Delta Interventions
Graduation Studio

Research papers
+ Reflections

KCS KWONG
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   *Urban Waterfront Conditions*

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1. Position Paper on
Urban Waterfront Conditions

from the course Research Methods
Urban Waterfront Conditions
The influence of modern man-made infrastructure and its effect on the redeveloping of New York’s waterfronts.

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Delta Intervention – Architecture
for Research Methods

Delft University of Technology
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1. Introduction

The graduation studio of Delta Intervention is a multi-disciplinary course which deals with architecture, urban design, engineering and water-related issues. The combination of these aspects are fused together to form a multi-faceted solution for areas requiring interventions. Part of the focus is also based on technical interventions in areas of high risks due to storms and flooding.

The regeneration of obsolescent urban waterfront areas has proved to be a recent focus of urban policy throughout many of the world’s developed countries. Despite an apparent convergence in the practice of waterfront regeneration around the world, such practice in the United States has evolved in a distinctive manner. The latest manifestation of a policy response has been the designation of ‘key projects’, for which waterfront areas in Manhattan and surrounding areas have been selected (Breen & Rigby, 1994). The resulting proposals for integrated, mixed-use development schemes would appear to present a relatively sophisticated response to the problem of declining waterfront areas. One of the key factors which had led to this decline was the introduction of modern man-made infrastructures along or close to waterfronts. Over time these infrastructures acted as a barrier, resulting in the segregation of the public realm from its waterfront. At the same time, as we enter a period where climate change and rising sea levels are becoming more relevant to the current generation, a balance between risk mitigation and providing accessible waterfronts must be struck in flood and storm prone areas such as New York.

This paper will first identify the social and physical barriers between water and land, which will then help determine, in the graduation project, whether or not certain physical interventions can be flexible enough to form a reconnection between the two entities. A study into the typologies involved in the regeneration process would first demand an investigation into the spatial environment that exists at the waterfronts. While one would expect the possible interventions to be created according to the needs of humans and the requirements that derive from our actions and conducts.

The outcome will contain theoretical elements which will form the base criteria for the method of interventions. It will provide the first step for these methods of interventions to be explored further within the graduation project of Delta Interventions. The solutions leading to possible interventions will be liveable, accessible and more importantly, durable and resilient towards social and physical factors. Ultimately, it must resolve issues on the urban and architecture scale, and strive to implement technical features to counteract storm and water-related problems.

2. Infrastructure and impact on New York’s waterfronts

New York City is well known for its abundance in waterfront areas which are situated directly within high density areas, however there was a time where it was remarked by visitors that New York does not seem to be a city on water (Gratz, 2010). Of course New York is a city on water, with some nine hundred kilometres of water frontage, however it is not seen as one by its residents due to its street and zoning layouts (Bruttomesso, 1993). The rise of New York as an industrial power began from 1850 onwards, as New York.
continuously developed as a modern port with modern industry, which completely took
over the use of the waterfront. In the whole scheme of things all other development was
secondary. The island of Manhattan was ringed by piers, industrial buildings and rail
connections, with the residential development toward the centre. This period in New
York’s history was vastly important in its development as an economic powerhouse, which
was essentially achieved through its “working waterfronts” (Breen & Rigby, 1994). It has
only been in recent decades, with the transition to a post-industrial economy, that this
firmly established pattern has begun to shift.

By the middle of the twentieth century, many of the industrial infrastructures had moved
away from Manhattan’s waterfronts. However this was superseded by plans of Robert
Moses, New York’s most influential urban planner in the twentieth century, which saw the
island become completely ringed by high-speed roadways (Ballon & Jackson, 2007).
These modern infrastructures were thought to be an important necessity at the time due to
the rise in the use of motorcars. The introduction of these highways effectively continued
the demise of Manhattan’s waterfronts as they served to segregate the inner public realm
from its water edges. The public, which included new residential housing built close to the
waterfront since the departure of the industrial infrastructure, were once again cut from
direct river access. The streets connecting or close to the waterfronts were also affected,
merely becoming a vehicular connection to the highways. Sidewalks, although never
designed to suit the leisurely pedestrian, became increasingly empty as the workers moved
away with the departing industry.

3. The need for redeveloping New York’s waterfronts

In the twenty years since the introduction of the modern highway infrastructure, changes in
the thinking of urban planning led to an increase in the ‘need’ for the city to reclaim its
waterfronts (Breen & Rigby, 1994). Much of this ‘need’ was led by private developers and
entrepreneurs looking to redevelop land close to the water’s edge due to its declining land
and desirability value (Bruttomesso, 1993). There was also a matter of street safety as
described by Jane Jacobs in her book “The Death and Life of Great American Cities”,
whereby the lack of eyes (pedestrians and on-lookers) seemingly create unsafe sidewalks,
and a perception of an unsafe city (Jacobs, 1961).

Ideas and projects planned at the time included schemes for “the world’s tallest building”,
shopping malls and high-end housing, all catering for the luxury market and the upper-
class (Gratz, 2010). This push for large scale redevelopments along the waterfronts in the
1980s triggered waves of opposition, with the most prevailing question simply being
“why?” – could New York genuinely be benefited from developments such as those
mentioned? These visions were indeed seen as exciting for the real estate sector, and
probably the governmental department overlooking the process, however with New York
in transition, beginning with the realities of its economy and demographics at the time, one
must question whether these projects were in fact suitable for New York City as a whole
(Gratz, 2010).

All of the projects required enormous public subsidy which is channelled into the luxury
market – this is in a city where more than one quarter of the population is officially in
poverty and over half of the population falls into the “lower middle class” (Ballon & Jackson, 2007). In effect, priorities must be made and waterfront transformation cannot reign as a fantasy for long. Another argument stemmed from the idea that the piers and docks, and industrial remnants should not be casually destroyed in the rush to create new real estate for the sake of (re)development (Gratz, 2010). Waterfront redevelopment should be a cautious and incremental one, “so as to maximise the benefits of a one-time opportunity” (Breen & Rigby, 1994). The geographic and cultural morphology of the city cannot be remade overnight, therefore the remnants of the industrial era, the history of the city, should not be abandoned merely in the interest of maximising short term profits. This thinking has led to the present day philosophy for redeveloping New York’s waterfronts.

4. Present day interventions

Present day waterfront planning in New York City has largely moved on from the ideas envisioned from the 1980s. The Department of City Planning (DCP) was seen as the appropriate administrative body to implement a Waterfront Revitalisation Program (WRP) that will oversee all of the city’s waterfront redevelopment (Department of City Planning NY, 2011). All redevelopments are essentially under the scrutiny of the DCP and as part of the WRP, are developing plans and frameworks which would guide the suitable interventions required. A single vision is created, with the DCP being able to enforce law and zoning changes which had previously restricted the city to better regenerate its waterfronts.

Planning approaches of the DCP focuses on transforming waterfront areas for recreational uses and natural areas, with as much public access as possible. The remaining areas may then be pursued for other development opportunities (e.g. residential at Battery Park City in the South-West corner of Manhattan) (Department of City Planning NY, 2011).

The most recently finished study by the DCP completed in 2011, the Vision 2020, becomes New York City’s most comprehensive waterfront plan. The study builds on all previous plans and the focus remains to development recreational areas and to restore natural areas. The study essentially provides a framework which will guide the redevelopment process, and was made to be flexible so that it could apply to different site locations and context within the city’s waterfronts. While this study provides comprehensive guidelines and numerous “possible solutions” for designers and planners, it does lack in certain areas. One would not suggest calling these negatives, as no single report can possibly cover every detail on any particular topic. The certain aspects that I believe to be lacking are the very ideas that will be further developed in my graduation project.

The single most used word in the American planning industry at present time is undoubtedly “resilient”. To explain in short, to be resilient is to be able to withstand or recover quickly from difficult conditions (Breen & Rigby, 1994). Any new redevelopments should be able to withstand and accommodate the issues of rising sea level, as well as the increase in storm related incidents such as flooding. The study, in a way, fail to methodically address key issues which involve waterfront safety concerned with flooding, storm surges and other storm induced events. The study also suggests, unintentionally, that waterfronts are a separate entity – a place that is special and out of the ordinary. Yet this
has been the problem since the industrial periods, where the city’s waterfronts are segregated from its inner urban fabric. In the current context, the regeneration process has become a multi-faceted issue as the urban, safety, and water-related aspects must all be integrated in order to establish a feasible and resilient solution.

5. Methodology and Relevance

The research is characterised by a combination of the application of the two episteme of typology and praxeology. I want to focus on typology as looking at the built environment through the notion of time. The research began by investigating how the built environment and urban fabric, in this case the waterfronts of New York City and specifically that of Manhattan, have changed over time since the introduction of modern man-made infrastructures in the industrial periods. The urban environment surrounding Manhattan’s waterfront has been evolving since piers and factories existed there, and gradually changed and readapted through time. A handful of multi-storey factory buildings survived until this day, especially in the Chelsea and Meatpacking districts on the middle-east side of the island (Gratz, 2010). The buildings remained somewhat similar, however their function has long changed. The big open floor plates of the once industrial buildings proved to be flexible and easily altered to suit different needs, such as commercial offices and creative workshops (Gratz, 2010). Over the years, this typology has had varying impacts on the streets below, and this change through the notion of time poses the question: can this be seen as a change in typology?

This leads to the application of the episteme of praxeology, the study of human action and conduct. In light of the current research of the waterfront areas, the role of humans comes hand in hand with the environment that they are set in. By studying the spatial practices of the users, and the ergonomics that the space provides, one can determine the most suitable solution for any possible interventions. In the case of the New York waterfronts, the primary aim is to find the best outcome for people to utilise and appreciate the space. The streets of the city are physically disconnected from the water due to highways and the typology of buildings that existed adjacent to them. Factory buildings and warehouses served no intention to accommodate pedestrians on the street level. There were no reasons for anyone to walk on these streets as there are no incentives, or “anchors” as Jane Jacobs recalls, for them to do so. The sidewalks should have contrasting functions and an end in sight, a punctuation that lures people to walk towards it (Jacobs, 1961). It is a proven theory in urban design and architecture, to create a reason to come, and the activity will eventually tinker with people’s curiosity (Jacobs, 1961). In New York, the most obvious anchor already exists in its vast expand of waterfronts. So to regenerate these neglected areas, is not simply a case of “greening” them and creating one-off situations, but to truly reconnect to the inner urban fabric so that people can physically and mentally arrive at the waterfronts.
6. Conclusion

Urban waterfronts are vital to any city’s way of life as it provides much needed recreational and open spaces. Due to its history, New York’s waterfronts have a very problematic background, and there has always been a struggle between the social and economic aspects. It was no mistake to utilise its waterfronts as an industrial hub, as it provided the economical power that has made New York what it is today, but if they had a second chance, would they construct the multi-laned highways the same way they had done? The industrial areas could be re-zoned and new typologies could be employed to revitalise the streets and sidewalks, as is the case surrounding the High Line elevated parkway, but the highways imposes an impenetrable barrier on the rest of the urban fabric (Gratz, 2010).

While the Department of City Planning has provided the city with a comprehensive study into the regeneration of its waterfronts, it can be said that more has to be done than simply redesigning on a local basis. Areas on a larger scale should be considered so that a more complete proposal could act to stimulate the neglected areas and to provide both residents and visitors a reason to once again make the waterfront a part of their lives.

The research into the history, typology of the existing buildings, and the way humans make use of the streets are the fundamental elements of the graduation project. These areas, combined with the study reports from the DCP, provide me with the foundation in which a design on an architectural scale can be established. The theoretical research would form the basis for urban and architectural design, while the study reports allow for more practical and technical fine tuning.
Bibliography


2. Literature Review Paper on Disconnected Urban Waterfronts

from the course Theory of Urbanism
Disconnected Urban Waterfronts
The influence of modern man-made infrastructure and its effect on the redeveloping of New York’s waterfronts.

Course AR3U022, Theory of Urbanism
MSc Architecture, Delft University of Technology

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Studio Delta Interventions

January, 2014
13th Graduation Lab Urbanism Conference

Abstract – The regeneration of urban waterfronts has become a priority in many cities around the world as the standard of living continues to rise. Much of the obsolete waterfronts in New York City were a result of the introduction of man-made infrastructure, where the public realm has been cut off from the water due to the physical and social barriers created as a result of industrialisation and densification (Plunz, 1993). The issue effectively involves more than one aspect. This paper will discuss the various aspects that contribute to the problem, and the possible solutions that may be derived. Breen and Rigby (1994) and Plunz (1993) consider the historical context and the way it may affect the decision making in the process of regeneration. While Roberts (2000) believe that as the socio and economic status of cities change, so does their response to key city-related matters. The present day expectation of the public for action has prompted governmental organisations such as the Department of City Planning to become the ‘official entity’ to take charge of the regeneration process. This paper looks into the present day interventions supported by the organisation and provides recommendations on further improvements.

Key words – urban waterfronts, disconnection, regeneration, infrastructure

1 Introduction

New York City is well known for its abundance in waterfront areas which are situated directly within high density areas, however there was a time where it was remarked by visitors that New York does not seem to be a city on water (Plunz, 1993). Of course New York is a city on water, with some nine hundred kilometres of water frontage, however it is not seen as one by its residents due to its street and zoning layouts (Plunz, 1993).

The rise of New York as an industrial power began from 1850 onwards, as New York continuously developed as a modern port with modern industry, which according to Plunz (1993), completely took over the use of the waterfront. In the whole scheme of things all other development was secondary. The island of Manhattan was ringed by piers, industrial buildings and rail connections, with the residential development toward the centre. This period in New York’s history was vastly important in its development as an economic powerhouse, which was essentially achieved through its “working waterfronts” (Breen & Rigby, 1994). It has only been in recent decades, with the transition to a post-industrial economy, that this firmly established pattern has begun to shift.

By the middle of the twentieth century, many of the industrial infrastructures had moved away from Manhattan’s waterfronts. However
this was superseded by plans of Robert Moses, New York’s most influential urban planner in the twentieth century, which saw the island become completely ringed by high-speed roadways (Ballon & Jackson, 2007). These modern infrastructures were thought to be an important necessity at the time due to the rise in the use of motorcars (Plunz, 1993). The introduction of these highways effectively continued the demise of Manhattan’s waterfronts as they served to segregate the inner public realm from its water edges.

The public, which included new residential housing built close to the waterfront since the departure of the industrial infrastructure, were once again cut from direct river access (Breen & Rigby, 1994). The streets connecting or close to the waterfronts were also affected, merely becoming a vehicular connection to the highways. Sidewalks, although never designed to suit the leisurely pedestrian, became increasingly empty as the workers moved away with the departing industry (Breen & Rigby, 1994).

Both Breen and Rigby (1994), and Plunz (1993) present their interpretation of waterfront regeneration through the history by explaining the origins of the problem. Plunz (1993) describes the disconnection of Manhattan’s waterfront as “historical ambiguity” in that the identity of a city by the water is both a fact and fiction. Of course New York is a city on water, yet at the same time it is not, due to the barriers that exist. This shows that the problem is very much one that is tied to the social aspects of the city. According to Plunz (1993), the physical environment and the behaviour of the users both have contributing effects on the way the problem is perceived. These two factors, however, are deeply entrenched in the city’s culture and history, which Breen and Rigby (1994) claim cannot be overhauled simply for the sake of regeneration.

2 Need for redeveloping New York’s waterfronts

In the twenty years since the introduction of the modern highway infrastructure, changes in the thinking of urban planning led to an increase in the ‘need’ for the city to reclaim its waterfronts (Breen & Rigby, 1994). Much of this ‘need’ was led by private developers and entrepreneurs looking to redevelop land close to the water’s edge due to its declining land and desirability value (Plunz, 1993).

There was also a matter of street safety as described by Jane Jacobs in her book “The Death and Life of Great American Cities”, whereby the lack of eyes (pedestrians and on-lookers) seemingly create unsafe sidewalks, and a perception of an unsafe sidewalks, and a perception of an unsafe city (Jacobs, 1961).

Ideas and projects planned at the time included schemes for “the world’s tallest building”, shopping malls and high-end housing, all catering for the luxury market and the upper-class (Roberts, 2000). In Roberts’ “The evolution, definition and purpose of urban regeneration” (2000), he describes the ongoing change in the mindset regarding the redevelopment and renewal of neglected urban neighbourhoods. Roberts (2000) considered the point of view from different stakeholders, of which all had their own priorities and intentions.

The push for large scale redevelopments along the waterfronts in the 1980s triggered waves of opposition, with the most prevailing question simply being “why?” – could New York genuinely be benefited from developments such as those mentioned above? These visions were indeed seen as exciting for the real estate sector, and probably the governmental department overlooking the process, however with New York in transition, beginning with the realities of its economy and demographics at the time, one must question whether these projects were in fact suitable for New York City as a whole (Roberts, 2000).

All of the projects required enormous public subsidy which is channelled into the luxury market – this is in a city where more than one quarter of the population is officially in poverty and over half of the population falls into the “lower middle class” (Ballon & Jackson, 2007).

Sairinen and Kumpulainen (2006, p120-135) discusses in their journal article the social impacts in urban waterfront regeneration. In effect, priorities must be made and waterfront transformation cannot reign as a fantasy for long. They place their main criticism on the overzealous schemes that are often touted as the “next best thing”, yet never come to light due to the lack of understanding
of the contextual issues. Another argument stemmed from the idea that the piers and docks, and industrial remnants should not be casually destroyed in the rush to create new real estate for the sake of (re)development (Fein, 1967). Waterfront redevelopment should be a cautious and incremental one, as described by Fein “so as to maximise the benefits of a one-time opportunity” (1967). The geographic and cultural morphology of the city cannot be remade overnight, therefore the remnants of the industrial era, the history of the city, should not be abandoned merely in the interest of maximising short term profits (Fein, 1967). This thinking has led to the present day philosophy for redeveloping New York’s waterfronts (Roberts, 2000).

3 Present day interventions

Present day waterfront planning in New York City has largely moved on from the ideas envisioned from the 1980s. The Department of City Planning of New York City (DCP) was seen as the appropriate administrative body to implement a Waterfront Revitalisation Program (WRP) that will oversee all of the city’s waterfront redevelopments. The first edition of the WRP was created in 1982, while a more up-to-date and comprehensive version, known as Vision 2020, was recently compiled in 2011. All redevelopments are essentially under the scrutiny of the DCP and as part of the WRP, are developing plans and frameworks which would guide the suitable interventions required. A single vision is created, with the DCP being able to enforce law and zoning changes which had previously restricted the city to better regenerate its waterfronts (Department of City Planning NY, 2011).

Planning approaches of the DCP focuses on transforming waterfront areas for recreational uses and natural areas, with as much public access as possible. The remaining areas may then be pursued for other development opportunities (e.g. residential at Battery Park City in the South-West corner of Manhattan) (Department of City Planning NY, 2011).

The most recently finished study by the DCP, the Vision 2020, becomes New York City’s most comprehensive waterfront plan. The study builds on all previous plans and the focus remains to develop recreational areas and to restore natural areas. The study essentially provides a framework which will guide the redevelopment process, and was made to be flexible so that it could apply to different site locations and context within the city’s waterfronts (Department of City Planning NY, 2011).

While this study provides comprehensive guidelines and numerous “possible solutions” for designers and planners, it does lack in certain areas. One would not suggest calling these negatives, as no single report can possibly cover every detail on any particular topic. Verhagen and Visser (2007) explore key aspects in terms of safety in “Coastal defence solutions” whereby solutions range from physical interventions to raising awareness in the public.

The single most used word in the American planning industry at present time is undoubtedly “resilient”. To explain in short, to be resilient is to be able to withstand or recover quickly from difficult conditions (Breen & Rigby, 1994). Any new redevelopments should be able to withstand and accommodate the issues of rising sea level, as well as the increase in storm related incidents such as flooding.

The study, in a way, fail to methodically address key issues which involve waterfront safety concerned with flooding, storm surges and other storm induced events. The study also suggests, unintentionally, that waterfronts are a separate entity – a place that is special and out of the ordinary. Yet this has been the problem since the industrial periods, where the city’s waterfronts are segregated from its inner urban fabric. In the current context, the regeneration process has become a multi-faceted issue as the urban, social, safety, and water-related aspects must all be integrated in order to establish a feasible and resilient solution (Verhagen & Visser, 2007).

4 Conclusions

Urban waterfronts are vital to any city’s way of life as it provides much needed recreational and open spaces. Due to its history, New York’s waterfronts have a very problematic background, and there has always been a struggle between the social and economic aspects (Plunz, 1993). It was no mistake to
utilise its waterfronts as an industrial hub, as it provided the economic power that has made New York what it is today, but if they had a second chance, would they construct the multi-lane highways the same way they had done?

The industrial areas could be re-zoned and new typologies could be employed to revitalise the streets and sidewalks, as is the case surrounding the High Line elevated parkway, but the highways imposes an impenetrable barrier on the rest of the urban fabric (Gratz, 2010).

As discussed in section 3, while the Department of City Planning has provided the city with a comprehensive study into the regeneration of its waterfronts, it can be said that more has to be done than simply redesigning on a local basis. Areas on a larger scale should be considered so that a more complete proposal could act to stimulate the neglected areas and to provide both residents and visitors a reason to once again make the waterfront a part of their lives (Roberts, 2000).

The research into the history, typology of the existing buildings, and the way humans make use of the streets are the fundamental elements of a successful regeneration strategy. These areas, combined with the study reports from the Department of City Planning, would provide planners and designers with the foundation in which a design on an architectural scale can be established. The theoretical research would form the basis for urban and architectural design, while the study reports allow for more practical and technical fine tuning.

5 Further Research and Recommendations

Further research can be carried out and characterised by a combination of the application of the two episteme of ‘typology’ and ‘praxeology’. The focus on typology relates to looking at the built environment through the notion of time. The research would involve investigating how the built environment and urban fabric, in this case the waterfronts of New York City and specifically that of Manhattan, have changed over time since the introduction of modern man-made infrastructures in the industrial periods. The importance of time was notable in the literature of both Breen and Rigby (1994) and Plunz (1993) whereby the historical context provides vital insight into the problem.

The urban environment surrounding Manhattan’s waterfront has been evolving since piers and factories existed there, and gradually changed and readapted through time (Breen & Rigby, 1994). A handful of multi-storey factory buildings survived until this day, especially in the Chelsea and Meatpacking districts on the middle-east side of the island (Gratz, 2010).

The buildings remained somewhat similar, however their function has long changed. The big open floor plates of the once industrial buildings proved to be flexible and easily altered to suit different needs, such as commercial offices and creative workshops (Gratz, 2010). Over the years, this typology has had varying impacts on the streets below, and this change through the notion of time poses the question: can this be seen as a change in typology?

This leads to the application of the episteme of praxeology, the study of human action and conduct. In light of the current research of the waterfront areas, the role of humans comes hand in hand with the environment that they are set in (Sairinen & Kumpulainen, 2006). By studying the spatial practices of the users, and the ergonomics that the space provides, one can determine the most suitable solution for any possible interventions.

In the case of the New York waterfronts, the primary aim is to find the best outcome for people to utilise and appreciate the space. The streets of the city are physically disconnected from the water due to highways and the typology of buildings that existed adjacent to them. Factory buildings and warehouses served no intention to accommodate pedestrians on the street level. There were no reasons for anyone to walk on these streets as there are no incentives, or “anchors” as Jane Jacobs (1961) recalls, for them to do so. The sidewalks should have contrasting functions and an end in sight, a punctuation that lures people to walk towards it (Jacobs, 1961). It is a proven theory in urban design and architecture, to create a reason to come, and the activity will eventually tinker with people’s curiosity (Jacobs, 1961).

In New York, the most obvious anchor already exists in its vast expand of waterfronts.
So to regenerate these neglected areas, is not simply a case of “greening” them and creating one-off situations, but to truly reconnect to the inner urban fabric so that people can physically and mentally arrive at the waterfronts.

A possible design outcome must involve a strategy to lure pedestrian traffic from the densely populated areas of the “internal” city grid to the currently vacant waterfronts. To do this, effective anchor points could be utilised in the form of public spaces and architecture in order to create an incentive for people to visit. These intermediate anchor points will serve to provide the missing link between the inner public realm and the currently under-utilised urban waterfronts.


References


3. Graduation Plan at P2
# Graduation Plan P2

**Kenny Kwong 4242009**  
Graduation studio: Delta Interventions  
Track: Architecture

## Personal Information

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## Studio

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<th><strong>Theme</strong></th>
<th>Delta Interventions</th>
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<tr>
<td><strong>Teachers</strong></td>
<td>Coordinator: Anne Loes Nillesen</td>
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**Argumentation of choice of the studio**

To explore, through a design project, water-related issues for architecture within delta regions. Research and design ideas could then be applied in other situations where water is present.

### Teachers

<table>
<thead>
<tr>
<th><strong>1st Mentor</strong></th>
<th>Frits Palmboom</th>
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<tr>
<td><strong>2nd Mentor</strong></td>
<td>Maarten Meijs (Building Technology)</td>
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## Title

**Title of the graduation project**

High and Dry – A future solution for keeping New York City above sea level

*Title changed to “From High Line to Hudson” at P5*

## Product

### Problem Statement

Much of New York City’s waterfronts have become disconnected to its inner public realm. In the case of Manhattan, multi-lane highways and large industrial lots exist in some areas to act as a physical barrier, vastly reducing the chance for the waterfronts to be properly utilised.

Much of this coastline is also made up of “hard”, man-made boundaries, of which most are incapable of defending itself against flood and storm surges. As seen in Superstorm Sandy, many buildings in high-risk areas are also not designed to withstand such situations when called upon.

What changes to the current building fabric can we make in order to reconnect the waterfront to its inner public realm? And how can these buildings be better prepared for future rises in water?

## Goal

This design proposal will deal with the historic waterfront area of Chelsea, located on Manhattan’s west coast along the Hudson River. The aim to reconnect the waterfront back to the busy city-grid and better prepare these new buildings for future storm events will occur at two levels.

Regeneration of the waterfront will occur on an urban design level. The goal is to bring the pedestrian traffic to the waterfront from busy “anchor” attractions such as the Chelsea Market, Apple Store and the High Line, all of which are only one or two blocks away.
On an architectural level, the proposed design should provide smaller and accessible anchor points that lead pedestrians towards the waterfront. The typology and function will be a creative hub, in which permanent fixtures, and public spaces and events will draw on the pedestrian traffic of the High Line, etc.

The main feature of this proposal will involve a raised path and public spaces. The raised element becomes the proposed buildings’ main point of access, while physically becoming an extension of the High Line. The purpose of the raised element is to 1) draw on the heavy pedestrian traffic of the High Line, 2) help to regenerate the sidewalks and street level areas close to the waterfront, 3) become a physical connection, bridging over existing streets and highways.

By removing important access points and building amenities from the ground and basement floors, the proposed buildings should also become “safer” during storm events. The aim is to create building(s) that would remain functional should it become inundated.

**Process**

**Method description**

Research and design methods/approaches:

Layer approach – to understand the different physical layers that make up the city. Analysing and comparing these different layers helps us to distinguish the impacts and relations that affects the making of the city.

Historical context – looking at the past can help us understand the reasons behind the way a city or certain neighbourhoods are. Also gives us an idea behind the cultural mindset of people, for example, why certain streets, neighbourhoods or buildings are important.

Typology – In order to regenerate an area it is important to understand the buildings that exist already. A study into the typology of the buildings you want to change and the surrounding buildings helps to form the programmatic structure of any proposals. In any case, a study into the typology of a proposed design is necessary in order to understand the requirements.

Praxeology – the study of human actions and conduct. The role of humans comes hand in hand with the environment that they are set in. By studying the spatial practices of the users, and the ergonomics that the space provides, one can determine the most suitable solution for any possible interventions. By studying the behavior of people through site visit and literature, we can better accommodate their movements and habits, especially when designing spaces for pedestrians.

Site visit – Being on site gives us the opportunity to observe things we cannot see in books and websites. For example: seeing the overall context and condition of our chosen site, witnessing the size and scale of Manhattan, and understanding the movement and behaviour of people in New York City (car-centric city).

Past references – looking at past examples of designs helps us to solve problems that have previously been solved before. This becomes very important when it comes to the construction and buildability of our proposed designs. In a way, we must look at built examples in order to tailor the design of details and structures for our proposals, as we lack the experience and expertise at this stage.
## Literature and general practical preference

Jane Jacobs (1961) “*The Life and Death of Great American Cities*”
Many aspects of city planning and design could be drawn from Jane Jacobs’ book. Jacobs describes ways in which city streets were safe and unsafe, and how best to create “successful” neighbourhoods. The ideas regarding streets and sidewalks are beneficial for this design project as many aspects could be related in terms of creating public spaces for pedestrians.

These two literatures explored and described the ideas and visions of two of New York’s greatest planners in the twentieth century. The books describe the way the city was shaped in the past, giving insights into the reasons behind the way the city has been formed. Important aspects include: the birth of New York’s motorways, the historical aspects of different neighborhoods in Manhattan, and the evolution of city planning of New York.

Ballon & Jacskon (2007) “*Robert Moses and the Modern City*”

Department of City Planning New York (2011) “*Vision 2020*”
This comprehensive report provides an example of many multi-disciplinary responses to the issue of waterfront regeneration. The study forms the framework for any future action to be taken by the city and provides further references to many technical and statistical information and data.

New York site visit/study tour (2013)
As mentioned in the “Methods” section, visiting New York gave us first hand experience of the location that we will research and design for. Being on site gives us the opportunity to observe things we cannot see in books and websites. For example: seeing the overall context, scale of surroundings, the movement and behavior of people.

## Reflection

### Relevance

The graduation project is a themed design assignment that requires us to research and provide problem-solving ideas and techniques. By practicing these skills, we are preparing ourselves for future situations, be it in employment or even everyday situations.

The studio of Delta Interventions involves the research and design within delta regions. The reoccurring issue that we deal with is the issue of storm related events, and how the presence of water may affect us. With many scientific research suggesting that climate change induced events may be on the rise, as well as the undoubtedly rise in sea water levels, the knowledge in water-related research and design will become invaluable in the future. The skills and methods acquired during this graduation project can not only apply in delta regions, but would also be able to be applied in many other situations where water is present.
4. Reflection Paper at P4
Reflection P4
Kenny Kwong 4242009
Graduation studio: Delta Interventions
Track: Architecture

High & Dry
New York City

This reflection paper will revisit the initial goals of the design project, and briefly the methods that were undertaken in the research and design process. A reflection on the goals and methods will conclude the paper.

Goals

The main goals of this project are to reconnect the waterfront back to the busy city-grid and better prepare these new buildings for future storm events. The chosen study area is situated in Chelsea, located by the Hudson River on the West shore of Manhattan.

On an urban level, the goal is to connect the pedestrian traffic to the waterfront from busy “anchor” attractions such as the Chelsea Market, Apple Store and the High Line, all of which are only one or two blocks away.

On an architectural level, the proposed design should provide smaller and accessible anchor points, and provide pedestrians a way of moving towards the waterfront. The typology and function will be a mixed used building, with a creative hub being the overall defining theme, to consolidate on the ongoing regeneration process of the Chelsea area. Recent regeneration has seen the area become more and more “up-market”, with internationally renowned businesses of the creative industry pricing-out those that are only “starting-up” (start-ups).

The first iteration of this proposal involved a raised path and public spaces. The raised element became the proposed buildings’ main point of access, while physically becoming an extension of the High Line. The purpose of the raised element is to 1) draw on the heavy pedestrian traffic of the High Line, 2) help to regenerate the sidewalks and public spaces close to the waterfront, 3) become a physical connection, bridging over existing streets and highways.

The second (and current) iteration of this proposal has its focus slightly shifted. The existing High Line will still connect to the building and draw on its pedestrian traffic, however there will now be more focus on the ground floor public spaces. The raised path going through the site now becomes an access route, which allows the visitor to either move to the ground floor in order to utilise the functions, or to continue to the waterfront.

By replacing the important access points to the ground floor (contrary to the first design proposal), the “internal” public corridor should become less divided (between G/F and upper levels).
Methods/Approaches

The following are the main methods and approaches undertaken in the research and design process:

Layer approach – to understand the different physical layers that make up the city. Analysing and comparing these different layers helps us to distinguish the impacts and relations that affect the making of the city.

Historical context – looking at the past to help us understand the reasons behind the way a city or certain neighbourhoods are. For example, the importance of the creative industry in the Chelsea area. It also gives us an idea behind the cultural mindset of people, for example, why certain streets, neighbourhoods or buildings are important (eg. How certain locations became vibrant “anchor points”)

Typology – In order to regenerate an area it is important to understand the buildings that exist already. A study into the typology of the buildings you want to change and the surrounding buildings helps to form the programmatic structure of any proposals.

Praxeology – the study of human actions and conduct. The role of humans comes hand in hand with the environment that they are set in. By studying the spatial practices of the users, and the ergonomics that the space provides, one can determine the most suitable solution for any possible interventions. By studying the behaviour of people through site visit and literature, we can better accommodate their movements and habits, especially when designing spaces for pedestrians.

Part of the initial research also involved a site visit to New York City. Being on site gives us the opportunity to observe things we cannot see in books, maps and websites. For example: seeing the overall context and condition of our chosen site, witnessing the size and scale of Manhattan, and understanding the movement and behaviour of pedestrians in (a car-centric) New York City.

Seeing first-hand why some streets are filled with pedestrians and why some are filled with parked cars. This is all linked to the above approaches and is a combination of many defining factors.

Reflection

Relevance of the project
The graduation project, in general, is a themed design assignment that requires us to research and provide problem-solving ideas and techniques. By practicing these skills, we are preparing ourselves for future situations, be it in employment or even everyday situations.

The studio of Delta Interventions involves the research and design within delta regions. The reoccurring issue that we deal with is the issue of storm related events, and how the presence of water may affect us, but also how we can design proposals in relation to water. In the design part of my project, I have decided to focus more on making a design that reacts to the need of regeneration along a waterfront area.

With many scientific research suggesting that climate change induced events may be on the rise, as well as the undoubtedly rise in sea water levels, the knowledge in water-related research will become invaluable in the future. The skills and methods acquired during this graduation project can not only apply in delta regions, but would also be able to be applied in many other situations where water is present.

Locations within a delta region also often deal with the presence of a waterfront in an urban and social context. The definition, purpose, and the general perception of a city’s waterfront has changed
dramatically over the past century, trending towards a more public and pedestrian friendly environment. Developments in New York City, and as far away as places such as Melbourne in Australia, are openly placing equal importance in the urban issues as it is in the environmental issues. Knowledge in these two areas will continue to be the key in future waterfront regenerations.

**Research to Design**

The graduation studio began by studying the case studies of delta regions such as New York and Ijsselmeer. The aim was to practice the research methods specific to water-related areas, which we can then re-utilise for our own selected delta region.

The Layer Approach was applied initially at a larger scale, and allowed us to grasp the overall contributing factors that affect our chosen study areas. With New York as the chosen study area, much of this initial research was done via “third-hand” information through maps, literature, and internet sources. This was sufficient at the beginning to get an idea of the situation and to help define the path for further and more thorough research, however it was difficult to get specific understandings on certain aspects.

First-hand information is particularly important for any architecture or urban design project. As mentioned earlier, visiting the city of New York and our own site locations gave us insights that we would not see from maps, books or the internet, and this vastly changed the way many of us approached the design project. Observations made on-site led to a stronger focus on two key approaches.

Looking into the historical context has worked in that it allowed for an understanding of how the present situation of the waterfronts, the street and highway layout, and the city blocks came about. Understanding the physical nature of the area means that I could then start to define the problems affecting the area, such as the disconnection of the waterfront due to barriers formed by highways, street planning, the High Line, and in some ways a lack of interest. The lack of interest by pedestrians to utilise the waterfront features is also partly a cultural issue, caused by an overly car-centric mindset, coupled with the lack of easy access meant that some of New York’s great waterfront areas remain under-used.

This also overlaps with the idea of studying human actions and conducts, or Praxeology. Similar to Jane Jacob’s views as documented in “The Life and Death of Great American Cities”, there is a certain science when it comes to human behaviour and the environment that they are set in. By observing the movement and habits of people, the problem areas and key issues really stood out in which I want to address in my design proposal.

**Theme**

The overriding theme of the Delta Intervention studio is as suggested by its title, to create interventions in delta or water-related areas. The studio places an importance on “water-related issues such as flood risk management”, but also the need to create “stronger spatial identities and new cohesion of cities and their water-landscapes”. As the research process went on, I found myself often focussing more on the latter point. The idea of waterfront regeneration in terms of urban revitalisation is a pressing issue in New York as well as many cities around the world, and I believe the project can have strong links with the current wider social context.

*(I propose a title change for my project. Perhaps... “High Line to Hudson” ?)*
5. Reflection Paper at P5
Reflection P5
Kenny Kwong 4242009
Graduation studio: Delta Interventions
Track: Architecture

From High Line to Hudson
New York City

This paper will briefly revisit the initial goals and methods of the design project, followed by a review of the process undertaken as part of the P4 presentations. A final overview and reflection of the project as a whole will conclude the paper.

Initial Goals

The initial goals of this project are to reconnect the waterfront back to the busy city-grid and better prepare these new buildings for future storm events. The chosen study area is situated in Chelsea, located by the Hudson River on the West shore of Manhattan.

On an urban level, the goal was to connect the pedestrian traffic to the waterfront from busy “anchor” attractions such as the Chelsea Market, Apple Store and the High Line, all of which are only one or two blocks away.

On an architectural level, the proposed design should provide smaller and accessible anchor points, and provide pedestrians a way of moving towards the waterfront. The typology and function will be a mixed used building, with a creative hub being the overall defining theme, to consolidate on the ongoing regeneration process of the Chelsea area. Recent regeneration has seen the area become more and more “up-market”, with internationally renowned businesses of the creative industry pricing-out those that are only “starting-up” (start-ups).

Initial Methods/Approaches

The initial approach largely derived from the methods used while studying the case studies of Ijsselmeer in The Netherlands, and from comments based on the P1 presentation.

For example, the Layer approach was first utilised to understand the different physical layers that make up the city. Analysing and comparing these different layers helped us to distinguish the impacts and relations that affect the making of the city. Understanding the Historical context allowed us to look at the past to help us understand the reasons behind the way a city or certain neighbourhoods are. For example, the importance of the creative industry in the Chelsea area. It also gives us an idea behind the cultural mindset of people, for example, why certain streets, neighbourhoods or buildings are important (eg. How certain locations became vibrant “anchor points”)

After the initial P1, valuable recommendations were given to include the studies of Typology and Praxeology. In order to regenerate an area it is important to understand the buildings that exist already. A study into the typology of the buildings you want to change and the surrounding buildings helps to form the programmatic structure of any proposals. The study
of human actions and conduct, or Praxeology, suggests that the role of humans comes hand in hand with the environment that they are set in. By studying the spatial practices of the users, and the ergonomics that the space provides, one can determine the most suitable solution for any possible interventions. By studying the behaviour of people through site visit and literature, we can better accommodate their movements and habits, especially when designing spaces for pedestrians.

Part of the initial research also involved a site visit to New York City. Being on site gives us the opportunity to observe things we cannot see in books, maps and websites. For example: seeing the overall context and condition of our chosen site, witnessing the size and scale of Manhattan, and understanding the movement and behaviour of pedestrians in (a car-centric) New York City.

Seeing first-hand why some streets are filled with pedestrians and why some are filled with parked cars. This is all linked to the above approaches and is a combination of many defining factors.

**P4 Process**

The P4 presentation is the product of the research and development in design of the project to a high and developed level of completeness. At P4, the design proposal should represent the end result of a concoction between idea, practicality, and buildability. Over the two P4 presentations, there was a large difference in the approach in the lead up to the final product.

**Design**

In terms of the overall design approach, the first iteration of this proposal involved a raised path and public spaces. The raised element became the proposed buildings’ main point of access, while physically becoming an extension of the High Line. The purpose of the raised element is to 1) draw on the heavy pedestrian traffic of the High Line, 2) help to regenerate the sidewalks and public spaces close to the waterfront, 3) become a physical connection, bridging over existing streets and highways.

The second (and current) iteration of this proposal has its focus slightly shifted. The existing High Line will still connect to the building and draw on its pedestrian traffic, however there will now be more focus on the ground floor public spaces. The raised path going through the site now becomes an access route, which allows the visitor to either move to the ground floor in order to utilise the functions, or to continue to the waterfront. By replacing the important access points to the ground floor, contrary to the first design proposal, the “internal” public corridor should become less divided between ground floor and upper levels.

The shift in the design idea resulted from comments based on the first P4, where certain urban and architectural qualities could be improved on. The above changes were made to actually make a better connection between the design idea and the end product, rather than to completely change the direction of the design.

**Building Technology**

Another important adjustment made in the process of the two P4 presentations relates to the building technology and construction of the building. To slightly exaggerate, but not completely untrue, the design of the structure in the first design proposal (first P4) was somewhat of an after-thought. In that case, the building's form and aesthetics were designed
first, with the building technology part being quickly put together at the end due to it being a compulsory requirement.

This resulted in an architectural design where the relationship between the aesthetic, functional, and construction components did not fully integrate together. There were cases where the structural type was not suitable for certain design ideas or envisioned outcomes, to cases where certain floor slabs would simply not stand due to openings being opened in the "wrong" locations on the slab. This has resulted from a lack of coordination between the "want" and the "necessary".

Comments from the initial P4 and subsequent consultations made me aware of the importance in the integration of both form and construction design throughout the design process. In a way, the two need to come hand in hand. By beginning to think about the structure and buildability earlier on, it allows both to guide each other throughout the design development stage. The change in the approach helped me to not only understand "how" and "why" certain construction techniques are more suitable for my architectural design, but actually helped me to make guided and well-informed design decisions.

Final Reflection

Relevance of the project
The graduation project, in general, is a themed design assignment that requires us to research and provide problem-solving ideas and techniques. By practicing these skills, we are preparing ourselves for future situations, be it in employment or even everyday situations.

The studio of Delta Interventions involves the research and design within delta regions. The reoccurring issue that we deal with is the issue of storm related events, and how the presence of water may affect us, but also how we can design proposals in relation to water. With the final proposal, I have decided to focus more on making a design that reacts to the need of regeneration along a waterfront area.

With many scientific research suggesting that climate change induced events may be on the rise, as well as the undoubtedly rise in sea water levels, the knowledge in water-related research will become increasingly valuable in the future. The skills and methods acquired during this graduation project can not only apply in delta regions, but would also be able to be applied in many other situations where water is present.

Locations within a delta region also often deal with the presence of a waterfront in an urban and social context. The definition, purpose, and the general perception of a city’s waterfront has changed dramatically over the past century, trending towards a more public and pedestrian friendly environment. Developments in New York City, and as far away as places such as Hong Kong or even Melbourne in Australia, are openly placing equal importance in the urban issues as it is in the environmental issues. Knowledge in these two areas will continue to be the key in future waterfront regenerations.

Research to Design
The graduation studio began by studying the case studies of delta regions such as New York and Ijsselmeer. The aim was to practice the research methods specific to water-related areas, which we can then re-utilise for our own selected delta region.
The Layer Approach was applied initially at a larger scale, and allowed us to grasp the overall contributing factors that affect our chosen study areas. With New York as the chosen study area, much of this initial research was done via “third-hand” information through maps, literature, and internet sources. This was sufficient at the beginning to get an idea of the situation and to help define the path for further and more thorough research, however it was difficult to get specific understandings on certain aspects.

First-hand information is particularly important for any architecture or urban design project. As mentioned earlier, visiting the city of New York and our own site locations gave me insights that I would not see from maps, books or the internet, and this vastly changed the way I approached the design project. Observations made on-site led to a stronger focus on two key approaches.

Looking into the historical context became vital in that it allowed for an understanding of how the present situation of the waterfronts, the street and highway layout, and the city blocks came about. Understanding the physical nature of the area means that I could then start to define the problems affecting the area, such as the disconnection of the waterfront due to barriers formed by highways, street planning, the High Line, and in some ways a lack of interest due to the absence of “anchor points”. The lack of interest by pedestrians to utilise the waterfront features is also partly a cultural issue, caused by an overly car-centric mindset, coupled with the lack of easy access meant that some of New York’s great waterfront areas remain under-used.

This also overlaps with the idea of studying human actions and conducts, or Praxeology. Similar to Jane Jacob’s views as documented in “The Life and Death of Great American Cities”, there is a certain science when it comes to human behaviour and the environment that they are set in. By observing the movement and habits of people, the problem areas and key issues really stood out in which I want to address in my design proposal. The large amounts of people in the Chelsea region rarely moved beyond the High Line and to the waterfronts because of the inconvenience and the simple fact that there is little that attracts them. As witnessed at the site, people would rather not want to cross three or four sets of traffic lights simply to get to the other side of the highway that segregates the city block from its edge.

**Final result**

The overriding theme of the Delta Intervention studio is as suggested by its title, to create interventions in delta or water-related areas. The studio places an importance on “water-related issues such as flood risk management”, but also the need to create “stronger spatial identities and new cohesion of cities and their water-landscapes”. As the research process went on, I found myself often focussing more on the latter point. The idea of waterfront regeneration in terms of urban revitalisation is a pressing issue in New York as well as many cities around the world, and I believe the project can have strong links with the current wider social context in many places around the world. The final design focuses and acts to create a stepping stone that links the inner city grid to the water's edge. Lying between the High Line and the waterfront, the design aims to break down the barriers created by both the High Line and the highway, giving pedestrians a direct route to the water, and ultimately aiding the process of revitalising the area.