Rethinking Poldervaart

a time-resistant structure connecting the fragmented landscape
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Acknowledgments

The following work is result of my Master Graduation project in Landscape Architecture at Delft University of Technology. I have learned a lot and really enjoyed every part of realising this thesis during the year. I would like to sincerely thank all those who helped me with their support during the process of this thesis.

I would like to give my special thanks to my two mentors, firstly being Denise Piccinini, whom guided me through the entire project with great support and valuable engagement. I am very grateful for all our long discussions, both around the project and not. I hope and believe our collaboration and respective stimulation of thoughts will continue in the future, in Delft or wherever else that leads you. It was always a pleasure to talk with you and discuss the practical but also the more intangible aspects of my project as your advice always pushed my thinking and work to new levels.

Secondly, my gratitude goes towards Teake Bouma whose optimism and energy always brought new insights to my project and myself as a landscape architect. Your helpful comments and inspiration were always much appreciated and offered a fresh perspective to look on my project.

Finally, I must express my very profound thanks to my parents and my brother for providing me with support and continuous encouragement throughout all my years of study. Special thanks to the great relationships that followed me here: Alexandra, Raphael, Eva, Stella, Federica, Simon and Jade. You always make me smile and keep me calm. This accomplishment would not have been possible without you.

Thank you.
Rethinking Poldervaart:

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Abstract

The main intention of this thesis is the proposal of a new approach of the landscape that takes into account the local context in a different way. The complete and holistic understanding of the local character of the area and the interpretation of it with contemporary means will create a basis of a self-conscious design. Time-resistant structures accompanied by peculiarities of the specific place can be the answer to our fragmented urban landscapes avoiding the overimposition of direct solutions on top of them. In such a way, the creation of a place derives from the physical characteristics of the area and its significant historic structures which restore the connections between the variant landscape patches.

Considering Poldervaart as a time-resistant structure for healing the fragmented landscape of the area between Schiedam and Vlaardingen and from the Schie to the Maas, this project proposes its reinforcement as a backbone structure that will act as a connector and a generator of connections in two scales. In a regional scale the monumental axis of Poldervaart establishes a connection between the area of Midden Delfland to the river Maas while on a local scale the canal receives the role of generating connections between urban fragments, city parks, allotment gardens, and parts of historic cultural landscape.

By focusing on three areas-nods along Poldervaart, the project promotes and safeguards the continuity of its axis by re-establishing connections and creating the conditions for unique unifying public spaces. Together with that, small-scale interventions along the canal shield its coherence and readability and offer conceptual connections and noteworthy experiences that reveal the cultural aspect of the landscape.

This action if repetitive can inform a strategy that acts against fragmentation as a more situated approach for connecting and restoring a fragmented urban landscape, by taking advantage of time-resistant structures that exist along it.
1. **Introduction**

a. Problem statement:

The world has experienced unprecedented urban growth in recent decades, while 70 percent of the world’s population is expected to live in urban areas by the year 2050. Almost half the percentage of those urban areas belong to greater metropolitan areas, forming urbanized fields of variant forms and characters. Metropolitan areas have broken the limits of the cities forming thus an urban-rural landscape continuum constructed by indistinct fragmented territories. The mixture of the variant fragments are characterized by different patterns, densities and identities and penetrate natural or agricultural areas opposing clearly to the traditional urban models. The former clarity and definition of the collective order of the city has given way to a loose-knit aggregation of urban, cultural and natural territories in which the relationships between them have become vague and unclear.
European cities or towns above 1000 inhabitants

source_http://i.imgur.com/wSeJkIC.jpg

Environments that contain such an intense mixture of highly diverse landscapes challenge the existing methods and strategies that inform spatial planning and landscape architecture design. Conventional strategies such as the Green belt of London or the Green Heart of the Randstad are proven to be insufficient to understand the complex nature of the urban landscape. In a regional context, they suffer under a dilemma between two contradicting functions of open spaces: to be a separator of rural and urban areas and to be an integrator towards the regional city, while the more local context is not even taken into consideration.

...the problems of implementing Greenbelts and Green Hearts indicate a double role of open spaces in structuring city regions: as a connector and a separator of spatial units [...] supposes a role of landscape as a separator between central city and suburban communities, urban and rural areas, Interpretation of Trends in Land Transformations—A Case of Green Heart Region, Shahab Fazal, Stan C. M. Geertman, Fred J. Toppen

...the Green Heart in whole is not regarded as a spatial unity. The spatial form of the Green Heart is not derived from landscape qualities, but from a negative urban form. The approach of segregation of urban and rural areas simply handling the physical dimension of settlements in a static way. It does not consider the dynamics of increasing interactions and flows, which tend to level differences between urban and rural areas towards an urban-rural continuum, Greenbelt and Greenheart, Landscape and Urban Planning 64, M. Kühn, 2003
These approaches are too abstract and generic to include special topicalities or characteristics to inform their design disciplines and to deal with more spatial issues as fragmentation of the landscape. Instead, they could even invigorate such differences as they promote rigid categorizations forming in the end more isolated landscapes in what would be ideally seen as one territory. For example, separating absolutely cities from areas dedicated to nature results in disintegration of different landscape types. Therefore a new approach of the urban landscape is needed. One that comprehends and responds to the challenge of this contemporary spatial condition in a more site-specific approach and if repetitive around the cities’ structures can develop into a regional or metropolitan strategy.

A plethora of structures in the landscape, presenting different forms, characters, uses and purposes make the phenomenon of fragmentation more intense contributing in this way in forming a vague territory. The possibility to use other structures that already exist in the landscape as an answer to the problem of fragmentation and disintegration could be incredibly favorable for our contemporary landscapes, not only socially but also environmentally and culturally. Without introducing new elements that can be rejected from the landscape and the society but by taking advantage of important fundamentals that are already integrated in it, we can imagine a new way of healing our demoralized landscapes.

To support this discussion, this report draws on the example of this urban condition in the part of the Southwind of Holland where the open agricultural land of Midden Delfland unfolds in the cities of Schiedam and Rotterdam. In this area the phenomenon of urban dispersion and fragmentation becomes quite excessive and thus forms unclear and inflexible relationships between its variant parts.
b. Time-resistant structures

Important time-resistant formations that can be identified traversing or underpinning our landscapes and working currently as obstacles and hence in favor of fragmentation can reverse their role and turn into connecting structures of the landscape. Critical relief differences, old water ways or infrastructure lines can institute ventures and generate affiliations between fragments that lay detached on their surroundings. The special characteristic of structures like such is that they have already proven to be resilient and significant in their surrounding environments and thus they preserve their importance and area of influence over the years of changes and transformations of the landscape.

Similar approaches of the past like the one of Critical Regionalism by Kenneth Frampton have been discussed focusing mainly on architecture of placelessness and lack of identity. Critical regionalism is a progressive approach to design which seeks to mediate between the global and the local languages of architecture. Our landscapes suffer in an even greater extent from lack of character and sense of place as we constantly try to follow the example of impressive new developments and artificial places that massively control our lifestyle. In order to protect every place’s identity we ought to establish and safeguard links to geographical and cultural context but also invent contemporary ways to reveal local qualities.

Paul Ricoeur in his book History and Truth describes “the current state of destruction of traditional culture and its impetus by the universalization of civilization. The transition towards a mediocre civilization makes homogeneous the various cultures of the world problematizing the new growth of ‘underdeveloped’ cultures”. The cultural past is put into question in the move towards modernization. “...Whence the paradox: on the other hand, it has a root itself in the soil of its past, forge a national spirit, and unfurl this spiritual and cultural revindication before the colonialist’s personality....It is a fact every culture cannot sustain and absorb the shock of modern civilization. There is the paradox: how to become modern and to return to sources; how to revive an old, dormant civilization, and take part in universal civilization. This question asserts the necessity of a historical model of continuous evolution whereby lessons of the past inform future moves.”

The main goal of this thesis is the proposal of a new approach of the landscape that takes into account the local context in a different way. The complete and holistic understanding and comprehension of the local character of the area and the interpretation of it with contemporary terms and means will create a basis of a self-conscious proposition and later design. Time-resistant structures accompanied by peculiarities of the specific place can be the answer to our fragmented urban landscapes avoiding the overimposition of
direct solutions on top of them. In such a way, the creation of a place derives from the physical characteristics of the area and its significant historic structures which restore the connections between the variant fragments.

c. Objective and research questions:

Main research question:

Can time resistant structures be used as a condition to activate and connect a fragmented landscape?

The questions that follow this objective are:

_Which are the resilient water structures of the area?
_What are the opportunities to develop connecting structures in the landscape?
_What are the qualities and characteristics of such structures?
_What are the current conditions that create fragmentation and isolation between the different landscapes in the area?
_Can physical, visual and conceptual connections in-between the fragments be utilized to restore the relations among them?
_How can we create vibrant public spaces related with these structures?
_How can we develop a strategy considering these structures as starting points?
_How can we apply the outcome of the design to other diffused and fragmented urban situations?

d. Method

This project will be the outcome of a research by design and design by research approach. More precisely, the project will be a blend of both research leading to design decisions, and design try-outs based on theoretical re-evaluations. The outcome of this constant dialogue between the two methods will result in the final project and proposed research and design. More specifically the proposed methodology is based on three main steps; the theory, the research approach and the research design which will be further scrutinized in the following chapter. The outcome and the reflection on these will then give their place to the design by research and culminate in the final design landscape architecture design. The specific methodology that is used is presented alongside the theories that support the research framework and will be analyzed thereupon.
e. Scope and relevance:

In the Netherlands, about three quarters of the population live in urban areas as well as work there. The largest cities in this metropolitan areas show also the strongest population growth. A national urban agenda, launched by the Dutch government, the Agenda Stad, affirms that cities play a key role in the future development, while in the future, it is expected pressure in the rural-urban fringe will remain strong (Rit sema van Eck et al. 2009; Hamers and Piek 2012). Following this notion, in the subsequent National Policy Document on Spatial Planning (the ‘Nota Ruimte’, Ministry of VROM 2004), the focus shifted towards urban networks and urban developments on a regional scale.

However, when these regional approaches try to form a vision for the landscape in a more generic and absolute form, it is likely that they lack in sensitivity about more topical and site-specific matters. For example, the spatial form of the Green Heart of Randstad is not derived from landscape qualities, but from a negative urban form, creating doubts on how considerate this landscape separation is. “As an abstract construct of regional planning that was derived from the urban form as a negative containment, the Green Heart or similar approaches, can hardly be seen as a successful spatial relation between open and urban.” (Historia Agriculturae, “How the Netherlands got a green heart and lost it again.”, last accessed on 14/12/2017). The above implies that contemporary areas are in need of more situated approaches for urban landscapes as the future remains challenging.

This project could give a new insight on how to generally deal with fragmented urban areas. By taking a closer look on the characteristics of the last, we could trace time-resilient structures and find potentials to create connections between the urban fragments as well as integration of the variant landscapes in a regional scale. Important waterways that prove to be resistant to time can act as generators of more complex connecting structures allowing the creation of an integrated and interlinked landscape. This project, even though it addresses only one specific area, could be a starting point for formulating strategies on a regional level and thus contributing to the general discussion.
f. Reading itinerary

This thesis started from my interest on a broad current problem of our contemporary world; the spatial fragmentation of the urban landscapes. After defining the problem field and presenting my goal to develop a landscape architecture strategy that uses time-resistant water structures to cope with fragmented landscapes, the method and the project’s relevance were discussed.

In the second chapter the research framework and proposed methodology will be introduced and presented in three steps; from the more general one of the theory to the research approach and the research design, concluding in the end in the site selection as well as an overview of the concrete steps I am going to take later on in the analysis itself. Regarding the theories, I will introduce the view of the city as a landscape of fragments (2a) as well as the ambiguous edges created between them and the concept of horizontal metropolis which is increasingly related to the emergent urban condition of Randstad (2b). The definitions of the different used terms are given in chapter (2c) which is followed by the design of the research approach. More specifically, I will explain how I will approach the theme and the specific methods I am going to use to answer the research question, such as the historical development, the analysis of the greater area and the “deconstruction” of Polder-vaart in the multiple layers that constitute it (water network, polder division, infrastructure, development, vegetation).

The following step, in the third chapter, is the analysis of the area which will be taking place in three different scales that I will briefly go through now. In the regional scale, I will look into horizontal structures that are traversing the landscape, starting from Midden Delfland and towards Schiedam and Rotterdam. As the region developed through history, structures like water lines, main and secondary arteries and train lines formed horizontal structures from north to south and in parallel to the historical water ways. Green areas tend to follow them at least at the outskirts of the cities and in most cases weaken or disappear as the urban fabric gets denser. Subsequently, I will zoom in the local scale in order to further analyze the area and its potentials. By exploring what the potentials are, mainly concentrating in water ways and open spaces related to them, I will go into the micro scale to comprehend the area and its character in total. Throughout the whole process there will be jumps in between the different scales as there are factors that act and influence the landscape in all three of them.
In the fourth chapter, I will introduce the strategy that resulted from the previous steps. So, taking a step back and reflecting on the theoretical framework but taking also into account the analysis I did so far for the area, I will propose a strategy that acts against fragmentation and proposes physical and conceptual connections. This strategy has a double role; in a regional scale acting as a connector along the waterway and in a local scale proposing connections in between the fragments.

Subsequently, the fifth chapter refers to the application of the aforementioned strategy and more specific design principles that will be derived after the completion of the analysis in the selected area. By taking into account the vision for the South wind of Holland, I will look more into a general master plan for the area of Poldervaart and more detailed designs for selected areas.

Finally, the last chapter will offer possibilities for discussion and reflection on the proposed research, strategy, design methods and the landscape architecture design itself. Moreover, the project’s relation to some academically used methods can be discussed. The reflection chapter will end with an elaboration on the project’s importance as a tool for possible further research on waterways as time-resistant structures and for future elaboration and enrichment of the proposed strategy.
2. Research framework & methodology

a. Theories

City as landscape

Contemporary metropolitan areas are characterized by complexity and a variety of different “scapes”, the most prominent of which are the “cityscape” and the “landscape”. For Victor Gruen, cityscape refers to the built environment of buildings, paved surfaces and infrastructures. These are further subdivided into techno-scapes, suburban-scapes, transportation-scapes etc. On the other hand, “landscape” refers in general to the environment in which nature is predominant. Gruen claims though that landscape is not the natural environment per se, as in untouched wilderness, but to those regions where human occupation has shaped the land and its natural processes in an intimate and reciprocal way. Cityscape and landscape were once separated but today the city has broken its actual walls to subsume and homogenize its
surrounding landscape. Placed in an historical perspective, the development of the metropolis can thus be understood as a logical progression away from the notion of city as artefact and towards the city as landscape. Throughout urban history and a landscape architecture lens, we can reveal some moments and conditions that defined the basic forms of the metropolis and its parts, resulting at its current complex form. From the first waterways that were formed from natural reasons in the Ice Age to the partialization and formation of polders for agricultural reasons and the urban centralities along the rivers or on the higher points of the land towards the need for more residential and industrial areas close to city centers, the urban expansions in the Dutch landscape have followed a rational pattern from the first engraved landscape structures.

b. Research approach:

City as a landscape of fragments

One of the multiple consequences of the development of the metropolis is that its various “scapes” are now in conflict and with boundless definition. The physical characteristics of the city have been replaced by an urbanized field of indeterminate and fragmented territories. Different disconnecting elements such as infrastructure or transportation lines make this phenomenon more intense and strengthen the disconnection between the variant fragments creating isolated neighborhoods detached not only from one another but sometimes also from the core of the city and the surrounding nature. As a result this leads to phenomena of spatial fragmentation that are spread along the urban fabric and thus create a series of spatial and sometimes social concerns.

The friction between the different landscape fragments creates ambiguous edges that take the form of boundaries as stated by Richard Sennett in his essay The Open City (2006). Boundaries create cities that work as a container, holding things in, reducing opportunities of exchange, creating thus fragmentation and lack of identity. On the other hand, borders can form an “open” city as they leave opportunities for connections and create an active zone of interaction and communication. The dispersed urban expansion that has been taking place during the last decades has allowed the creation of boundaries even within the limits of the cities and not only around them creating more and more difficulties to overcome the “barriers-edges” and see the city as a whole.
When the city disintegrates into an archipelago of fragments a new role is also imposed on the landscape as a carrier of topographical characterizations, cohesion and continuity. (p.56, The Landscape Form of the Metropolis, R.v.d. Velde, S.d. Wij) To understand how to achieve this new role of the landscape which sees the city as a continuous territory and the underlying landscape as a means to connect and give identity we have to take a closer look to the landscape of the city and its multiple dynamics. These different in each case dynamics and the continuous redefinition of multiple territories or fragments in combination with the ambiguous friction along their edges require less abstract and more situated and local approaches of the landscape, in order for the latter to be able to respond successfully to its new role combining in the end a new meaningful whole. Therefore, we are in search of a new concept or approach that will accommodate the given spatial characteristics but also leave room for forming relationships among them.

Through the lens of the horizontal metropolis however, much of what is not clear about this new urban condition can maybe be qualified. The term of horizontal metropolis refers to a specific spatial condition characterized by horizontality of infrastructure, urbanity, relationships, and by closely interlinked, co-penetrating rural/urban realms, transport and economic systems which is occurring though in a dynamic environment, as every type of metropolis, making it more difficult to create constants of meaning and identity of place. One of the most challenging and difficult parts of this concept is to achieve the aforementioned connections-links, as the landscape is constantly interrupted by all kinds of elements, natural or man-made. So, after defining what exactly is implied by connections, I will introduce how we could determine what type of connections can be beneficial and effective in restoring a fragmented landscape.

**c. Research design:**

**Addressing the research problem**

First if all, I will define what I mean by the different terms that are used. As we saw the fragmentation of the landscape has occurred mainly due to urban expansions of different periods and other natural or man-made structures in the landscape. Thus, as fragments I consider parts of the landscape that form isolated areas due to rigid edges or parts that present different forms, morphologies or programs. Such areas are usually easily distinguishable, however we should be very careful in the process of defining them as everything in the landscape is interrelated. We should examine each and every little piece, as
the same component can act as a connecting or a separating element in different contexts. To make sure that the correct decisions are being taken we will analyze those spatial relations through **sections in the different fragments**. These sections will also reveal the relations with the surrounding environment and help us define the edges of the fragments as boundaries or borders.

The connections can be **physical, visual or conceptual**. **Physical** connections can take the form of routes or paths that establish missing links between fragments, of green or water elements that spread along and perpendicular to main connecting structures as an element that unites them, of visual relations between spatial intervention points. In any case, physical connections refer to spatial or visual conditions that provide unity and continuity.

**Visual** connections can be elements that catch the eye, implying to follow a specific route or to approach an important element. Moreover, creating a network of special texture interventions in the landscape in a way that they are easily be recognisable as one whole can initiate a new layer in the landscape which is firstly experiences visually.

On the other hand, **conceptual** connections can be more symbolic and not present any physical connecting conditions. The historic or cultural value of a place which could be read through the layers of history can be revealed by emphasizing some important points in the landscape which in the end create a network of symbolic meaningful places. The conceptual connections may provide connections through another more symbolic reading of the landscape and can take the form of a sign, a texture, a symbolic material or a guided frame to a specific element.

The necessary conditions to achieve these connections can also be found under the framework of the **porous city**. From the theory of porosity, which is closely related with the one of the open city, we can extract some important points to help us define the most suitable places to apply our strategy. The framework that the project of the porous city developed, worked for me as a trigger to execute the specific analysis I did. Gaining understanding of the porosity as a quality helped me to define possible opportunities in the landscape that could amplify it.

So, a first step towards a more continuous landscape containing its territorial character would be to find opportunities and structures that could be used as conditions for breaks along these boundaries, while at the same time looking for potentials for meaningful interconnections and co-penetrations, between the fragments. If this could be done along the whole city limits, taking always into account topicalities through a site-specific approach, the result would be a **permeable city where the variant landscapes interact and connect** via
meaningful "structures" generated by the breaks. This new topology suggests a more general understanding of the landscape as a symbolic cultural entity, woven into physical and spatial relationships toward a more cohesive territorial expression.

To be able to define more situated strategies and tools, we have to gain understanding of why the landscape was formed this specific way and thus we take a look back in the historical development of the area. Every landscape transformation that has taken place is related with how the landscape has been influenced by natural forces and has later been inhabited. The old structures engraved in the landscape have played a very important role on how the whole area has been developed. For example, old waterways, roads or height differences have influenced and determined how and where urban areas have been formed. We will see that these interrelations established important connecting or separating elements in-between the different landscape pieces throughout the years. Moreover, the history of the landscape will show us how these structures that now may lie underneath new developments and urban expansions have determined the form and morphology of the last. For example, soil type, patterns of agricultural units or symbolic elements of the past may still play an important role.

The next step would be to analyze the area of interest, taking always into consideration the dipole of the fragmented landscape and the potential connections along it. By mapping structures that run along the landscape, like infrastructure lines, waterways, natural protected areas we can find out which of them work as connectors between the variant pieces of landscape. As we mentioned before, some of these structures may have been following traces of the past, preserving in that way a symbolic meaning for the landscape and its people and hence evolve into time-resistant structures. If we then trace all the open spaces of the area and identify them according to their program and form, we can reveal their relationship with the aforementioned structures. It is very likely that a lot of these open spaces have been generated from those structures or because of them.

The combination of the important, time-resistant structures in the landscape and the significant open spaces that can be found along them will reveal the formations that contain the higher potential in playing the role of "connectors" along the fragmented landscape and offer continuity of surfaces and open spaces as means of integration. The result of this procedure is the proposal of a strategy that can be applied to more cases with similar characteristics. In other words, I would like to prove that time-resistant structures in combination with a network of open spaces connected to them have the opportunity to activate the landscape by connecting physically, visually or conceptually its different parts.
By selecting the area that offers the bigger potential to receive these transformations, I will then try to define the different fragments that are related with the specific structure in a closer look. By deconstructing and decomposing the area along this structure we will find the different layers that form it, the character and qualities of each one as well as the way their structures are formed. In such a way we will expose the principles that make this structure what it is and understand the needs of each one of the parts as well as of the whole area. By bringing everything together again in the end and composing a new whole, we will understand how the specific area needs to be addressed; with small interventions, a more general approach or maybe a combination of different approaches.

To gain an even deeper comprehension of the landscape, I will focus on six main lines of reading it. These readings refer to a smaller scale and have to do with spatial qualities and the way the landscape is being experienced. The water network, the polder division, the infrastructure lines, the structure of the neighborhoods, the accessibility of the area and the vegetation. Going from the regional to the local scale, these readings are going to reveal the connections that the landscape has to offer as well as the special characteristics of each area. The accumulation of all the previous readings will give us a clear total image of not only the whole landscape but also the smaller fragments that constitute it and the ability to evaluate them and later on to address them according to their specific characteristics.

By extracting the principles that we found by the deconstruction of the landscape we can then complete the strategy as a more situated approach for connecting and restoring a fragmented landscape.

d. Site selection

In the case of the metropolitan area of Randstad, in the Netherlands, the landscape takes the form of a loose collection of villages, towns and cities that abstractly form a ring around an open agricultural area in the river Rhine delta. This emergent urban condition of Randstad, which is increasingly related to the dispersion of the urban fabric within the agricultural landscape could be defined as a horizontal metropolis. Despite all the characteristics that seem to line up with this term, Randstad shows lack of interlinks and connections as providers of meaning between the various fragments, urban, rural, industrial or agricultural.

This phenomenon appears more compounded and intense in the Southwind of Holland and especially in the area of Midden Delfland and towards the cit-
of Schiedam and Rotterdam. There we observe open patches of open

(usually agricultural) landscape in between the cities forming a clear distinction between the different landscapes. If we take a closer look in the area, we can recognize a variety of important structures crossing the landscape and penetrating the cities from north to south, which will be analyzed in detail in the following chapter. These will hopefully offer a fertile ground to develop structures to improve and secure physical and conceptual connections in the fragmented landscape.

The area started developing from the three old centers of the cities of Vlaardingen, Schiedam and Rotterdam that were developed along the river Maas. The biggest part of the area was divided in different polders that were mainly used for agriculture. After the 1950s the area saw great development with urban expansions taking place successively on one region after the other. The partialization of the polder units gave its place to residential and industrial neighborhoods and influenced in a great extend the limits of every urban expansion. Nowadays the cities appear as one conurbation with the open landscape north of it receiving a recreational character. Even though the urban areas are well connected to each other they lack any physical or conceptual connections with their immediate surroundings.
e. Following steps

In the following chapter I will further analyze the area according to the methods mentioned before. First of all, I will get a grasp on how the landscape looks nowadays by analyzing some important features of it, the infrastructure lines, the main water network and the important open spaces of the area. Later on, I will go through seven historical periods that are chosen due to important changes that took place in the landscape, such as the change of the boezem network, the opening of Poldervaart or the construction of the train lines between Rotterdam and Scheveningen. This way, we will comprehend why the landscape has taken the form it has today and explore the relations with its character in the past. Subsequently, by tracing and identifying the open spaces of the area I will try to reveal the “hidden” structures of those in the landscape and their relation with the main water network. After this analysis, the places that hold the bigger potential will come into light, by taking into account the combination of important waterways that have lasted throughout the years and open spaces that are related to them and could be transformed into a network of vibrant green spaces generated from the first.

Finally, I will focus in the case of Poldervaart, as it reveals the higher potential into being transformed in a structure-connector with beneficial qualities in all scales. Therefore, a more detailed analysis is required by deconstructing the area in its variant layers and analyzing them further based on their structure, connections and boundaries. By composing all the parts back together in the end, a clear idea of what actions are needed will have been acquired. Having always into mind the proposed strategy, then more specific design principles will be proposed that take into account the aforementioned analysis as well as the researched theoretical framework. The last step will be the test of the design principles and strategy in another case to ascertain if the desired outcome is achieved.
3. The area | Analysis

a. Regional scale:

In total we can say, that as the region developed through history, infrastructure like water lines, main and secondary arteries, train lines form horizontal structures traversing the landscape from North to South. These are seen as multiple layers that form a palimpsest in the landscape and will be deconstructed as separate. Green areas tend to follow them at least at the outskirts of the cities and in most cases weaken or disappear as the urban fabric gets denser. Water ways can act as connectors and integrators while combining the different values of the areas that flow along.

The overall region is formed as a territory of different urban, rural and natural areas. It is quite segregated and divided in multiple patches that do not react to each other. The urban fragmentation forms heterogeneous fragments and inflexible relations between them. These fragments form boundaries even
within the limits of the cities and enhance this distinctive condition. The excessive suburbanization of the south-west part of the Randstad created after all one big urbanized area, the conurbation of Vlaardingen, Schiedam and Rotterdam, which is restrained from the open agricultural area of Midden Delfland on the North and the river Maas on the South.

The conurbation consists of smaller patches of urban landscapes presenting different forms, programs and morphologies. “The Randstad can be better described as an extensive patchwork carpet. Each patch has a specific program and a specific physical structure. In this heterogeneous field the contradiction between city and landscape is abolished” (Neutelings, 1989). Neutelings’s project reflects also on a broader issue, the one of planning on such a regional scale at a national level. What about the parts that constitute the territory though? With his map he shifts the scale of the design to the level of the fragments which is much more tangible than the national that was used to be implemented so far. This, brings us back to my first intention. To develop a strategy that can be applied on a regional or metropolitan scale but take into account localities that start from even smaller scale that the one of the “patches”.

overview of the current situation
patchwork metropolis

sources: http://predmet.fa.uni-lj.si/siwind/s2/su1/s2_su1_p3_2.htm
http://journal.urbantranscripts.org/wp-content/uploads/2017/03/figure-1.jpg

fragments and border with Midden Delfland
Starting recognizing the horizontal structures that coexist in this landscape, we can say that the most important in our case are the ones of infrastructure, water network and green spaces. Each one is totally related and depended on the formation of the others. That is confirmed from the fact that they present similar features as direction, distance between them, destination points.

**Infrastructure network**

More specifically we see, that the infrastructure network is quite dense in this area, while the primary one follows a North to South orientation connecting the conurbation of Rotterdam with Delft, The Hague and Scheveningen. The same characteristics apply to the railway lines as well. The secondary and tertiary road network creates East-West connections and form more complicated structures that extend among the urban fabric. Important primary roads like A4, A13 and A20 run along the area connecting the urban centers but also forming obstacles and enhancing fragmentation.
Water network

Moving now to the water network that constitutes a very prominent feature of the Dutch landscape, we observe that the important water ways of the area follow also a north to south orientation. Besides the river Maas that refers to a national or even European scale, the 3 out of the five remaining ones are generated from the Schie. Vlaardingervaart, Poldervaart, Schiedamse Schie, Delfshavensche Schie and Rotte are all canalized rivers or canals that have been formed or constructed for different reasons but start from the North and end up in the Maas. Going through the cities, they mostly appear as weakened versions of their former monumental routes. However they still retain a very symbolic meaning and play an important role in the everyday life of the people. They work as points of reference in the cities and influence their structure and the way they develop.
Water network and green spaces

For the nature of this thesis it was also important to see if there is a connection or any type of relation between the water network and the significant green open spaces of the urban fabric. This might offer opportunities for a more extended network of connecting structures that include variant qualities and characters. We can observe that important open spaces of the area are directly connected with the aforementioned waterways. Symbolic examples along history confirm that the relation between waterways and green spaces is very strong as it created a very attractive environment for people and inhabitants. In our case, we can see that open spaces are often located next to or close to the waterways and some form independent structures by themselves.
Open spaces

By tracing and identifying the open spaces of the area, unrevealed structures are brought into light. Open green spaces that seem to be unrelated between each other with bare eyes present similar characteristics and create in the end a separate structure penetrating the urban landscape. As we can see from the map, in many cases important green spaces like parks or recreational areas follow main waterways. This gives us a first idea of the relation between time-resistant waterways and important open spaces. Ideally, we are looking for a structure, combination of both, that presents coherency and a variety of surrounding spaces that give to its identity.

The combination of the important, time-resistant structures in the landscape and the significant open spaces that can be found along them will reveal the formations that contain the higher potential in playing the role of “connectors” penetrating the fragmented landscape of the cities and offer the chance to develop a more regional character for the proposed strategy. We observe that the structures form horizontal north to south connections as well and they repeat along the urbanized field.

At least half of these structures are related with the important waterways as shown in map () and demonstrate the possibility to transform into generators of green spaces following the main route of the waterway.

The aforementioned structures contain also a plethora of meaningful places, as described on the following diagram-map. These meaningful places contain usually a symbolic meaning which can be used as another type of connections. The conceptual connections that have been mentioned before can contribute to this active network of meaningful places, enhancing even more the role and influence of the time-resistant structures.
“Hidden” structures of open spaces in the landscape
“Hidden” structures of open spaces in the landscape in combination with the important waterways
meaningful spaces in the landscape
Historical development

To gain understanding of why the landscape was formed this specific way, we take a look back in the historical development of the area. Every landscape transformation that has taken place is related with how the landscape has been influenced by natural forces and has later been inhabited. The old structures engraved in the landscape from the middle ages have played a very important role on how the whole area has been developed.

The thick layer of clay that was deposited along the coast after the Ice Age was drained by small peat streams, like the Rotte and the Schie. In 1134 a big storm stroke the whole South-West of the Netherlands and an invasion of the sea turned Vlaardigervaart and the Schie into wide gullies. The peat streams drain from the centre directly into the rivers to the North or the South having a South-Southwest orientation. A lot of reclamations started taking place during the 13th century because of the population growth. The parcels are running in parallel and contrast the course and the bends of the river.

source_Dutch Lowlands: Morphogenesis of a Cultural Landscape, Saskia de Wit, p.162
The urban area started developing around 1350 from the old centers of the cities of Vlaardingen, Schiedam and Rotterdam that developed along the river Maas and at the intersection with the three important canals, the Schie, the Rotte and the Vlaardigenvaart.

The biggest part of the area was divided in different polders that were mainly used for agriculture. The year of 1847 was very crucial as the first train line that reached Rotterdam was constructed making it a lot easier for people to move and work in the city. Therefore, after the 1940s the area saw great development with urban expansions taking place successively on one region after the other. With the development of the cities, the train lines and main arteries of infrastructure formed parallel to the Schie penetrating the urban fabric and creating north-to-south connections along the South wind of Holland. The polder units gave their place to residential and industrial neighborhoods and influenced in a great extend the limits of every urban expansion.
Historical development and centralities

Nowadays, what we observe is that the cities appear as one conurbation with the open landscape north of it receiving a recreational character. The cores of the cities form 3 clear centralities that have expanded mostly towards the North forming the fragmented landscape that we described previously on. Even though the urban areas are well connected to each other they lack any physical or conceptual connections with their immediate surroundings forming thus a fragmented territory. However, from the historical development of the area we can still understand that the developments and the new neighborhoods struggle to hold a grip on the underlying landscape by following its main structures and forms or by imitating the morphology of former establishments nearby.
Selection of the greater area and comparison between the two waterways

Zooming in a bit more on the area of interest, I will further analyze the region and its potentials. By exploring what the potentials are, mainly concentrating in water ways and open spaces related to them, I will later go into the locan and the micro scale to comprehend the area and its character in a holistic and complete way.

After comprehending the history and the evolution of the landscape of the area as well as the situation and the contemporary features it presents, we can focus on the area that shows the highest interest and potential. The area that contains Poldervaart and Delfhavensche Schie shows a big potential and very interesting contrasts between the variant fragments. Along the two waterways there is still potential to safeguard open spaces and reveal the identity of the landscape. Both the canals are historical structures generated from Schie and flowing from green lands in the city fabric while both traverse the landscape in between the historical city centers of Vlaardingen and Schiedam, and Schiedam and Rotterdam respectively. Why do the two waterways present so different characters and spatial qualities though?
The difference occurs mainly from the diversified land uses that are spread along the area. Generating both of them from the same central canal and having formed for similar reasons in the past, it is quite interesting to see the variety of ways in which they are expressed in the landscape. We observe that land uses are quite separated. There are fragments totally dedicated to business and industry or residences. This has tremendous effect on their relation with surroundings and the way they deal with public space.
sections along Delfhavense Schie
Conclusions of comparison

By drawing successive sections along the two old waterways we can perceive their relation with the respective surroundings and compare the different atmospheres. We can distinguish clear differences among the two cases due to the diversified land uses but also due to the reasons the canal was formed. The latter generated dissimilarities especially on the width of the canals as well as on the character of their edges. Being both time-resistant waterways they have a lot to offer on their immediate surroundings but also on the greater area.

Poldervaart appears as a more fragmented, not always continuous, waterway which width ranges from 8 to 20 meters. Its surroundings consist of a plethora of open or green spaces, receiving sometimes the form of an urban park or an area of allotment gardens and some others a part of an old polder. The landscape around Poldervaart remains still quite open and is not yet densely urbanized. It mostly host programs like sport facilities, parks or leftover areas in between infrastructure lines. Observing the sections from North to South we can see that the canal changes its width by being compressed or released free under the pressure of its surroundings. Towards the South that the land uses become more intense and urban, Poldervaart loses its monumental character and appears as a narrow canal neglected by its environment.

On the other hand, Delfshavensche Schie has a more industrial and functional character as it is widely used for transportation purposes. Maintaining an open connection with the Maas, the canal allows boats and platforms to traverse all along its length reaching either the industrial decks on the North or the Schie to continue their journey to the middle of the country. The areas surrounding Delfshavensche Schie consist more of industries and business facilities on the northern part, while as we move to the South, residential areas and a picturesque port take their place. The canal keeps almost always its wide route while at the same time feels much suppressed from the dense urbanized field around it. Followed by roads on both its sides it presents an urban character while its edges are rigid and hard.

From the two series of sections we can observe that Poldervaart has a lot more green along its route as well as more permeable and flexible edges. Those two main facts lead to the decision that Poldervaart shows the biggest potential in transforming into a time-resistant structure connector. On the other hand, the area of Delfhavensche Schie is already quite occupied from establishments along its route and hence more difficult to adapt to changes as it presents minimum potential for connections with green public spaces. Moreover, the latter has a very specific use and character due to the transportation needs of the harbor. As a conclusion it is important to maintain its unique character and identity as a more functional waterway and at the same time more difficult to receive a more local one.
The case of Poldervaart from the other side, shows undisguised interest as it is a very prominent time-resistant structure of the past that is now neglected but still has the potential to develop in a structure-connector regionally as well as locally. Many green spaces that are scattered along its axis can contribute to the enhancement of its role by offering more space and opportunities for connections along the waterline.

Poldervaart | green spaces along the canal

These are the most important green spaces that we can find along the canal and are related with it. They take different characters as we move along it depending on their use. For example there are allotment gardens, Beatrixespark and some that are related with history or culture, as the only old mill that is left almost at the end of it.
b. Local scale

Going now to the local scale, to the variant fragments that constitute and support Poldervaart’s existence and resistibility through time, I will give some important historical information about the canal itself as well as about the role it played in the past. Then the current situation will be presented, emphasizing Poldervaart’s role and position in the landscape today.

**Historical information**

The map shows how the Schie area looked like before the construction of Poldervaart around 1200. The area was consisting of polders with a direction perpendicular more or less to the Schie. The relocations between Vlaardingen and Overchie used natural waterways, were flowing from the peatland to the nowadays Maas, to discharge the amount of water that could not be absorbed form the area.
Map from Atlas van de Schie
The Schie area around 1500 after Poldervaart and Delfshavense Schie were constructed. What is interesting to see is that at the time of construction of Poldervaart, around 1270, the boezem system reformed and Poldervaart was a very determinant factor of the separation between the 2 boezem systems, the one of Delfland on the west and the one of Schieland on the east.

Reconstruction map of the area around the Poldervaart at the time of construction around 1270, based on a map of C. Hoek. The map shows the separation between the boezem of Delfland (red) and that of Schieland (grey).

Original map from Atlas van de Schie
map from Atlas van de Schie
However Poldervaart had always a different character than the rest of the canals. The reason it was first constructed gave the canal a particular atmosphere and quality. As it was not focused on transportation usage, there were no paths or roads along its banks and thus left its surroundings flexible and more natural. The linear axis it portrays was the easier way to open a canal that could discharge the area from excessive surface water and could be connected with both the Schie and the Maas.

towpaths along the Netherlands until 1850
map from Atlas van de Schie
towpaths in the Schie area
map from Atlas van de Schie
Poldervaart as part of the historical boezem network and its disconnection from the system after 1966. Therefore, the canal received a more recreational character like the one it presents until today. The successive maps show also the transformation of the polders around Poldervaart and their influence from the change of the boezem system. They tend to create more and more separated fragments along the years but also follow existing structures of the landscape like smaller creeks or special areas like the allotment gardens or the cemetery.
Poldervaart today

Poldervaart is still a very prominent structure in the landscape even if it has lost its former role and function. The clear form of its axis makes Poldervaart distinguishable in a landscape full of parallel lines and ditches. The landscape that surrounds it and follows its formations and alterations retains some of its primitive qualities and cultural values of the Dutch lowlands.

However, the area constitutes from a quite fragmented landscape which receives multiple characters along its length which in the end form a disintegrated territory. The urban tissue around Poldervaart neglects the canal’s presence as the orientation of the most neighborhoods turn their back to the canal and maintain an introvert structure. Poldervaart could play though a more important role in the local and regional scale connecting the different fragments together.
Poldervaart | thé different characters experienced

sources: photographs by author
c. Micro scale

Deconstruction of the landscape in its important layers

water elements

polder parcelization
important infrastructure lines

introvert urbanism
Water network
Poldervaart as a very characteristic line in the landscape
Polders parcelization
polder division & water levels
time-resistant structures and infrastructure lines
A lot of old paved paths have been transformed in main arteries (A20 highway, Vlaardingerdijk street)
Diving more into the structure of the neighborhoods we can identify the different fragments that have been urbanized around the area of Poldervaart. In the following diagram the neighborhoods have been categorized according to their morphology and period of construction. It is clear that almost all the neighborhoods form a kind of a cluster as they have been designed and built as such, and not building by building as autonomous ventures. They present an introvert character that offers a different kind of identity than the one that we use to see in urban centers.

What has been recognized after the historical research and the development map of the area is that the structure of the neighborhoods follows some primitive formations while new developments are attached around them. Moreover when neighborhoods undertake changes, these formations are usually maintained and followed by the new developments as a guide for the new plan.
Area's development map

Map of the building stock and the built areas according to their year of development from 1900 till today. Whole neighborhoods were designed and built as one, keeping an introvert character.
Polder parcelization imposed on the area’s development map

The development of the greater area has been heavily influenced by the polder parcelization and it follows most of the lines as the manipulation of every water level subarea is easier to take place all at once.
Time-resistant structures imposed on the polder parcelization map

Polders though are very much influenced by the water network and other time resistant structures of the landscape as naturally lower parts that are connected with old creeks.
Time-resistant structures in the area today

The time-resistant structures of the area: waterways and creeks, old paved paths, historic centers, green structures and the way they have been maintained or transformed in the present landscape.
Time-resistant structures imposed on the area development map

Some of these time-resistant structures are quite respected in the landscape and used as borderlines of neighborhoods or main elements that connect them. My intention is to use structures like these and take advantage of their unique identity in order to connect the fragments of the area and reveal more aspects of the cultural landscape.
c. Micro scale

Access map of the area

The canal is accessible for cars only through some perpendicular access points that link the suburban areas with the urban centers. There is no heavy infrastructure line that runs along the canal, giving in such a way a chance to the other means of moving to thrive.

The area is already quite accessible by bicycle paths which connect with the bigger scale bicycle network on the North part of Poldervaart. More specifically, there is a bicycle path running all along the canal, first from the West and later form the East side.

However, if we exempt the first northern part, there are no pedestrian paths along the canal which makes Poldervaart unfriendly an inaccessible for stroller or passersby. There are not many chances to approach the canal itself, even if it is the main feature if the area. Therefore, people decide to walk on the grassy edges of the canal, creating multiple walking paths by leaving their traces behind. People are not given many chances to interpret with their surrounding environment nowadays so I consider that as a special quality of the specific area that I would like to maintain.
Vegetation map

As far as the vegetation of the area around Poldervaart is concerned, we can observe that there are three main types of vegetation. Low grassfields that spread on the biggest part of the northern open area. There, the fields resemble a valley of polder parcels and present a very open character complementing the unique identity of the Dutch landscape.

Moreover, quite often along the route of the canal, we see big old trees that either form naturally clusters or are planted in rows parallel to creeks or paths. Poplars, oaks and plane trees complete the scenery creating many times a beautiful background or protected enclosed spaces.

The last type of vegetation is mostly concentrated along the edges of Poldervaart and consists mostly of high grasses and perennials that flourish in wet ground or other aquatic species like reed, duckweed or water lilies. In total we can say that Poldervaart is struggling to keep its edges natural and a lot of times is succeeding in doing so. However, there are cases where the canal has lost its natural-like character and resembles a bad maintained narrow stream. There, all types if vegetation are almost absent as harder materials and paving granted their place. Vegetation and quality green spaces is a very important characteristic of the area which should be safeguarded, maintained and strengthened whenever it is necessary.

sources_photographs by author
Symbolic cultural elements of the area

Being itself an important time-resistant structure, Poldervaart complements its significance by revealing more cultural and historical elements of the area that add to its identity and meaningful existence.

Parts of old polders that can be found on the way expose unique traces from the past of the area and its use. The only left windmill that used to pump water to Poldervaart when it still belonged to the boezem system of the area and a small turp that hosted another mill are also meaningful features of the present landscape. Small creeks that have been formed when the canal was constructed are still respected from the landscape and the new developments and incorporated in the neighborhood acting even as recreational features. Finally, old sluices, with the two most important ones marking the beginning and the end of the canal, act as landmarks in the landscape letting their historical appearance and strict form contrast the linear axis of the water.

These can be considered as time-resistant structures that are active in another, smaller, scale. They can still create very interesting and meaningful conceptual connections in the landscape and give another character to the experienced space.
Site observations and first intentions

In an attempt to reveal some general atmospheres of the landscape of the area we can distinguish three main characters as we go along it. Moving onwards the axis of Poldervaart from North to South the character of the landscape changes three times reflecting every time on its surrounding area.

Starting from the North side, the first impression created after finding oneself next to the canal is a very broad open space, looking almost untouched by human hands. Low grasses growing uncontrollably along its edges, trees that form clusters on the side of the biking paths, wild plants expanding in random places and smaller bodies of water completing the scenery.

sources: photographs by author
From the moment one goes through the underpass of the main road of ‘s-Gravelandseweg the character of the area changes. A plethora of different experiences is offered and various situations are going on. From parts of old polders, to natural-like designed parks, residential areas and allotment gardens. Poldervaart has now lost the open character it had in the beginning and acts more like a city canal forming bottlenecks and narrow passages in order to avoid the aggressive cuts of infrastructure. Struggling to keep its natural edges, there are many cases that the effort is forced, depriving the canal from a natural or an even more urban identity. This phenomenon climaxes when Poldervaart meets the A20 highway where it changes its direction and creates a clear cut, resulting in disorientation and detachment from the axis of the canal.
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Conclusions of analysis and first intentions

Correspondingly, this project proposes the **reinforcement of Poldervaart’s identity as a crucial axis** crossing the landscape while at the same time it **adjusts on the specific character of each area**, having the three main ones that were mentioned before as general guidelines. These two main intentions will inform the strategy and inspire every step of the design by taking them into account through the three main scales that will be followed. Poldervaart is a time-resistant waterway that seeks to radiate and constitute an urban, natural and cultural attractor of the area. At the same time, the identity of the area will be enhances and the canal will adjust to topicalities and local conditions (like the different polder’s water level) without losing its coherence and unity as an axis.
4. **Strategy**

a. Strategy for regional scale

As it has been mentioned before, through historical research, I am looking for important resilient and time-resistant structures in the landscape. These structures traverse the landscape along its different types and characters forming patterns and influencing the development, morphology, land use and spatial experience of the area. By analyzing the South wind of the Netherlands, we specified those structures and proved that the primary and most important of them are the ones of the water.

These water structures carry a historic and symbolic meaning for the landscape and its people as they have been formed centuries ago and influ-
enced the landscape in all the stages of its history. By further analysis we saw that they are usually generators of green or open spaces that tend to expand along the cities. Because of the intense urbanization of the area these opportunities are rare as some of the old waterways have been covered or narrowed down for the sake of social processes. However, there are still some opportunities to ensure and obtain those resilient structures and promote the integration of the built and non-built landscape.

The development of a strategy that takes advantage of remaining time-resistant waterways, which have transformed but lasted through the centuries, in combination with related to them open spaces could have a big positive impact on the landscape. The formation of a dense horizontal metropolis, which is though penetrated by resilient water ways and networks of open spaces can contribute to the defragmentation and the continuity of the landscape constituting in the end a meaningful whole.

Other design principles that will be used in the process derive from the analysis of the area during the local and micro scale. For example, the physical and visual relation with the water along Poldervaart will play a very important role in the design process as well as the deminition of obstacles and discontinuities and the creation of a coherent axis instead. The more site-specific design principles that refer to key areas that will develop further along Poldervaart cannot yet be known, and will come after the first steps of the research by design approach. They will be analyzed and determined while at the same time they will inform the design and create a constant dialogue between that and research.
5. Application

a. Vision & concept

The idea to transform Poldervaart into a backbone-like structure that binds variant urban or natural landscape fragments together came with the first encounter with this area. A monumental axis that tears the landscape and creates boundaries between the water and the different neighborhood reverses its role and becomes a structure-connector. By visioning a continuous connecting axis, Poldervaart acts in multiple scales. In the regional scale it is thought as part of the time-resistant structures network that penetrate the urban landscape and connect it with the natural landscape that surrounds it unhindered by infrastructure or other interruptions.
Going into the more local scale, Poldervaart is imagined as a coherent and continuous axis that offers a great variety of social, ecological and cultural benefits along it. An important line in the landscape that reveals the unique identity of the Dutch lowlands and acts at the same time as a connector. By creating meaningful connections with the immediate surroundings of the canal, with physical, visual or conceptual means, Poldervaart not only promotes integrity along its length but also includes and connects its fragmented surroundings presenting a broad radius of influence.
The axis in combination with the significant green areas attached to it are essential to counterbalance the sea of rigid urbanization that inundates the area. As a protagonist of the new era of a greener and more habitable metropolis, Poldervaart's axis has to be safeguarded and brought in direct contact with its surrounding and the meaningful places that are countlessly found in the area. If there will be no action taking place in these areas, they will soon be urbanized as the rest of the surroundings and Poldervaart will look like traces of a forgotten canal among blocks of flats as in the case of Rotterdamse Schie or the south part of Rotte. Urbanization in these area took mainly place the last 50 years and is constantly taking over spaces that is necessary to keep open in pursuance of living quality and richness of spatial experiences in our cities. Correspondingly, the “borders” of our area are not always running along the canal but they also create plateaus in order to embrace open areas and thus create an undisturbed succession of quality public spaces hosting different forms, programs and characters.

As a result of the deep and holistic understanding of the area and its characteristics, the vision is underpinned by a series of design principles that establish the foundation for the transformation of the whole canal as well as the main and secondary interventions that take place along it. In such a way, these principles define the canal’s identity within the larger urban conurbation. By claiming cultural distinctiveness of the past and site-specificity of the present in between two centralities of the area, Poldervaart axis exemplifies a role model in the region of the South-wind of Holland.
b. Design principles

Acting in accordance with the vision for transforming important time-resistant structures in connectors and generators of connections that act against urban and landscape fragmentation I will highlight the decisions that influenced the outcome of the master-plan as well as more specific design principles that will be used for further more detailed design proposals. Starting under the umbrella of the time-resistant structures which the design principles comply with, I will then introduce the principles that apply to Poldervaart as a whole and all along the canal as well as the principles for more particular conditions, such as residential areas or public green spaces that we can trace along the canal respectively.

Taking into account the research preceded and the special features of the landscape, time-resistant structures proved to play a significant role on how the landscape has developed and the identity and placeness it acquires through them. By emphasizing time-resistant structures from different scales and importance, from the wide canal of Poldervaart to the narrow creek along Polderweg or the part of the old polder south of ’s-Gravelandseweg, the project reinforces the sense of place in this seemingly indefinite urban agglomeration and promotes the sense of orientation and continuous topology by creating literal and metaphorical links along the canal and between the fragments. Reimagining these powerful elements of the cultural landscape as connective crickets between the different layers of the landscape, the project proposes bigger or smaller interventions along Poldervaart that bind the current layer of the landscape and create meaningful connections. The main design principles can be extracted looking after the needs of the area and the vision for a structure connector are presented on the following pages.
The first and most important principle regards the creation of a coherent axis from the beginning to the end of Poldervaart, highlighting its monumentality while at the same time establishes and safeguards its coherence and identity. One of the most important and undeniable features of Poldervaart is the apparent form and stateliness of its axis; a straight line leading from the Schie to the Maas through low polders, new built residential areas, city parks, dense infrastructural lines, historic residences and allotment gardens. After recognizing this value of the morphology of Poldervaart and the symbolism it carries, my intention is to continue and reveal the line of the canal wherever is interrupted. Creating a continuous axis that contributes to the canal’s legibility and coherence will reveal the symbolic character of Poldervaart and its significance as a landscape structure. This action is enhanced by keeping a wide canal bed (between 18 and 25 meters, depending on the area) and solving bottleneck situations that were constructed to make infrastructure crossings less of a hassle.
Moreover the project will emphasize and strengthen the three different characters that were recognized along the canal during the last steps of the analysis. The three general areas with the respective characters that were identified will reveal their features through spatial transformations and differences in the materialization as well as the ascribed atmosphere. More specifically, in the first area a more open character will be kept with low vegetation and soft paving materials. Moving to the second area, the character becomes more urban and thus the transformation of the landscape will be more drastic, taking clearer forms and harder materials. Urban spatial features like a riverside esplanade will be used in order to offer continuity and connection along the different parts. Approaching the end, the nature of the landscape evolves into a combination of the two previous characters welcoming both strict and spontaneous moves, hard and soft materials, natural- or urban-like characteristics at the same time.
The last action that refers to the whole length of Poldervaart is to **emphasize the differences between the west and the east side** of the canal and propose guidelines for the two sides. Paying close attention to the current situation and taking as much as possible from the given conditions we can distinguish a difference between the east and the west side of the canal. On one hand, both sides go through several character changes according to their surrounding uses or requirements but on the other hand each of them keeps a more general or abstract character-approach on its own. My intention is to keep and emphasize these distinctive characters, creating a contrasting difference between the two sides with regard to the extent and formality of the design intervention, the open interpretation and the materialization –difference in textures- of the project.

Thus, the **east side** of Poldervaart is mainly seen as a **social and vibrant corridor** with emphasis on public lively spaces, continuous bike and pedestrian paths, clear connections with existing open spaces like Beatrixpark or the cemetery. With an average width of 20 meters, the east side offers a continuous main path of usually 10 meters width that follows the canal and takes different characters according to its surroundings. Simultaneously, Secondary paths connect the main one not only with important places around but also with the west side. The main bike path runs also along Poldervaart connecting north with south while offering opportunities to experience the water body. In general this side is visioned as a continuous zone of fluctuating paths, plateaus, passages and vanishing in the urbanized field points.
Contrariwise, the west part of the canal is mostly portrayed as a natural and ecological corridor that protects and safeguards the important natural areas and proposes a clear zone of a minimum of 30 meters given along the canal for ecological richness and variety of habitats. Allowing vegetation to grow in a more spontaneous and wild way than the east side, the whole zone is going to be kept green favoring conditions for meadows, wild flowers, clusters of trees and high grasses, suitable for the wet ground, to grow. The ground is kept green with no paved surfaces, endorsing people’s interpretation to form paths on the grass depending on the way the want to use the space. There are cases of course that act as exceptions to the rules, meaning that no residences or establishments are going to be taken away. We would rather see it more as a guideline that safeguards the continuity, monumentality and ecology of the area and acts against residential or business occupation along Poldervaart in order to let it flourish and less like a generalized rule. In the case though that areas in this zone are released in the future, they will adopt the more natural character of the west side.
Other guidelines for the surrounding to the canal areas that are as important but act to more targeted situations are mainly given for possible future changes and development plans. An important effort that is taking place in the area is the densification of existing urbanized areas and urban fringes in order to avoid further urban expansions in the outskirts of the cities. In the two proposed areas such proposals could offer an interesting concentration of intriguing situations and thus contribute to the identity of the area. However, some main guidelines could be followed as an intention to keep a balance between the natural and the residential areas as well as the qualities found in both. In both cases the proposed areas are currently hosting sport facilities. Maintaining the current base structure and emphasizing the time-resistant structures that exist in the area (such as old creeks or paved paths that have lasted through the years) using them as open spaces connectors, the area’s identity will be enriched and strengthened. Highlighting such structures with linear elements of green, like rows of trees or different vegetation along them will provide a meaningful first structure for the area and a linkage with its history.
At the same time, we are also looking at a flexible design that takes into consideration site-specific characteristics and localities taking place. Going into the smaller scale, one of the main goals of this project is to emphasize such special features of the landscape so as to reveal its more cultural character and unique identity. In order to achieve the desired adjustability the project adapts to local changes and takes advantage of them in order to create or accentuate specific spatial experiences. One of the changes that the project follows is the height differences of the variant polders that Poldervaart transverses. By adapting or even some times amplifying those differences, the project offers different and contrasting relations with the element of the water itself, finding oneself sometimes above it- almost being able to touch it, some others beneath it- being only able to smell the wet and fresh ground and some and others just on eye-level creating a striking experience – a mirror-like structure that reflects the Dutch sky.
Going now more into areas that demonstrate particular conditions and characteristics, this project reveals and proposes opportunities for physical, visual and conceptual connections among variant fragments or significant elements in the landscape and the canal itself. More specifically this design principle refers to important structures that already exist in the landscape for long, such as the small part of the old polder in the centre of Kethel or the green open park-like areas that lead to the centre of Schiedam. One of the important aspects of this project is to reveal, safeguard and establish a relation with time-resistant structures that cross Poldervaart or lie along it in order to bind the landscape together as a whole. Subsequently, I will introduce and elaborate on each one of this connections by introducing examples for the reader’s better comprehension.

Physical connections refer to the formation of perpendicular to the canal connections taking the form of paths, bridges or stepping stones over the surface of the water in order to activate the axis and establish relations between the two sides as well as easier access to both. Connecting residential areas with allotment gardens or parks with other open scape facilities can produce a succession of different quality spaces and trigger interesting exchange of flows.
Visual connections can be triggers for the eye to follow a specific route or to approach an important element. For example, a cluster of white bloomed trees in a jungle of green can take the form of a landmark in the landscape, creating enough attention to lead the wanderer to the specific spot. Moreover, small scale interventions along the canal, like steps on the canal’s edge, platforms, sitting benches or others are all made of cor-ten steel creating in that way correlations between them and also a new layer in the landscape which is visually comprehensible.

Going more into this direction, this project introduces conceptual connections with existing elements of the landscape in order to reveal its rich cultural identity. Using time-resistant structures as a starting point, the view is guided to specific elements such as the old mill, the direction of the old polder east of the Windas’ houses is followed, poles ran on the whole length of the canal representing the water level of the former boezem system. In other words, conceptual connections constitute symbolic actions that help us comprehend the nature of the underlying landscape of the area, recognize the landscape that used to be there and finally create a meaningful connection between past, present and future.
The last principle applies to the urbanized areas around Poldervaart taking either the form of more public or private spaces. The creation of vibrant and exciting urban spaces as part of the greater canal project requires a few guidelines in order for the area to maintain identity and establish coherence.

A more public character is given to areas such as the allotment gardens or the cemetery by transforming them into more transparent spaces that can connect with the main axis of Poldervaart. More precisely this is achieved by revealing the inner structure of the areas and unfold it all the way to the edge of Poldervaart. This requires the elimination of unnecessary or excessive vegetation that blocks all views to the inside of the areas. If we take the example of the allotment gardens we can see that they follow a very specific grid system that is formed parallel to important old structures of the era that were constructed. The project proposes that the grid is highlighted by planting rows of pineal trees along it which extend all the way to the canal forming clear view lines and revealing the structure within.
The design principle for the existing urban areas along Poldervaart requires first of all the penetration of the urban fabric with the formation of green connections perpendicularly to the canal. Poldervaart receives the role of a generator of smaller-scale connections that start from the canal taking the form of vegetation or smaller water bodies that fade away in the urban fabric. In addition to this, one of the main goals is to keep the canal free from lines of heavy infrastructure following the guidelines that accentuate the important differences between the east and the west side. For example, paved surfaces are avoided on the west in order to maintain a more natural and ecological character that relates with the edges of the canal. Tools like filling open spaces with vegetation or connect existing green spaces among each other will protect and reinforce the perpendicular connections and create an attractive spatial experience with contrasts between forest-like areas, wetlands, clearings, designed paths or areas open to people’s interpretation.
c. Masterplan

Considering Poldervaart as a time-resistant structure for healing the fragmented landscape of the area between Schiedam and Vlaardingen and from the Schie to the Maas, this project proposes the reinforcement of it as a **backbone structure that will act as a connector and a generator of connections** in two scales. In a regional scale the monumental axis of Poldervaart establishes a connection between Midden Delfland and the river Maas while on a local scale the canal receives the role of generating perpendicular to the canal connections between urban fragments, city parks, allotment gardens, and parts of historic cultural landscape. This double role of Poldervaart makes the coherency and continuity of its axis a very important characteristic in order to be recognized as a significant element in the landscape of the lowlands.

Poldervaart is seen as the backbone that holds together variant pieces of urban fragments. Along with its bones, joints and muscles, always in a metaphorical sense, this organism generated from the old waterway, **flows in-between the urbanized area binding and connecting physically, visually and**
conceptually the different parts. In order to achieve this vision of Poldervaart and the important areas that surround it, the first has to be reconsidered as a **skeleton-like axis** that produces **moments of peak along and around its central line**. Firstly, the widened zone of the water element and the natural edges of the canal form a perfect straight line from beginning to end, followed by bike and pedestrian paths that allow access to its full length of 6 almost kilometers. The importance of the axis starts from the first moment one finds him/herself along it by offering the opportunity of having a framed view of the line.

Applying the design principles on the area, we see that the project maintains an identity by itself as a whole but at the same time adapts to special site features and topographical characteristics. More specifically the natural and ecological corridor of the west side together with the more social, formal corridor of the east side reflect their characteristics on the canal’s full length. On the first side, any intervention is pulled back in order to allow natural elements and habitats to flourish close to the water, while at the same time there are subtle paths opened by people’s interpretation and the way they use space. On the other side, paved bike and pedestrian paths follow the canal all along and create a vibrant public zone that penetrates the urbanized areas in a form of a park, of smaller canals, of cultural elements or paved paths. Of course there are multiple crossings and intersections of the two sides as one of the main goals of the project is to connect and create relations between the fragments as well as to allow the exchange of flows and experiences respectively.

A very important aspect of the project and the umbrella under which the whole story is developed is the notion of time-resistant structures. Besides Poldervaart which is the main structure around which everything is proposed, there are secondary historic structures that exist already in the landscape and determine its cultural identity. Sometimes the creation of clear borders around them, using vegetation or paths as tools to achieve it, can safeguard those
important structures and physical and conceptually connect them with the main axis. The two main ones that exist in our area is the part of the old polder lying in the center of Kethel as well as the park-like structure that leads from the cemetery on the southeast side to the center of Schiedam. Pedestrian paths are used on both ways to connect the two structures bringing together important elements of the past. As Poldervaart is almost one meter higher in both cases, it is made clear that this one is the main structure that binds the rest together and bridges these connections through contrast.

Moreover, smaller time-resistant structures and symbolic elements, such as the windmill or the part of the old polder on the East of the canal are also considered valuable and participate in the project by contributing to the experience and underline areas seeking of smaller interventions. The enhancement of their existence is taking place with generation of symbolic spatial experiences through them, while by actions like safeguarding structures and areas along Poldervaart, the role of the latter is emphasized.

Correspondingly, this project proposes the reinforcing of Poldervaart’s identity as a crucial axis crossing the landscape while at the same time it adjusts and emphasizes on the specific character of each area, having the three main ones that were mentioned before as general guidelines. The intention of this
conceptually the different parts. In order to achieve this vision of Poldervaart and the important areas that surround it, the first has to be reconsidered as a skeleton-like axis that produces moments of peak along and around its central line. Firstly, the widened zone of the water element and the natural edges of the canal form a perfect straight line from beginning to end, followed by bike and pedestrian paths that allow access to its full length of 6 almost kilometers. The importance of the axis starts from the first moment one finds him/herself along it by offering the opportunity of having a framed view of the line.

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d. Small scale interventions | Atmospheres

The small scale interventions that are taking place along Poldervaart shield its coherence and legibility and at the same time create and intensify the experience of the particular landscape. The location and type of these interventions depend mainly on the topography of the canal and on its special characteristics. By creating moments of peak along Poldervaart’s longitudinal axis, specific aspects such as height differences, smooth slopes at the edges or glades are being emphasized.

They can be found on both sides along the entire length of the canal and they can easily be recognized due to the material they are made out of. Corten steel fits perfectly on this wet landscape and gets more and more attractive as time goes by. For example poles are being places along the canal to remind and emphasize the water level of Poldervaart when it used to be part of the boezem system. Their exact location follows the extension of the old polder parcelization and gives a rhythm to the whole experience.
bird eye view | area 1
view of the intersection of Poldervaart with the Schie
atmosphere, gate at the beginning of the canal
bird eye view | area 2
atmosphere, the traced path to the polder
atmosphere, the balcony to the canal
bird eye view | area 3
atmosphere, stairs down to the canal across the promenade
atmosphere, the promenade on the East side
atmosphere, main path across the windmill
interventions-nods | 3 selected areas

the embrace (water square)

the urban wetland

the balcony
There are three areas along Poldervaart that deal with the most serious problems of fragmentation and discontinuity but at the same time present potential for change and transformation. Two of them coincide with the change of the characters along the canal and the decision to enhance their transition while the third one regards the intersection of Poldervaart and the A20 highway. These areas follow the design principles of the bigger scale that refer to Poldervaart as well as have their own. The design principles for this scale come from the first intention to create a project that adjusts to topicalities and local changes.

So, the first principles refer to the strengthening of the characters’ transition along the canal and the creation of places-nods that can work not only in favor of the whole structure but also as destinations by themselves and entrances to the project. Secondly, the three areas will create more sizeable spaces that penetrate the urban fabric and create unifying public areas. These interventions will present different characters according to the area they belong to and offer a variety of experiences that favor the livability and richness of the city.
The next regards the water level differences taking place along Poldervaart and the need to emphasize them by creating a noticeable experience. Depending on the case, this is achieved by prolonging the water level change lengthwise or focusing on the experience by leading the user above or very close to the water. Finally, the monumentality of the axis as well as the continuity of the movement along it is achieved by keeping the circulation zones (the pedestrian path, the bicycle path or both) parallel to the canal.
connections of design principles and proposals through the 3 scales
The first nod of the project takes place in a very important crossing along Poldervaart. Two important things are happening here. Firstly, Poldervaart seeks to be in close relation with the green-blue structure that leads in the middle of Kethel, to a low old polder that has resisted urbanization and kept its cultural value over the years. The connection already exists but it is being improved via pedestrian and bike paths that follow the old traces.

The connection and reveal of such time-resistant structures enhance the identity of the landscape and create elements of interest along the canal. The opening of the canal creates a wide open space that brings together the element of the water, the neighborhood, the polder. The vegetation receives the role of a connecting element emphasizing the North-East direction to Kethel.
diagrammatic section
Secondly, the water level changes from -0.90 to -2.75 N.A.P. which simultaneously influences the immediate surroundings of the canal. As one of the main intentions is to adapt and emphasize local changes taking place in the area, the design is translated in two counterparts. On the northern side that the water level is higher a balcony intensifies the experience and offers a clear view to the linear axis and the part of the old polder that expands just on the right. Just opposite of it, large steps lead the walker in the canal to recognize the lower water level and touch the water. Two contacting experiences to enhance the water level difference. At the same time the edges of the canal lead smoothly to the lower level.
the urban wetland plan
The second intervention-nod of the project is transformed into an urban wetland which transforms the crossing of Poldervaart and the A20 highway and at the same time expands all along it. Acting currently as a very strict barrier, A20 is seen as a chance to frame and emphasize the linearity of the axis by opening the horizon below it and most importantly continue the axis and flow of Poldervaart underneath. From an optical and physical obstacle, the highway switches to a frame of the landscape beyond. Widening the canal and keeping a minimum width of 15 meters (almost double of what it is now) will give Poldervaart its monumentality back and allow continuous movement underneath the highway.
create an urban wetland along highway
penetrate urban areas with green

highway opens up and frames the landscape beyond

section before and after
section emphasizing the differences between west & east side

view from the urban wetland
The realization of the urban wetland will take place over time and extend to areas that will be free in the future. Starting from the intersection with the A20 highways and expanding firstly along it and later to a big area on the west, the urban wetland will offer a unique experience in the urban landscape contrasting the brutal structure of the A20.

The most important aspect of it is that only the conditions need to be made and then nature will play the most important role, allowing marshy areas for vegetation and greener corridors of higher species. Areas filled with pebbles to prevent vegetation and allow water flow, wet areas for aquatic species and grasses for water purification will come into life.
the urban wetland atmosphere of the West side before the highway
the embrace | concept sketches
As the promenade extends towards the South, the path turns and creates an open to the canal embrace around the water. The water square consists of multiple layers of connections receiving the role of a connector, a distributor, a meeting place, a crossing to the west side, a place of adventure. By bringing together all the different programs that take place around it, the square becomes a lively public urban space.
The entrances are equally interesting places that connect the promenade and the wildflowers meadow on the East and West respectively. By extending the axis of the old creek north of the windmill the crossing path and closing of the square is formed. On the other side the entire area of the square and the cemetary is connected with the old green structure that leads to the center of Schiedam. This is the second time the project engages with another time-resistant structure of a big scale after the polder in Kethel. The path of the cemetary create this connection by starting from this green area.

As we are in another point where the water level changes again, going back to its higher level, the transition seeks to be emphasized. The creation of a water ladder that extends in the water square and forms a different kind of connection with the west side is being proposed acting as a technical and attractive element.
One of the crossing of the water square. Concrete cubes taking the form of walking stone in the water form the crossings of the square, the steps of the ladder and at the same time emphasize the water level change. The different depths of the ladder bases allow opportunities for different kind of vegetation, depending on the depth. Water lilies, reeds or other aquatic plants complete the scenery creating a rich urban experience.
The linearity of the canal is always safeguarded and emphasized with the parallel to it bike and pedestrian paths. In the case of the water square, the paths transform to bridges as they are surrounded by water. The water level transitions are also experienced on those as the paths form smooth slopes and flat steps to accommodate the differences.
the embrace | atmosphere of the lively water square
the embrace | atmosphere of the crossing path leading to the wildflower meadow
1. Populus canadensis
2. Acer platanoides
3. Amelanchier canadensis

a. Stipa
b. Pennisetum
c. Miscanthus
d. Phragmites
e. Zegge
f. Water-weegbree
g. Waterbiezen

4. Populus canadensis
5. Acer platanoides
6. Populus nigra ‘Italica’
7. Pterocarya fraxinifolia
h. wildflowers meadow
The nature of this project is closely related with careful and sensitive observation of the landscape and its current condition. Therefore, all the actions being taken and the proposed interventions are the ones considered absolutely necessary. The areas that present already value and meet the criteria of this research project are taken into account and included in the concept without being unnecessarily transformed. A complete and detailed research was required in order to be able to recognize such areas. Thus, the holistic understanding and comprehension of the local character of each part was a key-factor of the project and required careful site observations. As it has been mentioned during the time-resistant structures manifesto, this project denies the overimposition of direct solutions on the current landscape and calls for design solutions that derive from its physical characteristics.

The following series of sections show the little extent of intervention along Poldervaart. Conscious design decisions, such as the smoothening of height differences along the edges of the canal or the use of specific materials can have a big impact and work over time since they influence the vegetation and thus the habitants and atmosphere of each area. Going from North to South the sections follow the areas of the three different characters showing the difference between the current and the proposed situation. The white represents the current while the yellow color depicts the proposed intervention. Imposing one over the other we can see the transformations that take place along the canal.

Recognizing Poldervaart as a valuable architectonic element of the region, it is important to understand how the proposed interventions influence the canal itself. The more technical aspect of the project focuses on the bed of the canal and on how the design principles translate into the design in the small scale. We will take as an example the third design principle which regards the strengthening of the more social atmosphere of the East side and the more ecological one on the West. How does this decision follow the axis of Poldervaart and reflect on the design translation? The west side of the waterway has always a more ecological character by undertaking height differences which create circumstances necessary for the development of variant types of landscapes. Wetlands, grasslands, rich soil areas required for specific trees higher and lower ground levels that attract different habitants. Moreover the bed of the canal shows always a smooth difference avoiding the sudden change of materials and allowing exchange between the multiple elements. On the other hand, the West side of the canal is always more determined and presents harder materials depending on the character of each area. Concrete, stabilized ceramic soil, dirt paths that form the promenade, the water square and the pedestrian or bicycle tracks.
g. The future

What about the future? How will Poldervaart remain a time-resistant structure and still hold the potential to offer a unique experience? We can barely imagine how our landscape will look like in 50 or more years. Billions of people will live in megacities since the space we can easily inhabit is limited. Our landscapes have to find a way to keep and reveal their unique identity in order to be distinguishable in the future world of monotony and repetitiveness. Safeguarding important structures of our landscapes that offer not only an exceptional experience but that also play an important technical and planning role, will allow our landscapes to adopt the benefits of the future without suffocating in a world of change.

Poldervaart will still be a significant part of this urbanized region and a reference element. Its human scale will always refer to the spatial experience it can offer since it is directly related with its very surroundings but also traverse the entire conurbation from North to South. As the starting and ending point of the canal will be safeguarded from planning strategies and natural forces (Midden Delfland and the river Maas respectively), Poldervaart will be the connecting axis penetrating the future field via its monumental linearity.
The aspect which will be able to offer the desired future time-resistance to the old waterway is the experience itself. Poldervaart as an architectonic element in combination with the small scale interventions will secure the valuable experience along the canal and the conceptual connection with the old cultural landscape. By securing a 30 m. zones from the west and east side of the canal, offering at the same time different kinds of experiences, Poldervaart will remain an important element of the conurbation. The continuity of its axis on eye-level and its legibility as a linear urban waterway will determine the future of the canal by becoming more and more attractive over time.

A very important feature of the project is its ability to develop and improve over time. Starting from the small scale interventions and the transformation of the canal’s edges which are easier and very important to realize, Poldervaart will be recognizable as a linear axis again connecting north with south, east with west. Going then to the intervention-nods will refer to a bigger local scale, Poldervaart will work like a magnet engaging variant experiences, flows and programs at once. These nods will act like a project within a project, offering entrances to the entire axis and radiate urban livability and quality of experiences.

So, we cannot really project how our canal will look like but Poldervaart will definitely play an important connecting role of the urban landscape and a generator of rich experiences combining natural and urban features.
6. Conclusion | Reflection

The final part of this report is a reflection on the project’s outcome and on the proposed research and design methods. Among the themes discussed in this reflection are lessons that the author learned as a master student of landscape architecture. Moreover, this chapter includes a reflection on the methodology used during the different phases of the project as well as an elaboration on the project’s importance as a tool for further research on time-resistant structures in fragmented urban landscapes.
a. Reflection of design process

The way of approaching the research objective as a design outcome of this thesis is mainly through the research by design and design by research method. Due to the big scale of the area and the nature of the relations between the different landscapes the complexity of the project needs to be addressed in various ways. One of the most important decisions taken in the process is the simultaneous work and design in different scales and the deconstruction of the different layers of the landscape. Both of these actions helped dealing with the complexity of the project and proved to be a key factor during the whole process.

More specifically, the continuous change of scales helped at the full understanding and comprehension of the current situation and the advantages or disadvantages of not only the regional area but also of every smaller part in it. The analysis at the regional level concluded to the thought that the urban landscape needs to be penetrated in specific ways that are taking always into account the surroundings of the area and the borders appearing each time. It is particularly influenced by people’s mentality and need for identity that organizes the landscape according to separate roles and enhances the role of structures such as the one of Poldervaart. The deconstruction of the landscape in different layers, such as infrastructure, water network, open green spaces, building stock and more was extremely helpful in understanding its nature and conceive the reasons that it has developed in that specific way. Every small piece of the landscape has a story behind it and this approach made it possible to reveal it.

If it weren’t for the analysis at a more local level, more practical difficulties that need to be overcome in an urban landscape would not have come into light. The small scale analysis proved that there are various physical boundaries related with each urban fragment that restrict people’s perception and experience of the area as a meaningful whole and thus create a fragmented image. In the end, taking a step back and reflecting again on the regional scale is precisely as valuable, in the way that the project has to work and influence positively as a structure in both scales, as a part of a network of structures of similar importance regionally and as an autonomous one locally. The shifts in scale revealed each time different aspects that had to be considered, when designing in this fragmented urbanized landscape.

This realization implicitly forced the formulation of design principles, that would first deal with this time-resistant structure as a whole by strengthening its identity as a backbone of the landscape and then address more particular issues as the connections between the variant fragments or the revelation of the cultural landscape that lies underneath. The design by research
approach, as difficult and attractive it may be, offers an endless umbrella of design results under which the most advantageous solution will be found. By adapting these principles in every part of the project taking always into account the local characteristics will in the end articulate a design proposal that achieves both of the research objective’s goals; Poldervaart acting in a regional scale as a connector along the waterway and in a local scale as a generator of connections perpendicularly and in between the fragments.

b. The design proposal as a response to the research question.

One major question to be answered in the final reflection phase is whether the design proposal answered the initial research question and problematique or, in other words, whether important waterways are able to act as connectors and reanimate the fragmented urban landscape, always under the umbrella of time-resistant structures.

If we admit that our landscapes comprise a palimpsest that is constructed from multiple layers of former landscapes, then, time-resistant structures are a way to read through all those layers and reveal their importance and resilience. Time-resistant structures work like the core of our landscapes, like a primitive network that if we are sensitive enough to not conceal it, they can contain and diffuse the identity of each place creating in such a way distinguishable landscapes that reveal their own dynamism. This already offers us the involvement to a conceptual connecting experience and understanding of the landscape. Starting from this foundation and simultaneously transforming time-resistant structures to connecting elements of our landscapes that bring together different circumstances, territorial continuity and meaningful connections among our landscapes will be generated.

If we achieve this along our contemporary urban landscapes, especially the ones that suffer from fragmentation and disintegration then we have succeeded in transforming symbolic features of our landscapes into connecting structures and generators of vibrant public spaces that take the role of important crossings within the urbanized field.

Preserving, emphasizing and enhancing the role of time-resistant structures as places of meaningful encounters in our metropolitan landscapes by establishing connections along and within those has been the objective of this graduation project and by focusing on the case of Poldervaart, this goal has been achieved. This project could be a starting point for formulating strategies on a regional level and thus contributing to the general discussion of the future of our landscapes.
c. The relationship between the theme of the graduation studio and the subject.

This project was conducted as part of “Flowscapes”, the one-year graduation studio of the MSc Landscape Architecture. The Flowscapes studio views landscapes as facilitate and integral while water, green and transport infra-structures are flows that allow the development of social and ecological interactions. The present graduation project is strongly related to the theme of Flowscapes, as the urban landscape is seen as a complex flow of intertwined layers of social and environmental processes that form in the end a disrupted landscape due to the interruption of the aforementioned flows.

The posed solution of the research project is an integrated landscape of the South-wind of Holland, stressing the importance of valuing significant landscape structures and transforming them into structures-connectors acting like such, in different scales and extents. Interventions of different scales, importance and reasoning are taking place along the monumental axis of Poldervaart transforming the canal into a connecting zone not only lengthwise but also in a perpendicular to it direction. Finally, introducing conceptual beyond physical and visual connections, the unique identity of the landscape is revealed and contributes to the project’s intention of enhancing the sense of place.

The design proposal restores the flows in the landscape by working on different layers, not only physically but also conceptually and mentally. The continuity of the axis of Poldervaart is the major gesture of the design proposal as it restores the connections along its length and strengthens the relation of Midden Delfland and the river Maas. By creating new environmental, social and cultural connections, the project introduces new flows and boosts the existing ones.

d. The methodical line of approach

This graduation project is the outcome of a research by design and design by research approach. More precisely, the project is a blend of both research leading to design decisions, and design try-outs based on theoretical re-evaluations. The result of this constant dialogue between the two methods resulted in the final project and proposed research and design. More specifically the proposed methodology is based on three main steps; the theory, the research approach and the research design.
Starting with a fascination for theoretical research, I dove into multiple different theories around landscape urbanism, metropolitan areas, integrated landscapes, cities as landscapes and many more which contributed to the formation of my own theory, considering time-resistant structures in the landscape that promote permeability and generate physical, visual and conceptual connections among the different fragments promoting at the same time site-specificity and sensitivity for our surroundings. Then, I focused on defining more situated strategies and tools through a holistic understanding and careful reading of the landscape. Every landscape presents its own characteristics and features so the result of such an approach is going to be different for every project.

However, the analysis that has been conducted can work as an example on how to reveal these important features of the landscape in other cases as well. Especially through targeted historical research, as well as the method of deconstructing the landscape into the different layers that constitute it and communicate it through the practice of cartography or by focusing on smaller topological elements that mirror the sense of place, the reading of the landscape felt complete.
The method of working on three main different scales, the regional, the local and the micro or eye-level one, was very beneficial not only for the comprehension of this complex urban landscape but also for conducting design proposals on the correct direction. The shift along the different scales throughout the analysis and design phase as well as between different working methods (for example plan, section, physical model, perspective images etc.) offered impressive assets and inspiration along the project’s execution and helped me gaining essential interest and skills, both required for the execution of the optimal design.

Moreover, the design experimentation, or the research by design phase was necessary during the whole process and proved very informative and at the same time influential for the graduation project. By searching for the best design solution for particular places, the experimentation through the aforementioned means is considered essential. During this phase as well, the shift of scales played a crucial role and informed the every time design by borrowing and adjusting design principles from the regional to local scale and vice versa.
e. The relevance of the graduation project, social and moral context.

It has become clear so far that this graduation project wishes to give a new approach of dealing with fragmented urban landscapes. By proposing to transform time-resistant structures in the landscape in connecting elements between the different fragments, the landscape will appear as one integrated whole. A very important question after the completion of the graduation project would be whether this approach could be the answer to other disintegrated urban landscapes around the world. The flexibility of the proposed strategy lies on the fact that the elements and the ways connections are formed are not predetermined, but instead, are based entirely on the site’s specific characteristics and local qualities. Keeping always the focus on time-resistant structures, it would be important to identify those in any other cases we would like to apply this strategy. Beyond that, every particular landscape should be examined separately in order for it to be able to uncover its unique characteristics that carry its identity. In other urban landscapes, maybe height differences or infrastructure line show bigger potential in connecting disrupted urban landscapes and thus bigger importance should be given in highlighting such structures. And, undoubtedly, the success of every project will always lie on the emphasis of the fundamental structure and on the dialogue between the last and the smaller interventions along it that create coherence and connections with the urban fabric.

A crucial moral decision that was taken and influenced the execution of the design project in a great extent is the intention to always keep a sensitive approach concerning the existing structures in the landscape and intervene only when it is necessary. Thus, the proposal includes interventions of different scales and intensities depending on the needs of every area and the already underlying landscape. Moreover, the design principles regard also general guidelines for the surroundings but always leave space for exceptions, meaning that no existing establishments are going to be changed. Such guidelines refer mainly to future interventions in case areas along the proposed zones are freed.

Pursuing always conceptual connections with the landscape’s cultural and historical background, this project tries to avoid imposing elements on the existing landscape without considering what lies underneath. There is always space and emphasis given to topological and cultural context, interpreting them though in contemporary ways in order to reveal their sense of place.
7. Literature

a. Book sources

_Antwerp, territory of new modernity_, P. Vigano, B. Secchi, Sun Publishing House, 2009

_A method for metropolitan landscape characterization; case study Rotterdam_, R. v d Velde, S. Nijhuis, Faculty of Architecture and the Built Environment, TU Delft, 2014


_Drawing the ground - landscape urbanism today_, F. Palmboom, Birkhäuser, 2010

_Dutch Lowlands, morphogenesis of a cultural landscape_, S.d. Wit, Sun Publishing House, 2009

_Greenbelt and Green Heart: separating and integrating landscapes in European city regions_, M. Kühn, Institute for Regional Development and Structural Planning, 2002


_Topology, Topical Thoughts on the Contemporary Landscape. LANDSCRIPT 3_, C. Girot, A. Freytag, A. Kirchengast, D.Richter, 2013


_Metropolitan Landscape Architecture - Urban Parks And Landscapes_, C. Steenbergen, W. Reh, Thoth, 2012


Learning from Rotterdam, F. Palmboom, Nichols Publ., 1990

Drawing the Ground Landscape Urbanism Today, F. Palmboom, Birkhäuser, 2010


The Practice of Everyday Life, M. de Certeau, University of California Press, 2011


Landscape Metropolis, Advances in planning, design and characterization of metropolitan territories via landscape, A.Tisma, R.v d Velde, Volume 1, Faculty of Architecture and the Built Environment, TU Delft

Learning from Rotterdam, F Palmboom, Manell Publishing Limited, 1990

Medium OASE 89, The mis-size city as a European urban condition and strategy, NAI Uitgevers, 2013

Metropolitan Gardens – gardens in the interstices of the metropolitan tissue, S. d. Wit, Faculty of Architecture and the Built Environment, TU Delft

Panarchy, Understanding Transformations in Human and Natural Systems, L. H. Gunderson, C. S. Holling, 2002


Stadsrandenatlas Zuidvleugel, Lola architects, LOLA landscape architects, 2011
_Atlas van de Schie, J. E. Abrahamse, 2500 jaar werken aan land en water
Thoth, Bussum, 2016

_Terrain vague, I. Sola-Morales, Editorial Gustavo Gili, 2002


_Urbanized deltas in transition, H. Meyer, S. Nijhuis, Jap Sam Books, 2014
b. Internet sources

_The Open City, Richard Sennett_  
Available at: <https://www.richardsennett.com/site/senn/UploadedResources/The%20Open%20City.pdf>  
[Accessed March 2018]

_WHAT IS LANDSCAPE URBANISM?, Tom Turner (© Gardenvist.com 2015)_  
Available at: <http://www.academia.edu/18367161/What_is_landscape_urbanism>  
[Accessed July 2018]

_Horizontal Metropolis and porous cities, Paola Vigano Studio_  
[Accessed March 2018]

_Groene Ruimte_  
Available at: <https://www.groeneruimte.nl/dossiers/ehs/home.html>  
[Accessed December 2017]

_The Landscape Form of the Metropolis, S.I. De Wit, J.R.T. Van der Velde_  
Available at: <http://www.saskiadewit.nl/artikelen/metropolis/LandscapeFormoftheMetropolis.pdf>  
[Accessed December 2018]

_Coloring the patchwork metropolis 1989--2014, C. Pisano_  
Available at: <https://issuu.com/karlitos14/docs/coloring_the_patchwork_metropolis_tu_delft__light>  
[Accessed December 2018]

_Blind Spot - metropolitan landscape in the global battle for talent_  
Available at: <http://deltametropool.nl/nl/blind_spot>  
[Accessed December 2018]

_Six Points for an Architectural Resistance, Mehmet Beyazli_  
Available at: <Available at: <http://deltametropool.nl/nl/blind_spot>  
[Accessed June 2018]

_How the Netherlands got a green heart and lost it again._  
Available at: <https://ugp.rug.nl/ha/article/download/4342/4332>  
[Accessed October 2018]
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