres. View of the emerging Green Enterprize Zone (Source: LDA)

developments.

We have no substantive evidence to determine if the residential component of Pampus development will succeed without a second connection. But this question depends on the type of development that is envisaged in Pampus. Looking at Pampus as a residential location is the wrong question. The second link, which opens the Pampus to residential sub-centres in the MRA increases its potential as a business destination and hence its viability of acting as an important mixed use urban centre. Because of its lake-facing potential overlooking Amsterdam, the panellists felt that in time, the Pampus area could act as a second major urban centre in Almere. Furthermore, connecting Almere-Pampus to the Amsterdam metro network greatly improves the ability of the development to compete with IJburg and IJburg2. The Pampus area has the potential to attract a development premium because of its lake facing potential. This is backed by the existing patterns of house prices in Almere, where there is a strong correlation between house price and water-fronting quality development as in the example of Almere Haven (Gemeente Amsterdam, 2008). It is estimated that proceeds from land sales with the extra link will be considerably higher (€160m compared to the €50m land revenues in the Holland Bridge option because of the added connectivity and greater densities that can be accommodated (ECORYS, 2012)).

Learning from the Thames Gateway, London

The Thames Gateway is a collection of brownfield sites to the east of London which have the capacity to accommodate hundreds of thousands of dwellings and office places. Initial government strategies in the early 2000's looked to the Thames Gateway for helping alleviate London's housing pressure if the right level of infrastructure was made in the area. Some of the planned housing was initially planned in existing residential centres which were suffering from years of disinvestment and some in entirely new brownfield sites (LSE Housing and Enterprise LSE, 2004). Development of the Thames Gateway should be compact and mixed use in order to support transport investment, commercial activities and public services, while also reducing environmental impacts. The Thames Gateway relies on a strategic partnership models with central,

regional, local government agencies working with development corporations and site specific agencies such as the Olympic Development Authority.

Lessons for the RRAAM programme:

If new housing developments are built within existing urban centres then the new investment can be used to upgrade existing housing and environments. This prevents polarisation between existing and new communities (LSE Housing and Enterprise LSE, 2004). If Almere starts a more organic intensification of its existing centres (where 19,000 dwellings are planned) the image and amenities of existing communities will be improved.

To attract a mixture of incomes tenures and uses, development must occur next to transport hubs, schools and other urban facilities. There are several failures of this type of development in the Thames Gateway. The RRAAM programme must make sure to release land only if the right provision of urban infrastructure is in place and can be paid for. Higher density neighbourhoods can better support this level of infrastructure provision not ones like Almere-Poort and Almere-Oosterwold.

The high density model allows homes to be built incrementally according to market demands, prioritising development in existing areas and only adding more land plots as they are needed. An LSE panel looking at the Thames Gateway in 2004, noted that "If we treat the available land in the Thames Gateway as an irreplaceable asset, and use it with care at urban densities, protecting the precious but undervalued environmental resources, then there is a chance that the East End will share in London's prosperity, and its environment will become its greatest asset" (LSE Housing and Enterprise LSE, 2004). Eight years later, two of the same panellists had the same conclusions for Almere and the wider North Wing region.

Conclusion

The North Wing region is suffering from a housing shortage as well as a lack of supply of affordable social rented dwellings and middle and higher end owner occupied units. Almere in itself, suffers from an unbalanced land use mix but provides the necessary space for some of the types of housing that are needed in the wider region. The provision of 60,000 dwellings in Almere, some in existing areas such as Almere-Poort and Almere-Nobelhorst and some in new areas such as Almere-Pampus, Almere-Weerwater and Almere-Oosterwold aim to simultaneously meet the regional and city ambitions but we believe that this is at the expense of future generations, who will inherit a city, which is less integrated to the region both in transport and economic terms This is because a scattered development strategy will continue the car dependency of commuters taking vital road space from businesses; proceed to land sales at low values before Almere can turnaround its vitality from its existing centres and make a second link unviable on cost grounds. Moreover, developments such as Almere- Poort and Almere- Oosterwold do not go far enough to change Almere's image. As we have already argued, although the cultural offer in Almere is low, compared to other towns and municipalities such as Purmerend, more than half of Almere's 114,000 work-force work in the city itself. The city does have some vitality but perhaps this is not visually manifested at street level. The 2007 OMA development on the Weerwater is an excellent precedent, which Almere can build on. Our experience from the Thames Gateway in London, is that successful neighbourhoods begin from existing centres, are mixed use, are built at high densities and have a unique offer such as proximity to natural amenities. More importantly, such areas can better sustain public infrastructure investment over time.

Contrary to this scattered model, a phased development strategy starting from the Weerwater and the existing centres, before finally opening up to Pampus will make the most of what the city has to offer. It will give time for current clusters in Almere to take full advantage of an improved A6, which will not be clogged by further car trips if developments like Almere-Oosterwold are allowed to proceed. It will help Almere expand its image as a diverse urban centre, which started in 2007 on the North side of Weerwater. It will drive land prices in Pampus and thereby make a case for higher density urban development. It will eventually connect the MRA to a much more important mixed use Pampus centre through a second link. An Almere that faces west for local commuter and recreational activities and one that faces east for regional and economic complementarities with other clusters in the North Wing, will help both the city and the region reach their set objectives.

Postcript

At the time of writing this conclusion, Almere won its bid to host the Floriade agricultural exhibition in 2022. Although we have not included the impact of this event to the development of Almere, our recommendation to start investing in the Weerwater area, before moving westwards is viable since most investments in the Floriade will be centred on the southern part of the Weerwater Lake.

Conclusion

The North Wing of the Randstad can remain one of the Netherlands' most competitive areas underpinned by it's three complementary economic centres (Amsterdam-Almere-Utrecht). The RRAAM programme sets out a clear strategy to future proof the environmental and ecological dimension of the region but is less successful at providing a long term sustainable urban development framework.

This report has argued that the RRAAM programme is a place specific strategy with limited impacts on the key drivers of competitiveness such as research and development and skills upgrading. Competitiveness based on less well quantified drivers such as quality of life is well planned but here the residential strategy must be distinguished from the environmental. Although the TBES phased strategy will future proof the lakes and bring up to €200m worth of investment from the recreational sector, the provision of dwellings is based on meeting short term market demands that are subsidised by future generations. Typologies of high density urban housing next to natural amenities such as in Orestad must be used as precedents. In terms of the RRAAM's contribution to economic competitiveness through transport infrastructure, the existing improved connectivity along the Holland Bridge will play an important role in helping the competitiveness of Schiphol, one of the region's most important clusters in terms of its complementarity with Lelystad airport. Furthermore, a second link will rationalise local commuter movements in the west via public transport allowing commercial movements on a less congested A6 to the east.

We weighed the pros and cons of better connectivity between Almere and the MRA versus social returns on investment for a second link across the IJmeer. We have opted to choose the option of better connectivity because of the way that this opens up Almere to residential centres across the MRA and vice versa. An IJmeer link will not solve all of Almere's problems. As we have seen in the case of the Orestund bridge, the patterns of passenger movements between Copenhagen and Malmo remain similar. Unless a destination changes in terms of its economic or recreational offer there is no reason why more people will start coming to an area because of an extra link. This is why we have opted for a phased strategy beginning with the Holland Bridge option where Almere can build on its excellent development around the Weerwater lake, increase its mixed use programme and continue to change the image of the city. Although, we have not studied the impacts of Almere hosting the 2022 Floriade, this event will reinforce the phased strategy that we propose. Coupled with strategies such as London's ELGG where small investments in making areas of natural beauty more accessible, Almere can also start changing people's perceptions of its amenities. This turnaround, starting from Almere's current best development and amenities will increase the land value and the take-up of residential and business units in the Pampus area when the development emerges. The true potential of the IJmeer link can only be made with a mixed use residential and economic centre in the Pampus area. The biggest threat to this phasing strategy is the continued development of low density housing in Almere such as in Almere- Poort and Almere- Oosterwold. This is the single most important weakness of all alternatives and damages Almere's image that it is trying to change. Although this low density rural and suburban typology may meet market demands today, it will divert investment and focus from Almere's potential to becoming a diverse urban centre and offering the MRA vital recreational and work space in the Pampus area. It is inconsistent to talk of an Amsterdam, Utrecht, Almere triangle unless all parties are prepared to re-vision Almere as a viable urban centre facing the lake. This means densification and the abandonment of an outmoded 20th century planning approach.

Addendum

In response to feedback provided by RRAAM on the report on October 12, 2012, LSE Cities has compiled the following clarifications to support our initial recommendations.

1. We acknowledge your comment that our interpretation of the low densities proposed in Almere Oosterwold do not reflect the realities of urban planning in the city. We fully agree with your statement that the Almere Oosterwold site is serving regional demand for this typology and have noted the same on pages 13-14. However, such low density development will put pressures on the environment and make public transport and public amenities provision more expensive in the long term. Although land shortage in Almere is not an issue in the short term, we consider higher intensity land usage today to lead to lower social and fiscal costs in the long term. Finally, we would recommend further research on innovative typologies that meet the regional demand for 'green-urban' lifestyles as noted in the table on page 15 of our report. We consider the Orestad case study as a good example where higher density, transit oriented development can meet the demands of green lifestyles without the social and environmental costs associated with low intensity land use.

2. We acknowledge your remark that the proposed densities in the Pampus-area are already significantly higher than other examples in Almere. We do not see however why Almere cannot follow the example of IJburg, which has average densities of 70 dwellings per hectare. Large scale developers may indeed look at high density development in Almere in the very long term and possibly following the development of IJburg2. If that is indeed the case, why should the Pampus development be limited to lower densities if regional demand for housing will remain strong? This will only reinforce the case for a second link in the Pampus area. The phased strategy that we are suggesting for the future development of Almere, starting from the existing centre and other locations can exceed the 19,000 planned dwellings and address immediate demand. Intensifying the centre today, making the most of the potential of the Floriade on the south side of the Weerwater and holding back from releasing land prematurely will make better use of Almere's land assets and promote higher density development in the Pampus in the long term.

3. We understand that road charging is not part of national policy at present. However, we would like you to consider the impacts of such policies on congestion levels and modal splits in the North Wing. This has previously be suggested by the OECD (OECD, 2007).

4. On page 31 of our report, we state that the TBES strategy will make a significant impact on the region's and Almere's recreational offer in terms of quantity, quality and diversification for current and future households. However there is no substantial evidence that such strategies will attract firms to locate in the region, hence our reservation to classify this strategy as a pull factor or one that improves the competitiveness of the region, when competitiveness is understood in terms of levels of exports of goods and services and the ability of a region to attract foreign firms.

5. We have omitted the following important regional rail connections on page 12 of our report: The Hanzelijn between Lelystad and Zwolle; The high speed connection from Schiphol southward to Antwerp and Brussels. Our argument on page 12 was twofold: That investment on the OV-SAAL network will improve the complementarity of Schiphol and Lelystad airports and improve congestion levels between Almere and Amsterdam. A further macro-level analysis needs to be carried out to understand the impact of these further lines on the competitiveness of the North- Wing.

6. On page 16 of our report, we refer to the recreational spaces of the MRA such as the National Park to the west of Haarlem, which we erroneously referred to as West Gardens. Our argument on page 16, is to reinforce the need for lake-side and waterfront activities in the MRA, which are under-represented compared to green amenities.

7. On page 18 of our report, we refer to the excellent bus feeder route system of Almere. Although the IJmeerlink, will provide an equally good feeder system, we emphasize that for the purposes of phasing the development of Almere, utilising the existing feeder system to underpin developments in the centre rather than investing in a new connection makes better economic sense in the short term.

8. We have been unable to find a good case study of a European city with a double connection between a municipality and a major city across a major natural obstacle. Hong Kong is a good global case study but the population levels do not make it a comparable case study.

9. We accept that the terminology used on page 21 to describe the local commuter use of regional transport networks was overemphasized. Our argument is focused on the weakness of the Holland Bridge to separate 'local-commuter' from 'regional traffic' movements when compared to the IJmeerlink option.

10. We acknowledge your comment that development corporations that take over both the public transport and development responsibilities of a new centre such as Orestad have been proven not to work in Holland. We would recommend that any transit-oriented future development of the Pampus area considers that releasing land for development at the right densities can influence the economic viability of transport investments.

11. Our report stresses the negative environmental costs of an IJmeer- bridge, which makes it a less favoured option. The metroline can be made visible in the Pampus area irrespective of the existence of an IJmeer- bridge. We have not looked closely at urban design proposals for the Pampus area, but close attention to where the metro is exposed or to the design of public spaces around the stations can improve the visibility of public transport in the Pampus district.

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