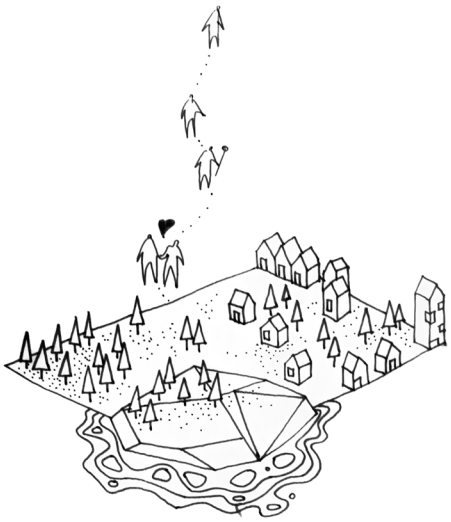

Ecotourism

Design a meaningful landscape for ecology and economy

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2018.07

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Acknowledge | Abstract

Due to the advancing technology, human activities clearly play an important role in creating landscapes. The Dutch natural landscape has now changed into a cultural landscape under control. This project explores the potential of cultural landscape in terms of boosting the economy by recreation and recovering the ecology. Taking one of the most illustrative area, Browersdam and Schouwen-Duiveland, Goeree-Overflakkee, as the case study, the project intends to test the hypothesis of perceiving Brouwersdam as opportunities to develop eco-tourism for the Integration of ecology and economics in Southwest Delta.

Based on the theories of landscape biography and landscape narrative, the project argues that the characteristic of landscape can help building a stronger identity for the development of tourism. The result is a biography of the changing landscape, that runs from the Rome times to the present-day, and that focuses on the study of the interrelationships between spatial transformations, social and economic changes and the construction of regional and local identities in the region. This approach also offers interesting possibilities for applications in the sphere of heritage management, landscape design and spatial planning. Learnings from theories and practices with context analysis, at the regional scale, it is possible to propose the operative landscape structures as the spatial framework for the future development of Eco-tourism.

Based on this spatial framework, strategies for transformation are introduced for Browersdam and its surrounding village. Then based on the typology of this spatial framework, several zoom-in sites will be selected to demonstrate possibilities and potentials through design intervention for integrating water infrastructure with spaces of local habitation and activities. To support the proposals with better feasibility, the project phasing and institutional framework will also be proposed, identifying the priority and potential actors in the process.

With reflections on the contribution to the fields and evaluation of influences, the thesis expects to provide a showcase with methodology, strategic tools, and spatial possibilities integrating different cases of interaction between human activities and river environment. More importantly, the project exhibits the spatial potential of a cultural landscape as an active role in engaging economic with nature, as well as guiding the spatial transformation of the territory for the future.

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1
Problem Field

The problem field chapter introduces a set of problematiques through visual and written mediums. I start from the Evolution of Dutch Southwest Delta from Rome times to the present. Based on the evolution, problems in different fields are illustrated. Through relations between various fields and grounds it frames the main issue to be addressed (written and visual).The problem field chapter introduces a set of problematiques through visual and written mediums. I start from the Evolution of Dutch Southwest Delta from Rome times to the present. Based on the evolution, problems in different fields are illustrated. Through relations between various fields and grounds it frames the main issue to be addressed (written and visual).

The first chapter provide problem field of this project by introducing a set of problematiques through visual and written mediums. I start from the Evolution of Dutch Southwest Delta from Rome times to the present. Based on the evolution, the trend to develop tourism can be found in recent years. Then, problems and challenge of the development of tourism in different fields are illustrated. Through relations between various fields and grounds it frames the main issue to be addressed.

1.1 North Sea & Dutch Southwest Delta
1.2 Toruism in Dutch Southwest Delta
1.3 Cultural change: New possibility for Eco-tourism
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1
Problem Field

North Sea & Dutch Southwest Delta

Delta regions are formed by sedimentation and erosion of sea and river, usually containing the most vibrant and rich ecosystems in the world. A rich variety of flora and fauna create a productive environment that sustains urbanization. The most densely populated areas like New York, Rotterdam and London are all established in delta areas and have developed into economic capitals.

North Sea has been a contested territory historically. It is the product of the dynamic relations between natural processes and the intensity of manmade activities as well as for the conformation of delta region, like Dutch Southwest Delta, Thames Estuary and Elbe Estuary [see ***Image 1-01***]. Driven by the consequences of extreme climate concerning climate change scenarios suggest that by 2100 sea levels could rise up to 3 – 3.5 meters, North Sea territory/region is facing challenge to provide a shifting position between land and water in which the sea becomes a transnational ground for climate adaptation strategies.

Among the Delta region along the North Sea, Dutch Southwest Delta is perhaps the most dynamic region in the low-lying Dutch Delta [see ***Image 1-02***]. The rapid development of the region around Rotterdam and The Hague has already been viewed with concern. It was feared that a densely populated metropolis would emerge, characterized by overcrowding, congestion and social inequalities [Meijer, 2016].

Although delta regions provide the bloom of the society, it also process the vulnerability of the urban environment. Starting from 2000BC, the relationship between water and land changed frequently. It is partly due to the storms and floods that washed away large pieces of land, and partly due to sedimentation, which led to the formation of new deposits. the damming of creeks also contributed to these changing dynamics between water and land. In 1953, Dutch Waternoodramp depict the vulnerability of the urban fabric to severe weather and cause 1,836 deaths and widespread property damage. From then on, people start to aware water management system are essential to the process of urbanization in the delta.

Deltawerken project was just developed under this condition to ensure the process of urbanization. It is one of the defense system for protection against storm and sea level rising, especially the provinces of Zeeland, southern South Holland and North Brabant. The Deltawerken have been built for decades. The project was completed after completion of the Oosterscheldekering in 1986, the Maeslantkering in 1997 and after the completion of the increase of all dikes to delta height in the Harlingse Keerdam in August 2010. However, as the DeltaWerken provide water safety, today, it also causes ecological, social and cultural problematics. It cut off the inner lake from the North Sea and directly limit the flow of nutrients. The lack of oxygen led to deterioration of the water quality of the lake which caused negative effects for nature and economy (recreation and shellfish-fishery).

In order to prevent DeltaWerken become the obstacle for the future development of Dutch southwest Delta, this thesis aims to explore the potential of infrastructure and landscape and discuss on the future urbanization on the delta region by providing detailed plans for the Dutch Southwest Delta. Within the framework of the graduation studio Delta Intervention, this thesis will focus on the urban and landscape research and design in an urban delta and the project will touch the disciplines of urban design and landscape architecture.

Image 1-01: North Sea
Source: Map By Delta Urbanism Studio

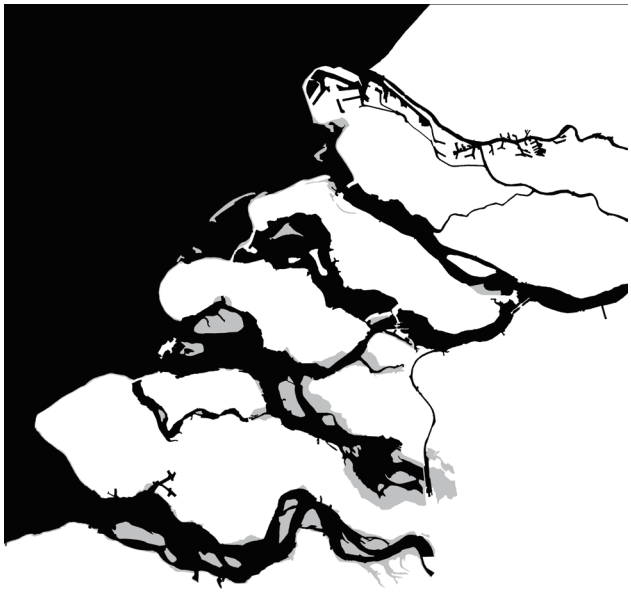


Image 1-02: Dutch Southwest Delta in 2017
Source: Map by Author (Data: http://opentopo.nl)

1
Problem Field

Tourism in Dutch Southwest Delta

Netherland also has a long history in the development of tourism. And The development of the tourism in Southwest delta is always accompany with its landscape. The earliest style of recreation can relate to the productive landscape in Netherland. "The Harvesters" made by Pieter Bruegel can be an example to illustrate that (see ***Image 1-03***). As in many of Breughel's paintings, the focus is on peasants and their work. Notably, some of the peasants are shown eating while others are harvesting wheat, a diachronic depiction of both the production and consumption of food. Pears can be seen on the white cloth in front of the upright sitting woman who eats bread and cheese while a figure in the tree to the far right picks pears.

After the 19th century, as the infrastructure system developed, the road and the train was constructed, tourism really begun. We can see, many people from Rotterdam or Anterwp came to coastal area for leisure (see ***Image 1-04***). During that time, Benefit from the unique dune landscape and beach formed in the long history, some city like Ouddorp and Burgh become the hottest campsites. Benefit from that, these cities experience large expansion in the 20th century.

Today, Southwest Delta has a stronger recreational function. Recreation gradually dominate the value of landscape.

Image 1-03: *The Harvesters (by Pieter Bruegel)*
Source: https://www.metmuseum.org/art/collection/search/435809

Image 1-04: Swimming at the beach around 1932
Source: http://films.serc.nl/zuid-holland/rotterdam/

Image 1-05: Themapark Deltapark, Neeltje Jans, Oosterscheldekering, spelende kinderen met water, waterval in 2003
Source: https://beeldbank.rws.nl, Rijkswaterstaat

1
Problem Field

Cultural change
New possibility for Eco-tourism

Start from Port Harbour

The development of the Southwest Delta start from port. This region was firstly used by the Romans at about 50 BC for transport and military. During the 16th and 17th centuries, this region had a great blooming period. A number of cities such as Middelburg, Vlissingen, Zierikzee and Veere, played an important role as an international port city. Middelburg was until the end of the 16th century the largest trading city of the Northern Netherlands and until the third quarter of the 17th century, with 27,000 to 30,000 inhabitants, the fourth largest city of the country. Entering into the 19th century, Vlissingen was regarded as a potential main port, situated next to a deep channel, which guaranteed permanent accessibility. During the 1860s a special railroad was constructed to link Vlissingen with the German hinterland, and a series of new harbors were planned around the city. However, this second turning inside out was not realized.

From Port to Agriculture Harbour

After the reclamation of peat lakes in the interior of the region in 19th century, the port activities of Amsterdam and especially of Rotterdam exploded; while the other ports in Southwest Delta fell in further decay. At he same time, agriculture increased again. (Bosma, Makhloufi, 2012) After a disastrous flood in the Southwest Delta in 1953, the government decided to close the Rhine-Scheldt estuary too. The prestigious project Deltawerken supplied the closing of all sea gates go the estuary with dikes - except the Westerscheldt River, providing the entrance to the port of Antwerp. Also these Deltawerken produced not only in an improvement of the safety, but also in an improvement of the agricultural conditions for the Southwest Delta, resulting to a higher productivity of the surrounding agricultural land.

Currently, many delta cities have lost their direct relation with water due to the reclamation of land. The historic identity of a harbor city has been changed in an agricultural harbor city. The internal areas in the delta have disappeared and the dike functions as a hard border between two worlds: the polder and the open water.

From Agriculture to Recreation Harbour

Thanks to the development of infrastructure system, Southwest delta was transformed from a poor and peripheral series of isolated islands to an industrialized, wealthy and integrated part of the nation. The New Waterway increased in importance; instead of an entrance it became the central axis of a 100-km2 industrial port area. Also in other parts of the Southwest delta several new industrial areas were developed, while agriculture took profit from the new fresh water basins in the area because of the damming of the estuaries.

Moreover, the Southwest delta became an important destination for tourism and recreation. Especially in the vicinity of Ouddorp and Recognition is a lot of tourism to be found. The beaches at Goeree-Overflakkee are popular with many Germans . The dikes and polder roads are very popular with cyclists and hikers.

Image 1-06: Port in 1850

Port

Illustration: Entering into the 19th century, a number of cities such as Middelburg, Vlissingen, Zierikzee and Veere, played an important role as an international port city. Agriculture also benefit from reclimation.
Scouce: Map by Author (Data: http://opentopo.nl)

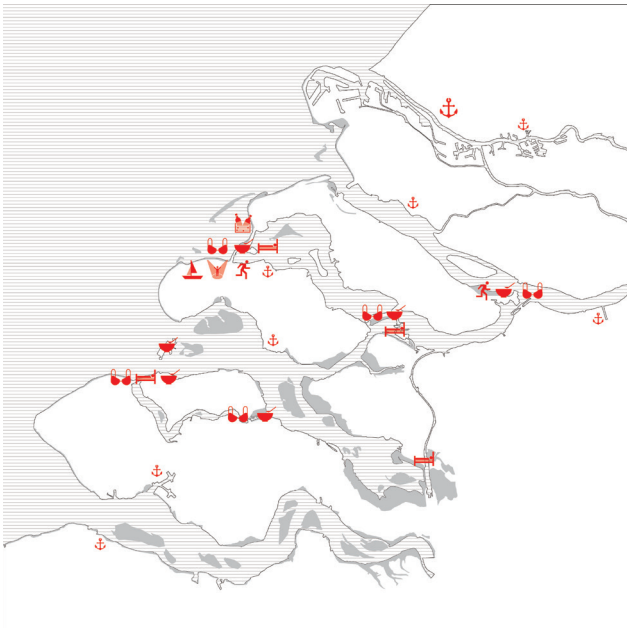


Image 1-07: Port & Program in 2017

Port
Surfing spot
Seach area
National concert
Bar
Restaurant
Hotel

Illustration: In the 21st century, port city decline. More leisure program appear.
Scouce: Map by Author (Data:http://www.worldportsource.com/ports/NLD.php)

1
Problem Field

Social-Economical Challenge

Population decreasing

Based on a study conducted by the GIS Competence Centre of the Ministry of Economic Affairs, The areas with the highest rates of population decline are Zeeland Flanders, southern Limburg and northern and eastern Groningen. Here, the population is projected to fall by 16% by 2040. In certain other parts of the country, population decline is anticipated but has not yet actually started. In these areas, the population is projected to fall by 4% by 2040. In the rest of the Netherlands, population growth of 11% is forecast over the same period.

When people move away from villages, jobs, schools, shops and other facilities also disappear. The government needs to tackle the causes and effects of population decline, for instance by cutting down on the number of new homes being built.

Lower spatial quality in inner city

When young people move to bigger towns and cities, the average age of the population in the place they leave behind automatically goes up. A community with a higher proportion of older inhabitants may be less attractive to businesses, which may additionally have difficulty finding suitable staff locally. Other effects of population decline include: a drop in house prices because more homes are unoccupied; fewer new homes being built; less turnover for shopkeepers and businesses; fewer sports facilities; local residents have to travel further to reach the facilities they want and so on.

The delta cities at the coast are in general wealthier. The 'WOZ-waarde' (value of real estate) is in the municipality of Goedereede higher than in Oostflakkee. Vacant houses and poor public space make this statement visible on street level.

In areas with the highest rates of decline, the proportion of elderly people is higher than elsewhere, increasing pressure on local care services. The challenge is to enable older people to live at home for as long as possible, and to identify what provisions they need in order to do so.

The government wants to maintain the liveability of areas where the population is shrinking or where decline is forecast. The provincial and municipal authorities hold primary responsibility for tackling the consequences of population decline and demographic aging.

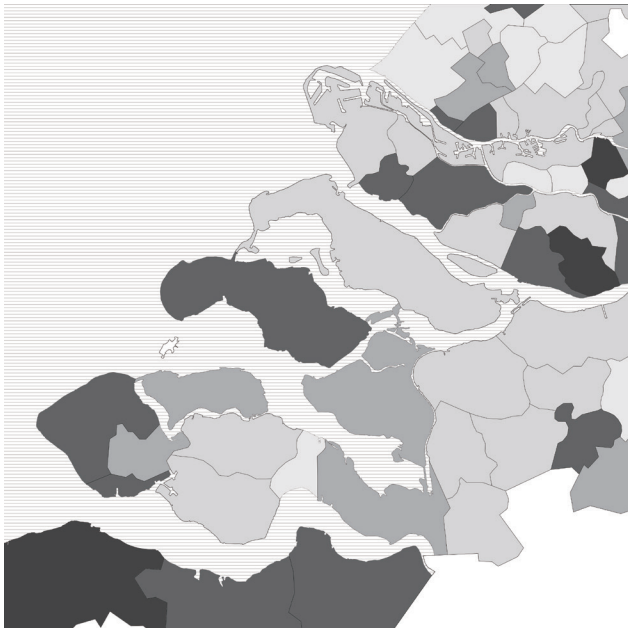


Image 1-08: Change of population in 2011

>10%
5%-10%
0%-5%
-3%-0%
<-3%

Illustration: Many delta is experiencing or going to experience population declining.
Scouce: Map by Author (Data: Areas of current/projected population decline, study conducted by the GIS Competence Centre of the Ministry of Economic Affairs, Agriculture and Innovation on behalf of RVDB. 17 October 2011. https://www.government.nl/)

Image 1-09: WOZ Value in 2015

150.000 - 200.000 euro
200.000 - 250.000 euro
250.000 - 300.000 euro
300.000 - 400.000 euro

Illustration: The WOZ value indicate that delta cities at the coast are in general wealthier.
Scouce: Map by Author (Data: http://kaart.edugis.nl)

1
Problem Field

Hydraulic Challenge

The world-known water defenses also triggered a change in the hydraulic structure of the Dutch Southwest Delta. The water quality in the basins has changed by the level of chlorides and nutrients in the water, due to a low water flow from the sea and a high river discharge. In the Grevelingenmeer and the Oosterschelde there is a lack of nutrients and a high level of salt that causes "ora and fauna to decrease. This also affects the shell-fish industry. In the Krammer Volkerak there is an abundance of nutrients and a lack of salt water that causes the growth of blue algae that prevents (water) recreation and the obtaining of irrigation water for agriculture in the surrounding islands [Delta Programme 2018]. With the quantitative reduction of sea water in the delta, causing less sediment deposition, and a continued process of erosion, the sand plates in the Dutch Southwest Delta are diminishing.

Sand and rising sea level

The Delta Programme 2018 provides a future perspective of sea level rise and higher river discharges of the river in the period 2050-2100. Pursuant to the new standards for flood defences, various dyke sections in the Southwest Delta need improvement. At each location, innovative dyke concepts are being explored which could also offer opportunities for Nature, recreation, and habitation. On the other hand, the water discharge is mainly via the Nieuwe Waterweg and Haringvliet. The committee proposes to use the water basins of the delta to store water when river discharges are high and the sea level is too high for outlet.

A rising sea level may necessitate increasing sand replenishment in order to maintain flood protection. At the Brouwersdam beach, a sand replenishment pilot has been launched in order to safeguard the economic use of the beach (beach sports such as kite surfing and sand yachting.

Supply of fresh water

Determining water availability is an important element of the preferential strategy regarding the freshwater supply. If the climate changes, measures will be needed regarding the main water system, regional water systems, and among consumers of freshwater (such as the agricultural sector, industry, and drinking water companies) in order to secure a sufficient supply.

The islands of Zuid-Holland, West-Brabant, Tholen, Sint Philipsland, and the Reigersbergsepolder receive freshwater via the major freshwaters, such as Biesbosch, Hollandsch Diep, Haringvliet, and Volkerak-Zoommeer lake. For these areas, it is important that the freshwater supply and stocks are maintained, and that salinisation is tackled. The latest National Framework Vision for the development of Grevelingen and Volkerak-Zoommeer has been drafted, featuring plans for restoring limited tidal movement in the Grevelingen lake, and re-salinising the Volkerak-Zoommeer lake with a limited tidal movement.

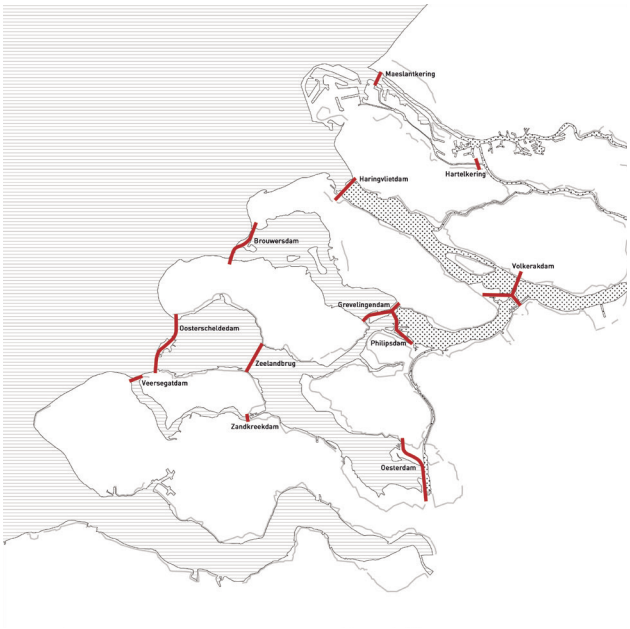


Image 1-10: DeltaWerken & Freshwater

Sea Water
Freshwater
Main River Discharge
Dam
Dike

Scouce: Map by Author (Data: https://www.wikipedia.org)

Image 1-11: Salinity gradients in the Southwest Delt

-3% 0% 5% 10%

Scouce: Map by Author (Data: Ysebaert T, van der Hoek D J, Wortelboer R, et al. Management options for restoring estuarine dynamics and implications for ecosystems: A quantitative approach for the Southwest Delta in the Netherlands[J]. Ocean & Coastal Management, 2016, 121: 33-48.)

1
Problem Field

Ecological Challenge

After the closure of the Brouwersdam, the water of the Grevelingen stood still. There were no longer any tidal movements. A large part of the ecosystem around the Grevelingen lake depended on the influence of the sea water. A good example of this is oystercatchers. They lived on the higher shores of the Grevelingen, but looked for their food on the mud flats around the shore, during ebb tide. From the moment the dam was closed, no new food was supplied. Little shell fish died after only a few days. The plants which depended on the supply of salt water also died. Right after the closure of the Grevelingen, the shore had become a large cemetery. Rotting plants and animals were lying everywhere. Many types depended on the water of the North Sea for their oxygen and/ or their food. A vicious circle was created. Oxygen was needed for the rotting processes, as a result of which more and more oxygen was taken from the water. The mass death primarily took place under water.

Sea grass change cause ecological imbalance

The 'Hompelvoet', an island in the Grevelingen, is the largest breeding place for large sterns in the Delta area nowadays, with about 3,000 breeding couples. Some birds come to the Grevelingen especially for the sea grass. Some fish also like this delicacy. In the Netherlands, one can find two sorts of sea grass along the coasts of the Wadden Sea and in the inlets of Zeeland and the province of South-Holland. The first sort, large sea grass, spread over 4,500 hectare (45 square kilometres) after the closure of the Grevelingen in 1971. From 1989, the amount of large sea grass has been cut by 95%. The plant grows on places which are not reached during ebb tide. Small sea grass has smaller leaves and grows in places which are uncovered during ebb tide. Sea grass occurs even in the deeper parts of the Grevelingen lake, because the sunlight can reach far through the clear seawater.

The rock goose eats a lot of sea grass, as do coots, widgeons and mute swans. Many jelly fish and black gobies live inside the sea grass. The black goby was a new fish in the Netherlands, discovered for the first time in the Lake of Veere in 1964. 'Fuikhorens' did not occur in the Grevelingen before either. While this slug was earlier only spotted in the canals in Walcheren and South-Beveland, it is now one of the most occurring slugs in the lake.

Flora and fauna is in danger

Two examples will illustrate the fact that the future of the flora and fauna did not look good, right after the closure. Some types have disappeared, while others have appeared. The first example is about the young plaice that lived in the Grevelingen before the closure of the dam. After a while, they encountered the dam during their journey towards the sea. They were disoriented and kept swimming in the local area of the dam. When this news got out, many anglers came to the dam to land the plaice. The plaice would almost have been extinct if measures were not taken in time. New plaices were introduced. Since the completion of the locks in the Brouwers dam, the plaice can swim to the North Sea without being hindered. A second example is the oysters. Everyone was afraid that the typical oysters from Zeeland would disappear from the inlets. During the severe winter of 1962-1963, almost all oysters had died out. It was a great joy when new oysters were discovered. Even after the closure of the Lake of Brouwershaven ('Brouwershavense Gat'), the oysters did not disappear. The oysters continue to enjoy living there, and millions of young oysters are born every year.

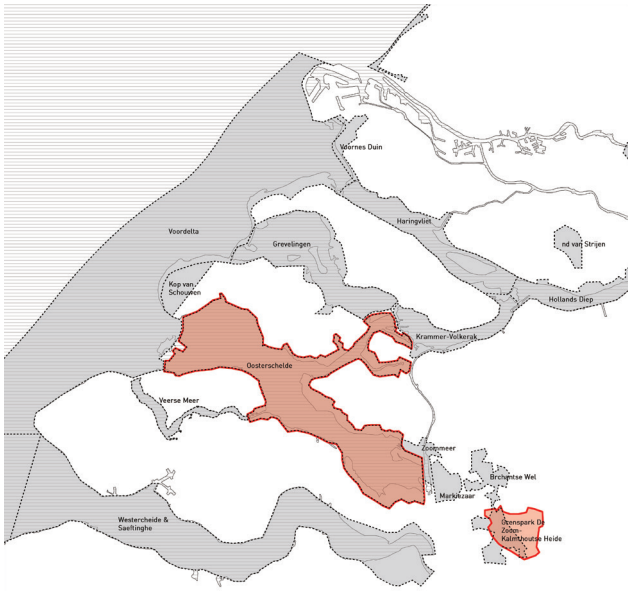


Image 1-12: Natura 2000 Sites
Scouce: Map by Author (Data: http://www.natura2000.nl)

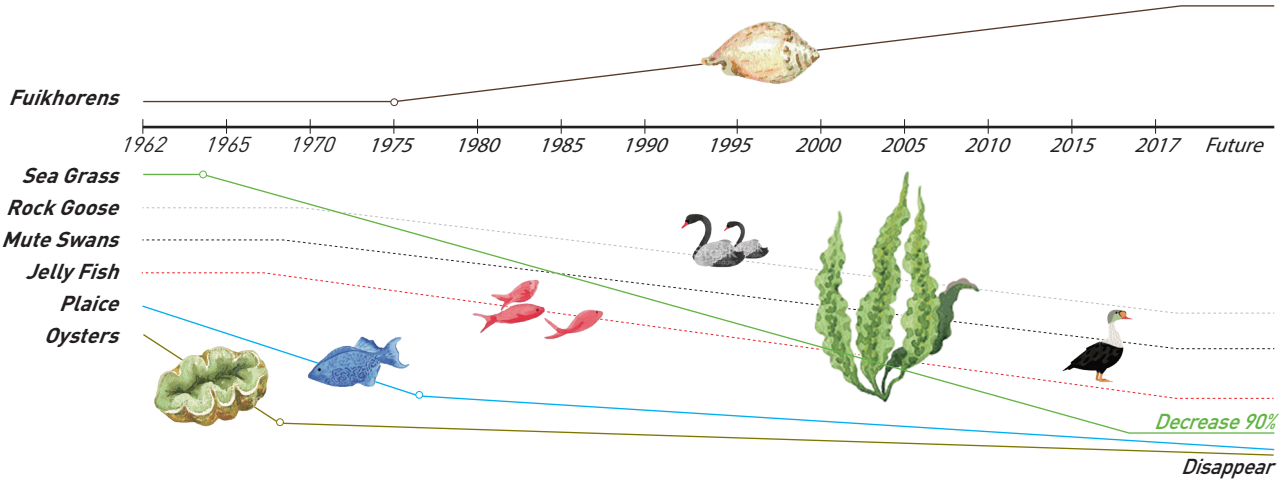


Image 1-13: Species disappear After the construction of Brouwersdam
Scouce: Map by Author (Data: http://www.deltawerken.com/Nature/421.html)

CONCLUTION - Potential & Challenge

Potential

- *Dune Landscape*
- *Dike*
- *Dam*
- *Agriculture*
- *Sandplate*
- *Ports*
- *Recreational Facilities*

Problems & Challenge

- *Village that is experiencing population decreasing*
- *Poor Water Quality & Ecological Decreasing*

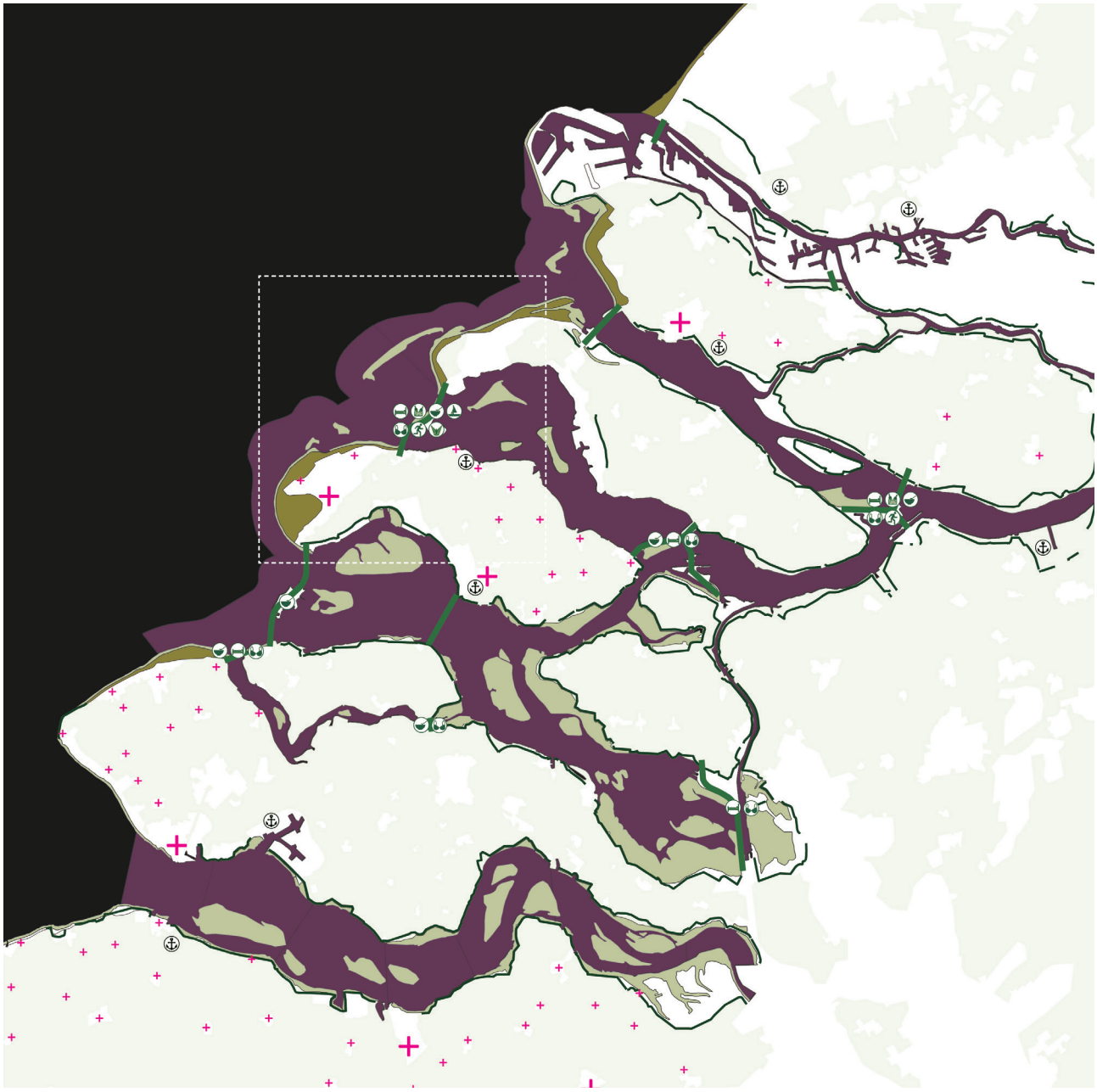


Image 1-14: Conclution map of potential and challenge in Southwest Delta and the Georaphical location of the project
Scouce: Map by Author

2
Research Approach

Based on the problem field, this chapter advances a series of hypothesis, research quesitons and the underliyng metholds through which the project unfolds its projective dimension. Research Framework of this report will be illutrated too to highlight the objective of different scale.

2.1 Problem Statement
2.2 Research Hypothesis
2.3 Research Question
2.4 Methodology
2.5 Research Framework
2.6 Social Relevance
2.7 Academic Relevance
2.8 Ethical Paragraph

2
Research Approach

Problem Statement

During the long history in Netherland, when people and landscape interact with each other, the meaning of landscape changed gradually. Many landscapes that are now valued for their ecological or historic qualities were once the scenes of hard work by struggling people. Lakes that are now used for recreation were a threat to the land of our ancestors. Historic city centers that are now favored living spaces for young urban professionals were deteriorated only one or two generations ago and were poor, dirty and noisy a century ago.

Brouwersdam Area is an example to see this changing meaning of landscape during the long history. As the dune provide the defense of water, during the 14th and 15th centuries, this area, especially Goedereede was able to develop as a major trading center. Throughout the Middle Ages, the favorable location provide by the landscape increased the activity and boost the economy on and around the island.

Entering into the 17th century, when people attacked by the flood and storm once and once again, the dynamic landscape become the threat for the residents. During the North Sea flood in 1953, most area was flooded and the whole Netherlands experience 1,835 people's death.This kind of fear then change the relationship between human and nature when people start to thinking developing water defense system to control this dynamic landscape.

Currently, the development of the famous water defense system - Deltawerken - change the meaning of landscape again. Today, this area has a strong recreational function as it is a location for national concerts and its function as surf hotspot for the whole Benelux. Because of the unique dune landscape formed in the long history, Haamstede and Ouddorp have become two popular campsites. Recreation gradually dominate the value of landscape.

However, this transformation of the landscape also accompany with some hydrological, ecological and social challenge. After the construction of Brouwersdam, the water quality of the lake Grevelingen always has been an issue of concern for governmental agencies. The lack of oxygen led to deterioration of the water quality of the lake which caused negative effects for nature and economy.

Due to a low water flow from the sea and a high river discharge, nature dynamic is hardly to perform and develop on its own. In the lake Grevelingen, the lack of nutrients and high level of salt that causes flora and fauna to decrease and, at the same time, affects the shell-fish industry. Blue algae were given the opportunity to grow in warm weather. This region is experiencing environmental degradation.

Moreover, the declining natural quality lower the the attractiveness of the space and regional economy. As the port shifted, the merchants pulled away, and trade and fishing became increasingly difficult, many cities fall into the agriculture village. When some of the villages is experiencing population decreasing, many vacant house appear. It largely lower the conditions for recreation, tourism, and for the regional economy as a whole.

How to rethink landscape in Brouwersdam area as an opportunity to develop eco-tourism, that in an integral process improve the sustainability of Ecology and Economics in Dutch Southwest Delta?

Image 2-01: Brouwersdam as surf hotspot for the whole Benelux
Scouce: https://www.google.nl

2
Research Approach

Research Hypothesis

Based on the research question, I suppose the natural and cultural landscape in Brouwersdam Region would be partially redesigned, as an infrastructure that incorporates the power of human technology and the power of nature:

01.

"Landscape in Brouwersdam area can be used as an opportunity to condition a network across the territory to improve the sustainability of Ecology and Economics by developing eco-tourism in Dutch southwest Delta."

02.

"Such network should contain 2 features: the ability to conserve both nature and cultural resource,the different programs to a certain extent which improve the self-sustained for the long term development."

In this project, ecotourism will work as a bridge to connect nature and urban. This bridge will extend through the most diverse area of different landscape to form a regional corridor of ecotourism across the Brouversdam region. A range of interventions and programs will be developed to support this corridor and addresses territory resilience. The existing landscape, buildings and infrastructure along the corridor will be reused in flexible and polyvalent ways to minimize the built footprint on the ground. (*Image 2-02: Productive Image - Concept of Ecotourism*)

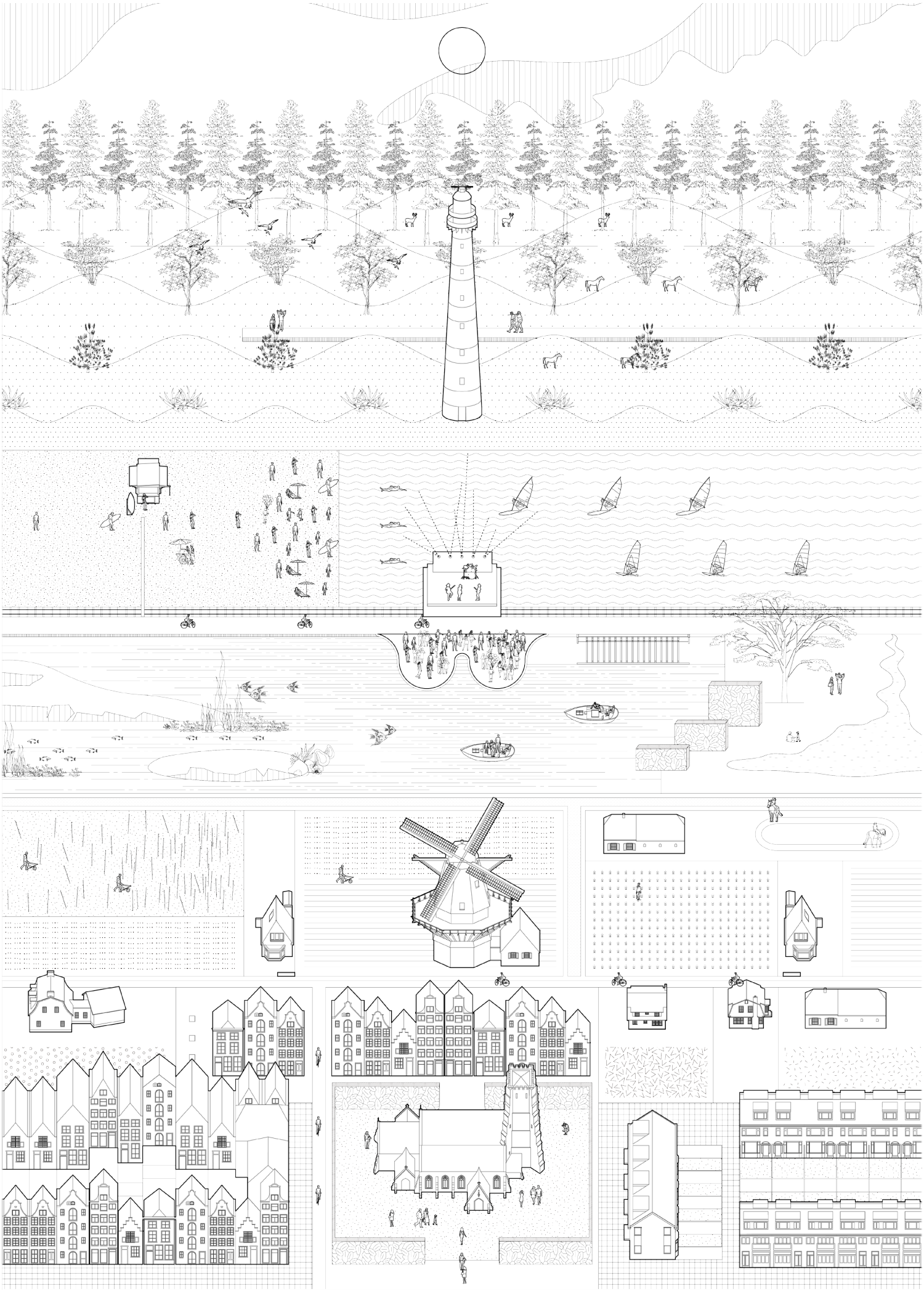


Image 2-02: Productive Image - Concept of Ecotourism

2
Research Approach

Research Question

The aim: "To design a cultural corridor across the territory of Brouwersdam area, that in an integral process provides a sustainable development of ecology and economics in Dutch Southwest Delta." provides the main research question of this research and graduation project:

How to rethink landscape in Brouwersdam area as an opportunity to develop eco-tourism, that in an integral process improve the sustainability of Ecology and Economics in Dutch Southwest Delta?

The main research question is divided in different sub research questions that will deal with the integral process.Each research question will be accompanied by a research methods, the implementation of the methods and preliminary literature list. The main methods is listed as below:

Literature Review
Case Study
Mapping
Sketching
Modeling
Site Visit
Statistics
Transect
Visionary Images

01 How does it work? - Site Diagnose

- How is the development of current tourism? How does people make use of the landscape for the development of tourism?

Method(s): Mapping & Literature Study
Implementation: The map shows the existing touristic program in the Dutch Southwest Delta.

- What is the potential of Dutch Southwest Delta for the development of ecotourism?

Method(s): Mapping & Site Visit & Transect
Implementation: Potential Map shows different kind of landscape, ecological resources(including found and flora) and heritage that can be used for the development of ecotourism.

- How does the development of current tourism influence the ecosystem? What is the challenge for the development of ecotourism?

Method(s): Mapping & Literature Study
Implementation: Problem Map shows the challenge from ecology, hydrology and socio-economy.

02 What can we do? - Design Principle

- What design principle could be introduced to create conditions for the development of ecotourism?

Method(s): Literature Study & Case study
Implementation:
A case study of Lecce
Design principle as a conclusion
Preliminary literature list:
Kiper T. Role of ecotourism in sustainable development[M]//Advances in Landscape Architecture. InTech, 2013.
Grenier D, Kaae B C, Miller M L, et al. Ecotourism, landscape architecture and urban planning[J]. Landscape and Urban Planning, 1993, 25(1-2): 1-16.

- What theory could be introduced to help the analysis or design process of ecotourism?

Method(s): Literature Study
Implementation:
Review Paper based on the theory of Landscape Narratives and Landscape Biography.
Preliminary literature list:
Landscape biographies: geographical, historical and archaeological perspectives on the production and transmission of landcapes[M]. Amsterdam University Press, 2015.
Palang H, Spek T, Stenseke M. Digging in the past: New conceptual models in landscape history and their relevance in peri-urban landscapes[J]. Landscape and urban planning, 2011, 100(4): 344-346.
Potteiger M, Purinton J. Landscape narratives: Design practices for telling stories[M]. John Wiley & Sons, 1998.
Meyer H, DAMMERS E D, BREGT A K, et al. DELTA-URBANISM: NEW CHALLENGES FOR PLANNING AND DESIGN IN URBANIZED DELTAS Guest Editor: HAN MEYER[J]. Built Environment, 2014, 40(2).
Secchi B, Viganò P. La ville poreuse: un projet pour le Grand Paris et la métropole de l'après-Kyoto[M]. MtisPresses, 2011.

03 How do we apply them? - Application

- How can the existing landscape, community and infrastructure be transferred to the spatial element for the regional planning of ecotourism?

Method(s): Mapping
Implementation: Vision map in the town scale (including district, spots and network).

- How to design a corridor and generate a well synthesized spatial development framework for the region? What strategy, phase, actors shall we study to achieve it?

Method(s): Sketching & Modeling
Implementation: Phasing map of the Vision (including action, project, stakeholders, policies etc.).

- What spatial intervention can we design in the local scale to achieve the design objective? What design principle in local scale shall we use?

Method(s): Sketching & Modeling & Visionary Images
Implementation: Collage of the spatial intervention in the human scale
Preliminary literature list: Potteiger M, Purinton J. Landscape narratives: Design practices for telling stories[M]. John Wiley & Sons, 1998.

04 What can we learn from it? - Evaluation

- What new spatial identity can we create of the region for contingency of landscape biography? And how can the development of ecotourism influence the ecology and economy in Brouwersdam area?

Method(s): Mapping & Review Paper & Review Policy
Implementation: Evaluation of the project (including the change of spatial structure). Map of meaning.

- How can the development of ecotourism influence the Southwest Delta and North Sea?

Method(s): Mapping & Review Paper & Review Policy
Implementation: Map of meaning.

2
Research Approach

Graduation Planning

October | November | December | January | February

P1

- Draft thesis plan
- Abstract of review paper
- 3X3X3 Analysis

P2

- Thesis plan
- Review Paper
- P2 Report
- P2 Presentation

Orientation

- Motivation
- Problem field
- Relevance
- Position in the academic and professional debate
- Problem statement
- Objective research questions
- Methodology approach
- Theoretical framework
- References

Site Diagnose

- How does it work?

Sub-question 1, 2, 3

The map shows the existing touristic program in the Dutch Southwest Delta.
Potential Map shows different kind of landscape, ecological resources(including found and flora) and heritage that can be used for the development of ecotourism.
Problem Map shows the challenge from ecology, hydrology and socio-economy.

Literature Review

- What can we do?

Sub-question 4, 5

A case study of Lecce
Design principle as a conclusion
Review Paper based on the theory of Landscape Narratives and Landscape Biography.

Research by Design

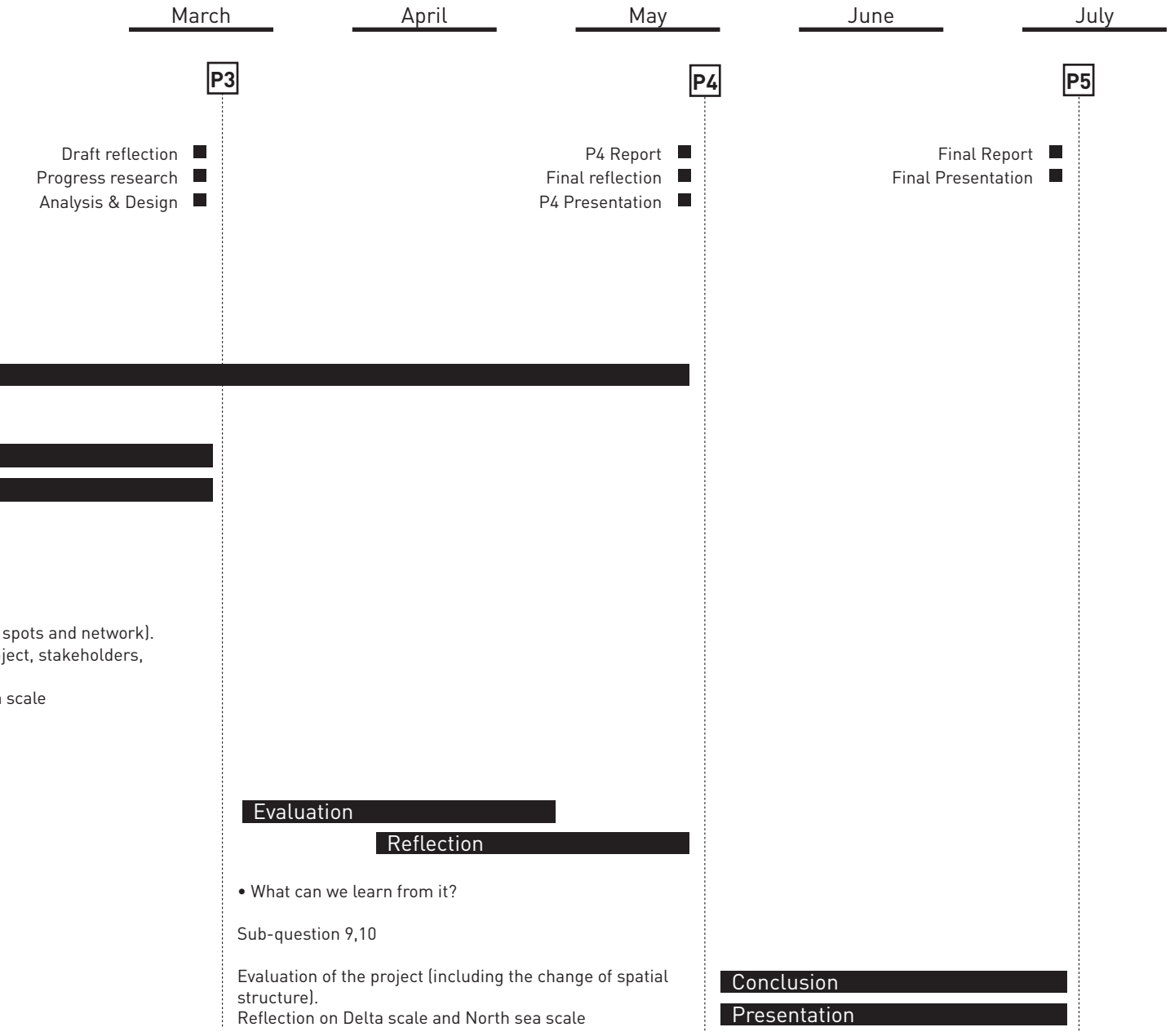
Regional Strategy

Spatial Intervention

- How do we apply them?

Sub-question 6,7,8

Vision map in the town scale (including district,
Phasing map of the Vision (including action, pro
policies etc.).
Collage of the spatial intervention in the human


March
April
May
June
July
P3
P4
P5
Draft reflection
Progress research
Analysis & Design
P4 Report
Final reflection
P4 Presentation
Final Report
Final Presentation
spots and network).
ject, stakeholders,
scale
Evaluation
Reflection
• What can we learn from it?
Sub-question 9,10
Evaluation of the project (including the change of spatial structure).
Reflection on Delta scale and North sea scale
Conclusion
Presentation

2
Research Approach

Relevance

Social Relevance

From a societal perspective, this research aims at a better understanding of the sustainable relationship between recreation and landscape as well as the integration of historical landscape research with urban planning and urban design in local and regional developments. In Netherland, the total contribution of Travel & Tourism to GDP was EUR35.9bn, 5.2% of GDP in 2016, and is forecast to rise by 2.3% to EUR47.3bn, 6.0% of GDP in 2027. The United Nations has designated 2017 the International Year of Sustainable Tourism for Development. As one of the world's largest economic sectors, Travel & Tourism creates jobs, drives exports, and generates prosperity across the world. There is now an opportunity to re-evaluate and create a new harmonious relationship between human, landscape, heritage and infrastructure.

The Brouwersdam area was selected, since it is representative in the Netherlands which has many natural landscape and heritage. On the one hand, it is experiencing the transition from port harbor to agriculture harbor and then to recreation harbor. On the other hand, the infrastructure which used to protect the built-up areas has caused problems and challenge the development of tourism. Thus, it requires a transformation of the way to develop tourism, which involves the recognition that all types of space are valuable, not just the church, parks and squares, but also the ecosystem and heritage landscape. They must therefore be inhabitable in another way for the development of tourism.

This thesis provides a theoretical and implement exploration to rethink the historical landscape, proposing a transformation to merge building, infrastructure and landscape as vessels of collective life. They must function and be acceptable in order to enhance the quality of ecosystem, so as to prepare the territory ready for the development of recreation and tourism.

Academic Relevance

The landscapes in the Netherlands have changed their meanings during the long time. Many landscapes that are now valued for their ecological or historic qualities were once the scenes of hard work by struggling people. Historic city centers that are now favored living spaces for young urban professionals were deteriorated only one or two generations ago and were poor, dirty and noisy a century ago. How meaning is perceived through the landscape and how meaning can be designed into the landscape is a question of this project.

In order to answer it, this research and design project will study how local communities have organized and translate the landscape over time. The research for the thesis and a comparison analysis are on two main theory which explore meaning in the landscape, Landscape Narratives and Landscape Biographies. The common idea between the texts, supported by the case studies, is the relationship between actor and landscape as well as the idea of storytelling. This research led the inquiry of storytelling as an approach to the design process to protect the heritage and practice this method in the real project.

Moreover, many projects would profit from the awareness of the importance of the history of the landscape. In restoration of urban planning and architecture, it has become almost a standard procedure to keep different time periods visible in the new layout. However, in landscape planning, this is still rare. Admittedly, there exists a 'layer approach' that is popular in Dutch planning, but this distinguishes functional layers (a Braudel-like division into a slowly changing substratum, faster changing networks and even more dynamic occupation patterns) rather than historical layers. Therefore, this project also stress the idea that landscape of the past is important for the future development.

2
Research Approach

Ethical Paragraph

In this project, the ethics contains two aspect toward human and landscape respectively. Firstly, Understanding actors' values is crucial to the development of landscape change. Be that as it may, as a designer, I will struggle for tools to facilitate discourse on public values related to landscape change. Accordingly, this paper responds to urgent needs to define planning processes that represent the values of actors, and lead to landscape changes that maintain and enhance the sustainability of place. It does so by exploring narrative as a form of design aimed at engaging citizens in the planning process. Findings from a study incorporating these techniques are used to show the merits of this participatory form of inquiry. The use of story telling, unlike traditional public engagement techniques, allows the landscape-change process to be situated within the social meanings relevant to a community.

Secondly, with the line between human and natural environments becoming increasingly blurred, we should also ethically design with landscape. As we see in this project, the human intervention in the Brouwersdam area protected the Southwest Delta from the flood. But also caused many ecological problems for this area. Therefore, human intervention in this project should aim to enhance ecosystem services instead of attempting to restore to a certain point in history. As designer should explore how restoration might work in the face of an uncertain future, considering the challenges of climate change, nutrient loading, and invasive species.The historical precedence should remain the primary guiding influence for ecological restoration. Also, restoration targets should be flexible and dynamic, and all restoration projects should be treated as experiments to generate new data.

3
Theoretical Framework

The landscapes in the Netherlands have changed their meanings during the long time. Many landscapes that are now valued for their ecological or historic qualities were once the scenes of hard work by struggling people. Historic city centers that are now favored living spaces for young urban professionals were deteriorated only one or two generations ago and were poor, dirty and noisy a century ago. As the meaning of landscape change over time, how can the landscape of the past be made operational in future strategies for protection, management and development become a question. To answer this question, the author review two theory which explore meaning of the landscape, which is Jan Kolen, Hans Renes and Rita Hermans's Landscape Biographies, Matthew Potteiger and Jamie Purinton's Landscape Narratives. This review contributes to the analytical and theoretical framework of the research process and inquiry narritive as an approach to establish the relationship between landscape and actor in the design process grounded in the particularity of its landscape biographies, which provide wisdom and inspiration for making better future landscapes and offer a base for restoration.

3.1 Landscape Biography
3.2 Landscape Narratives
3.3 Theoretical Framework

3
Theoretical Framework

Landscape Biography

One of the most promising ways to bridge the past landscape with the future is the concept of the cultural biography of landscapes. Landscape biographies show focuses on the material landscape and is more of an implementation method (Clark, 2004). Based on the geographical ideas of geographer Samuels and anthropologists Kopytoff and Appadurai, a group of Dutch researchers has further developed and tested the idea that cultural landscapes bear the multilayered imprint of numerous generations of human "authors". For a thorough understanding of these landscapes, we should not only investigate the physical remains, but also the social backgrounds and cultural history of their authors (Palang, 2011).

From this point of view, the landscape biographies mainly talk about three main issues (Renes, Rita and Jan, 2015). Firstly, there is an author on landscape. Individual perception of the landscape is key. The influential authors of the city do not necessarily include urban planners and developers, whose abstract view of urban space and 'celestial eye' have turned them into voyeurs with little or no impact on the actual experience of the lived-through urban environment (Renes, Rita and Jan, 2015). This dimension is reflected in personal feelings and behavior, as well as in more sublimated forms in literature, music, art and other forms of creative expression of the human mind. It centers mainly on authenticity and genuineness. To meet the real authors of the urban world we should descend to street level and to the everyday life that takes place there (Renes, Rita and Jan, 2015).

Second, cultural landscape and natural landscape are inseparable. That means we must be wary of falling into the trap of a radical constructivism, one which ultimately reduces all nature to human proportions, to the sum of our cultural notions to a set of ideas. A constructivist view of landscape, which allows no room for human-nature interactions and for landscape as a 'real world' phenomenon is just as undesirable as an essentialist nature that supposedly exists entirely outside culture. We should therefore ask ourselves whether it is possible to envision landscapes, including their authorship, in order to circumvent the dualism between nature and culture (Renes, Rita and Jan, 2015).

Thirdly, there is the physical landscape take 'shape' in rhythms, transformations, layers and memories in different period. Landscapes have their own temporalities and rhythms, in relation to but distinct from individual human life cycles. It seems evident, therefore, that 'time', and more particularly 'lifetime', should be considered the core business of landscape biography (Renes, Rita and Jan, 2015). The physical change of landscape influence all the invisible norms, values, meanings and attitudes which surround it.

During the last decade, several research teams have tried to develop regional landscape biographies in several parts of Netherlands, combining geological, archaeological, historical, geographical, linguistic and anthropological approaches. Based on the context of Dutch landscape, the study of landscape biography shows three main characteristics.

Firstly, the main goal of Dutch studies is to explore the long-term dimension of transformations in physical landscapes from prehistory up to the present. The landscape at different time is the outcome of the complex interplay between the history of mentalities and values, institutional and governmental changes, social and economic developments and ecological dynamics.

Secondly, there is a strong sense of the multilayered

nature of landscapes. All landscape transformations necessarily involve a reordering, reuse and representation of the past which gives landscape development an almost non-linear character (Kolen, 1995, 2005; Roymans, 1995). In this way, places and landscapes play an active role in the biographies and genealogies of people, binding persons and generations together, while at the same time creating their own life histories at different time scales through successive social contexts.

Thirdly, since dutch approach to landscape biography does not make a sharp break between past and present, present-day heritage practices and related landscape discourses are also studied from this perspective. This implies that heritage is always the dynamic work of people, with processes of cultural transmission and the construction of values and identities being inextricably bound up with one another.

Besides the critical interactions between the three issues mentioned above, one the most promising aspects of these biographies has been the interaction between expert knowledge and local knowledge (Elerie and Spek, 2010). Compared with scientific knowledge, local knowledge is more individually based, more mixed with emotion, more locally than regionally determined, and more focused on a short-term genealogical perspective of one or two generations than on the diachronic development of centuries. Local knowledge also consists of a mix of historical facts, historical narratives (anecdotes, legends, folk tales), images, and meanings associated with certain individuals or groups. This is also reflected in the landscape biography which reveals both the continuous biographical timeline of the scientists, and the more place-oriented, unique individual narratives and meanings of residents and other local experts (Elerie and Spek, 2010).

Figure 3-01 (upper image): Ground plan of the Iron Age urnfield of Someren, showing dense clusters of small barrows enclosed by ditches.
Figure 3-02 (down image): Multiple generations of shifting farmhouses (dark grey rectangles) from the Early/ Middle Iron Age at Someren, south Netherlands.
Scouce: Roymans N, Gerritsen F, Van der Heijden C, et al. Landscape biography as research strategy: The case of the South Netherlands project[J]. Landscape research, 2009, 34(3): 337-359.

3
Theoretical Framework

Landscape Narrative

According to the Oxford Concise Dictionary, "Narrative is a spoken or written account of connected events in order of happening", or "the practice or art of narration". Ricoeur (1981) states that narrative combines two dimensions, one a temporal sequence of events and the other a non-chronological configuration, that organize narrative into spatial patterns. Narrative or story telling is a linguistic form which people use to understand the world about them (Polkinghorne, 1988, 1995). For these reasons, narrative is widely used in design. New application of narratives in rural study are also proposed by Soliva (2007), by whom the four ideal types of narrative, wilderness narrative, modernization narrative, subsistence narrative and endogenous development narrative, were constructed and used for rural study. Those types of narrative also are viewed to reveal the diverse views, values and assumption of stakeholders regarding changes in landscape, land use and biodiversity (Soliva, 2007).

In 1998, Matthew Potteiger and Jamie Purinton argued that narratives exist in the landscape as well, and they attempt to apply narrative theory to their designs. Based on their book ← Landscape Narratives: Design Practices for Telling Stories→, landscape is much more than a setting for a story; it can develop stories and be part of stories as a character or event (e.g. in case of a changing landscape). Narratives have an important role in place-making; people attach certain meanings to the space, creating a valuable environment. With narratives people are also shaping their environment. As Potteiger and Purinton (1998) state, the term 'landscape narrative' designates the interplay and mutual relationship that develops between landscape elements and narrative. Places and events contribute to stories altogether. In landscape narrative, metaphor, metonymy, synecdoche, and irony are regarded as the four major tropes (Potteiger and Purinton, 1998).

Landscape narratives are classified into several types such as 'narrative experiences', 'association and references' and 'memory landscapes' (e.g. interpretive landscapes and storytelling landscapes) (Potteiger and Purinton, 1998). They reflect different ways of thinking of the landscape. Association and reference need not necessarily be memory landscapes, but some elements in a landscape should become connected with experiences, events, history or other form of narrative. However, interpretive landscape is a landscape that has elements and programs that tell what happened in a certain place. Storytelling landscapes are usually places designed to tell specific stories with explicit references to plot, scenes, events characters, etc. (Potteiger and Purinton, 1998).

There are two ways to turn landscape narrative into real design practices. The narrative can use explicit storytelling landscapes to convey messages and to create or constitute the landscape embodiment of collective human memory, or it can be already implicit in landscapes as inscribed by natural processes and cultural practices (Potteiger and Purinton, 1998; Rakatansky, 1992). Landscape narratives are produced across three related realms: 1. the story 2. the context and 3. the discourse. The story realm is an analyzable system of meaning created by the structuring elements within the world of the story. The contextual or intertextual realm describes the role of individual readers and communities in the production of narratives. The third realm of discourse attends to whose story is told, what purposes it serves and what ideologies inhere in the telling.

Potteiger and Purinton apply this framework to

interpreting the narrative construction of one place, the Crosby Arboretum in Mississippi. To link the practices of making landscapes to narrative practices requires an expanded notion of text, of the role of readers in producing meaning, as well as recognition of landscape as a spatial narrative shaped by ongoing processes and multiple authors. This story began with the designers reading of the existing ecological narrative, and "letting the site reveal itself". The designer lived on the site for four years and learned how to read plant signatures and how certain species extend their range. He also cut a grid through the vegetation to reveal how these subtle changes occur along a "moisture gradient". The design then retells the region's ecology by reestablishing the structural combinations of plants in relation to process. The series of "journeys" that structure the narrative sequence weave through the region. Rather than explaining in words, these design devices structure ways of reading signatures and signs in landscape. Meanwhile, the site is in the process of becoming a complex narrative of ecological time. This case argue for design strategies that create landscapes which offer open ecological and cultural narratives, rather than the closed 'scripted' spaces of theme parks.

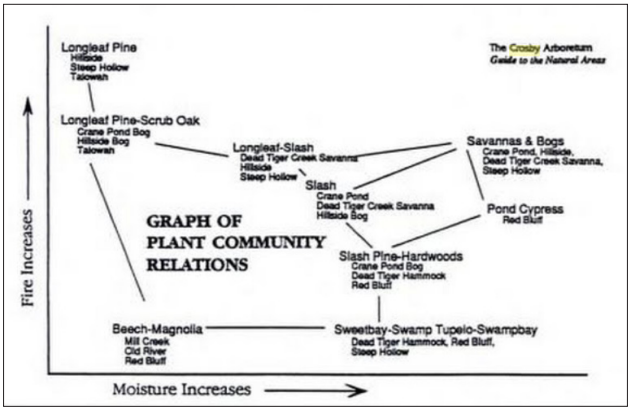


Figure 3-03 (upper image): "Plotting" of the complex relationships between water, fire, and plant communities. These relationships can be found on different sites dispersed throughout the Pearl River Basin and miniatuurized in the design of the Pinecote Interpretive Center.

Figure 3-04 (down image): The Pinecote Pavilion overlooking the pond. The stepped edge of the roof imitates the density and gradations of the forest edge.

Scouce: Potteiger M, Purinton J. Landscape narratives: Design practices for telling stories[M]. John Wiley & Sons, 1998.

3
Theoretical Framework

Conclusion

Lessons from the past help to build the future landscapes

Landscape Biographies is an approach to generate story lines about the ways in which local communities have translate and organized the landscape over time in history. During that process, landscape receive new functions, physically transformed and change their meaning. By looking at landscapes in this way, the emphasis is no longer on the origins of landscapes and landscape features, but on their life histories. Unlike Landscape Biographies mainly focus on the historical layers, Landscape narratives provide an approach for establishing meaning in the landscape by designing the interplay and mutual relationship between landscape and people. When they are introduced into design strategies they must relate to the biophysical and cultural context of the landscape. It is through narrative that we interpret the processes and events of place.

Even though these two theories show some difference in research objective, both share some similarity in the research approach. Both authors criticize the importance of actor and materiality of landscape to understand or design the meaning of landscape. On the one hand, landscape is perceived with all our senses, which makes them tangible. It is not only designer, but also user influence the meaning or value of landscape. With the threat landscape evolving and attacks becoming more sophisticated, having time to stop and think about the actor behind them can largely benefit the future development. On the other hand, landscape is a living, material phenomenon as well as a cultural ideal. Landscape should be used as container for a large variety of artifacts and gives them a broader context and hence enhances their singular values to face the ultimate challenge of ensuring the material sustainability of life.

Moreover, these two theories both share the same value in helping us understand landscape. Landscape biographies help us understand the meaning of landscape through the study of the physical layer, actors and events. Although landscape narrative is a form of imaginative projection, its role is to help understand the new and unfamiliar by reference to the simple and familiar like what is mentioned in the project in Crosby Arboretum in Mississippi. It is not necessarily the case that past land uses should guide future ones; it might not even be desirable. But what is desirable is knowledge about the history of the landscape to inform planning and management and to facilitate public involvement.

Conclusion

Globalization has resulted in a great diversity of sustainable landscapes. Those have a better legibility and give a clear character and identity to place and region. Landmarks and symbols are necessary ancestral roots. Also, they contain many forgotten lessons and landscape structure is crucial for the maintenance of diversity, both biodiversity and cultural diversity. These landscapes are a source of essential (barely studied) knowledge about sustainable management techniques (Antrop,2005). They possess unexplored wisdom and inspiration for making better future landscapes and offer a base for restoration. The underlying message of the articles in this issue is that the power of narratives can be used to enrich our understanding and design of the phenomena of landscape, but that such use must be firmly grounded in the particularity of biographies. Landscapes of the past cannot be brought back, but ways how valuable elements and areas can be preserved and become embedded functionally in the modern urbanized and globalized society must be studied.

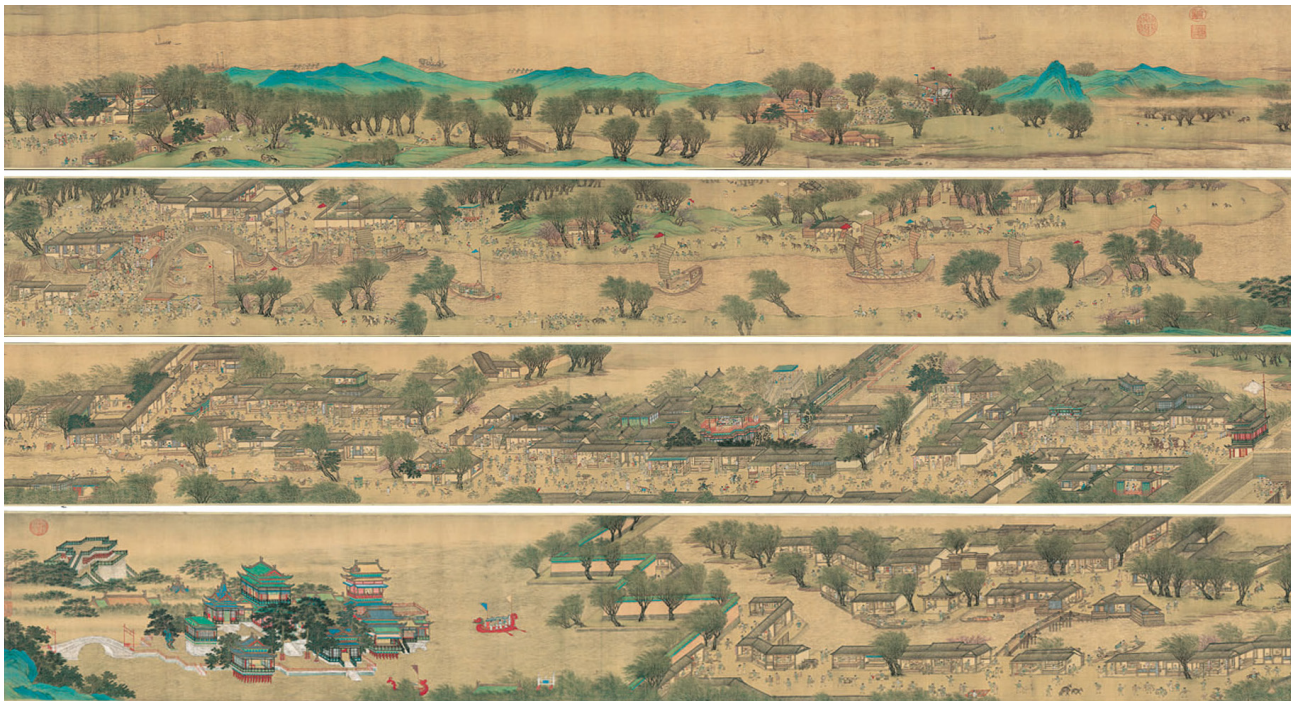


Figure 3-06: Along the River During the Qingming Festival, 12th-century original by Zhang Zeduan

In the past century, urbanisation in europe is mainly influenced and guided by the development of technology. In recent years, there is some voice to transfer the objective of urban design from technical advance to the cultural and social issues. This painting shows a variety of landscapes, occupations, building, cultural activities, and people. All of them make up endless combinations, permutations and variationswhich not contribute to a perfect honeycomb but a vibrant city. It can be a lessen for designer to learn in order to design from the culture point of view.

Scouce: https://en.wikipedia.org

THEORETICAL FRAMEWORK

RESEARCH

SITE DIAGNOSE

Statement of Development Philosophy
- 3X3X3Analysis
- Trends
- Program
  - Agriculture
  - Harbour
  - Recreation

Pre-assessment
- Potential
- Challenge
  - Ecology
  - Hydrology
  - Socio-Economy

Research Question and Objectives
- Research Question
- Project Objective
  - Economy
  - Ecology
- Methodology

DESIGN PRINCIPLE

Ecotourism
- Definition
- Pricinple
- Case Study
  - Lecce

Theory
- Landscape Biography
- Landscape Narritive
- Landscape Gradients

M P

M ST S

L C

L

Sub-Question 01
How is the development of current tourism? How does people make use of the landscape for the development of tourism?

Sub-Question 02
What is the potential of Dutch Southwest Delta for the development of ecotourism?

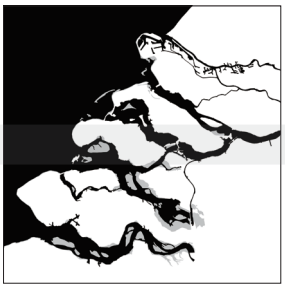
Sub-Question 03
How does the development of current tourism influence the ecosystem? What is the challenge for the development of ecotourism?

RESEARCH QUESTION
"How to rethink Brouwersdam area as an opportunity to develop eco-tourism, that in an integral process improve the sustainability of Ecology and Economics in Dutch Southwest Delta?"

Sub-Question 04
What design principle could be introduced to create conditions for the development of ecotourism?

Sub-Question 05
What theory could be introduced to help the analysis or design process of ecotourism?

DELTA SCALE



TEST

Methodology

- (M) Mapping
- (S) Sketching
- (MO) Modeling
- (L) Literature Study
- (C) Case Study
- (P) Policy Study
- (V) Site Visit
- (ST) Statistics
- (T) Transect
- (I) Visionary Images

PROJECTS PLANNING / DESIGN

APPLICATION

EVALUATION

Site Analysis

- Heritage
- Territory
- Program
- Mobility

(M) (MO) (T) (I)

Sub-Question 06
How can the existing landscape, community and infrastructure be transferred to the spatial element for the regional planning of ecotourism?

Synthesis

- Design Concept
- Implementation Phases
  - Strategy
  - Actor
  - Selection of preferred Project Location

(M) (MO) (I)

Sub-Question 07
How to design a corridor and generate a well synthesized spatial development framework for the region? What strategy, phase, actors shall we study to achieve it?

Site Design

- Refinement of project Objectives
- Spatial intervention

(M) (MO) (I)

Sub-Question 08
What spatial intervention can we design in the local scale to achieve the design objective? What design principle in local scale shall we use?

Evaluation of development plan concepts

- Impact assessment
- Feasibility Study

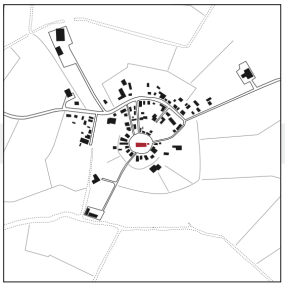
(M) (P)

Sub-Question 09
What new spatial identity can we create of the region for contingency of landscape biography? And how can the development of ecotourism influence the ecology and economy in Brouwersdam area?

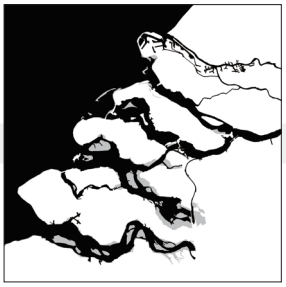
Sub-Question 10
How can the development of ecotourism influence the Southwest Delta and North Sea?

REGIONAL SCALE

LOCAL SCALE



DELTA SCALE



4
Ecotourism & Planning

In this graduation project, ecotourism is used as an overall strategy for the future development of the region. Therefore, this part provides a brief overview of Ecotourism and Ecotourism Planning based on the literature review. In this chapter, the concept, guideline of ecotourism will be discussed further. And a case study of Lecce will be illustrated to see how we can implement ecotourism in spatial design. Based on this part, the system of ecotourism will be concluded to provide and analytical framework for the further study. Additionally, the ecotourism guideline will be concluded for the further spatial design.

4.1 What is Ecotourism?
4.2 Case Study : Lecce
4.3 Ecotourism Guideline

4
Ecotourism as Strategy

What is Ecotourism?

Ecotourism is a category of tourism. Its goal is to enhance or maintain natural systems through tourism. Of course, ecotourism also has different meanings for different people. The term "ecotourism" was first created in 1983 by the Mexican environmentalist "Hctor Ceballos Lascurain". Initially, it was used to describe nature-based travel, with an emphasis on ecological education of people through contact with nature. This means that such travel not only ensures the sustainable use of environmental resources, but also creates economic development for the local community.

The International Union for the Conservation of Nature (IUCN) describes ecotourism as: environmentally responsible travel and visits to natural areas in order to enjoy and appreciate nature (and any accompanying cultural features, past and present) that promote conservation, with lower visitor impact and provide beneficial and active social and economic participation for local people (Joshi, 2011)

According to Patterson (2002), the characteristics of ecotourism are:

1. The impact on natural resources and entertainment technology in natural areas of protected areas is small.

2. Engage stakeholders (individuals, communities, ecotourists, tour operators and government agencies) in the planning, development, implementation and maintenance phases

3. Limit access to regions, regions, or regions by limiting the number of groups and/or the number of groups in a region in a season

4. Support the work of environmental organizations that preserve the natural areas on which the experience is based.

5. Welcome customers in the area to visit.

6. Hiring locals and buying supplies locally.

7. Recognize that nature is the core element of a visitor experience.

8. Use guidance that has been trained in the interpretation of science or natural history.

9. Ensure wildlife is not harassed.

10. Respect the local people's privacy and culture.

According to Chesworth (1995), ecotourism has six characteristics. They are:

a) Ecotourism involves relatively undisturbed natural areas and/or archaeological sites.
b) focus on the quality of learning and experience,
c) economically beneficial to the local community,
d) Ecotourists seek to see rare species, spectacular
e) Ecotourists will not run out of resources, even maintain the environment or help eliminate environmental damage;
f) Ecotourists appreciate and respect local culture and traditions.

Although based on the different people, the details of ecotourism seem different. We can still make a conclusion of the 3 main criteria that meet most definition of ecotourism.

1. Conservation of both cultural and natural heritage
2. Conservation of essential ecological system
3. Can be profitable and self-sustained for the long term developmen

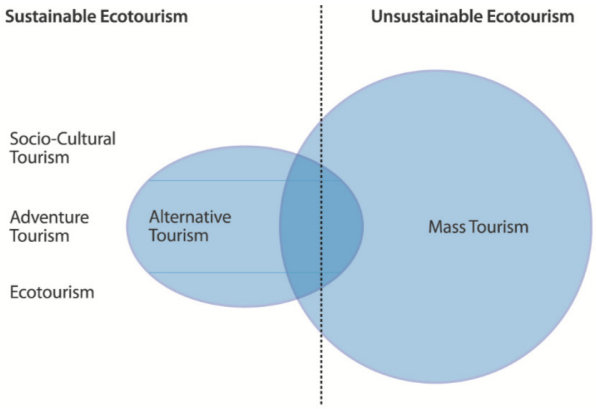


Image 4-01. Conceptual model of tourism (Eriksson,2003)

Characteristics of mass tourism	***Characteristics of ecotourism***
Large groups of visitors	*Small groups of visitors*
Urban	*Rural*
Touristic general marketing activities	*Eco-marketing activities*
Average prices for purposes of market	*High price with purpose of filtering the market*
Impact on natural environment	*Little impact on the natural environment*
Advanced control options	*Limited possibilities of control*
Management based on macroeconomic principles	*Management based on local economic principles*
Anonymous relationship between visitors and local community	*Personalized relationships between visitors and local community*
General development goals	*Local development objectives*
Behavior-oriented leisure activities/entertainment, opponents to education and training actions	*Loyalty in the process of training and education for appropriate conduct for the natural environment*
Intensive development of tourism facilities	*Reduced development of tourism facilities*

Table 1. Distinct characteristics between mass tourism and ecotourism (Dorobantu & Nıstoreanu, 2012)

4
Ecotourism as Strategy

Case study : **Lecce**

The case study of Lecce has the aim of highlighting the potentials of ecotourism for the development of the region, depending on their applicability and conditions. Lecce is one of the most successful examples of ecotourism in the region. Renown worldwide, for the past years the resort has welcomed celebrities and hosted the most famous events.

Lecce locate in the south of Salento. In recent year, this region is growing rapidly. Almost all the industrial districts are mixed up with the historical villages and towns, which is characterized by single-family.

Lecce city is one of the most interesting tourist destinations in southern Italy due to its rich cultural heritage: a sort of perfect delirium of architecture, light, colors, allegories and symbols. The explosion of baroque is joined by the renaissance elements and the magic appeal of the Norman period. Gems in the city are the churches, the amphitheater and the theatre, and the unique tangle of ancient streets, courtyards and mansions illuminated by the characteristic Lecce building stone. The Lecce is an important tourist destination because of its uncontaminated seashores and incredible landscape (Figure 1 and Figure 2).

The city offers a broad range of cultural services, which have given rise to new entrepreneurial forms of urban governance in the cultural sector, but continues to be stressed by sustainability issues (pertaining to transport, waste and quality of life), which represent the major challenges of its future.

For Lecce, compared with Southern Europe, the main problem is clearly the modernization of social and economic growth, and the protection of its landscape and heritage sites.

The current decentralization of residential and industrial settlements and the heavy use of tourism in the coastal areas need to be transformed in a new project to achieve an effective territorial and harmonious landscape. Residential and industrial settlements are now decentralized, and the massive use of coastal areas by tourism must be transformed into a new high-efficiency area and meaningful landscape projects.

Over the last ten years the municipal administration has focused on three main areas:

- town planning with a view to urban renewal

- promotion of cultural relations on an interregional and trans-regional level

- promotion of cultural heritage (exhibitions, events, conferences, etc.).

Considering the interactions and the differences between different regions, the urban planner come up with the new methods of planning and implementing new strategies to reduce environmental pollution and promote the sustainable use of existing resources.

Image 4-02: Costal area of Salento

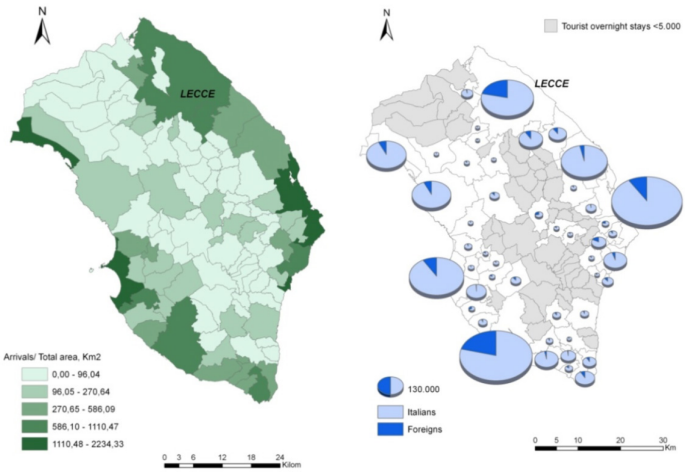


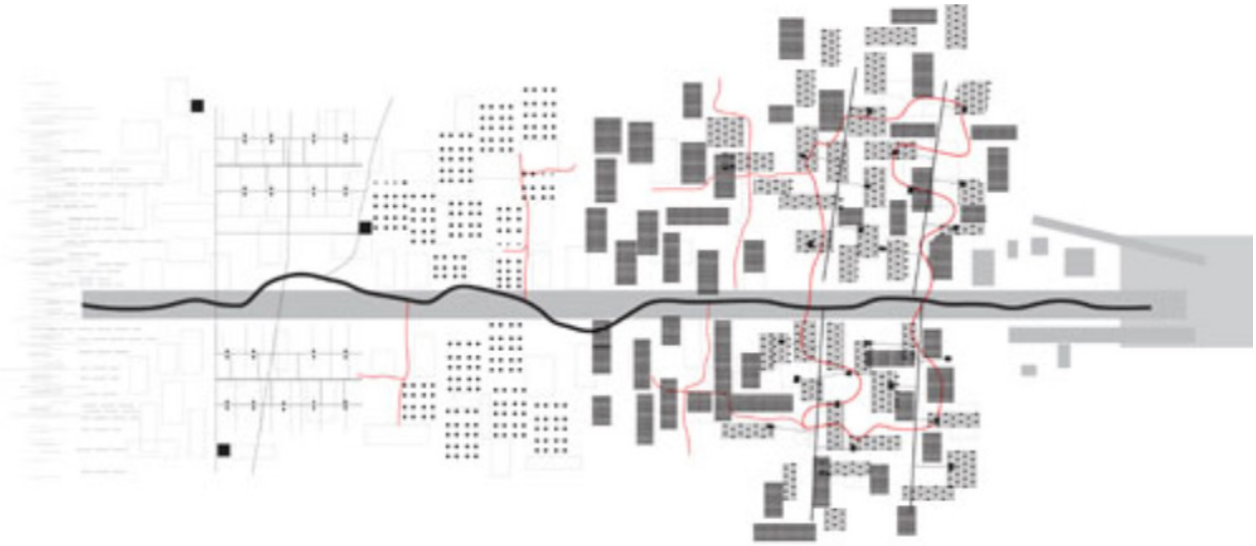
Figure 1(Left): Tourist density in Lecce city and province in 2011. Source: Puglia Region, 2011; Istat, 2011.
Figure 2(Right): Lecce and province overnight stays in 2011. Source: Puglia Region, 2011; Istat, 2011.

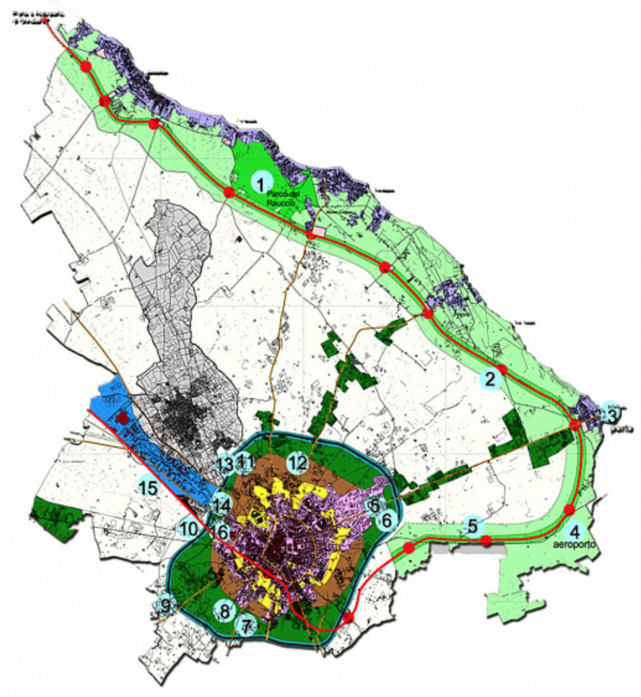
The success of this new economical model of Lecce has its roots in two points. The first is that it is important to have good relations with the local community and local territory. Inspired by the historical layout of the parceling of the fields, the plan creates a hierarchy among the old city, rural area, new possible building sites and the costal area. A secret garden in a walled secluded citrus grove gives space for a contemporary layer in this place of great historical value – in progress.

Secondly is the combination of a complete program and a clear mobility structuring it. The resort is, in fact, serviced by various facilities, from sport to gastronomy, covering all the tourism-related activities under a convenient infrastructure. The model of the resort would on one side solve the pragmatical issue of the accommodation. On the other side the economical model of the resort would contribute to the definition of Lecce as a touristic destination, giving strength to the still weak, but with great potential, economic sector of tourism.

The project proposes and alternative model of the resort typology integrated in the territory and interlaced with its local community and economy. On the other side the resort would gain in authenticity and involvement in the life of local communities and traditions.

In order achieve this scenario, the spatial model of the resort has to be dismantled and re-distributed. The resort has to be physically integrated in the territory and spread across it. The resort has to be scattered in its program across the territory, upgrading the potential of further connections with the territory itself. Its mobility has to be structured following and upgrading the existing territorial infrastructures according to the qualities of the landscape.




1
Parco dei Racconti
2
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aeroporto
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4
Ecotourism as Strategy

Ecotourism Guideline

Just like the definition of ecotourism, there is also a set of guidelines or sustainable tourism and ecotourism based on the study from different people. Ecotourism is the sustainable development of tourism in natural areas, including both rural and cultural tourism. It provides visitors with complete and interesting explanations of natural and cultural resources. It is mainly for individual tourists and small organizations (Sâmbotınet al, 2011).

According to Buchsbaum 2004, sustainable tourism reflects the relationship between ecotourism and sustainable development in many aspects. Many groups have proposed a set of guidelines or principles for sustainable tourism and ecotourism. A list of well-known principles and guidelines was developed by the Tourism Concern and WWF in 1991, as shown in Table 4.

According to Rome (1999): ecotourism is a strategy that supports conservation areas and provides income for local communities. It can promote economic development and the protection of protected areas by:

a) income that can be used for the sustainable management of protected areas,

b) Provide local employment and

c) Instill community awareness of ownership.

However, without careful planning and management to balance ecological, social and economic purposes, it could lead to environmental damage, be envisaged as an active way of sustainable development, with no plan or poor planning and implementation. Tourism may have a serious negative impact, offsetting the gains it aims to provide. Even the potential benefits of ecotourism can lead to environmental damage to protected areas.

The core of the eight principles is that ecotourism products should: (Green Earth 21 International Ecotourism Standards, 2004)

1. Focus on giving visitors the opportunity to personally experience Natural Area Focus;

2. Provide an opportunity to experience nature and lead to more understanding, appreciation and enjoyment (interpretation);

3. Best practices on behalf of environmentally sustainable tourism (environmental sustainability practices);

4. Directly help protect natural areas (contribution to conservation);

5. Provide continuous donations to local communities (benefit local communities);

6. Sensitive, interpreting and involving the culture of the area (cultural respect);

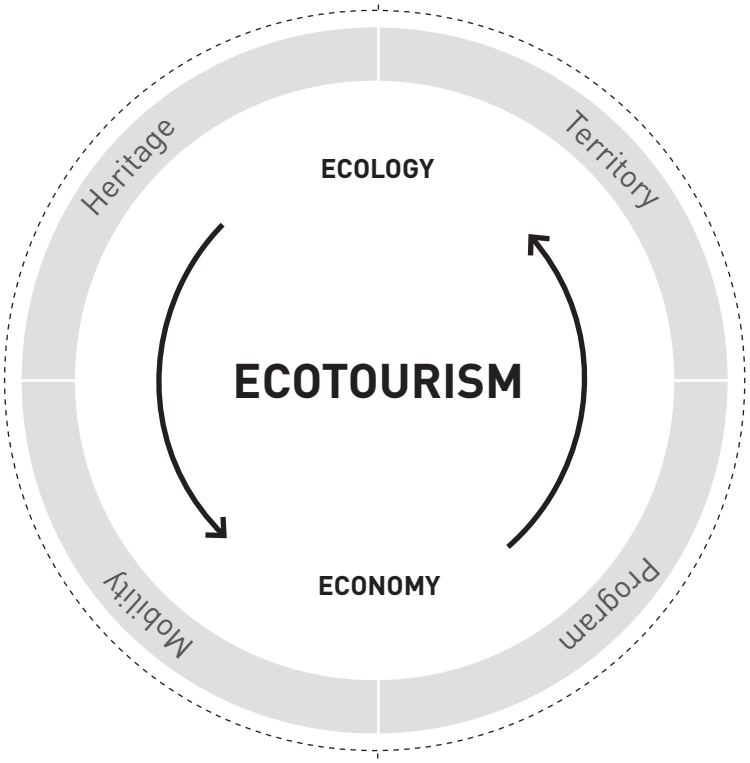
7. Continue to meet consumer expectations (customer satisfaction); and

8. Sell and promote honestly and accurately to form realistic expectations (responsible marketing).

CONCLUTION : RELATIONSHIP BETWEEN ECOTOURISM AND PROJECT OBJECTIVE

Finances the establishment and maintenance of prodected areas
Contributes to lasting local economic development
Profits esrned retained within local communities
Creates permanent jobs for local people

Economy



Ecology

promotes environmental protection
provides environmenta education
increases public environmental consciousness
encourages donations to contribute to the protection of local natural resources

5
Site Diagnose

I'd like to think urban observation as the first step to the authenticity of urban change today as the narratives among indigenous people pass from one generation to the next. Therefore, in this chapter, we start with the observation to collect the story of the Brouversdam region.

Firstly, we need to have an overview of the Brouversdam region in terms of its social, economical, ecological , environmental change throughout the history. It will give us a basic understanding of the region and highlight the cultural identity of this region.

Secondly, we need a basic understanding of what we can make use of for the development of ecotourism. The observation of the gradients of landscape – marshes, dune, urban, polder, etc – becomes the potential resource for the development of ecotourism network in Brouversdam Region. Then by the transect analysis of landscape gradients, 16 patterns are concluded to show the relationship between different landscape. Combined with the landscape biography analysis, the potential cultural and ecological value of each patterns are assessed.

Thirdly, we need an understanding of the current development of tourism in Brouversdam Region. Popular notions are insufficient. Essential are understandings of how tourism functions; elements of supply including natural and cultural resources, transportation networks, program and their relationships.

Finally, we can make a conclusion by comparing the different patterns of landscape in terms of their potential value with the current economic value. Through these comparison, it is possible to discuss further the strategic plan of this region.

5.1 Heritage (Bigraphy Analysis)
5.2 Territory (Gradients Analysis)
5.3 Program
5.4 Mobility
5.5 Conclution : Current Structure

5
Gathering Story

Heritage
(Biography Analysis)

"The core of this set of ideas is the vision of landscape as an object that is handed over again and again from one generation of users to the next, in the process undergoing not only physical changes, but also changes in value and meaning."

—— < Landscape Biographies >
by Jan Kolen, Hans Renes and Rita Hermans

Based on the theory, then, I will anaysis the landscape biography of the Brouwersdan region from these three aspects:

1. Layout of the landscape
2. Representative spatial element of the landscape
3. Activity influenced by the landscape

900AD

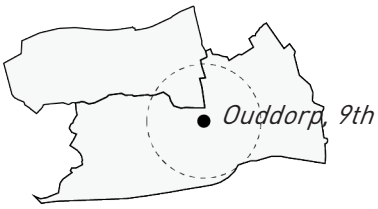
Let's date back to 9th century. Unlike many lands were created by dike in Zeeland, the site I choose origin from the dune. Before 900, villages like Renesse and Haamstede has already been inhabited continuously. Protected by this dune zoom, people lived high and safe enough and escape from many storm floods through the centuries. Apart from that, the fresh water supplied by the dune also help to make this earliest living possible.

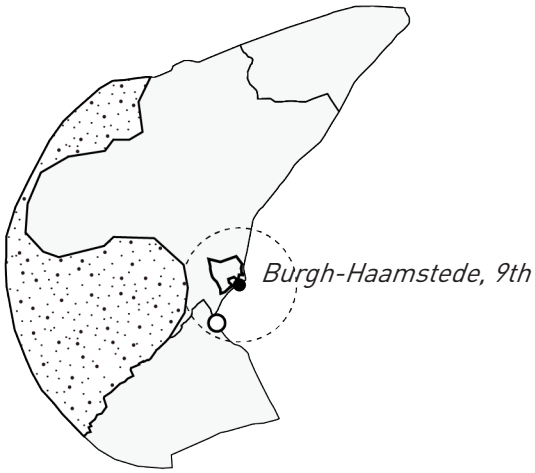
In Roman times, our research area was still a rural area. At that time, the area was less influenced by Roman city culture and related lifestyles. This position is stable, but this trend has already begun in the late Iron Age. Some people will describe the cultural landscape of this period as "non-Roman style." However, this does not mean that the residents of the southern part of the Netherlands are not integrated into the Roman Empire or assume anti-Roman status. The local community seems to have developed its own "Rome-style" approach.

Image 4-01: Anti-Roman landscape before 900AD
Scouce: https://nl.wikipedia.org/wiki/Uddel

Biography 900

- *Dune*
- *Forest*
- *Dike*
- *Historic Village*
- *Wetland*
- *Lake & Creek*
- *Parish Church*
- *Castle*
- *Ringwallburgh*
- *Light tower*
- *Water Mill*





1300

During that time, Christianity play an important role in landscape when many parish churches, with a cemetery appear. The church—particularly if it was built by stone with a church tower—became a important point in the landscape. It is always located at the center of the city and the highest point of the city. This identity the local community is defined as a Christianized landscape. it forms the main identity of landscape in the Middle age.

From this time on, the church began to gradually enter the life of the rural population. The church began to become the main place for important events in the personal life cycle, especially baptism, marriage and death. Most of the churches at that time were built from tuff, and some were built from bricks. The appearance of these churches made them the focus of the landscape at that time and the symbol of the local community was defined as a Christian community. This visual information became more intense in the late Middle Ages. At that time, the development of the wilderness became more and more intense. The expansion of wasteland vegetation has created more open landscapes.

On the other hand, the first polder appears. From the ninth century, people coming here start to cut ditches and creeks to drain the water and cultivated fields for crops. This land characterized by water meadows, the creek ridges and irregular percolation are together called 'old land'. Even though most of the land is diked again later after the flood, we can still find some trace in the current structure.

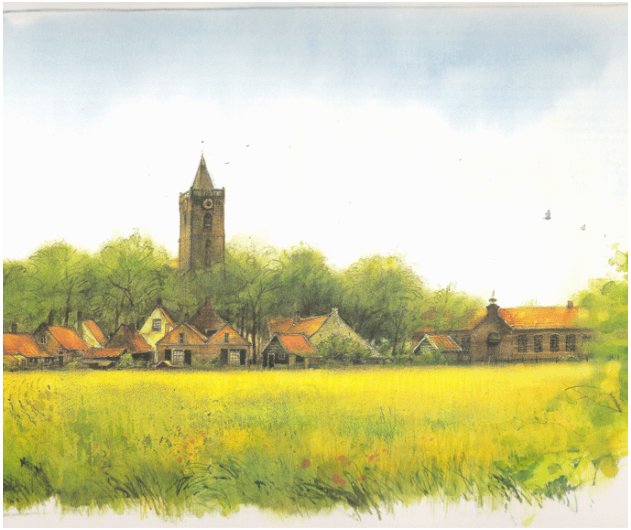
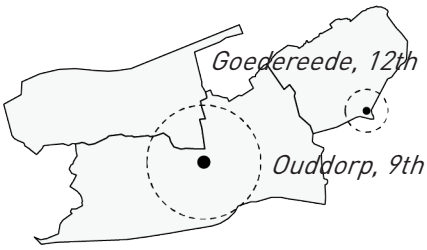
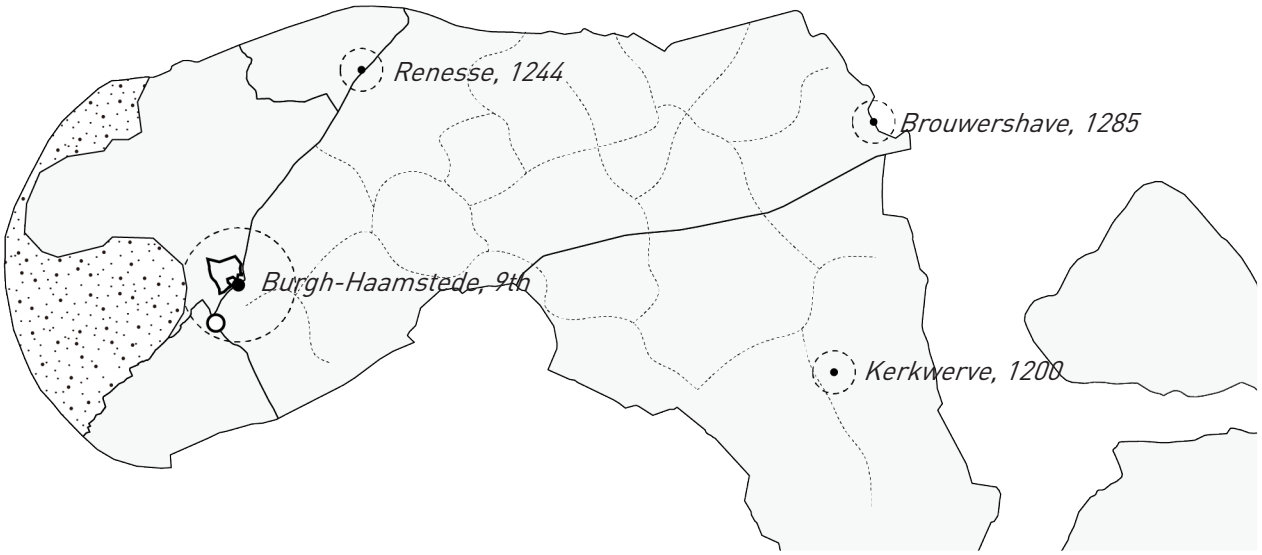


Image 4-02 : Christianized landscape between 1300-1500
Scouce: http://image.google.com/

Biography 1300

- *Dune*
- *Forest*
- *Dike*
- *Historic Village*
- *Wetland*
- *Lake & Creek*
- *Parish Church*
- *Castle*
- *Ringwallburgh*
- *Light tower*
- *Water Mill*





1850

In the thirteenth and fourteenth centuries, rural areas gradually emerged as the awareness of the community increased. With the advent of these rural areas, the medieval manor system gradually disintegrated. Most of the typical Dutch rural landscape that we can see now is formed during this period. This rural landscape mainly benefited from the progress of water resources management at that time, the construction of road infrastructure, and the management of the use of wasteland.

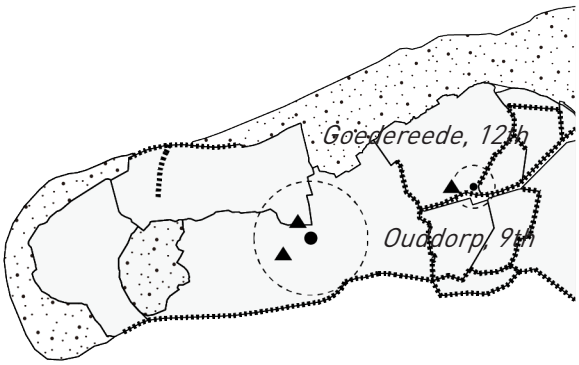
After 15th century, the Brouwersdam area had a great blooming period. During the 16th and 17th centuries, the brouwersdam area had a great blooming period. A number of cities here like Goedereede, Brouwershaven developed quickly and become an important port city. As the city developed and population grow rapidly, the land were reclaimed from the sea for agriculture. During that time, the polder landscape, the productive landscape become the main layout. Different from the old land, these 'new land' is characterized by the dikes, water mills and the regular ditches as what we can see today in the most area.

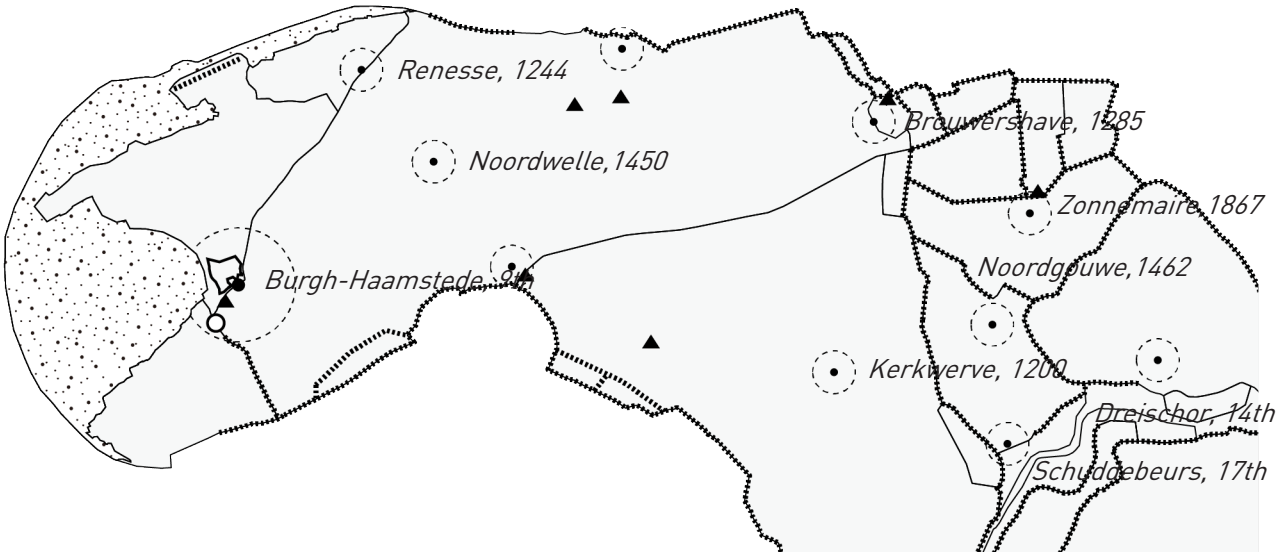
Image 4-03: Industrilasation and Urbanisation in 1500-1800
Scouce: http://image.google.com/

Image 4-04: Land Reclimation after 1800
Scouce: http://image.google.com/

Biography 1850

- *Dune*
- *Forest*
- *Dike*
- *Historic Village*
- *Wetland*
- *Lake & Creek*
- *Parish Church*
- *Castle*
- *Ringwallburgh*
- *Light tower*
- *Water Mill*





1960

After the Second World War, rapid population growth led to further development of rural areas. In this case, many villages at that time were further expanded by the parish unit. Each area is centered on a church. In this way, newly built houses can receive convenient public facilities. And, residents can always live in their familiar environment.

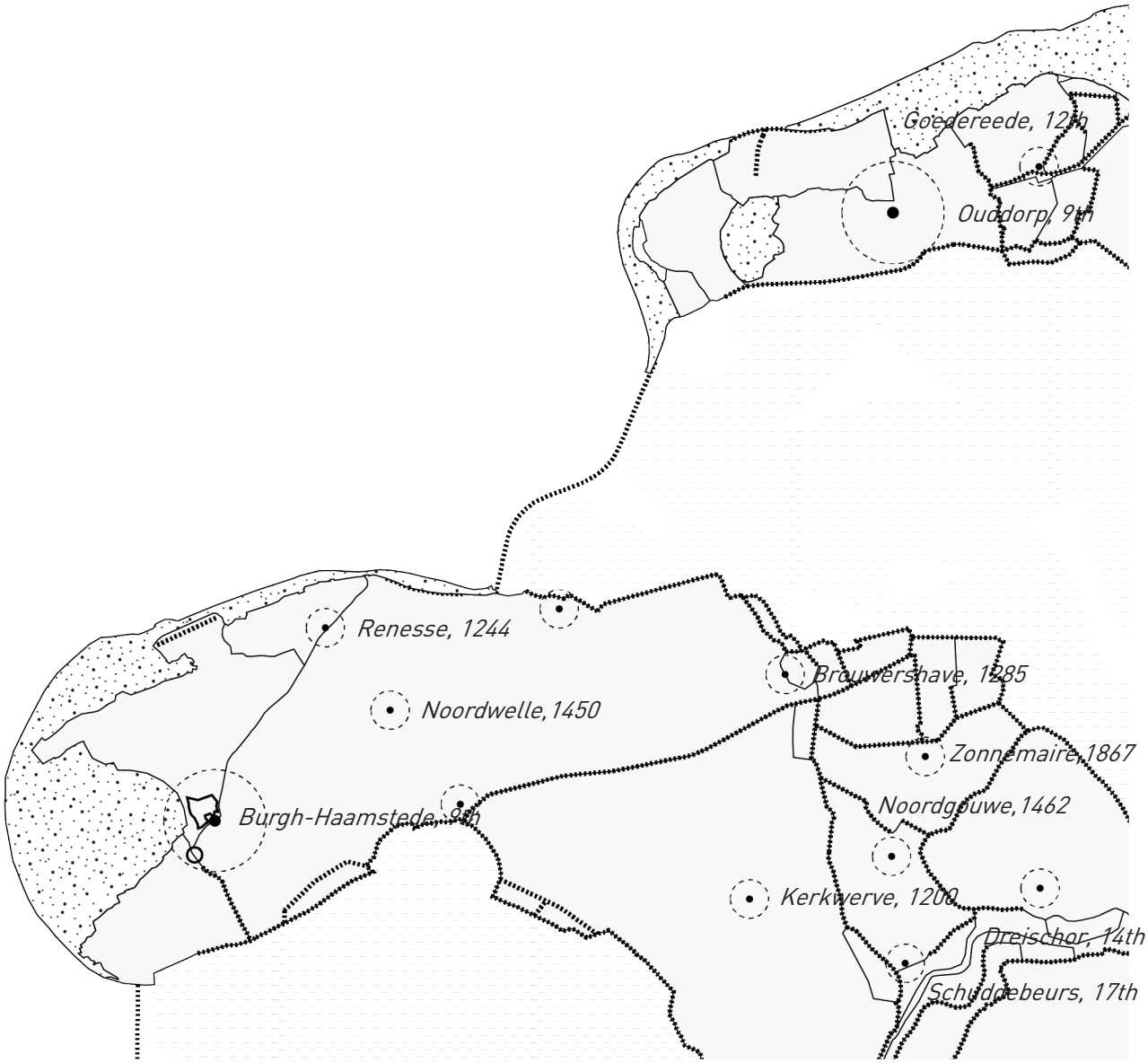
When entering 20th century, as the problem of flood become worse. Especially after the North Sea flood in 1953, people start to think of control the dynamic landscape. Afterward, the water defense system Deltawerken was developed. The infrastructure, including the bridges, dikes and dams, has shaped the landscape and become a kind of cultural landscape or cultural identity in the modern time.

After the dam was built, the lake grevelingen appear. It cut the connection between the villages and North Sea. As more and more village lost the identity of port city or fishing harbor, they declined.

Image 4-05: Development of infrustructure after 1950
Scouce: http://image.google.com/

Biography 1960

- *Dune*
- *Forest*
- *Dike*
- *Historic Village*
- *Wetland*
- *Lake & Creek*
- *Parish Church*
- *Castle*
- *Ringwallburgh*
- *Light tower*
- *Water Mill*



Typology of Cultural Landscape and Heritage

	PAST	CURRENT
Coastal Landscape Dune		
Christianism Landscape Parish Church Church Ring		
Polder Landscape Creek Dike Wind Mill		
Lake Dike Landscape Dike Light Tower Harbour		

Heritage and Cultural Landscape in the Region

- *Dune*
- *Forest*
- *Dike*
- *Historic Village*
- *Wetland*
- *Lake & Creek*
- *Parish Church*
- *Castle*
- *Ringwallburgh*
- *Light tower*
- *Water Mill*

5
Gathering Story

Territory
(Gradients Analysis)

"To relate the spatial pattern of urbanization to ecological processes, quantitative spatial analysis methods are needed. Among others, gradient analysis and landscape pattern analysis seem appropriate for such studies. Over the past decade, this approach has been effectively used to study the ecology of cities and towns around the world. These studies have focused on understanding the distribution of plants and animals as well as ecosystem processes along gradients of urbanization that run from densely urbanized inner city to more rural exurban environments. "

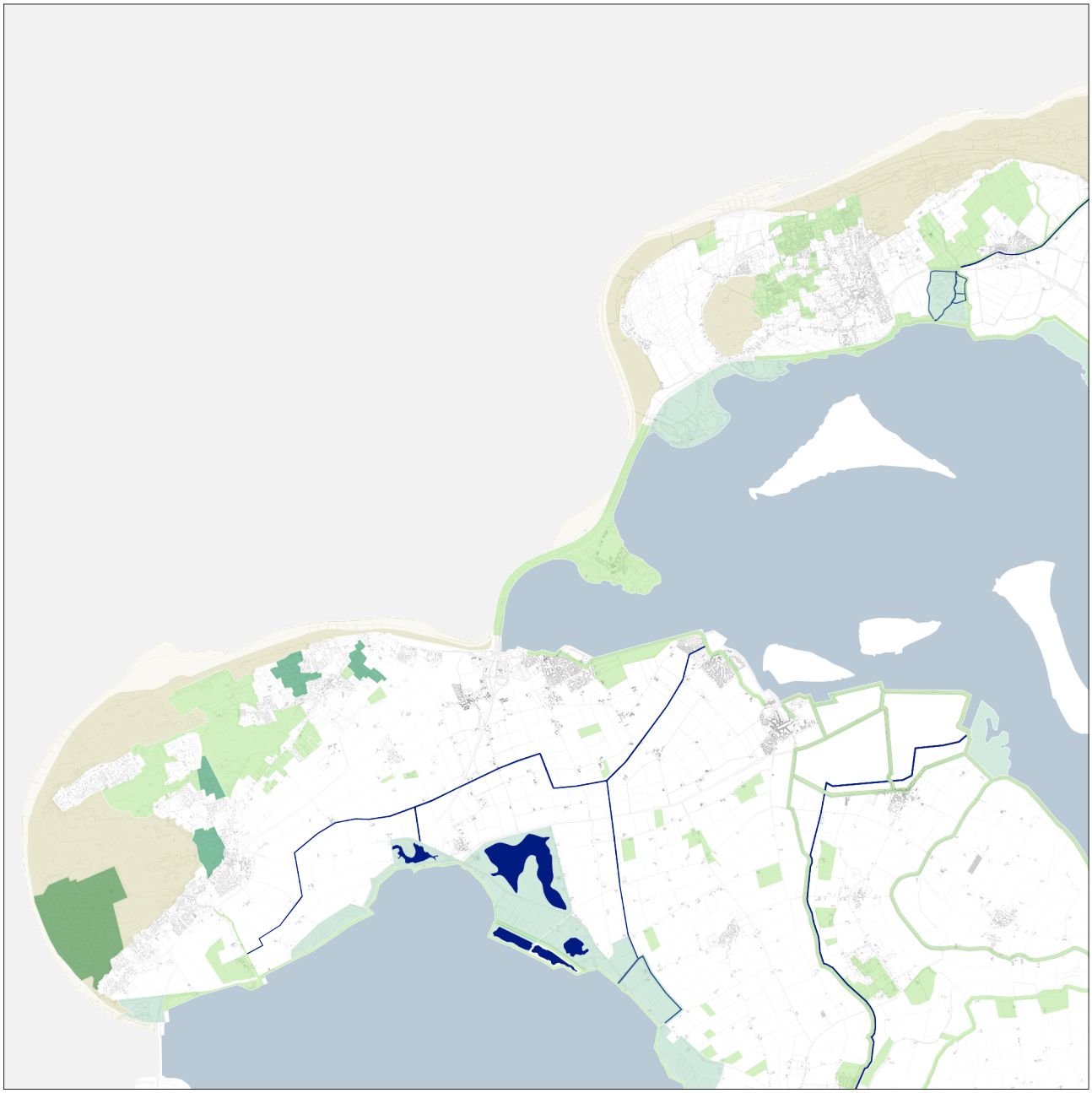
— Mark J. McDonnell <Landscape Ecology>

Identifying these gradients or patterns is an important first step to related urban morphology to ecological and socioeconomic processes. Based on the Original land use type, the landscape patch was reclassified into 9 main types, including urban central, general urban, rural urban, agriculture, marshes, dune, beaches, dike and dam. These pathes form the current landscape structure.

Original land use type (Based Google Map)	**Reclassified patch type**
Cultural Center	Urban
Regional Commercial Center	
Neighborhood Retail Center	
High Density Residential	
Industrial	
Educational	
Low Density Residential	
Non-developable Open Space Rural	
Agriculture	Agriculture
Lake	Lake
Wetland	Wetland
Island	
Dune	Dune
Forest	Forest
Grass	Grass
Creek	Creek

CURRENT LANDSCAPE STRUCTURE

Dune
Wetland
Grass
Forest
Lake
Agriculture
Main Creek
Urban

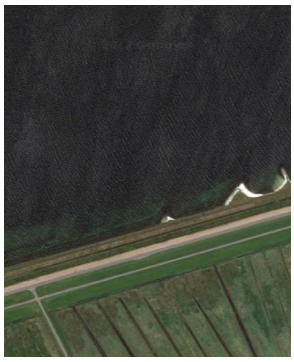


LAND USE TYPE

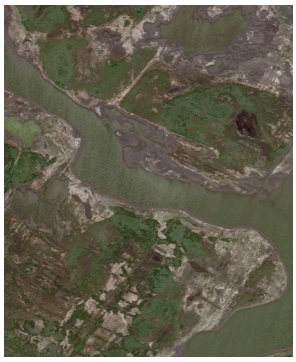
Urban

Agriculture

Lake



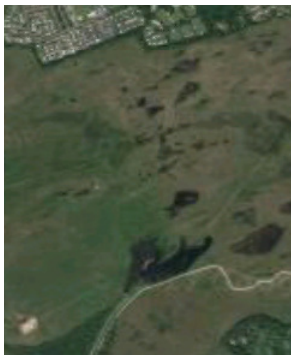
Wetland



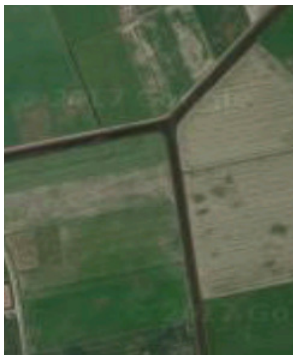
Dune

Forest

Grass



Creek



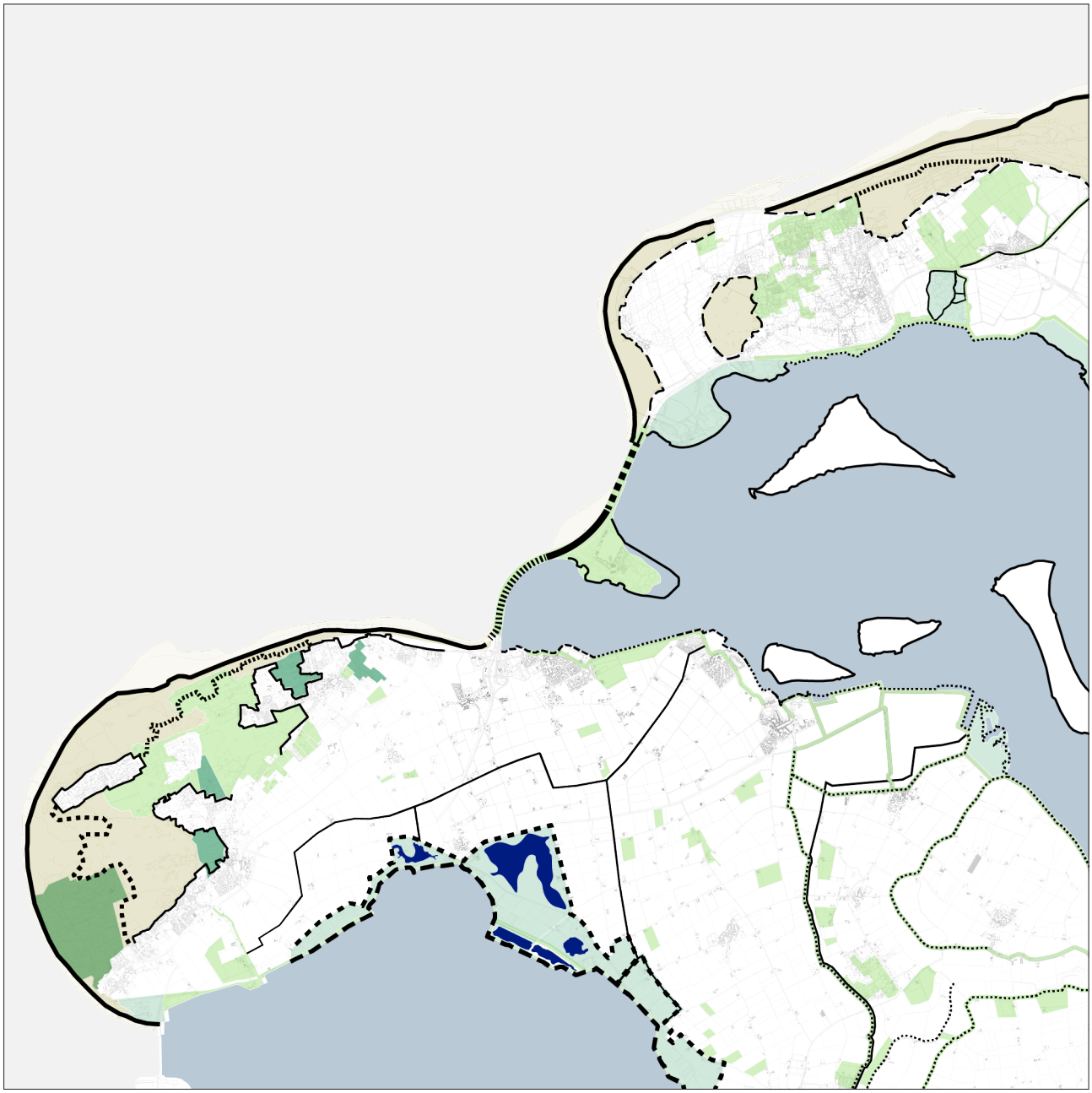
LANDSCAPE GRADIENTS

Landscape

- *Dune*
- *Wetland*
- *Grass*
- *Forest*
- *Lake*
- *Agriculture*
- *Main Creek*
- *Urban*

Gradients

- *Pattern 1*
- *Pattern 2*
- *Pattern 3*
- *Pattern 4*
- *Pattern 5*
- *Pattern 6*
- *Pattern 7*
- *Pattern 8*
- *Pattern 9*
- *Pattern 10*
- *Pattern 11*
- *Pattern 12*
- *Pattern 13*
- *Pattern 14*



Goeree Dune & Haamstede Dune(Dune habitats)

The gradients exists here include the Secondary dune near the sea, Dune valley and primary dune. Secondary dune is close to the sea, it has a more dynamic circumstance with less plants. Species living there like sand oats and blue sea thistle, is unique. That means we can only see these species in the dunes. Further inland towards is the dune valley. In some place when the valley lie close to the ground water, they have small lake inside. When moving further to the primary dune, the number of different plants increases. The further inland you get, the further the succession is.

Stress & Source

One problem of the dune is the over dry of the dune slack. It is caused by several reasons. One is the extraction of fresh water which lead to the decreasing ground water in dune slack.

Another reason is the farming activity in polder. In order to ensure the production, farmers drain polders make them suitable for agriculture. Because of this drainage, the ground water level in the dunes decreases, which leads to the losing ecosystem. Under this condition, the succession in the dune area, especially in the dune slack increased a lot which influence the growing of local species.

And also, the biggest challenge the dune area is facing is the climate change which increasing the sea level.

Conservation Objective

The aim in the dune habitats is restore the ecosystem by creating open and wet conditions that remain stable for some decades.

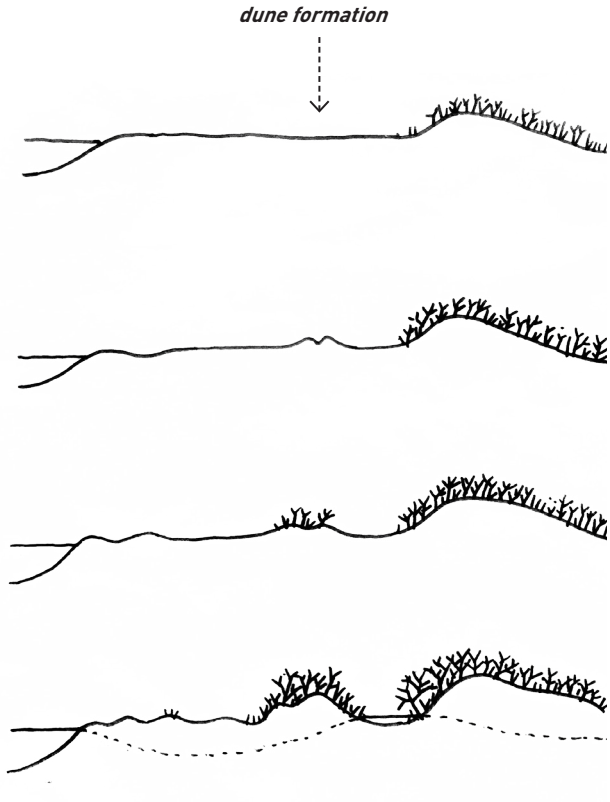
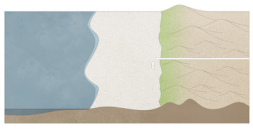


Image 6.4 : The formation of the dune

Image 6.5 : The decreasing level of groundwater lead to the higher speed of succession and influence the growing of local species.



Primary Dune
Salt water Habitat
Recreation

spinifex

sea rocket

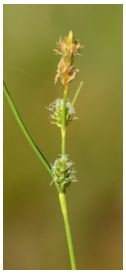
marram grass

Dune Valley
Regulate water
Habitat for birds, fish, etc.

Salix repens

Calamagrostis epigejos

Phragmites australis

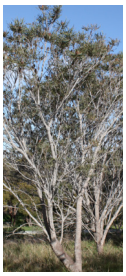


Carex oederi

Secondary Dune
Water Defence
Habitat for deers, owls, etc.
Recreation

bitou bush

pigface



banksia tree

sword grass

Dune - Typology of Gradients

Landscape

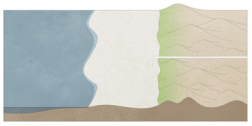
- *Dune*
- *Wetland*
- *Grass*
- *Forest*
- *Lake*
- *Agriculture*
- *Main Creek*
- *Urban*

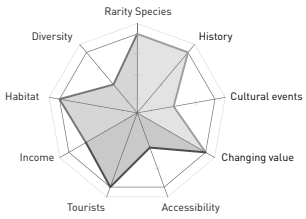
Gradients

- *Pattern 1*
- *Pattern 2*
- *Pattern 3*
- *Pattern 4*
- *Pattern 5*

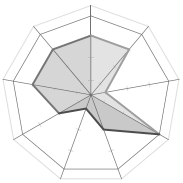
Dune - Spatial Patterns

Pattern 01
Primary Dune

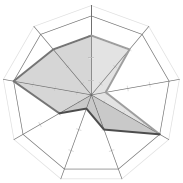




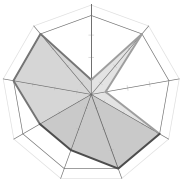
Pattern 02
Dune Vally (Dry)



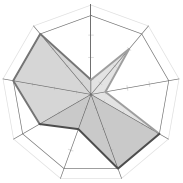
Pattern 03
Dune Vally (Wet)



Pattern 04
Secondry Dune (Urban)



Pattern 05
Secondry Dune (Polder)



Lake

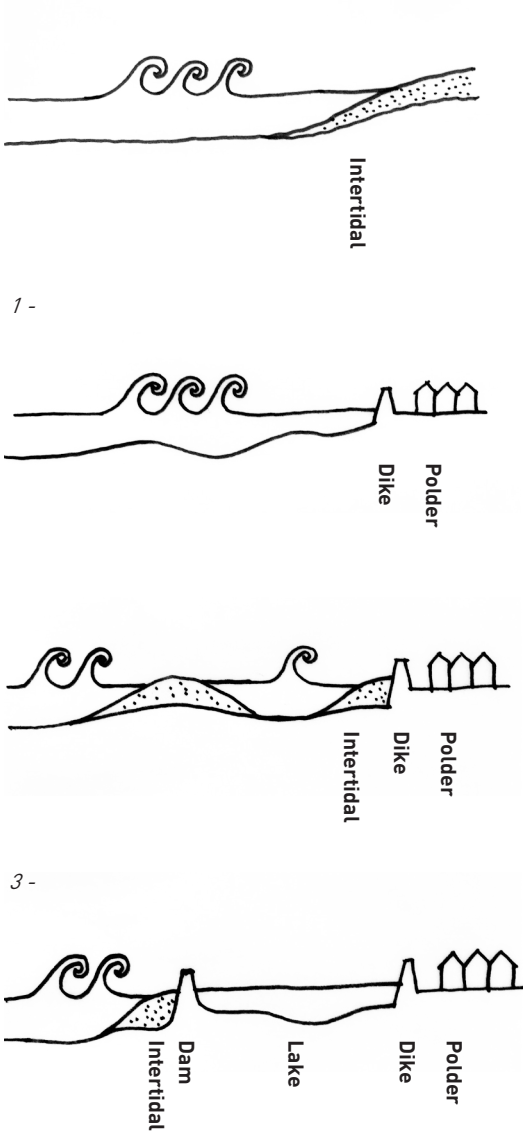
The salt water environment in the lake and North Sea provide the habitat for many seal, fish, shell and seabird. But, the closure of the Brouwersdam change the gradients by creating the salt water lake with standing still water. As the tidal movements and the intertidal area disappeared, the ecosystem is experience challenge. A good example to explain the impact of losing tide is a kind of sea bird oystercatchers. They lived on the higher shores of the Grevelingen. However, they need looked for their food on the mud flats during low tide. From the moment, the dam change the gradients of the landscape, no new food was supplied. The plants which depended on the supply of salt water also died.

Stress & Source

The closure of the Brouwersdam change the gradients by creating the salt water lake with standing still water. As the tidal movements and the intertidal area disappeared, the ecosystem is experience challenge. Under this condition, the government has already plan to develop a tide power plant on the Brouwersdam. In this project, I include this action as something will happened in the future. Therefore, under this condition, another challenge of the lake is coming from the changing water level in the future which may stress the existing water defense system.

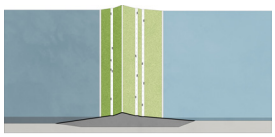
Conservation Objective

Therefore, the aim in the polder area is reintroduce the water dynamics, maintain the stability of dike and recover the gradient land-water transitions in port city.

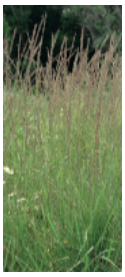


4 - The development of delta work cause the loss of intertidal area and lose of biodiversity

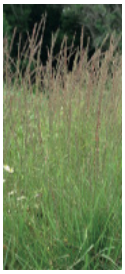
Image 6.5 : Comparison between natural habitat gradient and current landscape

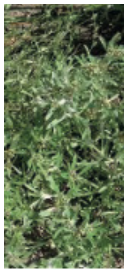


Dam
Water defence
Habitat for birds, fish, etc.
Recreation


Native Grass

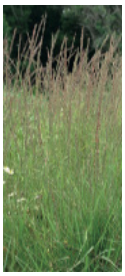
Lake dike
Water defence
Habitat for birds, fish, etc.
Recreation

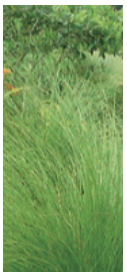

Native Grass


Marsh cudweed


Marshelder

Island
Habitat for birds, fish, etc.


Native Grass



Lake - Typology of Gradients

Landscape

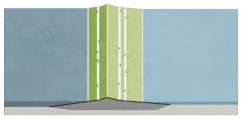
- *Dune*
- *Wetland*
- *Grass*
- *Forest*
- *Lake*
- *Agriculture*
- *Main Creek*
- *Urban*

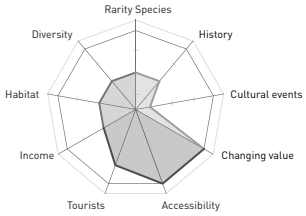
Gradients

- *Pattern 6*
- *Pattern 7*
- *Pattern 8*
- *Pattern 9*
- *Pattern 10*
- *Pattern 11*

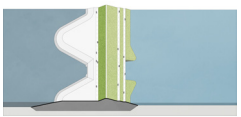
Lake - Spatial Patterns

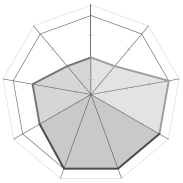
Pattern 06
Closed Dam



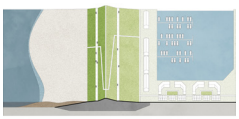


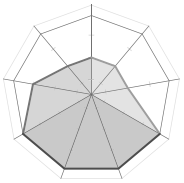
Pattern 07
Open Dam



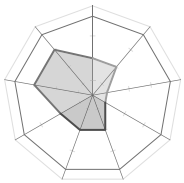


Pattern 08
Comprehensive Dam

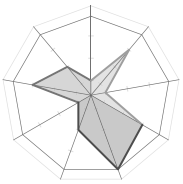




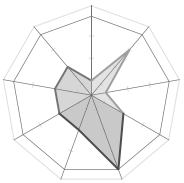
Pattern 09
Island



Pattern 10
Lake Dike of Polder



Pattern 08
Lake Dike of Urban



Polder

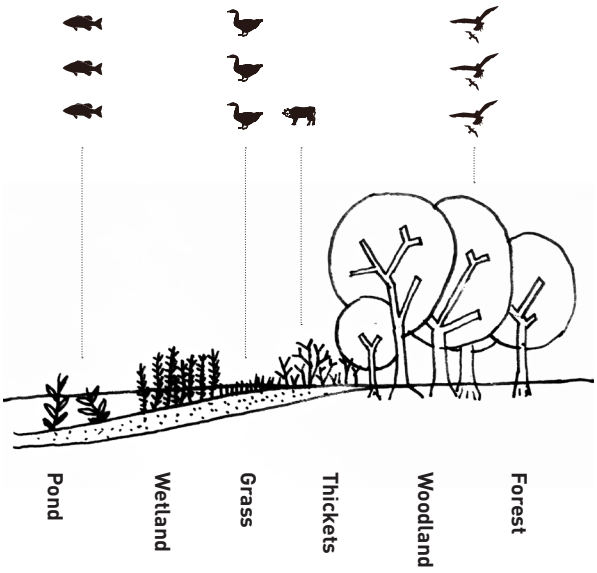
Then, in terms of the polder area, we have the gradients from wetland, creek, grassland and the agriculture. The main ecological potential exists in creek, wetlands. They can are the major habitat for most of the waterbirds and migratory species. However, as we can see, there is little wetland left today, and they are mainly located at the south part of the site as national park. As the drainage of the water lead to run-off of nutrients and result in massive ecosystem changes, the creek and ditch system provide an opportunity for us to create more wetland and resort the ecosystem in the polder area.

Stress & Source

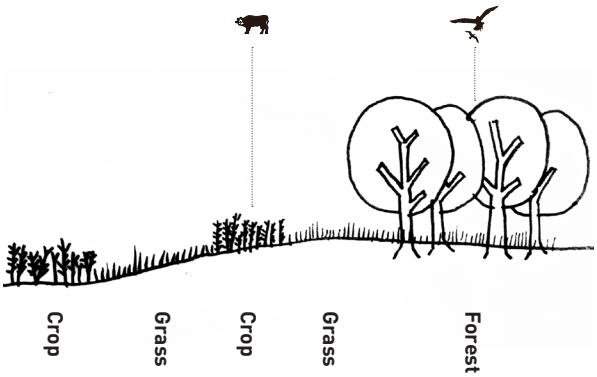
The losing ecosystem in the polder area is mainly caused by farming. In order to meet demand for the growing human population, current agricultural practices need to maximize the use of available land, which results in increased mechanization, more frequent mowing, increasing livestock densities, the removal of landscape elements such as wetland and dune. As the water needs to be drained during intense rainfall season, this process also lead to run-off of nutrients and lower the ground-water levels. These developments in turn contribute to disturbance, loss of habitat.

Conservation Objective

The aim in the polder area is restore the ecosystem by diversify the agriculture, increase the storage of fresh water and recover the semi-aquatic habitat.



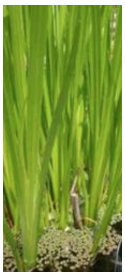
1 - Natural Gradients



2 - current landscape

Image 6.5 : Comparison between natural habitat gradient and current landscape

Creek
Regulate water
Habitat for fish, etc.
Recreation



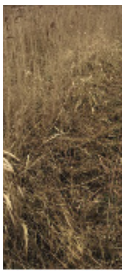
calamus

Agriculture
Production
Habitat for agricultural species

Corn

Wetland
Regulate water
Regulate temparature
Habitat for birds, fish, etc.
Recreation

Swamp ragwort



Cane

Marsh cudweed

Marshelder

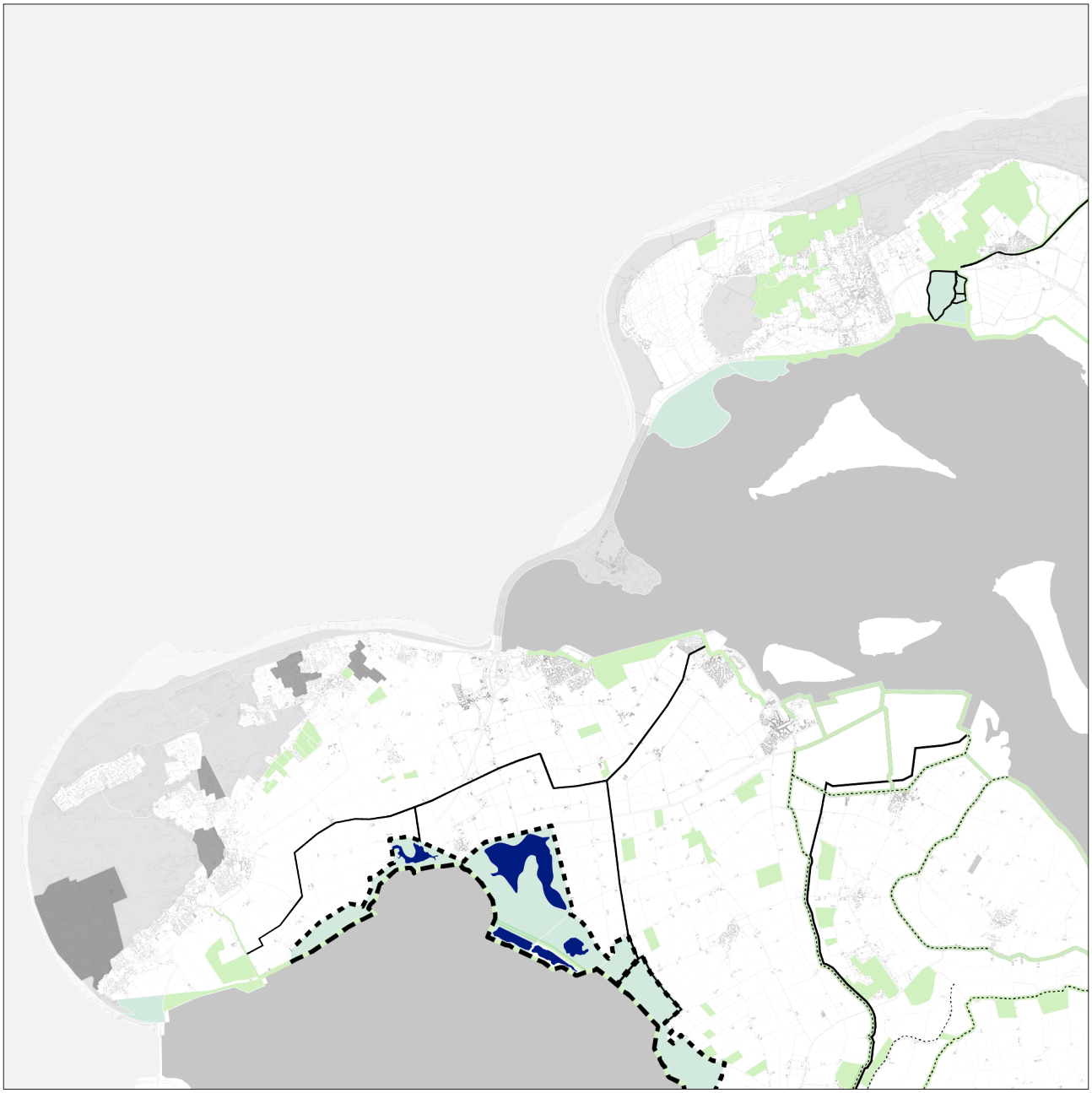
Polder - Typology of Gradients

Landscape

- *Dune*
- *Wetland*
- *Grass*
- *Forest*
- *Lake*
- *Agriculture*
- *Main Creek*
- *Urban*

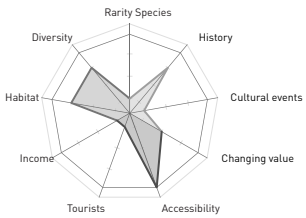
Gradients

- *Pattern 12*
- *Pattern 13*
- *Pattern 14*

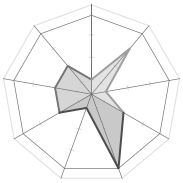


Polder - Spatial Patterns

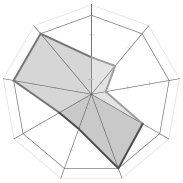
Pattern 12
Creek



Pattern 13
Agriculture



Pattern 14
Wetlands



5
Gathering Story

Program

Nowadays, to have a successful management of all the resources including museums, natural parks, heritage monuments, we must at first learn what are they going to do there after the visit. The following section will provide an analysis of the existing functional program and its relationship with the landscape and heritage.

Ecotourism activities have been sorted into the following categories: (Economic Development Branch BC Ministry of Sustainable Resource Management, 2003)

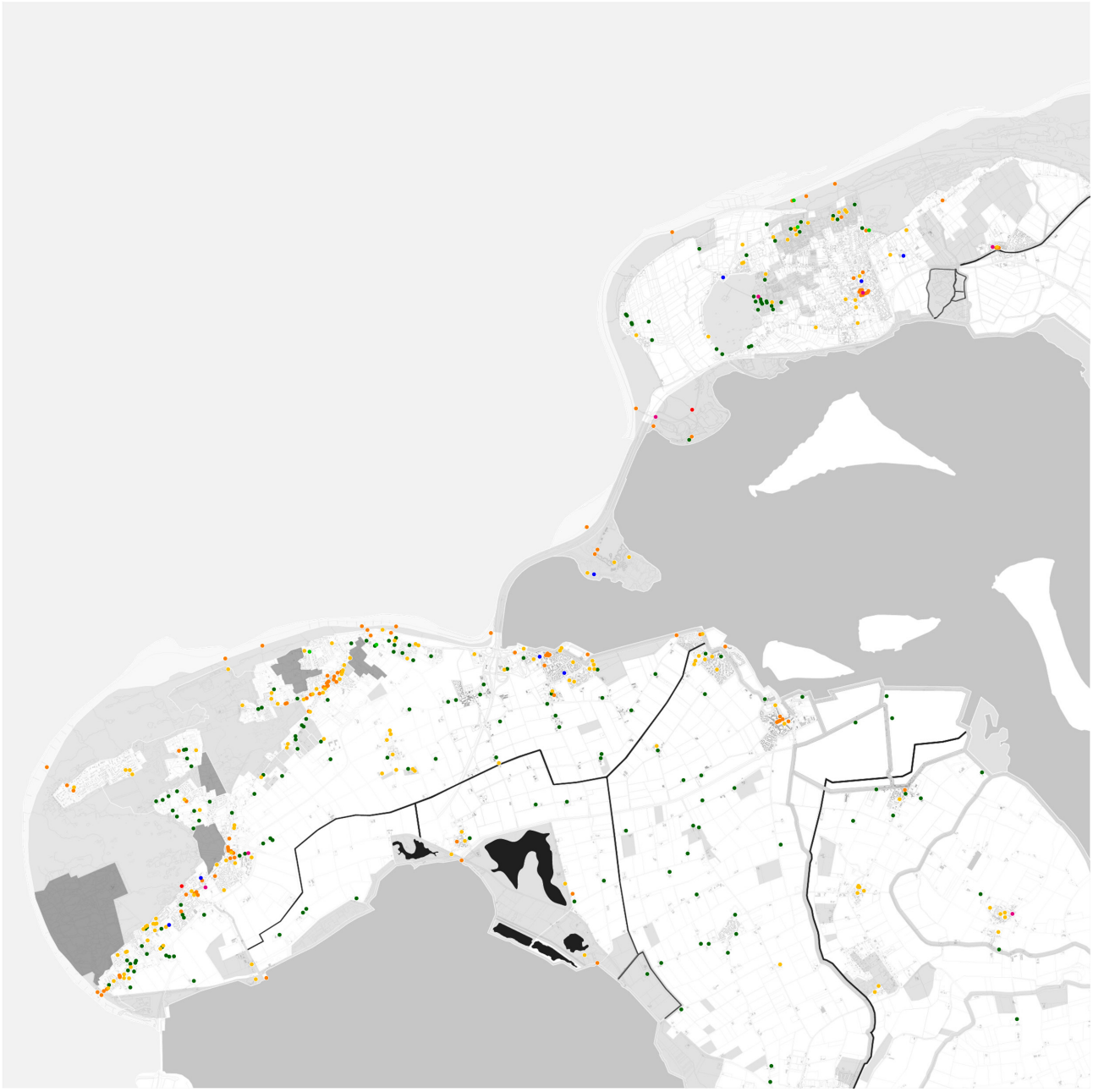
Marine Ecotourism
- marine cruising including sailing, yacht and power cruising
- sea kayaking tours

Land based Ecotourism
- Bicycle Touring
- Mountain Biking
- Horseback Trail Riding
- Hiking
- Backpacking
- Trekking
- Freshwater River Rafting, Canoeing and Kayaking
- Winter Tourism
- Back Country
- Tour Skiing
- Dog Sledding
- Walking
- camping
- boating
- hunting
- sight-seeing
- swimming
- cultural activities
- observing wildlife and nature
- skiing
- visiting historical places
- horse riding among

Based on the analysis of the current program in the location, they can be categorized into 3 main type. Economical program including long-distance walking, camping, boating, hunting, swimming, surfing. Ecological program includes wildlife observation, bicycling, sightseeing. Cultural activity including museum, monument and church. However, since there is no organization of the program, some has destroy the ecosystem, like the large number of camping replacing the dune area.

CURRENT PROGRAM

Dune
Wetland
Grass
Forest
Lake
Agriculture
Main Creek
Urban



CURRENT PROGRAM

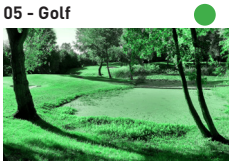
01 - Beach

02 - Hiking

03 - Surfing

04 - Playground

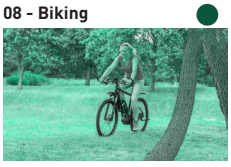
05 - Golf



06 - Tennis

07 - Housemenship

08 - Biking



09 - Swimming

10 - Climbing

11 - Fishing

12 - Camping

13 - Canoe

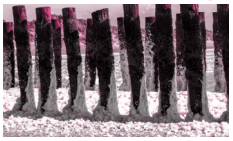
14 - Big Events Fields

15 - Museum

16 - Monument

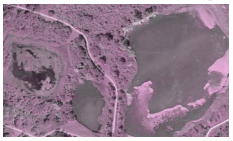
17 - Picnic Space

18 - Cultural facilities



19 - Bird Watching

20 - Water Retention



21 - Habitate Nest

22 - Tree Patches

23 - Farm visiting

24 - Exhibit space

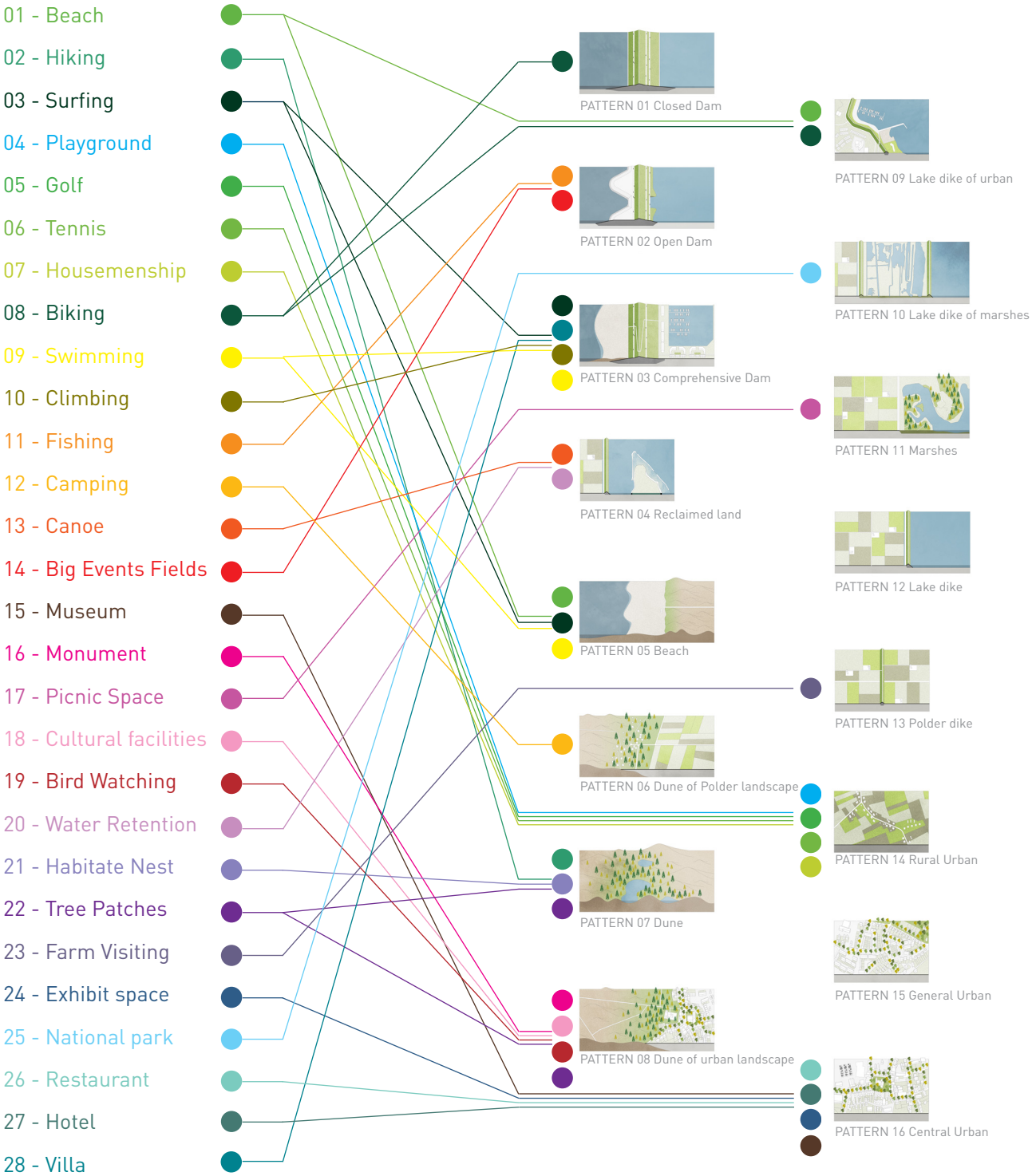
25 - National park

26 - Restaurant

27 - Hotel

28 - Villa

TERRITORIAL RELATIONSHIP WITH CURRENT PROGRAM



5
Gathering Story

Mobility

The following section aims to bring out a potential touristic route in order to structure the territory through the stream of tourism. The idea of the Territorial Route is used to enlace local economies and identities, shape spaces and structuring territories. The route is identified by the enhancement by design of the qualities of the landscape. The map aims to define the relationships that the Brouwersdam region with its surroundings according to mobility, connections and touristic relationships.

Mobility System

As a project principle, the mobility is evaluated in its relevance for tourism in terms of infrastructures and destinations connectivity.

In the national scale, the Brouwersdam region is connected to the city of Rotterdam and Antwerp through the highway A12 and A 20. These two highway are the major European infrastructure. In the project's view the fast main infrastructure are necessary for an efficient connection through the whole regional territory.

In the regional scale, the mobility mode of the Brouwersdam region can be identified in 4 main modes including driving, biking, walking and boating. The different mode of transportation can be identified in different categories according to their carrying capacity and width of its section and, therefore, for their impact on the territory.

Territorial Relationships as a Touristic Destination

The base map highlights the different ecological, historical, cultural destinations defined in the landscape gradients and landscape gradients sections. Commuting between coastal area is extremely popular due to the unique recreation and landscape that the region offers despite the poor condition of the infrastructures.

Tertiary infrastructure consists in slow mobility roads with a limited width that run through the landscape but that, often, lack of care. Although necessary, the project enhances the importance of the "landscape mobility lines" that promote a slower typology of mobility more related to a slow, touristic fruition and enjoyment of the landscape.

In the following pages, each kind of transport will be analysised, so does their relathionship with the potential touristic destinations.

NATIONAL MOBILITY - High Way

Territorial Relationships as a Touristic Destination

Primary Motor Way

The connection between Brouwersdam region and the other place is made possible by the highway of the N57, N59 that covers the entire the Southwest delta. The primary highway mainly walk across the farm land.

Secondary Motor Way

The structure of the secondary mobility enhances the poly-centricity of the region around the different town. The Secondary road mainly mainly walk across the farm land to connect the primary road with each central village.

Tertiary Motor Way

The Tertiary road mainly walk across more different kinds of landscape and it provide the main connection between the village with these landscape.

Mobility - Motor Way

Dune
Wetland
Grass
Forest
Lake
Agriculture
Main Creek
Urban
Primary
Secondary
Tertiary
Parking

Territorial Relationships as a Touristic Destination

Bike Route - Agriculture & Urban

The current bike routh has already formed the relatively complete slow network. It provides the connection between the different villages.

Bike Route - Dune

The bike route provide little connection for village and beach. Also, there is not enough parking space for bike along the beach.

Bike Route - Dike

Along the lake, the dike is also used as the bike route. It increase the accesibility of the lake and the marshes.

Mobility - Bike Route

Dune
Wetland
Grass
Forest
Lake
Agriculture
Main Creek
Urban
Bike Route
Parking

Territorial Relationships as a Touristic Destination

Walk Path - Urban

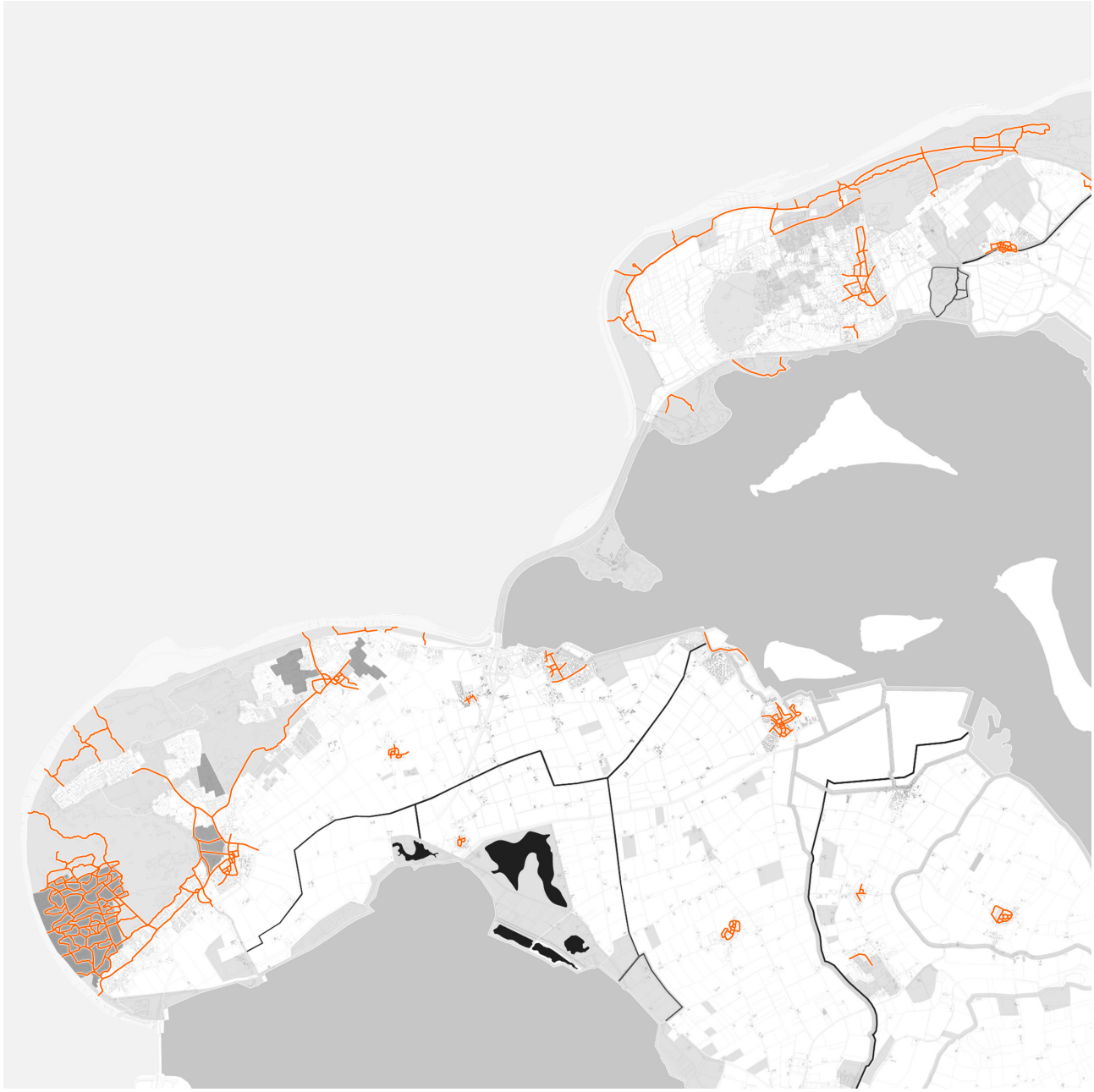
The walk path mainly exist in the urban area and provide access inside each village. The walking connection between different villages are still fragmented.

Walk Path - Dune

The walking path also exist in some part of dune area, especially those with forest. These walking network are popular space for activities like hiking currently.

Mobility - Walk Path

Dune
Wetland
Grass
Forest
Lake
Agriculture
Main Creek
Urban
Walk Path



5
Gathering Story

Conclution

Heritage
Cultural idetity need to be reinforced
The first part is the biography analysis. In this part, I reviewed the four phase of my project location from its origin to the current. As a short conclusion, based on the biography analysis, we can see the cultural element, or the typical gradients appear in the different time. They act as the cultural resource or potential for the development of ecotourism. Also, provide a base for the study of landscape gradients. For the cultural landscape, in some place, the cultural identity is losing after the development of Delta Work. For instance, many port village is gradually lost the identity of water as more land is reclaimed and their link with the water is lost now.

Territory
Losing Gradients lead to decreasing biodiversity
Gradient-poor present, where tourism creates pressure on the 'head' of the islands and agriculture dominates the 'body'of the islands. Worst case future scenario, if we do nothing:The 'body' of the islands become shrinking regions with no public facilities, while the 'head' of the islands are dominated by touristic developments which destroy the open dune landscape and its ecosystems.

Program
Program with no organization
Based on the analysis of the current program in the location, they can be categorized into 3 main type. Economical program including long-distance walking, camping, boating, hunting, swimming, surfing. Ecological program include wildlife observation, bicycling, sightseeing. Cultural activity including museum, monumental and church. However, since there is no organization of the program, some has destroy the ecosystem, like the large number of camping replacing the dune area.

Mobility
Slow mobility missing
In the national scale, the Brouwersdam region is connected to the city of Rotterdam and Antwerp through highway A12 and A20. These two highway are the major European infrustructure. In the regional Scale, the mobility mode of the Brouwersdam region can be identified in 3 main modes including driving, walking and biking. Based on the analysis, we find that the bike routes has already run through the most gradients of landscape but that, often, lack of care. The walk path is still fragmented and didn't form a network. And its connection with heritage and cultural landscape is still poor.

Based on the current condition of the region and the challenge it is facing, the next step can be put forward to define the operative resource for the development fo ecotourism network.

CURRENT STRUCTURE

Heritage (Element with cultural value)

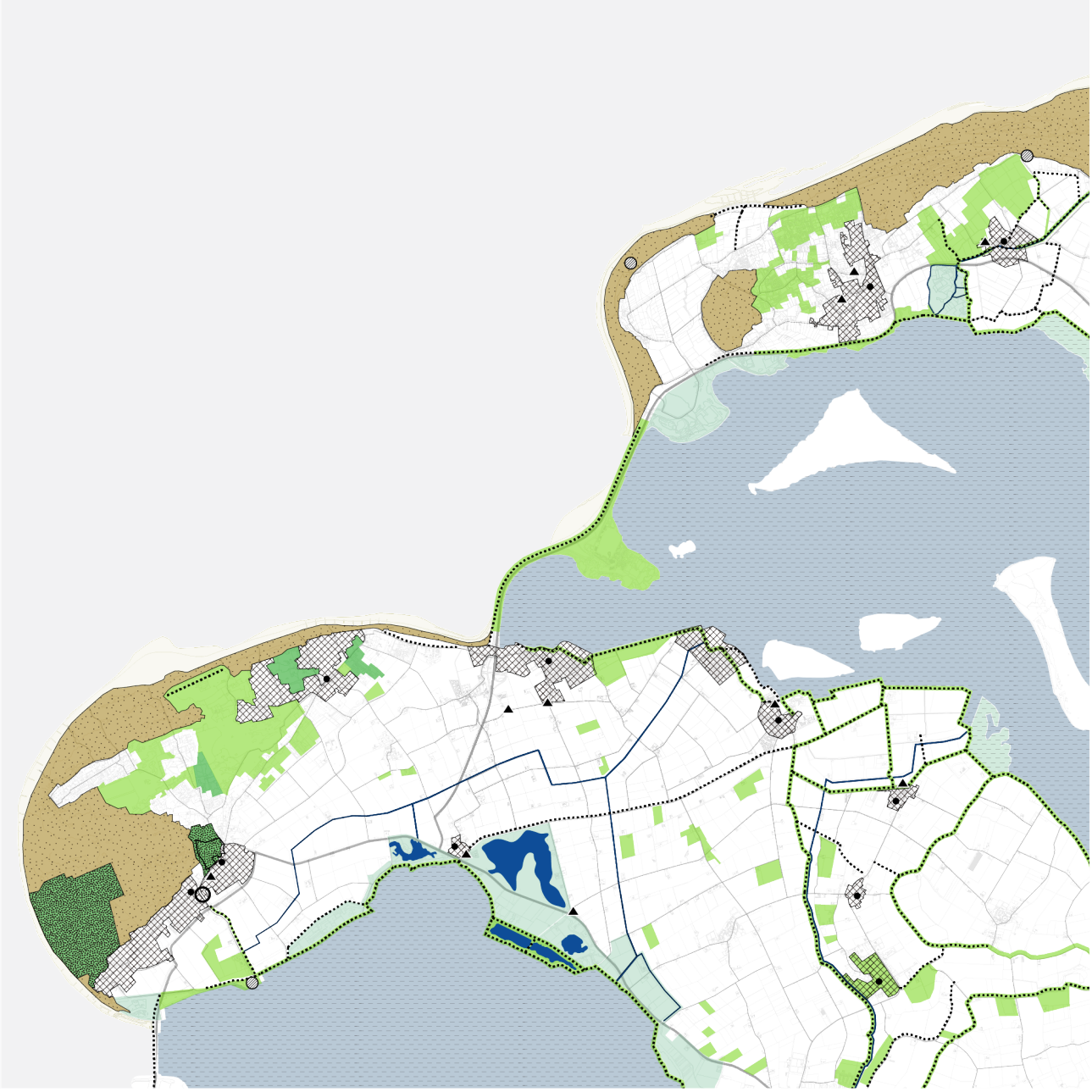
- *Dune*
- *Forest*
- *Dike*
- *Historic Village*
- *Wetland*
- *Lake & Creek*
- *Parish Church*
- *Castle*
- *Ringwallburgh*
- *Light tower*
- *Water Mill*

Territory (Element with ecological value)

- *Dune*
- *Forest*
- *Grass*
- *Farmland*
- *Wetland*
- *Creek*
- *Lake(Salt water)*
- *Urban*

Mobility

- *High way*
- *Main Road*



6
Regional Principles and Structure

After I clarify the objective, the next step is to define the operative resources for the development of ecotourism. I use two main theories, that is landscape biography and landscape gradients. The biography analysis help me to understand and learn from the changing layout of the site in the past and identify the cultural resource, the gradient analysis help me to study ecological resource in the current layer.

Based on the above analysis, I identified potential and challenge exist on the current structure. Having these resource, it is possible to step further to design phase to develop the timeline of ecotourism.

6.1 General Principle
6.2 Define Operative Structures
6.3 Structure Plan

6
Interpreting Story

General Principle

General Principle 01
Biography Respect

The cultural identity of the site concluded in the biography analysis should be protected and reinforced through the development of ecotourism.

The need for a city identity is important as it provides harmony between "constant" and "changing" elements; people and events, which are integrated by a reciprocal link that makes a specific city unique and distinctive. In the same line communities evolve and transform, therefore, conserving certain historic areas is fundamental for retrieving a city's urban identity. In this context, Carta stated "We need to find these invariants and adapt them to contemporary situations and conditions and it is on this heritage of specificity and intrinsic values (history, culture, nature) that one can establish an effective, sustainable local innovation process, which can become a source of a collective identity, a tool of communication between generations and a means of maximizing opportunities".

Globalization has resulted in a great diversity of sustainable landscapes. Those have a better legibility and give a clear character and identity to place and region. Landmarks and symbols are necessary ancestral roots. Also, they contain many forgotten lessons and landscape structure is crucial for the maintenance of diversity, both biodiversity and cultural diversity. These landscapes are a source of essential (barely studied) knowledge about sustainable management techniques. They possess unexplored wisdom and inspiration for making better future landscapes and offer a base for restoration.

General Principle 02
Re-establish the Gradients based on Biography

Improve the link between urban and nature to reinforce the cultural identity of the village and encourage the changing meaning of the landscape.

Gradients are smooth transitions between two extremes. In the landscape gradients are the most diverse environments. There you will find the most plant and animal species and the most divers appearance of landscapes.

Gradients are sources of diversity, the "information function" of the natural environment is very high. This applies to natural aspects such as wet/dry, high/low, open/covered, nutrient poor/nutrient-rich and sand/clay. That includes "cultuurgradienten" as transitions between intensive/extensive agricultural use or between urban/rural area. Gradients are therefore areas of particular spatial quality.

Because of human interference in nature, a lot of the original gradients have been lost. To add the gradients in the landscape again, we can make use of Landscape Ecology Principles (Dramstad, Olson, & Forman, 1996).

Behind the story of the ecological gradient, is still a more general spatial principle. Also between different types of land (city/country, land/water, pressure/quiet) can occur gradual transitions, with a rich variety of environment types. It requires special attention in order to develop such transitions sustainable (Puylaert & Werksma, 2015).

General Principle 03
Sustainable transport as a new gradient

Encourage the use of slow mobility and public transport along the main touristic route.

The delivery of transportation services to and in tourism destinations has an impact on its sustainability. It is important for tourist cities to have a legible transport network and to provide good linkage through public transport services to make the relationship more sustainable. For cities that have popular tourist destinations, it should have a transportation network that provides good linkage to its various attractions without the tourist resorting to contacting an agent to get around. A destination with good linkage and public transport service can reduce the competition provided by the car in inter-municipality travel.

General Principle 04
Narrating the natural process for program

The ecotourism network should provide opportunities to experience nature and lead to greater understanding of natural process.

Activities should always be linked to a specific natural process. Based on the objective of each site, the different narritive will happen in the certain kind of ecological condition. These narrative will be organized through the landscape intervention. In particular, you need to select the ones that make the most sense given the program's available and projected resources and constraints.

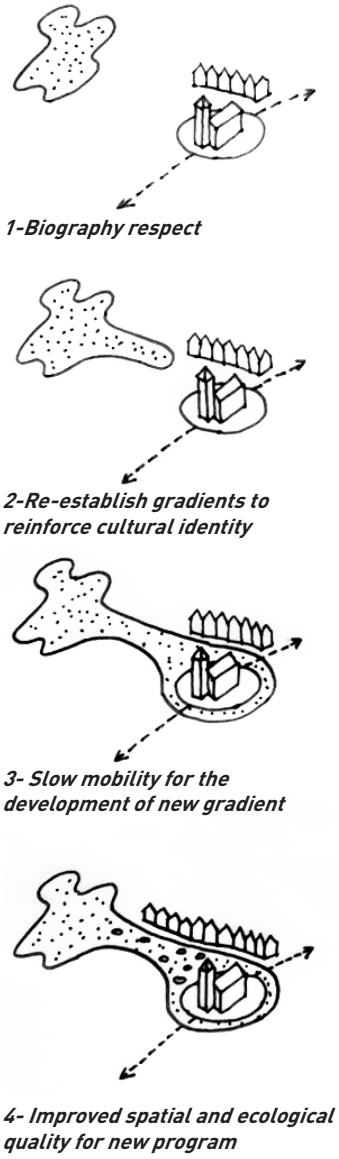
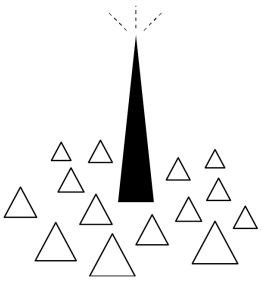


Image 6-01 : The possible spatial transforamtion that can be explored from the general prinicple (Made by Author)

6
Interpreting Story

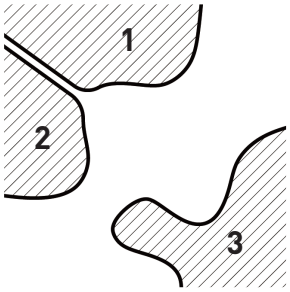
Heritage & Ecotourism

Cultural Hotspots
This would primarily be a plan of cultural hotspots to act as the attraction to boost the development of ecotourism in the short term.These sites are based on the location of church, water mill, ringwallburgh, light tower and castle conclude in landscape biography analysis. These cultural element will be designed as the landmark of the site through the design intervention.



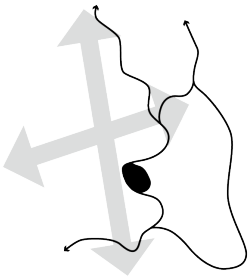
Landmark formation
Points of orientation in visual

Conservation Area
This principle lead to a spatial management plan of the different conservation zone to maintain the ecological quality and cultural diversity. The plan would designate the conservation area and develop strategies for each area. The selection of conservation area is based on the overlapping of Gradients Analysis and Biography Analysis of the site, which highlight the both high cultural and ecological value area.



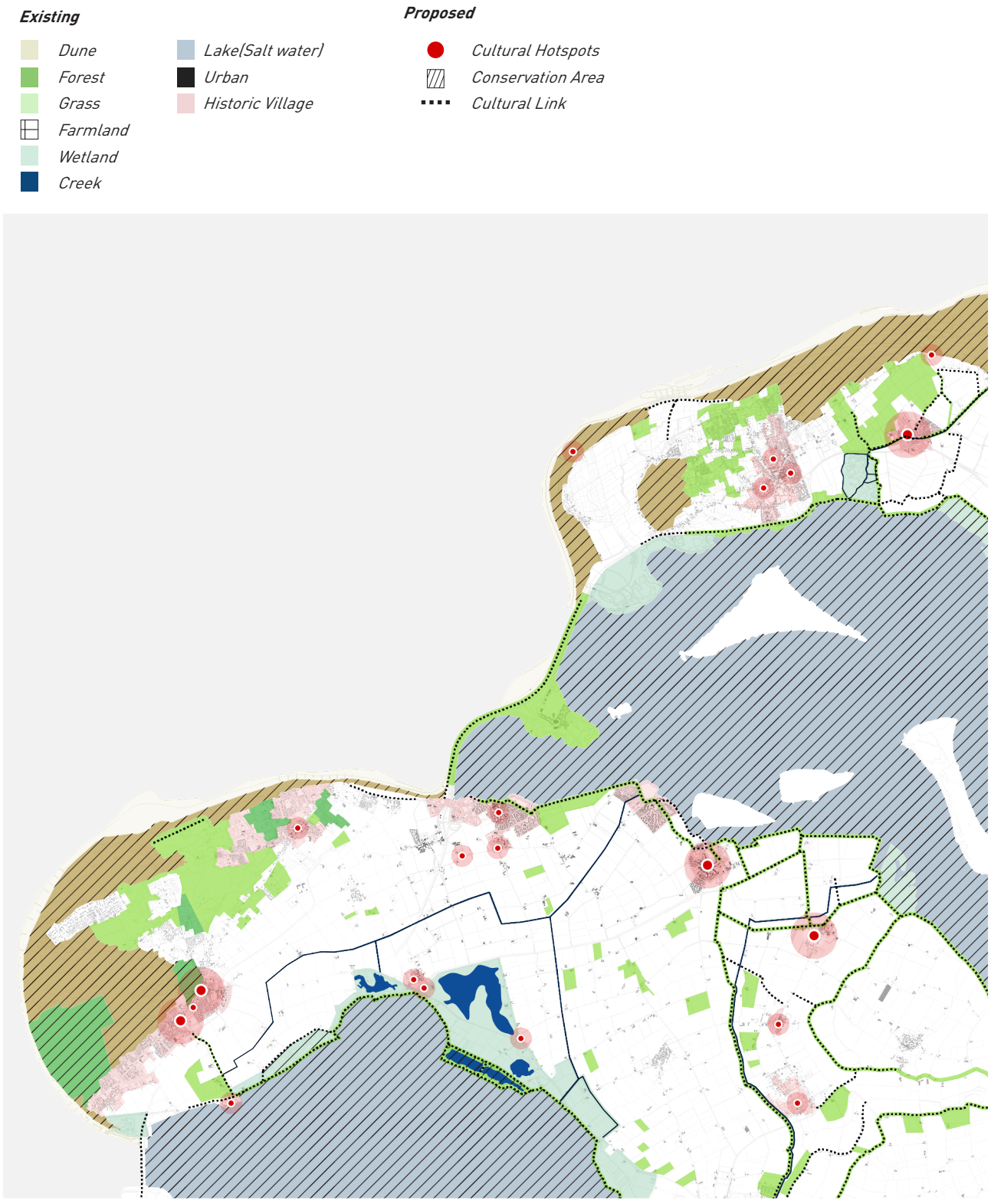
Conservation Area
Maintain the cultural and ecological quality

Cultural Link Reinforce
The cultural link is form by the historic creek and dike which currently have cultural value but low ecological value. For these link, their cultural importance will be reinforeced through the improvement of their ecological value and the transformation of the landscape meaning. To reinforce the link from village to cultural landscape, a new gradient can be made within the design configuration. For example the water can be extended into the land or the land can also be pulled towards the water. By creating this new gradient, the history of the village and their past relationship with the water can be given new meaning for the development of ecotourism.



Cultural link
Reinforce a certain kind of identity (waterbody, dike)

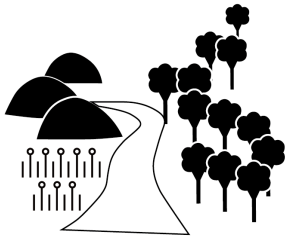
Image 6-02 : Proposed structure for ecotourism in heritage aspects (Made by Author)



6
Interpreting Story

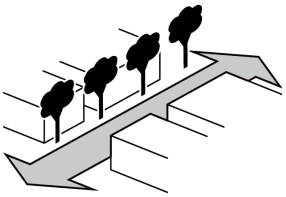
Territory & Ecotourism

Local Species Restoration
As the typical landscape existing in the inbetween area of dune and village, wooden bank have high cultural and ecoligical values in for the village. Therefore, some small wooden bank patches are planted nearby the dune and extended directly to central village to reinforce the ecological identity of the semi-dune area and different there from other place.



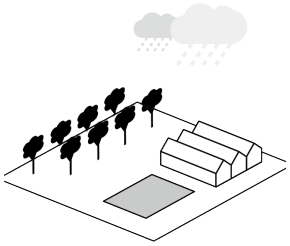
Local Species Restoration
Local species as a kind of local identity

Green Trails
Green trails that uses vegetation and facilities are used to reinforce the ring structure of the old village center and ringwallburgh and create green connection between the diefferent village center. Apart from that, Green Trail is a sustainable stormwater strategy using a natural systems approach to manage stormwater, reduce flows, improve water quality.



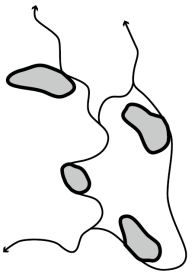
Green Trails
Continues connection between different hotspots to improve ecological value

Multi-Activity Farming
Promote agriculture based on diversifying farms, optimizing biodiversity and stimulating interactions between different species to build long-term soil fertility and healthy agro-ecosystems. Combined with the fiversified farming, topsoil and subsoil are extracted to remove the nutrient in the soil in seepage zone. Places with strong seepage could form freshwater seepage reservoirs.



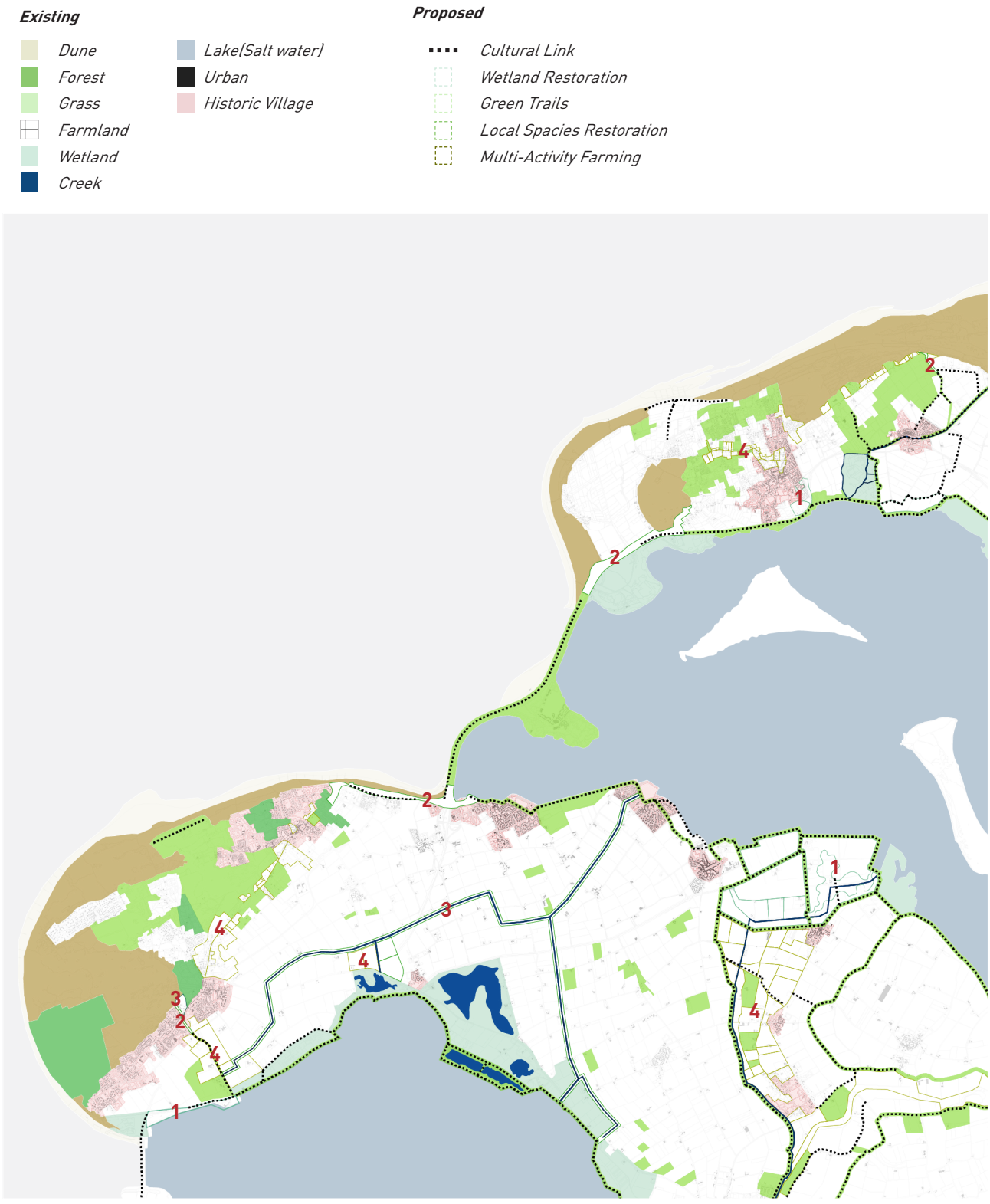
Multi-activity Farming
Optimize biodiversity in farm land

Wetland Restoration
Being the base for the development of other habitats, wetland not only contains a high biodiversity but also provides numerous ecosystem services, such as flood control, freshwater supply. Make use of the existing ditch structure to create an open water structure. Water level in the designated wetland patches is raised to rewet the plot.



Wetland Restoration
Recover wetland by ditch

Image 6-03 : Proposed structure for ecotourism in territory aspects (Made by Author)

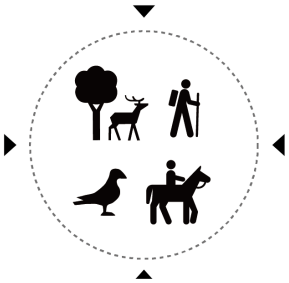


6
Interpreting Story

Program & Ecotourism

Programming

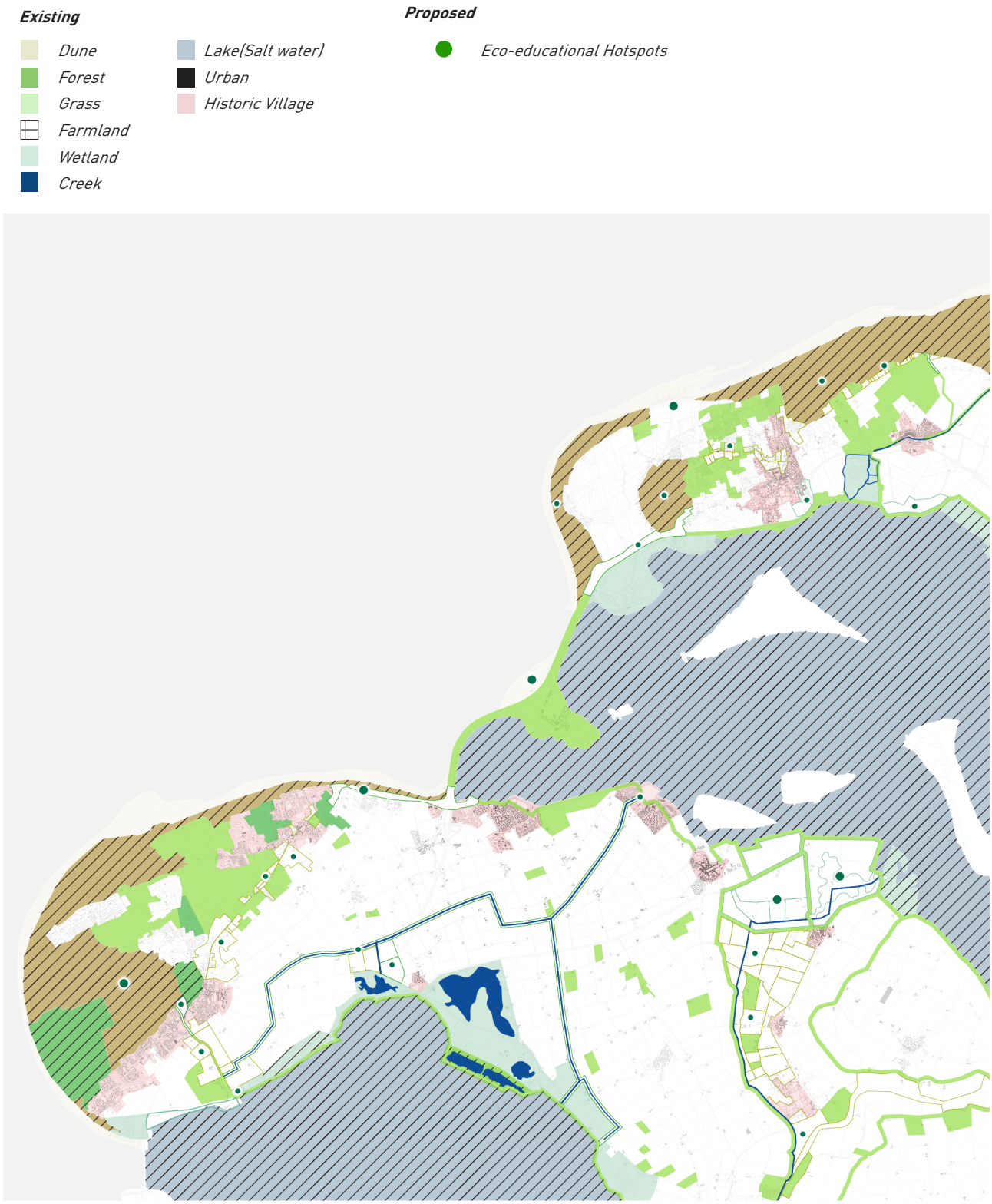
This is a plan of eco-educational hotspots to act as the attraction to boost the development of ecotourism in the long term. **These eco-educational hotspots will be based on the development of new gradients**. Based on the ecological context of the site, different eco-educational program will be developed to support recreational, educational and conservation use. These program will help people to experience the natural process and increase their awareness of conserving the ecosystem.



Programming
Activity to increase the awareness of people

Example of Eco-educational program that is possible to achieve in the site

Image 6-04 : Proposed structure for ecotourism iprogram (Made by Author)

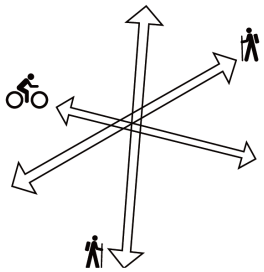


6
Interpreting Story

Mobility & Ecotourism

Slow Mobility

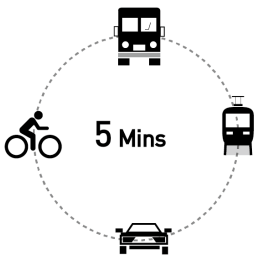
Its goal is to provide priority to the walker and cycler along the main touristic route. More sidewalk and biking path will be added along the touristic route and create the continious slow network. And reduce the impact of mobility system for ecological quality. In some place, the share space for different mobility will be create when there is no more space for further development. The green space along the street can be used to control the speed of the car and ensure safety.



Slow Mobility
Sidewalk and biking path

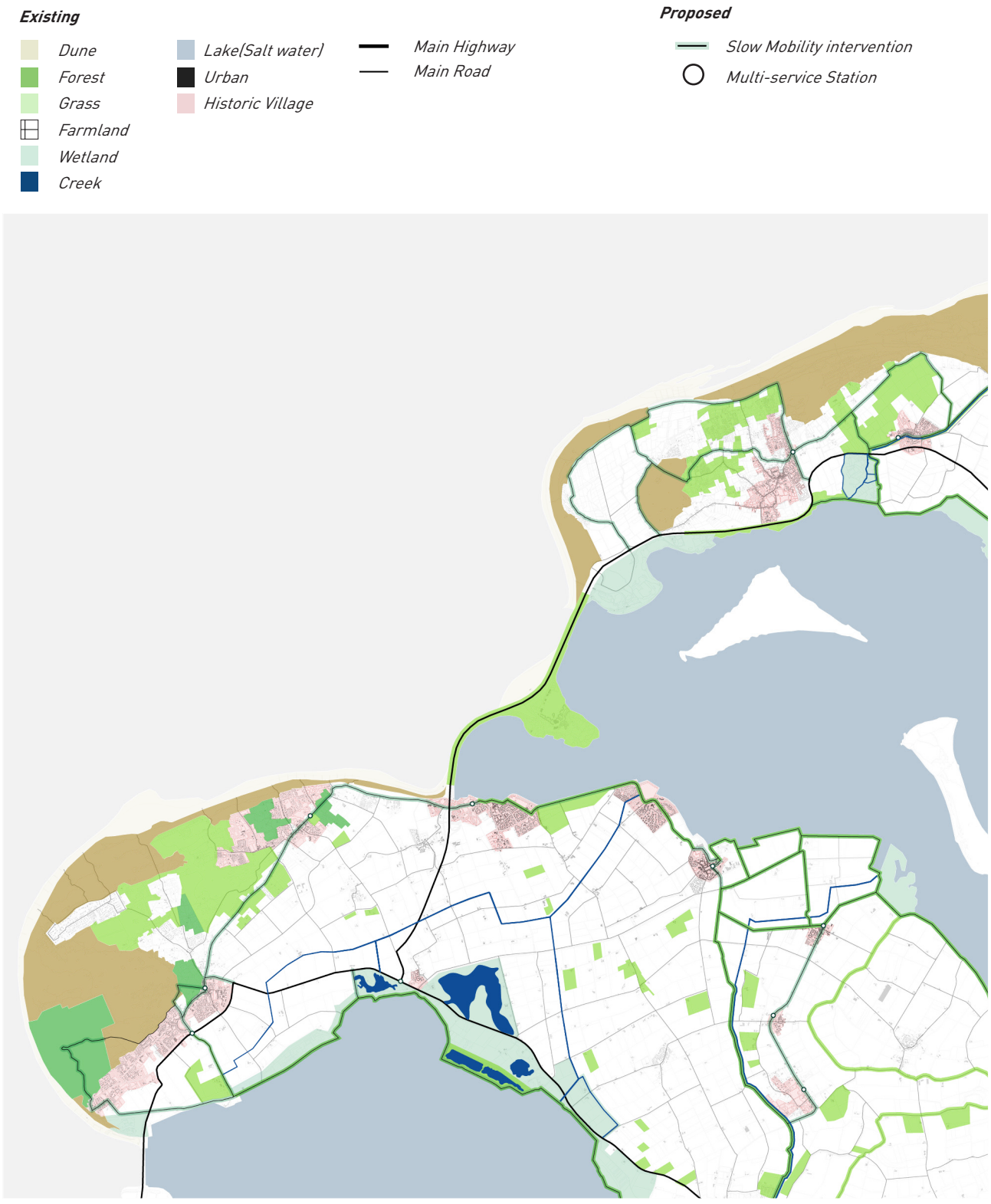
Multi-service Station

The park, ride and bus station is a parking garage that not only charges autonomous vehicles but also allows the user to leave the vehicle there while in transit to a certain destination and could be picked up on the way back. These garages are the solutions to re-purpose existing park and ride spaces in the village. These Park and Ride spaces are usually underground or multistory garages places in close proximity to major mobility hub and infrastructure.



Multi-Service Station
Activity to increase the awareness of people

Image 6-05 : Proposed structure for ecotourism in mobility system (Made by Author)



Structure Plan

The general principle of biography and Gradients have encouraged the development of ecotourism Network. Therefore the vision for the Brouwersdam Region is identified. The proposed overall strategies for the Brouwersdam Region in designing landscape as ecotourism network.

Image 6.6 : Ecotourism Vision in 2100
(Made by Author)

Territory

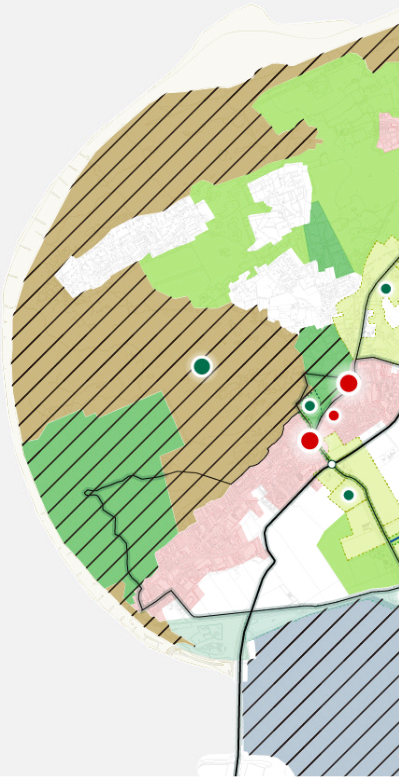
- *Dune*
- *Forest*
- *Grass*
- *Farmland*
- *Wetland*
- *Creek*
- *Lake(Salt water)*
- *Urban*
- *Old Village*
- *Wetland Restoration (Proposed)*
- *Green Trails (Proposed)*
- *Local Spacies Restoration (Proposed)*
- *Multi-Activity Farming (Proposed)*
- *Conservation Area (Proposed)*

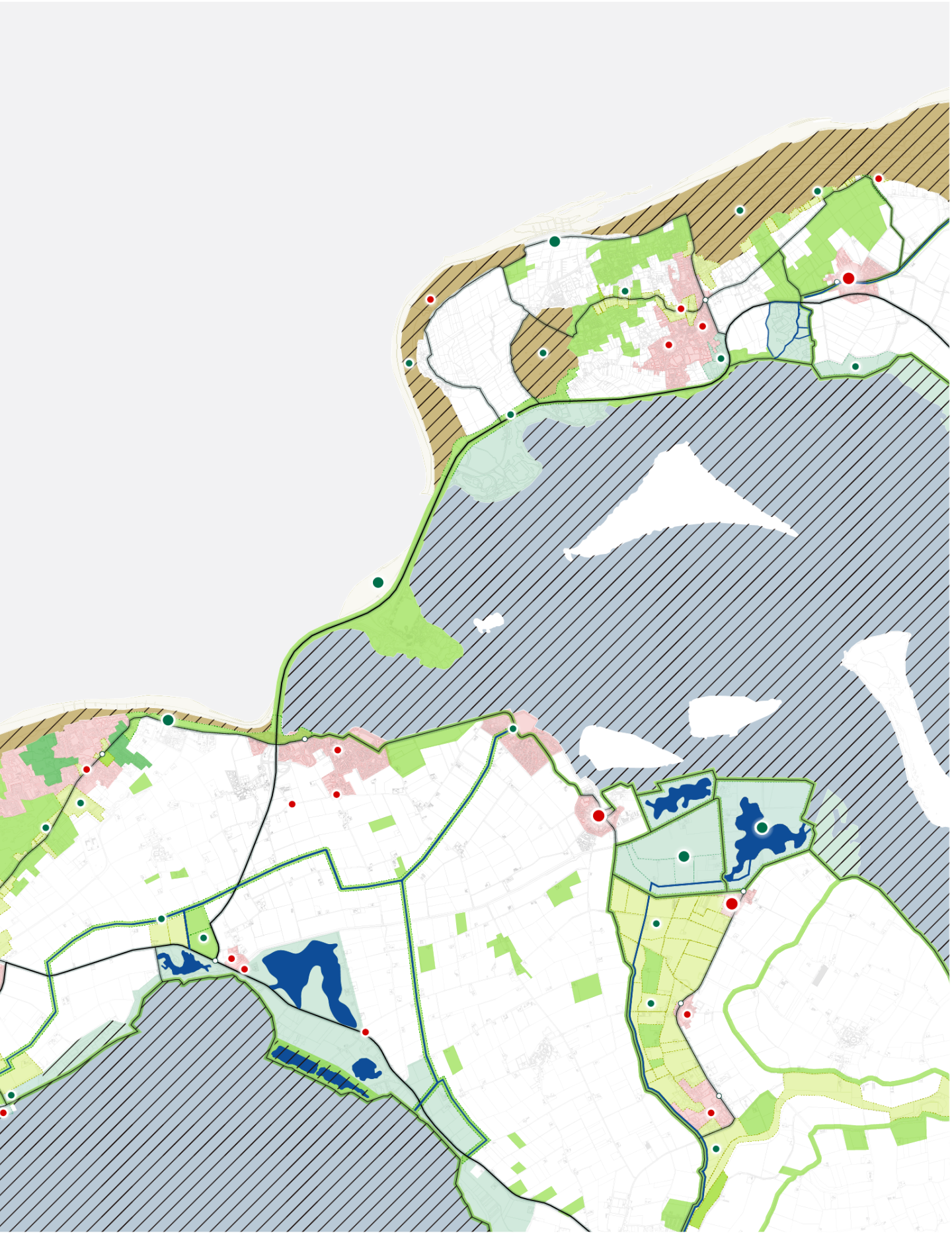
Program

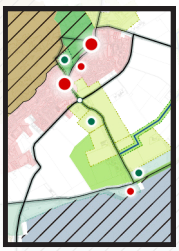
- *Eco-educational Hotspots (Proposed)*
- *Cultural Hotspots (Proposed)*

Mobility

- *Main Highway*
- *Main transfer center (Proposed)*
- *Main Toruistic Route (Proposed)*







7
Design Intervention

After I made the vision, a case is selected to demonstrate the possible realization of the structure plan and visualize the future images. In this chapter, I will take about the Village Burgh. The outcomes of this project would consist of illustrations of selected futures, representing the impact of Ecotourism in different locations along the touristic route. The purpose of this case study is not just to provide visualization but an understanding of the opportunities offer to urbanization.

With the help of regional design principle, the idea is to apply them onto to aspects of the village such as sami-dune area, central village, open countryside with the best possible combinations to understand the impact of ecotourism. Apart from the implication of the regional design principle, the case study help me to explore the more specific local design principle when I zoom into the village scale. Based on that, different narratives are explored along the main touristic route. Each of the illustrations depicts the tools used and the new features developed in the process.

7.1 Case Study : Burgh
7.2 Local Design Principle
7.3 Test Site
Site 1: Green Road to city center
Site 2: Half-way towards dune
Site 3: Dynamic dune
Site 4: Along the old dike
Site 5: Towards water

7
Designing Story

Village : BURGH

Burgh-Haamstede is a core that originated from two separate ring villages: Burgh and Haamstede. The name Burgh is derived from the Carolingian burg, which is clearly visible in the landscape. The village was built on the outskirts of this burg. Haamstede probably dates from the 8th century. Both villages have grown together through a continuous ribbon development. Originally, however, they are two separate ring villages. Burgh-Haamstede is the largest core in the west corner of Schouwen.

Burgh
Burgh exhibits a certain dualism in historical construction. The village arose immediately outside the Carolingian burg, but on the other hand, the village also has a younger church ring. Thus, the village can be regarded as a ring village with a circular street, which encloses the inside, often higher situated. Most other streets come out on this ring. On the outside, the ring usually has closed construction. Over the years, workers' homes, shops and craft businesses have been built instead of the farms that originally formed the most important buildings. The women's monastery Leliëndale was located southeast of the village of Burgh. In 1899, the last remnants were cleared away. The sports park of Zuijen is now on the spot. The oldest streets in Burgh are the Burghse Ring, the Kerkstraat, the Duinwegje, the Achterstraat and the Dreef. This is also the oldest development of the village.

From the Second World War, the old ribbons and streets were built up, after which around 1970-1980 it was extended in the northern direction of the Hogeweg. Finally, around 1990, expansion took place southwards (neighborhood Kakelstraat).

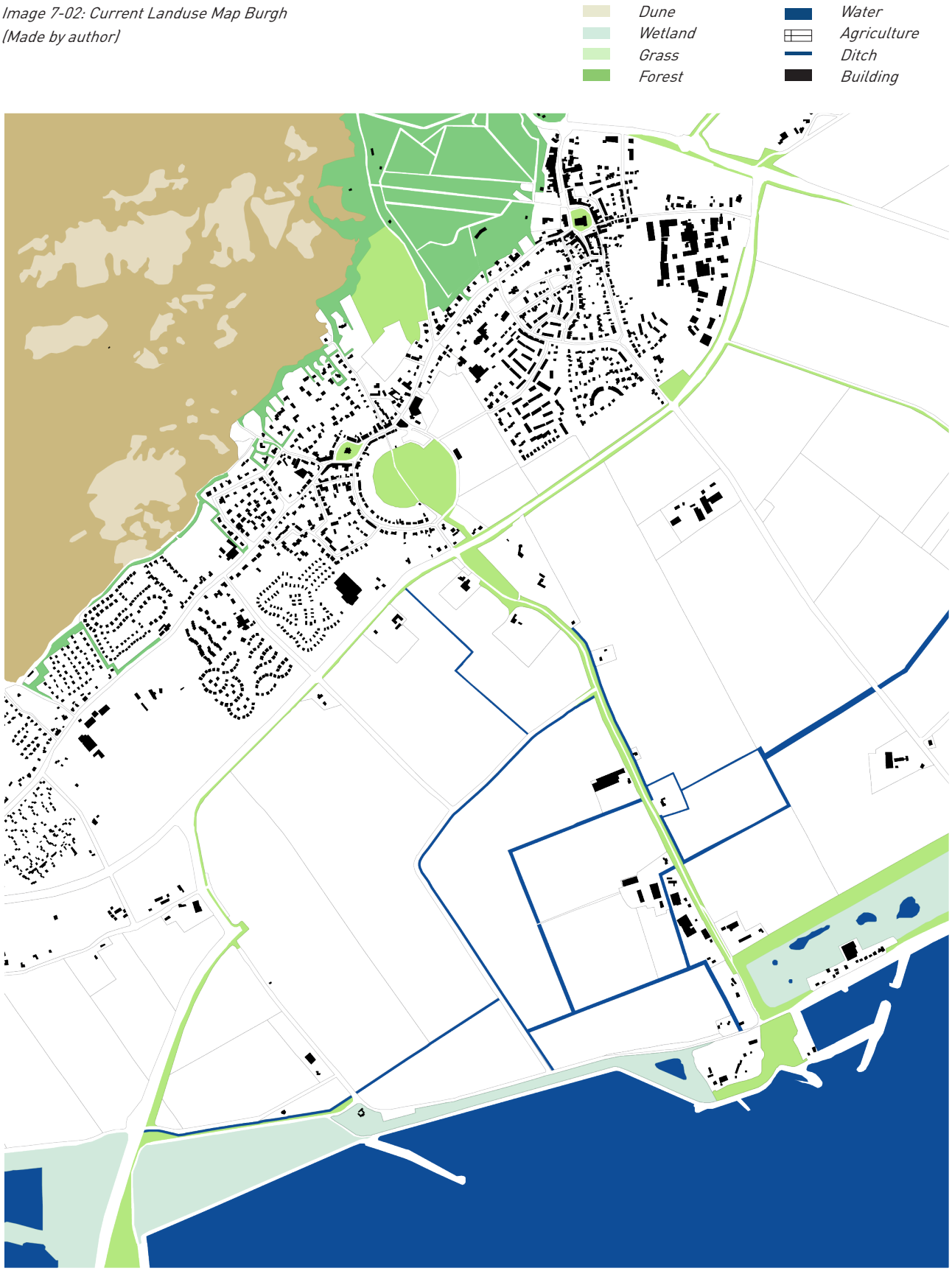
1. Quality and shared use of nature conservation
The Province has set itself the goal of protecting, managing and developing typical Zeeland nature values, which contribute to the preservation of the biodiversity and the environmental quality.

2. Ecotourism Services
From careful use of space, combining functions and strengthening attractive cities, the Province sees core nature areas as the primary location for tourism. They fulfill an important economic function for residents and tourists and deserve protection.

3. Housing construction and restructuring
The Province aims for a good living environment and a well-functioning housing market in cities, villages and countryside. In addition, sufficient size, quality and differentiation of housing stock are important, and spatial planning and careful use of space are paramount.

Image 7-01: Historical map Burgh (Hattinga 1750)

Image 7-02: Current Landuse Map Burgh
(Made by author)



Burgh
Heritage Analysis

Based on the General Principle " Respect Biography", the historic layout is firstly studied. Through the biography analysis, the existing heritage is concluded as following.

1 - Dune
Before 900, villages like Renesse and Haamstede has already been inhabited continuously. Protected by this dune zoom, people lived high and safe enough and escape from many storm floods through the centuries. Apart from that, fresh water supplied by the dune also help to make this earliest living possible.

2 - Emergency House
Because of the flood of 1953 many homes have been lost. In the years after the disaster many so-called gifted kings were built. The wooden gifts that Burgh received after the disaster of Norway are a silent reminder of the suffering that preceded these gifts. We can still recognize the emergency homes by their characteristic wooden façades, which are not very common in the area. In Burgh, 5 gift-winning residences located at the Duinwegje are the best-preserved gift houses of Schouwen-Duiveland.

3 - Burghse Ring and Church
The Reformed church from 1678 with its plan based on a Greek cross has a different form in these parts. The cross has long lower side arms, which focuses on the center of the church. In 1924, the church was partially destroyed by fire, but immediately afterwards it was possible to proceed with a rebuilding process, while certain details were changed. During the Second World War, however, the brick west tower of a section was destroyed. After which the tower was restored again. In the seventies, a new restoration of the church followed. The entrance gate with sculpture dates from 1948.

4 - Dike Meeldijk
The construction of the dike has begun in Roman times. After that, small dikes and dams were created to prevent the dynamic water. Meeldijk which developed before 1800 is the oldest dike in the site. Now, it has lost the function of water defense and mainly act as the transport system.

5 - Oosterschelde Lake and Light Tower
After the 18th century, the problem of flood become worse. Especially after the North sea flood in 1953, the water defense system Deltawerken was developed. After the dam was built, the lake Oosterschelde appear. It cut the connection between the villages and North Sea. As more and more village lost the identity of port city or fishing harbor, they declined.

Local Design Principle 1 :
The historical structure and the historical element should be highlighted and developed as the landmark. For example, the parish church should be highlighted by increasing the continuous of the ring structure and street space.

Local Design Principle 2 :
The development of new facilities or new house should follow the guidelines of the essential features of the exhisting historical elements lincluding, limited volume, appearance, local materials.

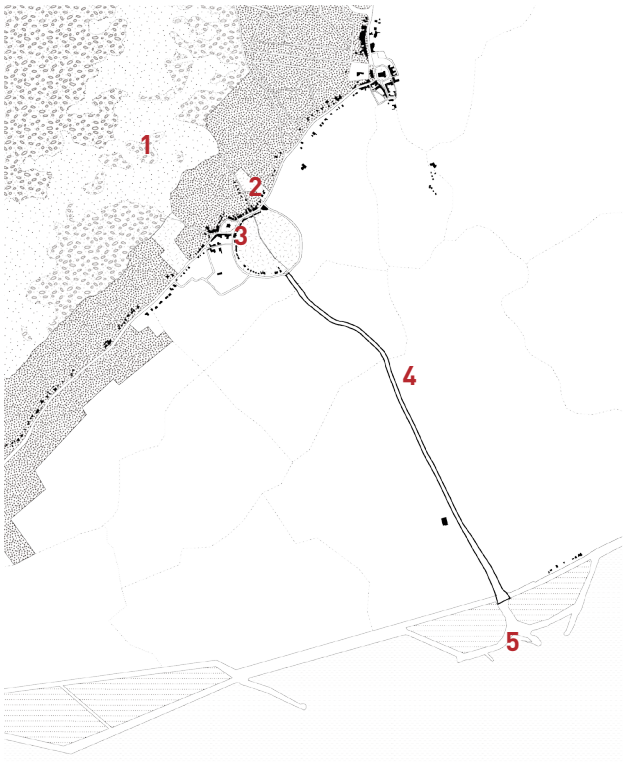


Image 7-03 : Burgh in 1960 (Made by author)

Image 7-04 : Current Burgh (Made by author)

Heritage (Spatial element with cultural Value)

- *Dune*
- *Forest*
- *Grassland*
- *Dike*
- *Historic Building*
- *Wetland*
- *Lake*

1- Dune used for water defence

3-Burghse Ring and The Burgh Friends Church

2-Emergency house built in 1950 at Duinwegje

4 - Meeldijk and the polder landscape

5 - Oosterschelde Lake and Light Tower

Image 7-05 : Existing heritage in Burgh

Burgh
Territory Analysis

Through the Gradients analysis, the main ecological habitats with high ecological value on the site is concluded as following.

1 - Dune Habitat
Due to the large variation in gradients (= transitions) the dune zoom has a rich flora. In addition to the vegetation of wet dune valleys and open frowns in the northern part, there are also vegetation that are bound to the exit of fresh seepage water (between Hoge and Lagezoom). The common vegetation types of the dune landscape are internationally rare. A priority species is the Groenknolorchis. The sweet seepage is important for this.

2 - Forest Habitat
There are also several wooded banks present in the area today. These distinctive landscape elements have been erected when the sand has been put away and landed on the fields and meadows. They also served as a yard and by planting them with dense thickets of, in particular, alder, willow and thorn bushes, also as a barrage. The coppice was also used for heating or firing baking ovens. Wooded banks are only found in the dune area. Wooded banks have a high cultural-historical and landscape value. A wooden wall is understood as an elongated earthen wall raised by man and planted with trees.

3 - Urban Habitat
An important structure line in Burgh is formed by the Hogeweg, which is accentuated by the planting of linden. This structure continues in the Burghse road towards Haamstede. The characteristic high-fruit fruit structure is characteristic of the core of Burgh (Ring and Kerkstraat). If necessary, another species can be considered for replanting. Because high-fruit fruit trees have also been used outside the core, the distinction between the core and distinction between core and surrounding streets is becoming blurred.

4 - Agricultural Habitat
In order to meet demand for the growing human population, current agricultural practices need to maximize the use of available land, which results in increased mechanization, more single type of crops to plant. Currently, the main type of agriculture here is corn and cereal.

5 - Wetland Habitat
The main ecological potential exists in wetlands. They can are the major habitat for most of the water birds and migratory species. However, as we can see, there is little wetland left today, and they are mainly located at the south part of the site as the national park.

Local Design Principle 3 :
The local species can be made use of to increase the local identity of the different site and improve the ecological quality of the site.

Local Design Principle 4 :
The water body like creek, ditch and lake, which as a kind of cultural identity for the delta region should be reinforced and developed further to improve the ecological quality. For instance, make use of the ditch to develop wetland.

Image 7-06 : Gradients in Current Burgh

Habitats (Spatial element with ecological Value)

- *Dune*
- *Wetland*
- *Grass*
- *Forest*
- *Water*
- *Agriculture*
- *Ditch*
- *Building*

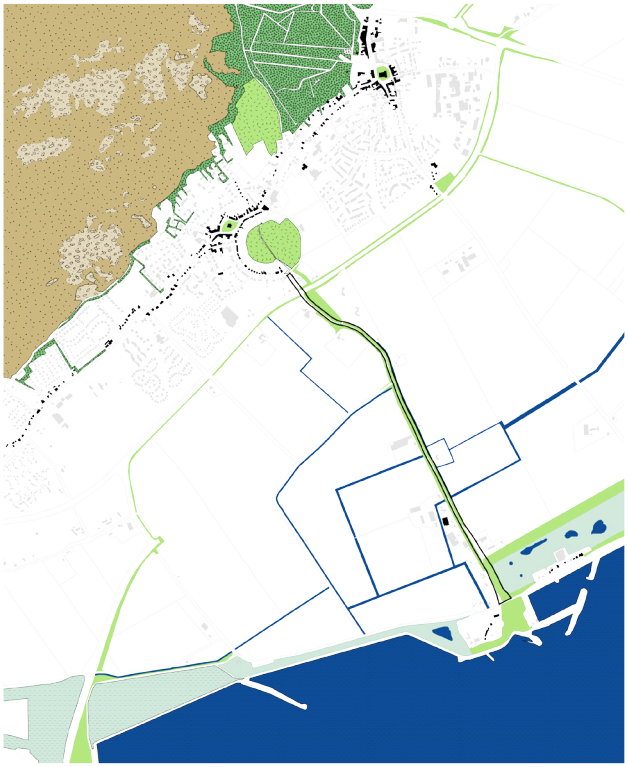


Image 7-07 : Overlaping of the heritage and Habitats help to explore the potential for new gradients

1- Dune and local species Groenknolorchis

2-Wooden banks with alder, willow and thorn

3-Urban habitats with fruit tree

4-Agricultural Habitat and Corn

5-Wetland with Acorus calamus

Image 7-08 : Typical species of the main habitats in Burgh

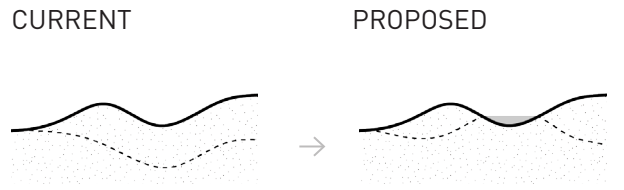
1 - Dynamic Dune Restoration
Restore capacity of beaches and dunes to protect inland areas from storm damage, flooding, and sea level rise, and maintain habitat and ecosystem function for coastal species. Maintain the local species in dune landscape by mowing or extensive. Restore the dynamic of the dune by recover the ground water-level.

2 - Wooden Bank Restoration
As the typical landscape existing in the in-between area of dune and village, wooden bank has high cultural and ecological values in for the village. Therefore, some small wooden bank patches are planted nearby the dune and extended directly to central village to reinforce the ecological identity of the semi-dune area and different there from another place.

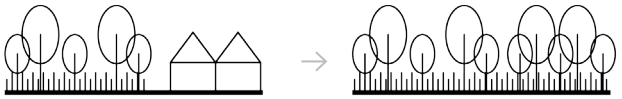
3 - Green Trail
Green street that uses vegetation and facilities are used to reinforce the ring structure of the old village center and ringwallburgh and create green connection between the different village center. Apart from that, the green trail can also be a sustainable strategy to improve the water quality by storing and reusing rain water.

4 - Multifunction Farming
In order to do that improve the biodiversity in the farm land, the multifunction farm is proposed along the old dike. Combined with multifunction farming, topsoil and subsoil are extracted to remove the nutrient in the soil in the seepage zone. Places with strong seepage could form freshwater seepage reservoirs. With the development of water storage system, different species can be plant in different time to build long-term soil fertility and healthy agro-ecosystems.

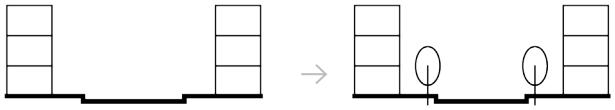
5 - Wetland Restoration
Being the base for the development of other habitats, wetland not only contains a high biodiversity but also provides numerous ecosystem services, such as flood control, freshwater supply. Make use of the existing ditch structure to create an open water structure. Water level in the designated wetland patches is raised to rewet the plot.



1 - Dynamic Dune Restoration : the incresing groundwater level help to restore the dynamic dune valley

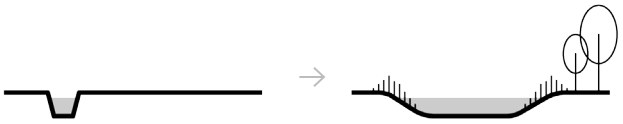


2 - Wooden Bank Restoration : Reconnect the natural habitat



3 - Green street : More greenry on the street for urban ecosystem

4 - Diversified farm : farm land with more gradients including freshwater retention



5 - Wetland Restoration : restoration of wetland create more gradients for ecosystem

Image 7.13 : Potential for Touristic Routes (Made by author)

Image 7-09 : Potential for new gradients
(Made by author)

Burgh
Mobility Analysis

1- Highway
The traffic structure of the plan area is unambiguous and largely based on the historical urban development context. The Zoom area is tightly bounded by the Kraaijensteinweg (N57). The Kraaijensteinweg acts as an unloading road for through traffic (Middelburg-Rotterdam) and as the main access road to the plan area.

2 - Main Road
The ribbon (Hogeweg / Burgseweg / Weststraat / Noordstraat) opens up both Burgh and Haamstede, it is a busy road that all types of road users (foot, bicycle, car, truck and bus) use. Within the profile it is not always possible to give all kinds of traffic enough space. The spatial quality is sometimes at odds with the necessary traffic-inhibiting measures that have been taken in profile.

Public transport: The bus runs in both directions a few times per hour and has an important stop at the church ring of Haamstede and at the church ring of Burgh. There are several stops along the ribbon. Due to the narrow profile, the bus can be felt in the village. Especially for young people and the elderly, the bus connection is an important link between Renesse, Zierikzee and Middelburg.

Parking: Burgh hardly knows a parking problem only during events. In Burgh there is no paid parking and no license holder parking. The most important parking spaces are Leliëndaleweg (90 parking spaces) and Albert Heijn (75 parking spaces). In addition, there are also 35 parking spaces at the Kerkstraat and Burghse Ring.

3 - Slow traffic
For slow traffic there is an extensive network of walking and cycling paths in the dune area. On the transition from the dune area to the seam a narrow footpath runs with a branch to the road network in a few places. Access to the dune area from Burgh-Haamstede is already present in a few places but it will be possible to expand. In the village, the range of cycle paths is limited. Along the ribbon, the cycle path is not continuous, so the cyclists use the same driving license as the motorist and the bus. Expansion of the slow traffic network is desirable to make a secure connection between Burgh and Haamstede.

Local Design Principle 5 :
The main touristic route is designed to encourage the use of slow mobility including bike, bus and walking.

Local Design Principle 6 :
Motor vehicle is not allowed inside the conservation area in order to preserve the territory.

Local Design Principle 7 :
The accessibility of the cultural landscape and historical element should be improved. For instance, the bridge can be developed to increase the accessibility of the lake.

Image 7-10 : Mobility System in Current Burgh

Mobility

- *High way*
- *Main Road*
- *Walking Path*

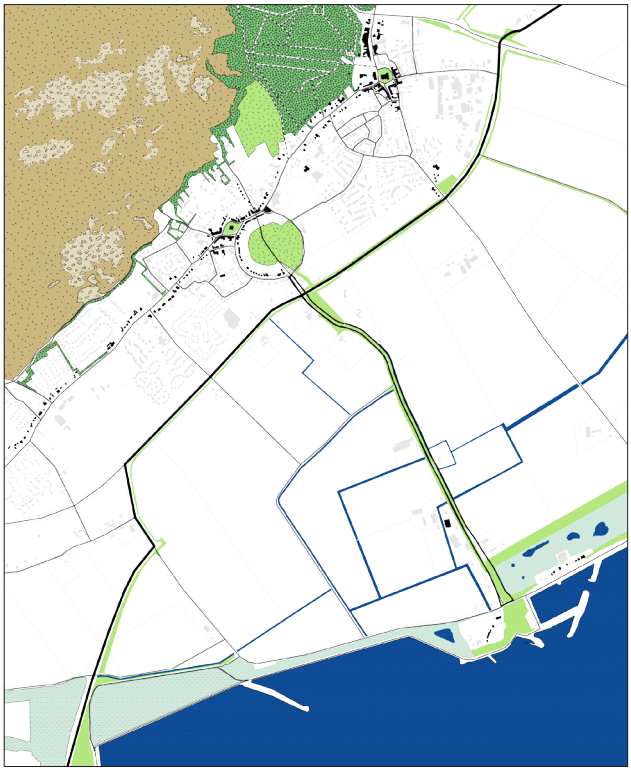
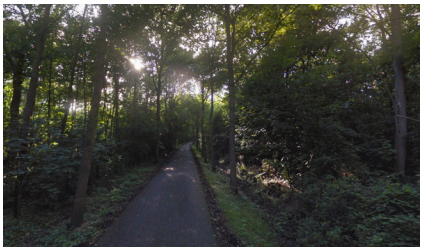


Image 7-11 : Overlaping of the Heritage, Habitats and Mobility system help to explore the potential for main touristic route

1- High Way

2-Main Road



3-Slow Path

Image 7-12 : Section of typical Road in Burgh

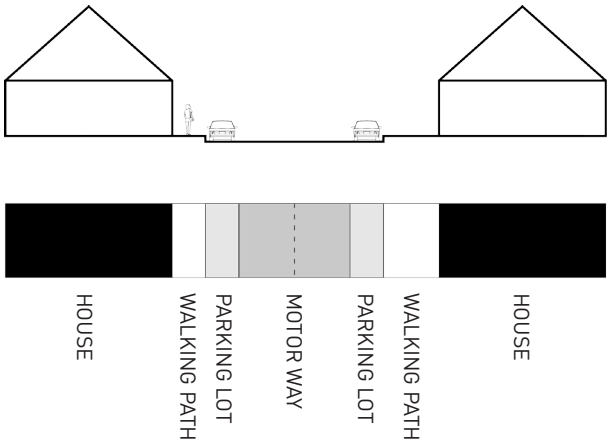
SLOW MOBILITY SYSTEM

Based on the potential heritage and high quality ecosystem, the possible touristic route is selected to connect the current and potential destination. Then the slow mobility is developed along these routes. Two main types of road are tested to show how we can transform the current mobility system to the slow mobility system.

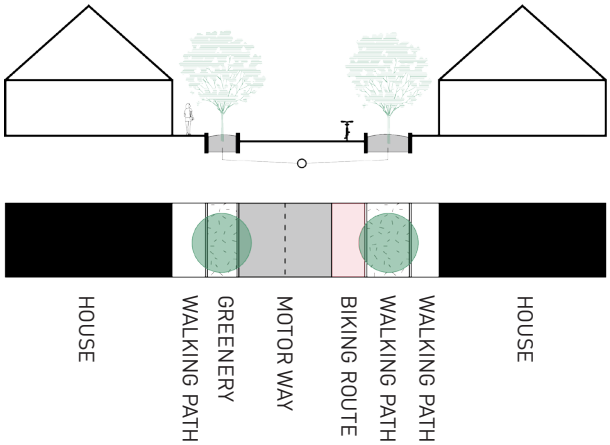
The Kerkstraat is the main street to connect the village center of Burgh and Hamsted. It has everything but a public character. The presence of cars dominates; the sidewalks are very narrow and there is no public furniture. For this reason, the design of public space will be extended from harbor to church by transforming the layout of the Kerkstraat. The pedestrian zone will be comfortable and attractive, a place to stay or to stroll. To create different niches the 'gradient' principles will be applied again. (TYPE 01)

Then, the road along the dune area is also tested. Currently, this road is also mainly act as the motor way. The design of pedestrian zone will be extended from village to the dune area and provide walking path closer to the nature. (TYPE 02)

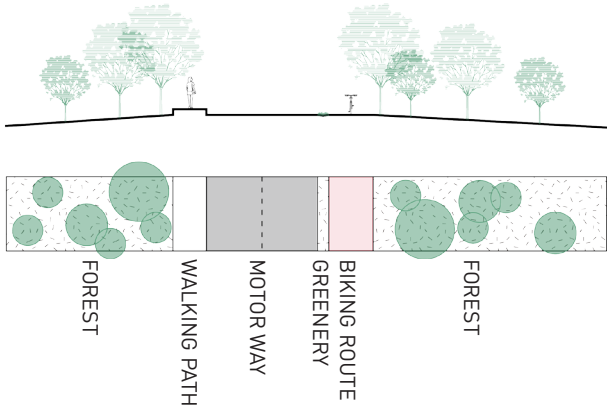
CURRENT SECTION TYPE 01



PROPOSED SECTION TYPE 01



CURRENT SECTION TYPE 02



PROPOSED SECTION TYPE 02

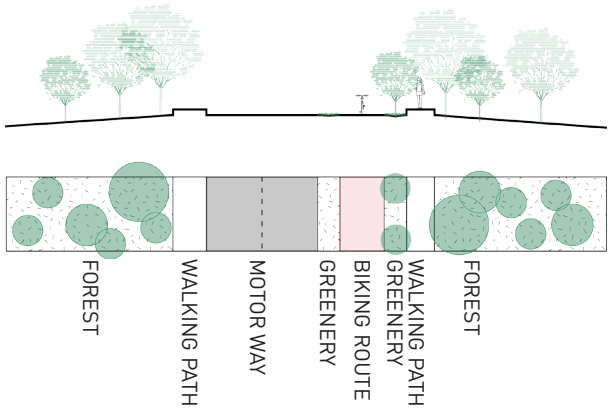


Image 7-13 : Potential for Touristic Routes
(Made by author)

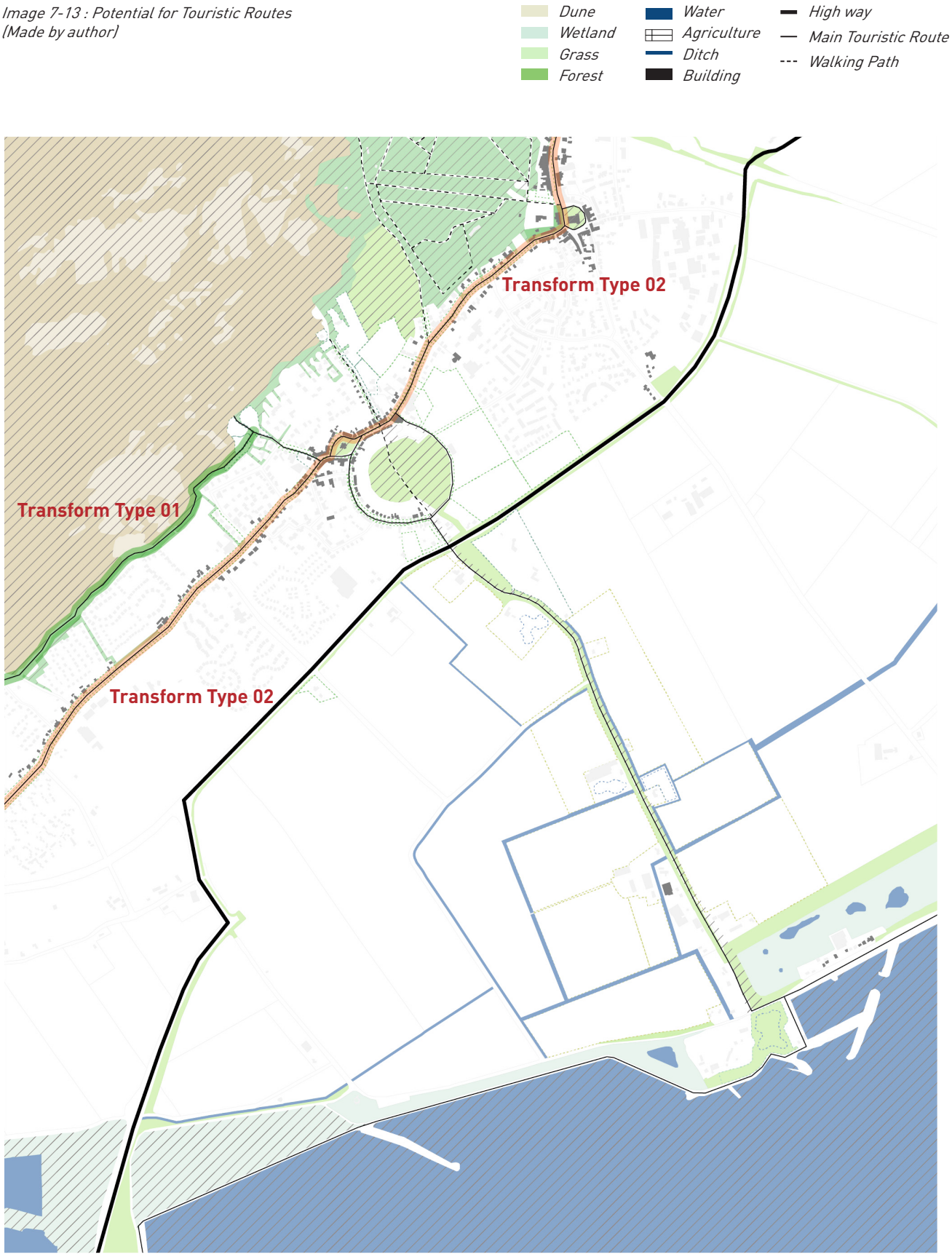
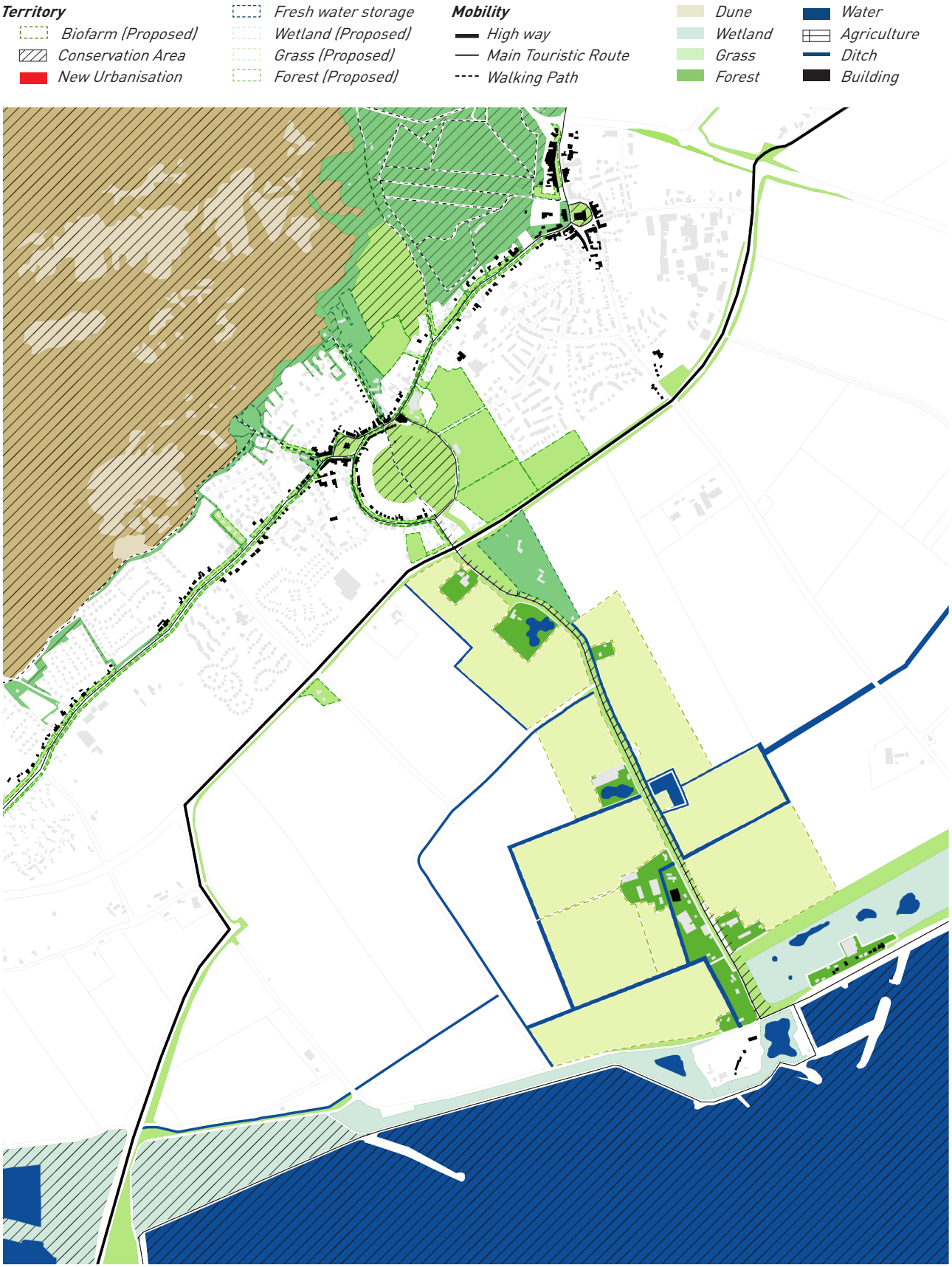


Image 7-14 : Proposed intervention for ecotourism

Image 7-15 : Vision of Burgh 2100 (Made by author)



Burgh
Ecotourism Program

The program along the ecotourism network has been built based on the ecological context of the site. This choice aims to integrate the socio-economic life of the touristic facility with the town's citizens and local businesses.

The functions that are not present in site and that are vital for the competitiveness of the touristic facility are implemented in new constructions such as the multifunction farm. Some of program is implemented in architectural expansions and renovation of existing buildings in the countryside, like camping. The ancient emergency house will be preserved and brought back to life by involving the residents as the touristic facility. The rural countryside farm land along the old dike are turned into the multifunction farm. These multifunction farm can also provide a workshop and educational spaces where the town's businesses can be presented in bits to guide the tourists about the knowledge of ecological process.

The touristic facility would take the opportunity to upgrade the countryside existing network of rural paths and to make the countryside enjoyable by encourage waking and hiking.

The touristic facility would completely rely on the town's existing businesses for food, supermarkets, restaurants, museums, hotel, events...

Animal Watching
Farm Visiting
Hiking
Biking
Camping
Surfing
Fishing
Park

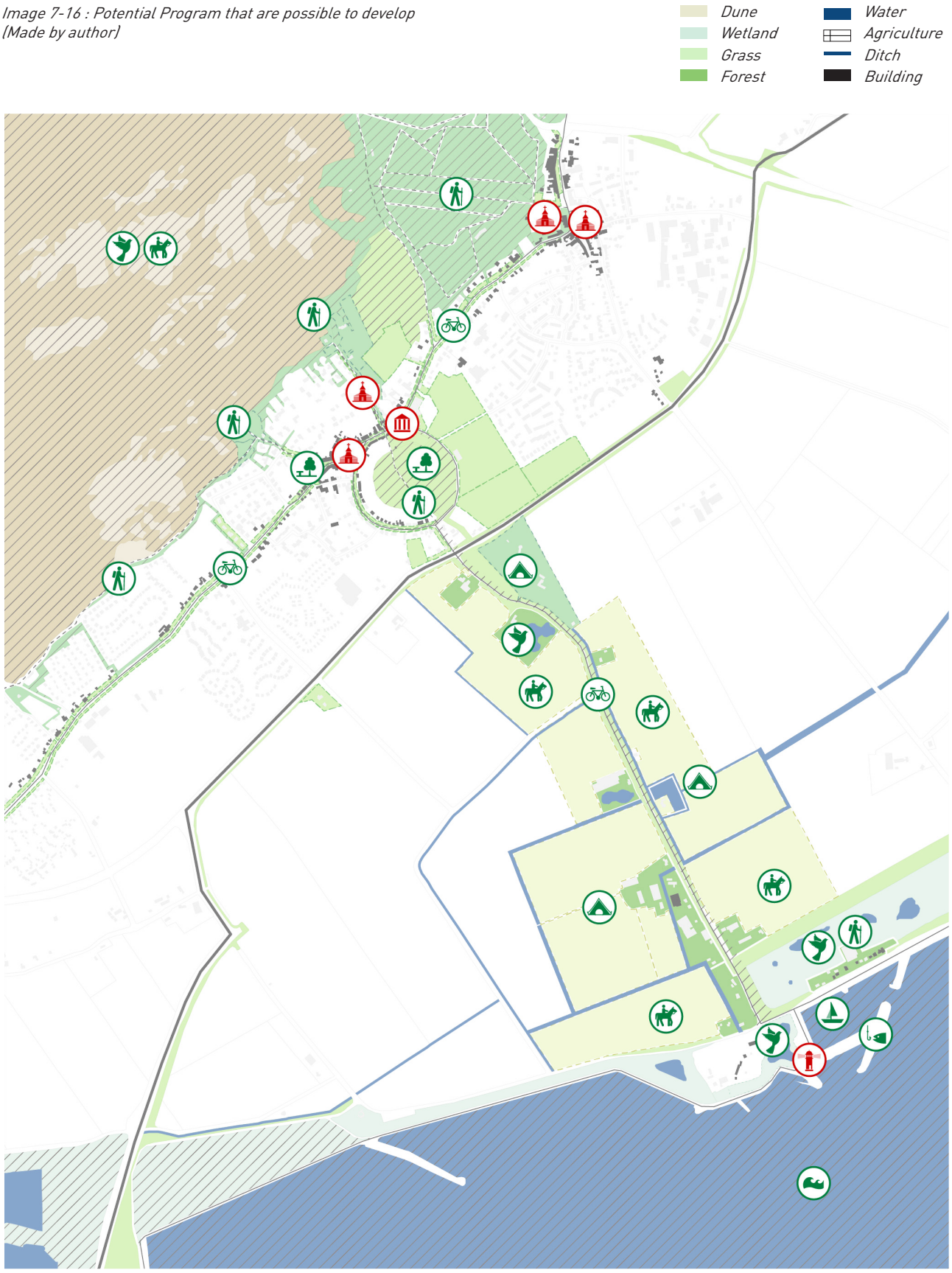
Museum
Church
Light Tower

Local Design Principle 8 :
The eco-educational program is designed to preserve the ecological quality of the territory and increase the awareness of people to preserve the ecosystem.

Local Design Principle 9 :
The local community are involved in the development of the new facility as part of the new body of programmer.

Local Design Principle 10 :
The local economy should be enhanced by integrating the new program with the existing local businesses present in the town.

Image 7-16 : Potential Program that are possible to develop
(Made by author)



Burgh
Adaptation for New Urbanisation

The masterplan of the island shows a scenario with the increasing population which doesn't necessarily have to happen. The same can be said about the transformation of the other village along the ecotourism network. When the ecotourism network developed, the new gradients extended through the region to reinforce the cultural identity of the village and improve the ecological quality and diversity of the whole region, new dwellings can be built. However, new urban development is only feasible in the case of a growing population or uplifting economy. Therefore, the urbanization design of Burgh is an Adaptive design as well, it can adapt to the socio-economic conditions that are changing over time.

If the population increase in the future, a first start can be made with the construction of apartments along the ecotourism network. These apartments will be innovative based on the condition, so they can easily adapt to the demand.

When the economy will further improve, more families are willing to live at Goeree-Overflakkee. Especially because they will find here the calm and safe environment they want for their children and at the same time they are still not far away from the larger cities like Rotterdam. Of course, Burgh cannot expand indefinitely so in time other locations can be transformed as well. For example, in the far North (living on the dike) or South (leisure living along the lake) of the water canal. When this is a success, other historical villages can be expanded as well.

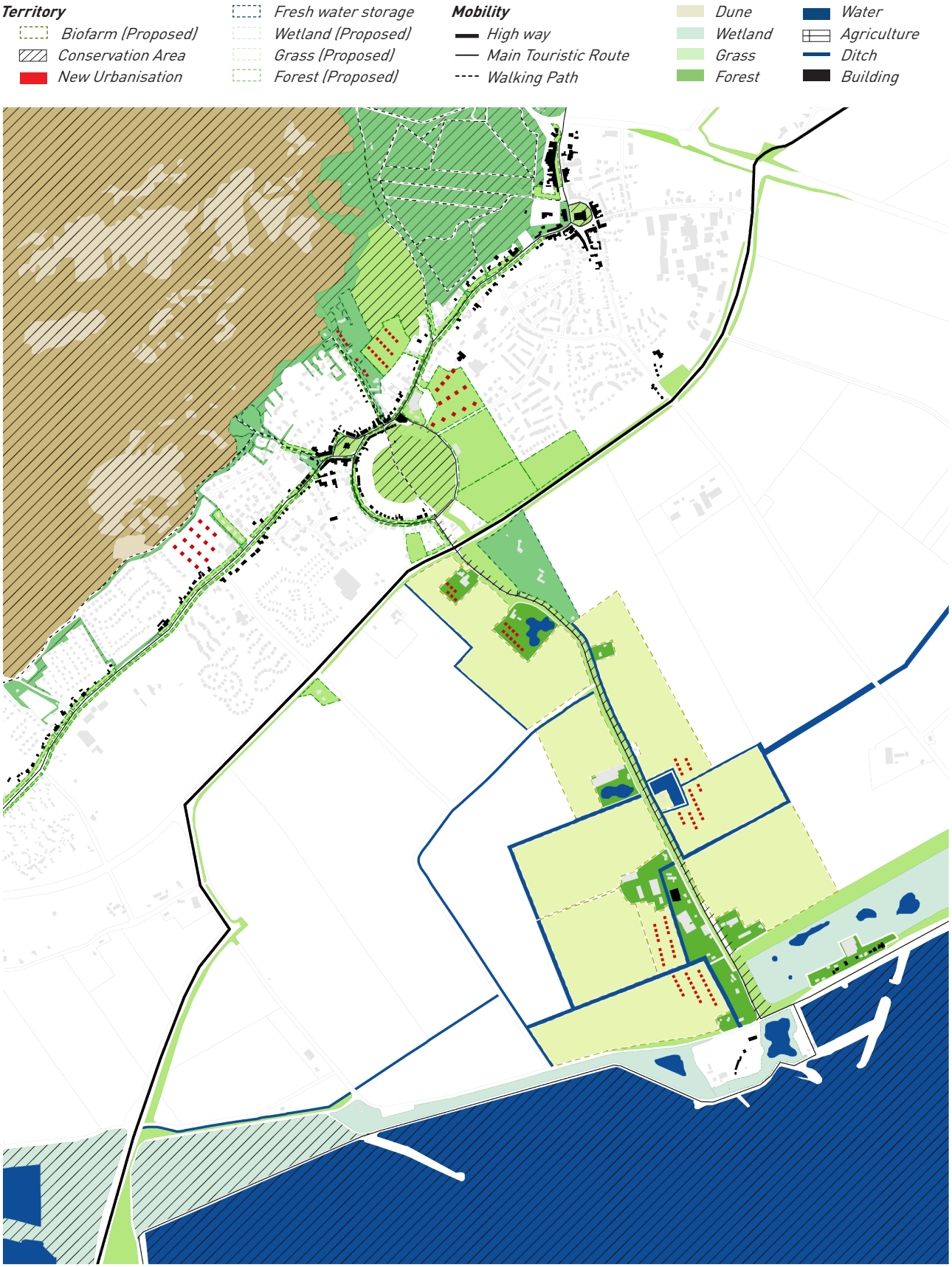
Unless the historical meaning of this building block, there is still a big possibility that it must be removed because of the bad quality. Especially the houses along the ecotourism network are in very bad shape and most of them are abandoned as well.

Image 7.13 : Potential for Touristic Routes (Made by author)

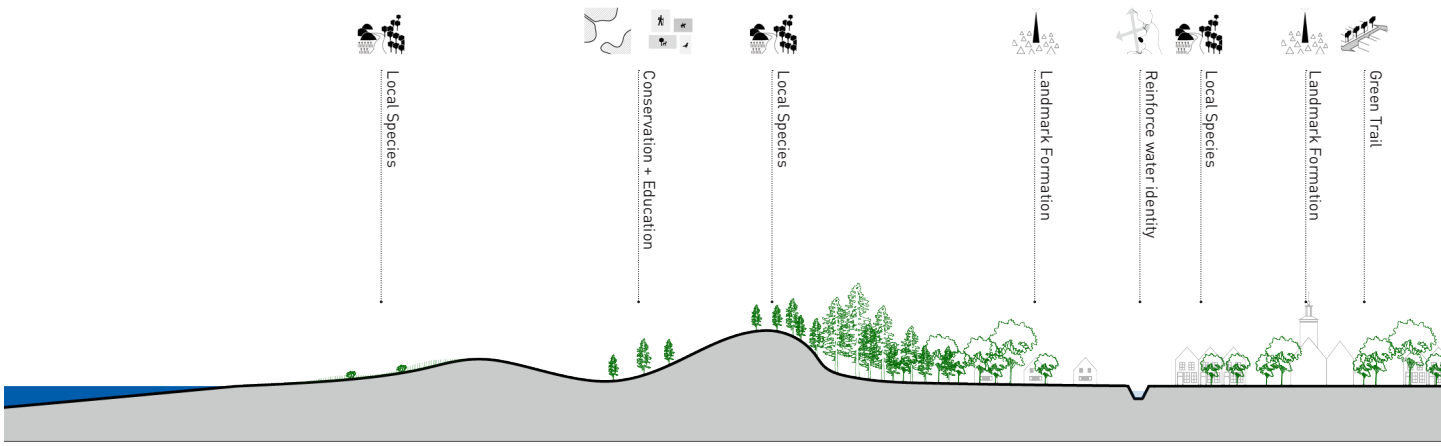
Local Design Principle 11 :
New constructions are placed along the urban-nature gradients lines. The urban-nature gradients lines are identified as the transformation area between cultural landscape and the old village which designed to reinforce the cultural identity of the village.

Local Design Principle 12 :
New construction should be innovative in order to limit their ecological and visual impact on the territory.

Image 7-17 : Vision of Burgh 2100 (Made by author)



Current
Proposed intervention based on Local design principle

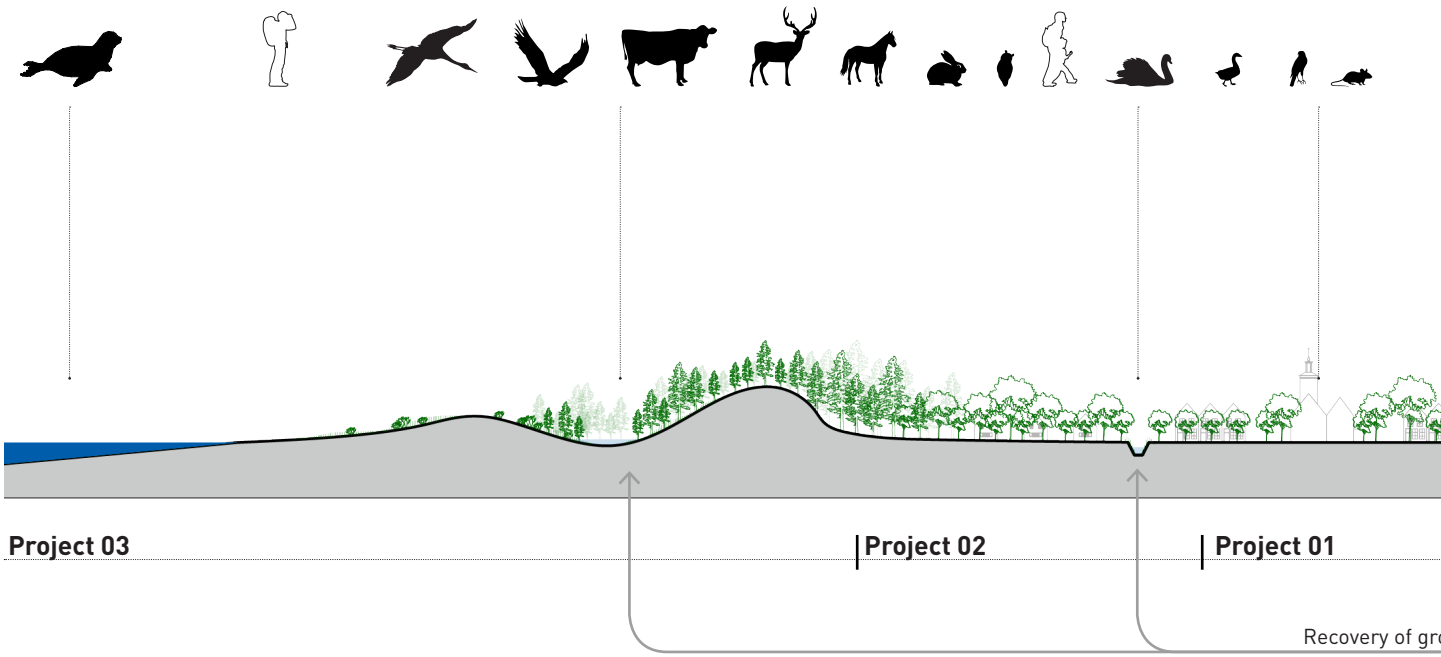


Project 03
L03 L04 L06 L08

Project 02
L01 L02 L03 L04 L08 L09

Project 01
L01 L03 L05 L08 L09

Possible Future
Ecological impact through intervention

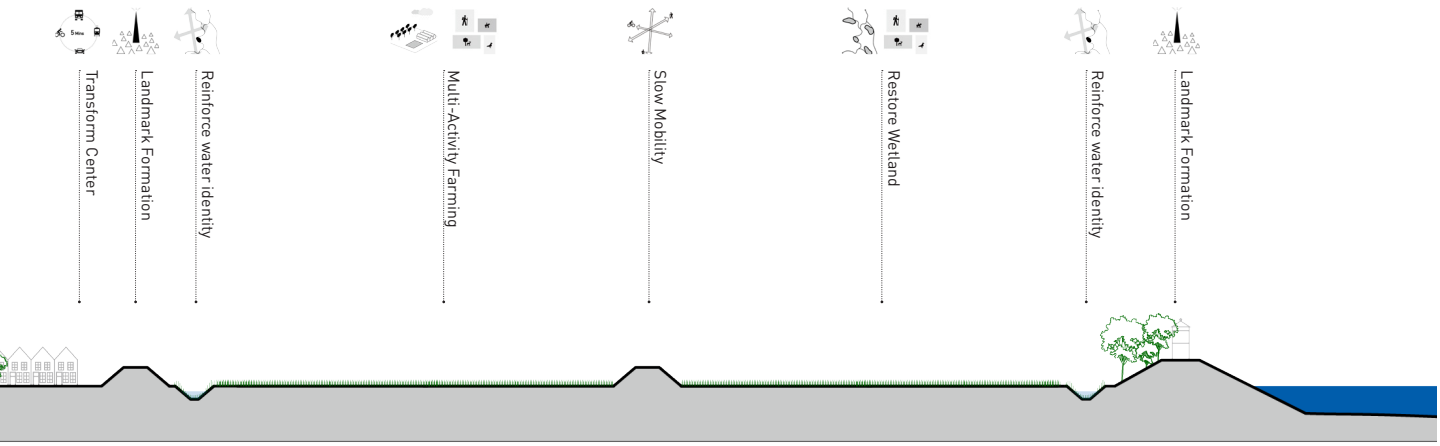


Project 03

Project 02

Project 01

Recovery of gr

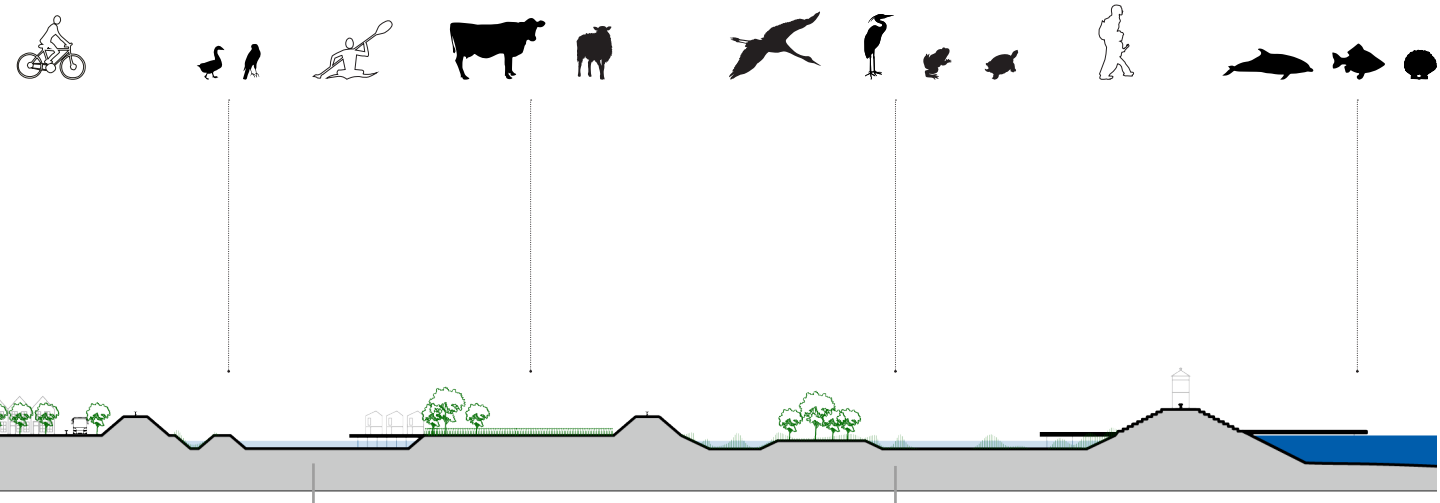


Project 04

L01 L04 L05 L08 L09 L10

Project 05

L01 L03 L04 L05 L07 L08



Project 04

Project 05

oundwater level

7
Designing Story

Local design principle

Local Design Principle 1 : The historical structure and the historical element should be highlighted and developed as the landmark. For example, the parish church should be highlighted by increasing the continuous of the ring structure and street space.

Local Design Principle 2 : The development of new facilities or new house should follow the guidelines of the essential features of the exhisting historical elements lincluding, limited volume, appearance, local materials.

Local Design Principle 3 : The local species can be made use of to increase the local identity of the different site and improve the ecological quality of the site.

Local Design Principle 4 : The water body like creek, ditch and lake, as a kind of cultural identity for the delta region should be reinforced and developed further to improve the ecological quality. For instance, make use of the ditch to develop wetland.

Local Design Principle 5 : The main touristic route is designed to encourage the use of slow mobility including bike, bus and walking.

Local Design Principle 6 : Motor vehicle is not allowed inside the conservation area in order to preserve the territory.

Local Design Principle 7 : The accessibility of the cultural landscape and historical element should be improved. For instance, the bridge or pathway can be developed to increase the accessibility of the lake.

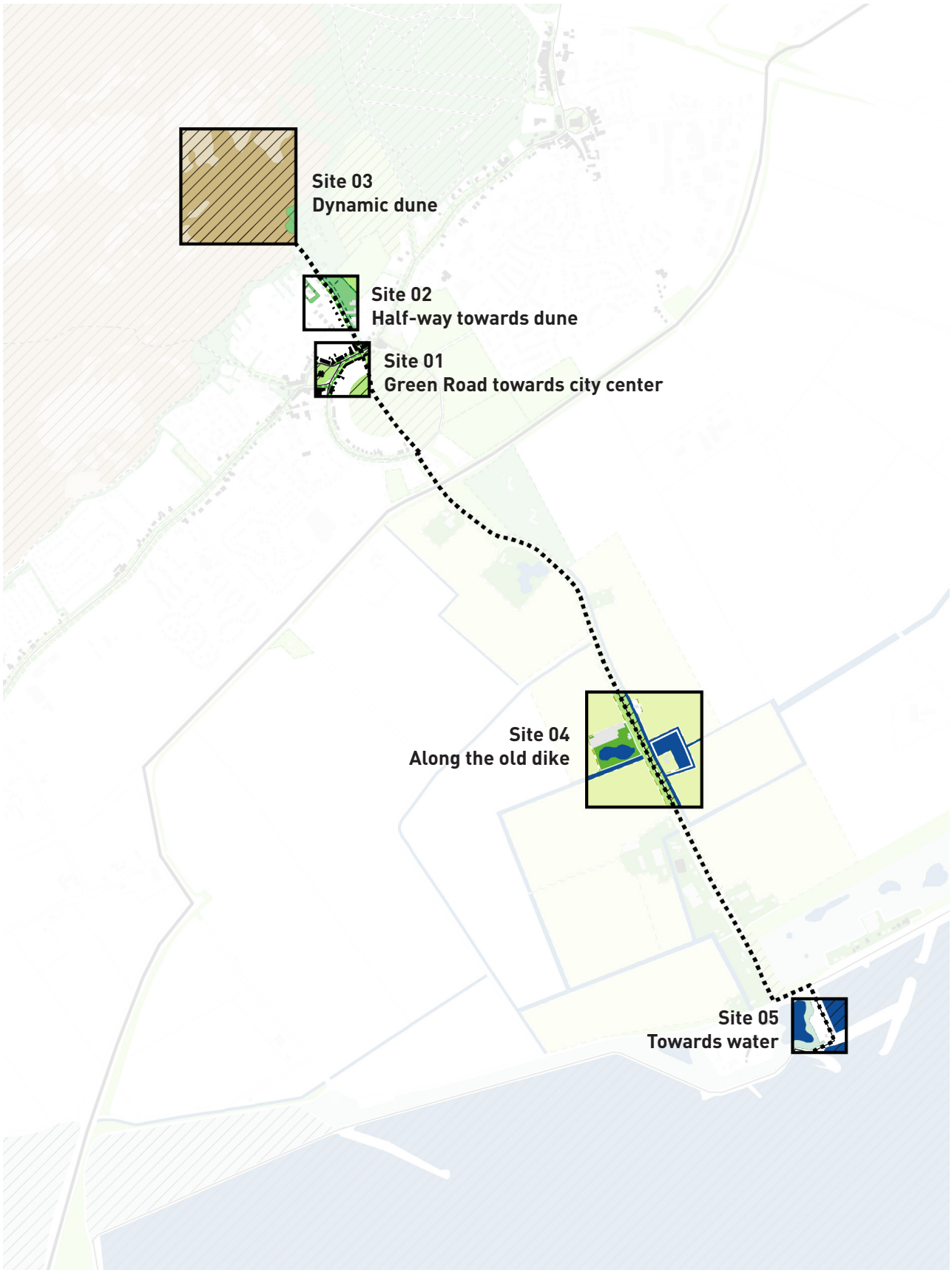
Local Design Principle 8 : The eco-educational program is designed based on the ecological context of the site and it should provide opportunity for people to experience the diversity of nature and increase the awareness of people to preserve the ecosystem.

Local Design Principle 9 : The local community can be involved in the development of the new facility as part of the new body of programmer.

Local Design Principle 10 : The local economy should be enhanced by integrating the new program with the existing local businesses present in the town.

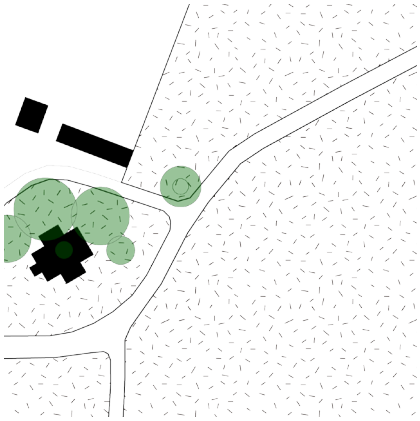
Local Design Principle 11 : New constructions are firstly placed along the urban-nature gradients lines. The urban-nature gradients lines are identified as the transformation area between cultural landscape and the old village which designed to reinforce the cultural identity of the village.

Local Design Principle 12 : New construction should be innovative in order to limit their ecological and visual impact on the territory.


Site 03
Dynamic dune
Site 02
Half-way towards dune
Site 01
Green Road towards city center
Site 04
Along the old dike
Site 05
Towards water

SITE 01
Green Road towards city center

1960

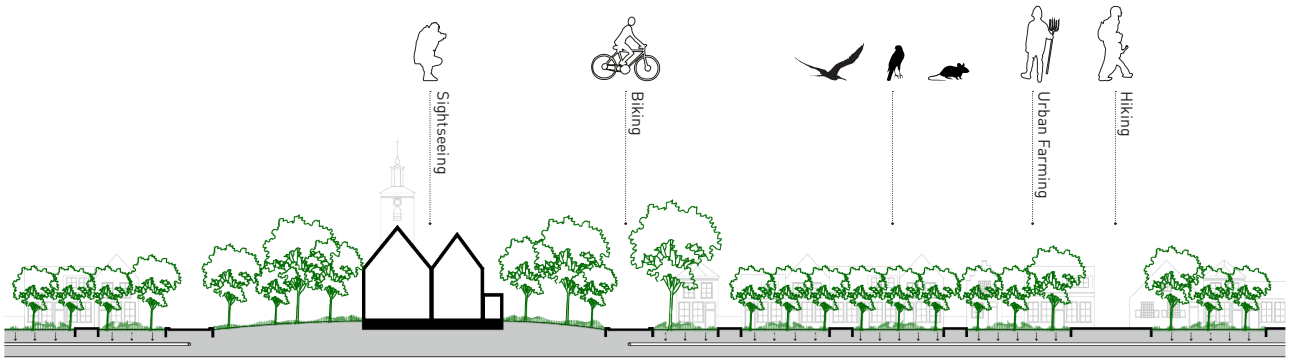


CURRENT

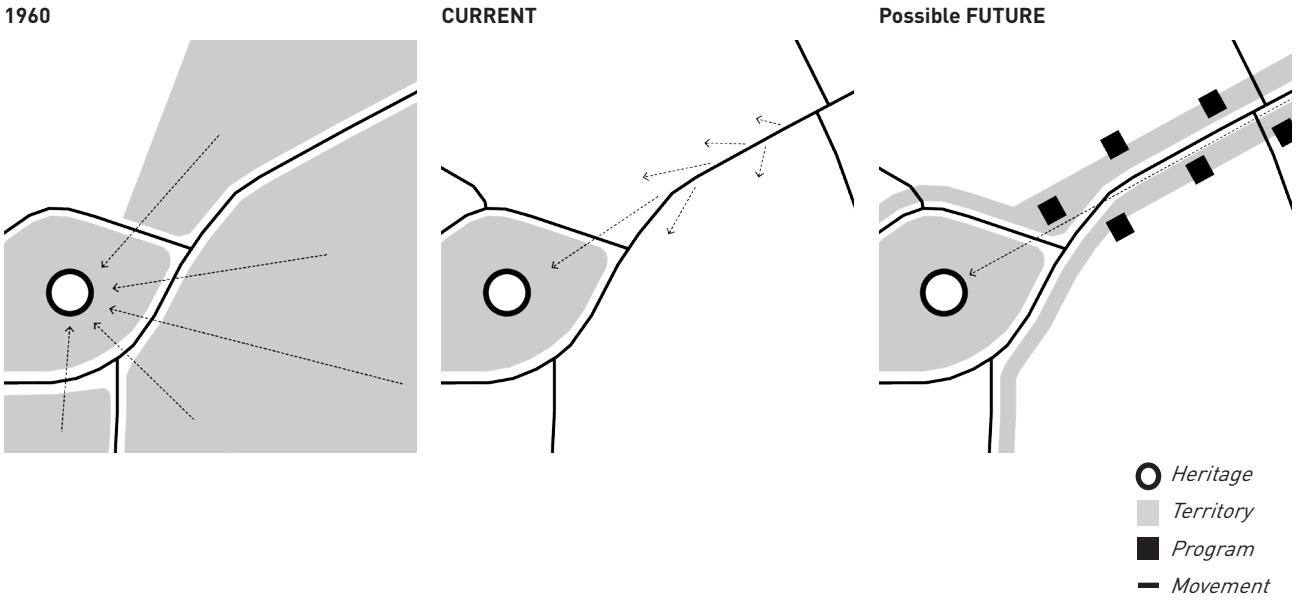
Possible FUTURE

Pollard trees *Linden Tree* *Fruit Tree*

Current



Possible Future



Site Typology : Old village center
Typology of Project : Green Connection
Heritage : Burgh Friends (Parish Church), Burgh Ring
Territory : Green land along the historic street towards Church
Mobility : Bike, Walk, Car
Program : Heritage visiting, Urban farming, Restaurant, Hotel
Application of the Principles : G01 - G02 - G03 - G04 - L01 - L03 - L05 - L08 - L09

Through the development of Eco-tourism, the local quality is improved by:
- Eco-tourism & Cultural Identity:
The old ring, church and the street will be maintained to reinforce the Christianized landscape. The high tree planted along the old street and the trimmed branches will be implemented to highlight the church on the horizontal line of sight.
- Eco-tourism & Ecosystem
The new gradients from the central city to the surrounding area will be strengthened through the planting of linden to differentiate the ecological identity of the central city with the surrounding countryside, dune area. Additionally, the increasing greenery which involves the residents by urban farming will also increase their awareness to protect the ecosystem. Also, slow mobility will be encouraged to lower the impact of mobility to the urban ecosystem
- Eco-tourism & Economy:
The new green touristic route will benefit the local community by attracting more tourists to the historic center. It would also be a generator of more restaurant and hotel along the main touristic route and provide a different range of jobs.

Comprehensive Principle - Space & Perception :
As the most symbolic area, the holy sense of the church need to be strengthened through the development of green street (New gradients). The high tree along the street will form a deep and quiet sense and provide the different entrance towards the church. Then, the different program will be added along the new gradients to involve more people and increase their awareness to protect the ecosystem.

CURRENT : Along the old ring, fruit trees have been installed, matching the central location of these roads, but this structure does not continue everywhere.

PROPOSED : The high tree along the street will highlight the church. The different program will be added along the street to involve more people and increase their awareness to protect the ecosystem.

Municipal South Holland
Green Street along the main touristic route

Local Government
Make use of existing heritage to develop cultural visiting

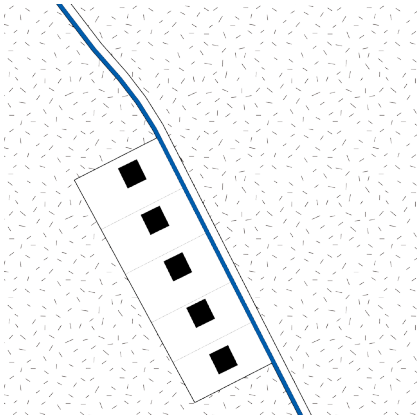
Local residents
Forest and local grass land restoration

Infrastructure Providers
Walking path and cycling route development along the main touristic route

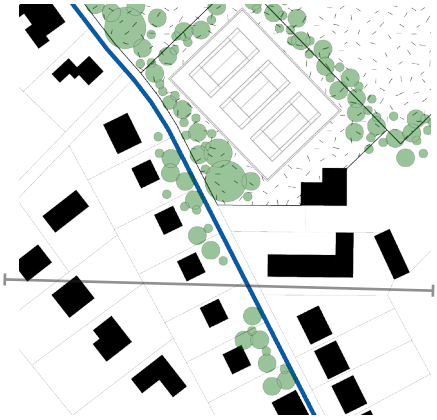
Cultural Institutions
Highlight the heritage by management of the plants

SITE 02
Half-way towards dune

1960



CURRENT



Possible FUTURE

Calamus

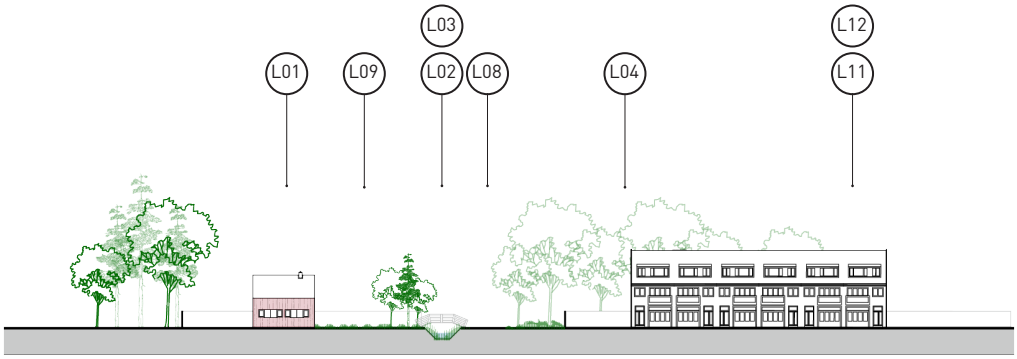
Hydrangea

Alder

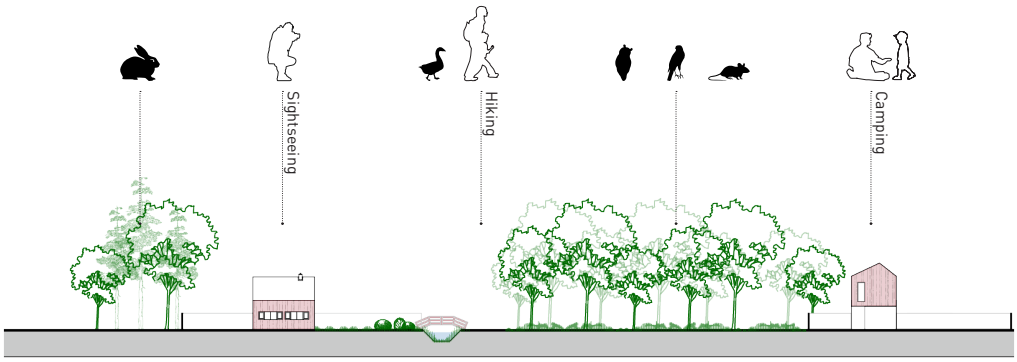
Willow

Thorn bushes

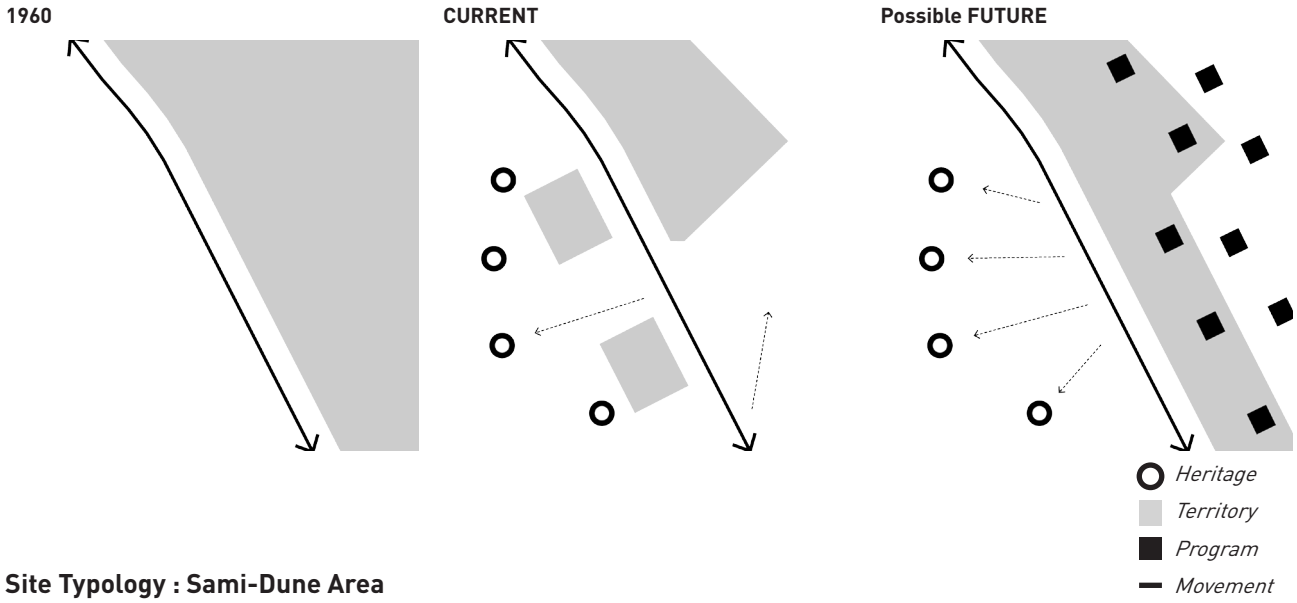
Tree
Grass Land
Building
Water



Current



Possible Future

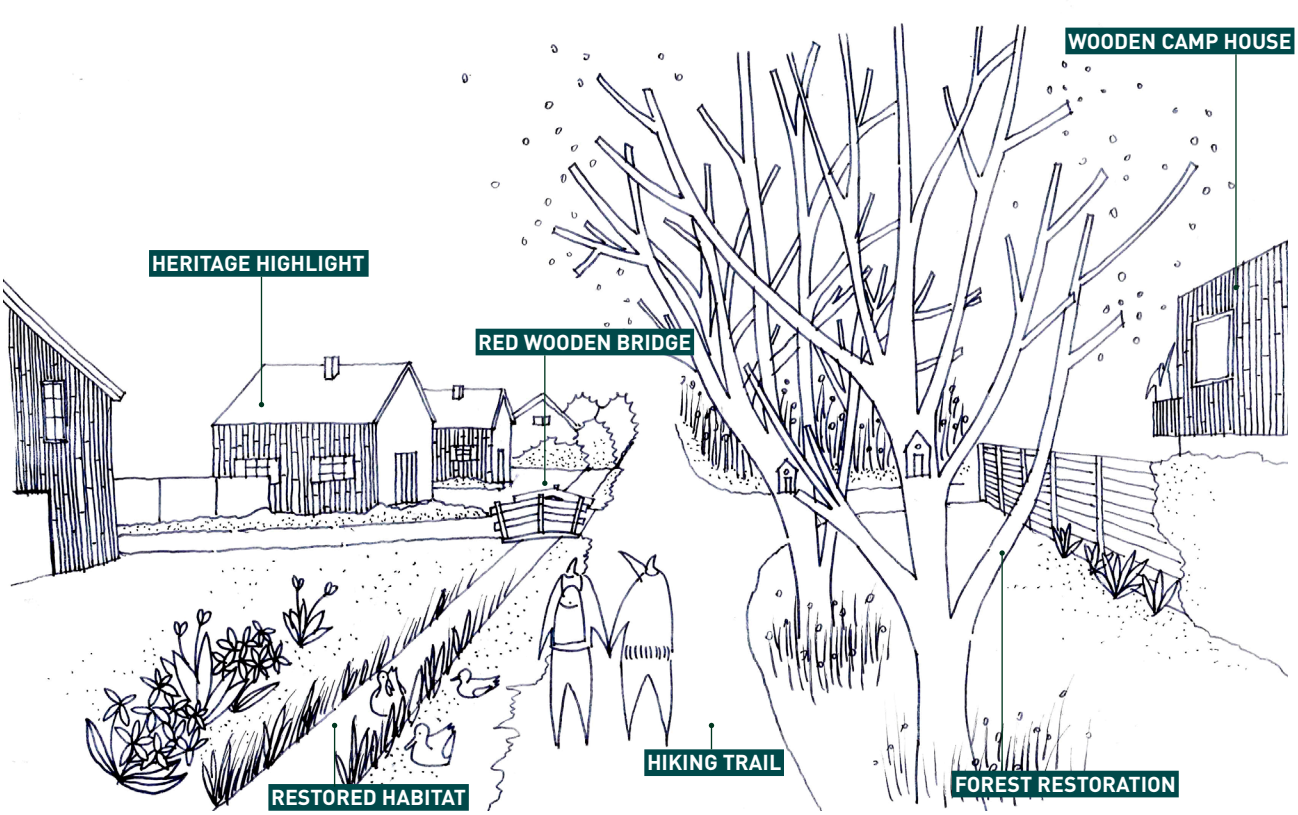


Site Typology : Sami-Dune Area
Typology of Project : Wooded Bank & New House development
Heritage : Emergency House, Old ditch, Wooden bank
Territory : Wooden bank connect old village and dune
Mobility : Walk
Program : Hiking, Hotel
Application of the Principles : G01 - G02 - G04 - L01 - L02 - L03 - L04 - L08 - L09 (- L11 - L12)

Through the development of Eco-tourism, the local quality is improved by:
- Eco-tourism & Cultural Identity:
The ditch will be maintained to reinforce the cultural identity of water. The front yard of the emergency house will be modified and the wooden bank will be reconnected to highlight the view toward the emergency house to commemorate the 1953 flood. Hydrangea and Calamus will be planted here to memorize the missing flower industry there. The development of the new house will follow the material of the emergency house(wood).
- Eco-tourism & Ecosystem
The gradients from the central city to the dune will be strengthened by reconnecting the wooden banks and provide continuous habitats for local species. As the groundwater level increase in long terms (it will be achieved through Narrative 4 and 5), the ditch system will also be recovered to provide habitat for the gooses and duck to live.
- Eco-tourism & Economy
The wooden banks and the recovery of the ditch system will increase the spatial quality of the Sami-Dune Area. On the one hand, it will provide new chance for residents to develop Airbnb and hotel. On the other hand, it also provides chance for new house development by attracting more people to live.

Comprehensive Principle - Space & Perception :
The wooden bank matching the small-scale road will much more improve the image of the natural landscape when comparing with the central village. Through the local species, gradients from village to dune (nature) will be reinforced. The emergency house will form the open space in the middle of the narrow road and provide chance for staying. The development of the new house should be innovative to ensure the ecological quality there.

CURRENT : Along the old small path, the old wooden banks are distroied and the ditch is also abondened.



PROPOSED : The front yard of the emergency house will be modified and the wooden bank will be reconnected to highlight the view toward the emergency house to commemorate the 1953 flood.

Real estate company
Development of new house

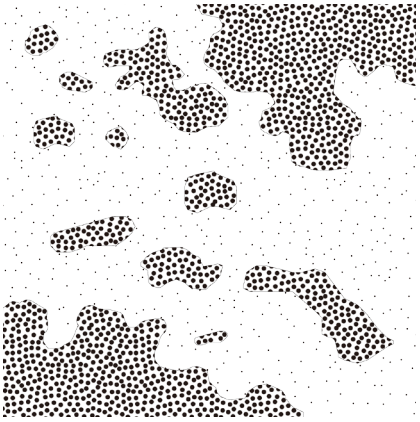
Local Government
Deepen ditches to lower water level and to increase water storage

Local residents
Make use of existing heritage to develop cultural visiting

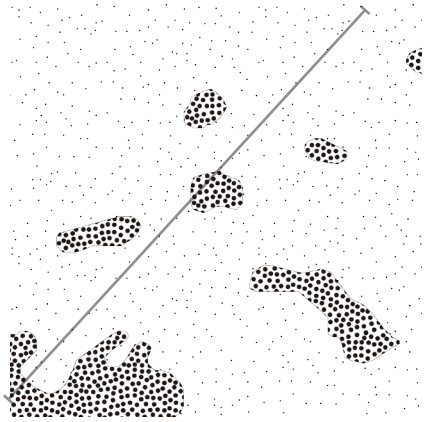
Landscape Authority
Forest and local grass land restoration

SITE 03
Dynamic dune

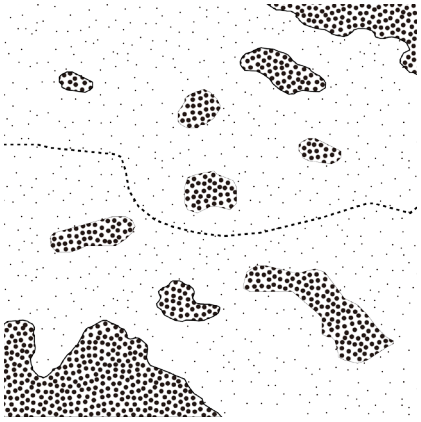
1960



CURRENT

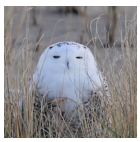


Possible FUTURE



Sand

Dune Species



Owl

Kyloe

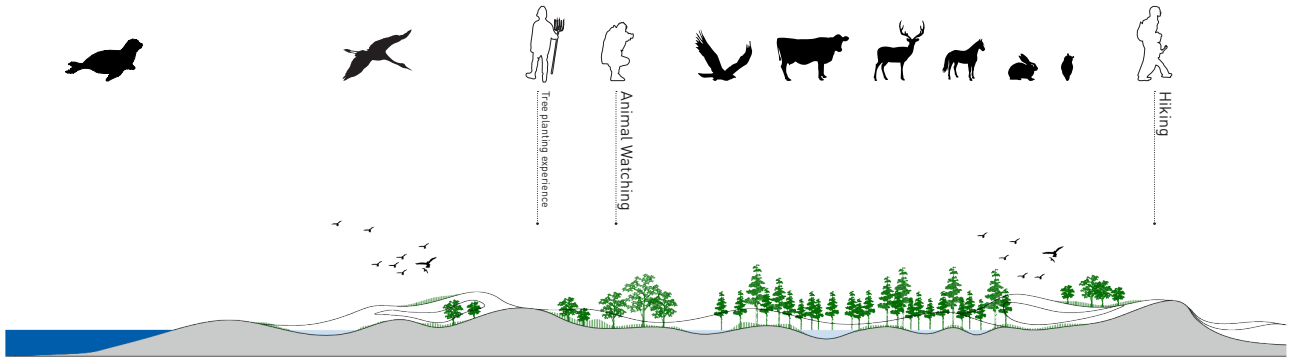
Norwegian vole

Marram

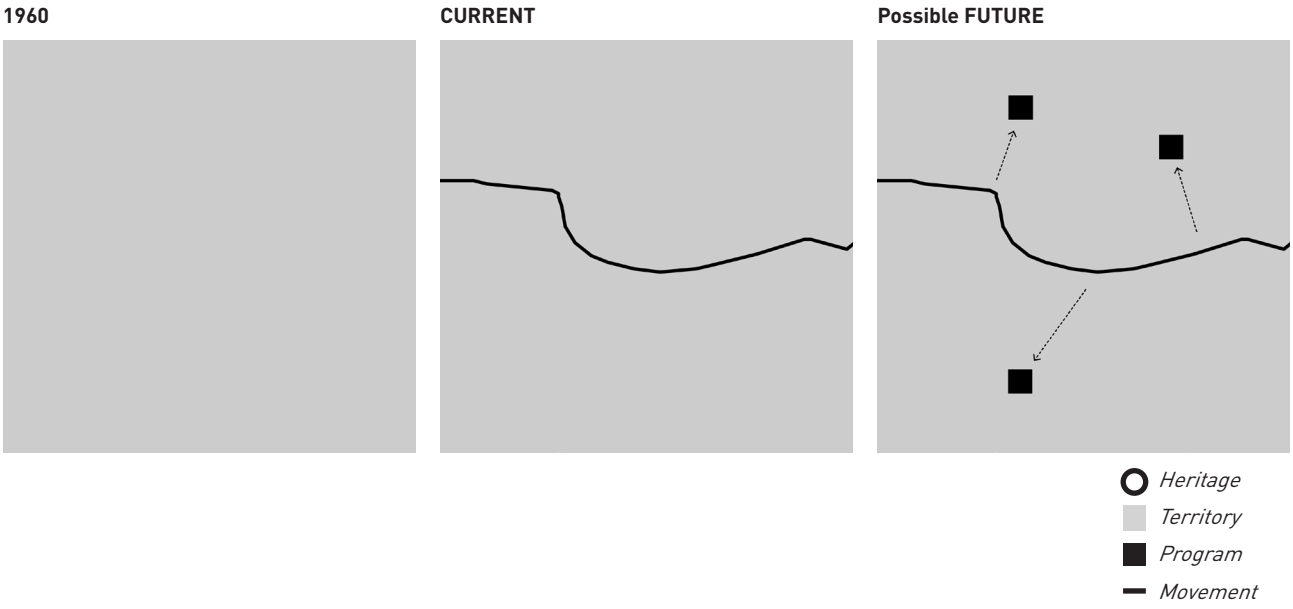
Tuberorchis

Shrubs

Current



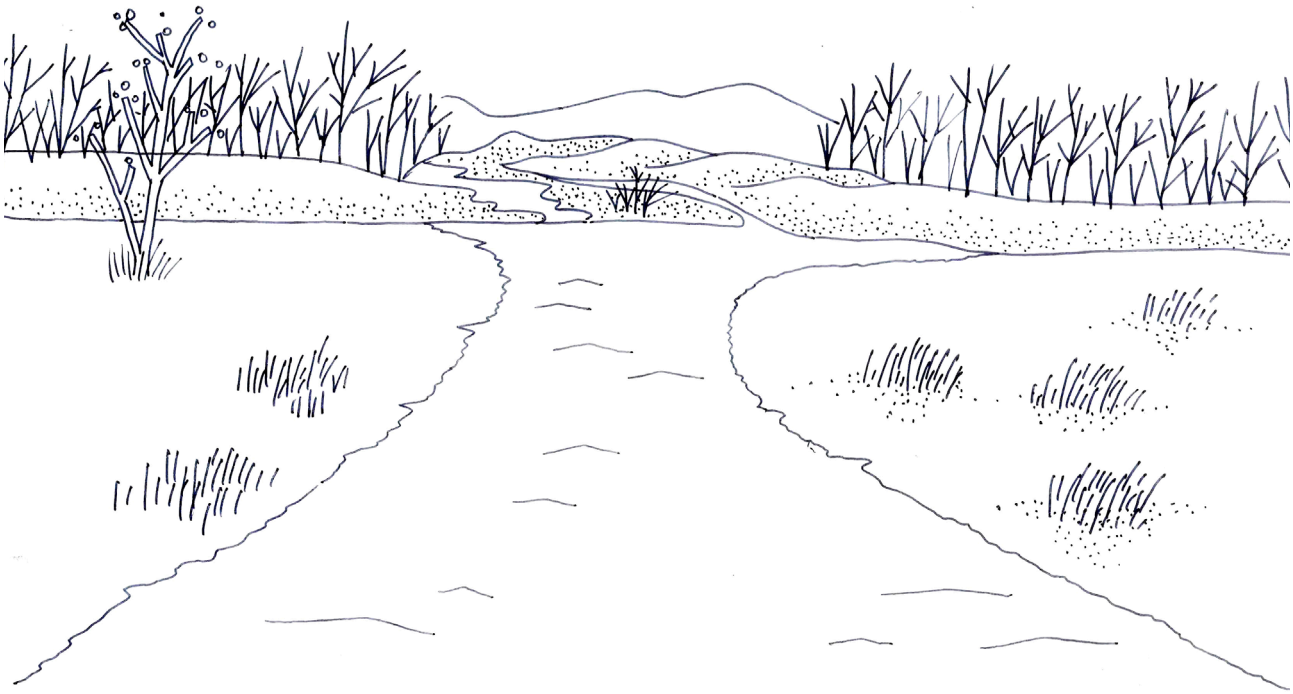
Possible Future



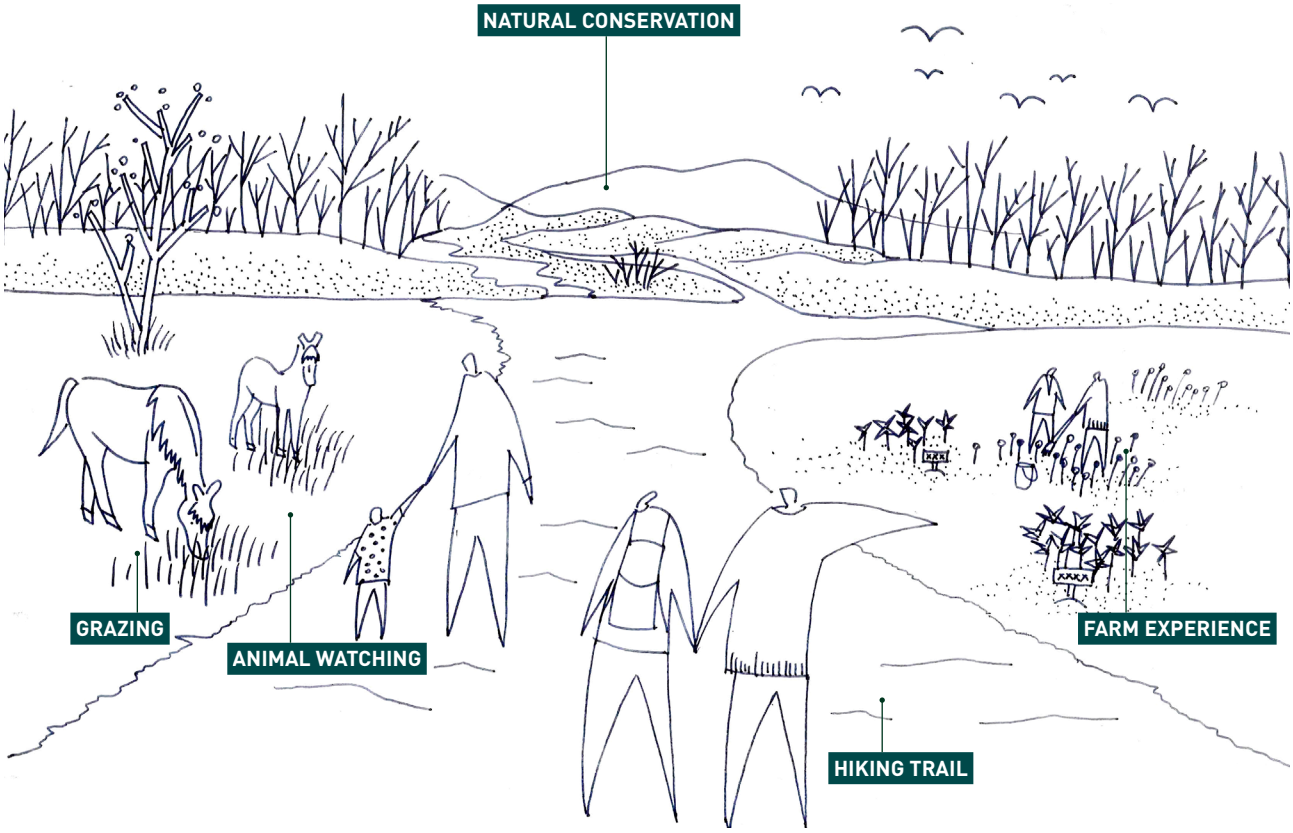
Site Typology : Dune
Typology of Project : Conservation
Heritage Dune
Territory : Dynamic of Dune Valley
Mobility : Walk
Program : Animal watching, Planting experience, Hiking
Application of the Principles : G01 - G02 - G04 - L03 - L04 - L06 - L08

Through the development of Eco-tourism, the local quality is improved by:
- Eco-tourism & Cultural Identity:
The cultural importance of the dune area will be maintained through the improvement of accessibility. The meaning of the dune landscape will be transformed through the development of ecotourism from the water defense system to leisure or eco-educational space.
- Eco-tourism & Ecosystem
Mowing and grazing by cattle, horses and rabbits can be applied in dry dunes to combat grass and shrub encroachment. As the groundwater level increase in long terms (it will be achieved through Narrative 4 and 5), the dune valley will become wet again with more pond. Only walking is allowed inside the dune area to lower the ecological impact from human. The eco-educational program like "my tree in the dune" will increase the awareness of tourists by teaching them more knowledge about the dune.
- Eco-tourism & Economy:
The economic activities will be limited in the conservation area. The grazing activities will involve the farmers living nearby and provide new job opportunity and income for them.

Comprehensive Principle - Space & Perception :
The cultural landscape dune will be strengthened through the maintenance of the gradients. The development of the eco-educational program should be innovative to combine with the strategy which used to conserve the ecosystem.



CURRENT : Because of the drainage, the ground water level in the dunes decreases. Under this condition, the succession in the dune area increased a lot which influence the growing of local species.



PROPOSED : The strategy which used to conserve the dune ecosystem also provide chance for the development of eco-educational program.

National Government
Conservation area managed to preserve values and minimize impacts of invasive species

Municipal South Holland
Deepen ditches to lower water level and to increase water storage

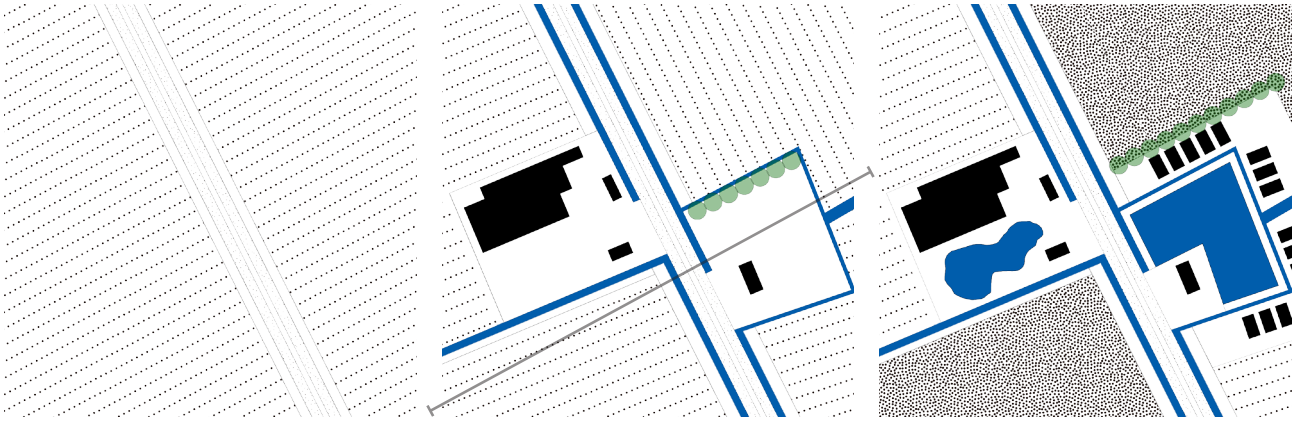
NGO
Development of eco-educational program

Farmer
Make use of grazing or mowing to maintain or create certain habitats

Tour Operators
Development of economical program by private actor

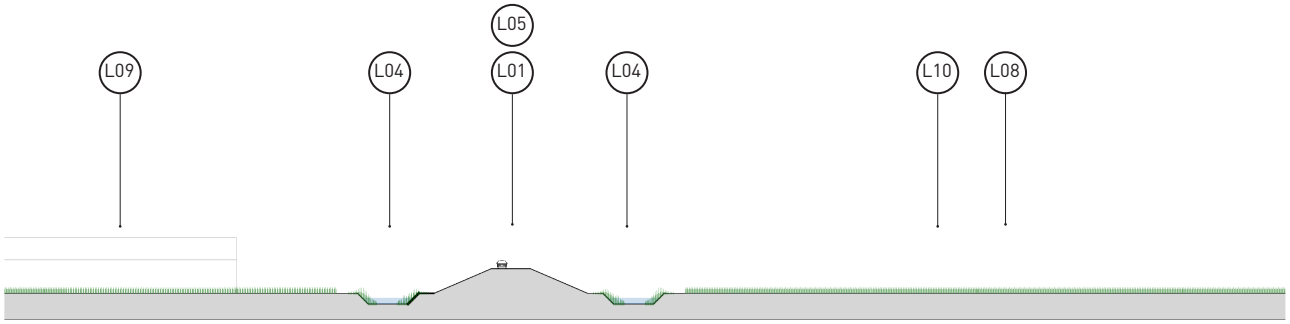
SITE 04
Along the old dike

1960 **CURRENT** **Possible FUTURE**

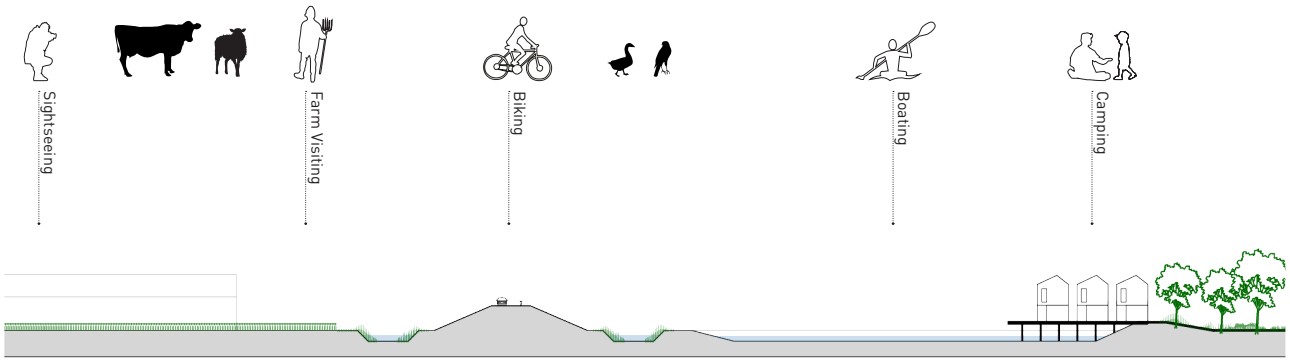


Sheep *Cow* *Salix Alba* *Potato* *Tulip* *Butomus umbellatus*

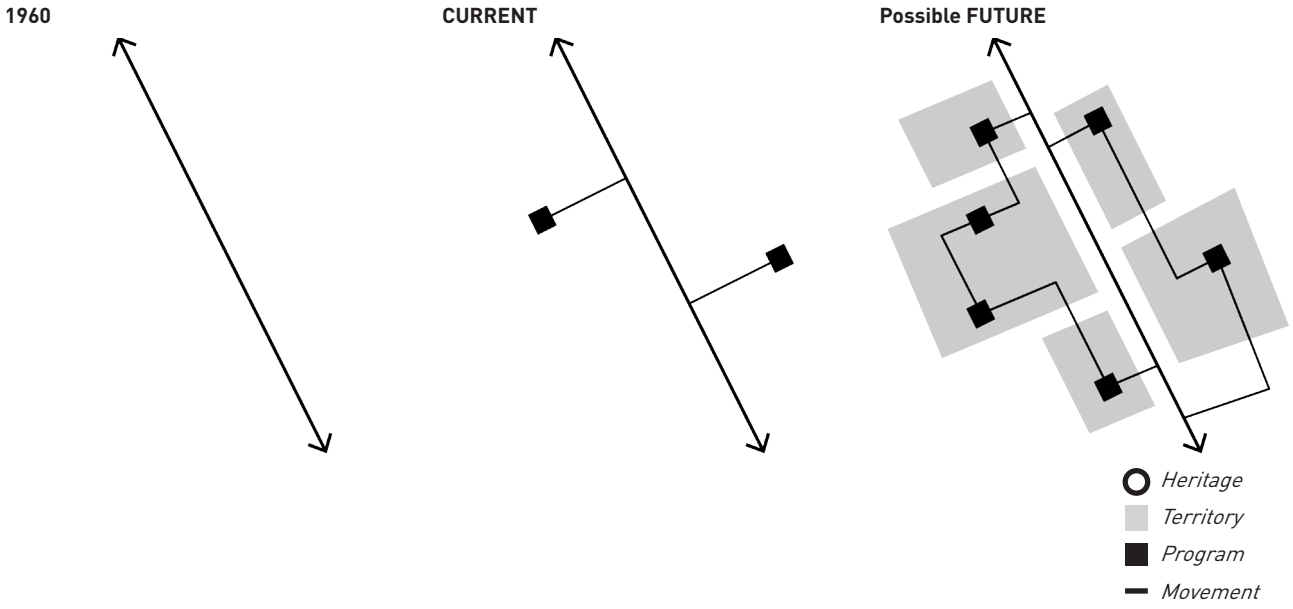
- *Tree*
- *Crop*
- *Flowery Meadow*
- *Building*
- *Water*
- *Dike*



Current



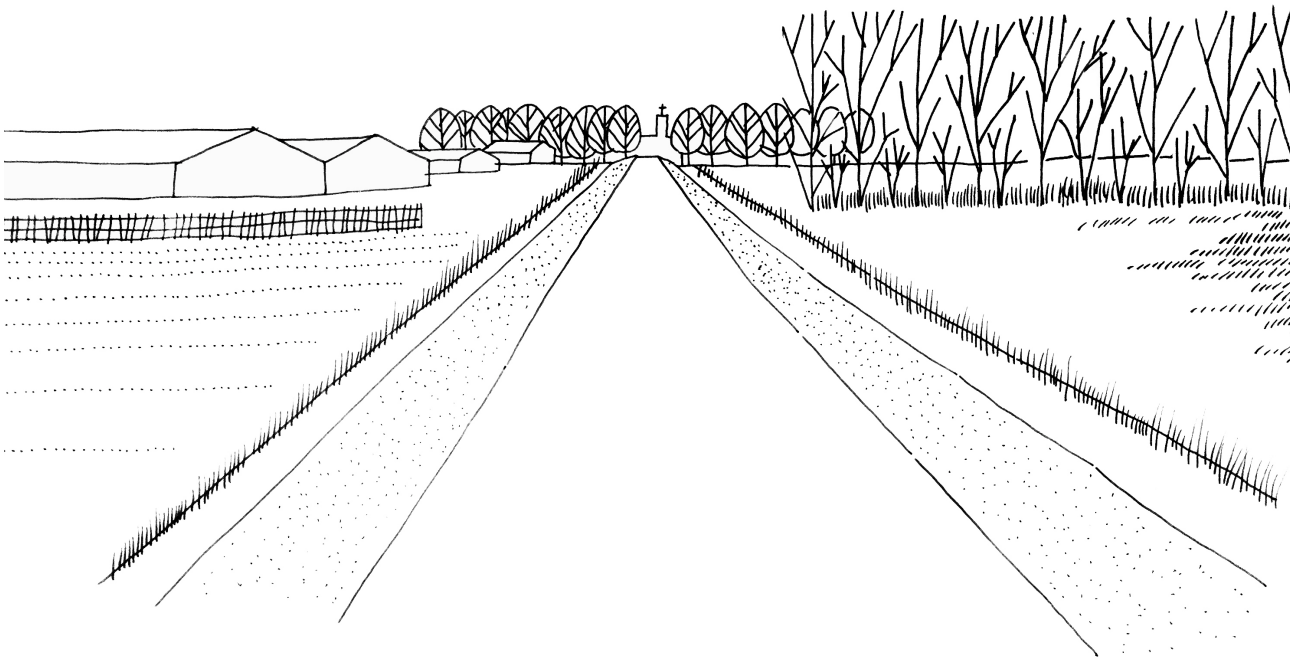
Possible Future



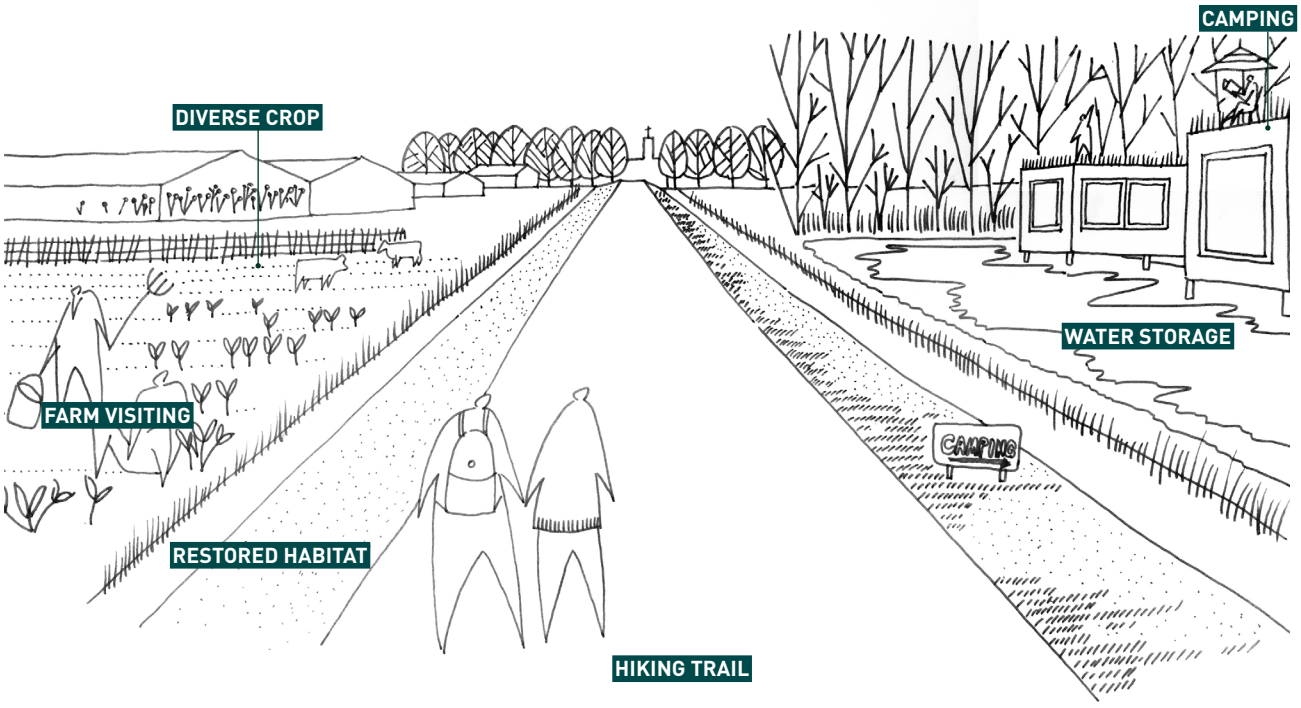
Site Typology : Open Countryside
Typology of Project : Water Retention & Bio-farm & New House development
Heritage Old dike, Creek, Ditch
Territory : Biodiversity farm land, Freshwater storage
Mobility : Bike, Walk, Car
Program : Camping, Farm Visiting
Application of the Principles : G01 - G02 - G03 - G04 - L01 - L04 - L05 - L08 - L09 - L10

Through the development of Eco-tourism, the local quality is improved by:
- Eco-tourism & Cultural Identity:
The cultural identity of the old dike will be reinforced through the development of the program along the dike. The image of greenhouse and warehouse will be weakened. The diversified agricultural with the strengthened water system will create a new landscape along the old dike.
- Eco-tourism & Ecosystem
The water retention pond will store the freshwater and reduce the time of drainage in the polder system. Apart from that, the different kinds of agricultural are proposed to be planted in the area in the different time of the year based on soil and water condition. On that way, the water quality will be improved.
- Eco-tourism & Economy:
The biodiversity farm will involve the local farmer in ecotourism to provide farm visiting activity for the tourists. And the water system also provide high quality space for the new house development and camping site along the dike.

Comprehensive Principle - Space & Perception :
The new gradients will be developed along the old dike to improve the biodiversity on the power area. These new gradients provide opportunity for different activities to happen. Through the development of the different program, tourists can be given the freedom to enjoy the polder landscape, hiking, picnic, pandal, experience farming. The polder area will be identified as the garden or public space for the tourists.



CURRENT : The losing ecosystem in the polder area is mainly caused by farming. In order to meet demand for the growing human population, current agricultural practices need to maximize the use of available land, which results in increased mechanization.



PROPOSED : The different kinds of agricultural are proposed to be planted in the area in the different time of the year based on the soil and water condition. On that way, the water quality and biodiversity will be improved.

Municipal South Holland
Deepen ditches to lower water level and to increase water storage

Sharing Platforms
Multi-service bus route / Car and bike Sharing System

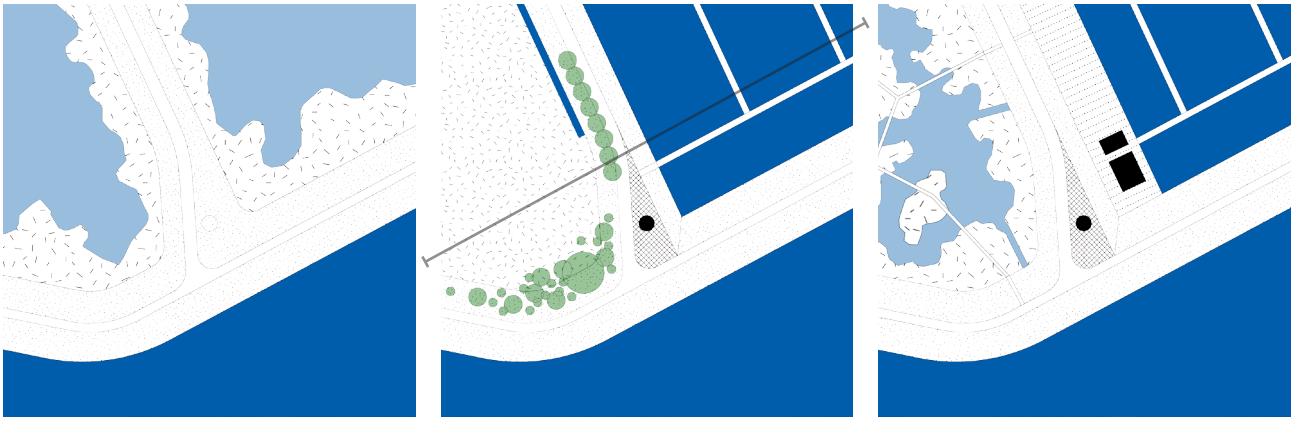
NGO
Development of eco-educational program

Farmer
Urban landholders create biodiversity farms friendly to wildlife

Real estate company
Development of new house

SITE 05
Towards water

1960 **CURRENT** **Possible FUTURE**



Algivorous fish

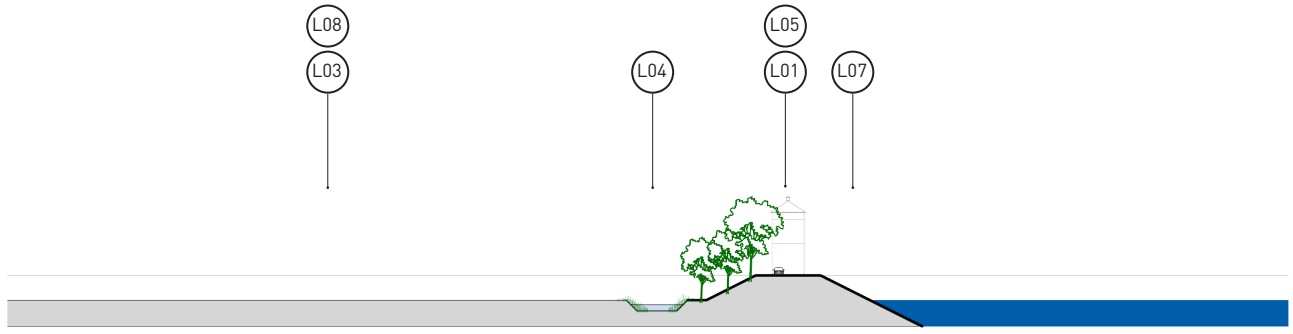
Bivalves

Polygonum hydropiper

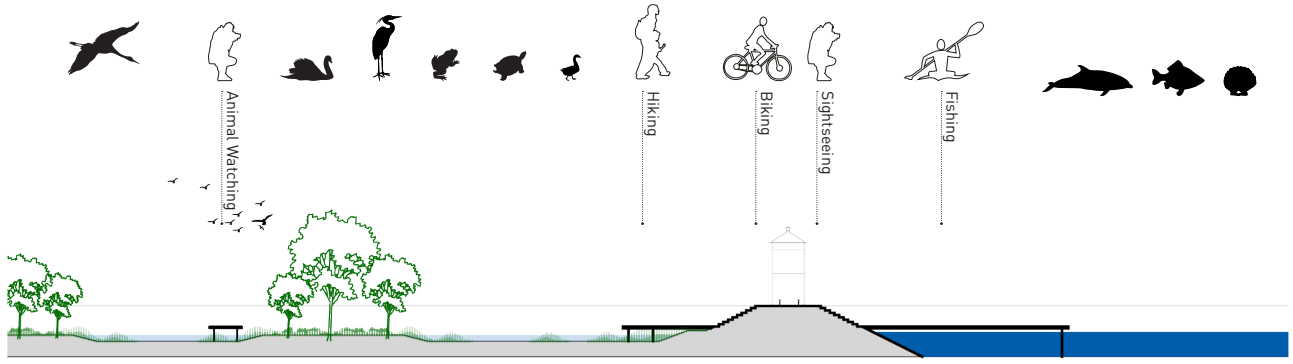
Acorus calamus

Ficinia nodosa

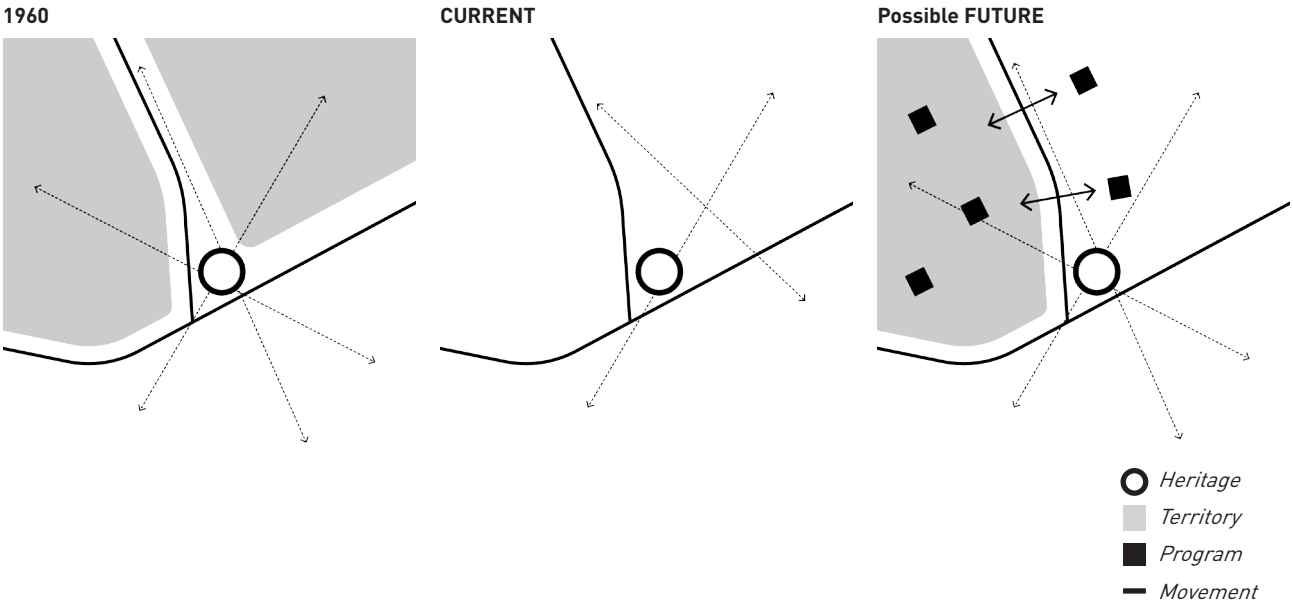
- *Tree*
- *Grass Land*
- *Wetland*
- *Building*
- *Water*
- *Dike*



Current



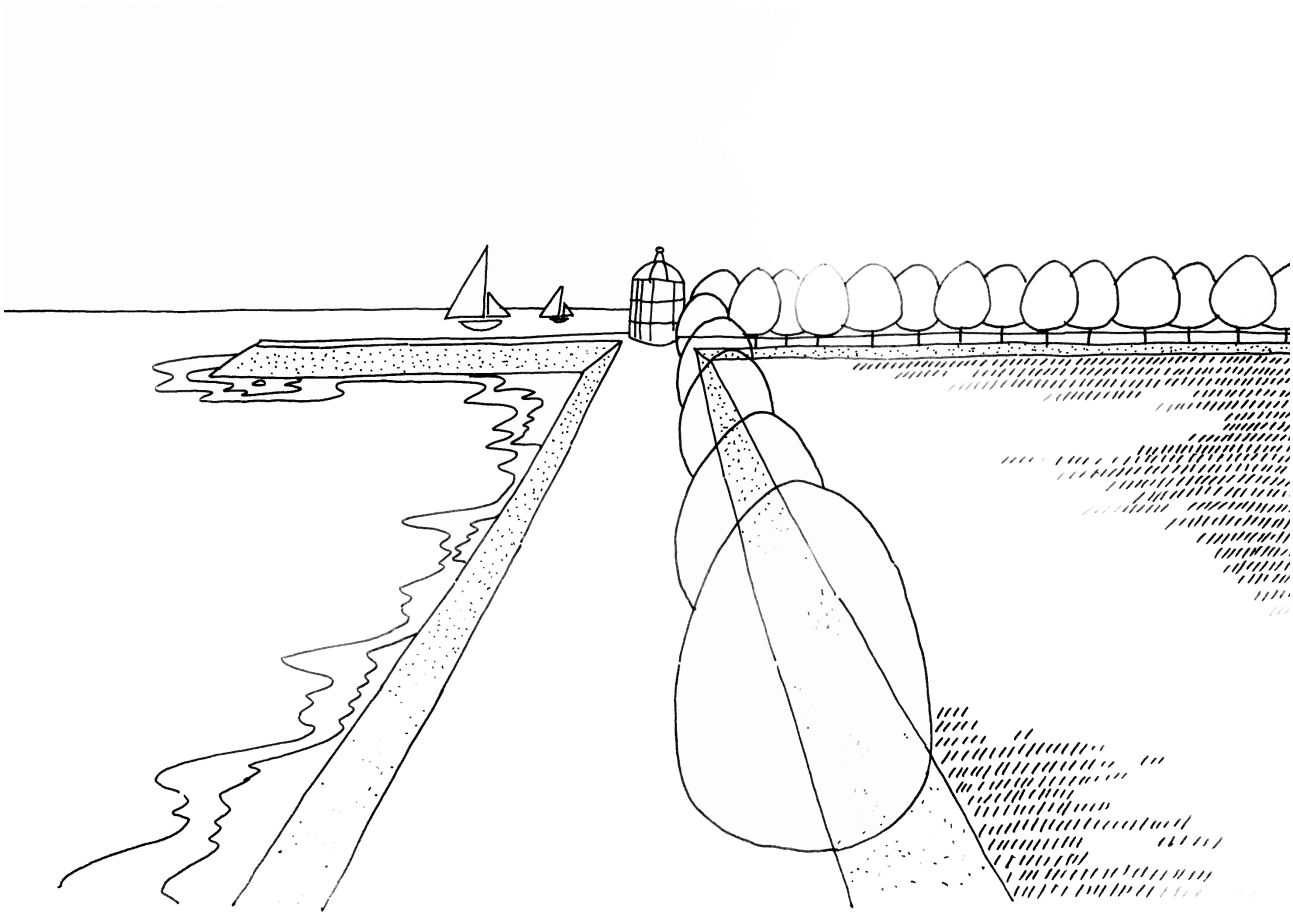
Possible Future



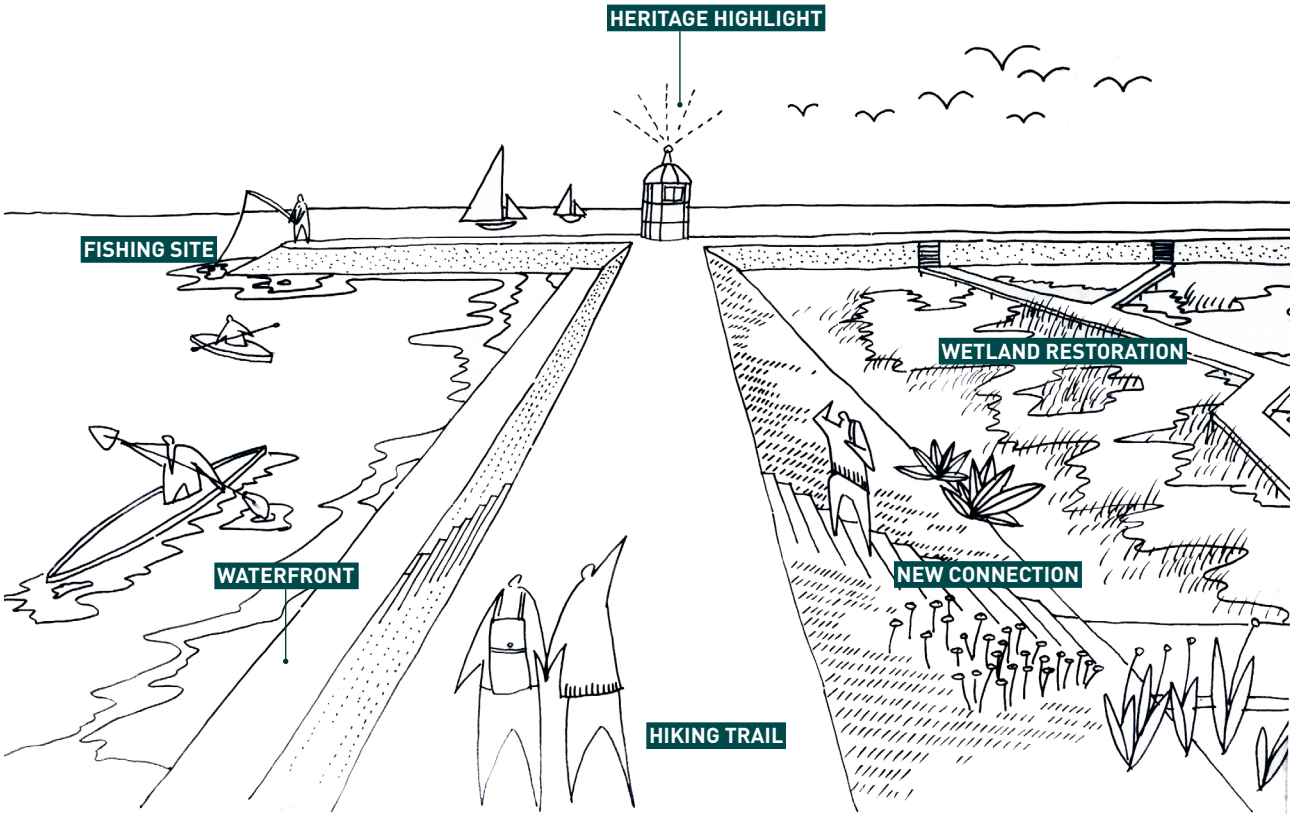
Site Typology : Lake
Typology of Project : Restore wetland, New connection
Heritage Light tower, Dike, Harbor
Territory : Wetland restoration
Mobility : Bike, Walk, Car
Program : Water-related Sports, Restaurants, Fishing, Animal watching, Heritage visiting
Application of the Principles : G01 - G02 - G03 - G04 - L01 - L03 - L04 - L05 - L07 - L08

Through the development of Eco-tourism, the local quality is improved by:
- Eco-tourism & Cultural Identity:
The identity of the water will be reinforced walking towards the lake through the development of the wetland and more access to the water. The view towards the water and the light tower will be highlighted through removing the trees along the road.
- Eco-tourism & Ecosystem
New wetland patches are designed to bring back the ecological succession that supports the development of biodiversity and habitat diversity, and to make use of the ecosystem services. Through the recovery of the wetland, the water quality will be improved and ground-water levels will be recovered.
- Eco-tourism & Economy:
The restored ecosystem can benefit the local community by attracting more tourists and the development of the fishing industry. It would also be a generator of more restaurant and hotel along the lake for seafood and provide a different range of jobs.

Comprehensive Principle - Space & Perception :
The image of the endless water which used to be the most important cultural icon of Southwest Delta will be strengthened when walking towards the lake. The obstacle should be removed to ensure the sight view towards water. Water will be made use of to provide opportunity for program and urbanization to develop. The new building along the lake should be innovative to lower the impact on water habitats.



CURRENT : The image of water and light tower is the important cultural identity of the area and needed to be strenthened.



PROPOSED : The recovered wetland and the removal of trees along the street increase the accisibility of the water and light tower.

Municipal South Holland
Deepen ditches to lower water level and to increase water storage

Sharing Platforms
Multi-service bus route / Car and bike Sharing System

NGO
Development of eco-educational program

Farmer
Urban landholders create biodiversity farms friendly to wildlife

Landscape Authority
Forest and local grass land restoration

8
Implication

Based on the condition of the narrative, it is possible to implement them in the regional scale. In this chapter, I will start from the actor and action analysis. Through the interest and benefit analysis of the stack holder, it is possible to identify which stakeholder can be involved to firstly take action for the development of the ecotourism network. Then, based on that, the transformation phase is developed.

8.1 Actors
8.2 Timeline
8.3 Phasing the transformation

8
Implication

Actors

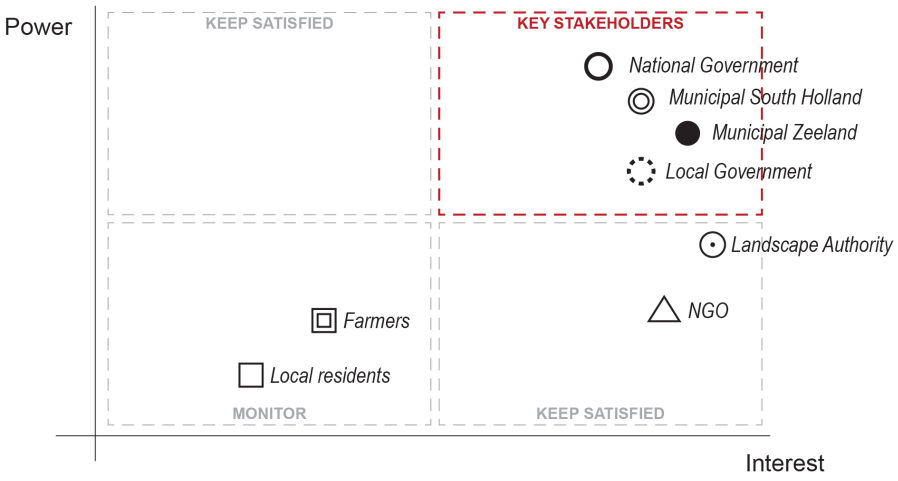
Several stakeholders play an crucial role in creating an inclusive social-economic but also ecological sustained urban strategy for this area. When we can cre- ate a tight integration between actors, costs and risks can be reduced and common grounds and shared goals can be formulated in an early stage of the project.

A main division in stakeholders can be made between the private sector, the public sector and civil society. By identifying the key stakeholders and estab- lishing strategies to stimulate engagement and collaboration an attempt is made to make use of the right resources and specific capacities to realise a successful mixed-use urban area over time. Key stakeholders involved in the redevelopment of the target area can be found in the following table.
In the target location, high land value has gradually replace the exististing industries. Here new developments can be regulated by restructuring the urban fabric with the addition of new high density program. There will be demand for more open space and connectivity.

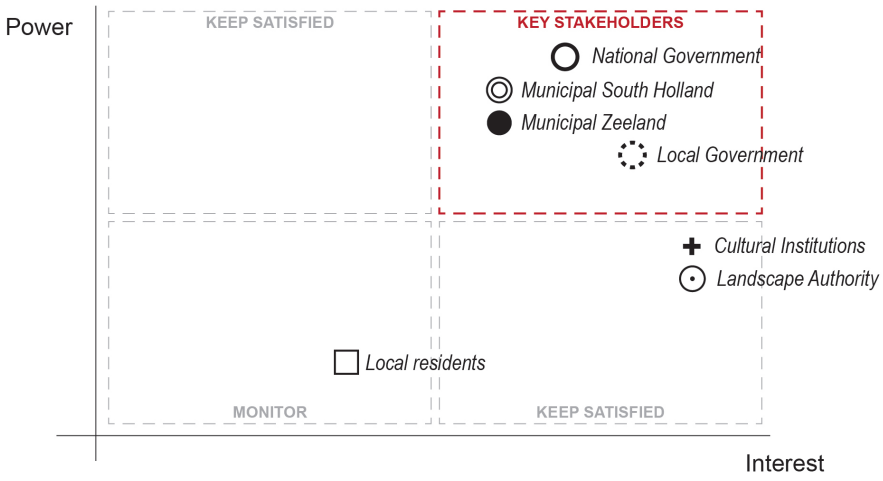
According to the table, the (state & municipal) government will play an im- portant role of redevelopment. Therefore, they can play a crucial role in driving development along with the private investor. With the involvement of the water board, a top - down approach can be observed by integrating new water and waste management solutions into the urban fabric while the restructuring pro- cess is being made.

In order to do that, the government will first to review urban planning tool. These instruments will define the rules for us to use and occupy the city spaces and ensure, for example, housing close to jobs, services and urban infrastructure, good public spaces, public transport quality between other things.

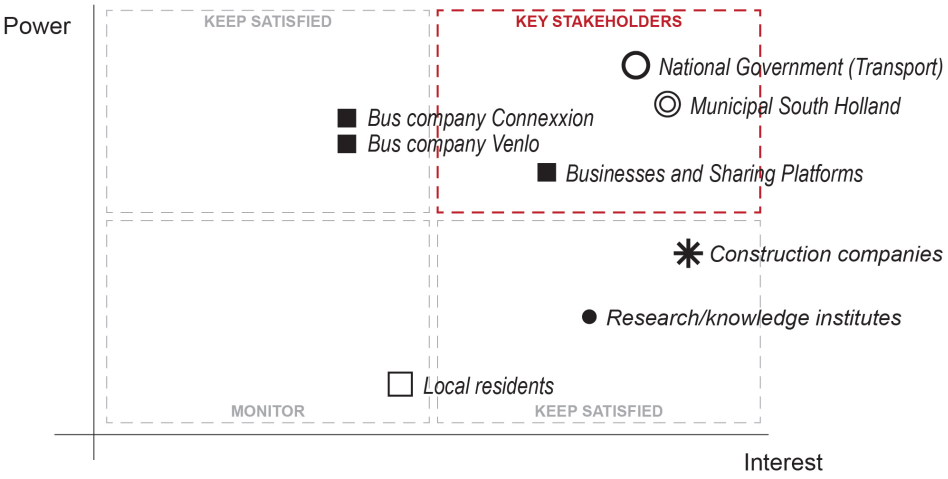
TERRITORY // IMPLEMENTING GREEN INFRASTRUCTURE



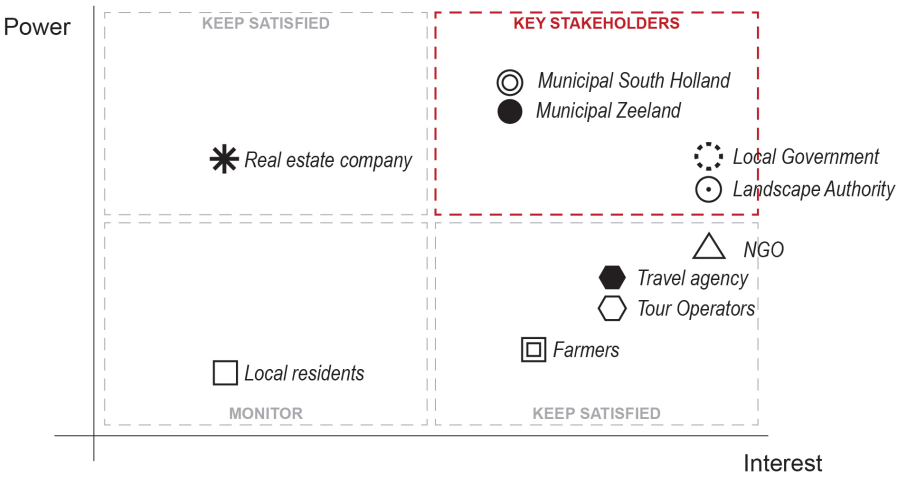
HERITAGE // CONSERVE AND HIGHLIGHT HERITAGE



MOBILITY // SHIFT TO SLOW TRANSPORT



PROGRAM // IMPROVE AWARENESS AND ECONOMICAL INCOME

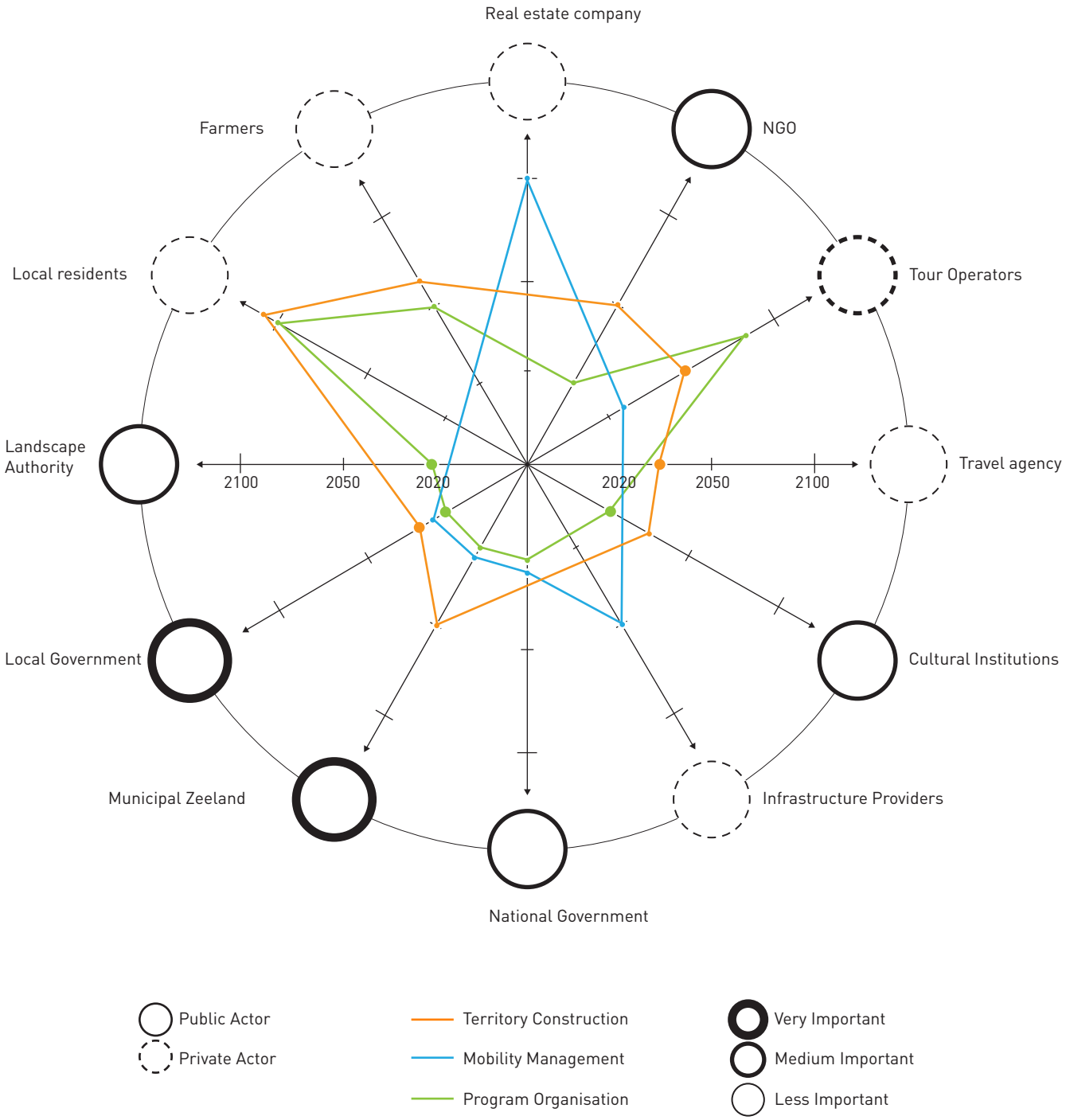


Ecotourism Network is based on the partnership of private and public actors for all project identified by the Design Principles of Ecotourism. Designing with Tourism is based in its strategic design on the partnership and collaboration of public and private actors.

The project considers different typologies and different scales of actors which can involve in different ranges of ecological and economical activities. Based on the benefits and interests of each actor, the phase that they need to be involved are evaluated.

Based on the analysis, the public actor like local government and Municipal Zeeland will be the main actor especially in the first phase. After the improvement of ecological quality, when the tour agencies see the benefit that is possible to gain from the development of ecotourism, more private actor will be involved.

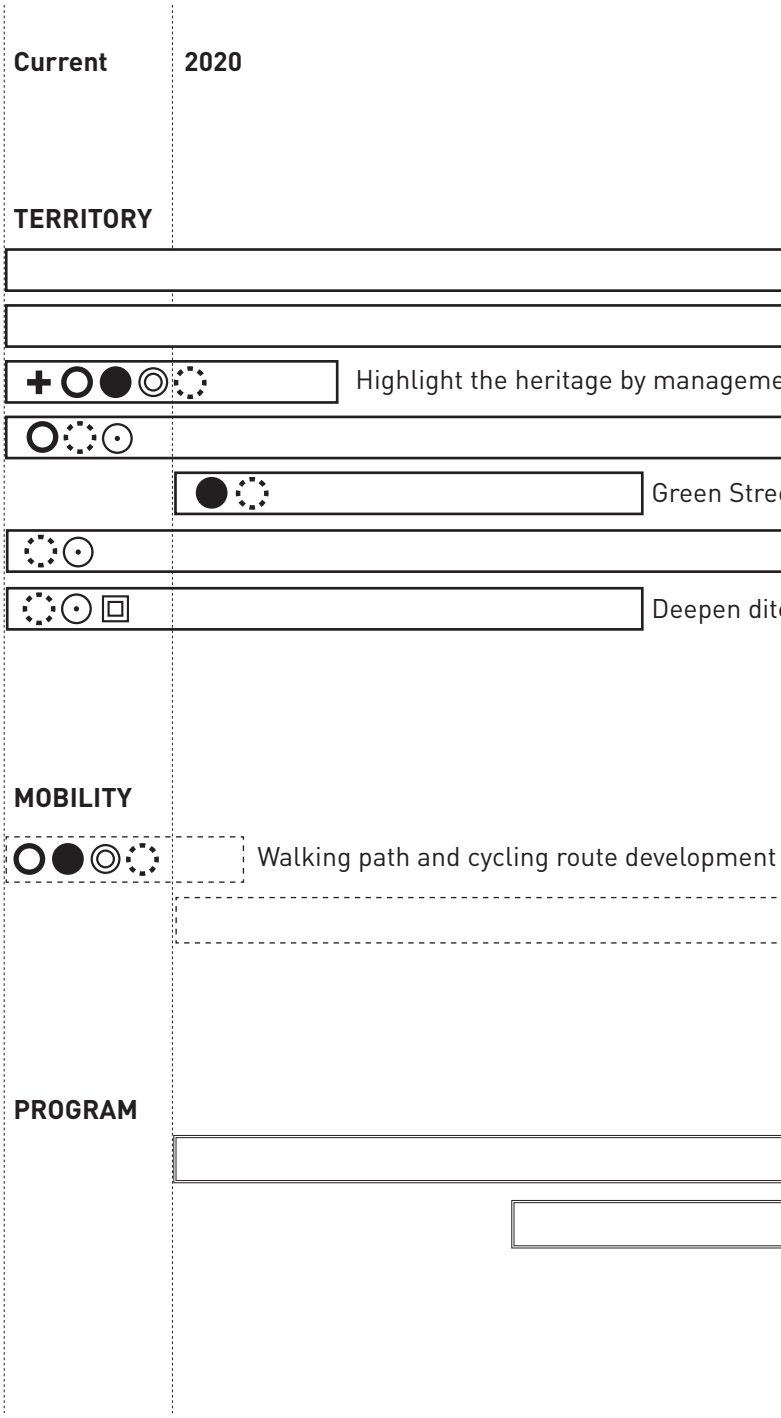
Therefore, government is thought to be the main initiator of the project. The aim is to provide a series pilot projects that would affect the socio-economic situation of the whole region. The Region would be the entity that puts in relationship local actors, local economies, local investors with regional planning. In the following part of this chapter identifies 3 phases of partnerships in the development of the Local Scale projects spread on a times-lot until 2100.

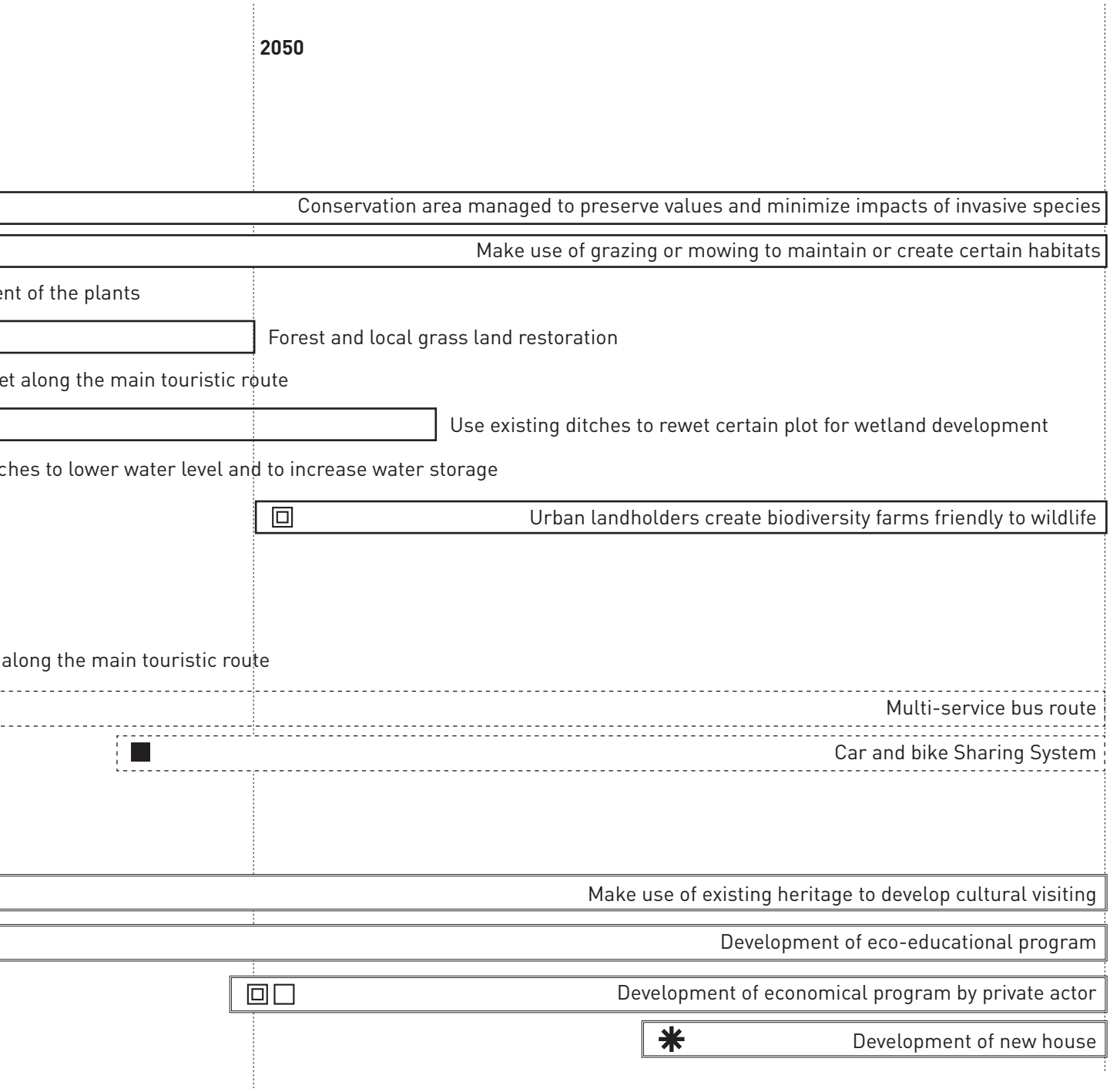

Real estate company
NGO
Tour Operators
Travel agency
Cultural Institutions
Infrastructure Providers
National Government
Municipal Zeeland
Local Government
Landscape Authority
Local residents
Farmers
2100
2050
2020
2020
2050
2100
Public Actor
Private Actor
Territory Construction
Mobility Management
Program Organisation
Very Important
Medium Important
Less Important

Timeline for implementation

The timeline shows the implication of the different actions involved in each project and the stakeholders which is possible to take responsible of it. Based on the time line, we can see the structure plan is started by municipal government and local government for the most fundamental task. They will take responsible to prepare the backbone of ecotourism.

- **National Government**
- **Municipal Zeeland**
- **Municipal South Holland**
- **Local Government**
- **Landscape Authority**
- **Cultural Institutions**
- **Local residents**
- **Farmers**
- **Infrastructure Providers**
- **Businesses and Sharing Platforms**
- **Bus company Connexxion**
- **Bus company venlo**
- **Real estate company**
- **NGO**
- **Tour Operators**
- **Travel agency**




2050
Conservation area managed to preserve values and minimize impacts of invasive species
Make use of grazing or mowing to maintain or create certain habitats
nt of the plants
Forest and local grass land restoration
et along the main touristic route
Use existing ditches to rewet certain plot for wetland development
ches to lower water level and to increase water storage
Urban landholders create biodiversity farms friendly to wildlife
along the main touristic route
Multi-service bus route
Car and bike Sharing System
Make use of existing heritage to develop cultural visiting
Development of eco-educational program
Development of economical program by private actor
Development of new house

8
Implication

Phase 1 : 2020

In the first phase, I will make use of this existing cultural and ecological resources to develop Ecotourism Network. Zone planning will be formulated to help preserve values and minimize impacts of invasive species. And the existing cultural and natural resource will be reactivated as the hotspots by adding more program and increasing the accessibility of them.

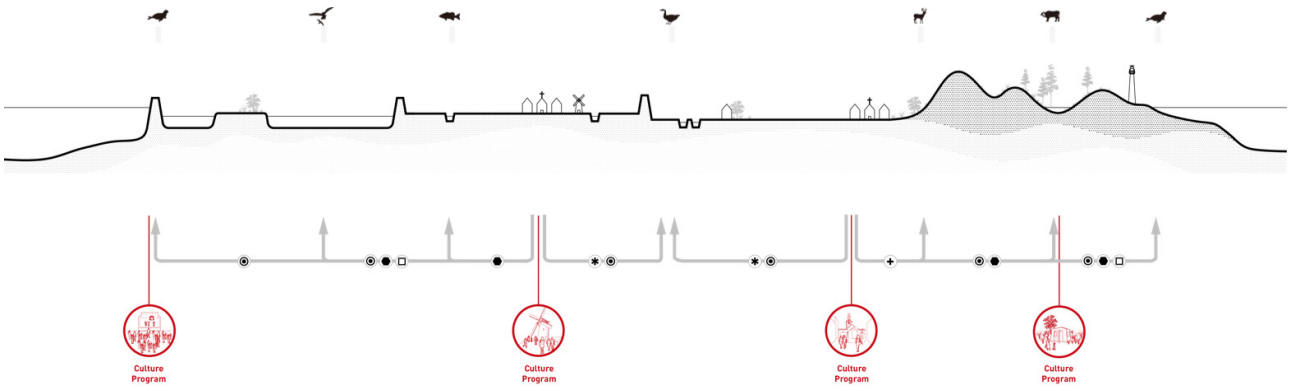
ACTIONS

- **Highlight the heritage by management of the plants**
- **Conservation area managed to preserve values and minimize impacts of invasive species.**
- **Make use of grazing or mowing to maintain or create certain habitats.**
- **Forest and local grass land restoration**
- **Make use of existing heritage to develop cultural visiting**
- **Walking path and cycling route development along the main touristic route**

POTENTIAL STAKEHOLDERS

National Government
Municipal Zeeland
Municipal South Holland
Local Government
Landscape Authority
Cultural Institutions

PROPOSED SECTION



STURCTURE PLAN

Territory (Element with ecological value)

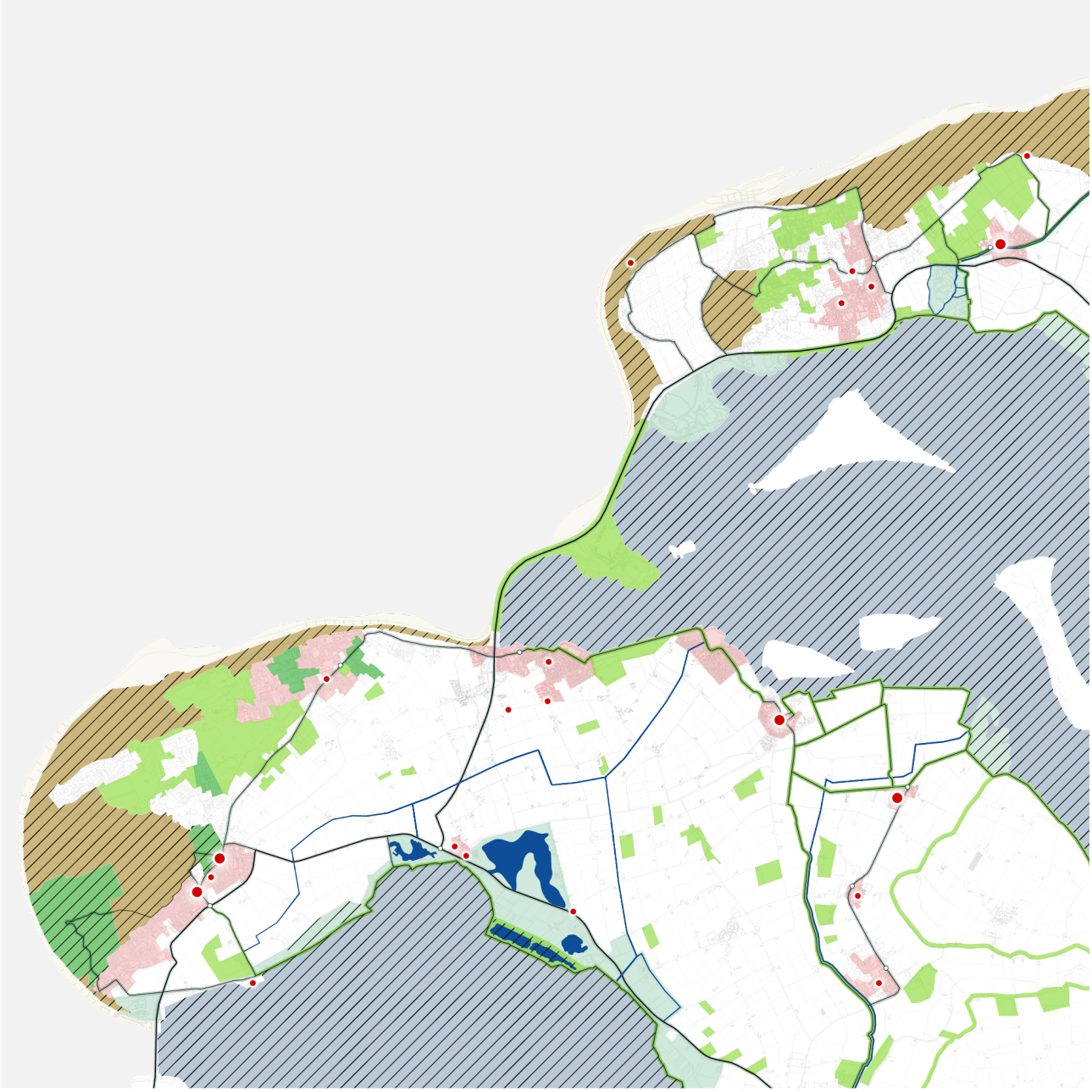
- *Dune*
- *Forest*
- *Grass*
- *Farmland*
- *Wetland*
- *Creek*
- *Lake(Salt water)*
- *Urban*
- *Fresh water storage*
- *Wetland (Proposed)*
- *Grass (Proposed)*
- *Forest (Proposed)*
- *Diversified Farm (Proposed)*
- *Conservation Area*

Program

- *Eco-educational Hotspots*
- *Cultural Hotspots*

Mobility

- *Main Highway*
- *Main transfer center*
- *Main Toruistic Route*



8
Implication

Phase 2 : 2050

In the second phase, the main objective is to restore the natural gradient in the region. As the ecosystem and biodiversity improved, the network can support the development of various eco-educational program. Different actions will take place in different place. Based on the form or new gradients that I create, the new program will also be proposed there.

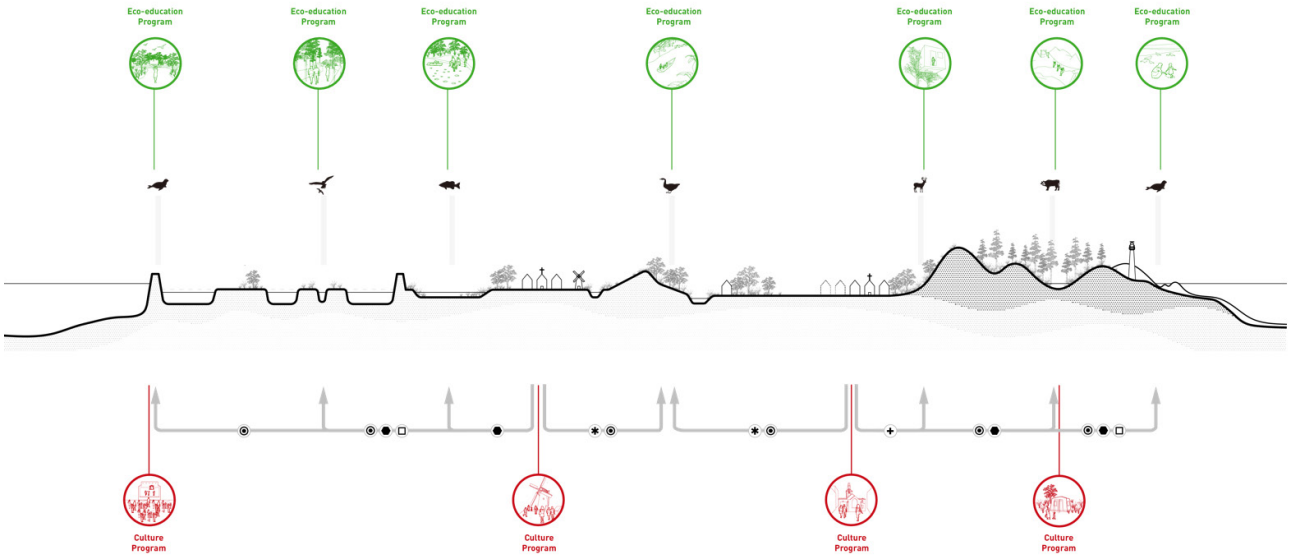
ACTIONS

- **Green Street along the main touristic route**
- **Use existing ditches to rewet certain plot for wetland development.**
- **Deepen ditches to lower water level and to increase water storage.**
- **Forest and local grass land restoration**
- **Development of eco-educational program**
- **Multi-service bus route**
- **Car and bike Sharing System**

POTENTIAL STAKEHOLDERS

Farmers
Infrastructure Providers
Tour Operators
Travel agency
NGO

PROPOSED SECTION



STURCTURE PLAN

Territory (Element with ecological value)

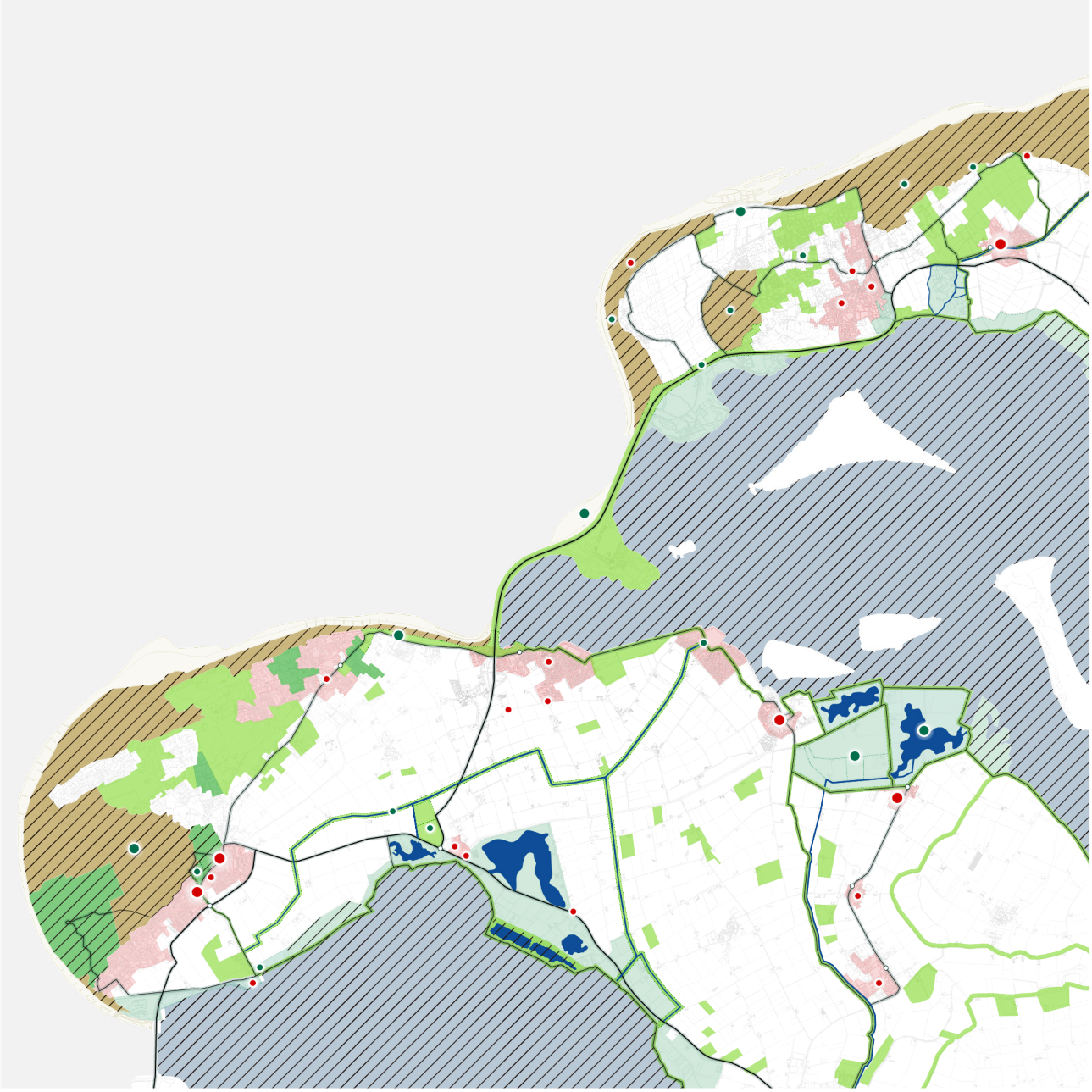
- *Dune*
- *Forest*
- *Grass*
- *Farmland*
- *Wetland*
- *Creek*
- *Lake(Salt water)*
- *Urban*
- *Fresh water storage*
- *Wetland (Proposed)*
- *Grass (Proposed)*
- *Forest (Proposed)*
- *Diversified Farm (Proposed)*
- *Conservation Area*

Program

- *Eco-educational Hotspots*
- *Cultural Hotspots*

Mobility

- *Main Highway*
- *Main transfer center*
- *Main Toruistic Route*



8
Implication

Phase 3 : 2100

In the third phase, due to the development of eco-educational program, eco-tourism growth will take place without putting too much burden on the ecosystem. The development of ecotourism and economy form a virtuous circle. As the spatial quality improved, ecotourism will also provide chance for new urbanisation.

ACTIONS

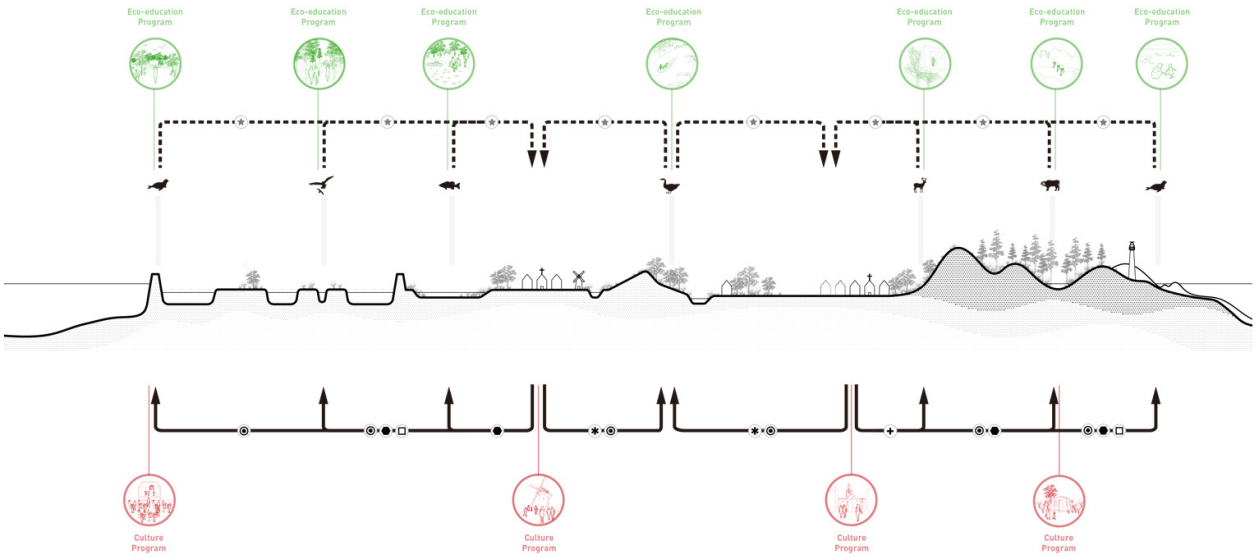
- **Urban landholders create biodiversity farms friendly to wildlife.**
- **Development of new house**
- **Development of economical program by private actor**

POTENTIAL STAKEHOLDERS

☐ **Local residents**

✳ **Real estate company**

PROPOSED SECTION



STURCTURE PLAN

Territory (Element with ecological value)

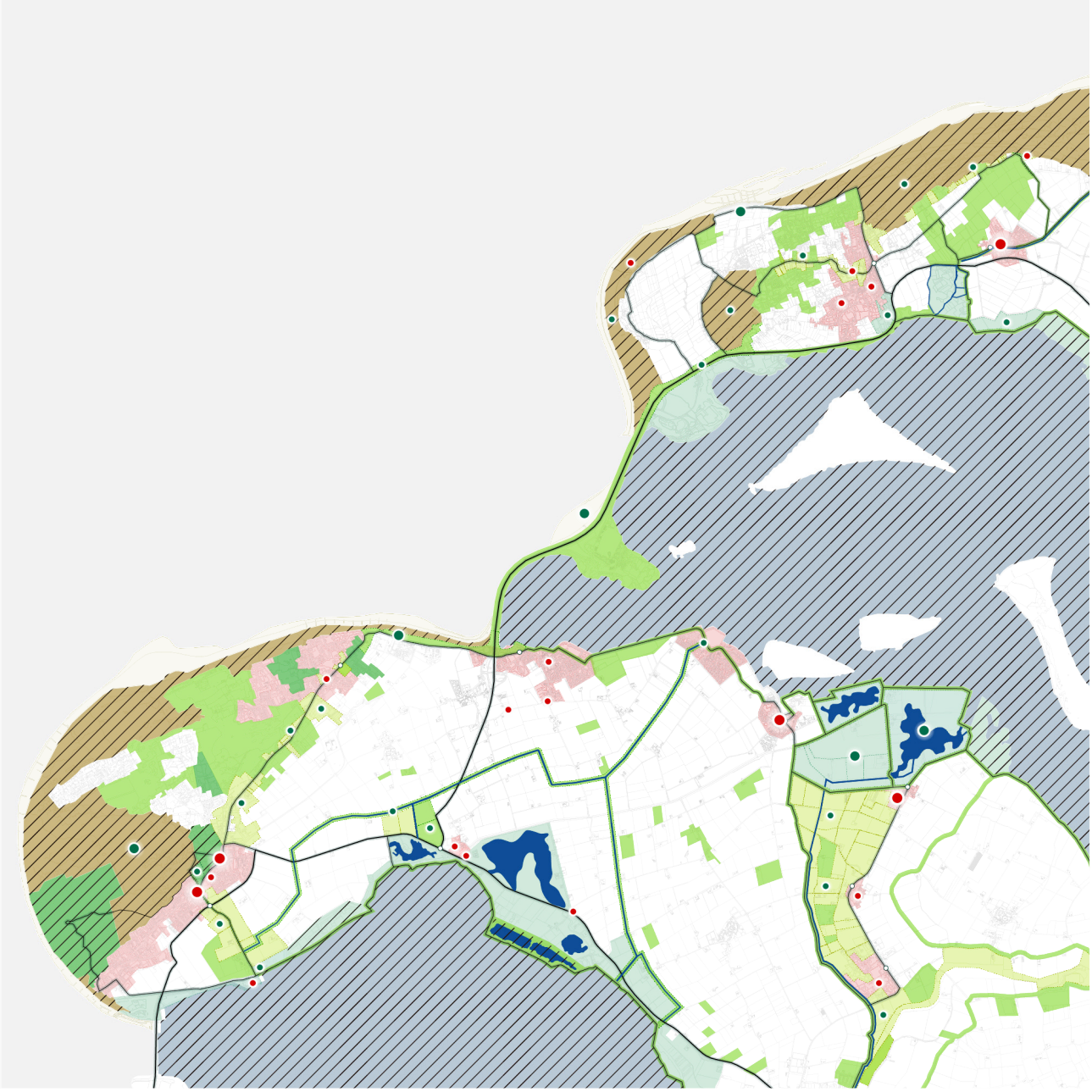
- *Dune*
- *Forest*
- *Grass*
- *Farmland*
- *Wetland*
- *Creek*
- *Lake(Salt water)*
- *Urban*
- *Fresh water storage*
- *Wetland (Proposed)*
- *Grass (Proposed)*
- *Forest (Proposed)*
- *Diversified Farm (Proposed)*
- *Conservation Area*

Program

- *Eco-educational Hotspots*
- *Cultural Hotspots*

Mobility

- *Main Highway*
- *Main transfer center*
- *Main Toruistic Route*



9
Conclution

This chapter is mainly to evaluate the impact of the project and make conclusion and reflection of this thesis project. The first part is the evaluation. Based on the theory - Design with nature - the changing ecological and economical value is evaluated to see through the development of ecotourism network, the multi-value of the site is improved. The second part is reflection and conclusion. In this part, I will make a conclusion of the thing that we learned in this project, including the framework to develop ecotourism, the general and local principle we need to follow and the narrative that we can develop through ecotourism. Knowing the logic behind them, they can be used and developed further.

9.1 Evaluation
9.2 Reflection
9.3 Conclution

9
Conclution

Evaluation

"Our eyes do not divide us from the world, but unite us with it. Let this be known to be true. Let us then abandon the simplicity of separation and give unity its due. Let us abandon the self mutilation which has been our way and give expression to the potential harmony of man-nature. The world is abundant, we require only a deference born of understanding to fulfill man's promise. Man is that uniquely conscious creature who can perceive and express. He must become the steward of the biosphere. To do this he must design with nature."

—— Ian McHarg

Based on the method of design with nature, the intervention is evaluated to see the changing value of the site. The first step is to make a ranking graph for different themes (wildlife, hydrology, vegetation and land use) based on the intervention. In order to highlight the changing ecological and economical value of the site, I only involve the spatial element which have design intervention in the ranking table. For each of them, some ranking criteria are chosen to recognize the current and proposed situation of the region. (Figure 9.1)

When each factor was mapped from high value to low value, the next step is to reveal the value for different land use depending on the importance of factors. So, there will be order from left to right and the reverse order. Besides, each factor has its own criteria for judging the importance.

As different land uses are determined, the final step is to overlap the relevant layers of ranking according to how important the factor are to specific land use. These maps show the maximum concurrence of all the positive factors and the least restrictions, at the same time, they indicate whether the areas is suitable for a certain kind of land use (ecological value, economic value). By using land use value maps, the multiple land use in the site can be recognized.

By comparing the ecological and economical value map of the current site and proposed site, we can see the changing meaning of the landscape through the intervention. The economical value and ecological value are both improved in the region. Also, there will be more space for the possible urbanization in the future.

Image 9.1 : Ranking criteria for the changed spatial element (Made by Author)

Phenomena Rank								Value for Land Use	
Factor	**Ranking Criteria**		**I**	**II**	**III**	**IV**	**V**	**Ecological Conservation**	**Economic development**
Hydrology	**Fresh water**	Expansion of water (Largest ->smallest)	Lake	Creek	Pond			●	
Vegetation	**Vegetation Type**	Scarcity (most -> least)	Dune	Wetland	Forest	Grassland	Field	●	○
	type	Accessibility (High -> low)	Village	Fields		Others			●
Wildlife	**Habitat Type**	Scarcity (most -> least)	Dune	Wetland	Water Related (Lake, Creek)	Forest & Field	Village	●	○
	Species	Diversity (most -> least)	Dune,Wetland,Water Related (Lake, Creek)		Forest & Field		Village	●	○
Land use	**Scenic value**	distinctive (most -> least)	Greenery, dune and water related			Others		●	●

● (from left to right) ○ (from right to left)

Image 9.2 : Evaluation of current layout based on the ranking table

1 - Hydrology : Fresh water
Expansion of water (Largest → smallest)

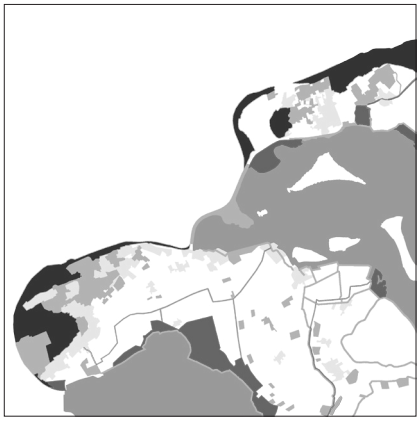
- *Lake*
- *Creek*
- *Pond*

2 - Vegetation : Vegetation Type
Scarcity (most → least)

- *Dune*
- *Wetland*
- *Forest*
- *Grassland*
- *Farmland (Biofarm)*

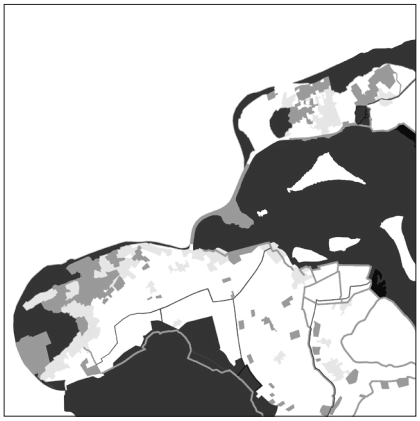
3 - Vegetation : Access
Accessibility (High → low)

- *Village*
- *Farmland (Biofarm)*
- *Others*



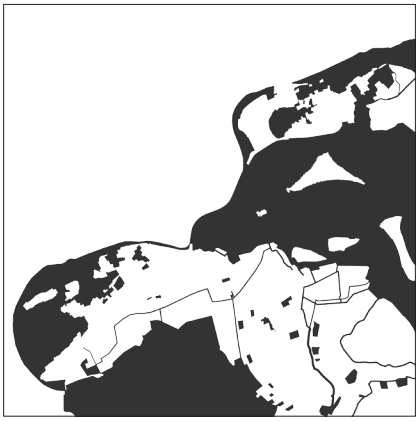
4 - Wildlife : Habitat Type
Scarcity (most → least)

- *Dune*
- *Wetland*
- *Water Related (Lake, Creek)*
- *Forest & Farmland (Biofarm)*
- *Village*



5 - Wildlife : Species
Diversity (most → least)

- *Dune,Wetland,Water Related*
- *Forest & Farmland (Biofarm)*
- *Village*



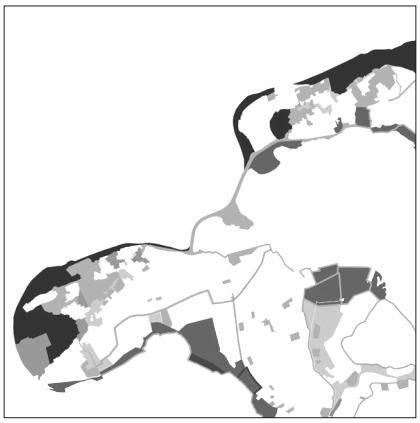
6 - Land Use : Scenic Value
Distinctive (most → least)

- *Greenery, dune and water related*
- *Others*

Image 9.3 : Evaluation of Proposed layout based on the ranking table

1 - Hydrology : Fresh water
Expansion of water (Largest → smallest)

- *Lake*
- *Creek*
- *Pond*

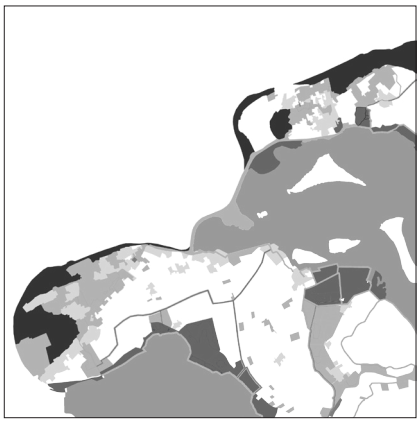


2 - Vegetation : Vegetation Type
Scarcity (most → least)

- *Dune*
- *Wetland*
- *Forest*
- *Grassland*
- *Farmland (Biofarm)*

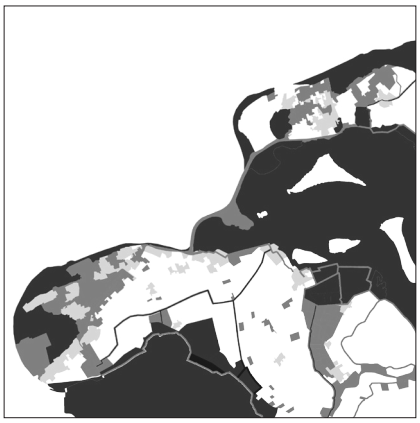
3 - Vegetation : Access
Accessibility (High → low)

- *Village*
- *Farmland (Biofarm)*
- *Others*



4 - Wildlife : Habitat Type
Scarcity (most → least)

- *Dune*
- *Wetland*
- *Water Related (Lake, Creek)*
- *Forest & Farmland (Biofarm)*
- *Village*



5 - Wildlife : Species
Diversity (most → least)

- *Dune,Wetland,Water Related*
- *Forest & Farmland (Biofarm)*
- *Village*

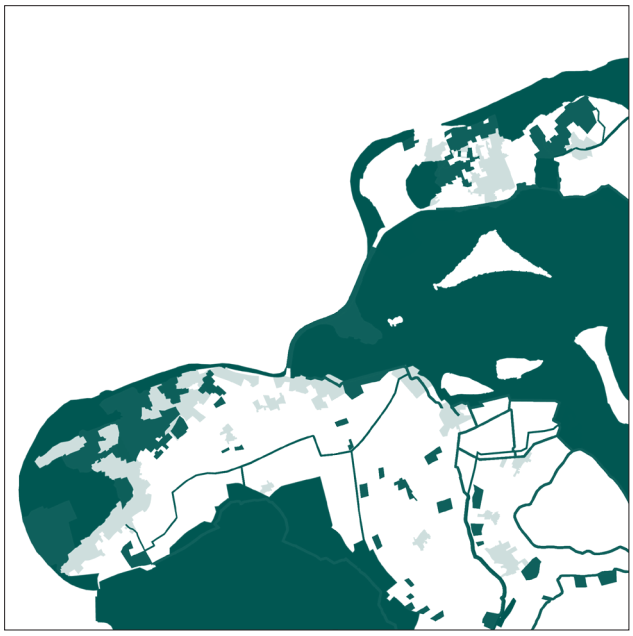
6 - Land Use : Scenic Value
Distinctive (most → least)

- *Greenery, dune and water related*
- *Others*

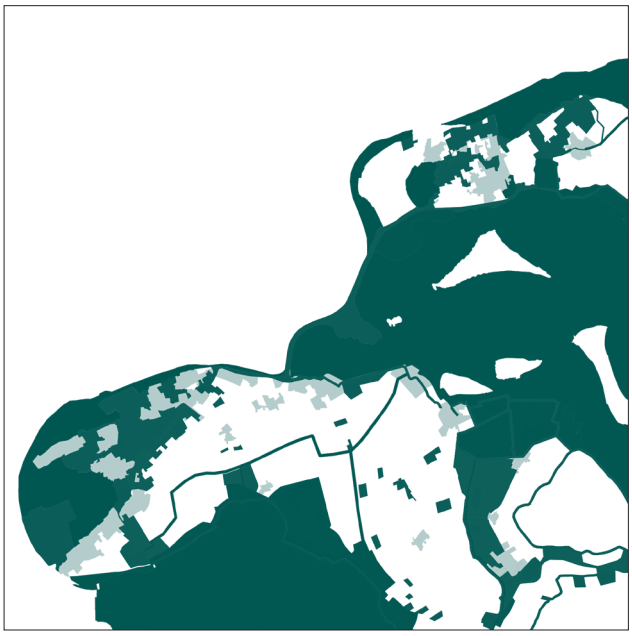
Ecological Value

A rough calculation for the change of ecological value shows that through the development of ecotourism, around 12% of the lands could potentially improve their ecological value for the whole region. And the improvement of ecological value happened in the wetland, farm land and grass land.

	CURRENT	PROPOSED	INCREASED
HIGH	**34 KM2**	**35 KM2**	**2%**
MEDIUM	**108 KM2**	**126 KM2**	**17%**
LOW	**18 KM2**	**18 KM2**	**0%**
TOTAL	**160 KM2**	**179 KM2**	**12%**



1 : Ecological value of the current site



2 : Ecological value of the proposed site

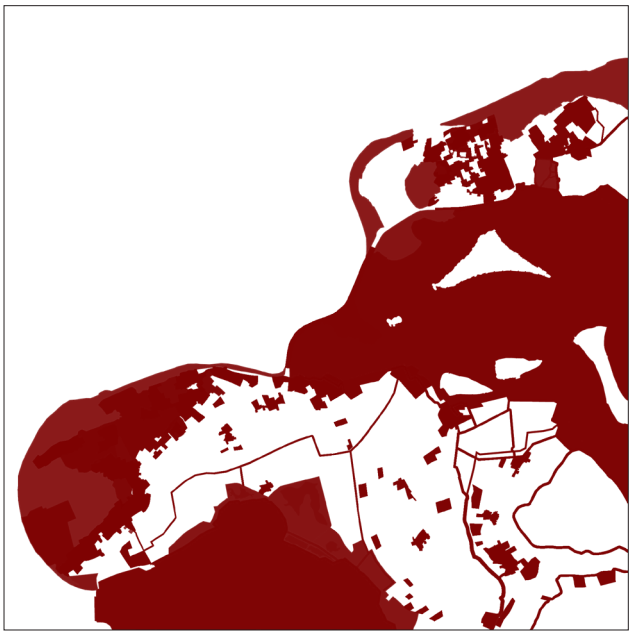
Image 9.4 : Evaluation of Ecological value (Made by Author)

Ecological value from high to low

Economical Value

A rough calculation for the change of ecological value shows that through the development of ecotourism, around 12% of the lands could potentially improve their ecological value for the whole region. And the main improvement of economic value happened in the farm land and grass land.

	CURRENT	PROPOSED	INCREASED
HIGH	**120 KM2**	**138 KM2**	**15%**
MEDIUM	**40 KM2**	**41 KM2**	**3%**
LOW			
TOTAL	**160 KM2**	**179 KM2**	**12%**



1 : Ecolnomical value of the current site

2 : Economical value of the proposed site

Image 9.5 : Evaluation of Economical value (Made by Author)

Economical value from high to low

7
Designing Story

Reflection

REFLECTION ON RESEARCH AND DESIGN

Research and design done in this graduation project provided a more detailed implementation and visualization of an urban landscape in Dutch Southwest Delta. This chapter contains a reflection on the relationship between research and design in this project, the relationship of the ecotourism and urbanism.

Design By Research

The literature studies of the ecotourism formed a framework of the design process for this graduation project. The theories include landscape biography, landscape gradients and landscape narrative provide the basic methodology for analysis during the design process. The research by design, that followed the framework and elaborated by this methodology, provided reflections, evaluation and decisions for a new solution of urbanization in Dutch Southwest Delta.

Research on the theory and case study of Ecotourism provide us the basic spatial framework of ecotourism network and the analytical framework to study the region from four aspects including heritage, territory, program and mobility.

Research on the biography analysis provided us the basis understanding of the changing meaning of the landscape in history and give me an introduction of the cultural identity that formed in the past and heritage resource that exist today.

The gradient analysis provided us the typology of spatial pattern in the current layer. Through the further collection of data, we see the ecological value of the site and the challenge this region is facing in terms of biodiversity.

Then, based on the literature, case study together with thesis analysis, the regional design principle is elaborated to help us explore the possibility of the ecotourism network. Therefore, the regional design of ecotourism network is based on research.

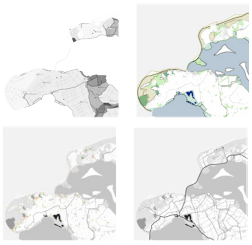
Research by Design

After the regional design, village Burgh is chosen to demonstrate the possible realization of the structure plan and visualize the future images. Following by the regional design principle, the four aspects of the village is studied more specifically. In that way, the regional design principle is tested again in the design.

On the other hand, based on the design objective of the village, the different spatial intervention is tested on the site in terms of territory, program and mobility system. Through these possible intervention, specific local design principle is explored. In this part, I did the research through the design process.

Finally, these local design principle is tested again in the human scale to link the possible narrative that can happen on the site. Each spatial quality that in the narrative showed a certain condition of the Site Typology, Project Typology, Heritage. Based on this condition, we can find the other place that is suitable to develop in the same way. The implication of these narrative is possible in the other area.

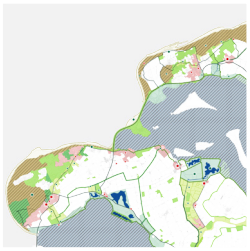
Also, as each narrative showed a certain kind of space or perception of space. They are further concluded as the complimentary principle to show the link between feeling and the organization of the space. These complimentary principles also show research by design process.



LITERATURE REVIEW
CASE STUDY
SITE ANALYSIS

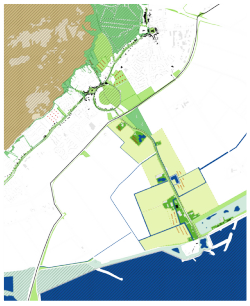
REGIONAL
DESIGN PRINCIPLE

Test



REGIONAL SCALE

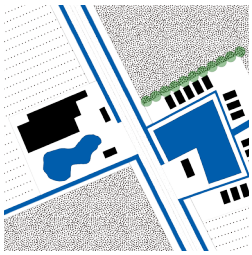
Test



VILLAGE SCALE

LOCAL
DESIGN PRINCIPLE

Test



HUMAN SCALE

COMPREHENSIVEP
RINCIPLE

Design by Research

Research by Design

REFLECTION ON RESEARCH OBJECTIVE

The objective: "To design a cultural corridor across the territory of Brouwersdam area, that in an integral process provides a sustainable development of ecology and economics in Dutch Southwest Delta." The results of this research have met the objective through developing the answers to these research questions:

- How is the development of current tourism? How does people make use of the landscape for the development of tourism?
- What is the potential of Dutch Southwest Delta for the development of ecotourism?

The different systems were analyzed through the concept of landscape biography and landscape gradients. Based on the gradient analysis, the different type of spatial pattern is concluded to provide a base for further study. Then the data is collected for each type of spatial pattern to evaluate their current ecological potential and cultural potential for the development of ecotourism. The result shows that a linkage could be found in between the systems through various ecosystem services.

- How does the development of current tourism influence the ecosystem? What is the challenge for the ecosystem?

Based on the gradient analysis, the different type of natural habitat is concluded and the stress of these habitats are furtherly discussed.

- What design principle could be introduced to create conditions for the development of ecotourism?

Design principles that can be applied in general and could be only applied under local context were generated.

- What theory could be introduced to help the analysis or design process of ecotourism?

Three main theories, that is landscape biography, landscape gradients and Narratives. The biography analysis help me to understand and learn from the changing layout of the site in the past and identify the cultural resource, the gradient analysis help me to study ecological resource in the current layer.

- How can the existing landscape, community and infrastructure be transferred to the spatial element for the regional planning of ecotourism?

The structure plan demonstrates the essential operations to transform the territory, and the main function of a certain area with certain element typology. The connection between natural landscape and cultural landscape could be observed through the context.

- How to design a corridor and generate a well synthesized spatial development framework for the region? What action, phase, actors shall we study to achieve it?

The different action and actor involved in the development of the ecotourism network will be elaborated. The stakehoder analysis will help to put forward the possible phasing of the project.

- What spatial intervention can we design in the local scale to achieve the design objective?

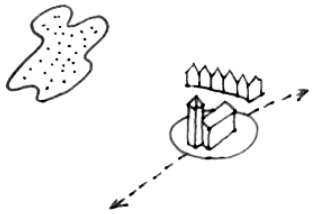
Based on the local design principle, the spatial intervention in the humen scale will be elaborated on 5 cases. Combined with the case study, the relationship between the ecotourism with ecology and economy will be furtherly discussed.

- What new spatial identity can we create of the region for contingency of landscape biography? And how can the development of ecotourism influence the ecology and economy in Brouwersdam area?

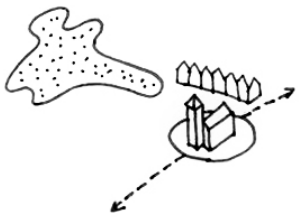
In general, the ecological value includes the restoration of natural dynamics, the enhancement of environmental quality, habitat diversity and biodiversity. The social values include ecosystem services such as the enhancement of health, better living quality, various recreation.

To respond to the objective in a word, the required spatial transformation includes the reinforcement of cultural identity, development of new gradients, slow mobility management and programming. These 4 fundamental operations were adjusted according to the regional and local context in order to enhance the ecological and economical value.

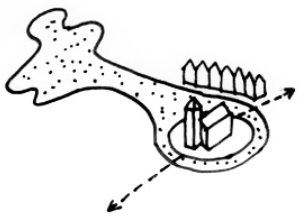
Based on the cultural landscape in the site, new gradients are developed to reinforce the cultural identity of the nearby villages. Slow mobility and different spatial strategy is developed inside these new gradients to improve the ecological quality and the spatial quality of the site and provide opportunity for the further development of different program. (Image 9,6)



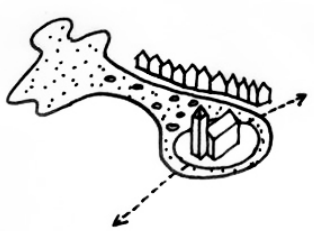
1- Cultural Landscape & Village



2-New Gradient to link them



3- New gradient reinforce the cultural identity



4- Improved spatial and ecological quality for new program

Image 9.6 : The spatial transforamtion involved in Ecotourism (Made by Author)

LANDSCAPE LANGUAGE FOR THE WHOLE DELTA

"Language of landscape exists with its own syntax, grammar, and metaphors, and that we imperil ourselves by failing to learn to read and speak this language. To understand the meanings of landscape, our habitat, is to see the world differently and to enable ourselves to avoid profound aesthetic and environmental mistakes. There is danger when we lose the connection between a place and our understanding of it, Spin warns, and she calls for change in the way we shape our environment, based on the notions of nature as a set of ideas and landscape as the expression of action and ideas in place. "

--The Granite Garden
Urban Nature and Human Design

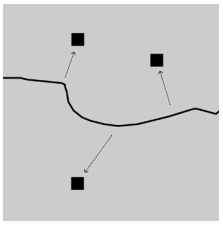
Since closure of the Delta, many 'gradients' have been lost. Actually, almost all the island in Dutch Southwest Delta is dealing with this same problem. The hinterland is threatened to become a shrinking region, where large-scale agriculture is leading in shaping the spatial quality. Under this condition, the ecological quality and biodiversity is disappearing in the region.

However, the Southwest Delta has long history and a large amount of heritage and ecological resources. They give the surrounding villages cultural identity. As the gradients losing, these cultural identity is also disappearing.

Therefore, the regional design of Brouwersdam Area can be an example for the entire South-West Delta. It will be a start in the return of the 'gradients' for the area. This new gradient will use the landscape as a cultural icon to identify the place to strengthen the cultural identity and promote the transformation toward the ecological identity of the place. Through the development of these new gradients, the space will help the tourists to link the history of the place and promote new narrative happen in the site. In that way, ecotourism will boost the region by creating new conditions not only for ecology and economy, but also for occupation.

The spatial quality which expressed through the development of new gradients, slow mobility and program will be concluded as a kind of landscape language. Each language shows a certain way to organize the landscape, mobility and program under a certain condition of site typology and heritage typology. Through the implication of this language, the heritage and cultural identity is highlighted to link the tourists with history and the ecological quality is improved to link the tourists with the increasing awareness of natural conservation.

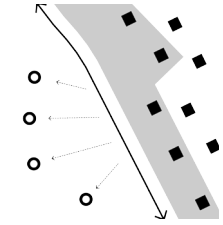
So, in the whole process, with 5 models of language (Image 9.8), I think they could be promoted based on the heritage type and site type of place. Of course, they could have many other forms and variations according to the urban context, and therefore to be localized and contextualized. But the general principle that making use of new natural gradients to link the cultural identity and providing opportunity for new programming can be the same. These models will be first tested on the village of Burgh, and later applied on other areas as well.



MODEL 1

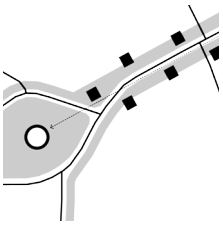
Site Typology : Dune
Typology of Project : Conservation
Heritage : Dune

Heritage
Territory
Program
Movement



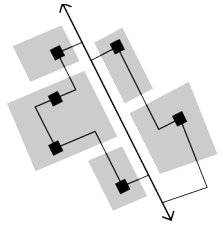
MODEL 2

Site Typology : Sami-Dune Area
Typology of Project : Wooded Bank & New House development
Heritage : Emergency House, Old ditch, Wooden bank



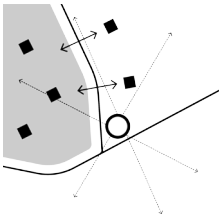
MODEL 3

Site Typology : Old village center
Typology of Project : Green Connection
Heritage : Burgh Friends (Parish Church), Burgh Ring



MODEL 4

Site Typology : Open Countryside
Typology of Project : Water Retention & Bio-farm & New House development
Heritage : Old dike, Creek, Ditch



MODEL 5

Site Typology : Lake
Typology of Project : Restore wetland, New connection
Heritage : Light tower, Dike, Harbor

Image 9.8 : The spatial transforamtion involved in Ecotourism (Made by Author)

7
Designing Story

Conclution

Ecotourism represents an alternative approach to the regional development in Southwest Delta, using ecotourism through spatial design. This approach has been tested on the Brouwersdam Region that blends the industry of ecotourism with the local reality aiming to its ecological, economical and spatial development.

Firstly, the framework and methodology of ecotourism is concluded that, through the landscape biography and gradient analysis, the network of ecotourism can be achieved through the management and cohesion of 4 layers, heritage, territorial, mobility and program. This framework can be the general framework for the development of ecotourism network.

Secondly, the project defines and implements Design Principles in the test case: an instrument for the organization of heritage, territorial, mobility and program management in support to the development of ecotourism based on the regional context. These regional and local Design Principles are applicable to all the territories which want to boost the economy through the development of ecotourism.

Finally, the spatial quality which expressed through the development of new gradients, slow mobility and program is concluded as a kind of landscape language. They could be promoted based on the heritage type and site type of place to link ecotourism with the narrative and spatial quality. Based on the general principle that we can make use of the new natural gradients to link the cultural identity and provide opportunity for new programming, this spatial language can be developed further.

SUGGESTION

Regarding the improvement of the new development framework, some topics should be further addressed.

The technical issue could be investigated even more to explore how to involve to the ecotourism network. For instance, how could the transportation system adapt to the ecosystem while providing services for the regional and local connection? Even though a general scheme is developed for agricultural production, further research should be continued to ensure which kind of agriculture shall we implemented and how do they work with the water quality. Also, the gradients of salt water and fresh water should also be studied further to see how we can implement ecotourism in the lake area.

The concept of ecotourism is relatively new in urban design. I would encourage to work more with this attitude, especially when projects, design or research, are related to ecological quality in the shrinking rural area.

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The International Ecotourism Society (TIES)
www.ecotourism.org ecomail@ecotourism.org
TIES is an international membership organization dedicated to disseminating information about ecotourism. Its 1,700 members come from more than 55 different professions and live in more than 70 different countries. Most of its members work in the tourism sector, study tourism or use tourism to support the conservation of natural settings and sustain the well being of local communities.

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10
APPENDIX

1.1 Theory Paper
1.2 Data collection & Site Evaluation

1.1
Theory Paper

Landscapes of memory: Narratives of past places

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Abstract – The landscape in the Netherlands have changed their meanings during the long time. Many landscapes that are now valued for their ecological or historic qualities were once the scenes of hard work by struggling people. Historic city centers that are now favored living spaces for young urban professionals were deteriorated only one or two generations ago and were poor, dirty and noisy a century ago. As the meaning of landscape change over time, how can the landscape of the past be made operational in future strategies for protection, management and development become a question. To answer this question, the author review two theories which explore meaning of the landscape, including Jan Kolen, Hans Renes and Rita Hermans's Landscape Biographies and Matthew Potteiger and Jamie Purinton's Landscape Narratives.

The two theories explore different approaches to present meaning in the landscape. Landscape Biographies is an approach to generate story lines about the ways in which local communities have translate and organized the landscape over time in history. By looking at landscapes in this way, the emphasis is no longer on the origins of landscapes and landscape features, but on their life histories. Unlike Landscape Biographies mainly focus on the historical development, Landscape narratives provide an approach for establishing meaning in the landscape by designing the interplay and mutual relationship between landscape and people. It is through narrative that we interpret the processes and events of place.

The common idea behind these two theories is the emphasis on actor and their relationship with physical landscape. Also, these two theories both show power in enriching our understanding of landscape in the certain biological and cultural context by exploring or designing the identity of the place. Based on that, Landscape biographies and landscape narrative is possible to act as a bridging tool between the past and future landscape. The power of narratives can be used to enrich our design of the phenomena of landscape grounded in the particularity of its landscape biographies, which provide wisdom and inspiration for making better future landscapes and offer a base for restoration.

Key words – Landscape Biographies, Landscape Narratives, Actor, History, Identity

1. Introduction: Landscape of the past is important for the future

Driven by the development of accessibility, urbanization and globalization, landscape, especially cultural landscape changed a lot in the past century (Antrop, 2005). This past landscape, which expresses a unique sense or spirit of place, helps to define its current identity when people experience it during the long history and integrate what they perceive immediately with what they know and remember (Antrop, 2000; Tuan, 1990). Ancient Chinese Garden is a good example to show this value of landscape. As inspired mutually by poetry, spirituality and paintings, they used buildings and natural elements to create an idealized miniature landscape, which express the harmony that should exist between man and nature. As people perceive the experience of Chinese Garden through arts, novels and space, it has already not only become the identity of Chinese landscape, but also become the identity of Chinese culture (Figure 01, 02, 03).

However, this past landscape cannot be brought

back, but ways how valuable elements and areas can be preserved and become embedded functionally in the modern urbanized and globalized society must be studied. As Antrop stressed and concluded, the processes and management in past traditional landscapes and the manifold relations people have towards the perceivable environment and the symbolic meaning it generates, offer valuable knowledge for more sustainable planning and management for future landscapes (Antrop, 2005). Therefore, the main question of this review paper is that: how can the landscape of the past be made operational in future strategies for protection, management and development.

To answer this question, this paper aims to review two theories, which is Jan Kolen, Hans Renes and Rita Hermans's Landscape Biographies and Matthew Potteiger and Jamie Purinton's Landscape Narratives, to find a theoretical framework for narrating the landscape in the Dutch Southwest delta. This framework consists of different spatial related ideas that provide conditions for design and aspires to find a relation or correlation between the two theories.

This review paper mainly consists 4 parts. Firstly, the values of the past landscapes are discussed. Also, the author defines the research object, clarify the research content and the basic direction. Secondly, Landscape biographies was illustrated to act as a bridging tool to see how this knowledge of the past landscape can be identified. In the third part, the concept and design method of landscape narrative was explained to see how to best put historical identity into the use in landscape planning and management. Finally, a conclusion is made to highlight some possibilities of the lessons past cultural landscapes can teach us guidelines for the building of future landscapes.

Figure 01: The Immortal Island of Penglai in 200BC by Chinese artist Yuan Jiang (1708)

The painting of Mount Penglai, which is the legendary home of the Eight Immortals in the myths, influenced the Chinese gardens and was recreated in many classical Chinese gardens

Figure 02: A image in the novel The Story of the Western Wing (1300s)

In many Chinese novel, Chinese garden is act as a place for romance. Through the process of these description in the novel, the concept of Chinese garden was developed and became the symbolism of the national culture.

Figure 03: The Lion Grove Garden in Suzhou (1342) known for its fantastic and grotesque rocks

2. Landscape biographies: Gathering stories

One of the most promising ways to bridge the past landscape with the future is the concept of landscape biographies, which show focuses on the material landscape and are more of an implementation method (Clark, 2004). Based on the geographical ideas of geographer Samuels and anthropologists Kopytoff and Appadurai, a group of Dutch researchers has further developed and tested the idea that cultural landscapes bear the multilayered imprint of numerous generations of human "authors". For a thorough understanding of these landscapes, we should not only investigate the physical remains, but also the social backgrounds and cultural history of their authors (Palang, 2011).

From this point of view, the landscape biographies mainly talk about three main issues (Renes, Rita and Jan, 2015). Firstly, who are the authors of the landscape? Individual perception of the landscape is key. The influential authors of the city do not necessarily include urban planners and developers, whose abstract view of urban space have little or no impact on the actual experience of the lived-through urban environment (Renes, Rita and Jan, 2015). This dimension is reflected in personal feelings and behavior, as well as in more sublimated forms in literature, music, art and other forms of creative expression of the human mind. To meet the real authors of the urban world we should descend to street level and to the everyday life that takes place there (Renes, Rita and Jan, 2015).

Secondly, are landscapes 'socialized nature'? In the landscape biographies, culture and nature are inseparable. That means we must be wary of falling into the trap of a radical constructivism, one which ultimately reduces all nature to human proportions, to the sum of our cultural notions to a set of ideas.

A constructivist view of landscape, which allows no room for human-nature interactions and for landscape as a 'real world' phenomenon is just as undesirable as an essentialist nature that supposedly exists entirely outside culture (Renes, Rita and Jan, 2015). Based on the view that nature is a boat for culture, we should therefore ask ourselves whether it is possible to envision landscapes, including their authorship, to circumvent the dualism between nature and culture.

Thirdly, how does the temporal landscape take 'shape' in rhythms, transformations, layers and memories in different period? Landscapes have their own temporalities and rhythms, in relation to but distinct from individual human life cycles. It seems evident, therefore, that 'time', and more particularly 'lifetime', should be considered the core business of landscape biography (Renes, Rita and Jan, 2015). The physical change of landscape influence all the invisible norms, values, meanings and attitudes which surround it. Therefore, the physical layer of landscape must be studied in the landscape biography.

Besides the critical interactions between the three issues mentioned above, another interesting aspect of landscape biographies has been the interaction between expert knowledge and local knowledge involved in landscape biography (Elerie and Spek, 2010). Compared with scientific knowledge, local knowledge is more individually based, more mixed with emotion, more locally than regionally determined, and more focused on a short-term genealogical perspective of one or two generations than on the diachronic development of centuries. Local knowledge also consists of a mix of historical facts, historical narratives (anecdotes, legends, folk tales), images, and meanings associated with certain individuals or groups. This is also reflected

Figure 04: Multiple generations of shifting farmhouses (dark grey rectangles) from the Early/ Middle Iron Age at Someren, south Netherlands.

in the landscape biography which reveals both the continuous biographical timeline of the scientific knowledge, and the more place-oriented, unique individual narratives and meanings of residents (Elerie and Spek, 2010).

During the last decade, several research teams have tried to develop regional landscape biographies in several parts of Netherlands, combining geological, archaeological, historical, geographical, linguistic and anthropological approaches. Based on the context of Dutch landscape, the study of landscape biography shows two main characteristics. On the one hand, the landscape at different time is the outcome of the complex interplay between the history of mentalities and values, institutional and governmental changes, social and economic developments and ecological dynamics (Roymans, 1995) (Figure 04). On the other hand, there is a strong sense of the multilayered nature of Dutch landscapes (Kolen, 1995, 2005). In this way, places and landscapes play an active role in the biographies and genealogies of people, binding persons and generations together, while at the same time creating their own life histories at different time scales through successive social contexts.

3. Landscape Narrative: Interpreting and designing stories

According to the Oxford Concise Dictionary, Narrative is 'a spoken or written account of connected events in order of happening', or 'the practice or art of narration'. Ricoeur states that narrative combines two dimensions, one a temporal sequence of events and the other a non-chronological configuration, that organize narrative into spatial patterns (Ricoeur, 1981). Narrative or story telling is a linguistic form which people use to understand the world about them (Polkinghorne, 1988, 1995). For these reasons, narrative is widely used in design. In 1998, Matthew Potteiger and Jamie Purinton argued that narratives exist in the landscape as well, and they attempt to apply narrative theory to their designs. Based on their book ← Landscape Narratives: Design Practices for Telling Stories→, landscape is much more than a setting for a story; it can develop stories and be part of stories as a character or event (e.g. in case of a changing landscape). Narratives have an important role in place-making; people attach certain meanings to the space, creating a valuable environment. With narratives people are also shaping their environment. As Potteiger and Purinton (1998) state, the term 'landscape narrative' designates the interplay and mutual relationship that develops between landscape elements and narrative. Places and events contribute to stories altogether (Potteiger and Purinton, 1998).

Based on Potteiger and Purinton, Landscape narratives are classified into several types such as 'narrative experiences', 'association and references' and 'memory landscapes' (e.g. interpretive landscapes and storytelling landscapes) (Potteiger and Purinton, 1998). They reflect different ways of thinking of the landscape. Narrative experiences entail routines, rituals, or events that stand for or abide by narrative structures. For association and reference, some elements in a landscape should become connected with experiences, events, history or other form of narrative. Interpretive landscape is a landscape that has elements and programs that tell what happened in a certain place. Storytelling landscapes are usually places designed to tell specific stories with explicit references to plot, scenes, events characters, etc. (Potteiger and Purinton, 1998). Though each storyline may consist of the same basic parts, narratives allow interpretation and imagination to have an important

role in the overall understanding of place. By enabling one to insert his or her own narrative into a space, it becomes a personal, explicit and particular place (Kristen and Havik, 2012).

There are two ways to turn landscape narrative into real design practices. The narrative can use explicit storytelling landscapes to convey messages and to create or constitute the landscape embodiment of collective human memory, or it can be already implicit in landscapes as inscribed by natural processes and cultural practices (Potteiger and Purinton, 1998; Rakatansky, 1992). Landscape narratives are produced by three elements: 1. the story 2. the context and 3. the discourse. The first realm of story is an analyzable system of meaning created by the structuring elements within the world of the story. The second realm of contextual describes the role of individual and communities in the production of narratives. The third realm of discourse attends to reflect to whose story is told, what purposes it serves and what ideologies it has in the telling (Potteiger and Purinton, 1998).

Potteiger and Purinton apply this framework to interpreting the narrative construction of the Crosby Arboretum in Mississippi. To link the practices of making landscapes to narrative practices requires an expanded notion of text, of the role of readers in producing meaning, as well as recognition of landscape as a spatial narrative shaped by ongoing processes and multiple authors (Potteiger and Purinton, 1998). This story began with the designers reading of the existing ecological narrative, and "letting the site reveal itself". The designer lived on the site for four years and learned how to read plant signatures and how certain species extend their range. He also cut a grid through the vegetation to reveal how these subtle changes occur along a "moisture gradient". The design then retells the

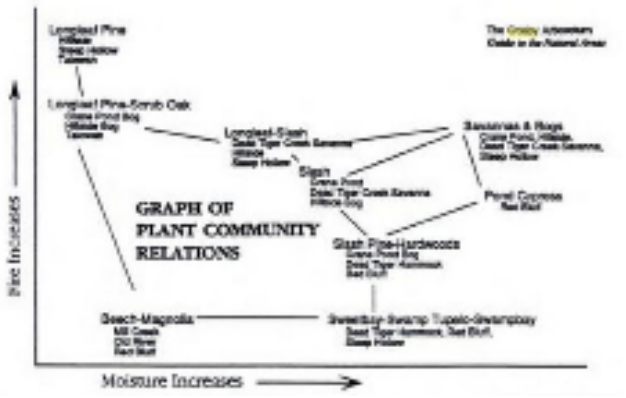

Figure 05: "Plotting" of the complex relationships between water, fire, and plant communities. These relationships can be found on different sites dispersed throughout the Pearl River Basin and miniatuurized in the design of the Pinecote Interpretive Center.

Figure 06: The Pinecote Pavilion overlooking the pond. The stepped edge of the roof imitates the density and gradations of the forest edge.

region's ecology by reestablishing the structural combinations of plants in relation to process. The series of "journeys" that structure the narrative sequence weave through the region. Rather than explaining in words, these design devices structure ways of reading signatures and signs in landscape. Meanwhile, the site is in the process of becoming a complex narrative of ecological time. This case argues for design strategies that create landscapes which offer open ecological and cultural narratives, rather than the closed 'scripted' spaces of theme parks (Figure 05, 06).

4. Discussion: Lessons from the past help to build the future landscapes

Based on above illustration, we can see the difference of two theories. Landscape Biographies is an approach to generate story lines about the ways in which local communities have translate and organized the landscape over time in history. During that process, landscape receive new functions, physically transformed and change their meaning. By looking at landscapes in this way, the emphasis is no longer on the origins of landscapes and landscape features, but on their life histories. Unlike Landscape Biographies mainly focus on the historical layers, Landscape narratives provide an approach for establishing story lines in the landscape by designing the interplay and mutual relationship between landscape and people. When they are introduced into design strategies they must relate to the biophysical and cultural context of the landscape. It is through narrative that we interpret the processes and events of place.

Even though these two theories show some difference in research objective, both share some similarity in the research approach. Both theories criticize the importance of actor and materiality of landscape to understand or design the meaning of landscape. On the one hand, landscape is perceived with all our senses, which makes them tangible. It is not only designer, but also user influence the meaning or value of landscape. With the threat landscape evolving and attacks becoming more sophisticated, having time to stop and think about the actor behind them can largely benefit the future development. On the other hand, landscape is a living, material phenomenon as well as a cultural ideal. Landscape should be used as container for a large variety of artifacts and gives them a broader context and hence enhances their singular values to face the ultimate challenge of ensuring the material sustainability of life.

Moreover, these two theories both share the same value in design by picking up or creating the identity of the place. Landscape biographies help us understand the identity of landscape through the study of the physical layer, actors and events. Although landscape narrative is a form of imaginative projection, its role is to help understand the new and unfamiliar by reference to the simple and familiar like what is mentioned in the project in Crosby Arboretum in Mississippi. It is not necessarily the case that past land uses should guide future ones; it might not even be desirable. But what is desirable is knowledge about the history of the landscape to inform planning and management and to facilitate public involvement.

5. Conclusion

Globalization has resulted in a great diversity of sustainable landscapes, which have a better legibility and give a clear character and identity to place and region. Also, they contain many forgotten lessons and

landscape structure is crucial for the maintenance of diversity, both biodiversity and cultural diversity. These landscapes possess unexplored wisdom and inspiration for making better future landscapes and offer a base for restoration. The underlying message of the articles in this issue is that the power of narratives can be used to enrich our understanding and design of the phenomena of landscape, but that such use must be firmly grounded in the particularity of biographies. Landscapes of the past cannot be brought back, but ways how valuable elements and areas can be preserved and become embedded functionally in the modern urbanized and globalized society must be studied.

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10.2
Data collection & Site Evaluation

Site Evaluation

Ecotourism is sometimes viewed as the solution to all of a protected area's problems. However, for ecotourism to work as a viable management strategy in a given situation, certain conditions need to exist. This section is designed to help us determine where is the conservation area and weather ecotourism can be implemented to achieve a. certain kind of conservation objective in a certain area. In order to do that, each spatial pattern which concludes from the gradients analysis will be evaluated in terms of current ecological, cultural and economical aspects. The information that need to be collected for further evaluation is illustrated specifically as the following.

Ecological Indicator
This section focus on the natural resources (species, ecosystems, physical features [mountains, rivers, lakes, etc.]) that are currently or may be potential visitor attractions or that might be seriously affected by visitor use.

- *Rare or unique species*
- *Diversity of the species*
- *Habitat representatives*

Complete ecosystem (biotope + biocenosis) or geological features that exist

Cultural Indicator
This section define the historical, current cultural sites or events that could act as attractions or in some way affect how ecotourism would be carried out.

- *Significant historical sites or recorded in history*
- *Contemporary cultural events*
- *Historical change of the site and the changing meaning to the local community*

Economic Indicator
Since visitor interest and demand will drive any future ecotourism program, it is essential to fully understand the nature of current and potential visitor use.

- *The types existing program*
- *The economic benefit of this program*
- *The types of transportation in the site and accessibility*

Based on the data that collected, it is possible to evaluate the space pattern.

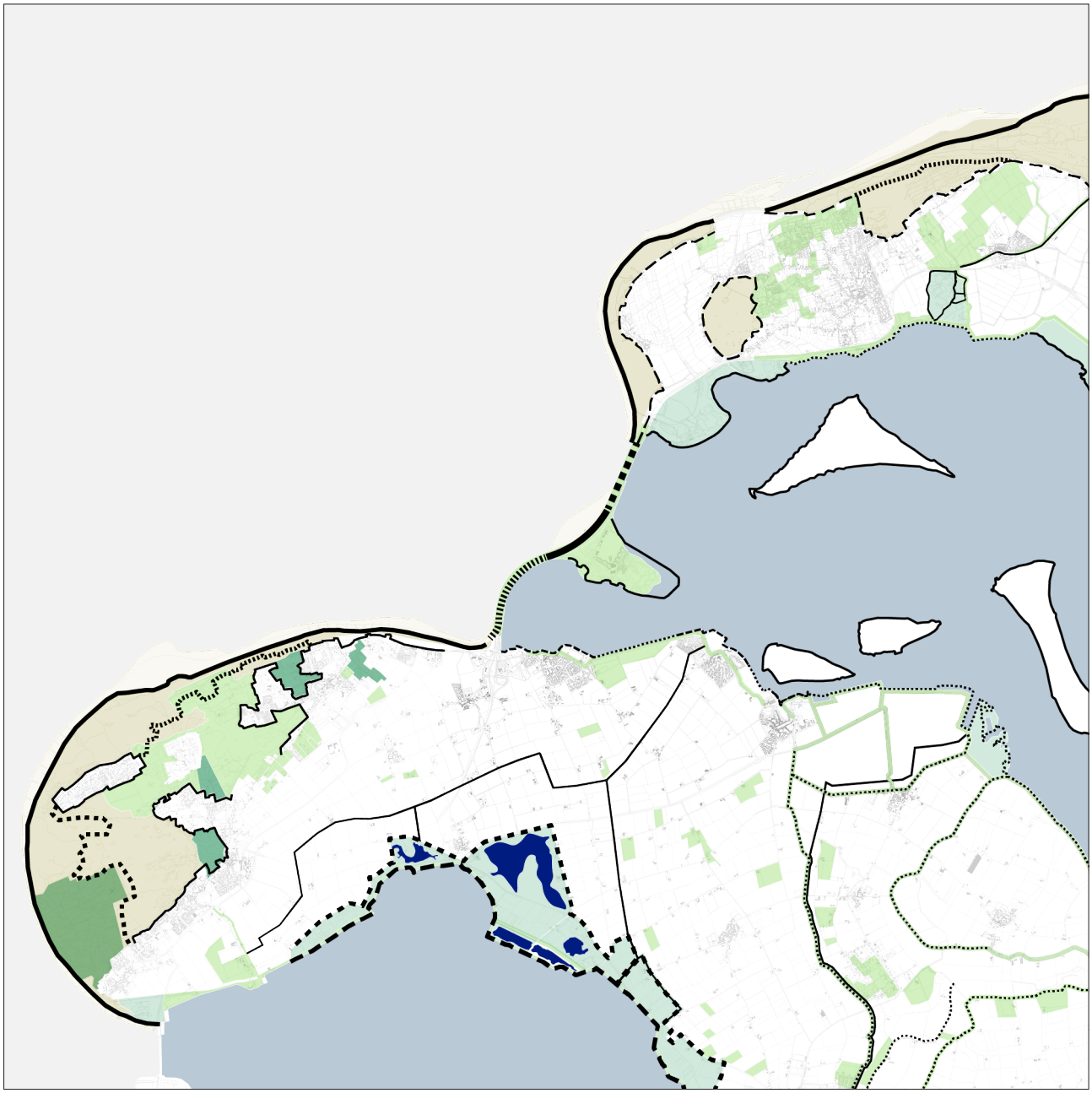
LANDSCAPE GRADIENTS

Landscape

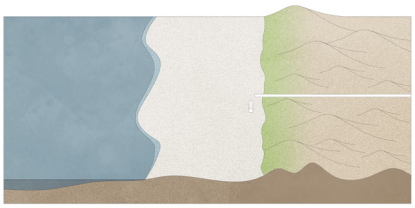
- *Dune*
- *Wetland*
- *Grass*
- *Forest*
- *Lake*
- *Agriculture*
- *Main Creek*
- *Urban*

Gradients

- *Pattern 1*
- *Pattern 2*
- *Pattern 3*
- *Pattern 4*
- *Pattern 5*
- *Pattern 6*
- *Pattern 7*
- *Pattern 8*
- *Pattern 9*
- *Pattern 10*
- *Pattern 11*
- *Pattern 12*
- *Pattern 13*
- *Pattern 14*
- *Pattern 15*



SPATIAL PATTERN 01 Primary Dune



Ecological Indicator
Rarity Species : +++
Sand oats, Blue sea thistle

Diversity of Species: +

Habitat representitiveness : +++
Salty and Dynamic environment

Ecological Value :

Cultural Indicator
Recorded history : +++
Lighthouse

Contemporary cultural events : 0

Changing value for local community : +++
Water defence, Recreation

Cultural Value :

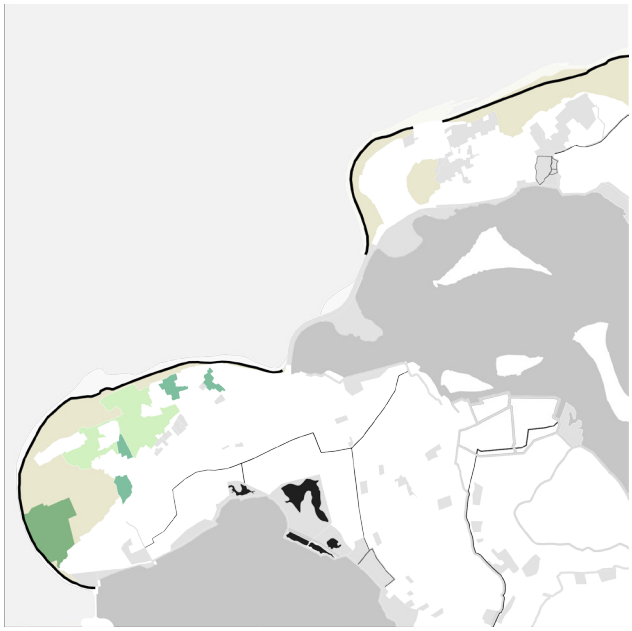
Economic Indicator
Existing Program :
Surfing, Restaurant, Villa

Economic income : ++
Number of tourists : +++

Types of transportation in the site :
Bike, Pedestrain

Accessibility : +

Economic value :



SPATIAL PATTERN 02 Dry Dune Vally

Ecological Indicator
Rarity Species : ++
Sand oats, Blue sea thistle

Diversity of Species: ++
Kyloe, Polar, Grass

Habitat representitiveness : ++
Sand dune, Forest

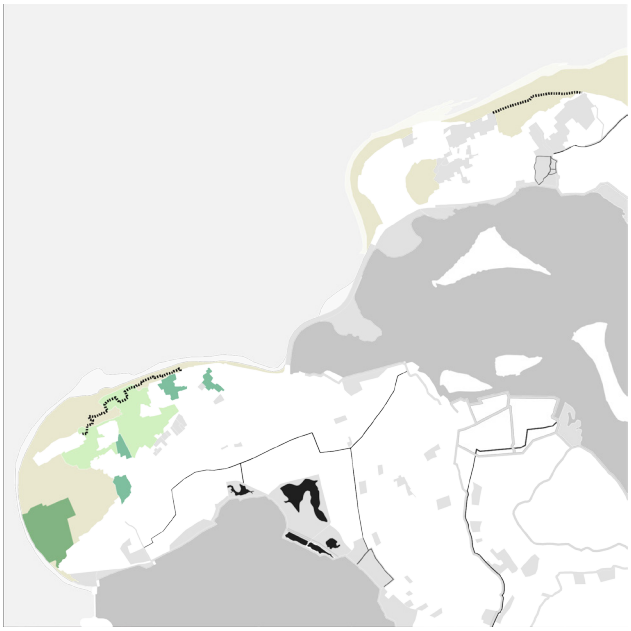
Ecological Value :

Cultural Indicator
Recorded history : ++
Before 900

Contemporary cultural events : 0

Changing value for local community : +++
Supply of fresh water, Water defence

Cultural Value :



Economic Indicator
Existing Program :
Hiking

Economic income : +
Number of tourists : 0

Types of transportation in the site :
Bike, Pedestrain

Accessibility : +

Economic value :

SPATIAL PATTERN 03 Wet Dune Vally

Ecological Indicator
Rarity Species : ++
Sand oats, Blue sea thistle

Diversity of Species: ++
Kyloe, Polar, Grass

Habitat representitiveness : +++
Sand dune, Small Lake, Forest

Ecological Value :

Cultural Indicator
Recorded history : ++
Before 900

Contemporary cultural events : 0

Changing value for local community : +++
Supply of fresh water, Water defence

Cultural Value :

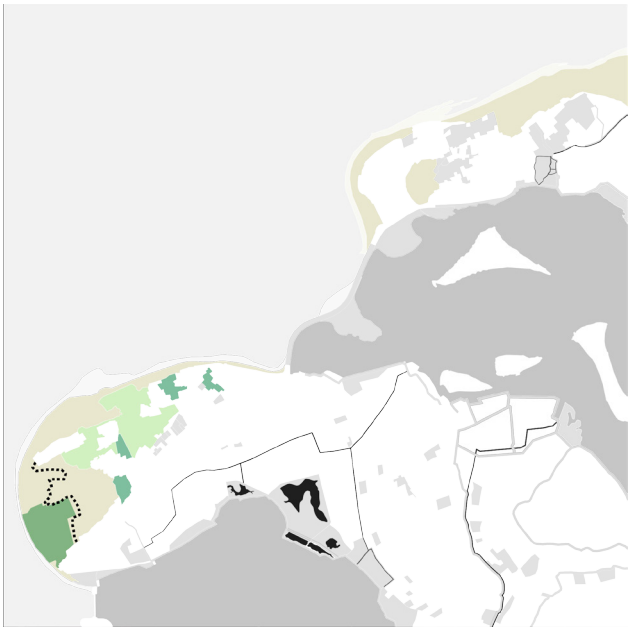
Economic Indicator
Existing Program :
Hiking

Economic income : +
Number of tourists : 0

Types of transportation in the site :
Bike, Pedestrain

Accessibility : +

Economic value :



SPATIAL PATTERN 04 Secondary Dune - Urban

Ecological Indicator
Rarity Species : 0
Sand oats, Blue sea thistle

Diversity of Species: +++
Kyloe, Polar, Beech, Deer

Habitat representitiveness : +++
Sand dune, Forest

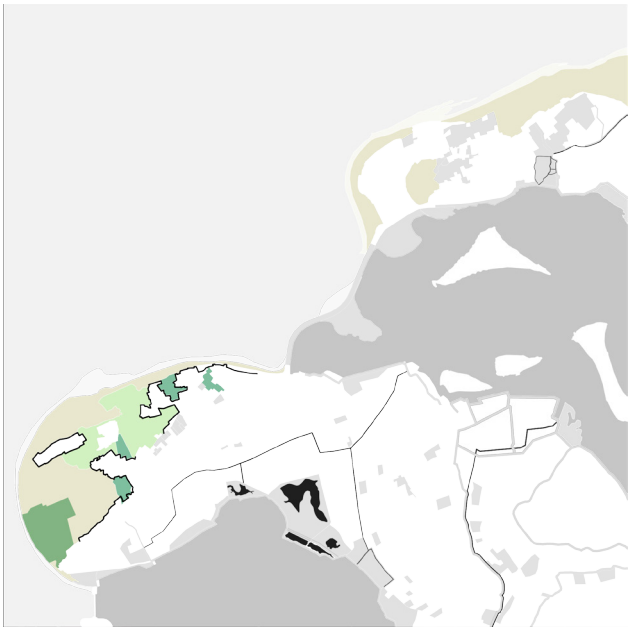
Ecological Value :

Cultural Indicator
Recorded history : +++
Before 900, Old city

Contemporary cultural events : 0

Changing value for local community : +++
Supply of fresh water, Water defence, Recreation

Cultural Value :



Economic Indicator
Existing Program :
Restaurant, Hotel, Hiking, Museum

Economic income : ++
Number of tourists : ++

Types of transportation in the site :
Bike, Pedestrain

Accessibility : +++

Economic value :

SPATIAL PATTERN 05 Secondary Dune - Polder

Ecological Indicator
Rarity Species : 0

Diversity of Species: +++
Kyloe, Polar, Beech, Deer

Habitat representitiveness : +++
Sand dune, Forest

Ecological Value :

Cultural Indicator
Recorded history : ++
Before 900

Contemporary cultural events : 0

Changing value for local community : +++
Supply of fresh water, Water defence, Recreation

Cultural Value :

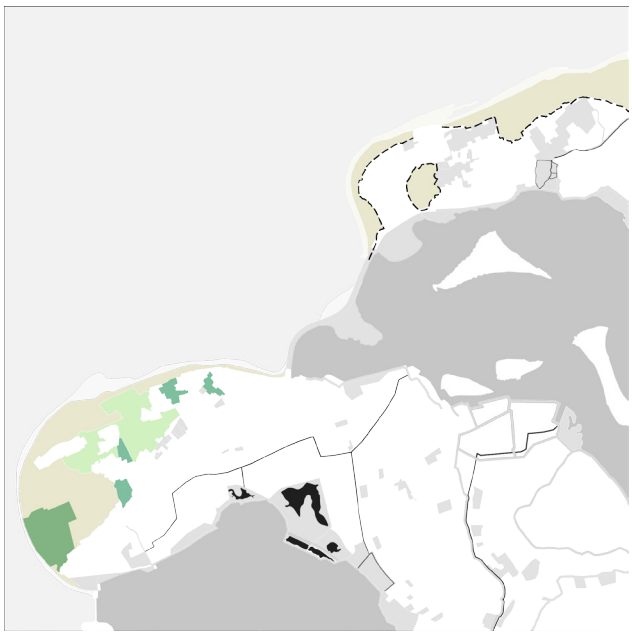
Economic Indicator
Existing Program :
Camping, Biking

Economic income : ++
Number of tourists : ++

Types of transportation in the site :
Bike, Pedestrain, Motor

Accessibility : +++

Economic value :



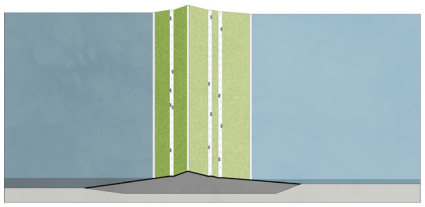
SPATIAL PATTERN 06 Closed Dam

Ecological Indicator
Rarity Species : +
Sea Birds

Diversity of Species: +
Fish, Shell

Habitat representitiveness : +
Salty water

Ecological Value :



Cultural Indicator
Recorded history : +
1950

Contemporary cultural events : 0

Changing value for local community : +++
Fishing Industry, Accessibility, Water Safety

Cultural Value :

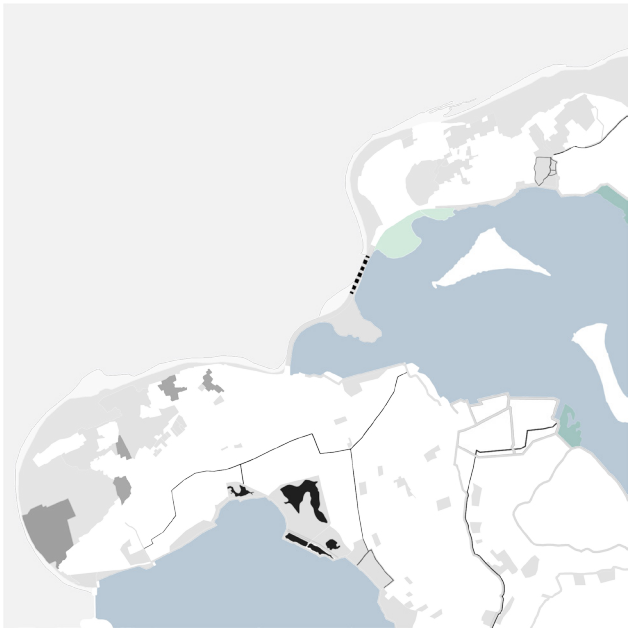
Economic Indicator
Existing Program :
Water Sports, Fishing

Economic income : +
Number of tourists : ++

Types of transportation in the site :
Bike, Motor, Pedestrain

Accessibility : +++

Economic value :



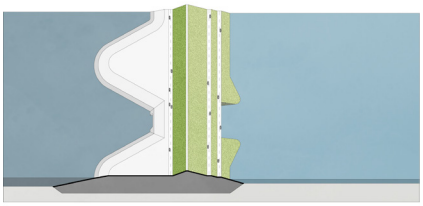
SPATIAL PATTERN 07 Open Dam

Ecological Indicator
Rarity Species : +
Seal, Sea Birds

Diversity of Species: +
Fish, Shell

Habitat representitiveness : ++
Salty water, Grass

Ecological Value :



Cultural Indicator
Recorded history : +
1950

Contemporary cultural events : +++
National Concerts

Changing value for local community : +++
Fishing Industry, Accessibility, Water Safety, Recreation
Cultural Value :

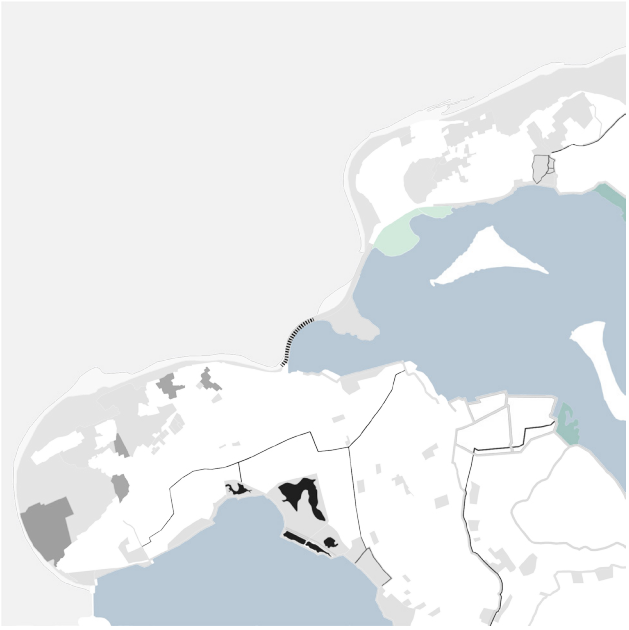
Economic Indicator
Existing Program :
Water Sports, Fishing, Festival

Economic income : ++
Number of tourists : +++

Types of transportation in the site :
Bike, Motor, Pedestrain

Accessibility : +++

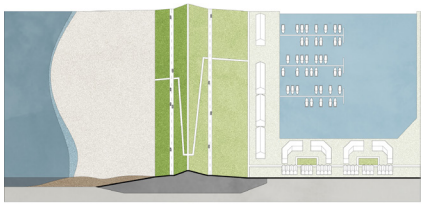
Economic value :



SPATIAL PATTERN 08 Comprehensive Dam

Ecological Indicator
Rarity Species : +
Seal, Sea Birds

Diversity of Species: +



Habitat representitiveness : ++
Salt Water, Forest, Grass, Sand plate

Ecological Value :

Cultural Indicator
Recorded history : +
1950

Contemporary cultural events : +
Surfing Hotspots

Changing value for local community : +++
Fishing Industry, Accessibility, Water Safety, Recreation
Cultural Value :

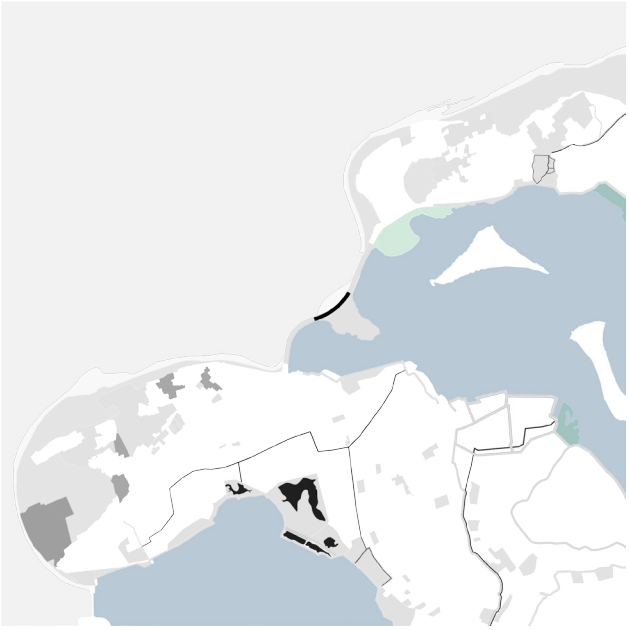
Economic Indicator
Existing Program :
Restaurant, Hotel, Sports Clubs

Economic income : +++
Number of tourists : +++

Types of transportation in the site :
Bike, Motor, Pedestrain

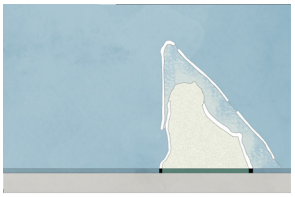
Accessibility : +++

Economic value :



SPATIAL PATTERN 09 Island

Ecological Indicator
Rarity Species : +
Sea Birds



Diversity of Species: ++
Sea Birds, Fish, Shell

Habitat representitiveness : ++
Salt water, Grass

Ecological Value :

Cultural Indicator
Recorded history : +
1950

Contemporary cultural events : 0

Changing value for local community : 0

Cultural Value :

Economic Indicator
Existing Program :
Hiking

Economic income : +
Number of tourists : +

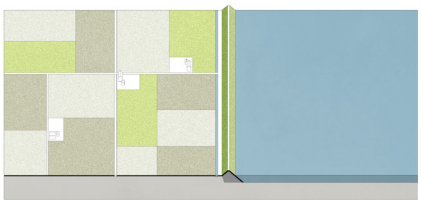
Types of transportation in the site :
Marine

Accessibility : +

Economic value :

SPATIAL PATTERN 10 Lake Dike of Polder

Ecological Indicator
Rarity Species : 0



Diversity of Species: +
Goose, duck, fish

Habitat representitiveness : ++
Agriculture, Water, Grass(Dike)

Ecological Value :

Cultural Indicator
Recorded history : ++
1500

Contemporary cultural events : 0

Changing value for local community : ++
Water defence, Production

Cultural Value :

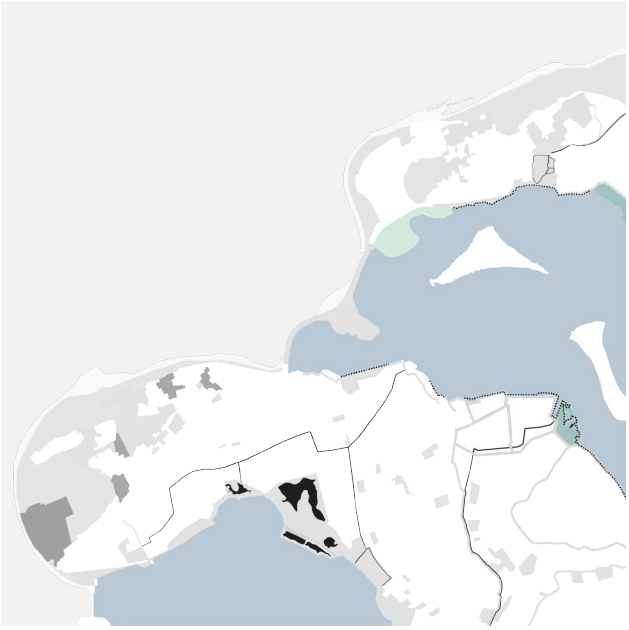
Economic Indicator
Existing Program :
Biking

Economic income : 0
Number of tourists : +

Types of transportation in the site :
Bike, Pedestrain, Motor

Accessibility : +++

Economic value :



SPATIAL PATTERN 11 Lake Dike of Urban

Ecological Indicator
Rarity Species : 0

Diversity of Species: +
Goose, duck, fish

Habitat representitiveness : +
Water, Grass(Dike)

Ecological Value :

Cultural Indicator
Recorded history : ++
1500, Old City

Contemporary cultural events : 0

Changing value for local community : +
Water defence

Cultural Value :

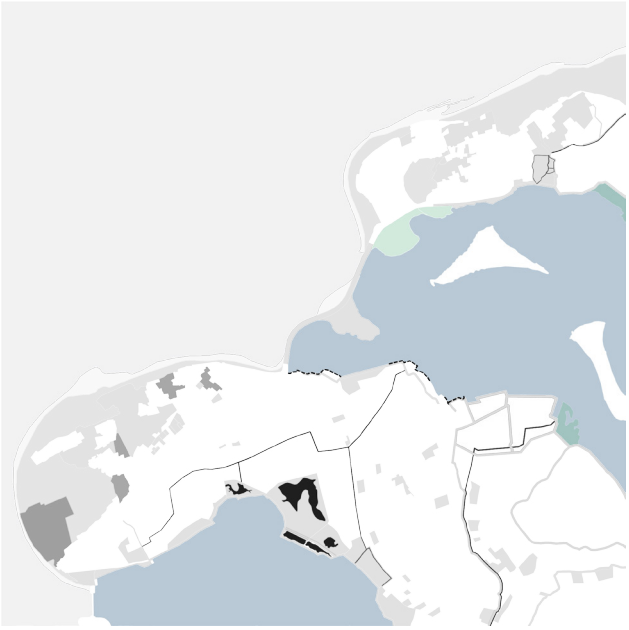
Economic Indicator
Existing Program :
Biking

Economic income : +
Number of tourists : +

Types of transportation in the site :
Bike, Pedestrain, Motor, Bus

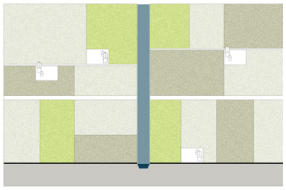
Accessibility : +++

Economic value :



SPATIAL PATTERN 12 Creek

Ecological Indicator
Rarity Species : 0



Diversity of Species: ++
Goose, duck, fish

Habitat representitiveness : ++
Agriculture, Fresh water

Ecological Value :

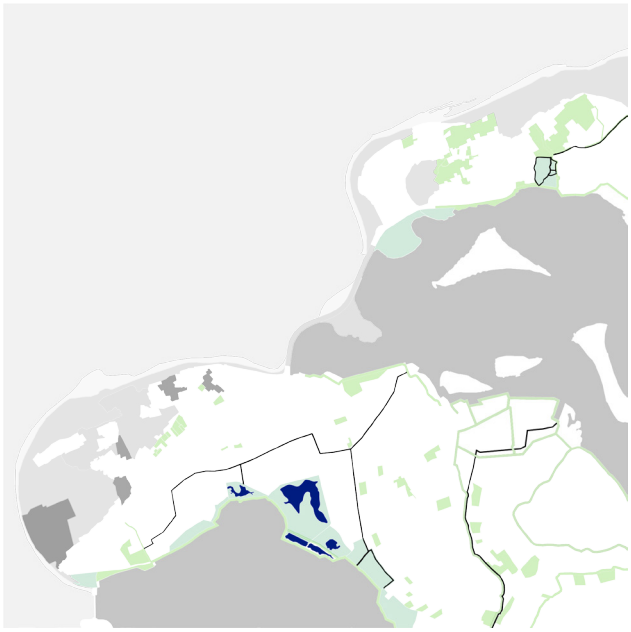
Cultural Indicator
Recorded history : ++
1500

Contemporary cultural events : 0

Changing value for local community : +
Production

Cultural Value :

Economic Indicator
Existing Program :



Economic income : 0
Number of tourists : 0

Types of transportation in the site :
Bike, Pedestrain, Motor

Accessibility : +++

Economic value :

SPATIAL PATTERN 13 Polder Dike

Ecological Indicator
Rarity Species : 0

Diversity of Species: +
Crops

Habitat representitiveness : +
Grass(Dike)

Ecological Value :

Cultural Indicator
Recorded history : ++
1500

Contemporary cultural events : 0

Changing value for local community : +
Water defence

Cultural Value :

Economic Indicator
Existing Program :
Biking, Farming

Economic income : +
Number of tourists : 0

Types of transportation in the site :
Bike, Pedestrain, Motor

Accessibility : +++

Economic value :

SPATIAL PATTERN 14 Wetland

Ecological Indicator
Rarity Species : +

Diversity of Species: +++
Goose, duck, fish

Habitat representitiveness : +++
Agriculture, Fresh Water, Grass(Dike), Wetlands

Ecological Value :

Cultural Indicator
Recorded history : +
1950

Contemporary cultural events : 0

Changing value for local community : ++
Water Retention

Cultural Value :

Economic Indicator
Existing Program :
National Park

Economic income : +
Number of tourists : +

Types of transportation in the site :
Bike, Pedestrain, Motor

Accessibility : +++

Economic value :