Junction City
- challenge the Urban Motorway

AOD, ad10-urb1 2007 :: Gitte Højland Hansen :: Rikke Løgtved

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Synopsis

This project is an investigation of the design challenges related to the meeting between the motorway and the city. The planned motorway through Silkeborg is the project´s Urban Test Field where the form typologies of the motorway as Crossing, Junction and Pocket are challenged as urban structures that transform city districts and generate new developments. The design consists of a set of concepts which all programmatically or physically link the layer of the motorway to the layer of the city and create a gateway to the city. The project represents the status of the lab December 2007.

Content ::

Preface ::

This project is a master project at Urban Design, Architecture & Design at Aalborg University.

The project: *Junction City - challenge the Urban Motorway,* investigates the potential of the motorway in urban settings, with Silkeborg as an Urban Test Field.

Notes are made after the Harvard method and sources are listed at the end of the report, as well as all pictures and illustrations that are not made by the group.

Additional lab specifications on the process as well as selected case studies, can be found in the Appendix at the end of the report.

With the report follows a CD with the digital version of the project.

New Design Challenge ::

Mobility is a keyword in our present lives, and new technologies allow us to travel both further and faster than earlier. The new urban form is, in its physical sense, therefore significantly influenced by the structure of movement and access. The city is to an increasing extent defined by systems of networks, both physical and virtual, and while we earlier understood the city as its buildings and spaces, the contemporary urban areas are more complex and more difficult to define because of its flux character. The motorway is one of the systems that interact with the city. It is a network which aim is to connect the largest cities together on both a national and international level. The motorway is no longer only a transportation tool for exchange of goods and occasional travel route for the private motorist - it has during the last twenty years increased the radius of action for many people and created an extensive mobility. It is now possible to travel longer within the same timeframe as earlier, and the consequence is a more complex and far-reaching commuter pattern. In Denmark these patterns cover a still larger part of the territory, which make the motorway an integrated part of the Danish urbanization (Pedersen 2006, 3).

The motorway and the landscape it passes have a long tradition for conscious interplay and the aim of the development of the Danish motorway network was to create a scenic course through the cultural landscape where the motorist experiences the open landscape, green corridors, panoramic views and selected landmarks. As the amount of traffic and thereby the amount of people on the roads has increased, new tendencies has emerged. Instead of just being a transport corridor for the exchange of goods, the motorway is today to a large extent the road of the commuters - a "traffic machine". This change in character and culture has influenced the context of the motorway. The view from the road is not solely a rhythmic experience of the landscape far away from cities, but sequences of landscape mixed with small urbanizations as business developments along the road, service areas as urban pockets and cities behind walls of screens. The motorway influences our patterns of settlement – especially the easy accessibility and the value of exposure attracts businesses, and the result is an apparently random development along the roads.

The development of cities and the changes in society have challenged the planning concept of the motorway. Cities are no longer "preserved" since landscapes of great value has obtained the highest priority. This means that the motorway of today to an increasing extent is dedicated to the city. The increased interest in the motorway makes demands for the architectonic concept of the road as well as challenges the overall design in a broader perspective. The motorway is no longer a connection through the open landscape but must be understood as part of an urbanisation. A lack of general design parameters and concepts in relation to the "motorway city" or the "city motorway" brings new urban design challenges that have to be investigated. A premise for this project is therefore a change in planning practise which is based on a model for interdisciplinary cooperation which enables the possibility to soften the strict boarder between the areas zoned for motorway and the areas available for developments by the specific municipality.

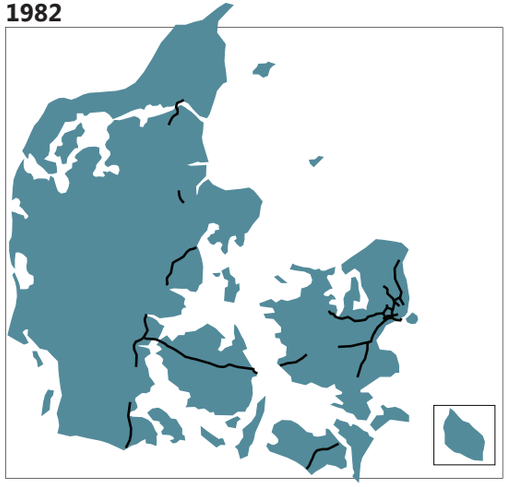
Tendencies in traffic ::

History

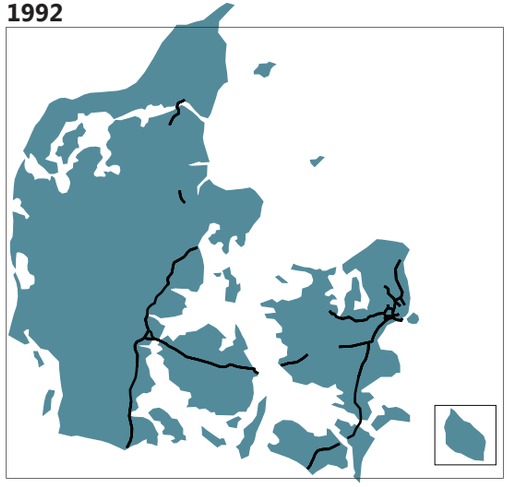
The motorway concept came from America and with inspiration from the planned motorway network in Germany, the Danish engineers started to outline a concept for a Danish motorway network in the 1930s. The first motorway: "Hørsholmmotorvejen" north of Copenhagen opened in 1956, and in the following years more roads followed. In 1965 the Danish government decided to build a new north- south going motorway along the east coast of Jutland, which ensured a direct connection between Aalborg and Germany. Partly because of the economical crisis in the 70s, the motorway was not a coherent structure until the late 1980s, but a series of sections that were meant to improve the traffic situation around the larger cities. As examples the motorway sections through "Limfjordstunnelen", across "Lillebælt" and around Copenhagen can be mentioned (Vejdirektoratet, 2005 A, 11-12).

First in 1986 the Danish Government decided to complete the coherent motorway network throughout the country as we know it today. The construction of these motorways was finished during the 1990s, and they made better regional and national connections. Looking at the regions, the biggest and most important changes happened in Jutland and at Funen, where the motorway created connections between many larger cities. The extension of the motorway continues, and a series of new motorways are being planned and established – among others the link between Herning and Århus. *This means that the motorway system in Denmark has been extended with approximately 80 % during the last 25 years.* Between 1982 and 2002, 446 km of motorway were opened, and at the beginning of the year 2002 the network consisted of 971 km road (Vejdirektoratet, 2005 A, 41).

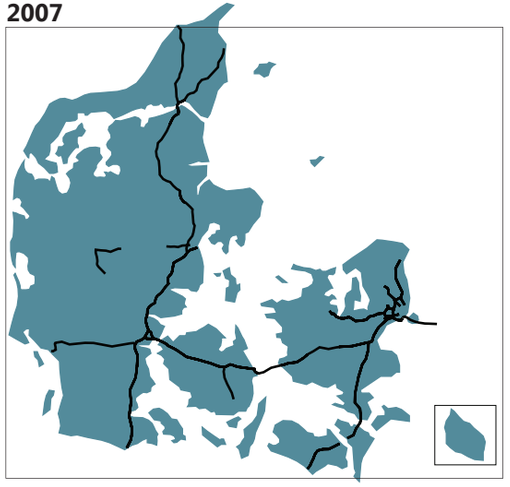
1982



1992



2007



Ill. 1: The three diagrams show the development of the motorway system in Denmark. In 1982 the motorway network was still very regional, the stretches were incoherent and they were concentrated around the bigger cities. In 1992 the stretch between Århus and the border was finished, but the north of Jutland was still disconnected. In 2007 the network was completed as a national network - the only part of the country which is still not linked to the motorway system is the western part of Jutland.

Traffic today

Throughout the country there has been an increased amount of traffic on the motorways the recent years. The development shows that the motorways are some of the most preferred road networks, and they play an important role, when it comes to the structuring of traffic flows. The motorway´s share of the amount of traffic is increased more than the development for the private traffic on the rest of the infrastructural network. This is caused by many factors:

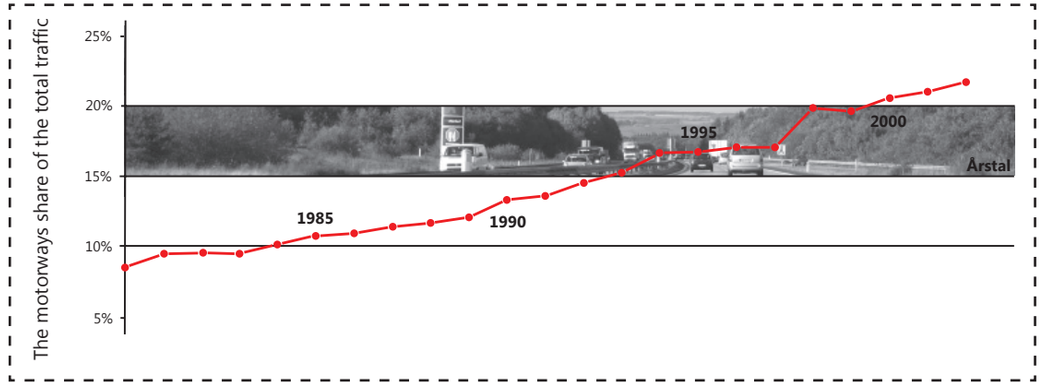
- The motorway network is extended, which means that more people have the possibility to use the motorway (choose to drive), and that it is easier to travel from one part of the country to another.

- The motorways are being used for local traffic, which especially can be seen around Copenhagen. This means that the traffic is moved from the local infrastructural network to the regional and national infrastructural network.

- Traffic growth is not only caused by the fact that more people choose to drive by car, it is also important that the distance they travel are longer. On longer distances people tend to use the motorway instead of the local road network.

– The increased economical activity among businesses and the centralization of warehouses have also influenced the culture of the motorway.

- Seen in a larger perspective increasing growth in traffic is among other things also caused by wealth, cheaper transport and changes in everyday life and lifestyle
(Vejdirektoraret 2005 A, 18).



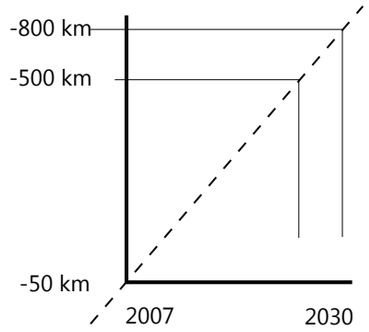
Ill. 2: The motorway´s percentage of the total road-traffic, when it is calculated as the number of driven kilometres, is increased from 10% in 1982 to 22% in 2002.
(Vejdirektoratet 2005 A, 19)

Ill. 3: In Jutland most of the motorway stretches still have the capacity to cope with the traffic flows, but at rush hour tailbacks can occur. When the capacity of a road becomes stained the motorists freedom to manoeuvre the car, as regards to the choice of speed and change of lanes, will be reduced compared to situations with lower traffic load.

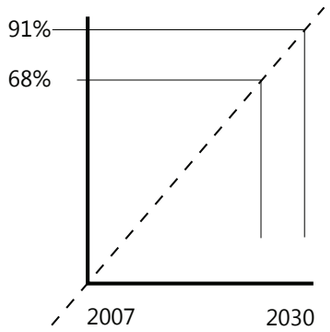
Traffic in 2030

The diagrams show a projection of the future traffic situation for the motorway network. The projection is based on the report "Langsigtet fremskrivning af vejtrafik" publiched by Danmarks Transportforskning. The projection illustrates how much the traffic could increase if the capacity does not pose any limitation.

There will always be limitations, but when the capacity becomes a limitation, an adjustment will take place, and in this way the realized traffic will decrease. The adjustment can happen in many different ways - the crowded roads will limit the amount of people who choose to live, work or spent their spare time in strained areas. This means that it will have consequences for the employment. Furthermore people can adjust by staying at home, choose other means of transport, other routes or by driving outside rush hours. Expenses are connected with these adjustments, and it is therefore relevant to show a traffic demand, which is bigger than the actual capacity.
(Danmarks transportforskning, 2007, 21)



Ill. 4: The expected lack of four-lane motorway today and in 2030.



Ill. 5: A minimum and maximum scenario for traffic in 2030, defined as the amount of driven kilometers.

Ill. 6: To handle the increasing amount of traffic, "Motorring 3" in Copenhagen is being extended. This is an attempt to get rid of the long tailbacks on the motorway.

Commuter flow

The commuter flow has increased within the last 25 years - one of the striking development tendencies is the increased commuting between cities, which means larger commuter distances. A lot of cities were earlier relatively independent units, but today they are within the hinterland of bigger cities - this is particular noticeable around Copenhagen and Århus. In that perspective it looks like Silkeborg, Viborg and Randers are functioning as a kind of suburbs to Århus (Vejdirektoratet, 2005, 25).

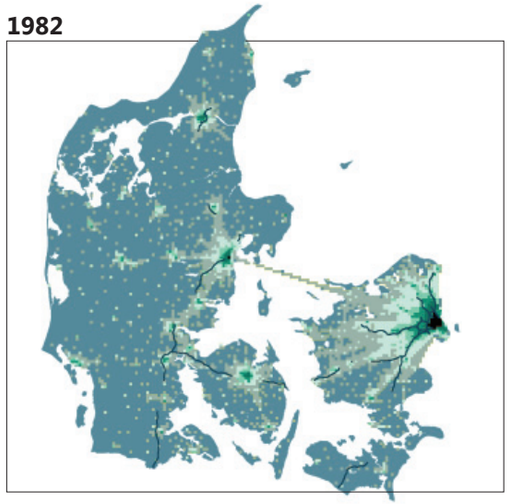
Commuters still travel the same amount of time, but faster speed limits means larger commuter distances and increased catchments areas, which again means that more people live in one area and work in another. The diagrams show that commuting and the development in commuting follows certain corridors and most of these corridors are identical with the motorway network. In this perspective the improvement and the capacity enlargement of the motorways have contributed to the development of the commuter flows.

The inclination to commute by car is depend on how close people live to the motorway and where their workplace are located. As long as there are no capacity problems, it can be anticipated that there will be a further increase in the number of commuters, and more people will choose to live outside the bigger cities.

As the diagrams illustrate, there are two dominating regions in Denmark. One region is anchored in east Denmark with Copenhagen as centre, the other region is anchored in west Denmark with Århus and "Trekantsområdet" as centres. Proportional to the centre area, Aalborg and Esbjerg are still seen as two independent regions.

Long distance commuting is increasing, but the majority still commute within the cities, which means relatively short distances (Vejdirektoratet, 2005, 25).

1982



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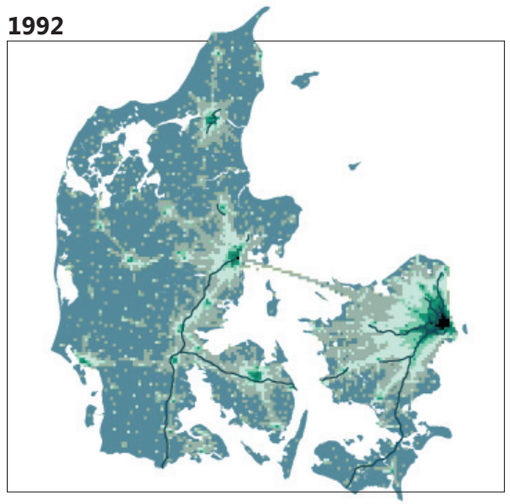
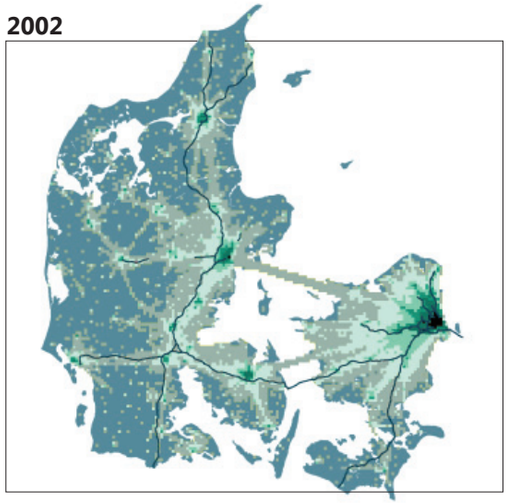


2002



Ill. 7: The diagrams shows how the commuter patterns have changed within a period of 20 years. (www.bvl.aau.dk)

Build-up area

Analysis of cities shows that it is no longer the city core, which is the most central place in relation to the labour market. In stead, the places with the highest accessibility are situated along the motorways – especially around motorway junctions. This development can be seen in both Århus and in the metropolitan region, where work places are concentrated around Motorring 3 (Vejdirektoratet, 2005, 23).

The focus on accessibility is basis for the growth of the number of workplaces. The reasons are: more room, cheaper rent and better car based accessibility to regions and the rest of Denmark and Europe.

As the diagrams show, there is an increasing interest in the proximity of the motorway, but it is still businesses like stores, transport and production factories that are dominating the edges.

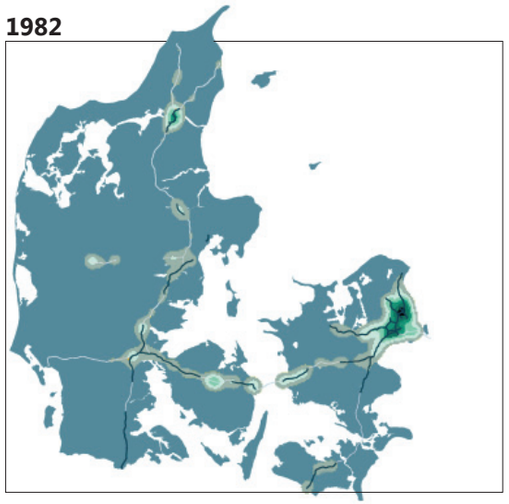
If we study the building volumes that are situated within 300 meters of the motorway, and which is build after the motorway has opened, there will be at least one of the below mentioned conditions fulfilled;

- The motorway is placed close to existing buildings (within 4 km.)
- There is a motorway junction nearby
- It is an area with a lot of traffic that is situated centrally in Denmark and/or in the neighbourhood of one of the big cities.

(Vejdirektoratet, 2005, 39)

A lot of businesses have a natural interest in good accessibility, possibility to expand and a location which is visible from the road. The visibility can be used to present the business to a lot of people and as a 24-hour exposure of the company.

1982



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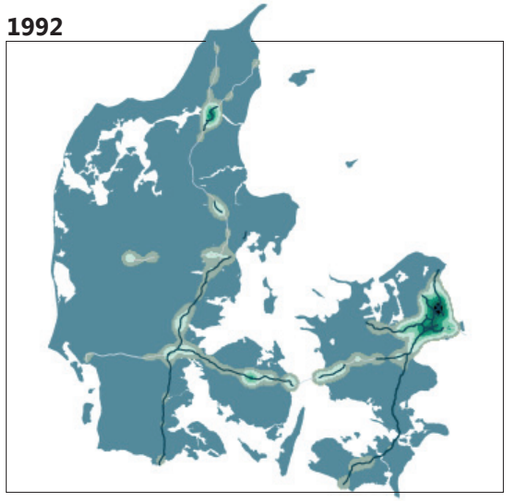
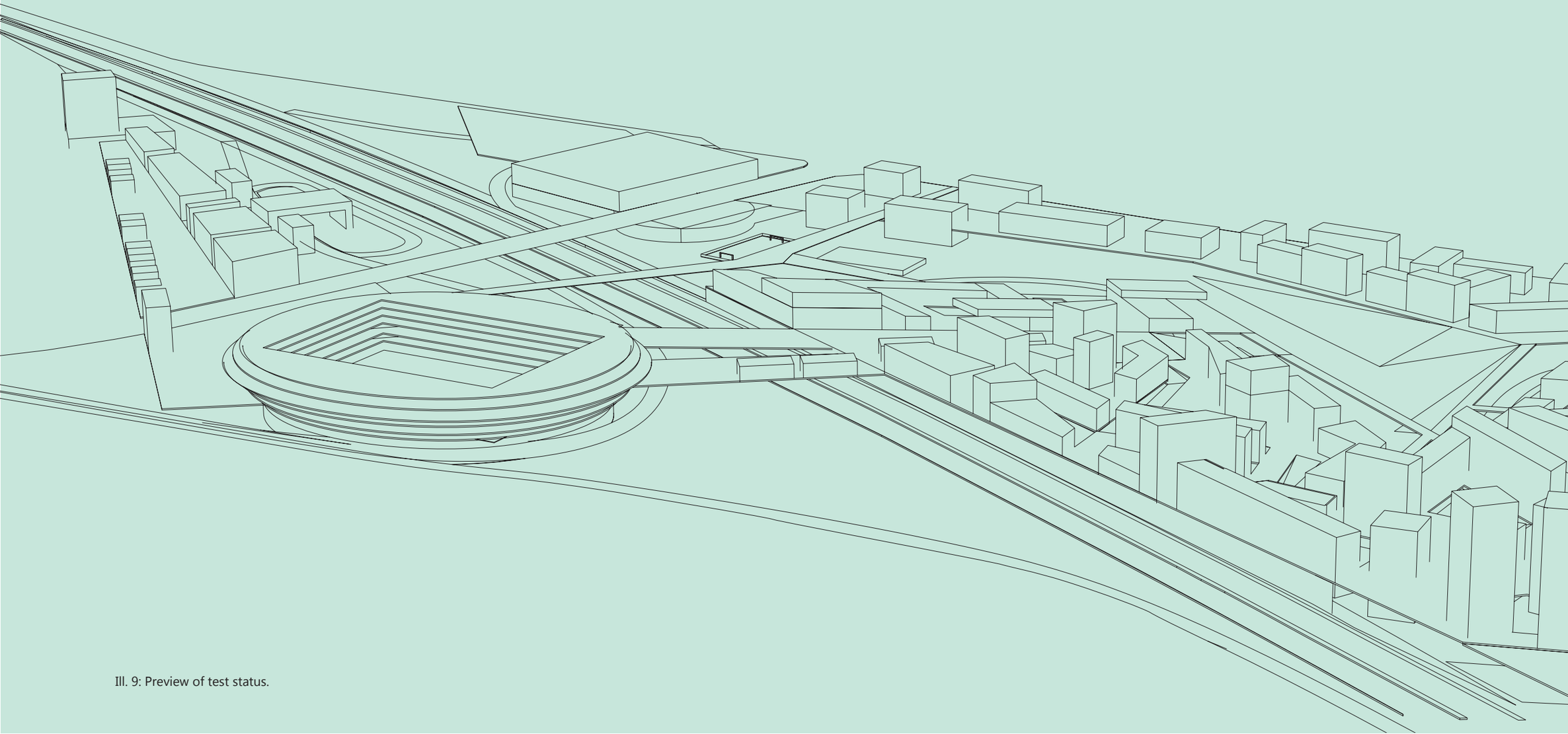


2002

Ill. 8: The diagrams illustrate the spreading of business buildings along the main infrastructual network, and it shows that the motorway influences the pattern of development.
(www.bvl.aau.dk)

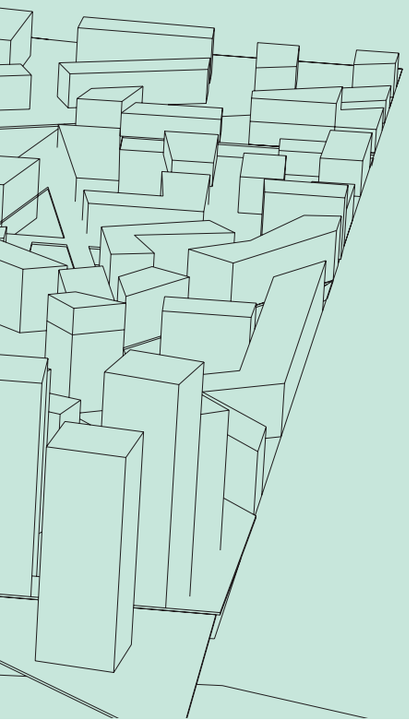


Ill. 9: Preview of test status.

Initiating Problem ::

Infrastructure, and especially the motorway, has a large impact on the urbanity, which is influenced by, and dependent on mobility and accessibility. The quality of space is often evaluated according to accessibility, and both business districts and city areas prefer an efficient and easy access to the infrastructural network. The motorway is an important factor in relation to this and statistics also illustrates that the motorway´s part of the total mobility is increasing as well as the amount of commuters using the motorway. The accessibility and the amount of people passing every day have had an impact on the urbanization along the road. More build-up areas along the road develop as well as motorways are planned inside cities which mean that the motorway consists of sequences of urban structures. The motorway therefore cannot continue to be perceived as part of the landscape but should be seen as an urban structure, since it to an increasing extend is urbanized.

The changed condition for the motorway is an urban design challenge which has not been fully tested but which now and in the future will be an important issue in planning and designing motorway sections. The aim of the report is therefore to investigate the new design challenges in the interplay between the motorway and the city.

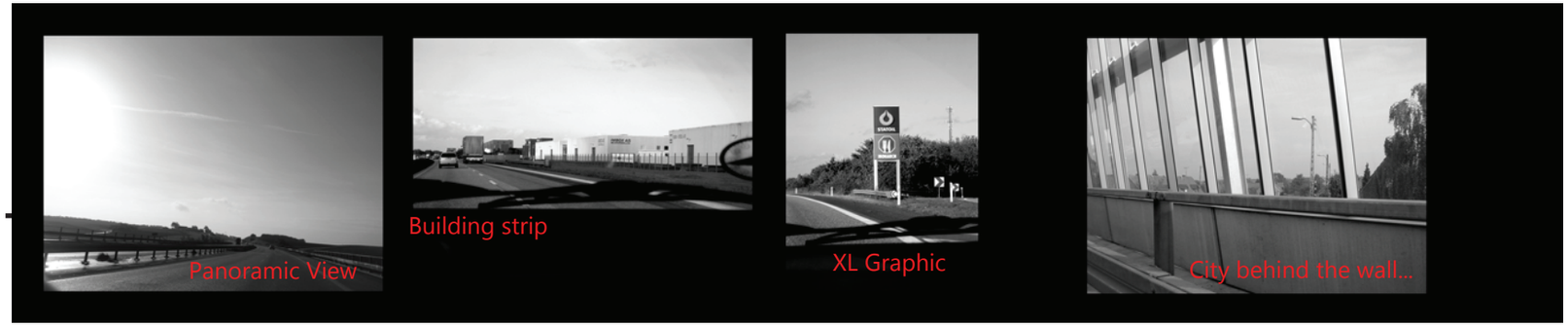


Method ::

This diagram describes the intensions, methods and primary sources that have shaped the main chapters of the project. Developed throughout the project, the diagram is seen as a tool to control the process as well as a diagram that visualize the main content of the report.

	Intention	Method	Sources
Frame: Character of the Danish motorway Theoretical discussion	Analysing the Danish motorway network and discuss some of the themes that re-late to the understanding of motorways as spaces rather than tracks through the landscape.	Books Articles Internet Fieldtrip	Byen, Vejen og Landskabet (Vejdirektoratet) Zwischenstadt (Thomas Sieverts) Mobility (Francine Houben) Case Study: "De Ringcultuur" by Neutelings Infrabodies by Monolab
Urban Test Field: Silkeborg as case Design concepts	Use the frame of the project and the character of Silkeborg to challenge the interplay between the motorway and the city, and investigate the possibilities for the motorway and the city to benefit by each other's existence.	Books Internet Field trip Maps Sketching Physical modelling Digital modelling Case studies	VVM reports (303.304.305) (Vejdirektoratet) www.silkeborgkommune.dk Case study: Holland Avenue by Francine Houben, Mecanoo Fleight Forum by MVRDV Acustic noise barrier by ONL architects A2 highway covering by Maxwan

Frame ::



\+ Mobility:
Network city
Zwischenstadt

Urban Test Field ::

Design Concepts ::

Ill. 10: Method diagram

Frame

Character of the Danish Motorway ::

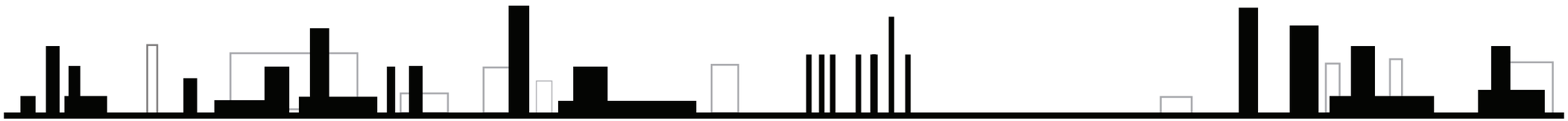
When driving on the Danish motorway, the driver experiences various settings – for instance the panoramic view over the cultural production landscape, views over valleys and lakes, large bridge constructions and sequences of urbanisation as screens, strip developments and pockets of service facilities developed only for the need of the driver.

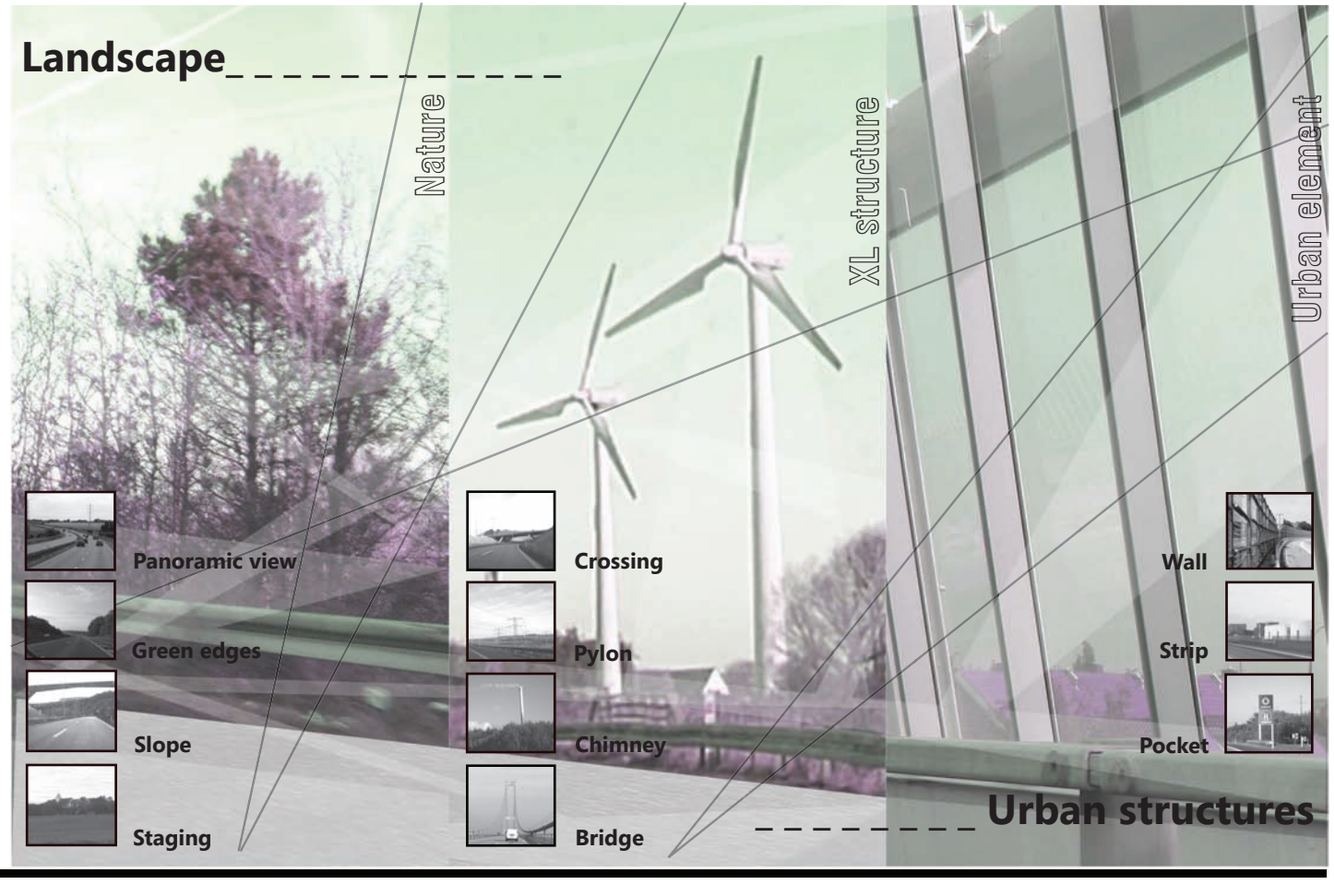
The aim of the analysis is to outline the characteristics of the Danish motorway. A part reflects the design tradition relating to the scenic motorway bending through the landscape – an approach which has been dominating for a long time and has developed a long design tradition which has resulted in good examples as the layout of the Jutlandic motorway. Though the intention of the motorway was to create an experience of the Danish landscape, the fact is that within the last 25 years the motorway has to a larger extend started to become urbanised. This is primarily caused by the fact that businesses have seen the motorway´s potential for 24-hour commercial and the expansion of cities are approaching the motorway which means that volumes begin to crop up along the road in a more or less random order which create new urbanities. Another tendency is that there is attached much more importance to the preservation of nature than earlier, and it is therefore no longer a matter of course that the motorway will be directed around cities – this means that the layout of new motorway sections are planned to cut through cities in order not to disturb any green spaces of great value. This is for instance the situation in Silkeborg where "Gudenådalen" is preserved as well as in Aalborg where the discussion of an expansion of the motorway capacity is about whether to cut through the western part of the city or to pass the landscape at Egholm.

These urbanisations along the motorway are less investigated than the motorway´s interplay with the landscape, and the lack of design and planning traditions in relation to urban structures are obvious. The main part of the analysis therefore outlines the tendencies of the urban structures in relation to the motorway.

The analysis is based on the visual experiences of the contexts of the Danish motorway. It represents three place specific examples of respectively Skanderborg, Aalborg and Vejle, which are meant as examples that show the characteristics of the landscape´s interplay with the motorway as well as outline the character of the urban structures in relation to the road.

The analysis of the Danish motorway is primarily based on field trips through the Danish motorway landscape, and the Danish Road Directorate's report "Byen, vejen og landskabet – Motorveje til fremtiden".





Ill. 11: This diagram illustrates the characteristics of the "landscape motorway" and the urban structures in relation to the motorway. XL structures are both relate to the landscape and urban settings as urban objects within the landscape.

Ill. 12: The “landscape motorway”

The Motorway through the landscape ::

In Denmark there is a traditional planning and design process for the construction of the "landscape motorway". The motorway tradition is based upon safety and changeable surroundings that create a serial history of sequences. The aim of the Danish motorways was to plan the roads in correlation with the landscape, and in that way create harmonious stretches with a varied expression.

Motorways are not meant to disfigure the terrains they pass through - instead they are supposed to be a natural part of the landscape, and further more the roads accentuate the characteristic of the surroundings by creating exciting panoramic views. By travelling fast, the drivers gain tremendous advantages in the geographical reach, but simultaneously they obtain an entirely different relationship to the spaces they inhabits. The landscape is perceived at a pace and distance that breaks any traditional relations (Weightman, 2006, 88).
The character of the motorway is constantly changing: it can be a closed room with high green walls, or it can be an open room with a view of a tunnel valley. The landscape in the background provides the overall atmosphere, while the details are most comprehensible in the verge in front of the car. To equalize possible differences in the level of the landscape, the motorway is often cutting through slopes or elevated from the context on a nature bank. The elevation of the road gives the motorist a perception comparable to the birds-eye view while the excavation of a slope creates high walls on each side of the road controlling the view of the driver.

The rhythm in the landscape is meant to sharpen the driver's attention by means of changing scenery. The general idea is that the course of the motorway is being staged as a movie, and the sequences have to be clearly defined, in order to produce points of orientation for the motorist. Each road user travels in their own time zone and they start and end their travel in different places. In that way you can meet a car when you are only 10 minutes' from home, but the car you are passing is only half way there. So the story that each motorist construct is individual, as the orientation points are perceived differently in proportion to which stage of the travel they are in (Weightman, 2006, 90).

The motorway section at Skanderborg is an example of a conscious bending course through the landscape. The view is constantly changing from wide panoramic view to green edges controlling the orientation of the driver. The driver gets an experience of the differences in the Danish cultural landscape in a rhythm sustaining the driver´s attention.

XL Structures

Large bridge and tunnel constructions are part of the Danish motorway network. While tunnels separate the driver completely from the surroundings, a bridge is a clearly defined monument that stands as point of orientation in the landscape. Bridges can be referred to as "road sculptures" – an element that is both a landscape element and an urban structure. Large elements as windmills, chimneys and pylons are often located close to the motorway and thereby supporting the scale of the network. The fact that people travel with high speed makes these large elements perceivable for the drivers, at the same time as they only to a minor extent visually disturb the surroundings.


Road monument

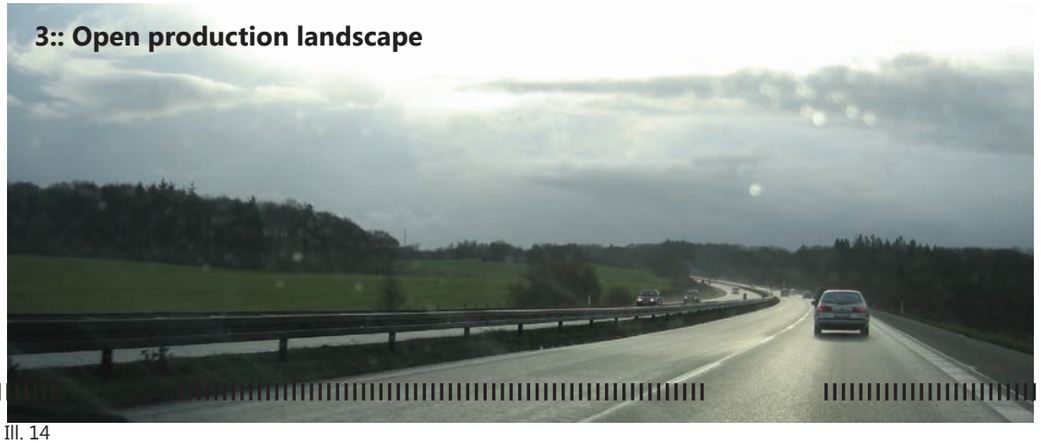

Beautification

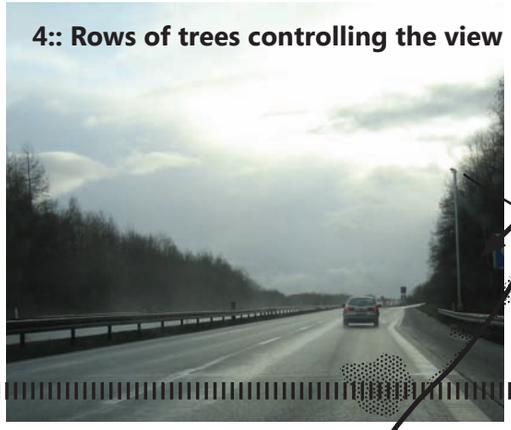

Crossing Connections


1:: Winding through the landscape

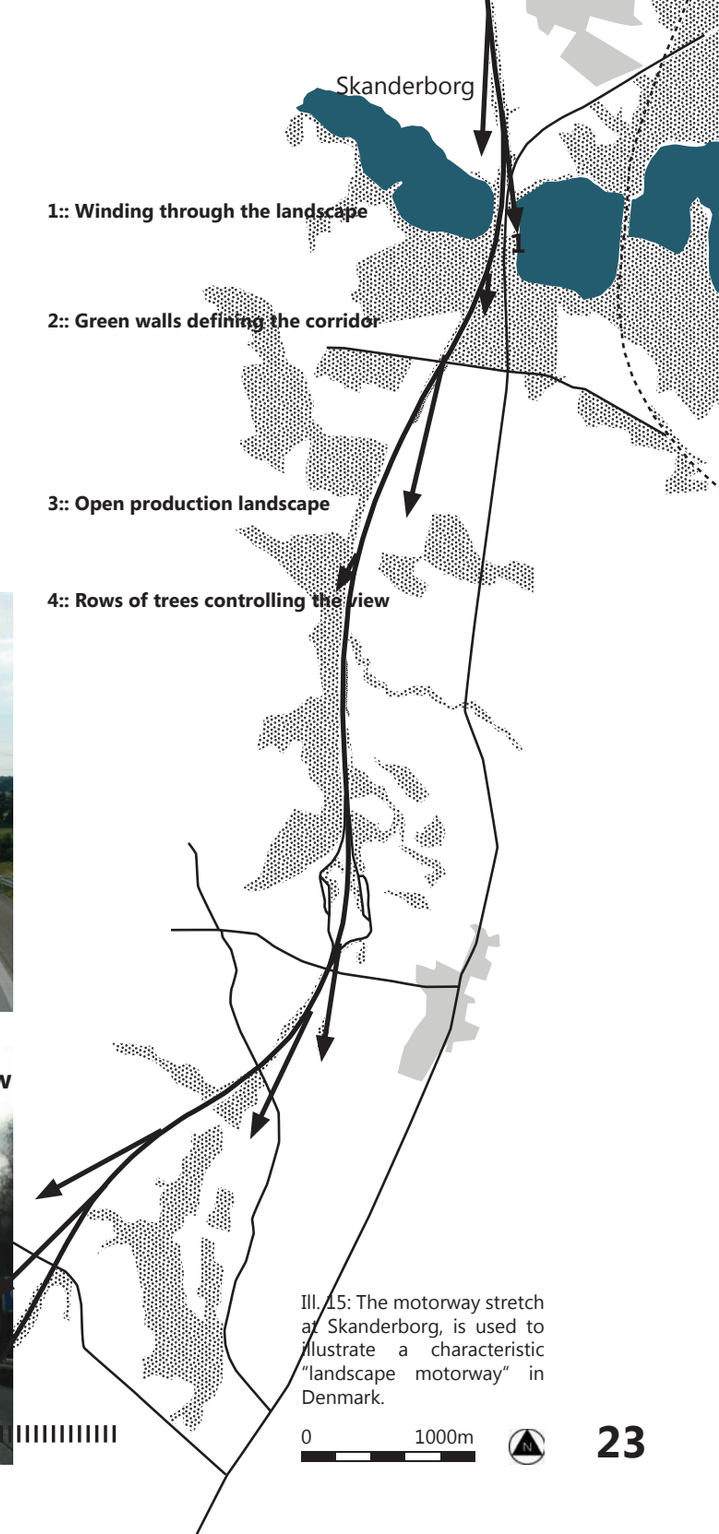

2:: Green walls defining the corridor

Ill. 13





Ill. 14



Ill. 15: The motorway stretch at Skanderborg, is used to illustrate a characteristic "landscape motorway" in Denmark.

Ill. 16: Panoramic view from the bridge across Vejle fjord

Urban Structures ::

Motorway through urbanisations

Urbanisation in relation to the motorway is characterized by various expressions and different relations to the road. One situation is when the motorway cuts through cities and passes residential areas, industries, recreational areas and institutions - all with different perceptions of the motorway. Another situation is when "small cities" or urbanisations intentional develop around the motorway in order to achieve accessibility and visual benefits or to serve the drivers demand for fuel and rest.

As the motorway through the landscape was planned to give the driver an experience of the variation in the cultural landscape, the motorway through city environments is also characterised by various sequences though in shorter intervals showing different elements of the urban environment. As seen in Aalborg, the motorway passes different residential areas, allotment gardens, industries and business, educational institutions, hotels and programmes that attract many people as large shopping facilities and sports arenas. The driver experiences these elements differently – some elements as business, hotels and shopping facilities are oriented directly towards the motorway using the transit space as space for advertisement, while recreational and residential areas are hiding behind screens creating walls along the motorway in order to reduce noise pollution and to avoid any contact with the motorway. A wall of screens as high and narrow edges is revealing the fact that the motorway pass close to residential areas. Allotment gardens are often located in left-over spaces along the motorway and only partly hidden by lines of plantings since the use is periodic. These various elements create a random and incoherent serial of stories through the city. However it gives the driver a varied experience with crossings, junctions and large building volumes as orientation points and transparent walls and open spaces which reveals glimpses of the city.

The "city motorway" is characterised by some general elements such as bridges, tunnels, crash barriers, underpasses and other road equipments. The "city motorway" has therefore a more dynamic atmosphere than the motorway through the landscape because of short sequences as shift in the character of the context as well as the increased amount of crossings over the motorway securing the continuity of the local network. Also the great lighting systems and numerous of signs contribute to the dynamic experience of the motorway and more junctions within a shorter distance than in landscape settings, creates a hectic activity when cars merge in and out over short distances. The junction is the motorway´s link to the surroundings as it is the only point where it is possible to shift between the regional and the local infrastructural network.

1:: Signs and light as motorway equipment

Transparent noise barrier

2:: Businesses along the motorway

Ill. 17

Ill. 19: The motorway stretch through Aalborg is an example of the character of a motorway in an urban context. This example shows short sequences, diversity in programmes and intensification of the amount of crossings and junctions.

Ill. 18

Ill. 20: Business strip north of Vejle

Urbanisation along the motorway

Business strips and service pockets have develop along or close to the motorway to serve the motorist or to make use of the easy accessibility and the visual benefit caused by the fact that many road users are gathered as potential customers or employees.

A location along the motorway facilitates the accessibility for the employees as well as the freight of materials and products to and from the company. These areas are therefore more attractive than the traditional city centre for certain businesses, and in this way accessibility has come to influence the prices of land. Especially when the motorway approaches larger cities, the density of the build-up area is increased and sections of minor urbanizations develop. A common tendency is though that these dense urbanized motorway areas are near a junction as well as close to larger cities. These large business areas seem to develop a casual structure that looks like sequences of strip-cities. This is the main reason why the areas surrounding the motorways have been subject to big changes during the last 25 years. (Vejdirektoraret 2005 A, 18-48; Pedersen 2006, 1; Vejdirektoratet 2005 B, 3)

As it is the case in Vejle, accessibility and the visual effect is important for the businesses along the motorway and it result in various ways of getting the motorist´s attention. The most common used methods are iconic elements, big graphics, bright colours or flags. The businesses use the motorway´s potential for advertisement as it is easy to gain the motorists attention, as the drivers have no choice but to look at the road and its immediate surroundings. The motorway is a 24 hour commercial space, and it is not only used to display the businesses, it is also used to advertise for new employees. Architecture has become an image parameter for a much wider range of businesses and most of the new buildings along the motorway have architectonic features that catch the eye of the road user.

As the business strip, the service stations along the motorway are directed and close related to the motorway and its users, but as opposed to the strip, these small urbanised pockets are planned in the landscape as part of the motorway network. Their locations often isolate them from the context often with no infrastructural connection to the surroundings. The filling stations have become independent units that link to the motorway as little pockets. While some are simply resting places, other have developed into urban enclaves, which offer the driver a diversified range of facilities as restaurants, internet and TV services, kiosks, car services, toilet and bath facilities, picnic areas, playgrounds, accommodations and conference facilities.

These pockets are often not visible from the road - several of them are surrounded by plantings which force them to gain the drivers attention by using large signs with big graphic.

XL Graphic

Icon as Commercial

Facilities that serves the driver

Outdoor stocking area

24-hour Job Adverts

Ill. 21

Ill. 22

Ill. 23: The situation north of Vejle shows the development of random motorway business areas which are developing along the motorway and close to a motorway junction.

Ill. 24: A passage under the new motorway bridge in Herning

View OF the Motorway

When talking about the character of the motorway one automatically think of the view from the road, since this is the point from where most people experience it. For some people the motorway is a neighbor or an inaccessible line in the landscape which make the perception of the motorway completely different.

Landscape

The motorway structure is supposed to be seen as an integrated part of the landscape, when viewed from the surroundings. If one look at the motorway from a higher position, it is possible to grasp a larger whole in the structure, and see that the motorway network is a landscape element in itself. From this point of view the motorway is removed from the traditional human scale by its physical size, its positioning and by the shear speed at which we travel (Weightman, 2006, 88).

When steering a course through the landscape, most people experience the motorway from a distance. The level of the motorway in relation to its surroundings is important for how it is perceived. In a flat production landscape the motorway is only defined by the passing cars. As the motorway and the landscape are at the same level, the motorway almost disappears. It becomes a line in the terrain that contains a lot of movement, and experienced at a distance it is a noiseless dynamic that moves in the background. In the evening the scene is defined by luminous lights that move in the darkness. When motorways steer a course through a preserved nature area or passes a sea, it is often elevated on bridges. These constructions ensure a visual contact as well as physical accessibility under the motorway and secure a continuity of the surrounding landscape.

Urbanisation

The city and the motorway are two separated elements, which only to a lesser extent interact. The city development is influenced by the motorway, even though the motorway network is a closed unit with a limited amount of access points. Occasionally a path is established along the motorway allowing the citizens to travel along the road and watching the dynamic movement of cars, but often the motorway is only visible at crossing points as bridges or tunnels. Areas in between are mostly private plots for residents, institutions or local businesses, to whom the motorway is part of the daily living as a neighbour which is perceived from the same position every day. The motorway is in this way often inaccessible from urban areas and the city offer no or only limited visual contact to the motorway – especially in residential areas where the motorway are hidden from the inhabitants. From residential areas, screens represent the motorway and are put up to reduce noise pollution. The design of the noise barrier creates an identity of the area when perceived from the road, but from the back it is often just beautified by plantings. The screen have in this way two facades which both have to be designed for high speed when people drive by and for the residents for whom it is a wall in the backyard. When not visually separated from each other by plantings or screens, the contrast between the low speed city and the high speed motorway is distinct – big graphics of the motorway sometimes appearing in residential areas and creating a clear contrast in speed and scale.

Ill. 25: View of the motorway through Aalborg from a crossing bridge

Potentials ::

The character of the Danish motorway has changed during the last years, and though the design and planning process for the motorway in the landscape has a long tradition, motorway sections through urbanisations or urbanised areas along the motorway seem to develop without overall planning concepts or design guidelines. The motorway through the landscape and the motorway in relation to urban structures are parts of an interconnected network, but their character and level of planning is different. Whereas the bending curves through the landscape show conscious sequences of landscape characters as part of an overall plan with the aim of creating an experience for the driver, the serial vision in urban settings is not a planning parameter but solely reflect a random shift in the character of the context. When passing residential areas or intimate city or recreational environments, the motorway is unwanted and attempted to be hidden by screens and the view from the road are thereby dominated by walls since these programmes turn their back to the road. As opposed to this the facades of educational institutions, mass-attractors as shopping centres and sports arenas as well as local businesses are directed at the motorway as a public 24-hour commercial space. Though it all relate to build-up areas, the character and interplay with the motorway is completely different. In the same way landmarks are used in urbanised areas to attract the driver's attention and not as planned points of orientation on the line. Instead of being part of a common planning concept, projects seem to develop as independent parts which relation to the motorway depends on the programme. Businesses are generally attracted by the accessibility and visual benefits of the motorway, and the plots at first row are therefore of high value. In this way market forces to a big extent influences the developments of attractive plots along the motorway and around junctions which result in casual developed strips with few or no characteristics in common.

Generally the motorway and the city are perceived as two independent systems and the motorway is treated like a foreign element. For most citizens the road is inaccessible and only a few businesses or institutions which happen to be located at first row make have the possibility to make use of the visual exposure.

The motorway and its surroundings are physically linked through junctions which only function as "traffic transformers" that ensure an interchange between a local network of low speed and a regional network of high speed. In urban environments more junctions within a shorter distance show the need for accessibility and people are pumping in and out of the motorway while cars are constantly shifting lanes in a dynamic movement. Also the amount of crossings are increased in urban environments – they indicate the need for the continuity of a local network but are solely functional infrastructural connections where people occasional stop to watch the dynamic of the motorway. The junction and the crossing are form typologies of the motorway as the service area. These small urbanisations can be perceived as enclosed pockets, but while a junction and a crossing are related to the city and the surroundings, a pocket is solely directed at the users of the motorway. It is closed enclaves offering service facilities for the driver as the possibility to fill-up the car with petrol, take a break or use the urban facilities as supermarket, restaurants, playgrounds or accommodation. The planning of these pockets in the open landscape makes them only accessible from the motorway and the target group is thereby limited to the road-users.

The urban structures along the motorway are in this way of different characters and with different intentions and relations to the motorway. Urbanisations emerge around the motorway in the shape of business strips or service pockets, while the motorway often is an isolated element within the city only accessible or visual from junctions and crossings. Common are though that urban structures are developed and designed as individual objects or minor sections instead of on the basis of an overall planning concept that secure a coherent organisation and the use of common design guidelines.

Theoretical Outline ::

The following section is intended to function as an outline of some of the themes that relate to mobility and the potentials of the motorway in the contemporary network city.

The mobility network makes it possible to move increasingly larger distances each day, which make accessibility a keyword in our present lives. The motorway play an important role in this development and it brings potentials for designing the city and the landscape it affects.

To discuss the impact of mobility in the contemporary city different sources have been used as for instance Stephen Graham´s book "*Splintering Urbanism*", Thomas Sieverts book "*Cities without cities*" and Francine Houben´s book "*Mobility*". The article "*Infrarchitecturbanism*" by Crimson has together with Marchel Smets´ article "*The Contemporary Landscape of Europe´s Infrastructures*" been used to point out the potentials of the motorway.

The Network City ::

Mobility

The ford, the crossroad, the railway and the water streams fast and big enough for transport of goods, were earlier essential elements when people had to settle down. "Historically, many cities and market towns developed wherever there was a junction. The intersection of two or more routes offered opportunities for rest or trade for travelers and merchants. The result was that Towns sprang up to accommodate this. (wikipedia.org-junction)

Places for city developments were based on accessibility, and a higher density increased the possibilities for exchange. In this way infrastructural networks have always been important in relation to settlement. A parallel can be drawn between the historical crossroad and the contemporary motorway junction, as both the crossroad and the junction generate an energy that a possible context could be based upon. It is places were a transformation of speed and direction occur. The biggest difference between the two concepts is that their roles take place in different times and in different velocities. Networks have always been in focus, but as described above, many networks have transformed into something faster, something more environmentally friendly or ecological, others have disappeared, while new and more advanced infrastructure systems have arrived.

Earlier the city was more or less defined only by architecture, but today the city is more than that. Transport networks, reserve spaces for the logistic movement of goods and virtual spaces for communication and entertainment are fundamental parts of the contemporary city. This means that the city constitute of a constant flux of different infrastructural networks that together create the "landscapes" of the urban milieu. In Splintering Urbanism, Stephen Graham defines the layers of the city as: the "electropolis" of energy and power, the "hydropolis" of water and waste, the "informational" or "cybercity" of electronic communication, the "autocity" of motorized roadscapes and associated technologies and so on. He points out the importance of perceiving these different layers or "spaces" as not separated and autonomous, but layers that rely on each other and co-evolve closely in their interrelationships with urban development and with urban spaces (Graham 2001, 8). Well aware of the interrelationships between the various networks, this project will focus on the problems concerning the "autocity" with the focus on the motorway and its impact on the surrounding landscapes.

With the new characteristics of the city, new words and expressions follows, and old and well-known dichotomies as public-private, city-landscape no longer have relevance. The generalized mobility caused by growth of car ownership and new technologies, have changed the contemporary city into a polycentric structure. The gradual merging of town and countryside challenges infrastructure design to break with old patterns, and the focus on the road and its immediate surroundings has changed (Smets 2001, 121). This development means that cities are increasingly developed into urban spheres consisting of enclaves and city districts, which are connected by infrastructural lines. This development makes it possible for the modern individual to live one place, work another place, spent spare time a third place and shop for groceries an entirely fourth place.

This changed condition of today´s build environment is described by Thomas Sieverts as Zwischenstadt – the condition of the widespread developments into the open landscape, the tendency which is changing the compact city into a new form of urbanised landscape or landscaped city (Sieverts 2003, foreword). The polycentric structure has been intimately linked with the construction of a whole system of supportive infrastructure, from motorways to service stations, to drive-through fast food centres and out-of town malls and auto-access leisure and retail complexes (Graham 2001, 117). The car and the road systems has become the dominant system of transport in the polycentric city. This means that the location of urban space is defined by its relation (or lack of relation) to important infrastructural connections as the motorway junction within the local, regional, national or international urban field. The motorway junction create a node of energy, and define the transition from a local network to a regional network where motorists enter the mobility corridor. These nodes are important in relation to urbanisation as well as for the identity of the surrounding city districts and the physical mobility of the city. (Nielsen 2002, 64; am 2001, 119-120)

"Billions of people worldwide spend a good deal of their time in an automobile, bus or train. In accordance with the universally valid principle of the equivalence of travel time, a growing portion of the world´s population travels further every day, but in the same amount of time as before. The effects of this vast expansion of the radius of activity have caused road systems, freeways and rail networks throughout the world to develop into a diversified mobility landscape that not only encroaches further and further on the available open space, but also continually creates and re-creates both urban and rural landscapes. Mobility has transformed the world and exerts significant influence on our daily lives and on mankind´s daily experience". (Houben 2003, 97)

Zwischenstadt

As Steven Graham mainly focuses on the networks of the contemporary city, Thomas Sieverts investigates the consequences of the network city and its increased mobility. He support Grahams discourse and points out that the railway, the car and the new technologies have exploded the spatial limits of our actions, and the city has been extending almost without restraint into the countryside. Its expansion and the degree of its dispersal follow the relevant traffic and communication technologies: the railway results in a star-shaped, linear expansion, the car fills in the surface and electronics leads to borderless expansions (Sieverts 2003, 1). Sieverts introduce the term Zwichenstadt which refers to the type of build-up area that is a consequence of and reason for continuing expansion of infrastructural networks. It is the area between the old historical city centres and the open countryside, between the place as a living space and the non-places of movement, between small local economic cycles and the dependency on the world market. Zwischenstadt is a consequence of the new condition, and the characteristics of today´s build environment which no longer is simply a city but merely large urbanisations made up of a number of development clusters, linked by transport routes. As Sieverts describes, this development has resulted in the creation of an "in-between" state – a state between place and world, space and time, city and country. Urban-rural landscapes is a new form of city which lead to the discussion of issues such as the increasingly fractured form of the boundaries between urban fabric and open space and nature, the gradual disappearance of the traditional hierarchical pattern and the mutual penetration of build forms and landscapes. This new condition forces us to develop new forms of the European city – the historical city will have to give up specific tasks and thus become one part of the city among others. (Sieverts 2003, intro, foreword)

"The Zwischenstadt stands between the individual, special place as a geographical and historical event and ubiquitous developments of the global division of labour; between the space as an immediate living area and the abstract traversing of distance which is only measured in the consumption of time; between the mythical Old City which is still very effective, and the Old Cultural Landscape which remains anchored deep in our dreams". (Sieverts 2003, 2)

As Sieverts describes, the zwischenstadt is like urbanised landscapes which structures consist of fields of various uses, construction forms and topographies – they take up large areas and they have both urban and rural characteristics. Zwischenstadt is a field of living which, depending on one´s interest and perspective, can be interpreted either as city or as country. The emergence of Zwischenstadt is according to Sieverts among other things caused by our house buying behaviour - we are looking for properties we can afford, properties from which the core of the city can easily be reached at the same time as the open landscape is nearby. The consequence of such accumulation of decisions is the settled landscape, which at the beginning is almost exclusively residential and, after a period of intensification, attracts workplaces and consumer provision. These residential environments are becoming more and more decisive for where we choose to live, and then the proximity of the workplace comes in second (Sieverts 2003, 2-5).

"In particular, we can see that the open countryside is changing from being the background of the city to being a figure bordered by the mass of settlement; we can see that the city cores are acquiring the character of shopping centres, and that the shopping malls of the Zwischenstadt are seeking to match the city centre in urban-ness; we can see that the cities' historical core only constitute a small fraction of the city and that other centres of attraction have emerged on the periphery". (Sieverts 2003, 48-49)

The phenomenon of Zwischenstad occurs all over the world though in different forms. These intermediate cities though share specific characteristics and they all appear as structures without a clear centre, but with many more or less sharply functionally specialised areas, networks and nodes (Sieverts 2003, 3). According to Sieverts all cultures find the Zwischenstadt a problem, which so far appears to be insoluble and lack any strategy. He points out three reasons: First the fact that Zwischenstadt does not have an independent identity, second that the shaping of the Zwischenstadt can no longer be achieved by the traditional resources of town planning, urban design and architecture and last the fact that the fascination of the myth of the Old City clouds our view of the reality of the periphery. Sieverts search for a realistic picture of the current situation and thereby wants to change the well-loved image of the city – the dense city with its mixture of uses, its plot structure and its public spaces delineated by the walls of buildings. He does not want to neglect the importance of protecting the historic city, but they are primarily dedicated for city tourism and only constitute a small fraction of the contemporary city. Zwischenstadt on the other hand is the ordinary place where most of us live our everyday life (Sieverts 2003, 11-18).

By means of efficient transport systems, inhabitants can reach and connect with a large number of diversely specialised uses and places in a short time. Today this pattern of use presuppose the use of the car as there in many areas is a lack of public transport that would provide adequate access to all areas of the city. Read and used as a system, the Zwischenstadt is thus problematic from several perspectives – among others the fact that it does only to a limited extend serve those sectors of the population which do not have access to a car. (Sieverts 2003, 71)

A result of the Zwischenstadt is a network-like structure with numerous functionally and symbolically diversified centres that supplement each other and make up the essence of the city when taken together. This development opens new perspective and possibilities but Sieverts point at the importance of making these centres accessible by other means of transport than the car, because the city then will become uninhabitable for many people (Sieverts 2003, 26).

As Sieverts, Graham underlines this as one of the negative consequences of the network city. On the one hand, mobility is a source of freedom, the "*freedom of the road*". Its flexibility enables the car-driver to travel at speed, at any time in any direction, along the complex road systems of Western societies that link together most houses, workplaces and leisure sites. On the other hand, the flexibility of the car is a "coerced" flexibility in the sense that the extended, polycentric cities that automobility supports entail an ever-increasing spatial separation of uses. The bigger distances between functions in the widespread urbanisation necessitate more and more use of the car, and for that reason it is important to note that "*mass mobility does not generate mass accessibility*" despite the widespread depiction of the car as symbol of unproblematic liberation.

Beside the fact that a car is needed to be part of this mobility society, the motorway system with limited access points radically alter the possibility to cross and interact because it often is superimposed on local, more fine-grained, street structures. When a motorway is build in the neighbourhood of a city, you can refer to the term "local bypass", which refers to the development of new parallel or substitute infrastructure networks that facilitate the development of contestable markets in infrastructural services within a city. These new networks are not ubiquitous or universal - they tend to be configured to connect only selected users and places while simultaneously bypassing others (Graham 2001, 118-120, 168). This development towards a car-dependent city could according to

Sieverts be slowed down by a slowing down of the expansion of the road network, but he admits that this overall trend cannot be reversed. Furthermore Sieverts acknowledge that accessibility through good traffic networks is a necessity for the city region to develop its total potentials. (Sieverts 2003, 23, 60)

In the USA, settlements in the periphery is in many cases triggered by motorway exits, major shopping centres and major office complexes on motorway intersections. Also these very widespread Zwischenstädte have long since separated themselves from the original city, but here the dependency relationship has often been reversed – the impoverished core city now looks for its work places in the surrounding Zwischenstadt (Sieverts 2003, 5).

According to Sieverts about half of the world's population will in the future live in some variant form of a Zwischenstadt. These structures will then be so large that their inhabitants have no opportunity to escape the Zwischenstadt in their day-to-day living. As a result, all the living requirements must exist within these places (Sieverts 2003, 11). In this way the Zwischenstadt can be read as a system which permits the widest variety of action, spaces and connections – as a menu from where its inhabitants can assemble a "*life" á la carte* (Sieverts 2003, 71). The layout of the Zwischenstadt is a complex cultural landscape with functional spaces for our everyday life. It has its own form, order and qualities and Sieverts points out the beauty of the daily and ordinary landscapes. This daily landscape, the periphery of the city and the character of the Zwischenstadt have a large diversity of spaces, activities and people. This cultural diversity has potential for new activities with the advantage of reaching more people than the Old City. The Zwischenstadt is a space for personal existence, a space where individual territories can be spontaneously connected and separated. Due to the specialised society, day-to-day living is organised in spatial and temporal "islands" with specialised functions. These spaces are predominantly linked with each other through traffic routes which enable inhabitants to compose their personal city in form of highly specialised islands of activity (Sieverts 2003, 74-78).

Understand the past

The contemporary discussions about the city and the infrastructural network originate from the modernism, where modernist projects forced the nineteenth century idea of boulevard/city into the one of motorway/metropolis. By doing so it changed the traditional street as part of a meaningful form provided by history into a functional line of movement. The modernist traffic system consisted of separated car and pedestrian flows, the traditional city's mixture of functions and common road systems where turned into a hierarchical traffic concept. The whole modernist society was divided by functions and thereby creating a separated city. (Tietz, 1998, 66)

During the 1960s the opponents of the modernistic city began to win respect again and urban designers and architects began to remember that "streets are what make the city work" (Houben 2003, 84). Since then the aspect of mobility has been discussed and different studies made as attempts to re-allow the road to be a structural component of the urban landscape (Nielsen 2001, 11-12; Houben 2003, 83-85).

While some criticised, others had a more positive and curious approach. Kevin Lynch was one of the first to develop a theory of the city based on the motorway – the most criticized urban development at that moment. Here Lynch focused on the visual perception of the urban landscape from the driver´s perspective. "*The Image of the City*" (1960) and "*The View from the Road*" (1964) show this renewed interest in the relation between design practice and road infrastructure (Houben 2003, 87). Lynch was according to Sieverts one of the most important actors in the forming of the Zwischenstadt. Lynch did not describe his ideas for an ideal city, but rather described the actual city which took on many forms depending on its location and culture (Sieverts 2003, 99-102). While Kevin Lynch looked at the city from the road, others tried to redefine the design practice in relation to the changing patterns of production, consumption and mobility within the city. Robert Venturi and Denise Scott Brown wrote "*Learning from Las Vegas*" (1972) as the result of an experiment, where they defined signs and symbols along the roadside as an important part of the image of the city. Elements that were previously neglected gained attention as urban elements, and road infrastructure therefore gained attention in the world of architecture as an element that needed to be

designed – not purely planned or engineered (Houben 2003, 87-90). Venturi and Scott Brown studied the potentials of the new urbanisation and tried, based on this, to understand and describe this new city. Their approach towards the city were not accepted within the professions of architecture and planning – where actors wanted to maintain the idea of the city as defined by an important centre surrounded by a periphery. Not until the beginning of the 1990s it was fully acknowledged that this understanding was insufficient. It was no longer adequate to divide the city into only two concepts of "*the fragmented city*" or "*the compact city*" - it was time to more complex ways of thinking. This changed approach was kick started by the Dutch architect Rem Koolhaas, who in the 1970s more than others renewed the discussion of the city, with his analyses of the metropolis New York . In his book "*Delirious New York*" he emphasizes the principle of mixed functions, by which he questioned the present urban situation (Teitz, 1998, 67). His work should be seen as a re-definition of the city and its architecture, and an attempt to set up a conceptual frame which indicates new methods and approaches to work in and with the cities of today. Thomas Sieverts describes Rem Koolhaas as one of the euphoric adherents of the "Zwischenstadt". His goal is a provision of vagueness and an increasing degree of openness. The real urban potential is the unlimited freedom and the unlimited possibilities. His text "*The Generic City*" is one of the most known examples which introduce new ways of understanding and describing the city of the latest 1990s. Like Venturi and Scott Brown, Koolhaas, tries to develop a new vocabulary for the city. (Nielsen 2001, 18)

"On the one hand the road is recognized as the new ordering principle not only for specific buildings on given sites, but to construct the site itself; on the other it is declassified from material practice to architectural decoration, in the sense that the ´new role´ of the road as regulator of both the city and its landscapes has never been specified in terms of design knowledge and technique". (Houben 2003, 91)

Potentials in mobility

Since Lynch drew attention to the visual experience of the motorway and its surroundings, and Venturi and Scott Brown studied the Strip in Las Vegas and presented the motorway architecture, the road again started to become a design parameter.

The recognition of the road as an essential part of the city did not to a big extend entailed the involvement of designers as part of the development team. From the sixties onwards, road design have primarily been developed by engineers, while the job of urban designers and landscape architects in general have been relegated to the task of planning squares and parks (Crimson 2002, 250-251, Smets 2001, 121).

Still infrastructural projects are controlled by engineers, but the situation appears to have changed. Now there is a tendency to involve architects in an early stage of the process and allow them to take their place at the drawing board. More infrastructural projects (for instance in Denmark) have within the last years been based on architectural ideas, but still the general perception is that designers mainly are involved to smarten up the constructions, decorate the leftovers and add furniture as lights and noise barriers once the implementation has been done.

"But what is the value of aesthetics if it is twinned with a defensive strategy exclusively targeted at blending, harmonizing, making things invisible? What a curious idea it is to adapt infrastructure to the Dutch landscape, as if the two were polar opposites, the one artificial and the other natural. On the contrary, one might contend that laying out roads means the opportunity to give shape to an entire new city or an entire new landscape". (Crimson 2002, 250)

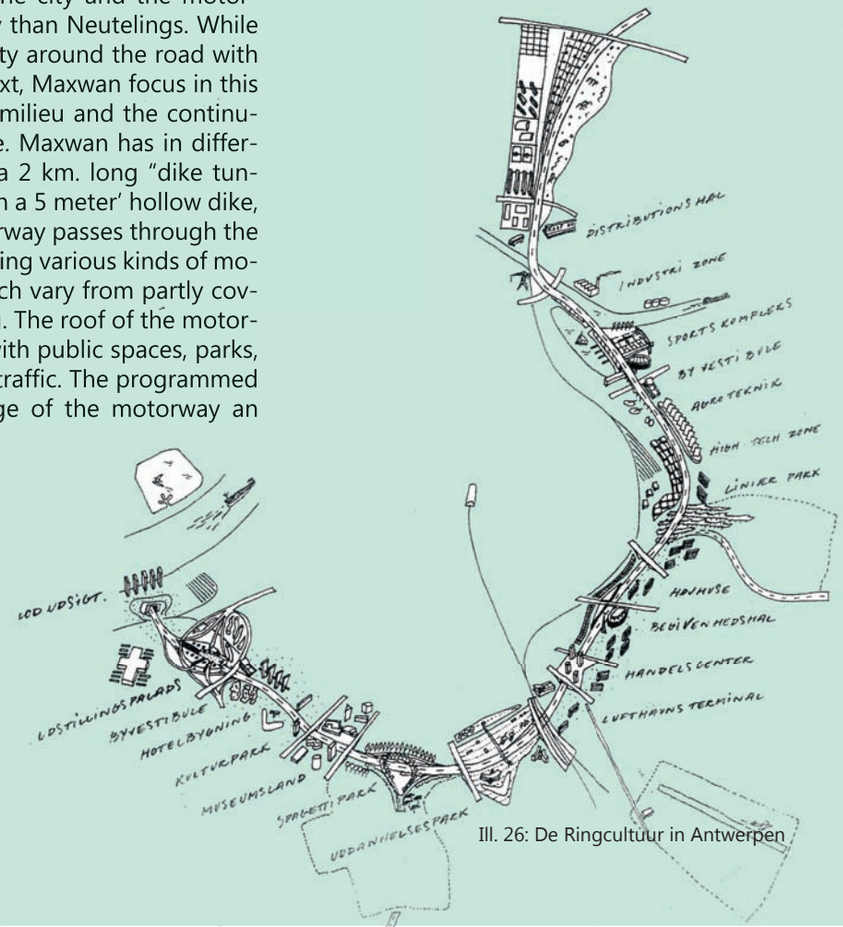
Motorway infrastructure clearly brings potentials for designing the city and the landscape it affects, but traditional aesthetic and urban terms are difficult to transfer directly into this field. Many designers are trying to get at grip of this phenomenon, but it seems to be reduced to punctual interventions and beautification along the road. Still the general impression when travelling along the motorway

is characterized by sequences of casualness. This is remarkable when considering how many architects since the sixties have tried to point out how different the motorway is from traditional planning. (Crimson 2002, 250)

Willem Jan Neutelings was the first European architect to discover the possibilities of the zones along the European motorway. Twenty years after Venturi and Scott Brown introduced the Strip in Las Vegas as examples on contemporary architecture, Neutelings observed that the edge of the city was a rather exciting part. In his project "*De Ringcultuur*" (1988) he developed new building typologies with the aim of presenting a picture of the programmatic and visual potentials of the residual zones along the urban motorway. Neutelings analysed the mechanisms of the mass culture and rapidly generated programmes along the Ring Road zone in Antwerpen and tried to come up with a set of planning instruments for working in these areas (Crimson 2002, 257-258; www.neutelings-riedijk.com). According to Neutelings almost every ring road suffers under the lack of an overall plan. The location of activities and the appearance of buildings are characterized by a natural randomness, which make the road a band of fragmented patterns. Neutelings ring road structure is a ring road urbanization, which only relate to the road and its users. The urban milieu is characterized by a physical emptiness that stands in a clear contrast to the density of programmes. The lack of intentional developments does not mean that the ring road is less important – according to Neutelings, the ring roads will continue to gain importance and by time take over the position of the traditional town centre. This is the consequence of an easier accessibility in relation to the suburbs and the contemporary cultures attraction of the ring roads. Earlier church towers or city gates marked the entrance to the city, but now it is the sudden densification around the motorway with large scale architectural elements, that indicates that a city is about to be approached (Neutelings 1989, 18-21).

Neutelings challenges the physically and programmatic layout of the Ring Road and works with isolated large scale architecture. There are only a little or no relations between these different objects, but the dense programming along the road has resulted in a whole – "a ring road city". (ref. p. 128)

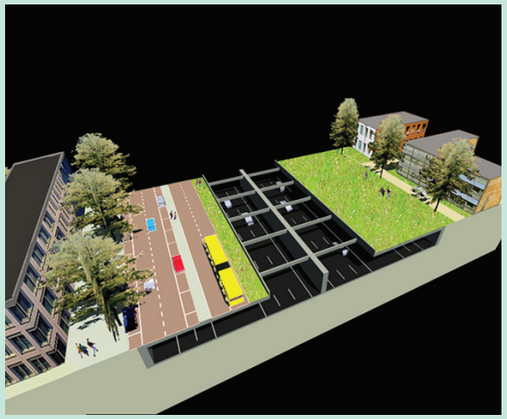
In the Dutch study project "A2 highway covering" from 1995 Maxwan has worked with the interaction between the city and the motorway in a different way than Neutelings. While Neutelings create a city around the road with no focus on the context, Maxwan focus in this project on the urban milieu and the continuity of the urban tissue. Maxwan has in different ways challenged a 2 km. long "dike tunnel", which is hidden in a 5 meter' hollow dike, where a 10 lane motorway passes through the city. The project is testing various kinds of motorway coverings, which vary from partly covering to total covering. The roof of the motorway is programmed with public spaces, parks, tennis courts or local traffic. The programmed surfaces give the edge of the motorway an



Ill. 26: De Ringcultuur in Antwerpen

added value, and that generate a better development of the city edge. The different proposals are all plans of a larger city district, where the motorway is an artificial urban artifact that is an integrated part of the development. The motorway is not seen as a single object - a functional line that passes through different city programmes, but understood as one element among others in a bigger coherent field. (ref. p. 129)
(http://www.maxwan.com/projects/max002a/)

The motorway has undoubtedly a large impact on the contemporary city and its potentials are still to be investigated. According to Crimson the challenge that lies in the future infrastructural work consists of allowing projects to not only reflect political and financial considerations, but to act as a visionary starting point for the city of the 21st century (Crimson 2002, 262).


Ill. 27: A2 highway covering.

"The task for the future is to fully develop the environment, the economy and technology in the right balance. This means the architects' task is to come up with new solutions that break new grounds – to produce designs that answer the steadily growing demand for mobility. This demand should not be resisted, but rather channeled along the right lines. It is vital that work be done on public transport and motorways, as well as on bike-, skate- and footpath. Wonderful transfer junctions between train, metro, bus, car and bicycle must be designed. The landscape angle must be combined with awareness that mobility routes are public spaces with a culture, code of conduct and aesthetics of their own. Research and design must lead to the development of a new set of instruments". (Houben 2003, 70)

Today the mobility space is overlooked as a potential space for meetings – these spaces are the most commonly used spaces in our everyday life, often located on the back side or in the periphery of the contemporary city. Everyday public spaces are to a great extend spaces that provide setting for practical activities - as transport spaces like roads, bus stops or parking lots in relation to shopping centres. These spaces are ordinary compared with the often more recreational and entertainment-oriented activities in the city centres. People use these ordinary spaces to and from work, when we pick-up our children, when we go shopping or visit our friends, but still the emphasis on mobility spaces are mostly on their logistic, which of course cannot be neglected (Svarre 2007, 59-69). According to Marchel Smets "*the public character of infrastructure gets to be particularly visible in the gathering points that it entails. Transfer nodes, parking lots, and service areas offer more opportunities for unforeseen encounters, than shopping malls or market places*" (Smets, 2001, 124).

On this background the space for mobility ought to have a new and more important role in relation to public spaces. Many people's definition of a public space refers to the Italian "piazza", where an open space is clearly defined by the surrounding buildings. With regard to mobility new conditions are in focus - here social spaces may be less visible and not necessarily comprehensible. Further, they may no longer be static or embedded in the physical fabric of the city in any simple or comprehensible way (Graham, 2001, 120).

Still some consider transit spaces as non places, because they appears to be without identity and history. The fact is though that we travel more and more and thereby spend

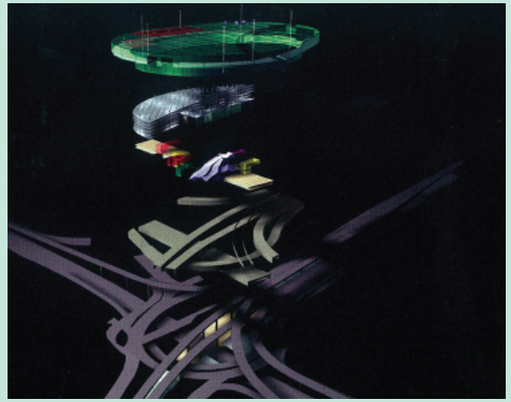
more time in these spaces. This of course is to a big extent also the result of the transformation of these spaces from mono-functional to multifunctional, but it means that these nodes or points of transition are potential places for meetings and interaction. In relation to the motorway the configuration of service areas and crossings are therefore all the more interesting. They are increasingly used as gathering places for a multitude of purposes, often on a twenty-four hour basis, and besides their customary function of fuel provision and resting or picnic area, they often also accommodate shopping, restaurants, cafés and hotel facilities, and it serves as a meeting-point for many people. These spaces are enclaves of urbanity, often excluded of its context and with only one entrance and one exit. All ingredients are in this way present for making new landscapes – multifunctional spaces with or without the specific context in mind. (Smets 20001, 125)

Monolab architects have worked with these urban enclaves of urbanity. In the project "Infrabodies" from 1997, they made an independent study into the programming of urban vacuums, empty zones along heavy infrastructure. The A20 motorway, which functioned as a test case, is the northern part of the Rotterdam Ring in the Netherlands. The project focuses on fusion between infrastructure, urban material and landscape, and the infrastructure nodes are seen as ideal locations to realize massive programmes. The Infrabodies are six "hyperdense" urban centres built immediately on infrastructural nodes such as motorways and train lines. They have all become public meeting places, where the road has become the architecture and the architecture has become the landscape, but they are still independent objects in the city, because of their size and the complex composition of programmes.
The infrabodies are cities within the city, and because they are situated in empty zones along heavy infrastructure their idiom does not relate to the city context. They are icons along the infrastructural flow corridor (Nielsen, 2004, 130-134). Monolab has gone a step further than Neutelings, since they have challenged the road and made it merge with other programmes instead of just programming the edge of the motorway. (ref. p. 131)

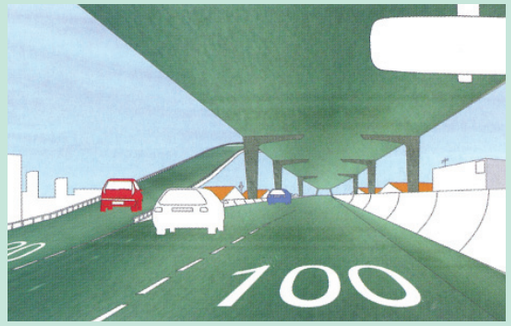
Inspirered by Neutelings, Francine Houben and Mecano, challenge in the project "Holland Avenue" the design and layout of the motorway. The project is an investigation of design terms, tools and strategies that relate to the road user's visual intake. The examination makes a categorization of three spatial conditions, road, verge and field, and diverse solutions is made for each of them. In that way the solutions are smaller initiatives, it is a catalog of inspiration, from where different solutions can be chosen and put together in your own more complex composition. In proportion to the other cases, "Holland Avenue" works in a smaller scale and it is often only a single element that is in focus. They work e.g. with graphic on the road an along the road in connection with advertising, paid lanes and identity, and they challenge the road by splitting the lanes both horizontal and vertical, and thereby place programmes in the middle of the road, or they separate the roadusers in a fast flow and a slow flow lane.

The term "Holland Avenue" declares the intent to consider the motorway, not solely as a tool to go from A to B, but as an environment that is in itself a place to be. (ref. p. 130)
(Houben, 2002, introduction).

All the cases that have studied are Dutch projects, which in a way is obvious. The dense populated country with only few open areas, have forced the planning system to search for alternative ways to structure the urbanised areas.



Ill. 28: Infrabodies -



Ill. 29: A2 highway covering.

Sub-Conclusion ::

Today the city consists of various layers of infrastructural networks which together create the urban landscape. This means that dichotomies of city and landscape and centre and periphery no longer have relevance. The contemporary urban life is to a bigger extent taking place around the city centre which has become a weekend attraction of cultural activities.

This development means that cities are increasingly developed into urban spheres consisting of enclaves and city districts, which are connected by infrastructural lines. The car and the road system has thereby become the dominant system of transport in the polycentric city, which means that the location of urban spaces is defined by its relation to important infrastructural connections as motorway junctions. These nodes are important in relation to urbanisations as well as for the identity of the city.

Throughout the history many architects have tried to bring the road and its potentials within the city into focus. Among others Kevin Lynch, Robert Venturi and Denise Scott Brown gained attention of the road as an urban element that needed to be designed. The motorway brings potentials for designing the city and the landscape it passes, but still the general impression when travelling along the motorway is characterised by a randomness, which make the road a band of fragmented patterns. Rem Koolhaas has more than others changed the perspectives of the roads and infrastructural elements, and if something has to change, infrastructural networks are not to be seen as external elements, but as large-scale artificial landscapes that enable us to transform and give shape to new landscape and city environments.

The city and the motorway have for a long time been perceived as separated elements due to their difference in speed and function, but in relation to infrastructural nodes as crossings and junctions, the motorway interact with the context both visually and programmatically. In this way nodes gain importance as generators for city development and together with parking lots and service areas, they offer opportunities for unforeseen encounters as potential public spaces. Such spaces contain other potentials than public spaces within the city centre, and challenge both the programming and composition of the space. The motorway is in this way perceived as a public space –as one of the most dominating spaces of people´s everyday life.

The potential of mobility spaces has been investigated as seen in international cases – especially from Holland. Programmatic inspiration can be found in Neutelings "Die Ringcultuur" and in Monolab´s "Infrabodies". Neutelings focuses on the programmatic and visual potentials of the residual zones along the motorway, where big volumes contain "mass-programmes". Monolab has also worked with big volumes and programmes that attract a lot of people, but instead of a single programme in one building, they have made mega structures as nodes that contain diverse programmes. The project "A2 highway covering" by Maxwan focuses on the motorway as a line that transform urban settings. The motorway is in this way seen as a part of the city. Though many cases have been investigated, many projects focus on "object-solutions" instead of perceiving the motorway as an integrated element in a larger coherent field which can benefit by the city as well as add value to the urban environment.

Goals ::

The interplay between the motorway and the city is still a field not completely investigated. This is opposed to the long tradition for conscious interplays between the motorway and the landscape. Motorways attract new developments, which mean that urbanisations emerge along the roads. This happens at the same time as new motorway sections are planned through existing cities, in order to preserve the landscape.

The lack of planning and design concepts has resulted in casual developments of businesses around larger cities and motorway junctions. These business developments are like "strip cities", which seek to create a "wall along the road" in order to define an advertisement corridor for the driver. At the same time motorway sections through cities reflect sections of incoherent and casual processing of edges, crossings and junctions. The development of motorway sections close to or directly through existing urbanisations is unwanted, and the motorway is therefore treated as a foreign element, hidden from the city. The motorway becomes a backside of the city – a barrier that can only be accessible through points of functional intersections, as infrastructural crossings and junctions. Urbanisation in relation to the motorway is a fact, and tendencies indicate that planning of motorway sections through or close to city environments will continue.

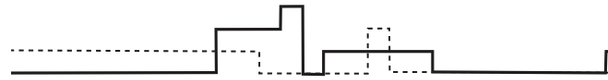
Instead of ignoring its existence, the motorway as a barrier should be challenged, and accepted as part of an urbanisation that brings the potentials of transforming urban spaces, as well as generating new developments.

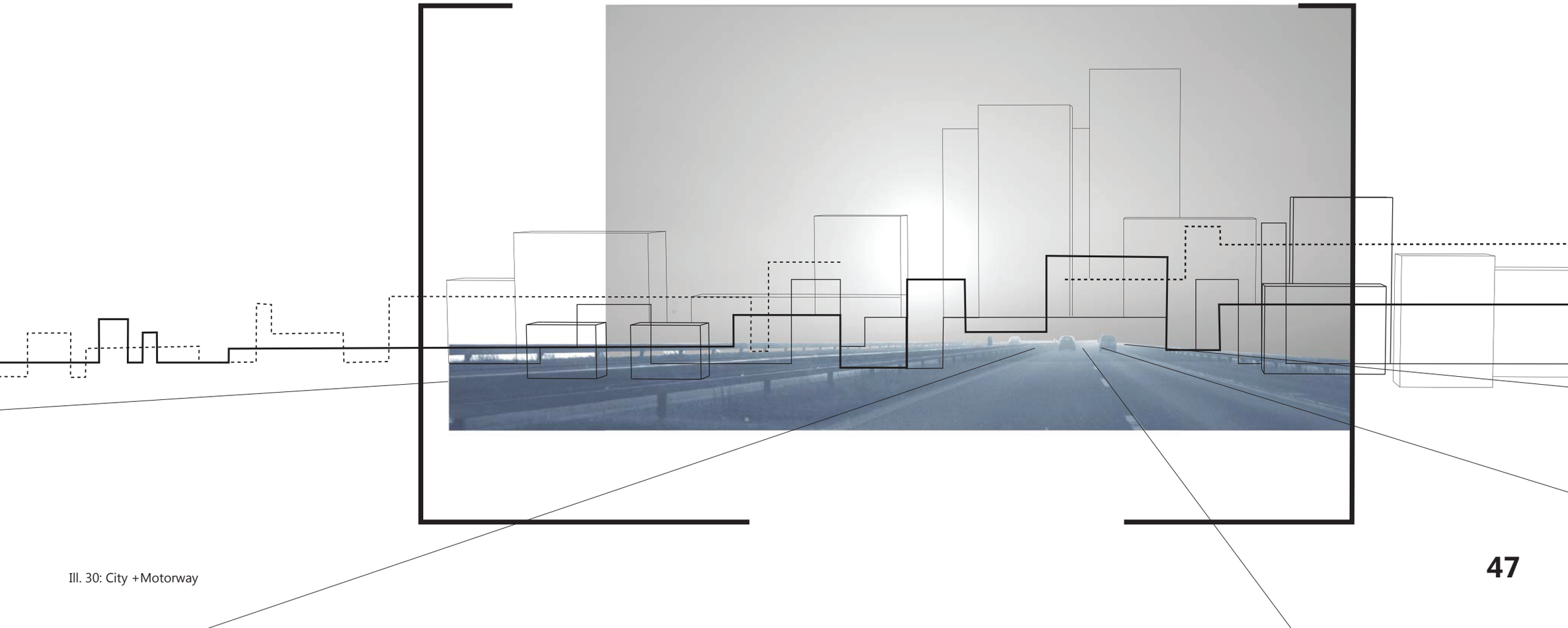
The aim of the project is therefore to test the possibilities, for designing a city environment, where the city and the motorway benefit by each other´s existence.

The motorway is perceived as part of an urbanisation, with appurtenant typologies as Crossing, Junction and Pocket. These typologies physically, visually and programmatically link the motorway to the city.

As the project is seen as an investigation, the outcome should not be seen as a final result, but rather as a design concept that opens the discussion of the interplay between the motorway and the city. In this sense the project is a "Test Field" for large overall concepts relating to the physical and programmatic layering of the motorway and the city. The "Test Field" is an attempt to create attractive urban spaces in a motorway context, and avoid casual developments along the motorway. The project is therefore a toolbox for refining the meeting between the city and the motorway.

Well aware of the many perspectives that follow the motorway discussion, the project concentrates on designing the urban motorway in interplay with the city. The project does not investigate the opportunities of overall planning of the existing Danish motorway network, and it does not investigate the programming of verges or the designing of edges. Though safety, noise and infrastructural geometry are seen as design parameters, no detailed technical research will be made in relation to these factors and the actual construction, as well as economical considerations will not be part of this project.





Ill. 30: City +Motorway

Urban Test Field

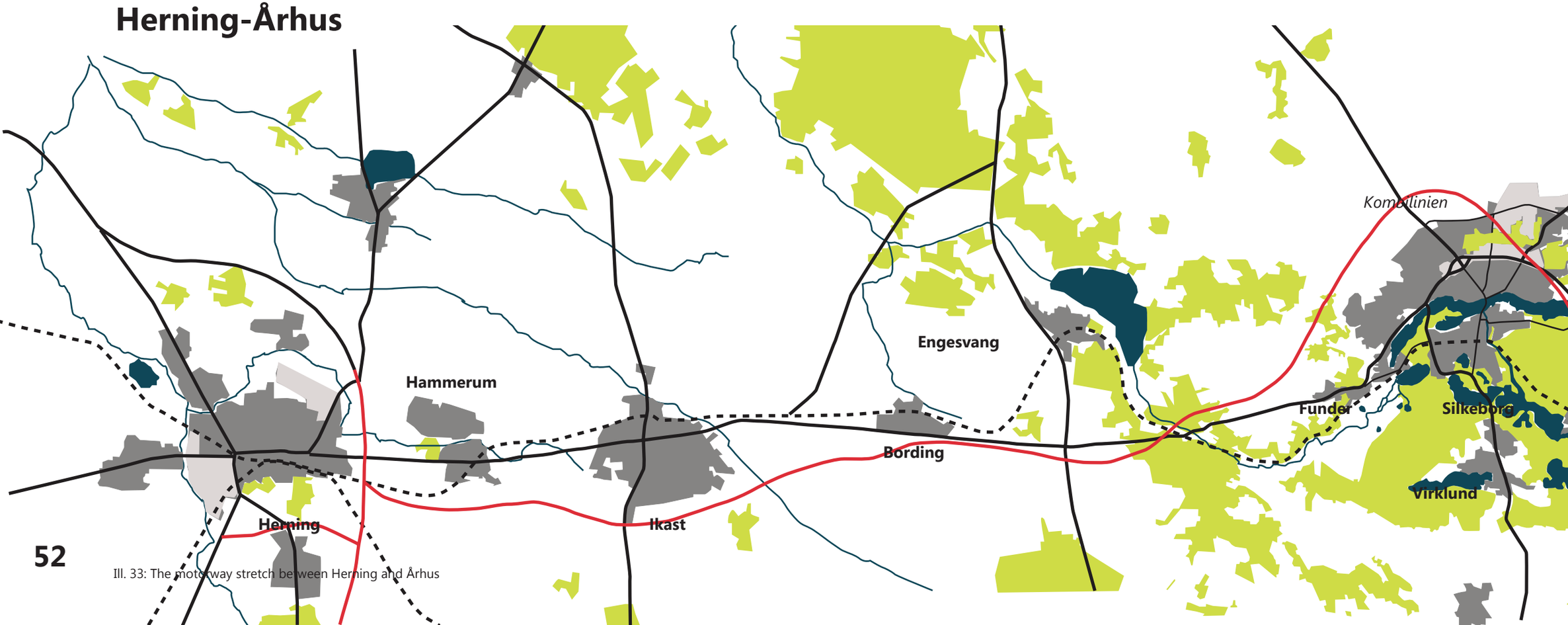
Silkeborg as Case ::

As a present project where the urban motorway is discussed, Silkeborg is an obvious field to investigate the urban design challenges in the meeting between the motorway and the city. The following pages will outline the character and layout of the city in order to give an impression of the landscape and structure of the area.

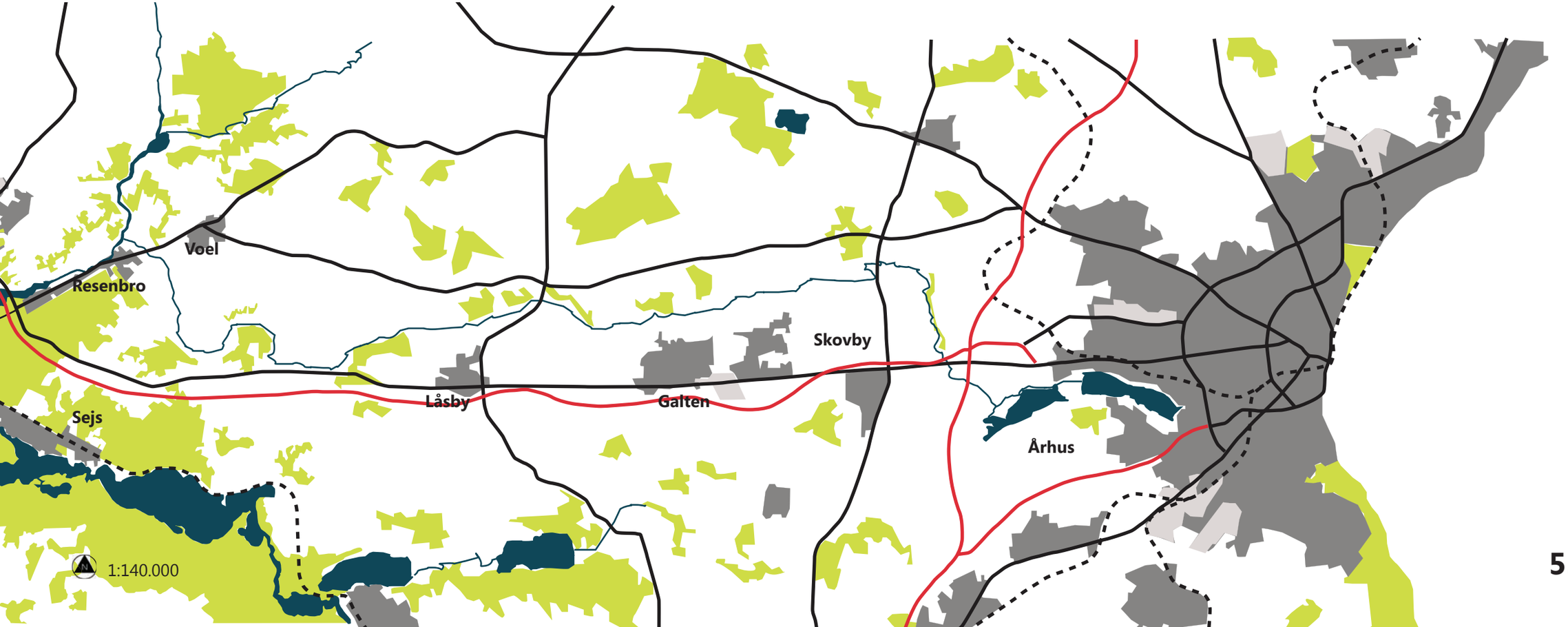
This stretch is the missing link in the motorway network connecting Herning and Århus, and with a new motorway Silkeborg will become even more attractive for businesses and residents commuting to nearby cities as Herning and Århus. The planned layout of the motorway cuts through parts of the city, which makes it possible to investigate the potentials of a motorway in dense urban relations. The motorway has a large impact on Silkeborg and even though it does not correspond to the development pattern of the city, the motorway brings dynamic to the city. The test field gives the oppurtunity to transform parts of the city and generate new urban developments in relation to the motorway. By being excavated, the motorway introduces a new layer in the city, and the layout of the motorway in an urban context thereby creates new urban design challenges. The objective of this project is to turn the layout of the motorway into a positive development that contributes to the identity and development of the city. Silkeborg is in this way used as an urban test field where potentials of the motorway in urban settings are investigated.

Ill. 31. Location

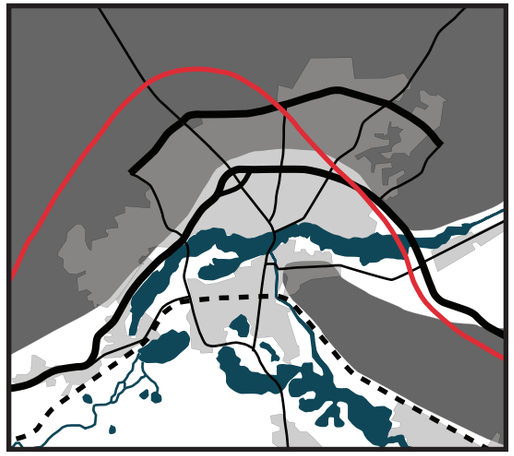
Ill. 32: Aerial photograph of Silkeborg



Ill. 33: The motorway stretch between Herning and Århus


Voel
Resenbro
Skovby
Låsby
Galten
Sejs
Århus
1:140.000

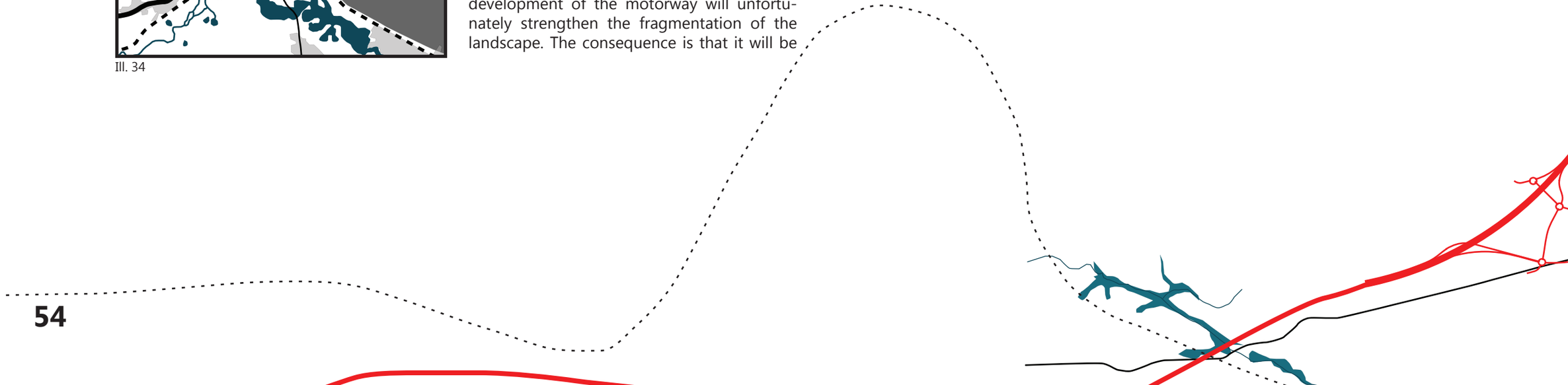
Topography ::



Ill. 34

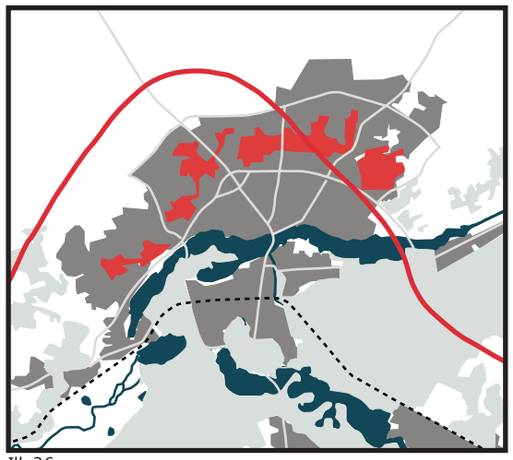
The landscape around Silkeborg is very diverse and the constant changing terrain creates varied experiences of the city and its surroundings. The outline of the landscape is defined by the large valley in which Silkeborg´s many lakes run through – the preserved *"Gudenådal"* is part of this valley. The central and oldest part of the city is located on the lower-lying plateau within the valley, while the city within the last 50 years has developed upwards at the hillside. This development has blurred the distinctive outline of the landscape, and the development of the motorway will unfortunately strengthen the fragmentation of the landscape. The consequence is that it will be even more difficult to perceive the natural and dramatic structures of the landscape.

The differences in height are significant and the steep hillsides have throughout the years both been an advantage and disadvantage for the city. The character of the landscape is present everywhere in the city and contributes to the identity of the city and its local districts.
(Skov- og Naturstyrelsen 2000, 11; Vejdirektoratet 2006, 4)



Ill. 35: 1:40.000 - Contour map (2.5 m)

Landscape Character ::



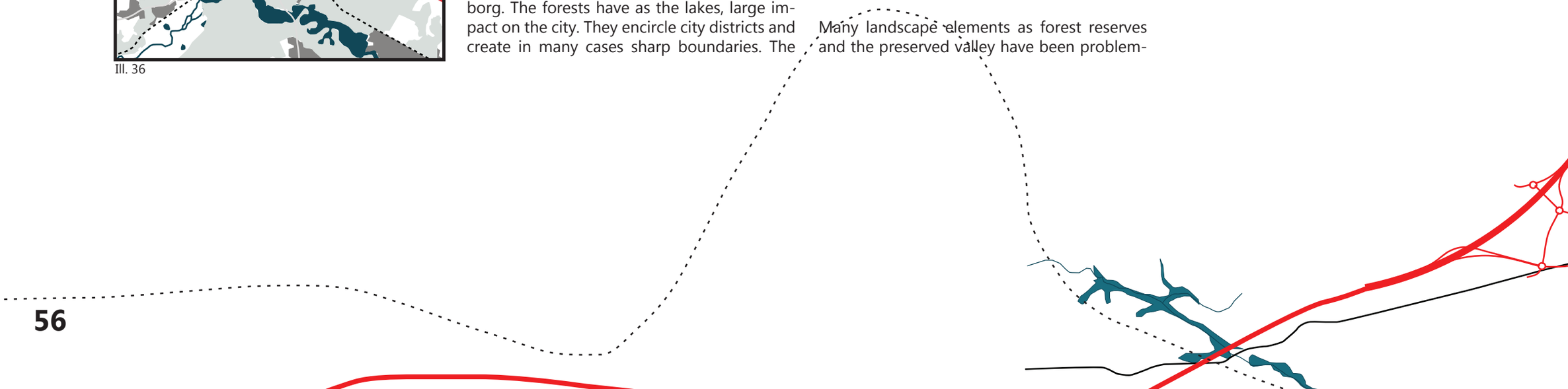
Ill. 36

As the varied terrain, the lakes and the forests are some of Silkeborgs major attractions. The landscape elements structure and form the development of the area and the landscape characters are visible both around and within the city - experienced as wide views and intentional planned glimpses.

Silkeborg Langsø is the largest lake in the central part of the city. The lake and the forest south of the city bound the historical centre and separate this part from the rest of Silkeborg. The forests have as the lakes, large impact on the city. They encircle city districts and create in many cases sharp boundaries. The developments of the city has to adapt to the forests because many of them are forest reserves. This means that the development of the city are forced in certain directions towards the open land – forest and preserved areas force the expansion of the city towards north and northwest. The result is a city with a dense core at the lower-lying plateau surrounded by open structure developments around a band of forest reserves. This influences the overall perception of the city as well as influences the character of the local neighbourhoods.

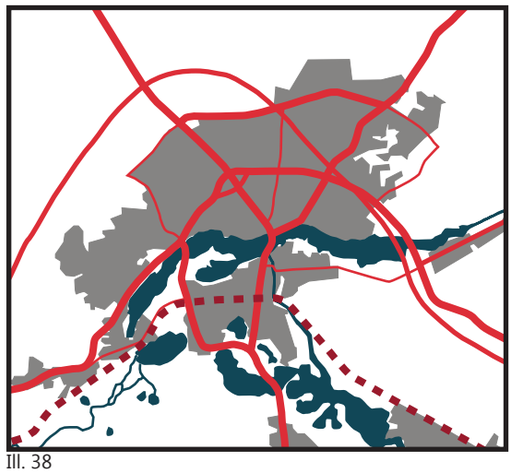
Many landscape elements as forest reserves and the preserved valley have been problematic in relation to the location of the motorway. The motorway section through the city was chosen for the benefit of a route around the city that affected the preserved valley to a bigger extend. Though the preserved landscape is partly avoided, the landscape definitely will affect the experience of the motorway positively.

(Skov- og Naturstyrelsen 2000, 12)



Ill. 37: 1:40.000

Infrastructure ::

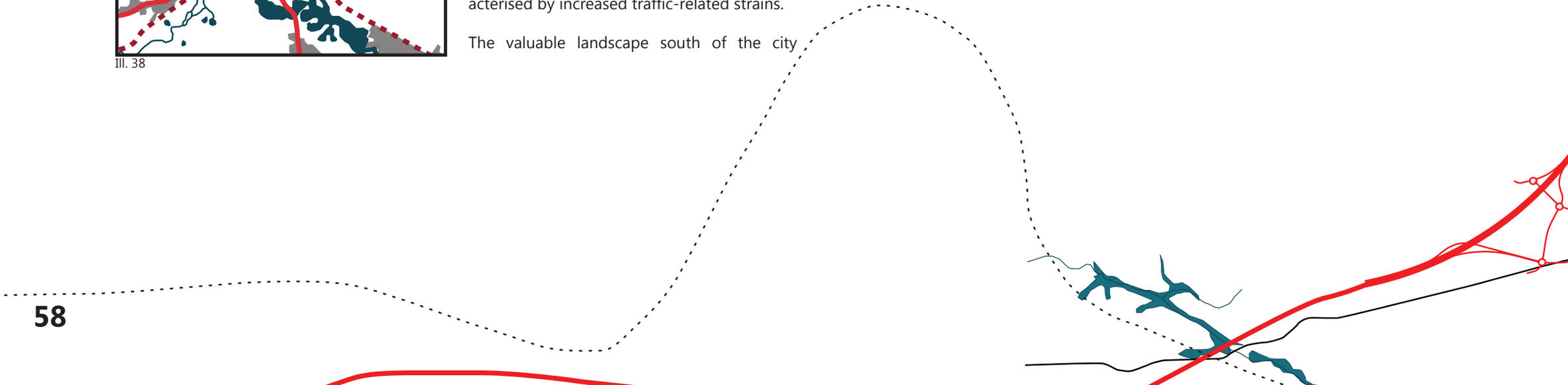


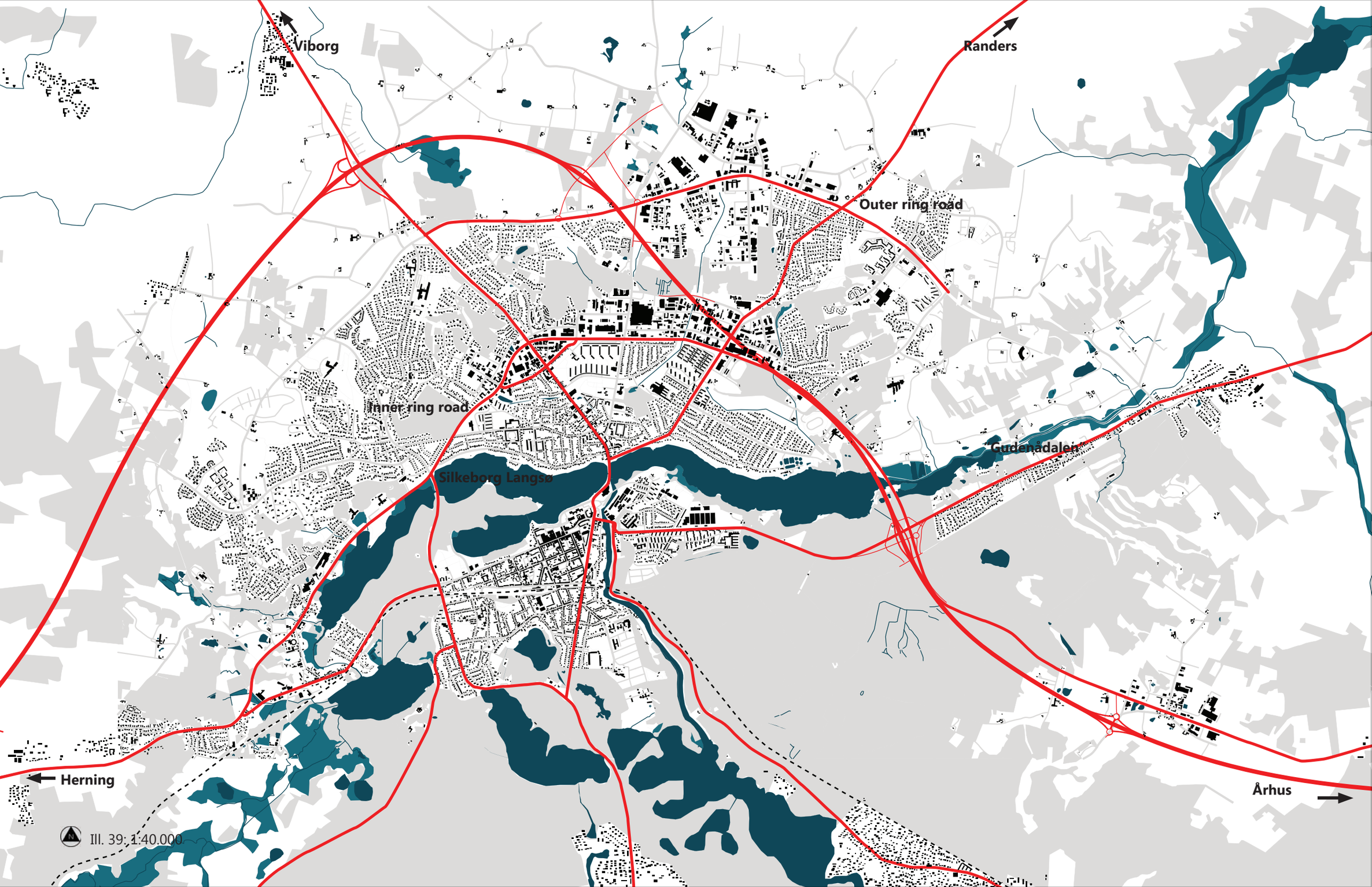
Ill. 38

The road structure in Silkeborg is based on east-west going ring roads north of the historical city centre, from where radial roads connect the city with other large cities within the region as Herning, Viborg, Randers, Skanderborg and Århus. This road structure is of great importance for the city, and it is from an overall perspective comprehensible and well functioning. During the last years, the increased amount of traffic has had the consequence that critical sections have emerged – especially the inner ring road has been characterised by increased traffic-related strains.

The valuable landscape south of the city eliminates the possibility to continue the inner ring road and develop an interconnected ring. Therefore the future motorway both has to connect Herning with Århus and abate the increasing load of traffic on the inner ring road of the city.

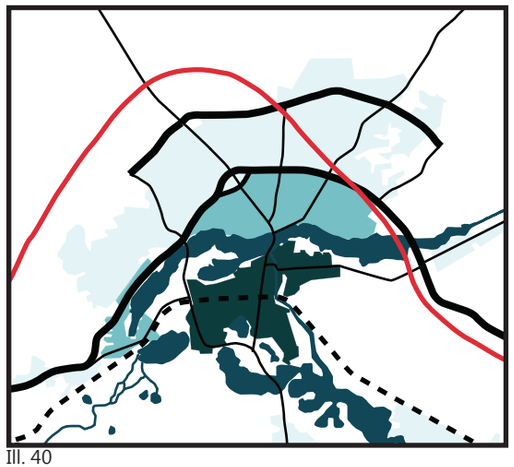
(www.silkeborgkommune.dk A)





Ill. 39: 1:40.000

City Expansion ::

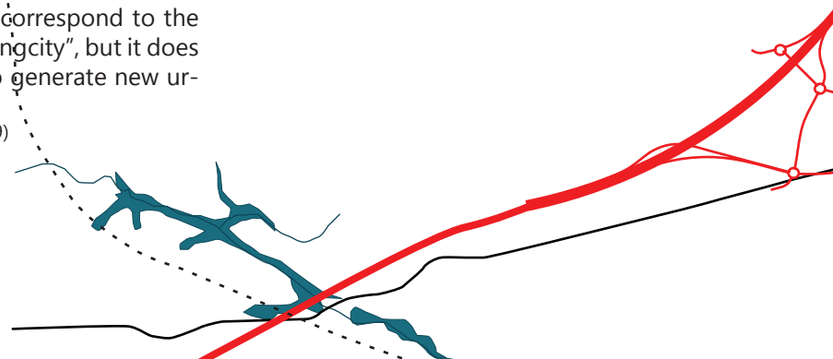


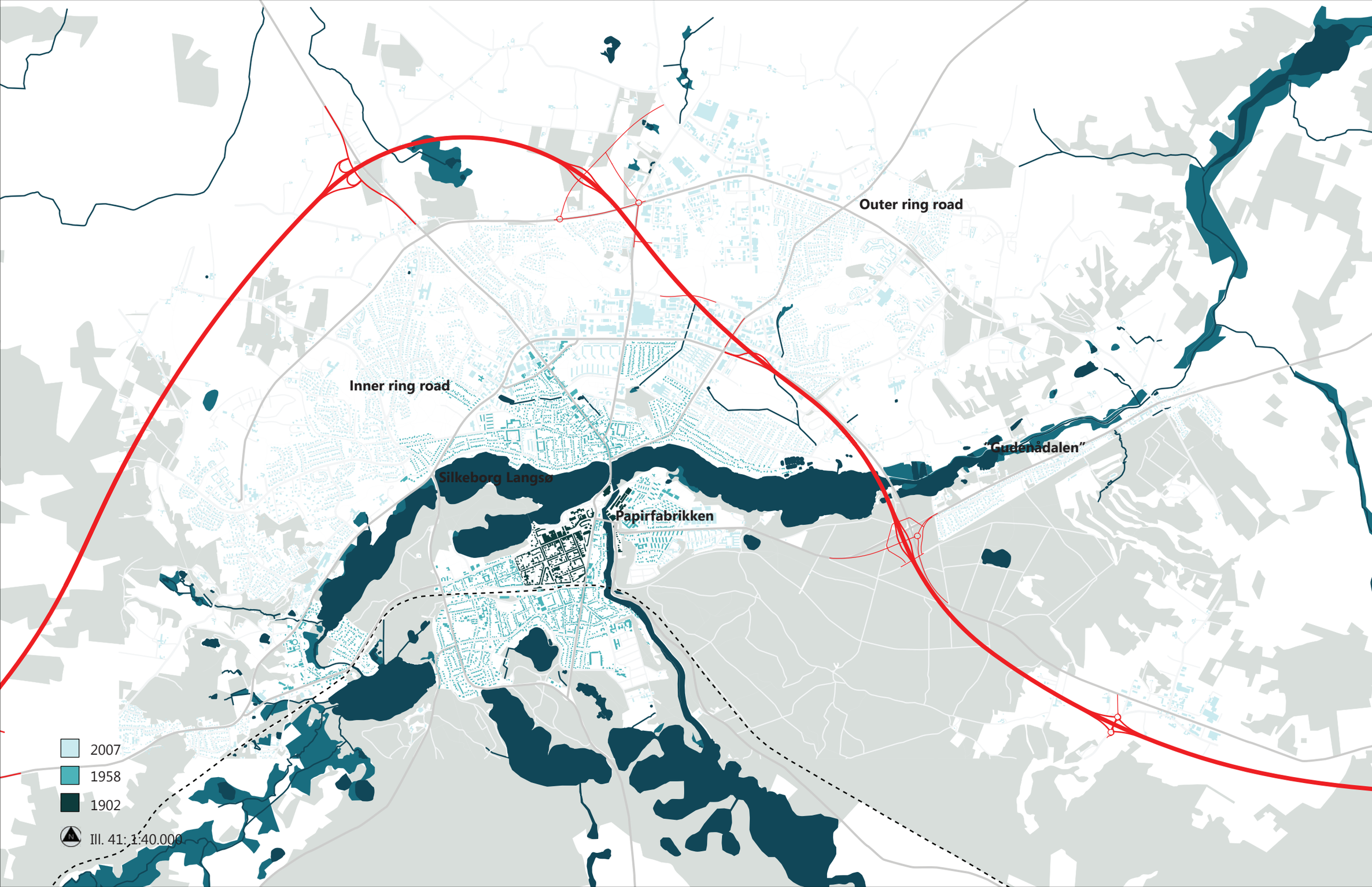
Ill. 40

Silkeborg is located in the bed of the valley system. Its existence is based on the lakes and waterways, because they were of big importance in relation to transport. The city developed around Silkeborg Papirfabrik which was established in 1844. The factory used the waterpower of the stream to different processes in the manufacturing of paper. Today the factory is closed and transformed to a new cultural centre with restaurants and businesses.

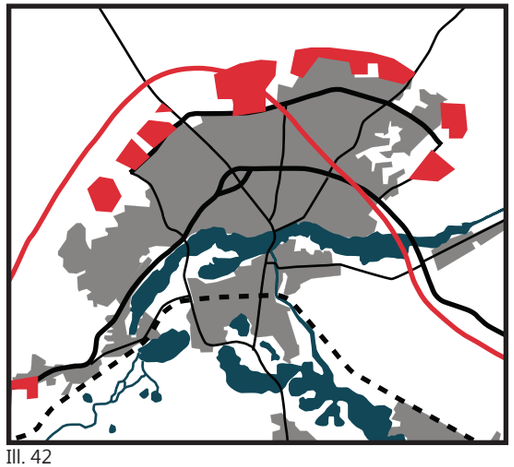
Parallel to the paper factory, a basis for trade was defined with the establishment of a market place, a church and a few building sites. These developments were located south of the lake on each side of the north-south going stream. The expansion of the southern side of the valley continued until the beginning of the twentieth century, where different institutions were built at the other side of the lake. This was the beginning of a large expansion north of the historical core and throughout the inter-war period the city development reached that period´s forest boundary. A storm tore down a large part of this forest, which opened the possibility for further expansion of the city. In the 1950s the traffic network needed to be reorganised and the inner ring road was build. It improved the accessibility through the city and created an opportunity for the establishment of a large industrial district along the road. The zone along the ring road is still an important part of the city´s industrial areas, even though the contemporary city has surrounded this zone and developed further into the landscape. Especially the increased economical latitude during the 1970s resulted in expansions within the private housing estate with large urban developments as the result.

In this way the expansion of the city has developed in a ring structure from the city core, and the city has always developed around infrastructural networks. The lakes and the streams generated the first settlements, and as the city expanded the inner ring road followed and opened the opportunities for further development and today the outer ring road is the backbone in future developments. The course of the motorway does not correspond to the municipality´s model of a "ringcity", but it does not limit the opportunity to generate new urban developments.
(Skov- og Naturstyrelsen 2000, 4-9)




Outer ring road
Inner ring road
Silkeborg Langsø
Papirfabrikken
"Gudenådalen"
2007
1958
1902
Ill. 41: 1:40.000

Future City Developments ::

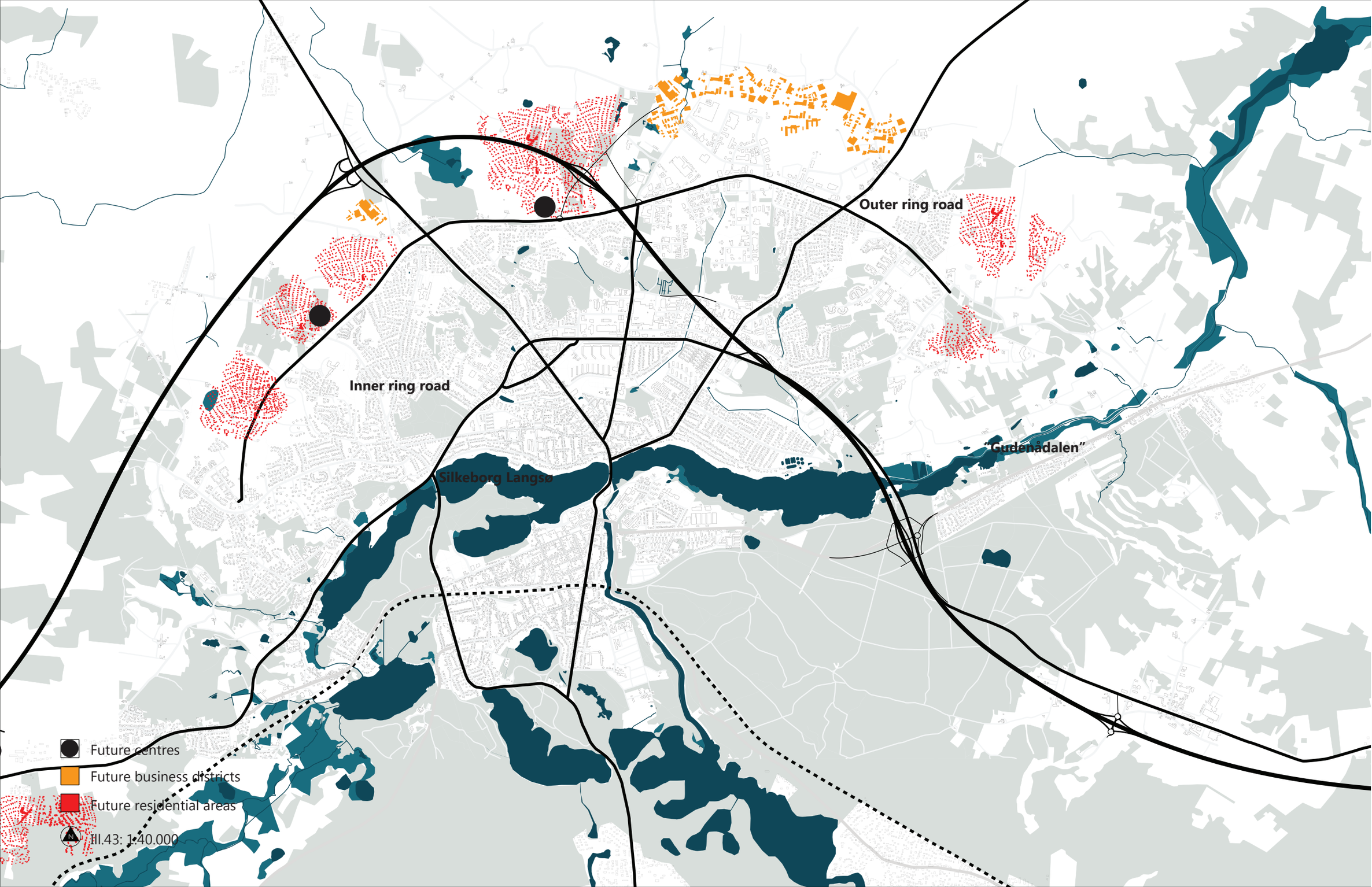


Ill. 42

The city has soon reached the limit of the outer ring road but the layout of the future areas for development corresponds to the structure of the "ringcity". These areas are planned as clusters of residential development between the outer ring road and the motorway – some with centres for local shopping. These areas are planned on the basis of the proposed layout of the motorway around the city, but even though the chosen route of the motorway breaks with the distinct ring structure, the municipality continues this principle of development.

The layouts of new attractive areas for city development are important in relation to the city´s Development Strategy. The Development Strategy is a document that defines the visions of the municipality in order to attract new residents and businesses. A well functioning infrastructural network is necessary to be able to attract local, regional and national resources, and the motorway is in this way seen as a tool that generates dynamic and growth. Especially creative resources are interesting, and the municipality therefore wants to focus on the experience economy in order to attract and develop activities and businesses – easy accessibility to the relevant facilities are in relation to this an important factor. In order to realise these visions the municipality is ready to invest in a "mega-project" which can emphasise the city in relation to other cities in the region and contribute to extensive transformations.

The development of a new stadium for Silkeborg IF could be an example of a "mega-project". The current facilities do not live up to the Danish standards and there are problematic circumstances in relation to parking and traffic of the current location south of the historical centre. The municipality has studied the possibilities of using a new stadium strategically in relation to branding and city development that attracts and maintains citizens and businesses. The future stadium is supposed to be generator for new businesses that relates to sport as a multifunctional sport centre, restaurants, shops, showrooms, conference facilities and so on. A future stadium in Silkeborg is proposed located at Søholt – a current large sports area for schools and different sport clubs. The planned motorway will pass this area and make the accessibility to the stadium and the appurtenant programmes easy and efficient. (Vejdirektoratet 2006, 135; www.silkeborg-kommune.dk B+C)


Outer ring road
Inner ring road
Silkeborg Langsø
"Gudenådalen"
Future centres
Future business districts
Future residential areas
Ill.43: 1:40.000

Consequences and facts ::

As a consequence of the decided layout of the motorway many areas within the city will be affected. The motorway passes residential and industrial areas and cut through a recreational landscape and large business zone, leaving a large wound and empty voids in the cityland-scape. The motorway will be established in an excavation about 3-6 meters under the "city level" in order to minimize the impact on the local network, and at each side of the motorway a fence will be put up to avoid safety risks in the city area.

Just south of the outer ring road, the motorway passes an area between a residential cluster and an industrial zone. The Danish Road Directorate expect that more houses and businesses will be expropriated and that there will be established noise barriers at the residential side in order not to exceed the maximum permissible value of noise. From the higher plateau, the motorway cuts through the Deer Park which is a recreational park that is part of the large forest belt that extend through the northern part of the city. This belt separates the low-lying business zone south of the park with the residential areas and industries above the slope. The Deer Park is high-valued as landscape and for recreational purposes, and an excavation for the motorway will separate the park in two small triangles which will make it impossible to maintain. Furthermore the motorway will leave a large wound in the slope (18 meter deep and up till 100 meter wide), which will be visible over long distances and blur the character of the landscape (Vejdirektoratet 2006 B, 10). Southeast of the Deer Park, the motorway passes the business district in an excavation with a fragmented business zone as the result. Many buildings will need to be demolished and the district will no more be perceived as a whole but pieces of build-up areas and left-over spaces. Because of the excavation non of the businesses will benefit from the visual exposure that the motorway offers. Also the sports fields at Søholt will be affected. The area has to be reorganized and new plants along the road must be provided in order to screen the field and define the space. The residential area opposite the sport fields will also be affected – some houses will be demolished and noise barriers will need to be put up. The motorway runs in a more or less deep excavation through the city until it reaches *Gudenådalen*. Here the motorway will pass the valley on a bridge minimizing the impact on the valley and giving the motorist a panoramic view over the landscape before one enters the large forest south of the city.
(Vejdirektoratet 2006 A; Vejdirektoratet 2006 B, 9-12)

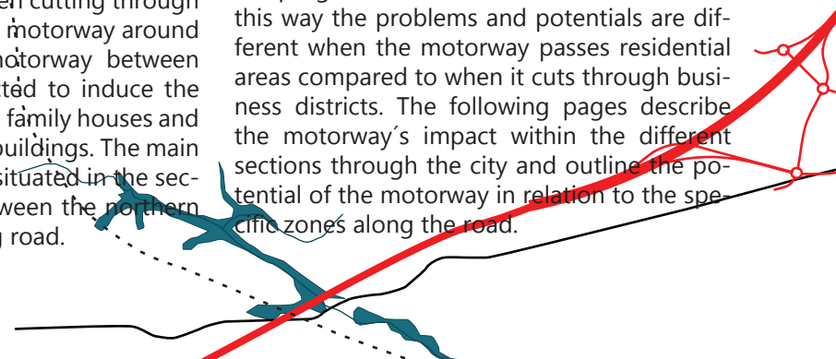
Facts

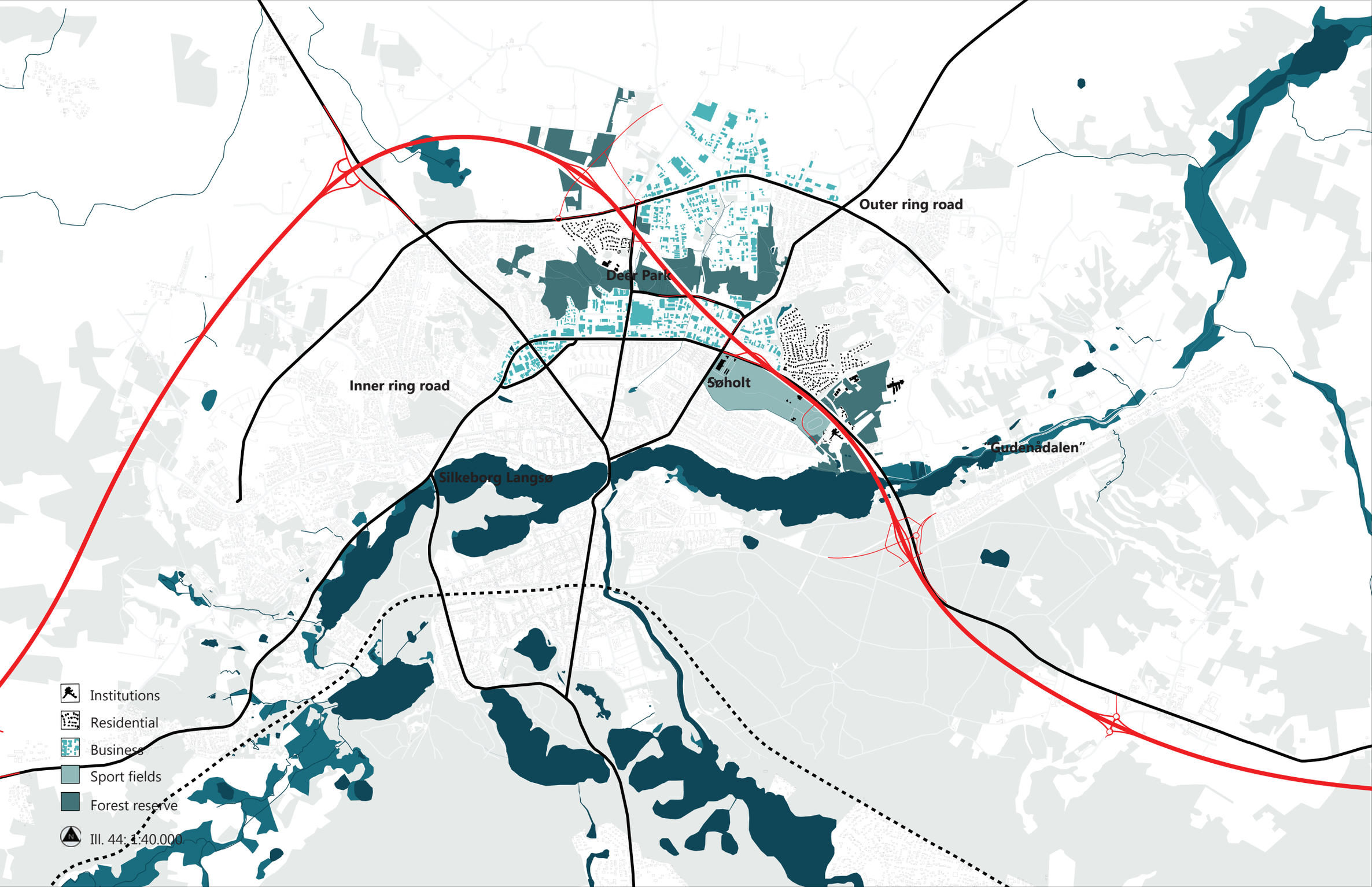
The motorway will reduce the travel time between Funder and Låsby with 12 minutes. Today the travel time is 27 minutes but a motorway will reduce the travel time to 15 minutes primarily because the dense traffic through the city will be avoided. The motorway is expected to relieve the inner ring road with 4100-7300 cars per day. Furthermore it is the purpose to overcome the traffic congestions in the inner city and at the same time finish the linkt between Herning and Århus. A consequence is though that the environment around the inner ring road will change when fewer cars will pass by.
(Vejdirektoratet 2006 B, 17-18)

The result of the establishment of the motorway is the demolishing of buildings, and the impact is obvious larger when cutting through a city instead of leading the motorway around a city. In this case the motorway between Funder and Låsby is expected to induce the demolishing of 30-35 single family houses and farms and 20-25 industrial buildings. The main part of these buildings are situated in the section through the city – between the northern ring road and the inner ring road.
(Vejdirektoratet 2006 B, 18, 89-90)

As illustrated by the Danish Road Directorate (see page 69), the lowered motorway will be a trench through the eastern part of the city that will separate areas as clusters on each side of the road only connected by a few cross roads with the importance of the continuing coherence of the local transverse network. As the motorway obviously is an undesirable element in the city, there is a risk that the perception of the motorway as a wound and an inaccessible track will be further underlined with the establishment of noise barriers and parallel developments along the road in order to physically separate the motorway from the existing city districts as much as possible.

The motorways impact on the city environment differs from area to area depending on the program and character of the context. In this way the problems and potentials are different when the motorway passes residential areas compared to when it cuts through business districts. The following pages describe the motorway´s impact within the different sections through the city and outline the potential of the motorway in relation to the specific zones along the road.




Outer ring road
Deer Park
Inner ring road
Søholt
"Gudenådalen"
Silkeborg Langsø
Institutions
Residential
Business
Sport fields
Forest reserve
Ill. 44: 1:40.000

Problems and Potentials ::

01::
New Development

This area is today farmland and forest which is planned for new developments. The impact therefore "only" includes changes in the landscape. This area just outside the outer ring road was originally planned as a new residential area, but the course of the motorway necessitate a change in the already planned future developments.

Potentials:
This area is planned for future developments, and with a motorway junction, the area will have easy access to the regional network. The junction will be an attractive node, and the area therefore has the potential for generating a large scale shopping environments. As also planned for housing, the area brings the opportunity to challenge the design of new residential typologies in a motorway context and create mixed neighborhoods with housing, business and service institutions. Left-over soil and the demand for replacement forest could be used as a structuring element that contributed to the identity of the area and created attractive spaces from where new businesses and residential developments can occur.

02::
Business Enclave

The impact on this area is less comprehensive since the course of the motorway is lead through a green corridor between the residential area and this business zone. The excavated motorway offers no visual benefits, but a planned junction just north of the area offer easy and efficient accessibility. The impact includes:

÷ Demolishing of 2-3 business properties.

÷ No visual benefit for any business.

Potentials:
As located close to a large junction, this area is attractive for business even though there are no visual benefits. As mentioned above new developments are planned in relation to this business zone, and there is therefore an opportunity to challenge the layout of this area to avoid the random developments of business strips along the motorway but instead create attractive plots for more than the companies in the front row.

03::
Residential_north

The motorway passes this residential area in a green corridor, and though only a few houses will be demolished, the noise and visual impact will influence the whole neighbourhood. Noise barriers and security fences will be put up in order to reduce the noise pollution and create a wall that hide the motorway. The negative impact therefore includes:

÷ Demolishing of 2-4 single family houses.

÷ Noise barriers put up as walls in the backyard instead of the current landscape.

÷ Noise pollution in spite of noise barriers.

Potentials:
Noise pollution is the main problem when directing a motorway close to residential areas – the sound is unwanted but visually an interesting element. When putting up noise barriers, the visual experience often disappear, but there is a potential in designing these walls as spaces that not solely hide the motorway and ignore its existence, but which is part of the neighbourhood and offer an visual experience of the transit-space.

04::
Deer Park

The Deer Park is part of the green slope across the city, and the development of the motorway has a large impact on this landscape :

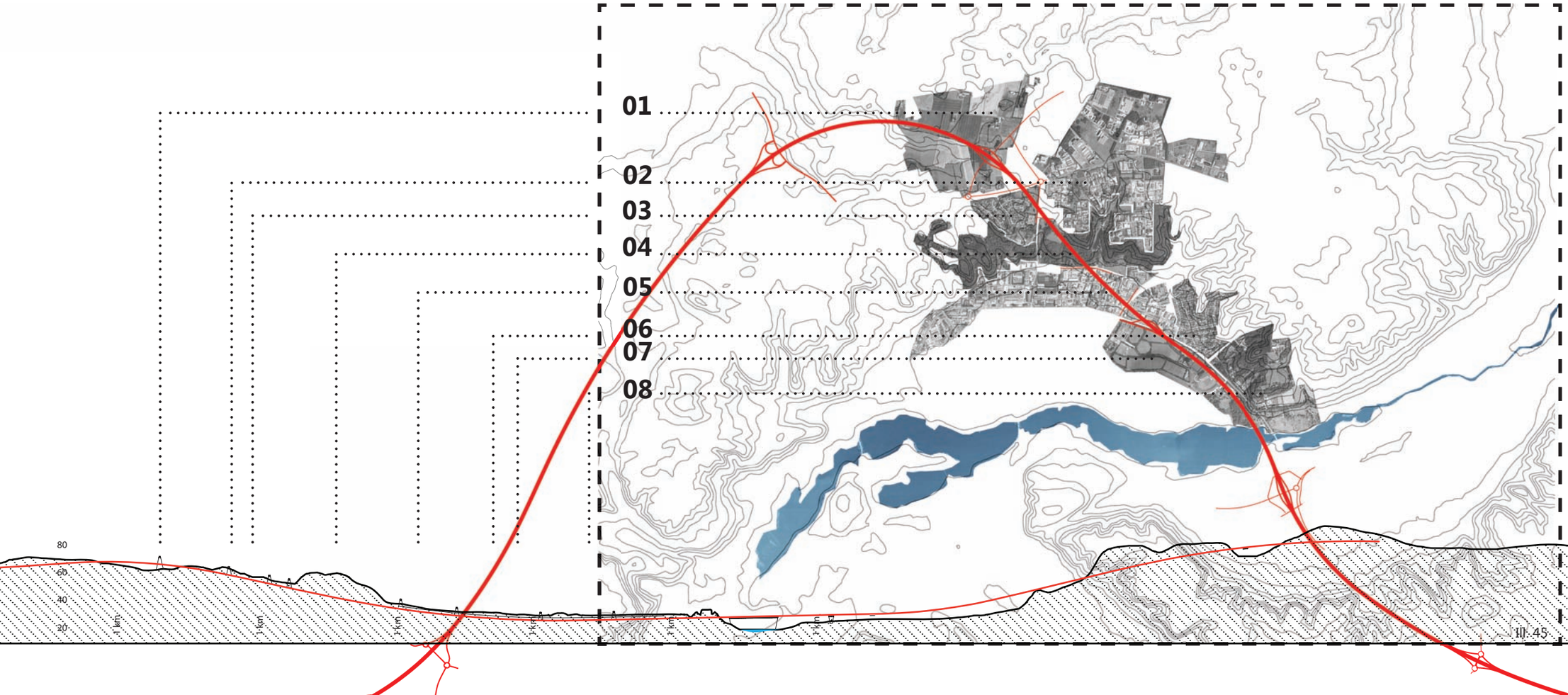
÷ An open wound through the hillside - 18 metres deep and 100 metres wide, which would blur the characteristic of the landscape.

÷ A separated Deer Park difficult to maintain.

÷ Large changes to an attractive recreational landscape.

÷ Cut down of 6 hectares of forest which must be replaces somewhere else.

Potentials:
Though the motorway does not disturb any residents when passing the park, the impact is of great importance for the city. A green connection will be cut off though it is planned to establish a bridge for pedestrians as well as a fauna connection. Alternatively the park could be re-established after the construction of the motorway if it was lead through a tunnel. This would still require plantings of replacement forest, but the valuable recreational landscape could be maintained.



ill. 45

05::
Business District

As the Deer Park, the course of the motorway passes right through this business area leaving the district fragmented and separated. Businesses normally appreciate a motorway close by, but the layout of this motorway section only offers accessibility towards Århus and the fact that the motorway is excavated means that the visual benefits are not existing.

÷ Demolishing of 20-22 business properties.

÷ A separated and fragmented district.

÷ A large empty void leaving an undefined edge to the motorway.

÷ No visual benefit for the businesses close by.

÷ Only access to the motorway in one direction.

÷ Change of character at the existing Ring Road because of the reduction of through going traffic.

Potentials:
As the visual benefit is important for most businesses as well as accessibility from all directions, the excavated motorway with only a half junction is not optimal. Instead increased accessibility and a larger visual surface can be obtained outside the city which brings the potential for a transformation of the business belt. The expansion of the city has during the years surrounded the business area which makes it an attractive zone inside the city and along the green belt that the Deer Park is part of. The introduction of the motorway therefore brings the potential of starting a transformation of this district into a new urban area.

Ill. 46: View of the fragmentation of the business area (Seen from south towards the business district)

06::
Residential_south

The motorway passes close to another residential area as an unwanted element, and it is therefore necessary to set up noise barriers. First of all this is to reduce the value of noise pollution from the road but it also creates a wall which hide the motorway from the housing behind as well as hide the city from the motorway.

÷ Demolishing of 8-10 single family houses.

÷ Increased noise pollution in spite of noise barriers.

÷ Reduced accessibility to the city centre.

Potentials:
The introduction of a motorway in existing residential areas mainly concern reducing noise and securing accessibility across the motorway. Today these problems are primarily solved from a functional point of view, but there is a potential to challenge the wall and the crossing as part of the neighbourhood that contribute to the character of the area.

07::
Sports Fields

The function can be maintained though a reorganisation of the field will be necessary. Noise pollution from the motorway is of minor importance, but the impact of the area includes:

÷ Relocation of 6 tennis courts, a clubhouse and part of a tennis hall.

÷ Erasing of a soccer field.

÷ Re-establishment of a green planting belt along the road.

Potentials:
The motorway will be an advantage for the planned new stadium for Silkeborg IF by offering easy and efficient accessibility. The planned junction only accessible for south going traffic will though has to be developed with access and exit for both directions to benefit 100% by the existence of the motorway. Such expansion of the motorway junction will induce larger impact on the business district north of Søholt.

08::
Education area

The southern part of the motorway section through the city is less influenced by the motorway than the rest of the city. This is primarily coursed by the fact that the course of the motorway in this part is parallel to the existing inner Ring Road. The cross-section of the motorway is larger than of the existing road and the establishment of the motorway therefore have the impact of:

- Reducing the plot of Silkeborg Højskole which means that the main building will be located close to the excavated motorway.

- Reduced accessibility across the road and between the educational institutions.

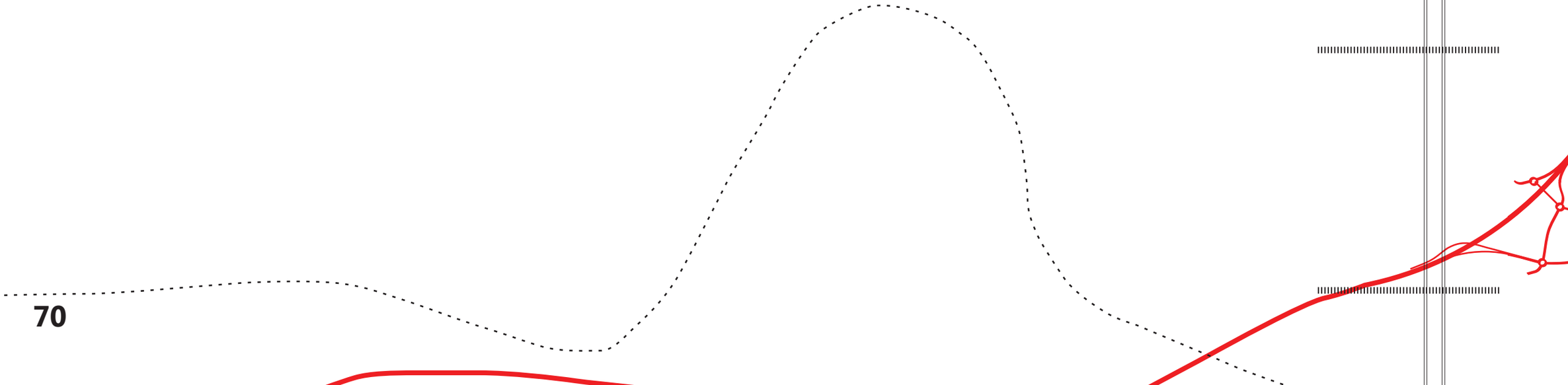
Potentials:
The different institutions are located on each side of the motorway and the re-establishment of the local transversal road brings the opportunity to strengthen the link between the educational institutions and offer common facilities and programmes across the motorway.

Ill. 47: Overview of the motorway's impact on Silkeborg
(Seen from southeast towards the city)

Storyline ::

Based on the traced problems and thereby defined potentials, the motorway´s course through the city is divided into sections creating a coherent line of stories.
These sections represent the various parts of the city in a different way and thereby create points of orientation for the driver as well as the motorway section gives the city an identity in relation to the road. The sections are only programmatically outlined, but they are part of a line of stories with the potential for further spatial and programmatic development.

An excavated motorway will create a mobile corridor with no interplay with the city which thereby becomes anonymous. The view from the road will only reveal the city at a distance – when driving north of the city as well as when passing "Gudenådalen" on the planned landscape bridge. On one hand the excavation allows the continuity of the local infrastructural network with only minor changes, but on the other hand it hides the motorway from the city and thereby also the city from the motorway. In this way the city miss the change to expose its urban values and programmes and gain advantage of the people passing by.
The motorway through Silkeborg passes different areas with various potentials. The urban motorway thereby create the oppurnity to generate a serial vision, which offers the driver a range of experiences in the same way as the "landscape motorway" offersa varied course. Divided in sections with different characters and purposes, these sequences can contribute to the identity of the area and the city as well as create points of orientation for the driver.



New Development::
Mega Shopping

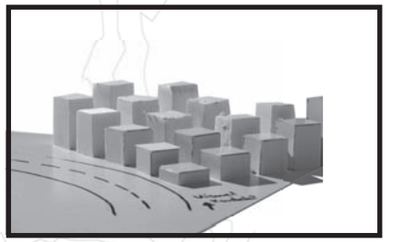
Deer Park Covering

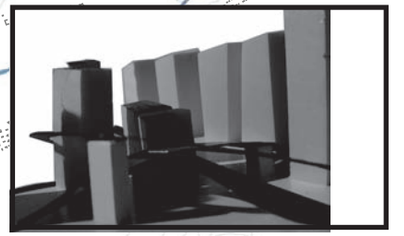
New Development::
Gateway

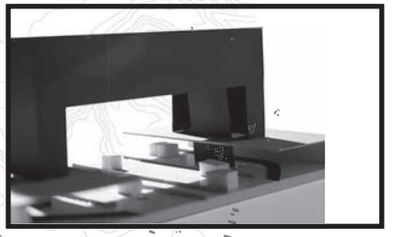
Student Media house

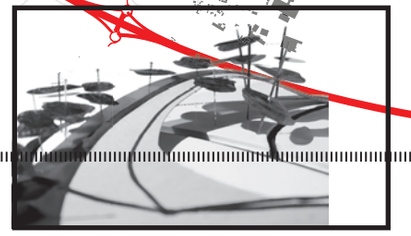
Landscape Bridge

Forest Road-scape









Ill. 48

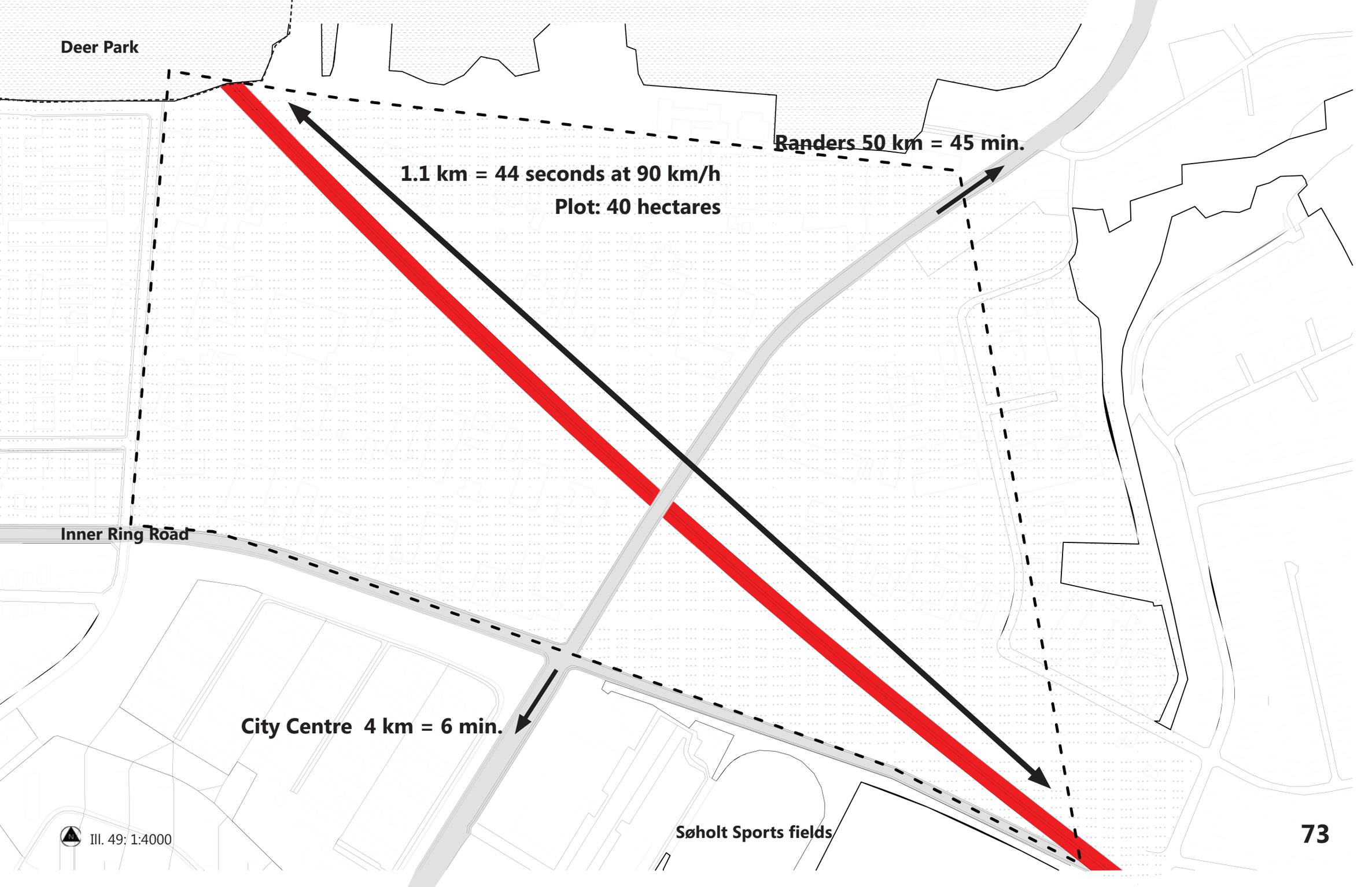
Urban Test Field ::

Selection

The different characters and programs of the areas which the motorway passes, require different processing and indicate different design criteria and tools. Some areas, for instance the two residential neighborhoods should remain separated from the motorway as the noise pollution is the main problem. Though there is a potential in challenging the design of the noise barrier, the task will be on a "repair-level". Other areas, as the planned development zone north of the city or the business belt within the city, have the potential of testing the motorways intermingle within large-scale urban areas. In this way the investigation of design that make the potential of the motorway probable, could be approached on different levels.

This project focuses on the business district south of the Deer Park (area 5, ref. p. 67-68) as test field for challenging the motorways potential in relation to urban settings and city development. The motorway has a large impact on this area as it entails the erasing of many buildings, which will leave the area fragmented and separated. The location in the middle of the city and south of the Deer Park slope, as well as good accessibility to both the local and the regional network, makes it attractive in relation to urban settings. Beside the direct access to the motorway, the area has good local infrastructural connections as the inner ring road defines the site to the south and a radial road crosses the area and link to the city centre.

A planned new stadium just south of area, has the potential of creating a sports-scape which gain advantage of the motorway´s accessibility. A stadium will be an icon for the area and the city, as well as a point of orientation for the users of the motorway. The programmatic potentials of the area as well as the planned location of a motorway junction, creates the opportunity for city transformation and development that challenge the potential of layering urban environments and motorway sections.


Deer Park
Randers 50 km = 45 min.
1.1 km = 44 seconds at 90 km/h
Plot: 40 hectares
Inner Ring Road
City Centre 4 km = 6 min.
Søholt Sports fields

Ill. 49: 1:4000

Concept ::

Since a new motorway section is planned through the city of Silkeborg, the aim of the project is to challenge the interplay between the motorway and the city as two overlapping layers with a central part of the city as urban test field. The motorway and the city are thereby not perceived as separated elements located next to each other, but as a coherent field where the motorway and the city beneficiate by each other´s existence.

As layers that overlap and merge both physically and programmatically, the form typologies of the motorway is crossed with the layers of the city. This will create new attractive fields of tension, that transform and generate new urban developments which contribute to the identity of the city.

The statement for the project is to create a new urban area in Silkeborg, that relate to, and beneficiate by, the existence of the motorway. This is done by transforming the form typologies of the motorway into urban typologies, and thereby turn a future downside of the city into a gateway.
These form typologies refers to the motorway junction, the crossing and the pocket. The Crossing is a transversal connection only visually linking the context and the motorway, the Junction is a readable flow system - a transition system from the layer of the motorway to the layer of the city, and the Pocket refers to the service area along the motorway, which emerges as small urbanizations developed along a one-way system.

The project therefore seeks to transform these typologies into attractive urban spaces.

- The Crossing should be transformed from a solely functional infrastructural connection into a staging urban space
- The Junction should be transformed from an infrastructural left-over space to a merging urban structure
- The Pocket should be transformed from an enclosed enclave, that only provide services to the motorist, to a sharing urban environment

As the motorway is excavated, the city and the motorway are not solely programmatically divided layers but also physically separated. This is a precondition which means that the motorway introduces a new layer within the city – layer -1. The aim of the project is therefore to investigate the transforming of the form typologies of the motorway into urban structures that link the level of the city to the level of the motorway. Beside to investigate the urban design challenge in transforming the form typologies of the motorway to urban elements, the project´s aim is to use the new layer of the city as an advantage for the area, that create programmatically links and spatial qualities.

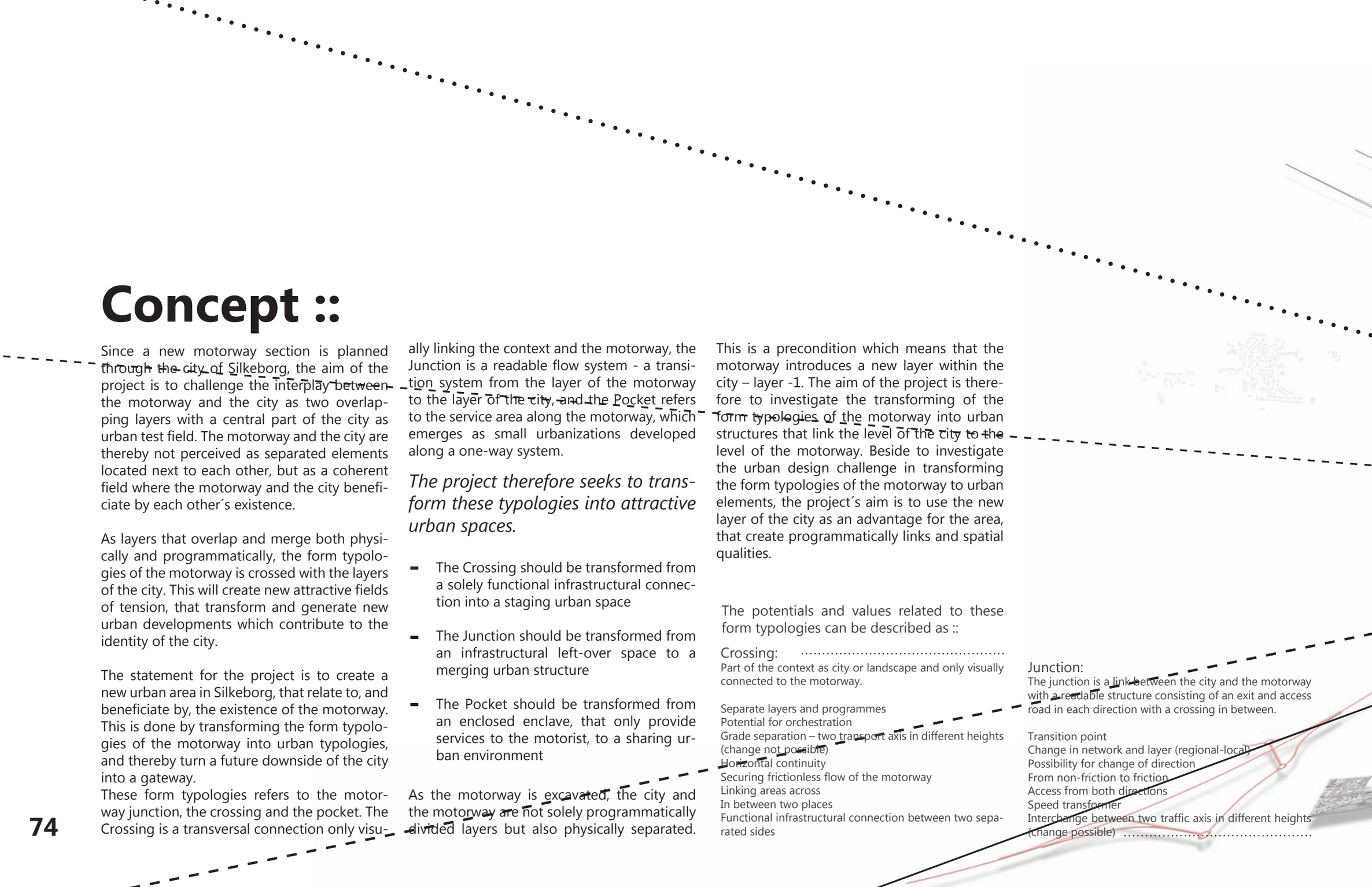
The potentials and values related to these form typologies can be described as ::

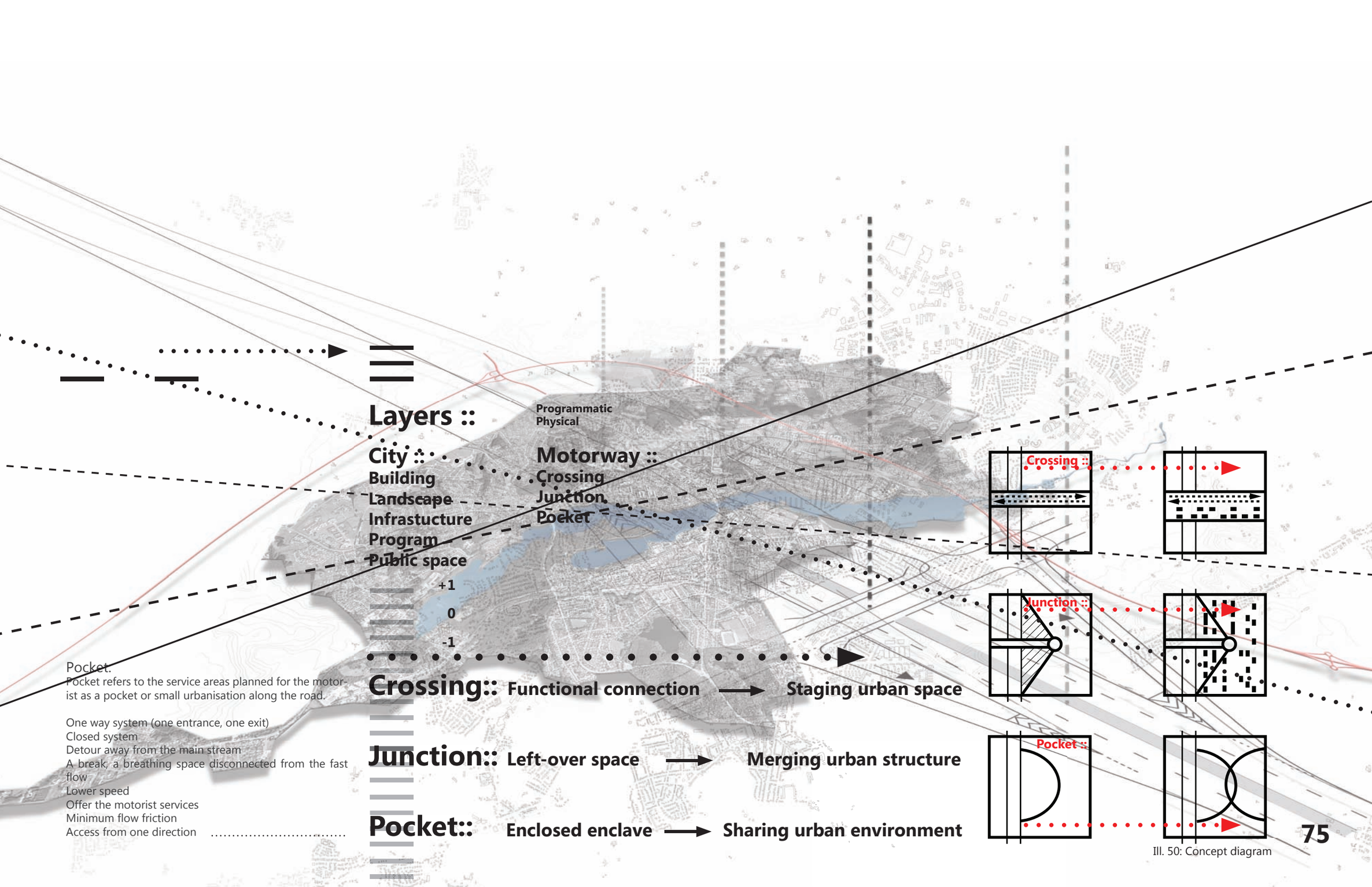
Crossing:
Part of the context as city or landscape and only visually connected to the motorway.

Separate layers and programmes
Potential for orchestration
Grade separation – two transport axis in different heights (change not possible)
Horizontal continuity
Securing frictionless flow of the motorway
Linking areas across
In between two places
Functional infrastructural connection between two separated sides

Junction:
The junction is a link between the city and the motorway with a readable structure consisting of an exit and access road in each direction with a crossing in between.

Transition point
Change in network and layer (regional-local)
Possibility for change of direction
From non-friction to friction
Access from both directions
Speed transformer
Interchange between two traffic axis in different heights (change possible)





Pocket:
Pocket refers to the service areas planned for the motorist as a pocket or small urbanisation along the road.

One way system (one entrance, one exit)
Closed system
Detour away from the main stream
A break, a breathing space disconnected from the fast flow
Lower speed
Offer the motorist services
Minimum flow friction
Access from one direction

Ill. 50: Concept diagram

Design Parameters ::

The design process is based on defined design parameters, which is developed from the concept and the site. On the basis of these parameters, the design has developed, and parallel with the process, more values and guidelines have emerged. The design parameters are based on the context, the motorway or the future development plans of the municipality.

The design parameters are divided into four different categories. The first category is city layers, which relate to the fact that the motorway is going to be excavated. This means a new city layer is introduced, and the city district has become a vertical city.

The second category is the motorway typologies of crossing, junction and pocket. These are flow systems and shapes, that has potential to be integrated and transformed into city structures.

The Serial Vision is the third category, where the focus is on how the motorist experiences the city from the motorway. A serial vision is defined in a large scale as well as in a small scale. The small scale refers to the site of the urban test field, where points of orientation can be created as a fast serial vision. The large scale serial vision refers to the section through the city, where the whole site is perceived as an orientation point in a larger narrative (ref. storyline, p. 70-71).

The last category is programmes, which relate to the city milieu. A new stadium has already been on the agenda in Silkeborg for some time as part of the future visions for the municipality. The stadium is seen as a core from where other programmes are generated. Together this can be desribed as a sports-scape, which is meant to consist of related sports programmes. This scape has potential to be linked to the existing sports area at "Søholt".

The stadium can be an icon for the city and a mass attractor for the neighbourhood, which will influence the identity. These large programmes are able to make use of the motorways great capacity and accessibility.

The diagram to the right shows the initiating design parametres which the project has developed around.

City layers:

An excavated Motorway

↓

Extra city layer

Overlapping city layers

↓

Double use of programmes

An excavated Motorway

Motorway typologies:

One way flow system

↓

Pocket programming

Density of programmes

↓

A two way junction

Motorist service

↓

Urban service area

Avoid barrier effect

↓

Crossing connections

Serial vision:

Create a storyline

↓

Points of orientation

The motorists only meeting with Silkeborg

↓

Silkeborg showroom

Programmes:

The crossing local road is an important connection to the city centre

↓

Silkeborg gateway

A new stadium with related programmes

↓

Sports scape

Programmatic mass attractor

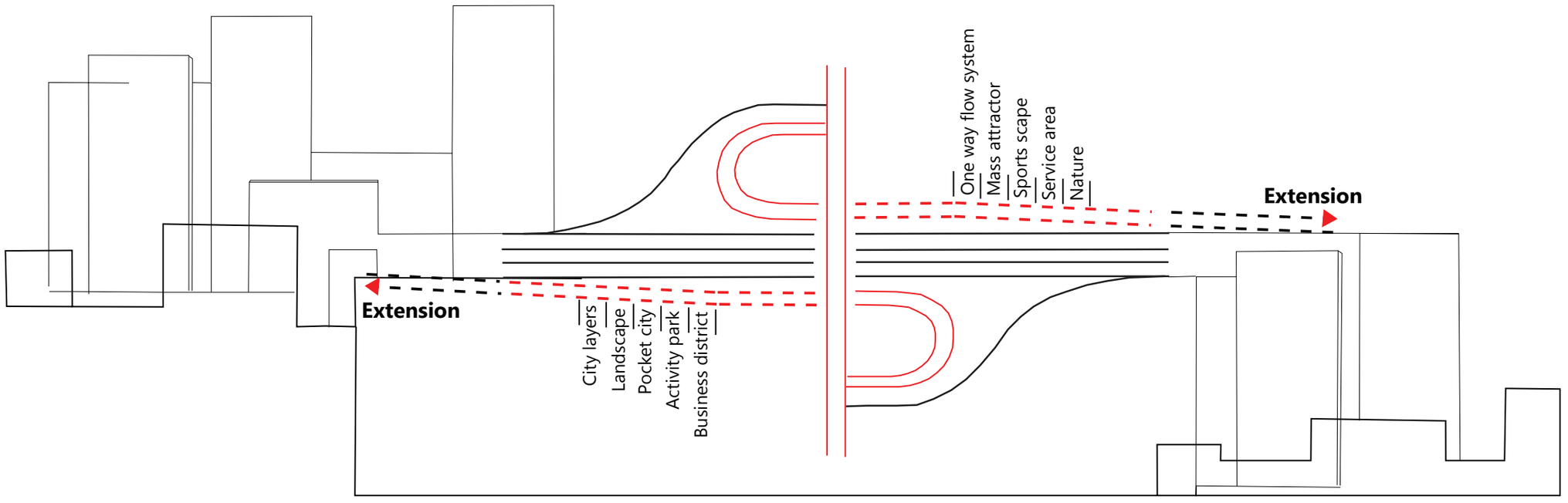
↓

Icon and identity maker

Good accessibility

↓

Motorway business district & commuter city



Ill. 51: The junction has become the overall structure for the city development. By extending the length of the exis roads there is room for integrating city programmes and in that way avoid left over spaces.

Plan of Urban Test Field ::

Future Habitation

This project proposes a revitalisations strategy for parts of the existing business area in the central part of Silkeborg. With focus on the motorway, these new developments challenge the merge of the city and the motorway. The motorway junction is generator, since this is where the regional network of the motorway is physically linked to the local network of the city. The site is centrally located, beside the motorway and two main local roads. The local roads respectively cross and define the edge of the area. In this way the site is linked to the city centre, the suburb and the regional "neighbour-cities". On the basis of the good infrastructural connections and the fact that a green belt defines the area to the north, the site is an obvious place for a city development.

The new urban motorway area is divided in five different fields of intervention. The M.B.D is a Motorway Business District with offices, conference facilities, restaurants and other programmes related to a business area. The Urban Service Area is a programmatic expanded service area for the motorists, which create a local centre for the residential area behind. The Sports-scape is an area primarily defined by large volumes as stadium, multi-purpose hall and public swimming pool. The Commuter City is a dwelling area for people who commute every day and for whom easy access to the motorway is important. The Edge is a transition area from the layer of the city to the layer of the motorway that thereby defines the space of the inner ring road.

In between these areas, a park is emerging as a link and as an extension of the Deer Park north of the motorway neighbourhood. The character of the green element is changing due to the theme of the above mentioned areas, and in this way the park creates various recreational spaces. The Motorway Garden is a green element creating park spaces in motorway level. Here programmes such as parking, sports courts, pedestrian crossings and view points are integrated, in order to create attractive and active public spaces both behind, and in close relation to the motorway. Trees within this space are visually linking the layer of the motorway to the layer of city, and thereby orchestrate the difference in heights. The Picnic Park is a transition zone between the urban motorway area and the neighbourhood dwelling areas, and it creates shared-spaces for the motorist and the citizens.

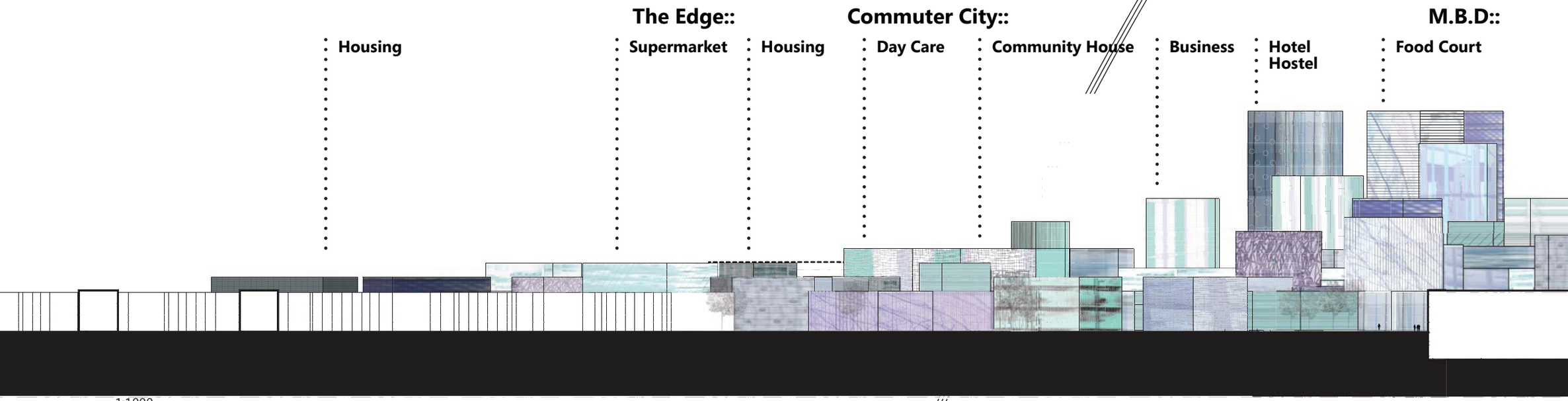
Starting a transformation of the existing business area, is seen as a step towards a revitalisation of the whole district. The Junction City is a generator in the revitalisation strategy, and it would be a natural course to continue this development.

Ill. 52: Plan of Urban test field

Section A ::

The cross section shows the density and the heights of the buildings within the area. The large volumes relate to the fast speed of the motorway, and the fact that big elements are needed, to gain the attention of the motorists. The section shows clearly that the volumes and the programmes service two levels at the same time. Towards the motorway the buildings have large facades, and due to the different levels, the same volumes relate to the scale of the city behind.

As the motorway is planned in an excavation, the motorists enter Silkeborg in an excavated corridor. By opening up the space around the Junction City, this is the area which represents Silkeborg from the perspective of the motorway. The motorists will get an impression of the identity of the city, and the Junction City thereby becomes a centre point for the suburban Silkeborg – a new gateway to the city.



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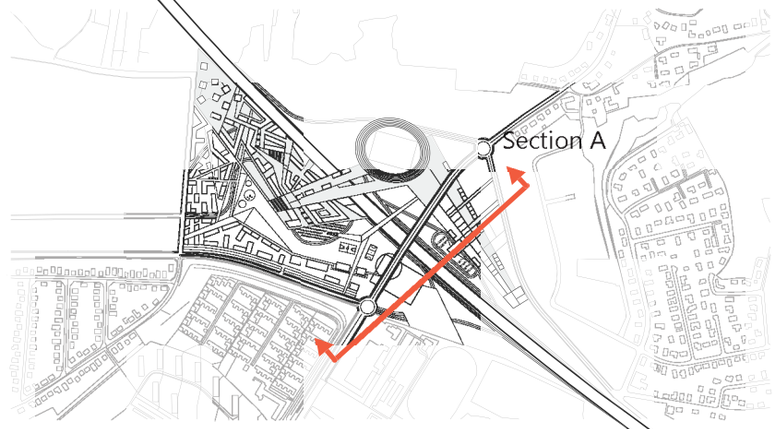
Ill. 53: Section A



Sports-scape::

Urban Service Area::

Business

Stadium

Bakery ATM
Flower shop
Supermarket

Picnic
Playground

Housing

Multi-purpose hall

Ticket Office

Take-away bar

Public Parking

Gas station

Drive-in Fast Food

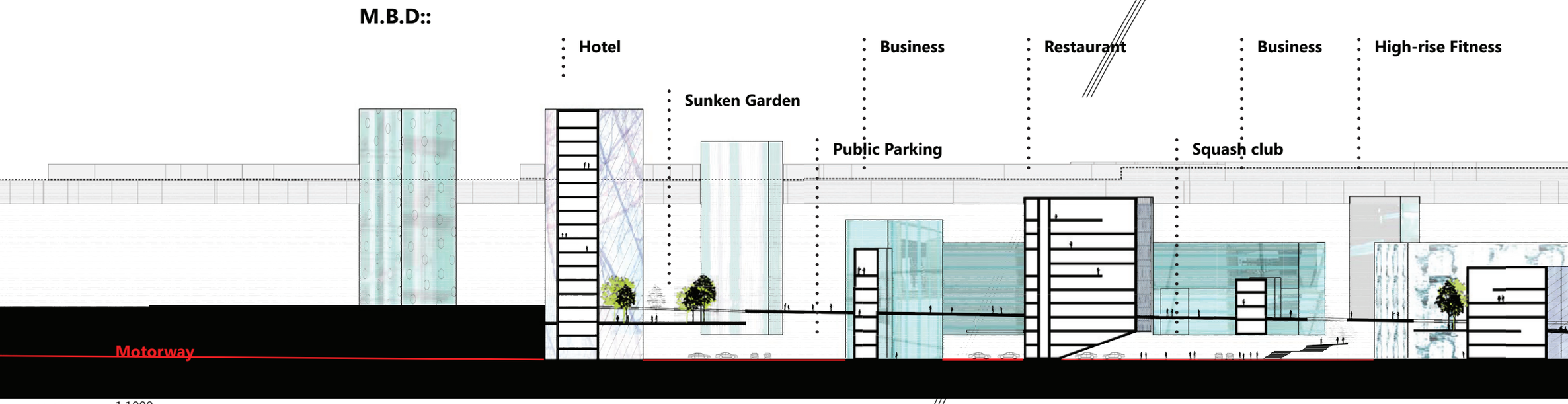
Market Pavilion

Motorway

Section B ::

This longitudinal section gives an impression of the programmatic density of the area and the double programming of layers. Buildings are penetrating the surface of the M.B.D, creating a physical connection between the different layers of the city. People shift between levels within the buildings or outside by stairs, moving stairways, ramps and lifts. To make the surfaces more diversified, and use the space in between the vertical divided layers, surfaces are added and programmed with sunken gardens, amphitheatre or internal plateaus linking buildings.

The undulating landscape of Silkeborg is seen in the background of the sections, creating a suitable frame for the stadium and the high volumes of the M.B.D.



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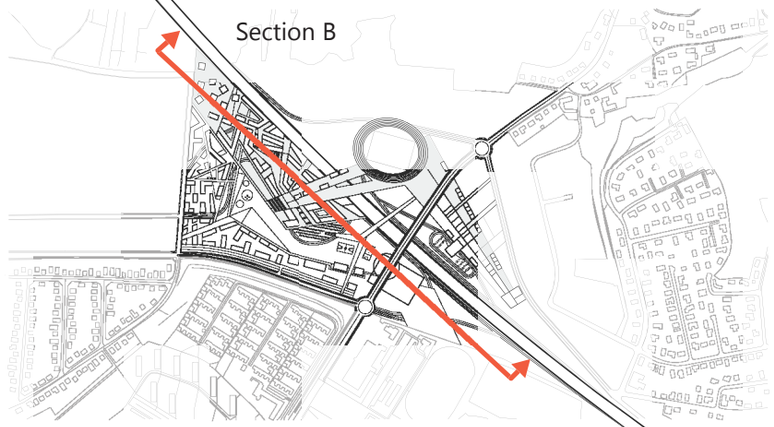
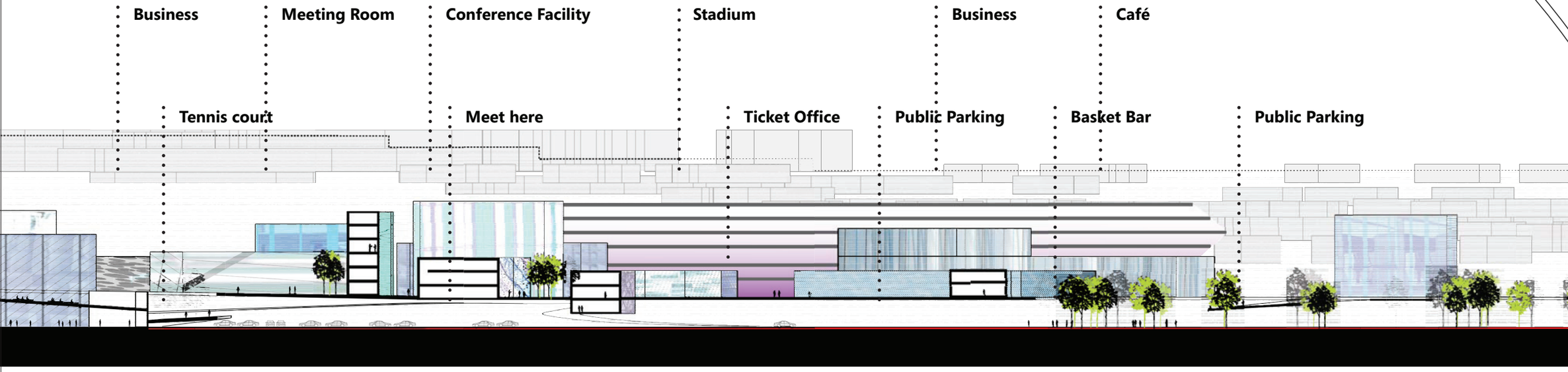
Ill. 54: Section B



Sports-scape::



Layers ::

The plan can be divided in serveral layers, where vertical lines show points of connections between the layers.

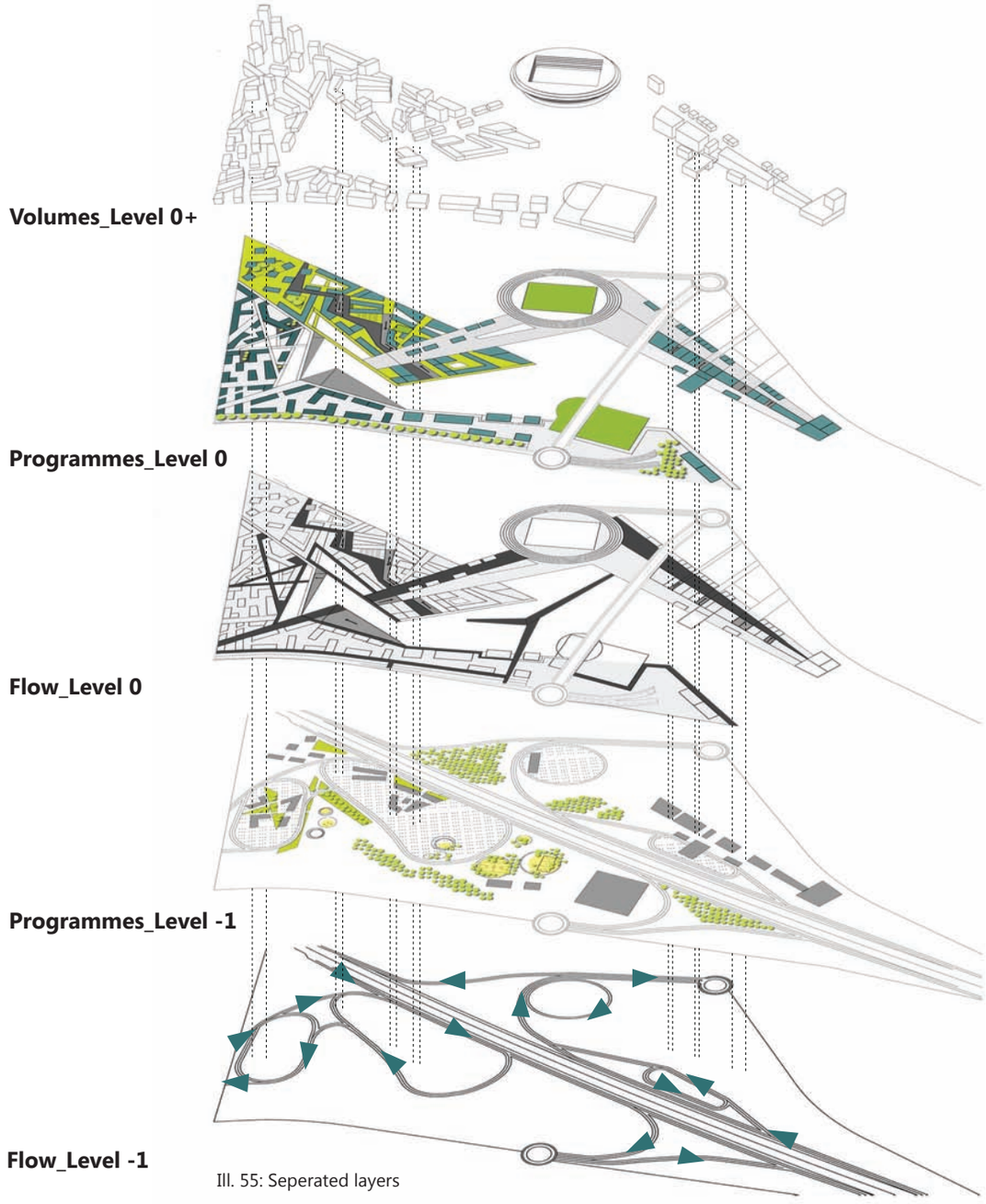
Volumes_Level 0+
The building volumes give an impression of the areas character, and it is possible to se the different densities and the tall orientation points of the area.

Programmes_Level 0
The programmes in level 0 are mostly related to the volumes. The dark blue is dwelling, the light blue is business and the green colour is sports. The white holes indicate where the green spots in level -1 are situated. The green surface point to a soft covering, while the public space in the middle is dark grey, and that points to a hard covering. On the north side of the motorway there is a shopping centre and an outdoor market place.

Flow_Level 0
The diagram shows the main flows of the soft road users. There is a strong diagonal connection in the area, which among other things are caused by the stadiums purpose as an event space. Apart from that the flow is concentrated around the places where the two levels are linked together.

Programmes_Level -1
The programmes inside the pockets are related to the flow system. It is mainly parking that service the programmes above. To bring more light to the parking area, there are green spot to lighten up the atmosphere, and outside the big surfaces there is a sports scape integrated in a city park. On the north side of the motorway there is a one-way shopping area for the motorists,

Flow_Level -1
The flow system is a one-way traffic system, where all kinds of time consuming crossings are eliminated. The motorways one-way traffic system has been transformed into a city structure, which generates new opportunities. The flow system creates good accessibility for the programmes that are situated in connection with the junction. The deceleration lanes are as short as possible, which means that the driver enters the city and a speed limit already in the motorway level. To be able to integrate programmes in the continuous flow, several loops/pockets have been made at the same time as the length between the exit point of the motorway and the access point of the city has been extended.



Ill. 55: Seperated layers

Urban Service Area ::

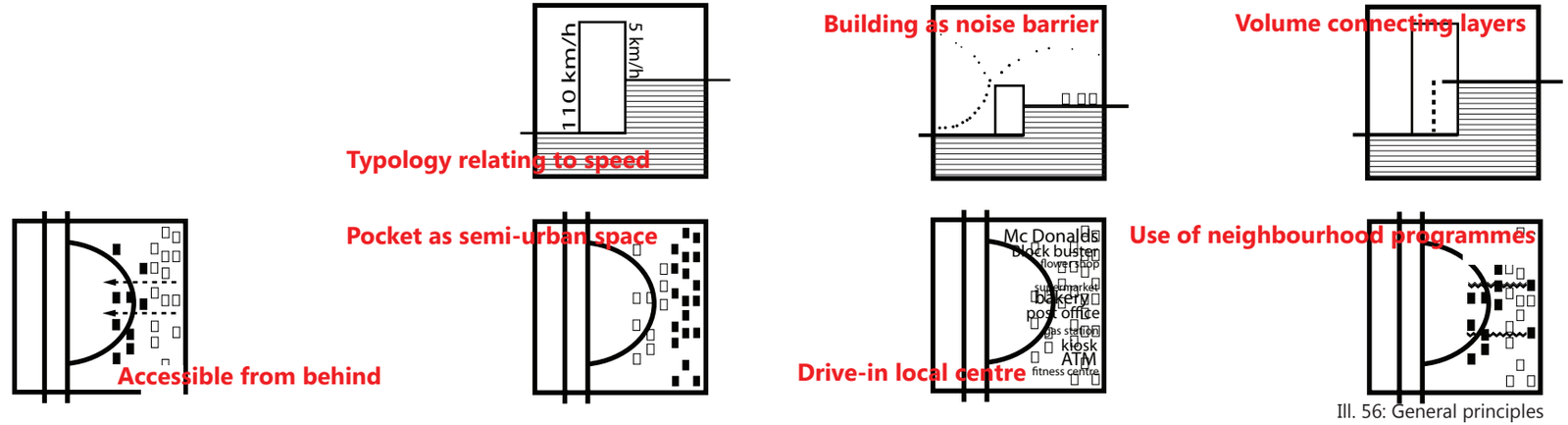
The aim of the Urban Service Area is to create shared spaces for the user of the motorway and the residents in the neighbourhood. By expanding the programmatic concept of the motorway service area, and create access for more than the motorists, the area service the drivers at the same time, as it become a local centre within the neighbourhood. As the city can make use of the motorway Pocket, programmes within the context are available and easy accessible for the drivers. In this way the motorway and the city programmatically benefit by each other, and add value to both places.

The area is dominated by two public spaces in different layers, with a row of buildings linking the levels. These linking buildings are accessible from both levels, and programmatically shared spaces as drive-in shopping for the motorist and local shopping for the resident. In this way some programmes have two purposes and thereby two target groups.

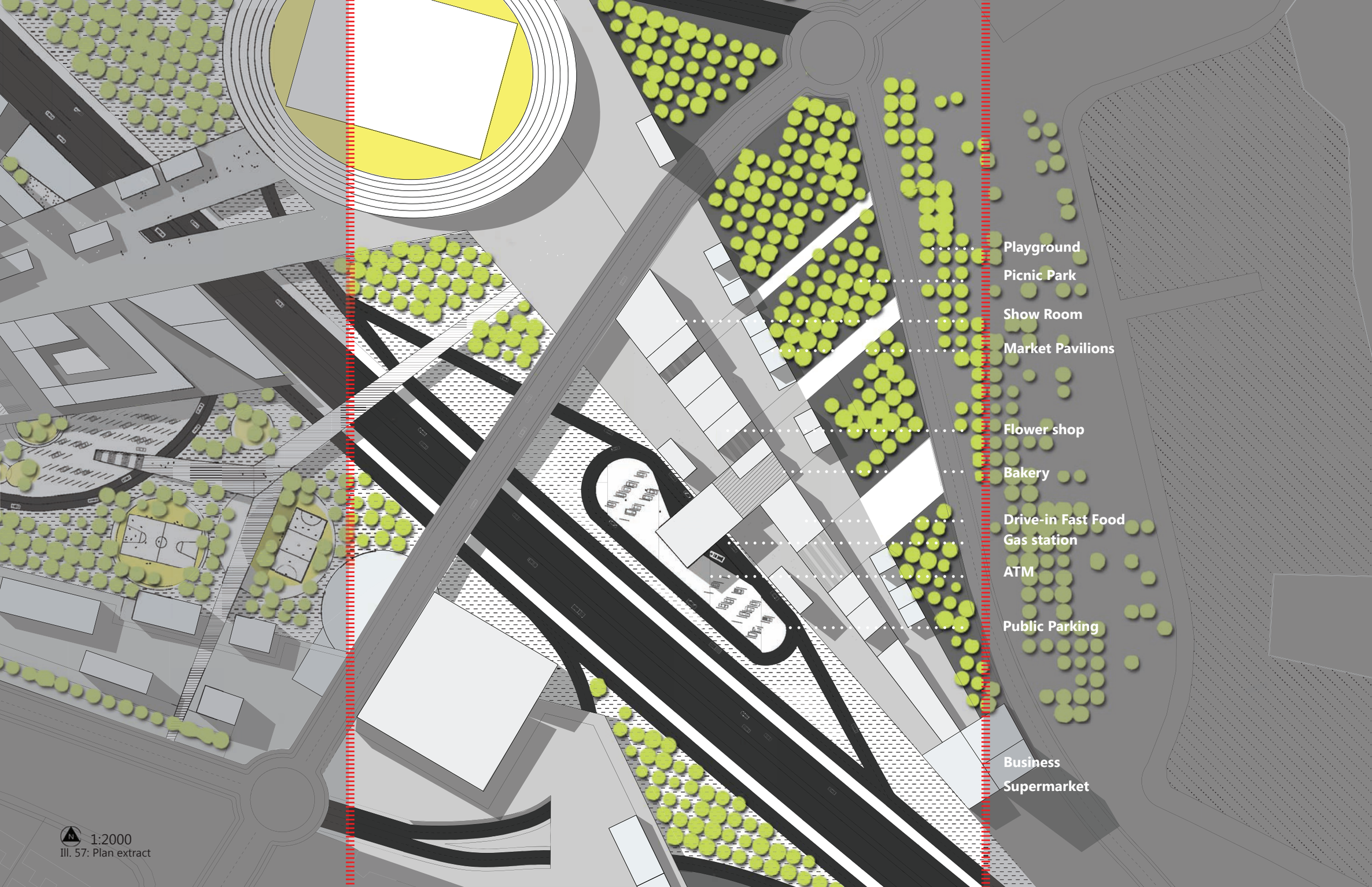
Besides the drive-in shopping, level -1 contains motorway related programmes as gas-station and workshops, while level 0 contains small pavilions for a market as well as galleries for local artists. The motorists also have the opportunity to use the Picnic Park in the city level, which offer recreational facilities as playground, resting areas and picnic facilities. In this way the service area is not an enclosed enclave, but a space which makes use of the context it is located in. In this case, the Picnic Park generates an exchange of people and creates a pedestrian movement between the layers.

The row of buildings is beside the linking element between the two levels, a noise barrier that protect the areas behind from the noise of the traffic. The first building volume that the motorists pass when they leave the motorway is 30 metres high, and functions as a local icon for the Urban Service Area. The big volume "reminds" the drivers that a city area with a speed limit at 50 km/h is entered.

The general principles that have been generated from the Urban Service Area relate to the building volumes, the shared-programming and the pocket concept. The building volumes are the vertical links between layers, the noise barrier with a double façade that contains programmes for simultaneous use.



Ill. 56: General principles



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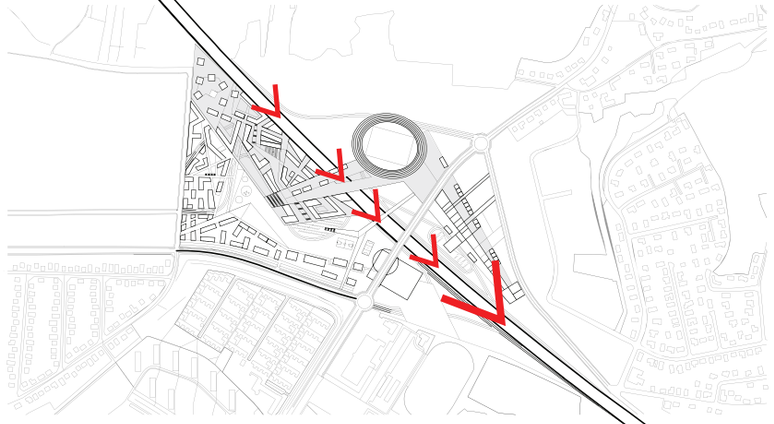
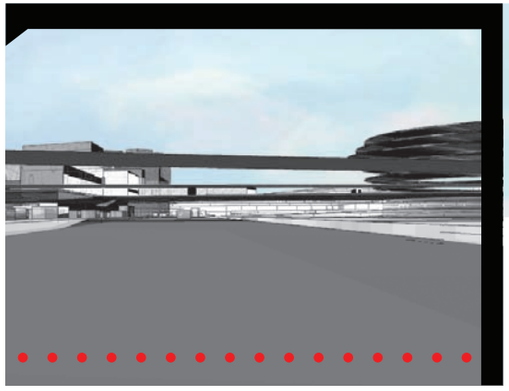
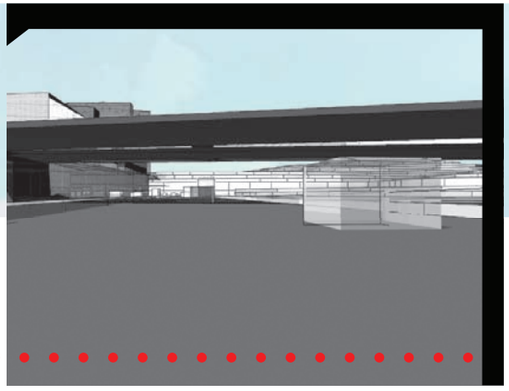
Ill. 57: Plan extract

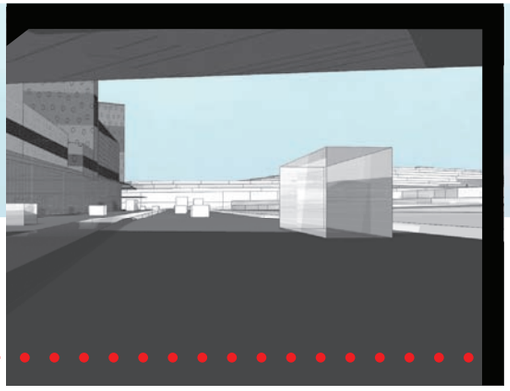
Drive In

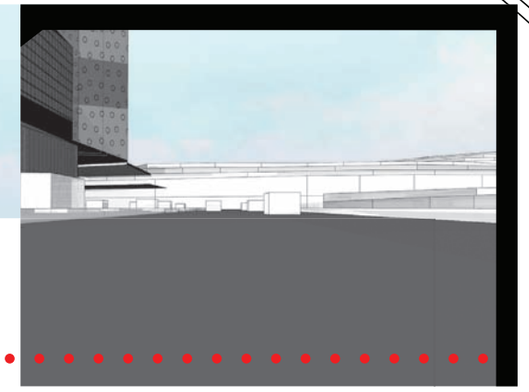
Ill. 58: Serial vision starting with view along the Urban Service Area











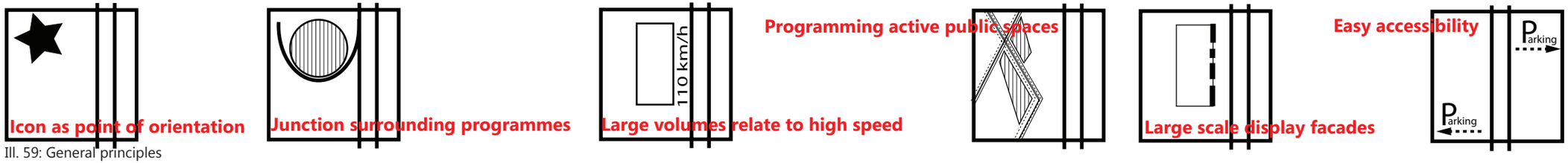
Sports-scape ::

The aim of the Sports-scape is to program areas in proximity of the motorway. The area is linked to the Deer Park and the sports fields at Søholt. The two main attractors are the stadium and the multi-purpose hall combined with a public swimming pool, which are located as anchor points on each side of the motorway. Besides the large volumes, several public street sports activities are offered as part of the Motorway Garden. Such activities could be basket ball, floorball or table tennis, which as active programmes would contribute to the dynamic of the area in a motorway context. As the Sports-scape is located on both sides of the motorway, crossings are important to secure the coherence of the area. Three crossings, of which two are solely for pedestrians, link the space across the motorway, and thereby connect the different event spaces.

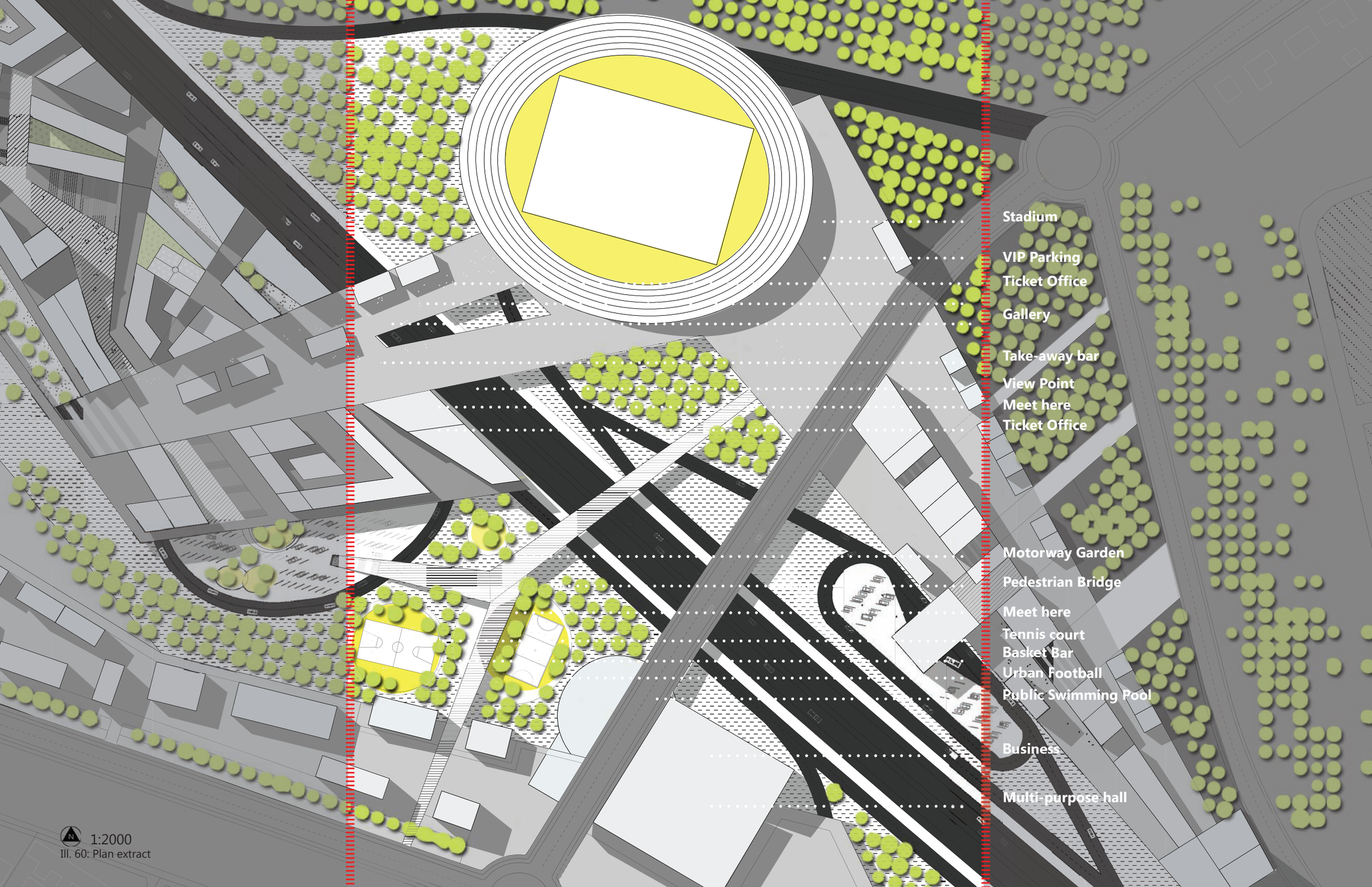
The indoor sports programmes are mass-attractors, which benefit by the accessibility of the motorway. Large parking areas are therefore located on both sides of the motorway at the motorway level, which avoid traffic congestion within the city, when events are taking place. Parking underneath the stadium is primarily V.I.P parking integrated in the junction, while public parking is located under the M.B.D. surface. The parking is used at different times of the day and at different days of the week; these parking lots are shared parking for the business district as well as for the Sports-scape.

The stadium is a symbol of the Sports-scape, as well as an icon for the whole area. It is visible over a long distance and becomes a point of orientation for the driver, as well as a reference point for the gateway. As the stadium is integrated in the exit road from the motorway, it - as an urban programme - merges with the junction typology of the motorway, and thereby benefit by its accessibility.

The general principles of the Sport-scape focus on accessibility for masses, as well as programming motorway typologies and nearby areas. In this way the Sport-scape both make use of the motorway junction, which surround and facilitate the stadium, and the pocket typology, which make parking and programming of the motorway level possible.



Ill. 59: General principles



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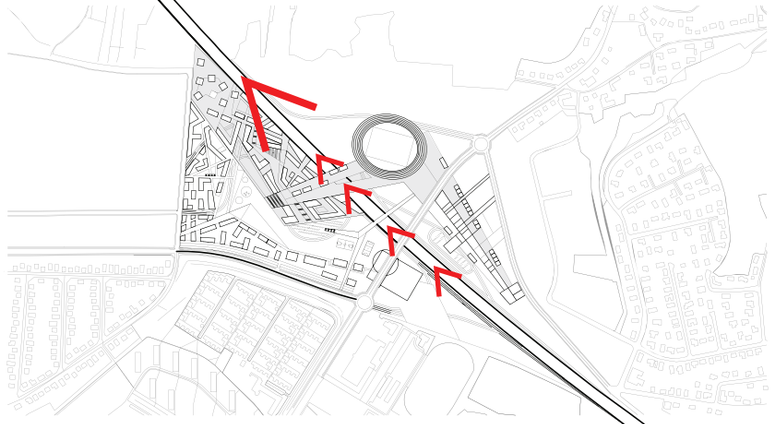
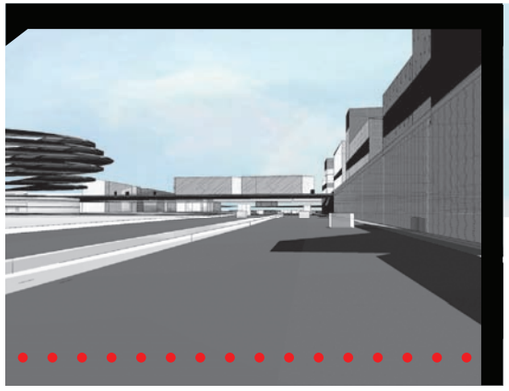
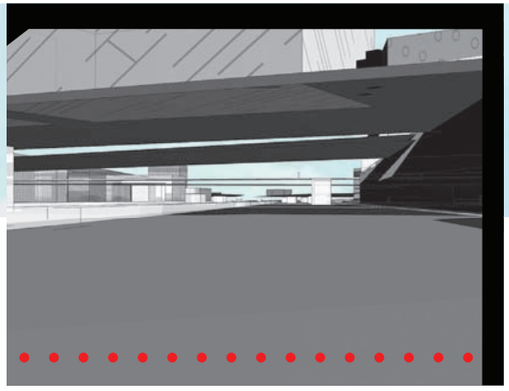
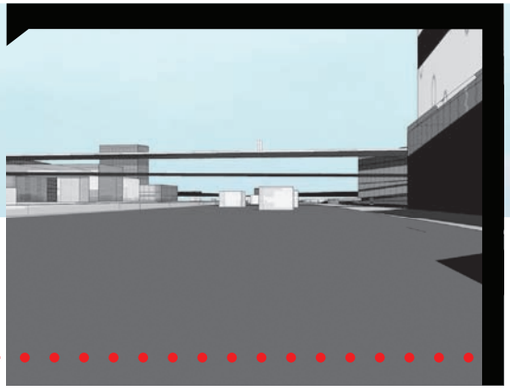
Ill. 60: Plan extract

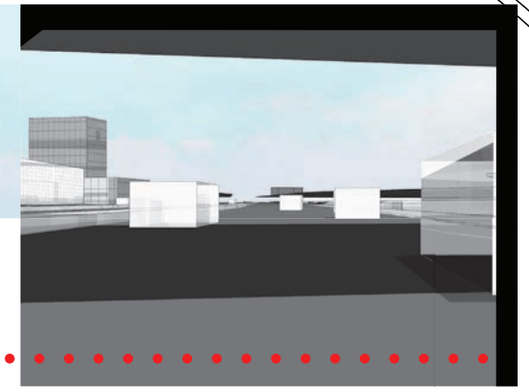
Ill. 61: Serial vision starting with view along the M.B.D











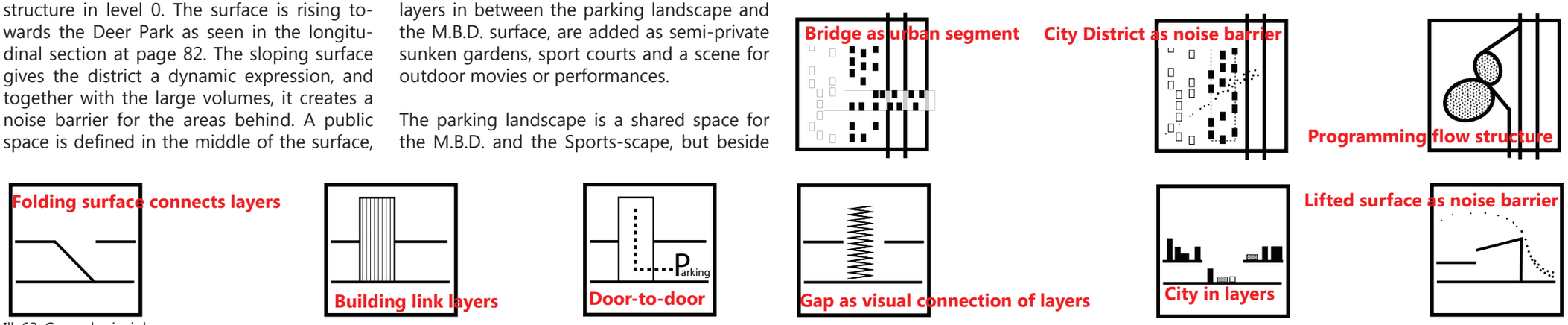
M.B.D ::

The aim of the Motorway Business District is to use of the motorways potential for accessibility and visual exposure, as well as make use of the new layer of the city, which is introduced by the motorway. A wide range of businesses and business related programmes are located in the M.B.D, where a parking-pocket in the motorway level offers a door-to-door service. Some buildings penetrate the surface and create a direct connection from the parking landscape to the offices, while others are located on the surface, and thereby make use of the public links between the layers.

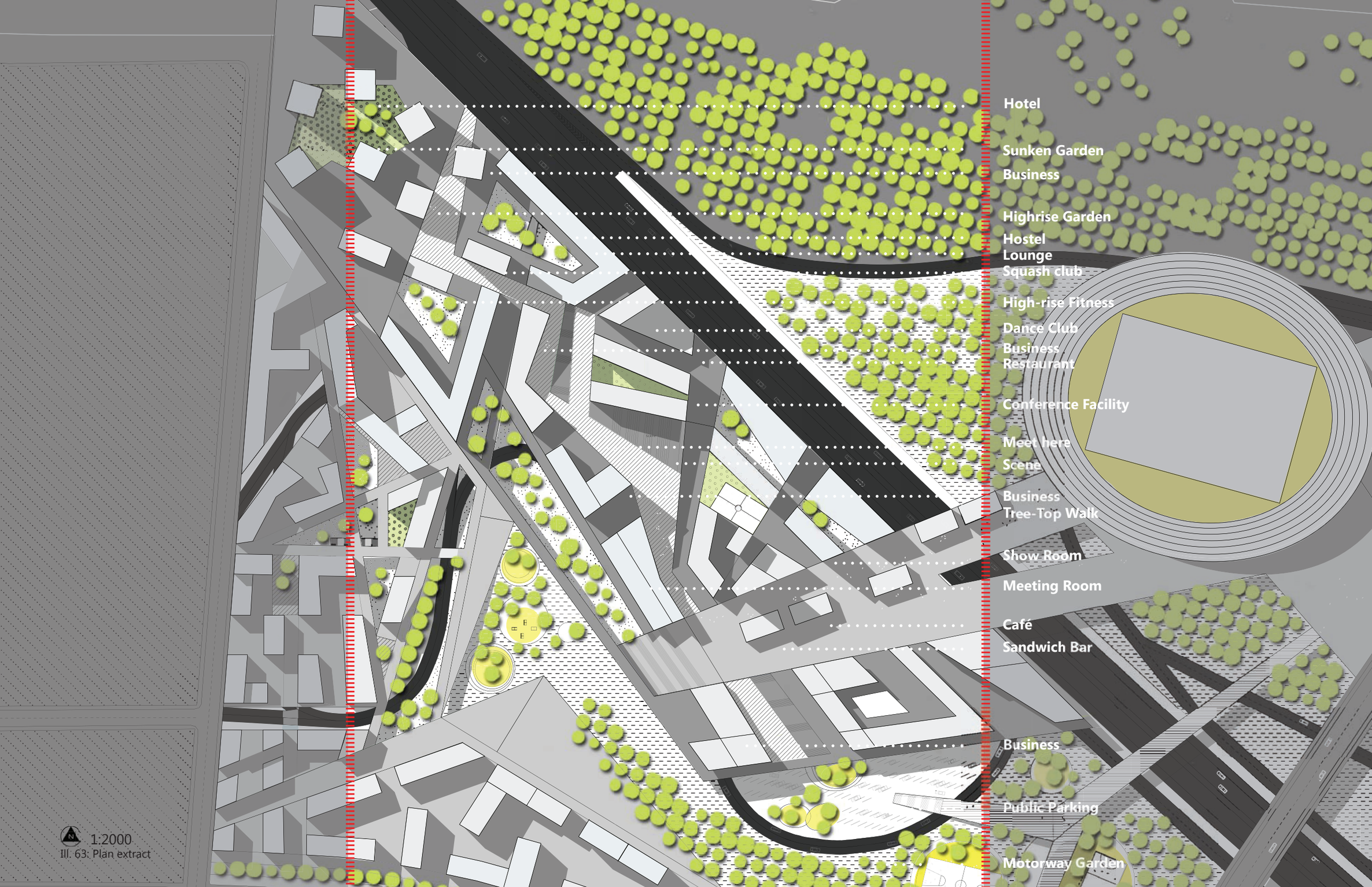
The MBD surface is a covering of the flow structure in level 0. The surface is rising towards the Deer Park as seen in the longitudinal section at page 82. The sloping surface gives the district a dynamic expression, and together with the large volumes, it creates a noise barrier for the areas behind. A public space is defined in the middle of the surface, where connections between the surface and the parking landscape below are situated. The zig-zag space is in this way a gathering point for the people working within M.B.D., where programmes like cafés, restaurants and snack bars create common spaces. Beside ramps and staircases, holes are made in the surface, with the aim of staging the two levels and create visual connections. As part of the Motorway Garden, trees are planted inside the parking landscape as a subdividing element together with the penetrating buildings. While the trunk of the trees will be the dominating element in the motorway level, it is possible to walk in the tree tops at the surface of the M.B.D. Sub-layers in between the parking landscape and the M.B.D. surface, are added as semi-private sunken gardens, sport courts and a scene for outdoor movies or performances.

The parking landscape is a shared space for the M.B.D. and the Sports-scape, but beside that, buildings within the M.B.D. are also programmed with common facilities. In this way hotels, hostels, restaurants, conference and meeting facilities as well as activities as fitness, squash and tennis are shared spaces, which ensure activity at different time of the day and throughout the week. Events as football matches or concerts will attract a lot of people, and as the parking is located in the motorway level, people will emerge from the holes in the surface and create a considerable line of flow across the motorway.

The general principles relating to the M.B.D. are about linking layers, surfaces and volumes, city in layers and staging crossings. The layers are linked both physically and visually by means of landscape surfaces and buildings. The big surface construction functions as noise barrier and this effect is strengthened by the buildings on top. The programming of the motorway level makes direct connections and double programming possible, and the city is in this way challenged in different layers. The continuity of the surface across the motorway orchestrates the flow of the motorway from the city, as well as the flow to the stadium, is orchestrated from the perspective of the driver.



Ill. 62: General principles



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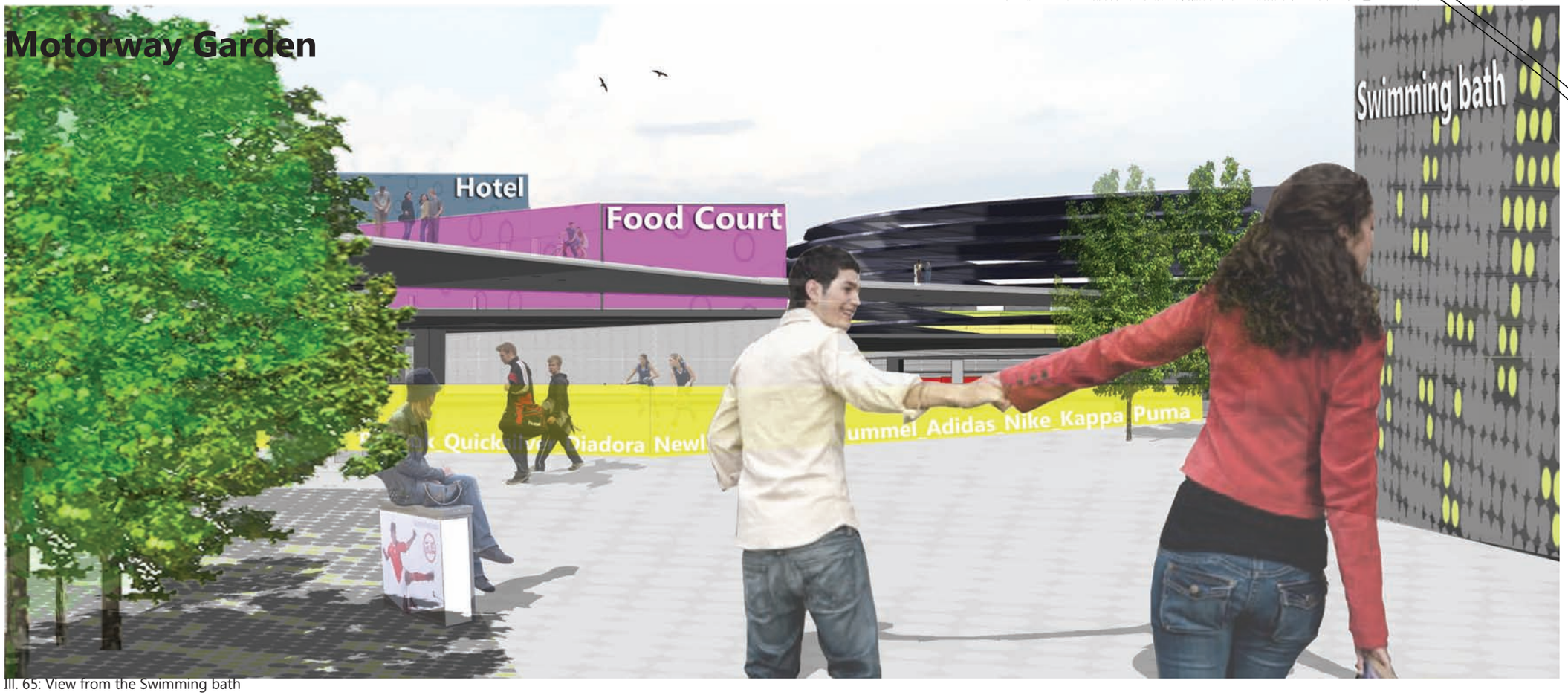
Ill. 63: Plan extract

Ill. 64: View from the Deer Park



Ill. 65: View from the Swimming bath

Conclusion ::

The initiating objective of the project was to challenge the interplay between the motorway and the city, as two overlapping layers that benefit by each other´s existence. The aim of the project was therefore to investigate the transforming of the form typologies of the motorway; junction, crossing and pocket into urban structures that link the level of the city to the level of the motorway. Silkeborg has been used as an urban test field, which gave the project a place specific site and clear conditions, to relate to. The excavated motorway was a precondition, which introduced a new physical layer within the city – layer -1.

The typology of the motorway junction is the basis for the transformation of the site into a Junction City. The shape of the junction has been extended and stretched in order to integrate new programmes within the structure. These programmes are meshed into the form typology as a psychical form or they are attached to the effective one-way flow system that makes it possible to get to and from the area within a very short time. Even though the junction is extended with longer distances between the exit and access roads, there is still a smooth transition from the network of the motorway to the network of the city. The infrastructure network is flowing and comfortable, which makes it an effective and safe system. The flow system is generated by using a one way "road system" that eliminates all traffic lights – in this way all kinds of time consuming crossings are avoided. It can be concluded that the junction has transformed from an infrastructural left-over space to a merging urban structure.

The Urban Service Area is based on the concept of "drive-in shopping". This means that the wide range of programmes offer the opportunity to make a quick stop on the way home from work, and make the everyday shopping of groceries. At the same time, the programmes can be used by the city residents, from the other side of the buildings. This gives the area behind the Urban Service Area an added value, and beside the programmatic "double use", the psychical placement and design also benefit the area behind, as the volumes are barriers reducing the traffic noise from the motorway. The Urban Service Area exists on the basis of the motorway and the motorway junction, as well as the pocket flow system ensures a coherent flow and the possibility for parking. The double use of programmes for the motorist as well as for the citizens make the Urban Service Area a shared space within the city.

The Sports-scape is a programmatic concept which is characterized by two large volumes containing programmes as the multi-purpose hall and the Stadium. In relation to the motorways potential for visual exposure and accessibility, a stadium has literally been integrated in the exit lane of the junction. A stadium and a big hall are appropriate programmes in connection with the motorway and the city. The mass programmes make use of the motorways big capacity, and the new urban area makes it easy to park for motorists, as well as the accessibility for pedestrians and bicyclists are ensured. Most of the parking lots are situated opposite the stadium, at the other side of the motorway, and in that way people are forced to shift layers, and use the urban spaces to get to their destination. This creates life and identity to the city milieu, and from the road, it will be a beautiful sight, when big masses of people pass the motorway crossing simultaneously. The stadium is an icon and orientation point for the motorist. For the city it is an identity making element as well as a business generator. The stadium uses the motorways potential for visual exposure, both in connection with the stadium as a business concept, but also in relation to the exposure of the city. The entire area is a gateway to the city, which is accentuated by the stadium.

Besides the two large indoor programmes the outdoor programmes are integrated in the Motorway Garde in level -1. The programmes are used to create an active atmosphere and they offer further opportunities for play.

The crossings are used to ensure a good connection across the motorway as well as to

create a public space which orchestrate the motorway from the city and vice versa. The crossing is transformed from a solely functional infrastructural connection into a staging urban space. The crossing is meant as a public space with various programmes - it is an alternative place, where it is possible to sit in a restaurant and look down at the traffic, or it is possible to visit the art gallery, where the floor is a glass structure, which makes the visitors walk upon the cars. The crossing is a mix of alternative places, which strengthen the neighbourhood identity, and it links furthermore the different sides of the junction.

The concept of the motorway pocket has become a junction pocket. The one way flow system lies in the definition of the "pocket concept", and in this project the system is used to create an urban structure on the premises of the motorway layer. The pocket concept makes it possible to programme in level -1, which means that the programmes are linking the city layer with the layer of the motorway. The pockets have become accessibly from the city and there is an exchange of services, so they have transformed from an enclosed enclave to a sharing urban environment.

On the vest side of the motorway, within the M.B.D., the flow pockets service the programmes above at the city level. The slope surfaces of the M.B.D. create connections between the layers, and at the same time the big volumes function as a noise barrier for the residential areas behind. The placement of businesses above the pocket system offers direct accessibility from the motorway layer and makes the workplaces attractive for a lot of people. The location makes it possible to benefit from the exposure that the motorway offers. The M.B.D. is connected to the stadium and the urban service area on the other side of the motorway, by means of the "city crossing", which create a coherent flow in the city level.

The Sports-scape, the Urban Service Area and the M.B.D are all integrated in the junction. In this way the junction becomes the overall structure for the city development, in which the crossing, the pocket and the city related programmes are integrated. In this way the test field has shown that there are urban potentials in transforming motorway form typologies into urban structures. The design creates a gateway and attractive public spaces within the city, and on the motorway the motorist experiences a coherent field offering points of orientation and the possibility to stop.

The outcome of the project is a collection of design principles, for the design of an entire new city district. These principles will in different ways relate to the problems and the potentials, relating to the interplay between the city and the motorway. As a working method, the development of these concepts can be used to test the potentials of other areas. If used at another place with other conditions and objectives, some concept will be possible to copy while more principles probable will emerged. The principles extracted from this project, are therefore the beginning of an investigation, which has the potential to develop into a toolbox concerning the "city motorway". Such toolbox would require more test, from where common principles could be defined and developed into urban motorway guidelines.

Discussion ::

When posing a design for a dramatic change of an area, it is important to evaluate the proposal in relation to the character of the area and the objectives for the project. A central theme for this project, was the interplay between the motorway, the city and the products that were generated on the basis of the motorway typologies and city related programmes.

As the initiating issue was to test general concepts for the interplay between the motorway and the city, with Silkeborg as an urban test field, the project has both been working with general problems concerning the motorway, and more place specific problems relating to the motorway section through Silkeborg. As Silkeborg was the case, the excavated motorway has been a precondition, and it could be questioned whether this very specific condition is relevant in a general discussion about the "city motorway". Since the coherence of the city context is important, when establishing a motorway within a city, the excavated motorway will also be relevant in other cases, as an excavation has a minimum impact on the context. The crossing roads within the local network will be easier to adjust in connection with the motorway, since it will be possible to continue the local road network in the same layer.

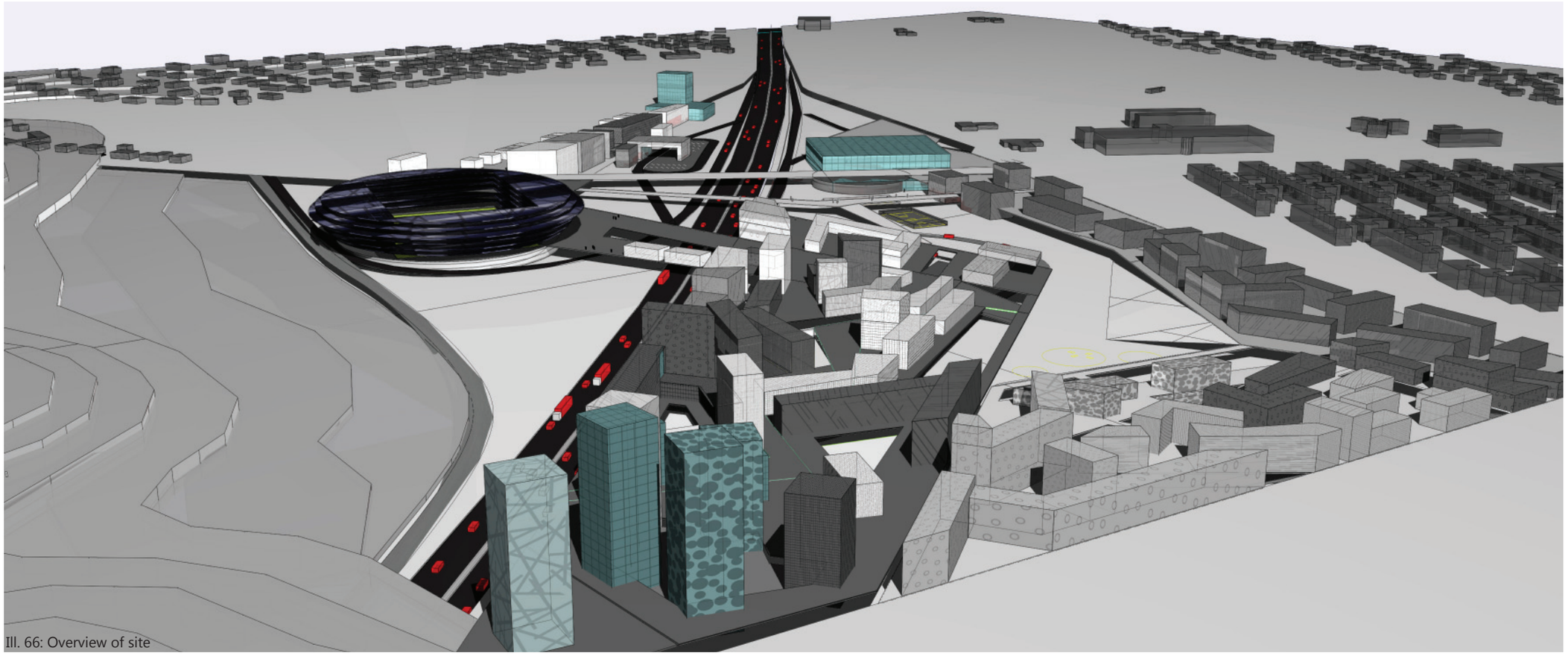
In this project it is decided to erase the existing buildings on the site which means that the project becomes more general. The question is then whether it is too general in relation to the place specific site in Silkeborg, but the design proposal relate to the site, as the surrounding context is used as a design parameter. The programmes that are used, are programmes which already have been discussed in connection with future development opportunities in the area.

On the basis of the last design proposal, general principles have been extracted in relation to the development of the urban motorway areas. These concepts are more or less general since some relate to the programming of a mass-attractor while others relate to an excavated motorway. These concepts are based on the specific site in Silkeborg, and therefore other concepts could have been extracted if another test field were chosen. In this way more projects, concepts and sites needs to be investigated in order to make a toolbox and design guidelines for future urban motorway projects. Also the focus and scale of the test field influences the concepts of design principles. This project focused on a design proposal on an urban scale, as a mix of general principles composed in a bigger composition. The basis for the project was a perception of the motorway and the city as a coherent field, and therefore the focus has been on the urban design challenges in relation to the interplay, and not solely architectural "object solutions" which only to a minor extent relate to the context.

The masterplan which shows the status of the urban test field, visualise an overall solution of the site, where some areas are more detailed than others. The Motorway Garden and the parking landscape in level -1 underneath the MBD, are large open spaces, which need a more detailed design and planning strategy, before it is possible to evaluate the spatial quality of the spaces. For some elements it is still to early in the design process to evaluate on their specific qualities, but for other concepts there is a clear sign of potential, as for instance the integration of programmes in the junction, "double use" of programmes in separate layers and the one way flow system.

In this project the solution is seen as an overall strategy, which means that there are many unsolved problems in relation to surplus soil, traffic noise and traffic safety. In connection with traffic noise, the noise barrier concept is used as a design parameter in a large scale, but on a more detailed level it is possible to compose complete new project concerning; landscape strategies for surplus soil, design of noise barriers, traffic safety, noiseless asphalt, noise insulating materials in relation to the construction of buildings and a strategy for the graphic aesthetics.

Well aware that part of the project needs more technical and design detailing, the project is an investigation as basis for a new discussion, where the projects has pointed out potentials in relation to the interplay between the motorway and the city.



Ill. 66: Overview of site

Into Perspective ::

Though urban structures in relation to the motorway are not a new phenomenon, there is no design tradition. The "city motorway" is a fact, since nature reserves force the course of the motorway through cities, and there is therefore a need for specific design guidelines and visions, as the urban motorway has a different agenda, than the motorway through the landscape.

As the project is seen as an investigation of the interplay between the motorway and the city, the report does not come up with a final result and a toolbox for the design of the urban motorway and its surroundings. Instead it points out potentials – programmatically and physically – for the transformation of the form typologies of the motorway to urban structures. The project presents the status of the investigation, which contain general concepts and principles relating to the urban motorway and in this way the project starts a discussion and initiates new pilot-projects for further development.

New projects could be test-projects based on the situation in Silkeborg, where a task force could arrange different work shops with the aim of defining guidelines, tools and visions for the urban motorway. The task force should be interdisciplinary and consist of architects, urban designers, traffic planners and engineers, as representatives from both the municipality in Silkeborg and the Danish Road Directorate. These projects could be defined as The Public Motorway Space, Motorway Habitation, Motorway layout and aesthetic and Urban Motorway Typologies.

The Public Motorway Space relate to the design of public spaces in the context of the motorway. Instead of protecting public spaces from the motorway and hide those behind walls of screens, new definitions and compositions could be developed. The right programming and layout could create interesting spaces that attract certain people with certain intentions. Some spaces could be developed as "View Points" for people fascinated by the movement on the road, while other spaces could be designed for noisy programmes or street sports, which relate to rough environments. Besides the programming based on the motorway condition, such project could challenge the design of urban furniture, as well as the composition of the public space in order to camouflage the noise from the road, without eliminating the visual contact to the motorway.

Build-up areas in relation to the urban motorway are a matter of course. Businesses are voluntarily located at first row in order to make use of the possibilities for exposure, while

the motorway as a neighbour to residential areas, is unwanted and therefore hidden behind noise barriers. Whether it is businesses or private housing, new building typologies and masterplans could be challenged. While the challenges in the designing and planning of business typologies mainly should consider the possibility for visual exposure. The design of residential building typologies should mainly challenge the composition of typologies and the use of materials. This should be done to create attractive places for living, where the noise pollution from the motorway is minimized and ignored as a problem.

Also the layout and the aesthetic of the motorway could be challenged to create a new type of motorway that match the culture and demand of the urban motorway. All elements relating to the motorway should be challenged, and not accepted as definitive solutions. In this way a pilot project could challenge the layout of the road, or it could investigate the problems and potentials of divided lanes horizontally, vertically or in relation to the aim of use of the road. Pavement is another element to challenge – some kinds of pavements are more efficient in relation to noise reduction than others, and maybe the change of pavement at exit roads, could make the driver slow down faster. Instead of signs - graphic on the pavement could inform the driver, and in that way the amount of large scale signs in urban environments could be reduced. Noise barriers and edges are also relevant in relation to the urban motorway, and whether it is edges, pavement or the layout of the lanes that are tested, it has to be evaluated in relation to safety.

As the project points out, there is a potential for further development of the form typologies of the motorway, and for the transformation of structures that intermingle with the urban landscape. Pockets as places facilitating the user of the road and the neighbourhood, could become shared spaces, motorway junctions has the potential for shaping the urban environment and intervene in the city, while crossings should be seen as more than functional infrastructural connections across the motorway. Depending on the context and the programming of the site, these motorway typologies will have various parameters and potentials.

These are just examples of pilot-projects that could be further developed and investigated on the basis of the potentials, which this project points out. More research projects could be defined and investigated with other cities as case, and workshops and conferences could be a tool to start the discussion of defining visions for the “city motorway”.

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Appendix

Lab specification ::

The Lab = Challenging concepts of the meeting between the form typologies of the motorway and the layers of the city by use of sketching, physical modeling, 3D drawing and case studies.

This project has been developed as a research project testing the potentials of the motorway´s interplay with the city of Silkeborg on an urban design level.

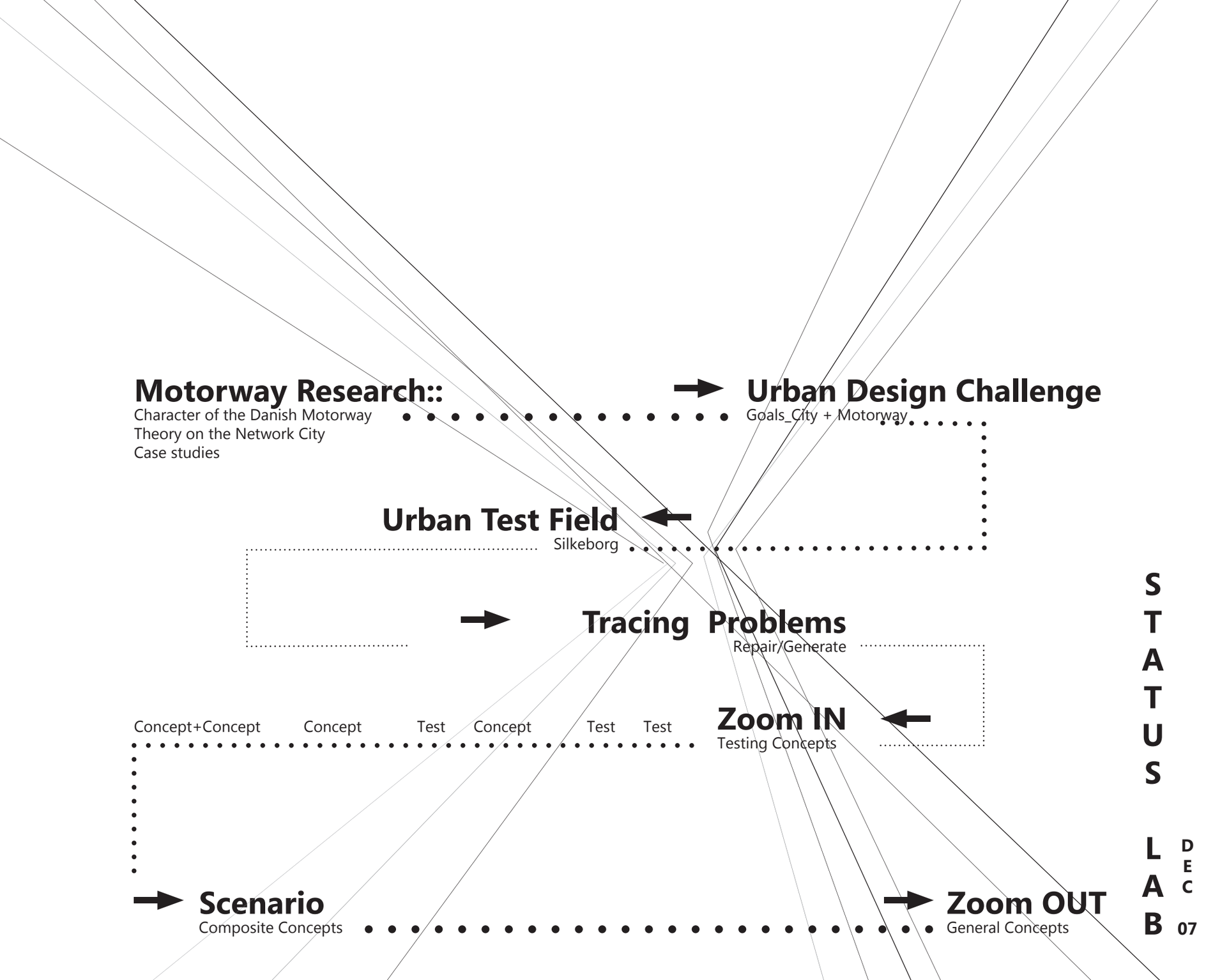
The structure of the project takes form of an hourglass figure, with general research as starting point. The frame of the project deals with theoretical considerations on mobility and the network city as well as analyses of the urban character of the Danish motorway. Based on this the goal of the project were formulated with the aim of testing the possibilities of designing a city environment, where the city and the motorway benefit by each other´s existence. As the planned motorway through Silkeborg was the initiating reason for challenging the interplay between the motorway and the city, design concepts were developed, tested and transformed with Silkeborg as the urban test field. The consequences and fact of the motorway were then analysed, and problems and potentials of the layout of the motorway within the different areas of the city were defined. The project´s course of action was then to zoom in on a specific site with specific problems and potentials, define a concept and based on this site develop a design scenario for Silkeborg containing general concepts with the aim of extracting principles and design potentials for the merging of city and motorway.

On the following pages, the process of developing design scenarios and concepts for Silke-borg, are outlined.

The design process started from the beginning of the project and has in this way been running along the overall studies and analysis. The first test were therefore characterised by principles relating to the general problems concerning the motorway such as speed, flow systems, the motorist´s angel of view, noise barriers, accessibility, coherent context and alternative courses of the road. These tests were not site-specific but the wide range of principles resulted in a toolbox of ideas. These investigations were then further developed, combined and implemented in the site-specific part scenarios. The part scenarios are sections of the site were the form typologies of the motorway, physically divided layers and urban programming were tested. In the full scenarios these part scenarios were merged and transformed in order to create a coherent narrative.

Sketches and models have been evaluated according to the goals and the concept of the project which again have been strengthen and twisted in relation to the work of the lab. In this way all models have been evaluated, and the various design principles relating to concept of transforming the crossing, junction and pocket into urban structures that linked the layer of the motorway to the layer of the city both programmatically and physically were extracted.

Parallel to the design process, different cases have been studied, which all work with the problems and potentials concerning the merge of motorway and urbanisations. Selected case studies are represented at the at the back of this chapter.



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Evaluation Sheet

Layer + Programming Motorway + Programming

	Model 1 ::	Model 2 ::	Model 3 ::	Model 4 ::	
Junction	- Junction contains urban park in two levels.		- Stadium integrated in junction.	- Junction forms the stadium. - The exit road works as noise barrier.	
Crossing	- Stadium integrated in crossing. - Crossing becomes a landscape element. - Crossing becomes a public space.	- Crossing becomes public space. - Crossing becomes roof of a lower lying park.			
Pocket			- Pocket as efficient flow system. - Pocket as drive in shopping and sports scape. - Pocket as urban service area		
Building	- Buildings are physical links between layers. - Buildings are visual links only accessed from below.				
Landscape		- The landscape is a leaning surface. - The sloping landscape connects the levels. - The landscape creates spaces on middle levels.	- Sloping landscape used as noise barrier. - Sloping landscape as active surface. - The Slopes hide the motorway.	- The conspicuous landscape edge functions as noise barrier.	
Extra	Stadium as icon.			Stadium as icon.	

Ill. 67

Model 5 ::	Model 6 ::	Model 7 ::	Model 8 ::	Model 9 ::	Model 10 ::
	- Two levelled park integrated in junction.			- Stadium integrated in junction. - Sports complex integrated in junction.	- Stadium integrated in junction. - Sports complex integrated in junction.
- The city becomes part of crossing.			- Crossings become landscapes.	- Crossing becomes park. - Crossing becomes a city district. - Crossings create urban space.	- Crossing becomes park. - Crossing becomes a city district. - Crossing becomes urban space
- Pocket as efficient flow system. - Pocket as parking area.	- Pocket contains stadium and parking. - Pocket functions as noise barrier.	- Pocket as efficient flow system. - Pocket as drive in shopping and sports scape.		- Pocket is a two levelled park. - Pocket as efficient flow system. - Pocket as drive in shopping and sports scape. - Pocket as parking area.	- Pocket is a two levelled park. - Pocket as efficient flow system. - Pocket as drive in shopping. - Pocket as parking area. - Pocket as sports.
- Buildings are physical links between layers.	- Buildings reflect the flow structure in level -1.	- The building masses function as noise barrier.		- Buildings are physical links between layers. - The building masses function as noise barrier.	- Buildings are physical links between layers. - The building masses function as noise barrier.
- Landscape surfaces unfold and makes physical connections between layers		- Green landscape structure links across the motorway.	- Landscape links layers.	- Slopes are linking layers. - The MBD landscape functions as noise barrier.	- Slopes are linking layers. - The MBD landscape functions as noise barrier.
				Stadium as icon.	Stadium as icon.

Initiating Tests

Parallel to the readings on theoretical discussions and analysis of the urban motorway, model relating to speed and visual exposure were developed. Among other things, Kevin Lynchs "speed theory" – about how the motorist´s speed is affected by the elements along the road, was used as design parameter.

Principles were tested in relation to general questions as:

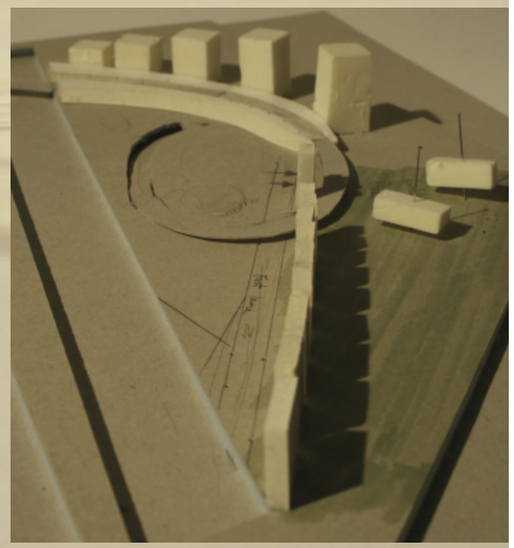
- How can building volumes and signs be placed, so that more elements in the front row can benefit from the visual exposure ?

- Which position is most visible ?

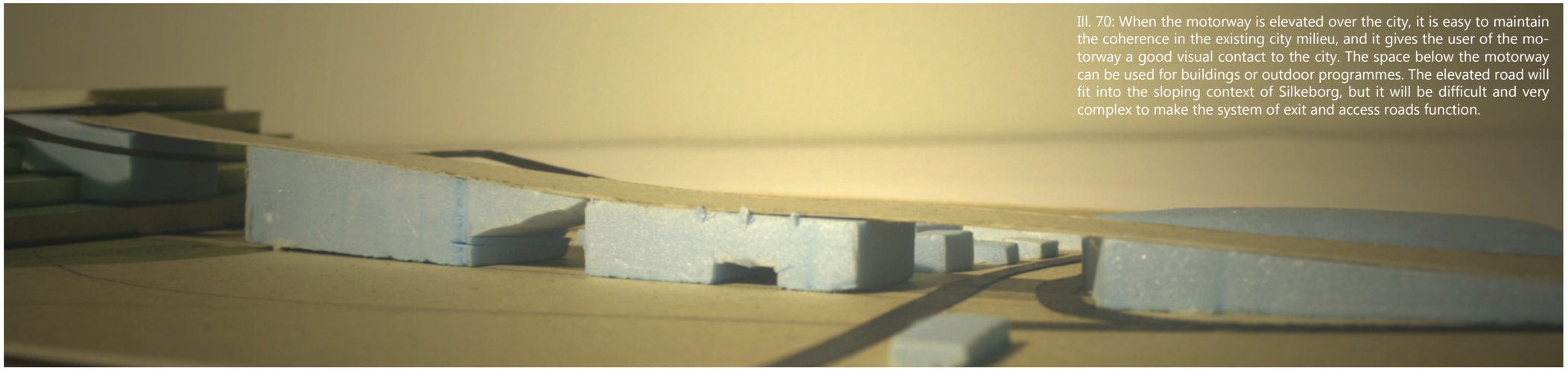
- How can building mass and distance between elements effect the speed of the motorist ?

- How can crossings affect the view of the road and be more than functional lines of traffic ?

Ill. 68: Crossing elements situated as a serial vision with good exposure for all. Crossings are the most visible location in relation to the field of view of the motorist. The fast repetition of elements gives the motorway space a varied character, and depending on what direction you drive in, the space will be extended or reduced.



Ill. 69: Speed reducing and speed motivating concepts as varied volume sizes and serial placement with different distances between elements.



Ill. 70: When the motorway is elevated over the city, it is easy to maintain the coherence in the existing city milieu, and it gives the user of the motorway a good visual contact to the city. The space below the motorway can be used for buildings or outdoor programmes. The elevated road will fit into the sloping context of Silkeborg, but it will be difficult and very complex to make the system of exit and access roads function.

A precondition for the project was that the motorway section through Silkeborg is supposed to be excavated, running in a corridor 3-6 metres below the city level. By testing the course of the lanes and the placement of the motorway in proportion to the context, new forms of urban spaces came into focus and at the same time the preservation and the coherence of the existing environment was evaluated.

Ill. 71: Natural speed reducing and speed motivating concepts, in connection with a planting strategy. There is an overall strategy for the junction with clear views of the motorway from the access roads and inverted. Along the exit roads there is a dense program of greenery, which is supposed to slow down the speed. The crossing is split in two, and creates thereby a public space in between the lanes from where the flow of the motorway is staged.

Principles were therefore tested in relation to questions as:

- What is the alternative to an excavated motorway, if the urban surface is to remain as a coherent element ?

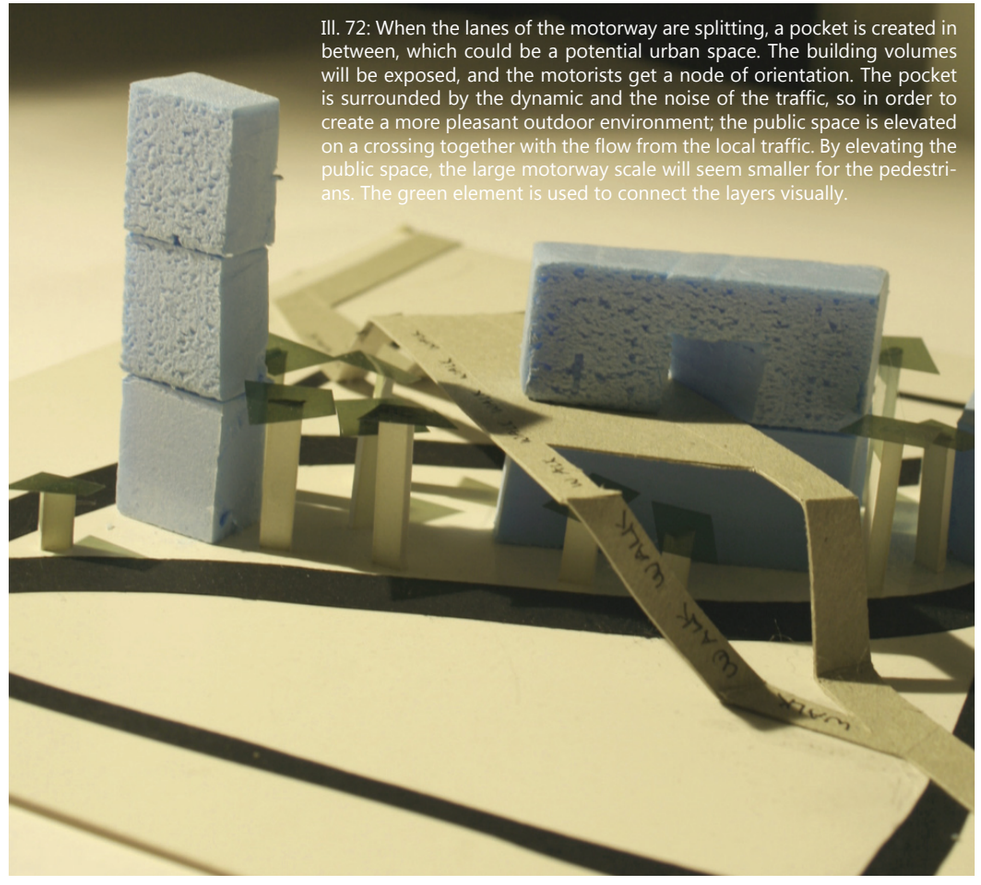
- What kind of spaces will be generated by splitting the lanes of the motorway ?

- How can the motorway interact with the urban elements of the city ?

- How is it possible to design for the slow human scale and the fast motorway scale at the same time ?

- How does the motorway not become a barrier for the local traffic ?

- How can different levels be connected ?



Ill. 72: When the lanes of the motorway are splitting, a pocket is created in between, which could be a potential urban space. The building volumes will be exposed, and the motorists get a node of orientation. The pocket is surrounded by the dynamic and the noise of the traffic, so in order to create a more pleasant outdoor environment; the public space is elevated on a crossing together with the flow from the local traffic. By elevating the public space, the large motorway scale will seem smaller for the pedestrians. The green element is used to connect the layers visually.

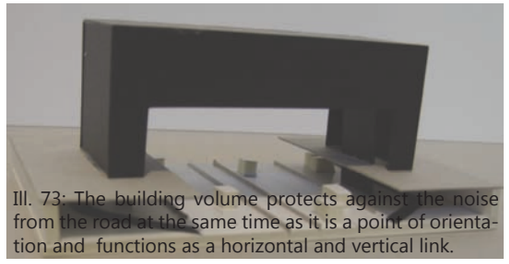
After having challenged the course of the motorway, the concepts and models took point of departure in the excavated motorway, which has three clear advantages: it is easy to link the local roads across the motorway, there will only be few visual barriers in the city level and the excavated motorway corridor will function as a noise barrier.

The tested concepts therefore questioned:

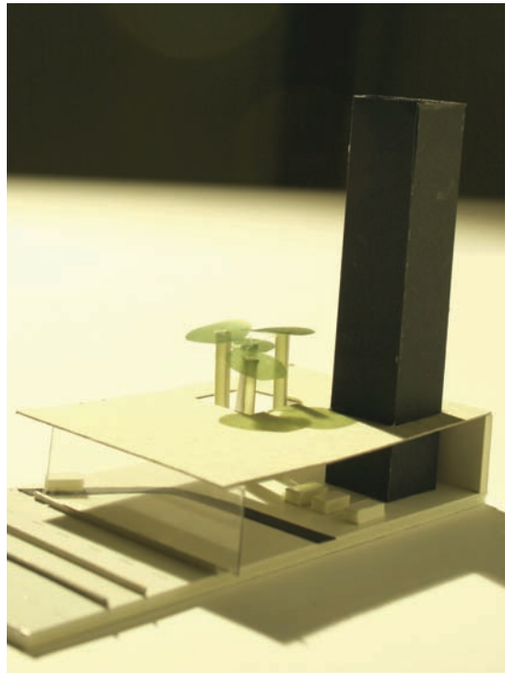
- How can the motorway function as a display room, when the motorists drive in an excavated corridor ?

- Is it possible to use the motorway space for other programmes ?

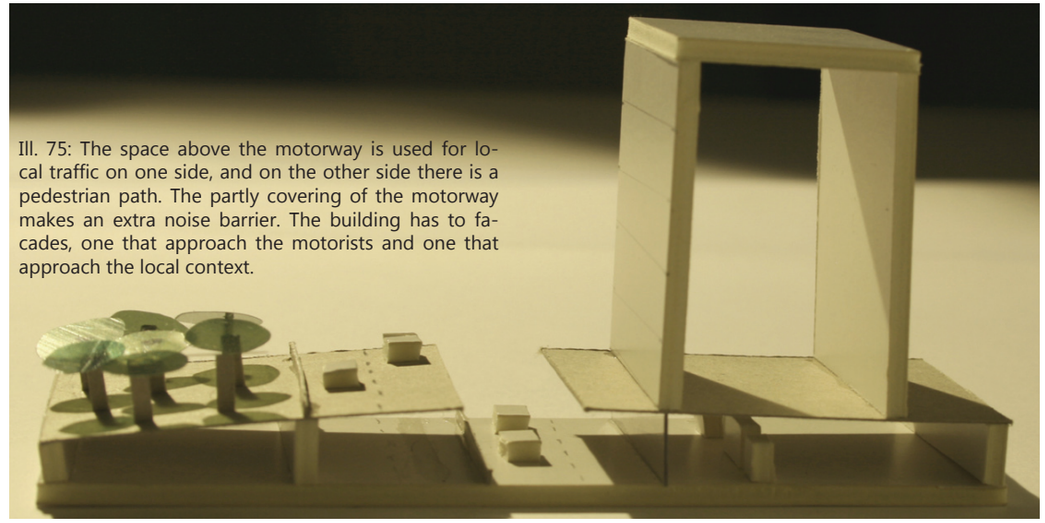
- How does the motorway become a more integrated part of the city ?



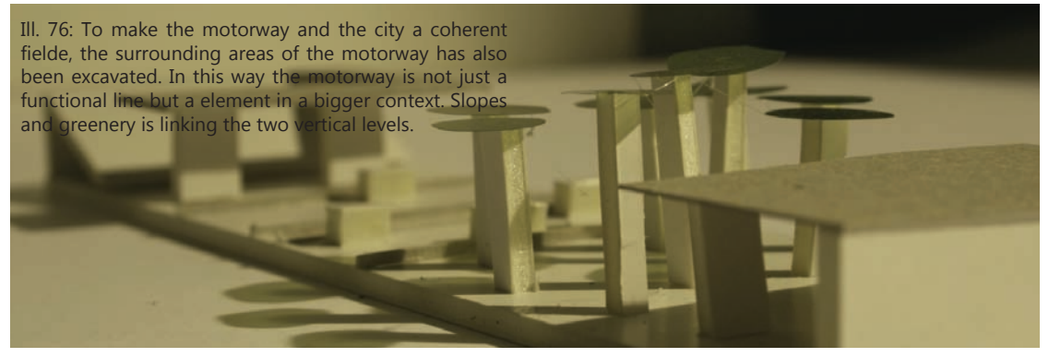
Ill. 73: The building volume protects against the noise from the road at the same time as it is a point of orientation and functions as a horizontal and vertical link.



Ill. 74: The model pulls the city down to the motorway level by means of programmes, buildings and greenery. The greenery, which comes up through the surface of the city level, makes a visual connection, while the building and the programmes makes a physical connection. To integrate the motorway in the lower city level, the spaces are divided by a transparent material, which also makes it possible to make use of the visual exposure.



Ill. 75: The space above the motorway is used for local traffic on one side, and on the other side there is a pedestrian path. The partly covering of the motorway makes an extra noise barrier. The building has to facades, one that approach the motorists and one that approach the local context.



Ill. 76: To make the motorway and the city a coherent fielde, the surrounding areas of the motorway has also been excavated. In this way the motorway is not just a functional line but a element in a bigger context. Slopes and greenery is linking the two vertical levels.

Sketching

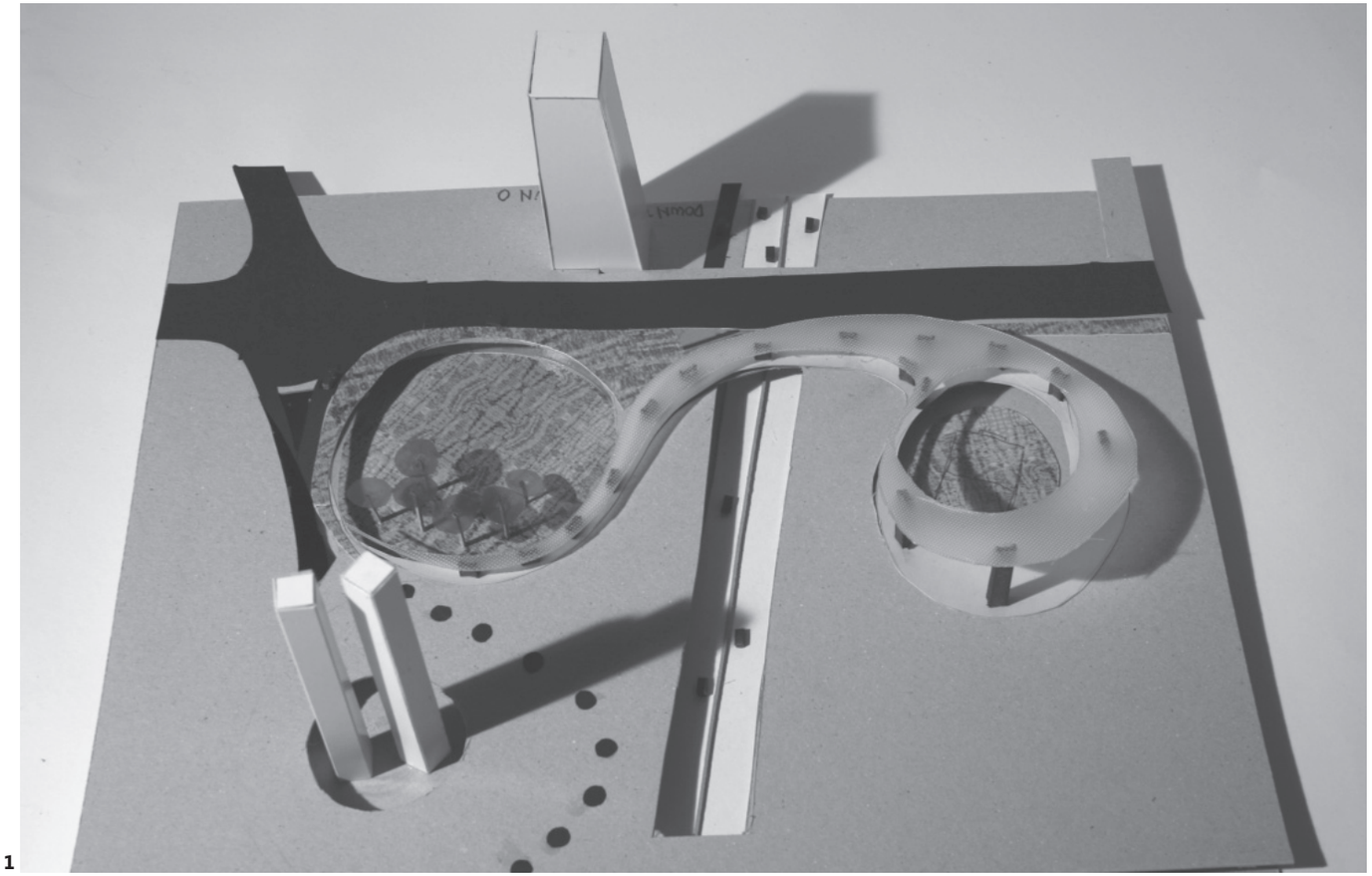
Ill. 77: Sketching has also been an important tool in the process of developing design principles. Especially drawings on the infrastructural flow system have been tested in this way.

Part Scenarios

The part scenarios are becoming more complex than the first models. They often work with more than one concept, and they start to generate stories about smaller neighbourhoods milieus.

Model 1
This model integrates a park in the middle of the exit road system. Opposite the park a stadium is situated integrated in a pedestrian crossing, which is connecting the two sides of the motorway. The crossing is covered with a roof in a sculptural way that makes the entire construction appear as a landscape element. The crossing has become a public space, which is staging the flow of the motorway, and at the same time the crossing is very visible from the motorway. The stadium becomes an icon for the city and a point of orientation for the driver.

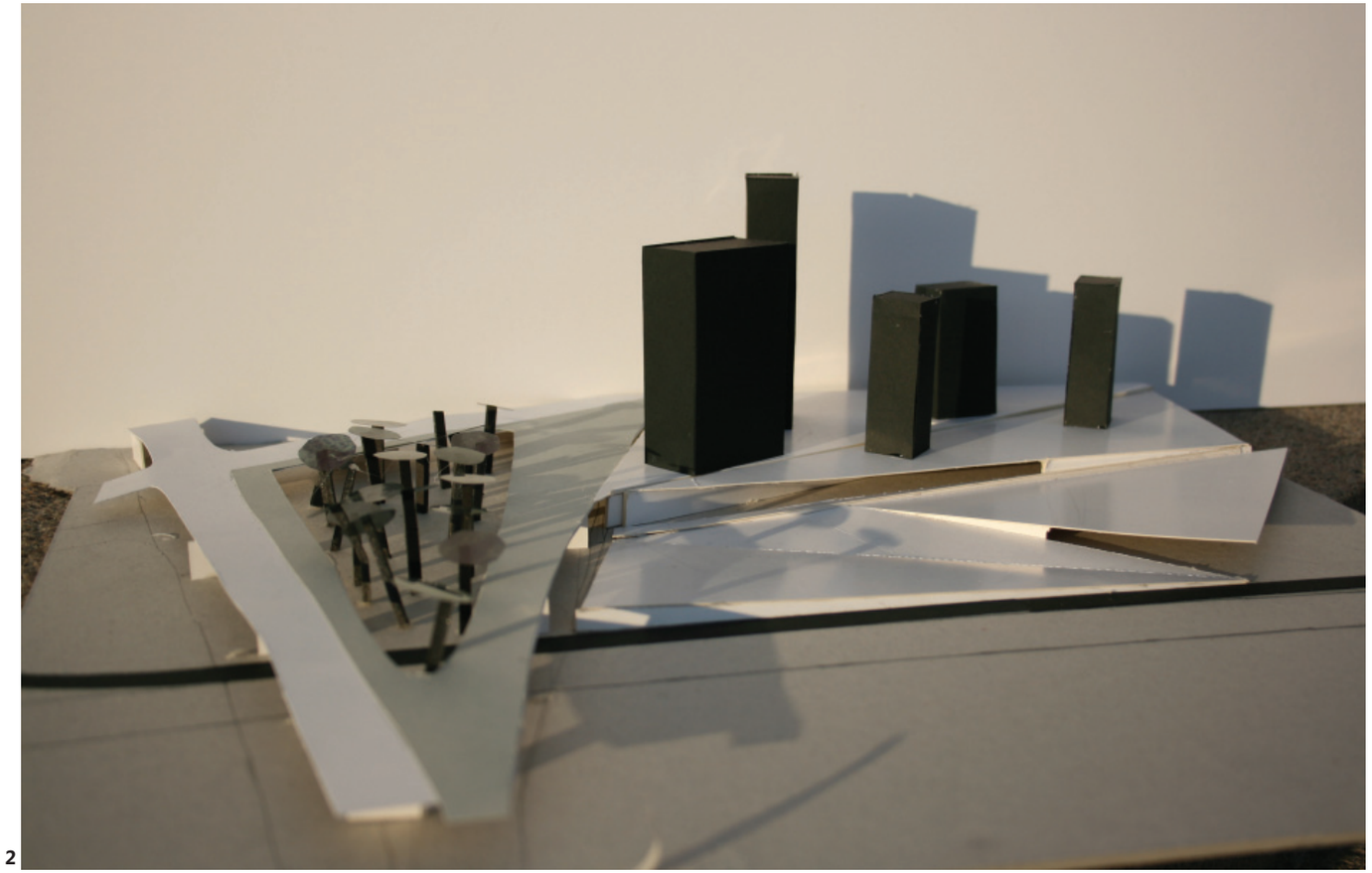
The building volumes are creating physical and visual connections between the layer of the motorway and the layer of the city.



Ill. 78: Model 1

Model 2

The trees in the middle of the crossing, creates a city park in two levels, where the park in the city level is a place, where it is possible to walk around the treetops. The park connects the layers, and the same elements gives value to two different urban spaces. The leaning landscape is another conspicuous element of this model. The leaning surfaces become a dynamic landscape that creates urban spaces on middle levels and room for build elements under the surfaces. The landscape makes a coherent course from the motorway to the city scape. The different layers create a varied place, with a good visual contact between them, but the urban miliue is very open, and there are no elements to absorb the noise from the traffic.



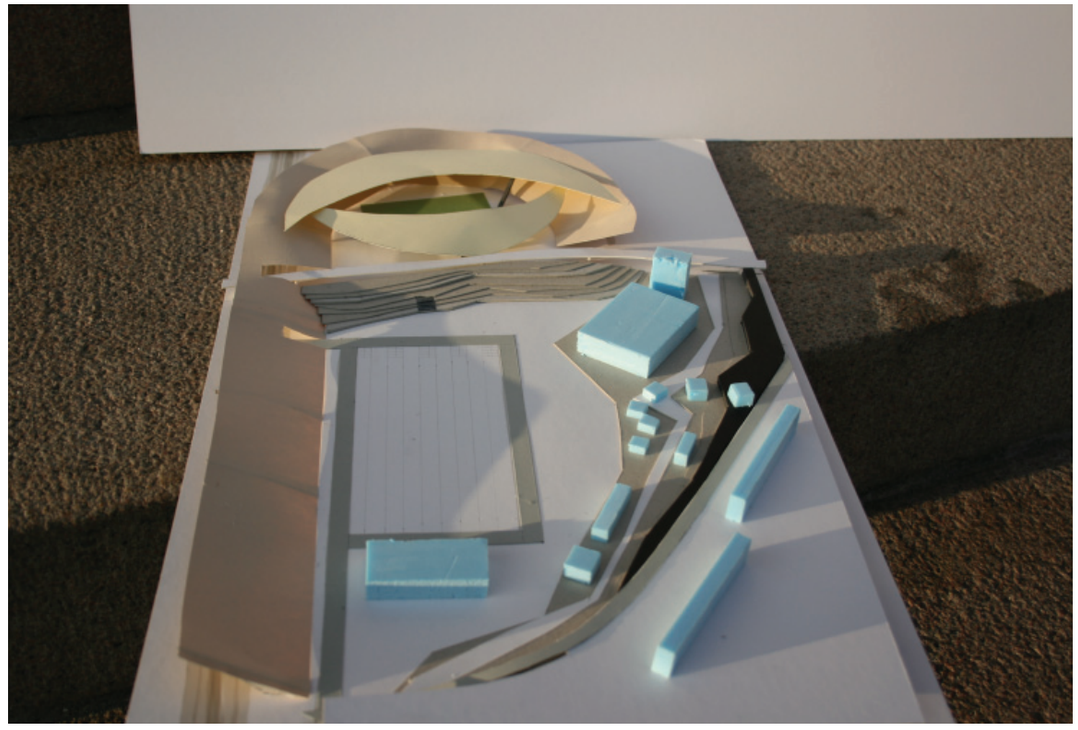
Ill. 79: Model 2

Model 3

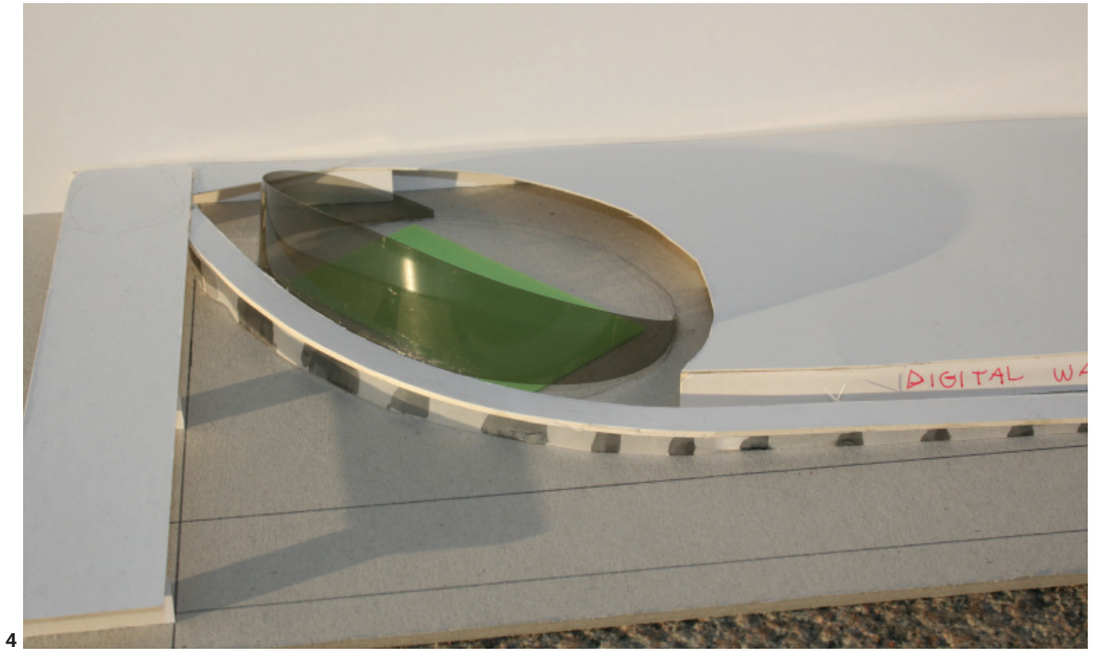
In this model a large slope landscape is used to develop a big noise barrier. The landscape is meant as active surfaces, which can be full of life in the summer. The barrier creates a public space behind it, though is a calm valley behind the motorway with a wide range of programmes, the space is isolated with no connection to the other side. A stadium is integrated in the junction and the noise barrier, and because of the size of the barrier the stadium does not appear as an icon. Artificial contours links the surrounding neighbourhood and the stadium to the valley.

Model 4

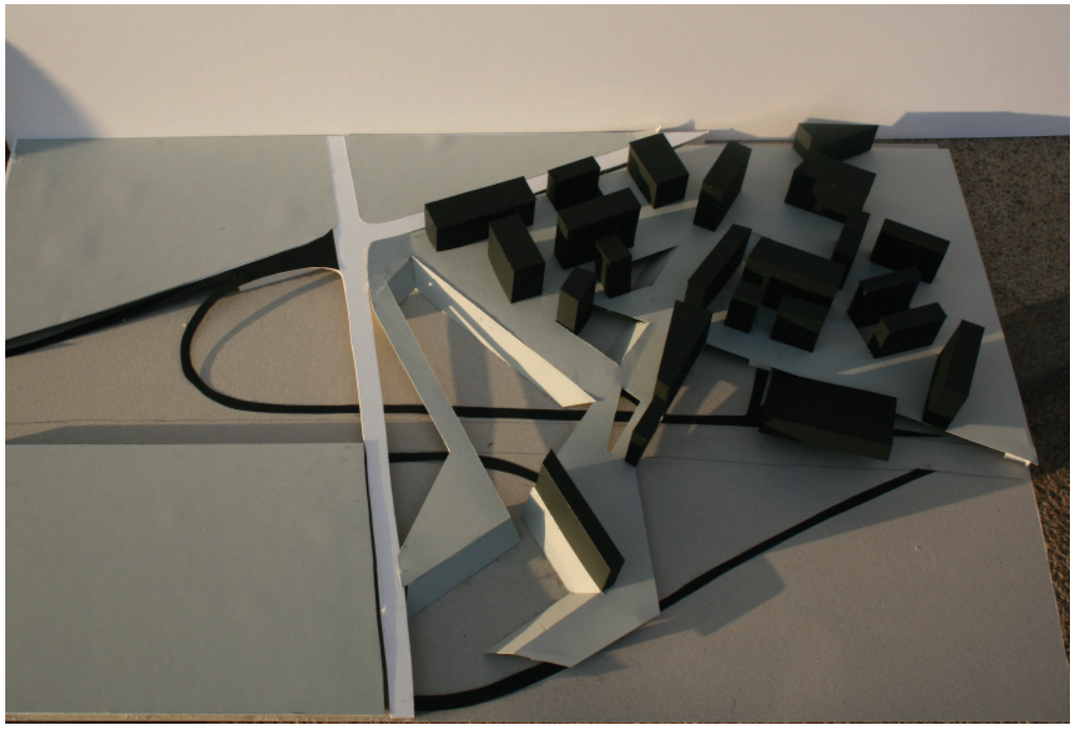
The junction forms the stadium and the exit road works as a noise barrier. The apparent landscape edge between the layers, strengthen the exit roads function as a noise barrier.



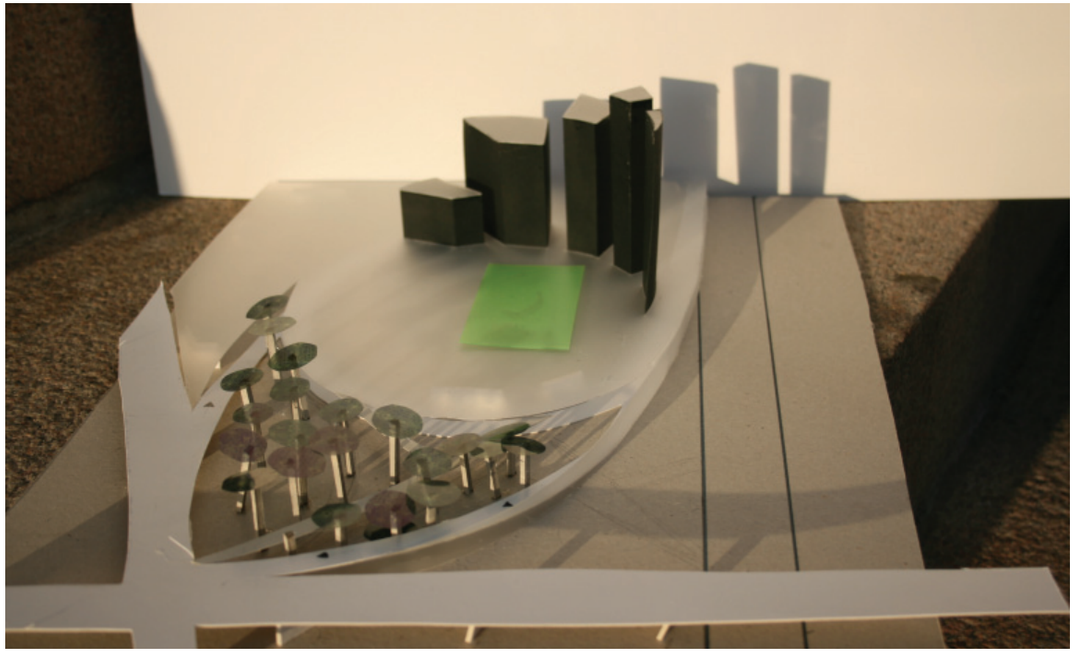
Ill. 80: Model 3



Ill. 81: Model 4



Ill. 82: Model 5



Ill. 83: Model 6

Model 5

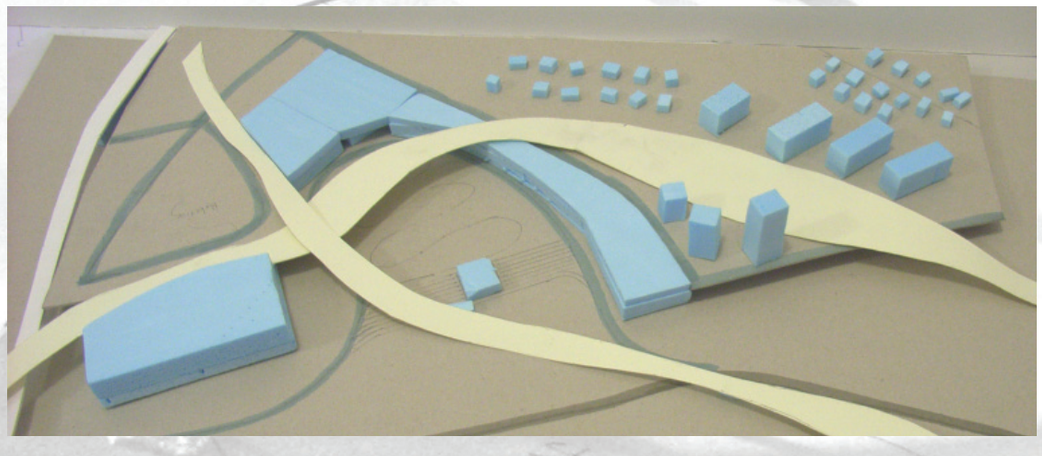
The space around the motorway is extended, which makes place for alternative programmes. The motorway space seems more intimate with the three crossings in succession, and their different programmes make the urban space more interesting. The crossings function as a local traffic line, a pedestrian crossing/public space and a city crossing, where buildings are situated above the motorway and where the programmes generate a lot of activity. The three crossings strengthen the connection across the motorway, and the road seems thereby less as a barrier.

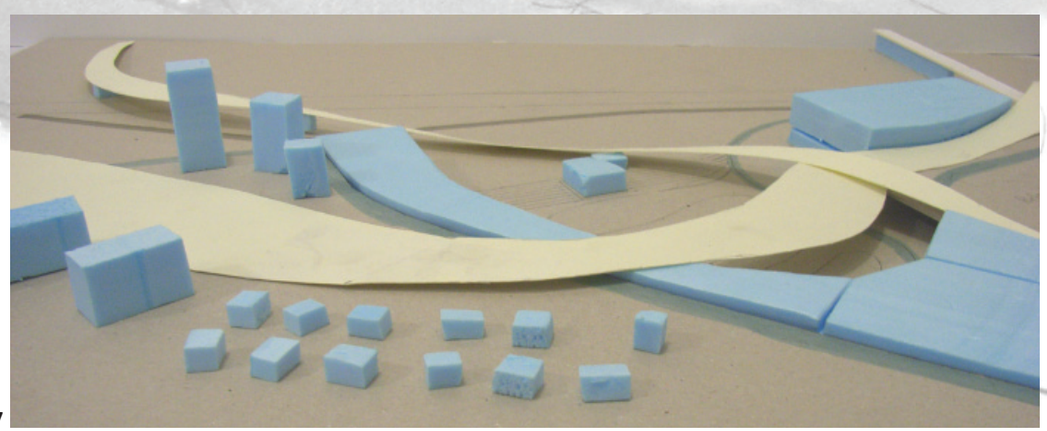
Model 6

A two levelled park is integrated in the junction, with footpaths among the treetops. Under the city level there is a pocket containing a parking lot with direct connections to the stadium in the level above. The buildings on top of the pocket reflect the flow system below.

Model 7

The model illustrates a one way shopping area, where drive in shopping is in focus. The pocket is at very big excavation, and it seems too big for the amount of programmes. The landscape edge between the two levels is to fare away from the traffic, to function as an effective noise barrier. The band of landscape that connects the different sides of the motorway is the dominating character; it is a pedestrian orientated connection that crosses both the motorway and the local traffic, of the city. The landscape band is supposed to link neighbourhoods to the motorway area together, and in that way the motorway area becomes part of the city district.

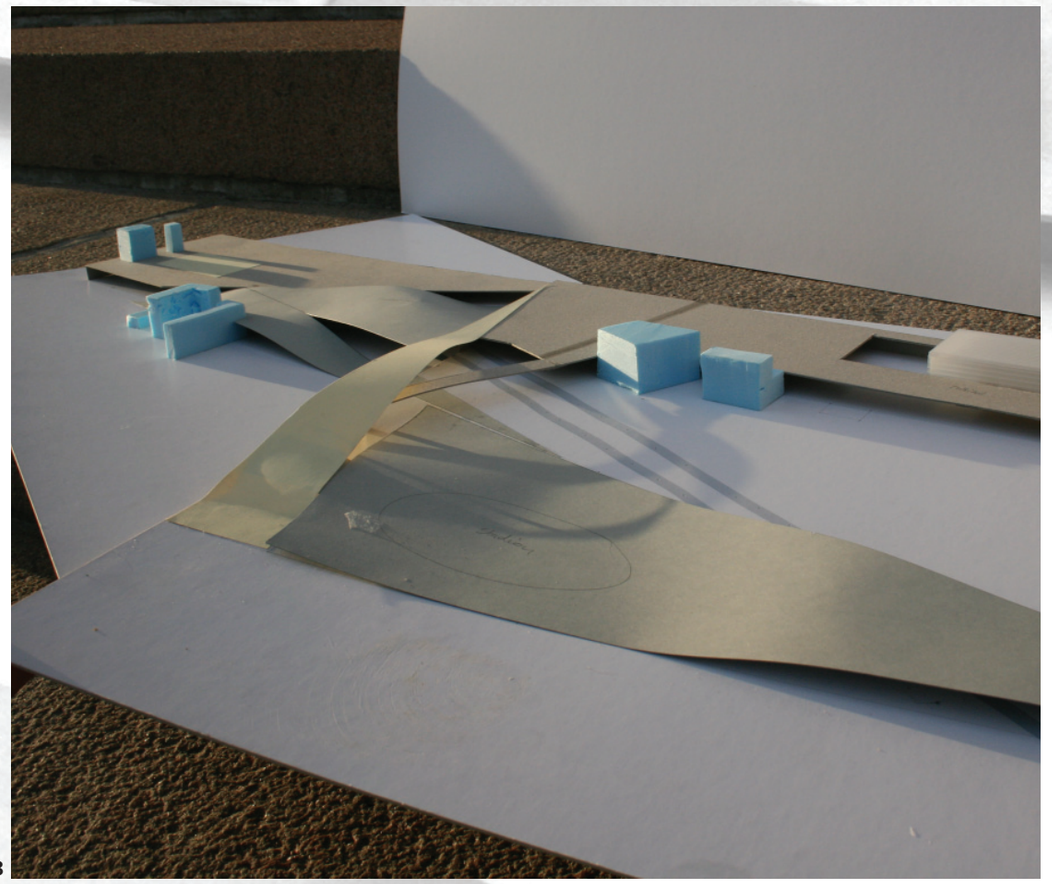




Ill. 84: Model 7

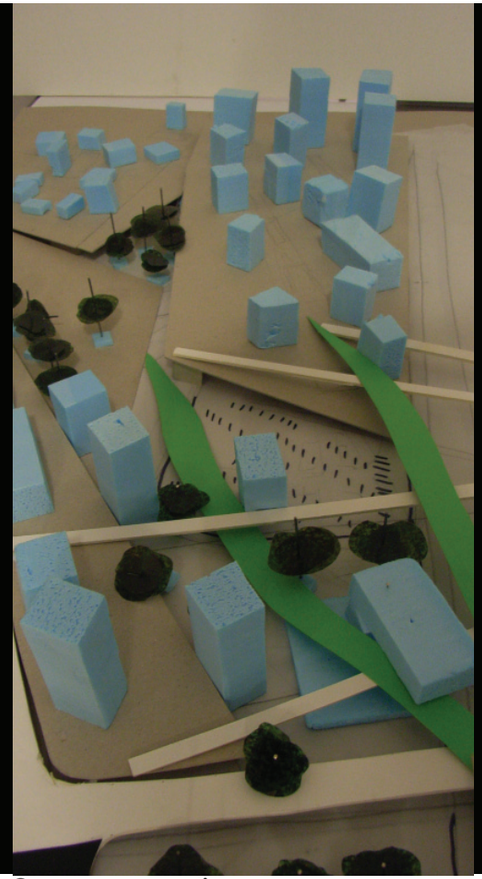
Model 8

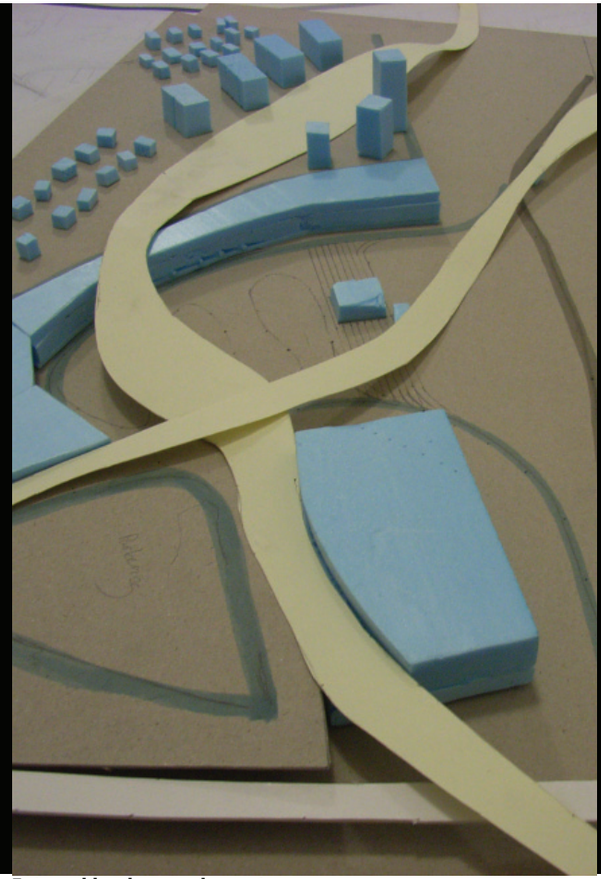
The landscape model is a variation of landscape crossings, which links across the motorway and across the local traffic. The landscape has a sloping character that brings dynamic to the area, and the movement between the levels is soft and waving. Besides functional flow lines the landscape contains a sports scape with several attractors. The wide crossings cover a lot of the motorway and absorb in that way the traffic noise. Even though big parts of the stretch are covered, the area will provide a diversified city node for the motorist with wide views and narrow passages.



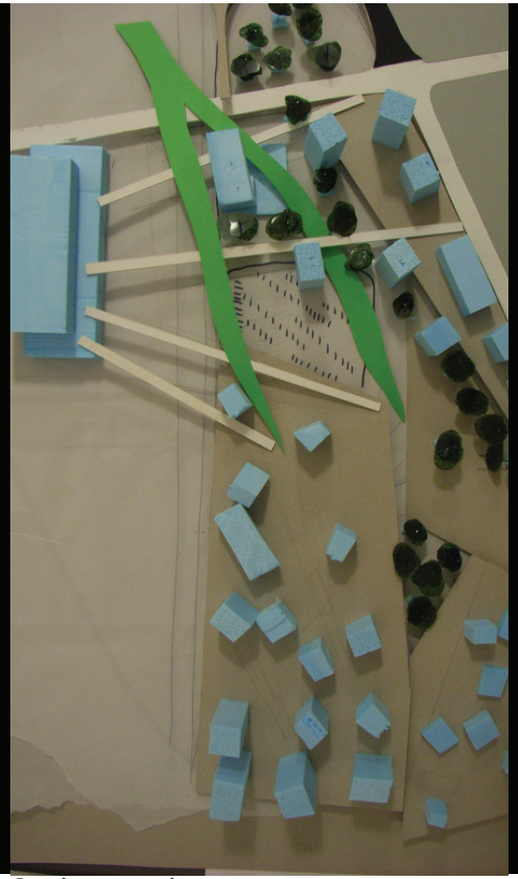
Ill. 85: Model 8

Combining Scenarios



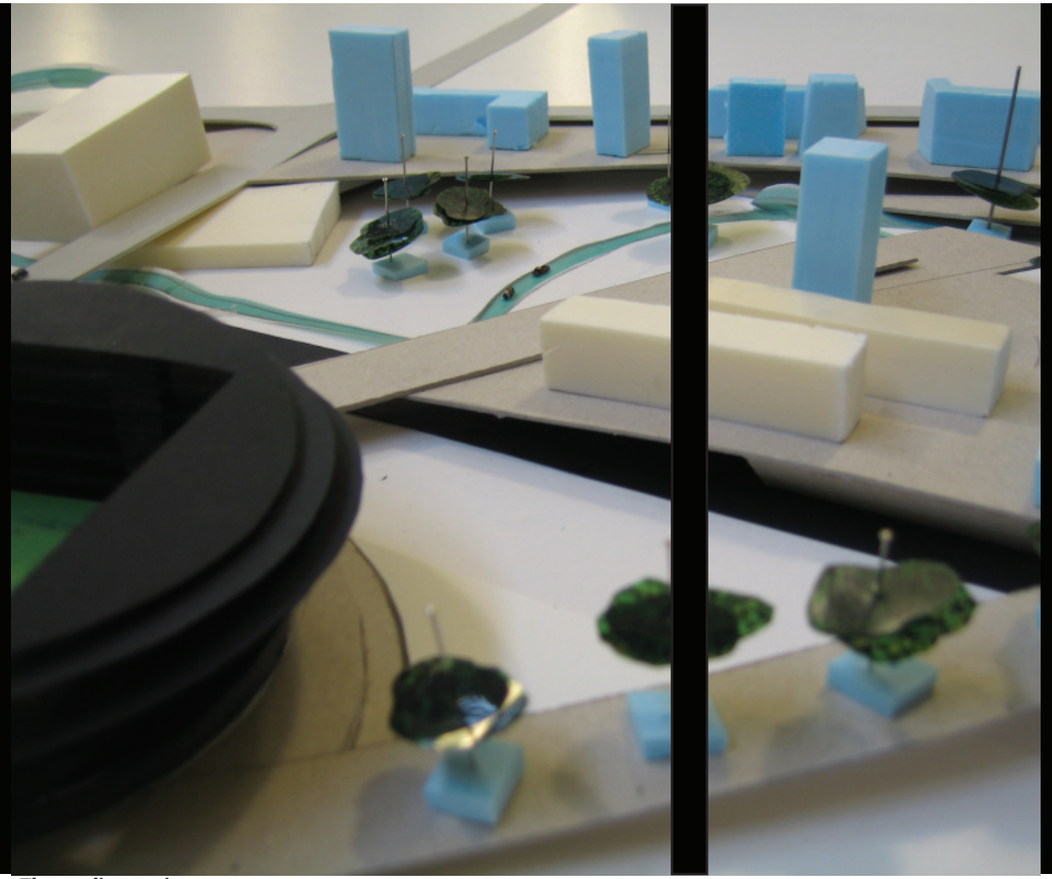


Ill. 86: Connections between stadium and MBD/dwelling area.....Green scape connections.....External landscape element.....Motorway park.....



Crossing connections

City crossing



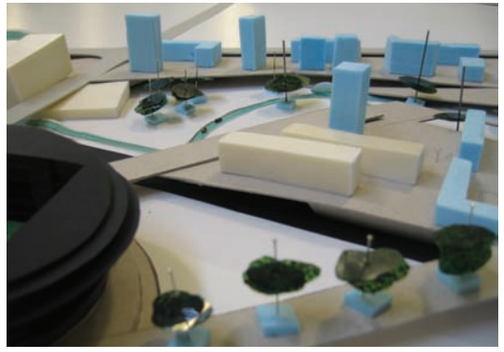
The stadium as icon

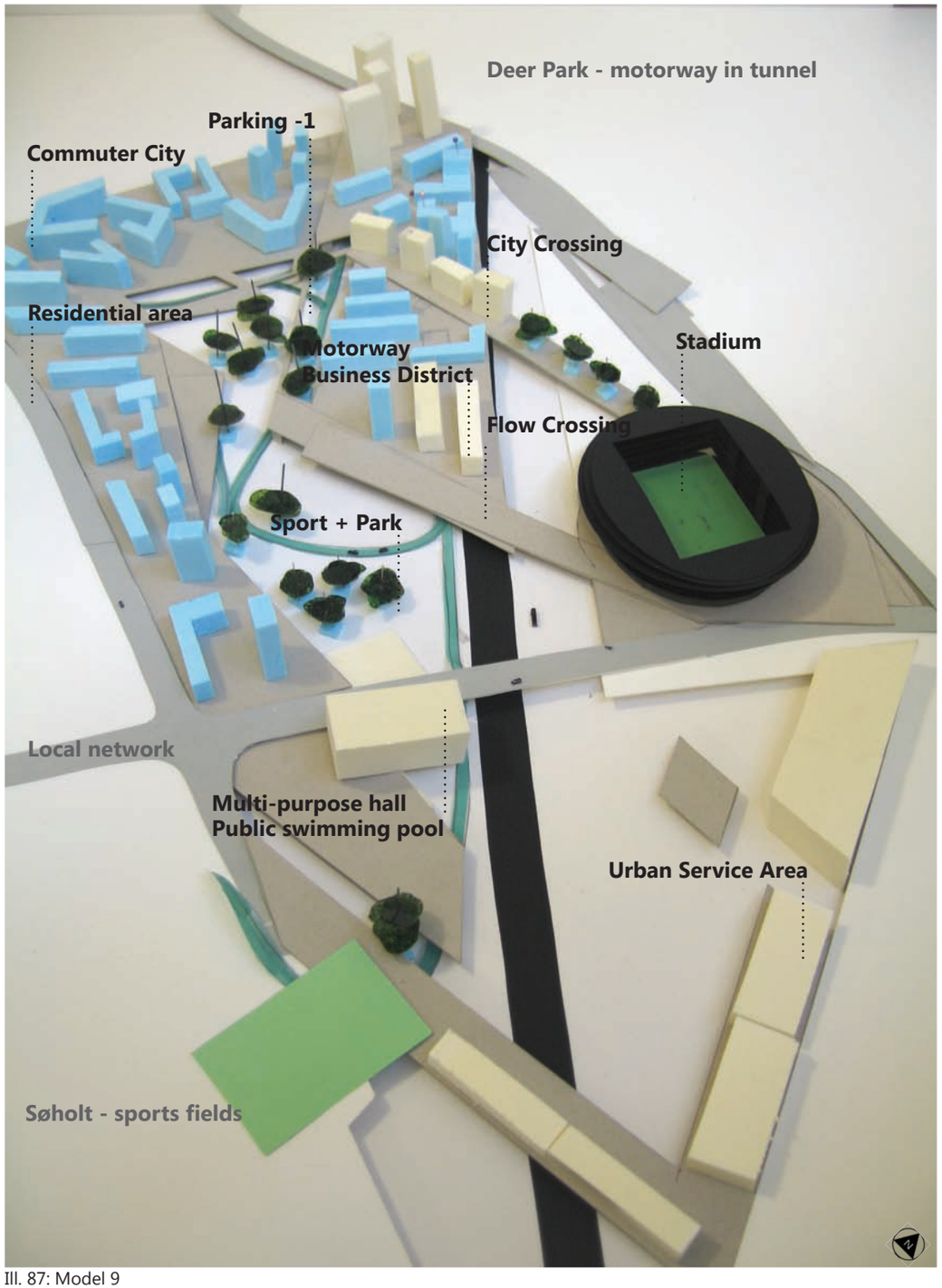
Full Scenarios

The full scenarios show the area as a whole, with many different principles of interactions between the motorway and the city.

Model 9

The stadium is a dominating object that stands as an icon when the motorists past by. To strengthen the stadiums connection across the motorway, two crossings, one which is mostly flow orientated and one which contains programmes as park and buildings, are binding the two sides together. The link across the motorway is important, since most of the parking that is supposed to service the stadium is placed on the other side. Programmatic the two places are also linked, as the stadium has a lot of businesses that in some way are connected to the sports environment. The enclave where the two crossings land is a business enclave and the whole surface of the enclave is sloping uphill towards the "Deer Park". The business area is meant to work as a noise barrier for the areas behind, which means that the dwelling area and the outdoor space are protected against the traffic noise. The area in level -1 is a one way city consisting of parking, green spots, sports courts, etc. The programmes below service the programmes above, which besides the business enclave is a "commuter city". Opposite the stadium a multi-purpose hall and a public swimming pool is situated, and they are meant to give the area some balance in proportion to the dominating stadium. The area with the white blocks is the beginning to the "urban service area ", but it is still fragmented and the space between the buildings and the motorway is very wide, which meas that there is nothing to stop the traffic noise from spreading. The crossing in this area is an attempt to link the area better with the sports area at "Søholt", but it makes the whole area seem introverted.

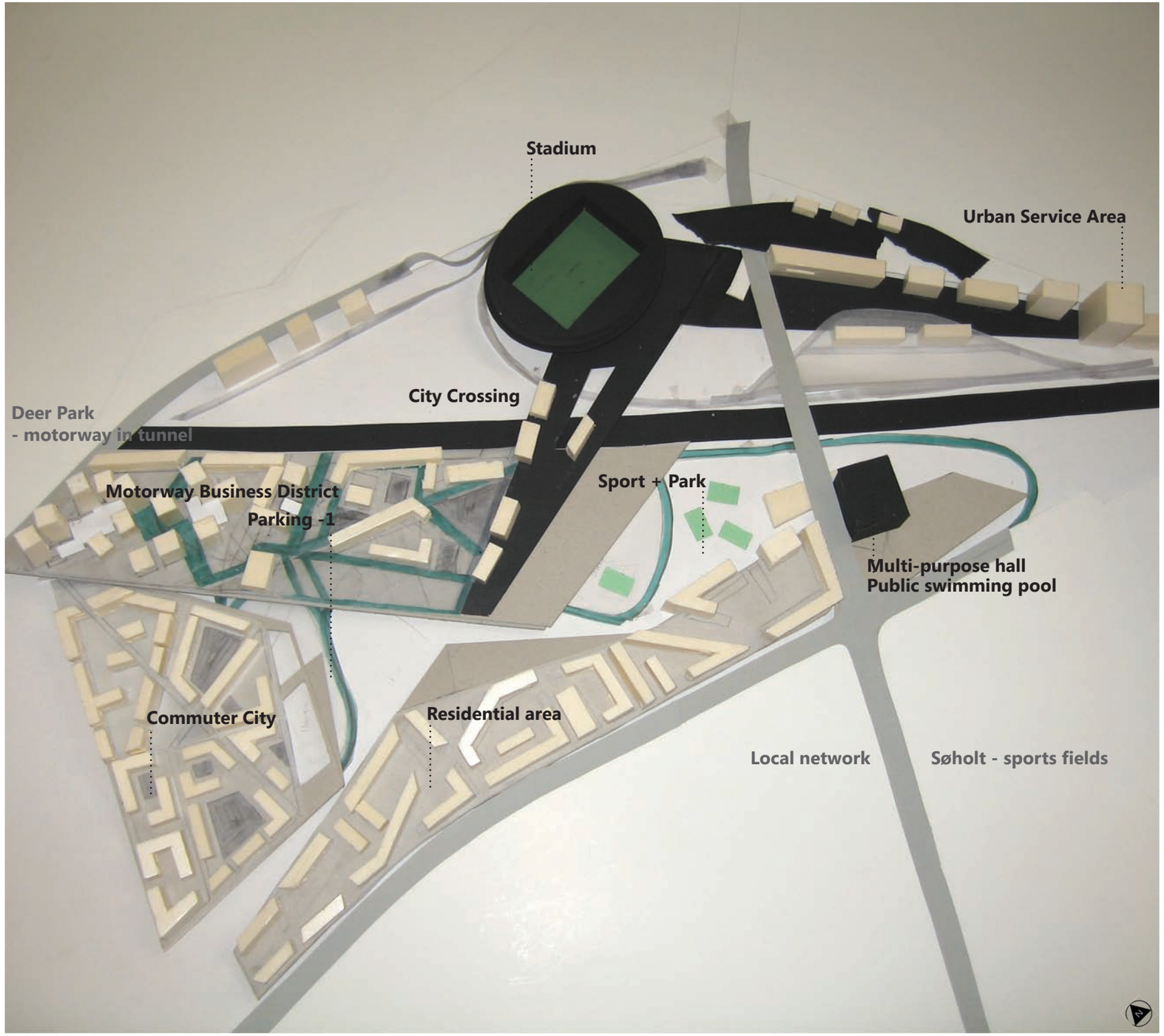




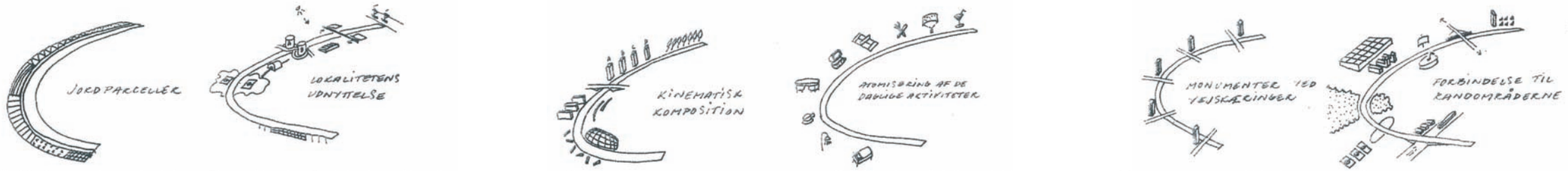
Ill. 87: Model 9

Model 10

This model has a lot of the same elements as the previous, and the comments are therfoere based on the changed elements. "The urban service area" is further developed, the distance to the motorway is smaller and the place is now divided in two areas, with a row of buildings in the middle, which function as a noise barrier. "The urban service area" is programmatic and physical separated in two parts, in level -1 there is "drive in shopping" for the motorists and in city level there is "the marketplace". To ensure a good connection between the levels, outdoor staircases and buildings gives further access possibilities to connect the two public spaces. The model has one dominating crossing, which is split in the middle when it passes the motorway. The crossing has become a milieu with buildings and different programmes, and it is supposed to handle big masses of people, when they come from the parking area below the MBD surface and are heading for the stadium. The stadium is still a dominating figure and the crossing functions as its foundation, which helps emphasizing its status as icon.
Several design principles are in this way integrated in the scenario for Silkeborg gateway.



Ill. 88: Model 10



Ill. 89: Structuring principles ....Plots of land .... Exploitation of locality .....Kinematic composition ..... Classification of daily activities ..... Monuments at road block .....Connection to outer areas.....

Cases ::

Location: The Ring Road in Antwerpen
Designer: Willem-Jan Neutelings
Type: Ring Road –urbanism
Composition: 1988
Title: De Ringcultuur

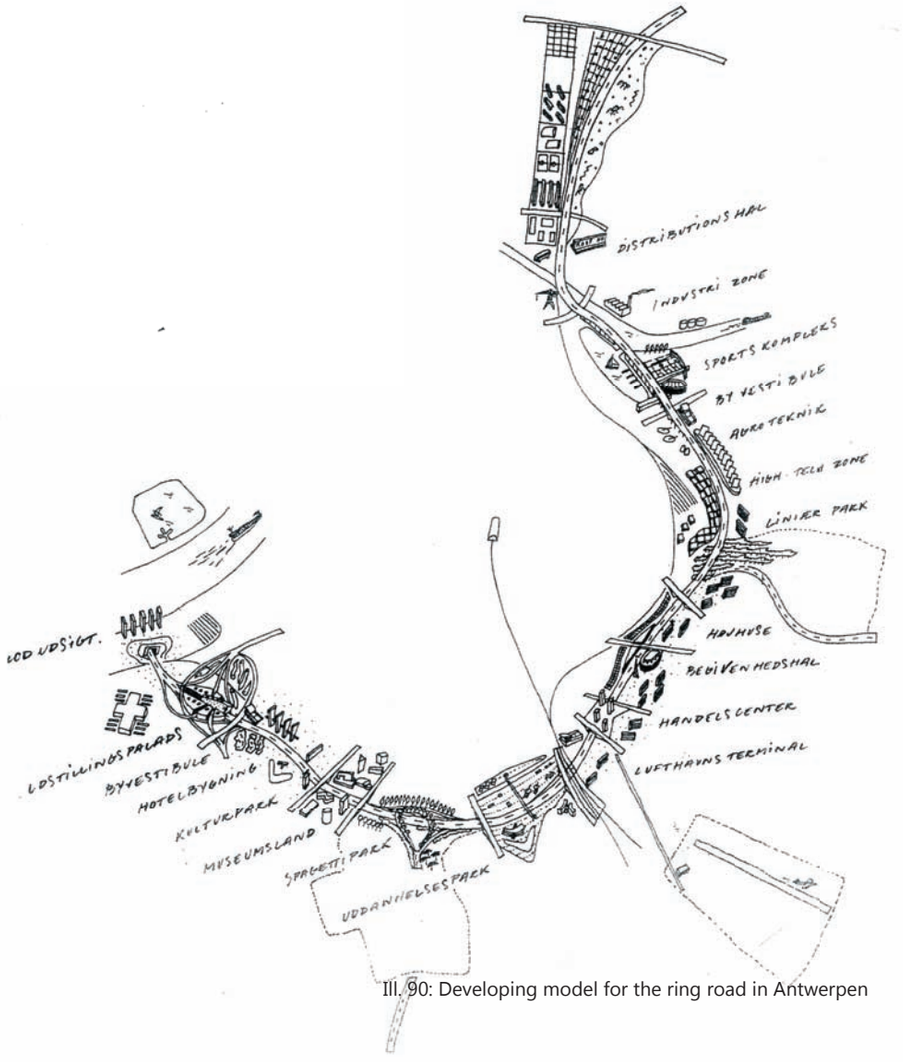
In the project "De RIngcultuur", Willem Jan Neutelings developed new building typologies with the aim of presenting a picture of the programmatic and visual potentials of the residual zones along the urban motorway. Neutelings analysed the mechanisms of the mass culture and rapidly generated programmes along the ring road zone in Antwerpen.

This project is a case of inspiration in relation to programming of motorway areas. The project creates a new urban structure that lies in between two other already existing urban structures, but the ring road urbanization is an independent unit, so it doesn't link the already existing milieus, to create a coherent field - it just coexist with the others.

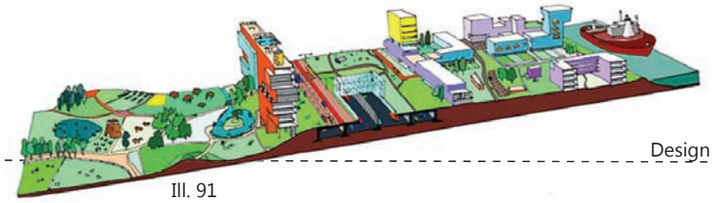
The project changes the identity of the ring road, from a green corridor in the city to a dense programmed area with large buildings and no life. Most programmes are indoor activities which means that there is no atmosphere and no milieu within the area - it is just scenery of large boxes, which are waiting to be captured.

Neutelings ring road structure is a ring road urbanization, which only relate to the road and its users. The urban milieu is characterized by a physical emptiness that stands in a clear contrast to the density of programmes. The ring road structure is characterized by: landscape elements, a ring of big scale buildings around the city, its movements and speed aesthetics and its mass activities.

The lack of intentional developments does not mean that the ring road is less important – according to Neutelings, the ring roads will continue to gain importance and by time take over the position of the traditional town centre. This is the consequence of an easier accessibility in relation to the suburbs and the contemporary cultures attraction of the ring roads. A sudden densification around the motorway with large scale architectural elements indicates that a city is about to be approached, and "The Ring Road" has thereby become the foyer of the city.
(Neutelings 1989, 21; www.neutelings-riedijk.com)



Ill. 90: Developing model for the ring road in Antwerpen



Ill. 91

Ill. 92

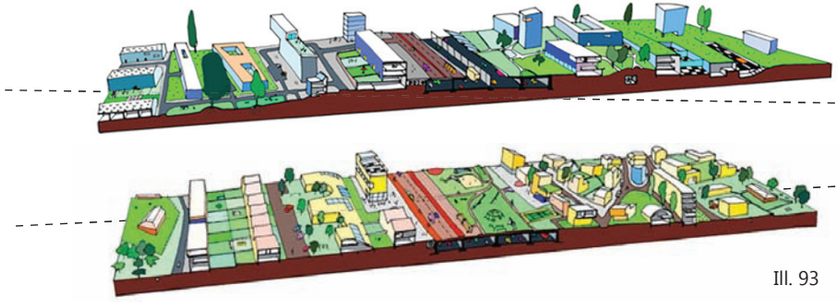
Location: Utrecht, NL
Designer: Maxwan
Type: Highway covering
Area: ca. 18 ha.
Composition: 1995
Title: A2 Highway Covering

The Dutch study project "A2 highway covering" is about a 10 lane motorway that has to go right through the city "Leidsche Rijn" in The Nederlands. The road is a 2 km. long "dike tunnel", which is hidden in a 5 meter hollow dike. The focus in the project is on the urban milieu and the continuity of the urban tissue.

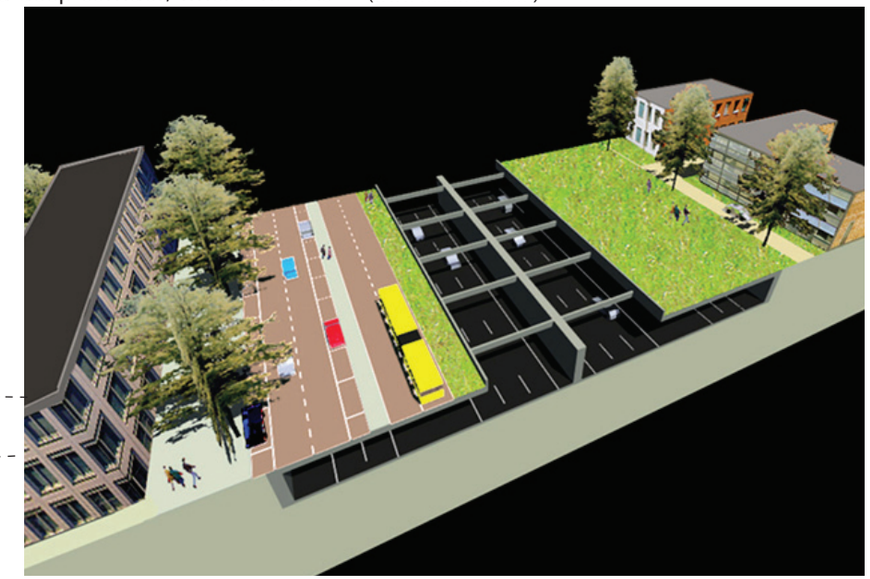
The point of departure for the project is that instead of regarding the building of a highway as an external condition and accepting its isolation from the city, the highway has been turned into a complex urban artefact.

To ensure a coherent city surface, in some areas of the stretch, the project is testing various kinds of motorway coverings, which vary from partly covering to total covering. Some coverings are placed along the motorway and others are placed across the road. A total covering makes it possible to continue the urban milieu unimpeded, and there are no complicated edges or connections between different layers. The total covering is a very effective noise barrier, but the space of the motorway below becomes a uniform experience for the motorists. The partly coverings along the road are all public spaces programmed in different ways such as parks, sports courts or local infrastructure. The programmed surfaces give the edge of the motorway an added value, and that generates a better development of the city edge.

The proposals are good examples of how the motorway becomes an acceptable part of the city, but the city does not become an integrated part of the motorway. The proposals are made on the premises of the city; the motorists on the other hand have to drive in a covered tunnel or a deep corridor, where there is no or just a little visual contact to the context. The project shows how it is possible to make use of the motorway space for other programmes by making different kinds of coverings, and at the same time the programmed surfaces makes the edge more attractive, which effect the development of the motorway neighbourhood. The proposals show how to work with city and the motorway in vertically divided layers.
(www.maxwan.com).



Ill. 93



Ill. 94

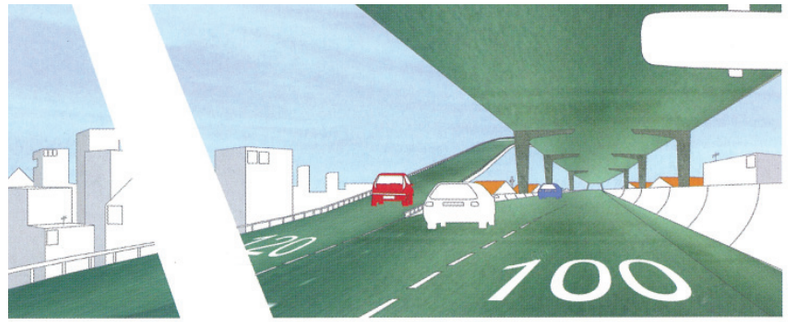
Location: Randstad, NL
Designer: Francine Houben and Mecanoo
Type: Case study of the motorway
Composition: 2002
Title: Holland Avenue

"Holland Avenue" is an examination of design terms, tools and strategies that relate to the roaduser´s visual intake at the Dutch motorways. The motorway is in the case study understood as a public space, where they work with different subjects connected to the road. The first part of the project is an analysis of the motorway in general. The second part present a lot of smaller design proposal, which are divided in the categories road, verge and field. In this way the solutions are smaller initiatives - a catalogue of inspiration, from where different solutions can be chosen and put together in more complex composition.

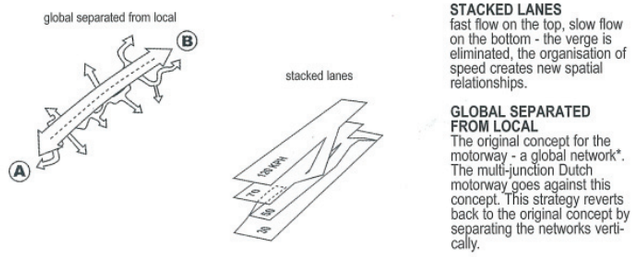
The project works for instance with graphic on the road and along the road in relation to advertising, paid lanes and identity, and they challenge the course of the road by splitting the lanes both horizontal and vertical, and thereby place programmes in the middle of the road. In an attempt to make the infrastructure more efficient they separate the road users in a fast flow and a slow flow lane.

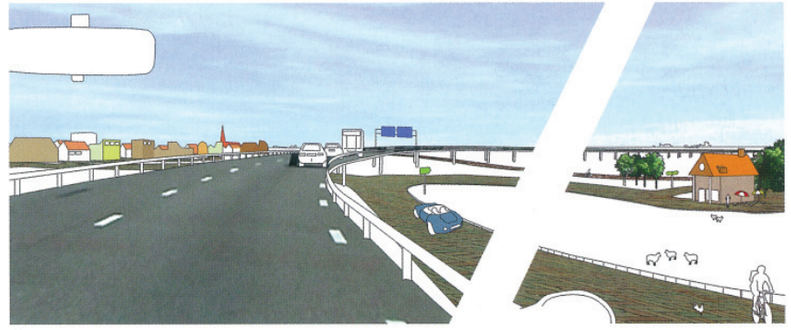
The term "Holland Avenue" declares the intent to consider the motorway, not solely as a tool to go from A to B, but as an environment that is in itself a place to be.
(Houben, 2002, introduction)

The project shows different perspectives concerning the problems that arise in connection with the motorway. The solutions are very simple but it is still interesting initiatives such as how to make use of: the motorway surface, the tailbacks at peak time, the effect of lightning, the merge of motorway, programmes and buildings and so on. In this way general priciples are developed with the aim of challenging the perception of the motorway and inspire people to investigate the motorway´s frame of action. THe design concepts are based on a method for analysing the milieu around the motorway network.
(Houben, 2002, 6-38)



Ill. 95





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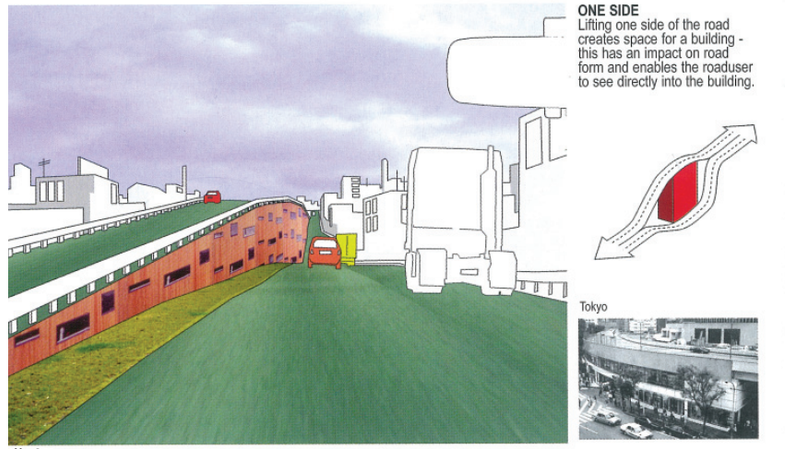


Ill. 97

Ill. 98: Infrabody_Kleinpolderplein

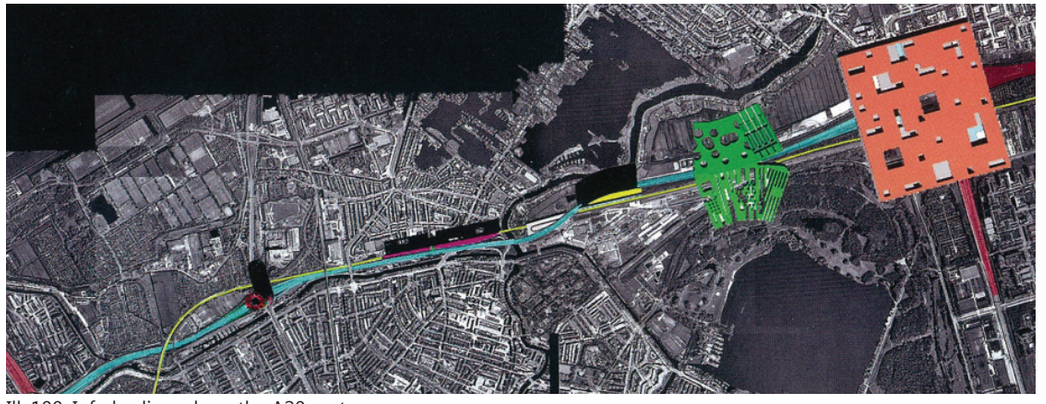
Location: A20-Rotterdam Ring, NL
Designer: MONOLAB
Type: Programming along heavy infrastructure
Composition: 1997
Title: Infrabodies

In Monolabs´ project "Infrabodies" from 1997, an independent study were made into the programming of urban vacuums and empty zones along heavy infrastructural lines. The A20 motorway, which functioned as a test case, is the northern part of the Rotterdam Ring. The project focuses on fusion between infrastructure, urban material and landscape, and the infrastructure nodes are seen as ideal locations to realize massive programmes. The Infrabodies are six "hyperdense" urban centres built immediately on infrastructural nodes such as motorways and train lines. They have all become public meeting places, and they can all handle big masses of people at the same time. The six infrabodies are located as pearls on a string along the A20 motorway, where they stand as typological icons.

The project challenges the road and makes it merge with other programmes instead of just programming the edge of the motorway like Neutelings project in Antwerpen, but they are enclosed cities within the city.

Though the nodes are urbanisations in relation to the motorway, the buildings are independent objects in the city, because of their size and the complex composition of programmes. The dense programmed volumes are introverted and they do not generate any urban spaces in a human scale.
Nielsen, 2004, 130-133)


Ill. 99 Infrabody_Schieplein


Ill. 100: Infrabodies_ along the A20 motorway

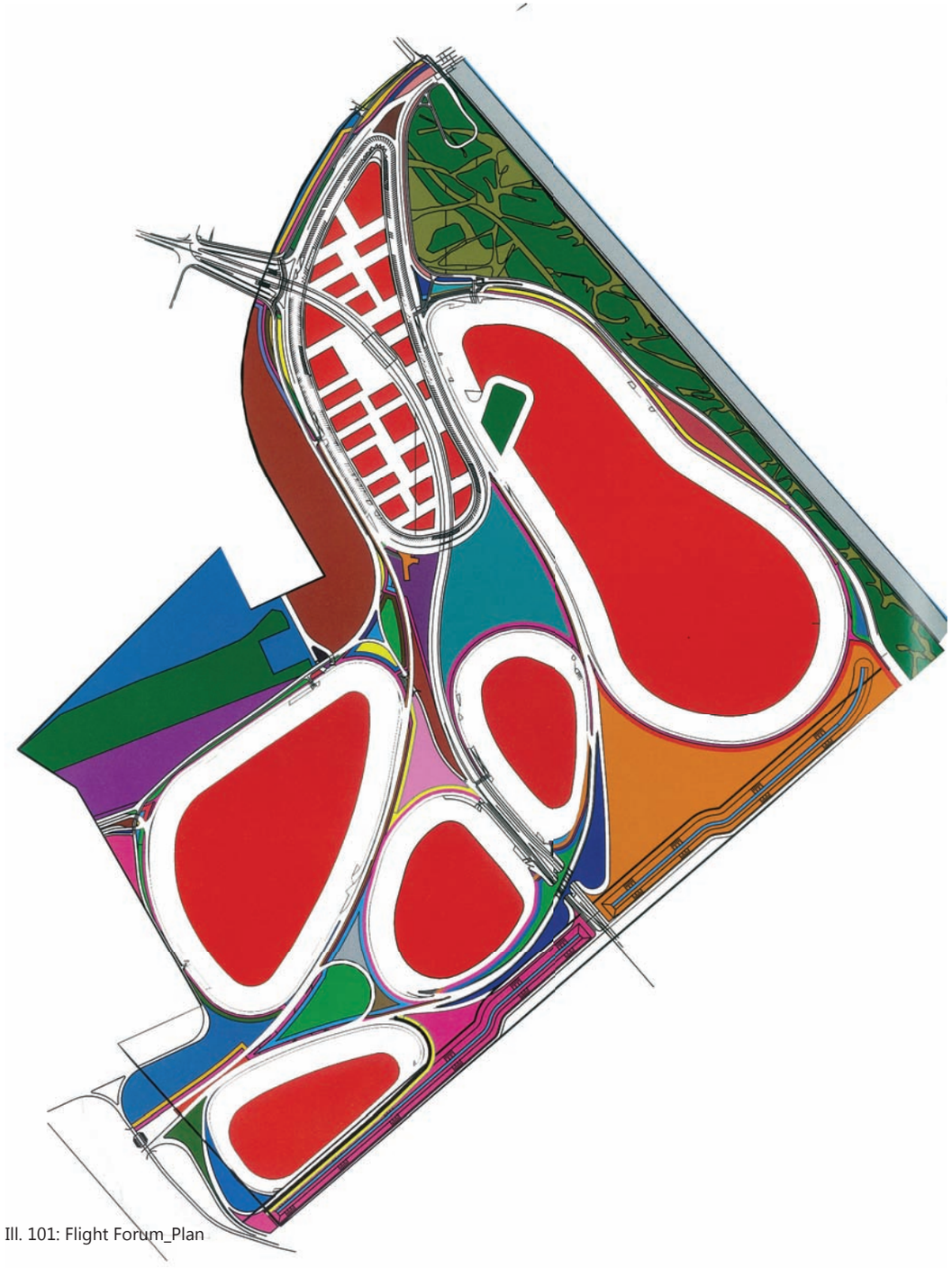
Location: Eindhoven, NL
Designer: MVRDV
Type: Business area
Area: 60 ha
Realisation: 1998-2010
Title: Flight Forum

This project is an attempt to structure the planning of a business district near Eindhoven Airport in Holland. The industrial parks are characterised by fenced off plots and a relatively low amount of land actually occupied by buildings.

MVRDVs proposal for a good use of the land is based on a "one way" infrastructure system that makes a spaghetti and bedrock landscape with business clusters and green islands. The buildings are build wall to wall to minimize the use of land. The very dense building clusters allows for greater continuity of landscape. The main access road to the area that is part of a greater ring road system, is split in two so that the length of the main road is doubled, which makes it possible for more businesses to have a main road address.

The one way flow system is designed with curves at 50 km/h, which generate a swift route, where all traffic lights are eliminated, to avoid these types of time consuming crossings, and still the accessibility is increased.

The infrastructure system is flowing and comfortable, which makes an effective and safe system. All the buildings are without a backside, and they all benefit from the exposure that the road offers, because the spaghetti landscape creates an environment where all buildings are on the "first" position.
(Maas 2003, 64-65)



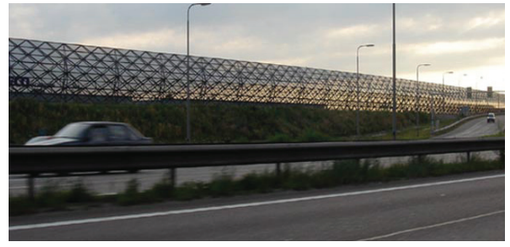
Ill. 101: Flight Forum_Plan

Location: Leidsche Rijn, Utrect
Designer: ONL
Type: Interior-exhibition
Area: 8800 m2
Realisation: 2002-2005
Title: Acoustic barrier

This project combine a 1,5 km long acoustic barrier with an industrial building of 5000 m2. The concept of the acoustic barrier including the Cockpit building is to design with the speed of passing traffic since the building is seen from the perspective of the driver.

The scale of this project is on an architectural level which means elements like: the shape and length of the building, the construction, the graphic on the facade and the transparency are in focus. The acoustic barrier is a new way to think a noise barrier. This barrier is not just a functional object, as a concrete wall or an earth embankment; it is a space with various programmes that is situated along the motorway, which means that the building is shielding the areas behind for the traffic noise. The construction and the transparent facade makes the building look like it is moving along with the eyes or the cars.

The project shows how to add an extra programme to a functional object and in that way create a new motorway typology. The acoustic barrier brings a new aesthetic into the motorway space, and in an elegant way to make use of the space as a showroom for very expensive cars. The design is directed to the motorists, while the city is left behind the building. The transparent construction allows the driver a visual contact to relate to.
(Landscape Architecture Europe Foundation 2006, p. 242-245)



Ill. 102: Acoustic barrier

Ill. 103: Inside the Cockpit building

Ill. 104 Acoustic barrier_the Cockpit building