

Göteborg Southern Waterfront Redevelopment
An Urban Design Proposal of Southern Göta älv Coast

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Master's Thesis at Chalmers Architecture

GÖTEBORG
SOUTHERN WATERFRONT
REDEVELOPMENT

Master's Thesis

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Abstract

1. Abstract

1.1. Justification for the choice of the topic

City of Göteborg is second largest city in Sweden and it lies in area of Västra Götaland. Over the years it has been growing and expanding according to development of new industrial companies, which hired more and more people. The result is clearly visible nowadays along the harbour – most of it is occupied by the companies. Meanwhile the city center has grown and doubled then tripled its size. Adjacent villages and areas which were once independent territories have been sucked in by the town. The center of the city consists not only of the old town. It has expanded to some other districts.

Nowadays, Göteborg is transforming from a post-industrial city to a new sustainable/river city. When you walk around the town it is quite hard to find a river. Barely anyone wants to spend their time by the river, because there is simply nothing. There are just a few accessible points, from which one can take a ferry or take a picture either with opera building in the background or some other monument. The best way to reach each of those places is to use public transport. There are no routes for pedestrians or bikes. The aim of this project is to change this.

A few years ago large investment has been initiated on the north bank of the river to build up residential, educational and service buildings. This made a good starting point for developing a true city center, instead of just spreading the city further and further into a mainland. Following the concept of the brand new northern river bank transformation, it is a high time to start recreating the southern bank as well.

1.2. Subject matter and the scope of the study

The leitmotif of the project is a connection between two important historical zones. One of them is the old town and the other one is Roda Sten. Those two zones, well known among Göteborg citizens are also ones of the oldest parts in the town. Each of them is distinguished by big dominants: for the old town it is Skanskaskrappan and Göta alvbron and for Roda Sten it is Älvsborg Bridge (which pylons have more than 100 meters height). Moreover, on the southern side of the river, one has to mention, lies the main part of the city, one could say its heart. Alas, the river bank is occupied by the companies, whose services are not open for citizens. Therefore the connection with the river is lost. Main tenants, which include Fiskmarket and Stenaline, do not provide for average citizen's needs. Additionally, both of these companies do not have to be located in the strict city center, because they serve much larger region. There is no need to exclude this potentially lively area to keep those companies in place. The project presents how this area could be developed in terms of harbor's function change.

1.3. Thesis and project purpose

The line is an ideological and visual connection between two city islands. The aim of the project is to bring life to areas in-between and create a masterplan that will blend them with the surroundings as well as give some freshness to the city center.

The presented masterplan has been founded on the conceptual line which flows along the coast providing access for all kind of transport at different levels. The most important level is the one of barefoot citizen who should be able to walk along the river bank, rest on the bench or enjoy the river. Because of the flat terrain the area could become a popular destination among tourists as well as citizens.

The line also determines the masterplan's visual side. The area has been split into several zones, accordingly to surrounding districts, their accessibility and sizes. Depending on the site there are places that are supposed to be in use 24/7 and other s that will work only during the daytime. This gradient of activities and variety of functions should keep the line in use and let the users feel the flow of the design. Moreover, the line adds up to project visual expression. Future developments on both sides of the line will not interrupt its continuity. This visual solution should also encourage people to choose the new route over other older ones. Creation of such a calm and straightforward path will give citizens not only many new opportunities for rest and leisure, but possibly it will change their belief of how a life in the harbour city should look like.

1.4. Research questions

- Economic:
 - What funding sources can be applied to masterplan completion?
 - Which factors could hinder a success of a project?
 - Is disposal of river-connected services in favour of inhabitants' needs justified economically?
- Spatial:
 - Why do people neglect the waterfront?
 - How to prevent further decay of the value of Göta älv?
 - What spatial means are appropriate for the stated problems?
 - What are possible outcomes of the different strategies that could be applied?
- Social:
 - What are the needs of the inhabitants of the housing districts nearest to the waterfront and how do they differ from the needs of the newcomers to the waterfront?
 - What is a target group of a Southern Waterfront housing zone?

- How to convince tourists to venture into new and unknown?
- How old habit and bad opinion can influence the future of the area?

1.5. Methodology

- Constructing the thesis and deciding on the scope of a study.
- Problem and research questions are stated.
- Recognizing spatial, social, economic and historic functional links.
- Constructing a network between a nodes of common ground.
- Analyzing the most beneficial links in the constructed network of relationships.
- Interweaving functional links with spatial and urban reality.
- Adjusting legibility of the outcome solutions.
- Applying particular spatial features accordingly to examples research gathered.
- Forming design guidelines and proposing phases order.
- Checking how the propposed masterplan works by showcasing the possible project outcomes through detail development of the most important nodes.

City background

2. City background

2.1. Location

2.1.1. City

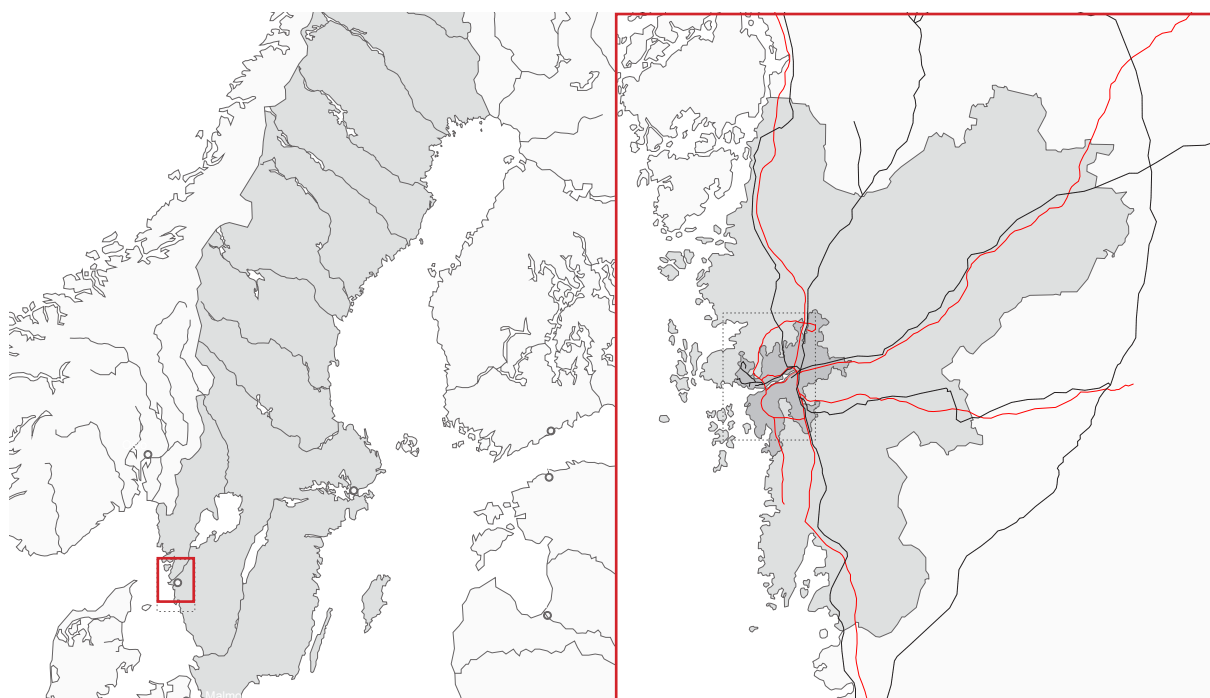


Fig.1: Scandinavian Peninsula and area of Göteborg.

Göteborg is situated in a south-western part of Sweden, in the area called Vastra Gotland. The city lies by the coast of Kattegat Strait at the mouth of Göta älv river, one of the largest in Sweden. The river streams into the strait from largest Swedish lake - Vanern. Due to its location, the city has grown in significance as a trading city. Around the city, at the mouth of the river there are plenty of islands, some of them inhabited and incorporated into the city through ferries, while the others being just bare rough rocks - typical Scandinavian landscape. Substantial part of Göteborg, including the older area on the southern side of Göta älv, but also on the northern side - on the island Hisingen, consists of factories and plants. Both sides of the river are connected by two large bridges and one tunnel.

Göteborg has a mild climate thanks to a Gulf Stream and quite a lot of rain almost all year round.

City's latitude is quite far to the north, what increases the differences between the day and night length around the year. Extremely long summer days are a recompense for short winter days with little sun. In addition to great landscapes and many cultural activities Göteborg makes for a great summer destination.

The city has more than 500 000 inhabitants, and the whole agglomeration reaches almost 900 000. This classifies the city as the second biggest one in a country, after the capital - Stockholm (around 2 mln agglomeration), and before Malmö (350 000).



Fig.2: Satellite map of the city of Göteborg.

2.1.2. Central southern waterfront

It is just an excerpt of Göta älv river bank. It is limited on the west and east by the only two bridges in the city: Älvborgs bridge and Göta älvbron. Width of the intervention zone varies from 50 to 500 m, depending on the place. It is simply an area that has been excluded from the central part of the city by the road E45. There is nearly no access from surrounding neighbourhood. This seclusion made way for development of large services and companies that now occupy what could have been a very valuable land. Project area is hard to be defined, it has no strict borders, as it is an urban concept that can lead to larger transformation. The project (and so its area) is growing as the changes are phased in. These changes require services' and developers' collaboration.



Fig.3: Project area - marked with red colour.

2.2. History



Fig.4: Map of Göteborg from the year 1700.

City of Göteborg is second largest city in Sweden and it lies in area of Vastra Gotland, which is one of the largest European suburbanizations set along the coastline. It has been established at the beginning of the XVII century, thanks to the perfect geographic location – at the mouth of the river Göta älv, which feeds into Kattegat.

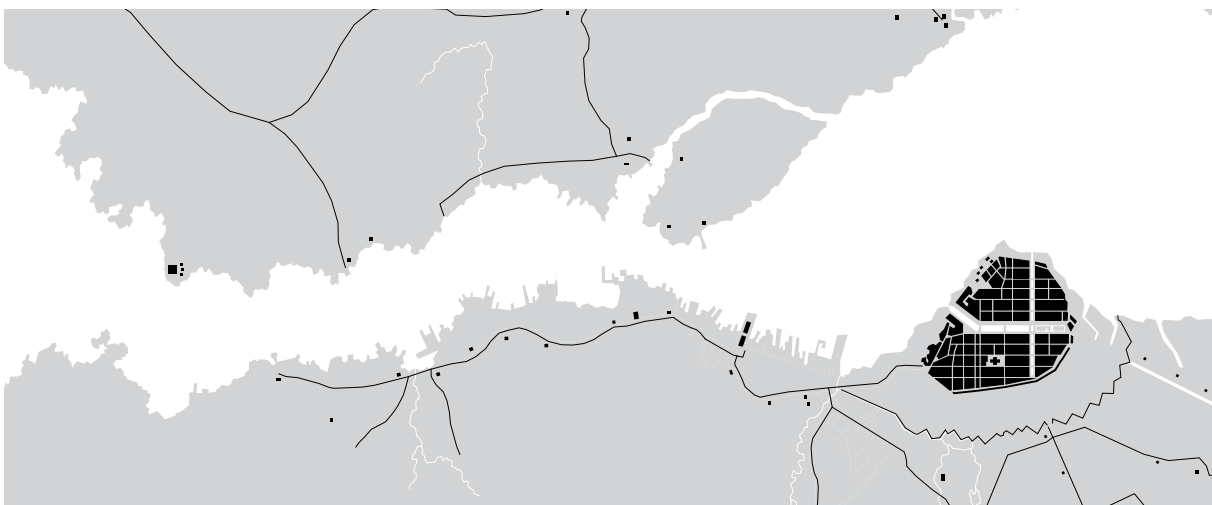


Fig.5: XVIII century map of Göteborg.

The oldest part of the city has been built in the beginning of the XVI century. At the end of XVII century Kronan tower has been erected to protect the town. By this time the district of Haga has already been fully developed and villagers started to settle around the outer edges. Especially a number of fishermen was increasing on the west side of the town. Göta älv looked completely different in those days. It was wide and shallow and sailors had to be very careful to be able to reach ports which were up the stream. This led to establishment of the new port – Klippan.



Fig.6: Growth of small villages along the southern river bank.

The Klippan area was formerly a furthest accessible point for large ships. This was also the first big port for the city where all the goods were stock. It is dated at the beginning of the XIX century. The only way to communicate and transport within Göteborg, was by road going along the river bank.

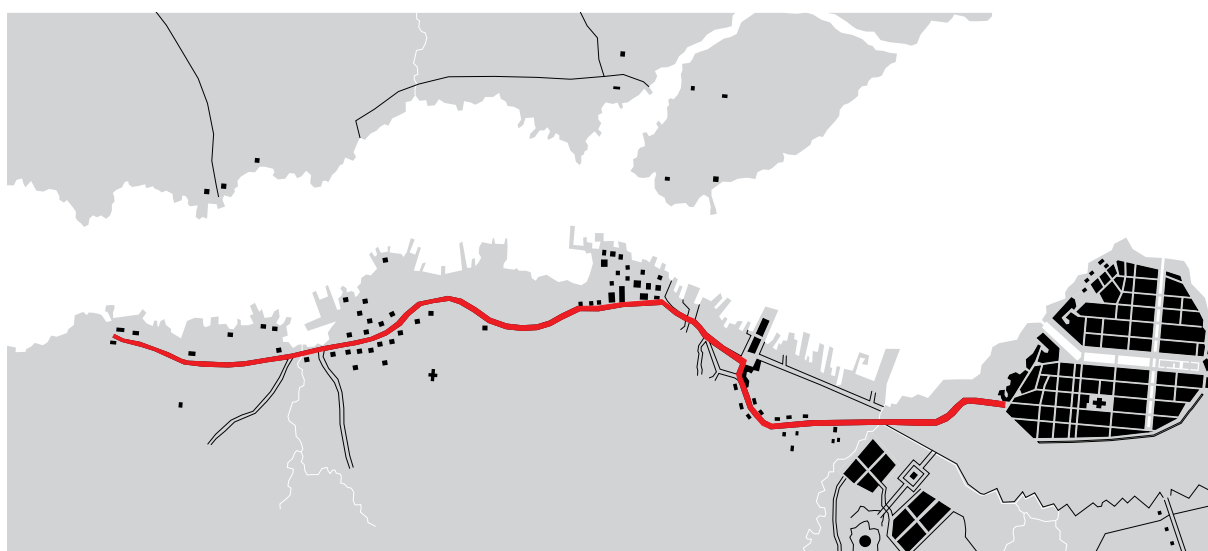


Fig.7: Central Göteborg, beginning of XIX century.

The road was far away from the river, so it could not be flooded and has grown fast in significance. Over the years, nobody has questioned its role – people got used to it. Nowadays, it looks more like a scar on the city's plan. The road has been widened and fenced on both sides and it became a border. The border set between residential areas, parks, city life and the harbour. On one hand it provides fast and easy access for cars to the harbour services, but on the other, it is a main cause of suburbanization around this part of Göteborg and creation of polycentric city. Neither walking nor cycling is pleasant along this road, even though the special bike path is available. Nevertheless, there are still lots of people using the harbour for exercising and jogging.

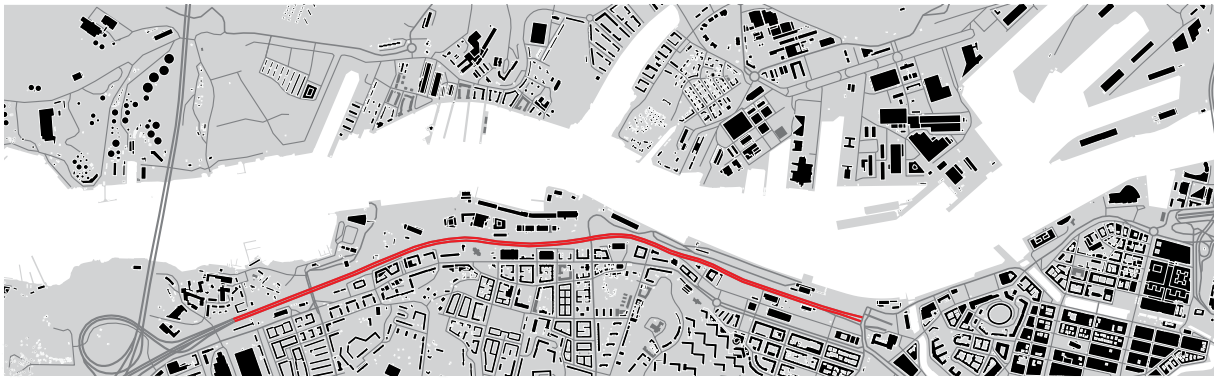


Fig.8: Central Göteborg, now.



Fig.9: Picture was taken on the site, November 2012.

2.3. Industry

City's significance and population has been growing in the XVII-XVIII centuries due to the trade industry golden era and then during the industrial revolution in the XIX and XX century. To make it easier for companies to prosper they were located along the coastline, so they could transport their stuff on the barges and others vessels. The harbour area has been distributed among companies and each of them has partially closed the access to the river for average citizen.

The result of that actions is what we see today: in the city port there is nearly no access to the water, even though it lies next to the city center.

Fortunately, nowadays the main transport is held by large cargo ships, so there is no need to occupy valuable lands close to the harbour. It is a great opportunity to redevelop the central part of the city – river's southern waterfront.

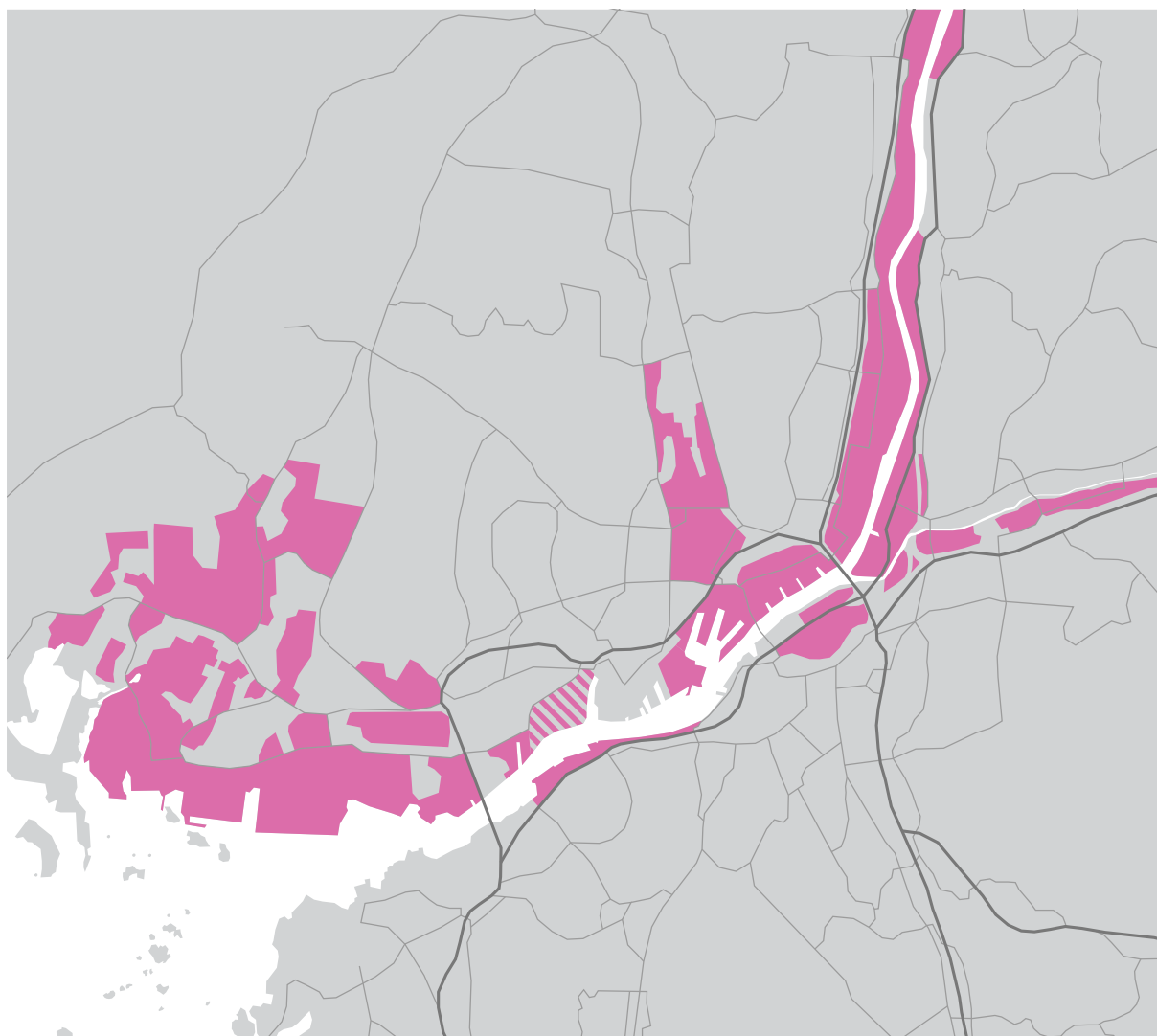


Fig.10: Industrial areas - purple, other spaces - grey. It is easy to notice, that all the main companies have been established along the river bank, unfortunately cutting off the city from an access to the water.

2.4. Polycentric city

Göteborg can be recognised as a *polycentric city*. It is attracting more and more espacially young people every year. They are looking for jobs and want to study on well-known universities. On the other hand they require a lot of cultural activities and different leasure time options available at place. Nowadays, it is essential to be at least semi-convinced about the future in our *liquid modernity*¹. That is why young families choose to live in the big cities - many job opportunities and easy substantial profession flexibility make it easier to plan the future. Lots of activities and *free* public happenings are crucial in any miserable times. Unfortunately, a central part of the city can accomodate only certain amount of citizens. That is why Göteborg is experiencing urban sprawl.

Well evolved infrastructure and public transport make it easy to travel around the city and reach all of the suburban districts. Alas, it takes more and more time to travel from one place to another, so while the infrastructure improves there are less possibilities to wander from one center to another. The main factor in the city infrastructure development is a travel distance and a time you spend travelling to work. Taken into account in the second place are local free time opportunities, followed by shortening the distance between the furterst districts and the city center. That is why creating long *free time* promenades always loses the battle against improvement of the infrastructure.

Creating a *polycentric city* gives all the citizens the same sense of affiliation with the community they live in. There are several comperable centres. New central plazas are being developed - either naturally (places where people start to gather and use to hang around) or artificially (by creating cultural center, park, market area etc). Well developed public transport lets everyone travel between those plazas, what looks more like *jumping* from one city center to another.

However in such an artificial world there is very little space for natural landscape and environmental tranquility. Therefore the long promenade concept is primarily aimed at pedestrians and secondly at any other kind of transport (bikes, public transport, cars). It will stand as a contradiction to such *jumping* lifestyle, and will let people wander through several city centres, just on foot, surrounded by pleasant neighbourhood.

¹ Created by Zygmunt Bauman. It refers to times, that are happening now. It is well explained in his book: Z. Bauman, *44 Listy ze świata płynnej rzeczywistości*, Wydawnictwo Literackie, Kraków 2011

2.5. Conclusions

The site has strong implications with the past. Traditional, old fish market, Klippan's warehouses, Stenpiren - more than hundred years old quay or even small calm housing area with indigenous wooden houses. All these places needs to be strenghtened and bring to the front as iconic ones. It is hard to find them. They are like the spots, which you can notice only by passing directly by them. As it was more common in architecture of the past, these buildings just match with the surroundings. They have survived through the decades, but the neighbourhood outside has transformed into a hostile one. It is highly advised to reassess the value of these housing areas and start to think about the ways the could be used for common welfare of all city inhabitants. If they are indeed of true beauty, shouldn't we try to highlight it by taking care of the background and make the best of it?

Development of a fish market has led to erection of large cheap warehouses, that nowadays serve not only the locals, but to also the whole region. Establishing two big Stena Line ferry ports has increased the traffic and the number of hauliers. The process of loosing the connection with the river bank took years. Nowadays, Göteborg's waterfront is known and recognised by its big companies, that occupy the river bank and are jealously protecting their sites and fencing them.

To change the common attitude of citizens and attract them to the water will probably take years. Lack of *true* local inhabitants makes it even more difficult.² Simple recreating of the *post industrial* areas by opening them towards public will not be enough. Strong feelings of neighbourhood localities will keep this area in mind as inaccessible. The easiest way would be to implement some new housing district, which new inhabitants would populate this area of the city. On the other hand, that would emphasize the *polycentric city* notion and increase the number of roads and traffic density. Instead of doing that, the future urban plan might be aimed at the citizens as pedestrians, whose basic way of transport is either on foot or by bike. To accomplish that it is important to draw attention and get feedback from existing surroundings.

Slow and long process of changing the *atmosphere*³ of the river bank might require much more effort than a simple implementation of a new housing district. Besides the trucks and the traffic that mostly leads to the office area by the harbour, the waterfront is used by some cyclists, who are choosing this path as a shortcut from one to the other side of the city. Expanding the bike path net in accordance to cyclists' needs could attract new users. Possibly they would choose the long but undisturbed promenade to travel along the river edge over the shorter but commuted E45 bypass.

The project requires to be divided into two phases, to stress the process of transformation. Overall goal is to attach the site back to the city again. As for now the city basically ends not on

² Selander, S., Aamotskaben, B. (2012) *Multiple and shared identities*. In *New Nordic, architecture&identity*. Denmark: Louisiana Museum of Modern Art and the contributors.

³ Zumthor, P. (2006) *Atmospheres: Architectural Environments*. Birkhäuser GmbH. Basel.

a river bank, but on E45 bypass. The only proud exception is Göteborg Opera. The rest of the waterfront sadly brings to mind the example of negligence similar to Boston⁴ - the city that also turned its back on the advantages of access to the water. In order to fix the problem Göteborg is given numerous possibilities. Which one to choose is a question that is much more complex. The collaboration between urban planners, sociologists and politicians is essential to fully understand the difficulties and undertake proper actions. There is extremely large potential in this area - designing it as a contradiction to a *polycentric city* could provide a lot of feedback to practical knowledge of city planning.

Only the second phase will demand the masterplan. The masterplan, that should not only prolong and blend the coast with the city, but also harmonise the two presently estranged sides of the Göta älv. Newly developed housing areas and growing university area of campus Lindholmen are beginning to accentuate the importance of the river bank. Permanent need for student housing and public spaces with no access for the cars is also not to be disregarded and should be addressed by authorities in the upcoming years. It is obvious that Göta älv will always tear the city apart and Göteborg will never become Paris that managed to incorporate the Seine into the city center. *Total continuity is simply not possible here, we have to look elsewhere.*⁵

4 Lynch, D. (2011) *Obraz miasta*. Archivolta. Węgrzce.

5 team GRAU (2011) *Gothenburg River City*. team GRAU. Göteborg.

3. Research

3.1. Toronto Waterfront

Toronto, a city situated by the lake Ontario, has its ups and downs in urban development. For economic reasons industry has grown along the coast separating the Old Town from the water. After the years, within the change of main factors that keeps the city growing, comes the need to reconsider the harbour. New inhabitants are more sensible about the area they live in. New possibilities of mobile working and better public transport makes it easier to find both attractive place to live and a way of spending free time. On the other hand far away suburbs are becoming less convenient to live and travel to center. Old and no longer in use industrial sites needs to be replaced with the new ones. It is becoming more popular among the citizens to look for more friendly areas, where they can relax, with no need to leave the town.

“The Central Waterfront, a 3,5 km length of Lake Ontario in direct proximity to the downtown business district, is one of Toronto’s most valuable assets. Yet despite decades of planning and patchwork development projects there is no coherent vision for linking the pieces into a greater whole - physically and visually”⁶. The urban planners underline the need of creation complex urban plan, that deeply root in common awarness.

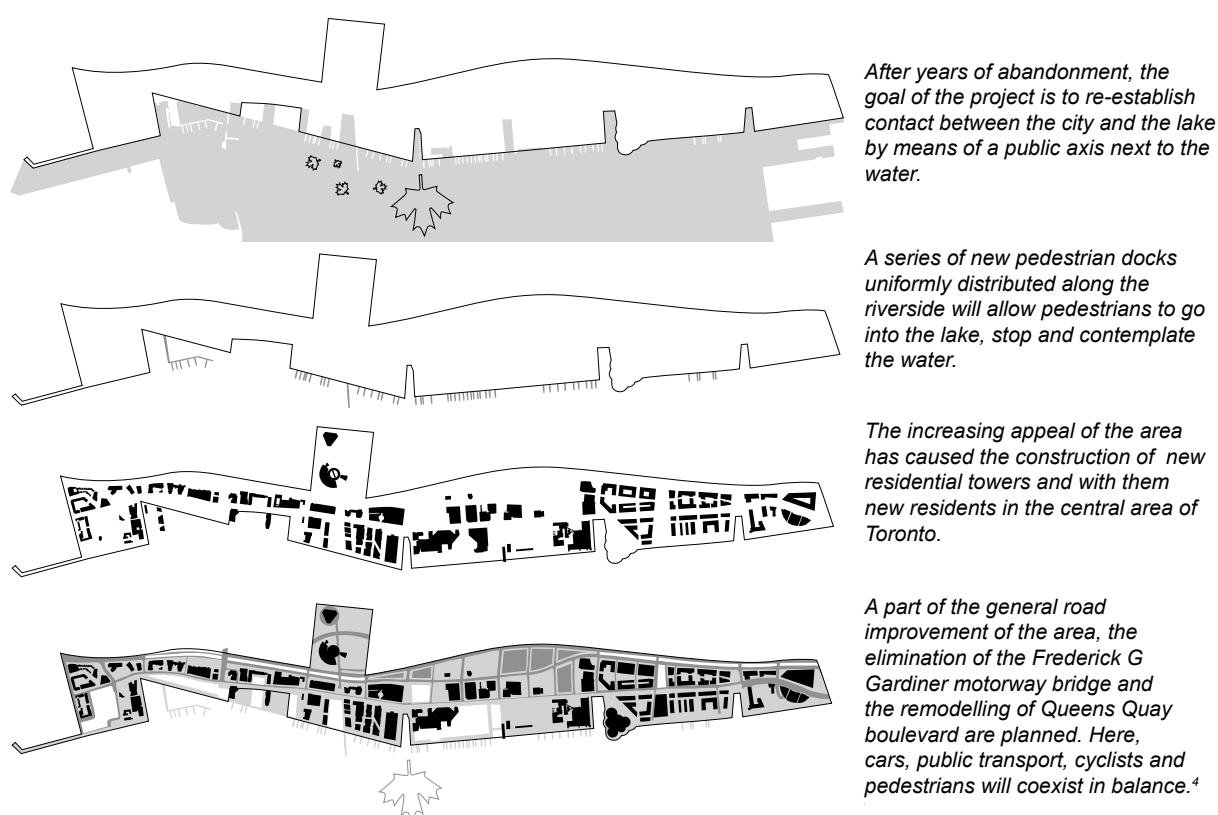


Fig.11: Urban plan scheme - based on original drawings.

- 6 Per, A.F., Arpa, J. (2008) *Toronto Central Waterfront* In *The Public Chance, New urban landscapes*. Vitoria-Gasteiz: a+t ediciones.
- 4 Ibidem.

3.2. Boston Central Artery

The problem of central part of the city was first described by Kevin Lynch in his book *Image of the city*. He investigates how inhabitants perceive the area they live in. The more they spend living in the city, the more they perceive little details around them. At first they follow visual dominants, big objects that they notice on their way to work, but after sometime they are more attracted to details. Subconsciously they *turn off* passing areas they do not like, to *turn on* later when they reach more amicable place. That is how automatically, without thinking some areas of the central old town become forgotten. Within the expansion of the cars' golden age, giant highway has been built in 1959 - the central artery. It has divided the city into two parts. Leaving the housing on the more inland eastern side, the west side become reserved mostly for industrial services. It has speeded up the travel from the suburbs to the center but also prevented the development of the centrum and deter the citizens from settling down.

In 1991 the municipality decided to reroute the central artery into a 5,6 km tunnel. The project known as *The Big Dig* has been finished in 2006. Revitalized area serves citizens mostly as a greenery park avenue, which links both sides of the city.



Fig.12: 1 - satellite map of cetral Boston; 2 - the urban plan for the revitalized area.

Local analysis

4. Local analysis

4.1. Neighbourhood

To start with understanding what the city lives looks like in the center today, it is substantive to gather information about bordering districts and places. One side of the project site is described by the river bank so here comes the question how the city looks like on the opposite side of the river. Great differences between the sites, and the services they provide makes the project area very complex in discussing the future program of the final masterplan. Within the growth of the city, the central part has to be more clear for coming citizens. Existing areas with restricted access like Stenaline international ferry port, cannot occupy forever valuable central parts of the city. The goal is to create a solutions that will fulfil the existing districts program.

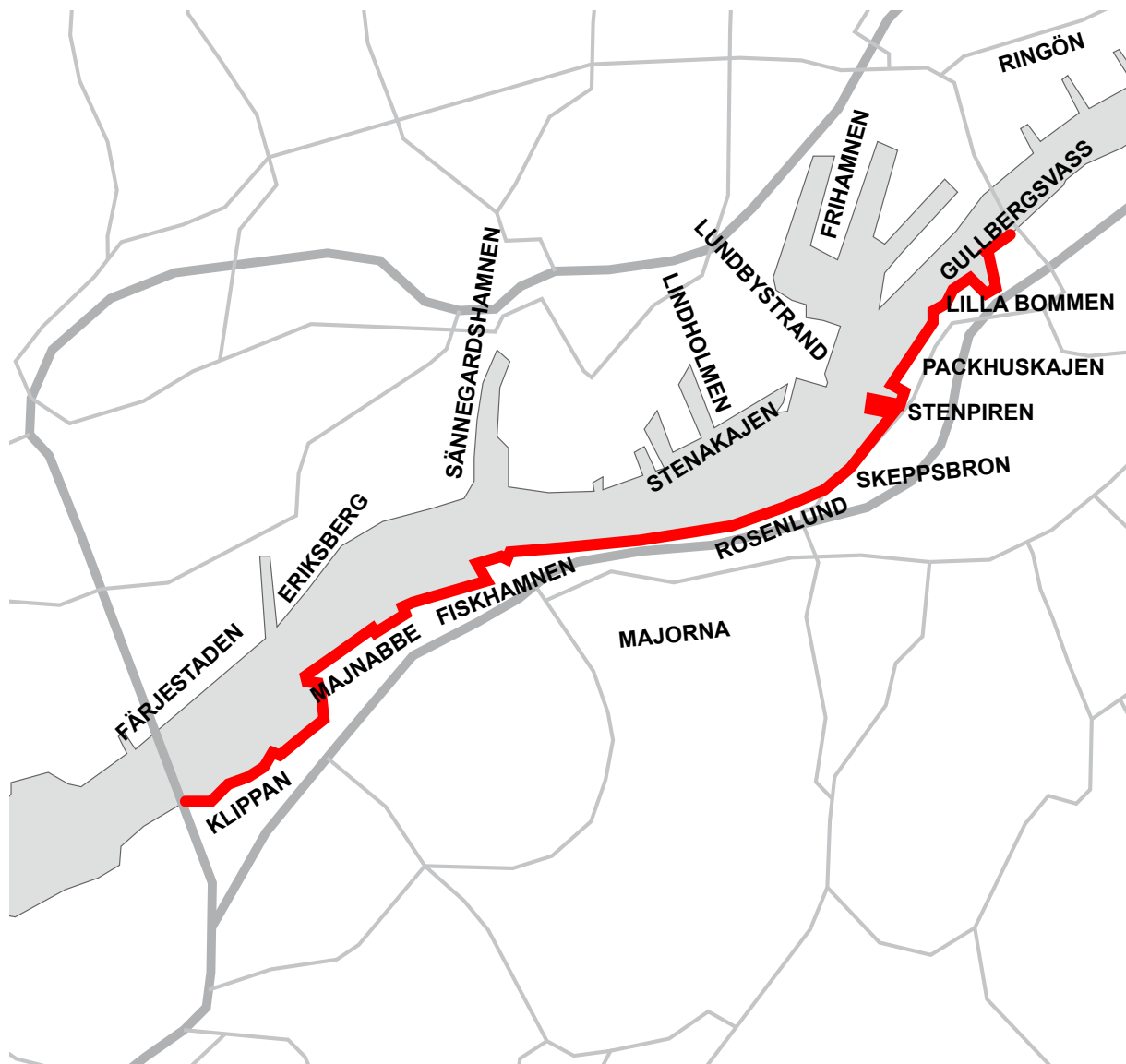


Fig.13: Neighbourhood of Southern Waterfront area

4.1.1. Färjestaden

It is one of the oldest parts of Göteborg, where ferries used to stop until 1967 and since its founding in the XVII century Färjestaden was a small community of its own. Because of the erection of the Älvsborgsbron in 1966 many old houses were demolished. Those which survived could be destroyed nowadays, according to plans made by Norra Älvstranden. The aim of the project is to provide regenerate the greenery and develop new housing district close to the city center but also already connected to the newly built Eriksbergsvägen.

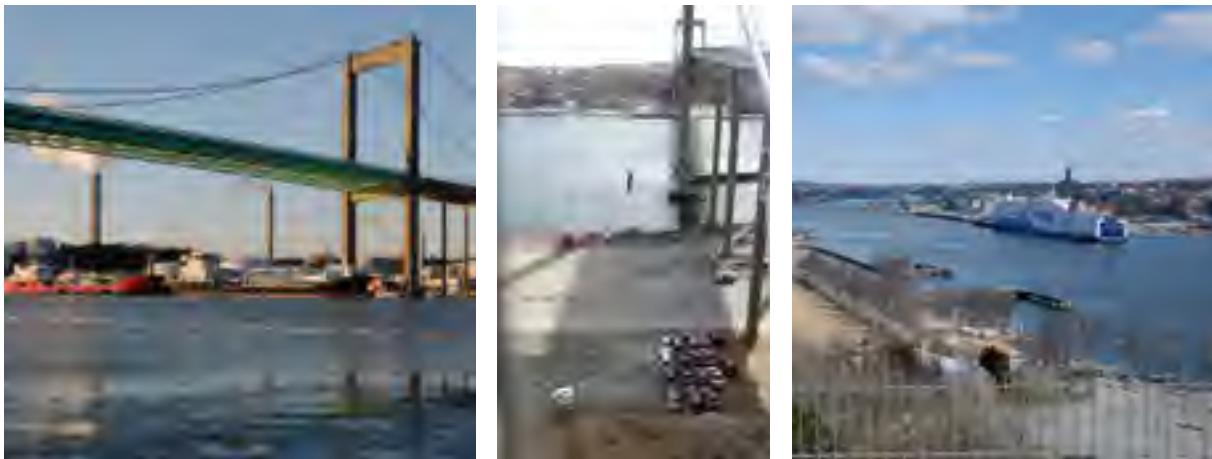


Fig.14: 1 - Älvsborgsbron, 2 - waste disposal under the bridge, 3 - view from the bridge.

4.1.2. Eriksberg

It was a shipyard and nowadays it can be distinguished by its 84 meters high red crane. Eriksberg used to be a mechanical engineering industrial area. Last ship has been built in 1979, just before the Eriksberg company bankruptcy. In the 1980s a large grass area was used for concerts of international pop superstars: Michael Jackson, Madonna, Rolling Stones and U2. Nowadays it is a fast developing housing area. It is famous for the wooden sculptures along the coast as well as very well designed light effects that can be seen at night.



Fig.15: 1 - old crane, which is left as a symbolic monument, 2 - new housing district.

4.1.3. Sannegårdshamnen

It is an old port, opened in 1914, which has a length of nearly 700 meters. After being in use for several years, with several warehouses and storerooms, nowadays it is being transferred to a housing district - Sannegården. Port is closed by the bascule bridge, so it is accessible only for small boats and yachts, most of them owned by the inhabitants of the still developing housing area. Sannegårdshamnen is relatively poorly connected to the other side of the Göta älv. It has no bridge of its own and the commute to the city center is noticeably longer than from the other districts of Hisingen.



Fig.16: 1 - old docks, revitalized into housing, 2 - hill with old housing area.

4.1.4. Lindholmen

Originally Lindholmen was a shipyard. Since 1976 it has been transferred to a large educational and housing district. This is also a place of Chalmers second campus. The area is still being developed and new buildings are being erected every year. From here it is possible to take a ferry and go either to Rosenlund or to Slottsberget.



Fig.17: 1 - old docks, revitalized into housing, 2 - hill with an old housing area.

4.1.5. Lundbystrand (Lundbyvassen)

It consists mostly of office buildings which date back to the times, when everything was owned by one company - Götaverken. Nowadays there are several different owners, who are further developing the site. Newly design area is attracting companies to move their offices there. Close distance with Chalmers campus Lindholmen brings live to the area over the day but during the weekends and late evenings streets and squares are becoming empty. The site experiencing the absence of local inhabitants can be marked as a *ghost*⁷ one.



Fig.18: Office buildings with an artificial sculpture of church on water in front of them.

4.1.6. Frihamnen

It was owned by a large ship construction company. Nowadays, there are only two working docks here, providing employment for around 150 workers. Frihamnen consists of three parts - Södra Frihamnspiren (or Bananpiren), Norra Frihamnspiren and Kvillepiren. At the end of one of them have been designed the racetrack with tribunes. Its overall look like a temporary concept.

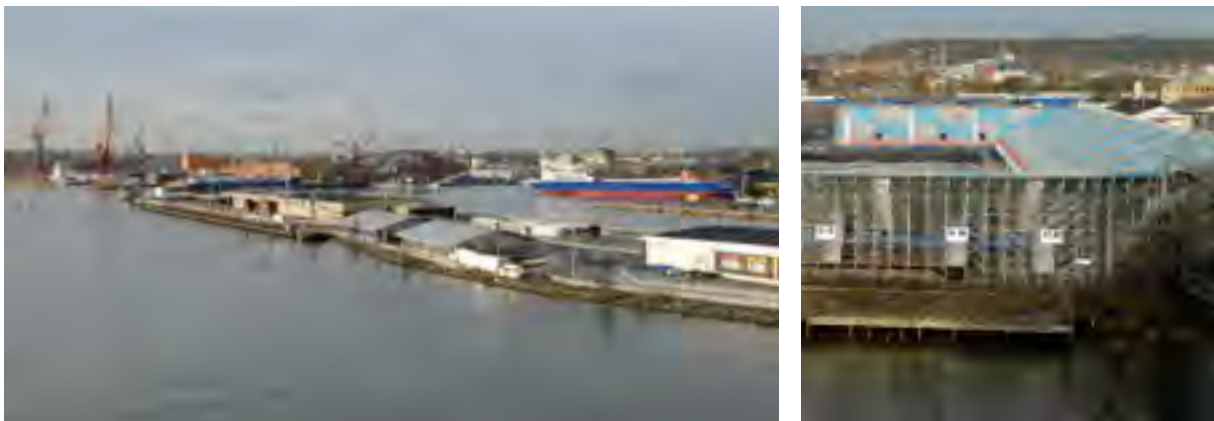


Fig.19: Docks partly still in use. In the west part there are tribunes and small racetrack.

⁷ ghost town / place - area that is periodically empty

4.1.7. Ringön

It is a large industrial area on the north bank of Göta älv, between Göta Älvbron on the west, Tingstad Tunnel on the east and Lundbyleden on the north. Nowadays, it is no longer in use as an industrial area and there are several concepts how to revitalize the site. All of the concepts are hovering around the main idea - expansion of the central part of the town and placing there some strong programme, that will attract visitors. There are also several floating houses on the river, that are used by the citizens as well as by the students.

4.1.8. Gullbergsvass

It lays in the center of the city, next to its eldest part. The area is known as a business and service center with large warehouses and magazines. They are mostly used by different kinds of transport industry. Large parkings have been placed along the coast, which is separated from the water by greenery line. Several yachts and boats moored to each other can be found on the coast. This is the last easily accessible site on the southern waterfront. Further to the east areas are protected with barbed wires and does not bring warm feelings.

4.1.9. Klippan

This might be the first port that was developed at the end of the XVII century for the ships with deep draught, because the river was too shallow and it was impossible to reach the city. This has caused the development of granaries, brewery and sugar mills in the area of Klippan. Nowadays, the old manufacturers' facilities on the bank of the Göta älv have given way to new housing, offices, hotels, bussiness and public services. It is possible to cross the river by ferry and reach Eriksberg - newly developed housing district.

The site has a very strong potential and is relatively close to the town. It is popular among youth who like to come here to hang around. Roda Sten Museum is also a place for artists and designers, where they can present their work and take part in others exhibitions.

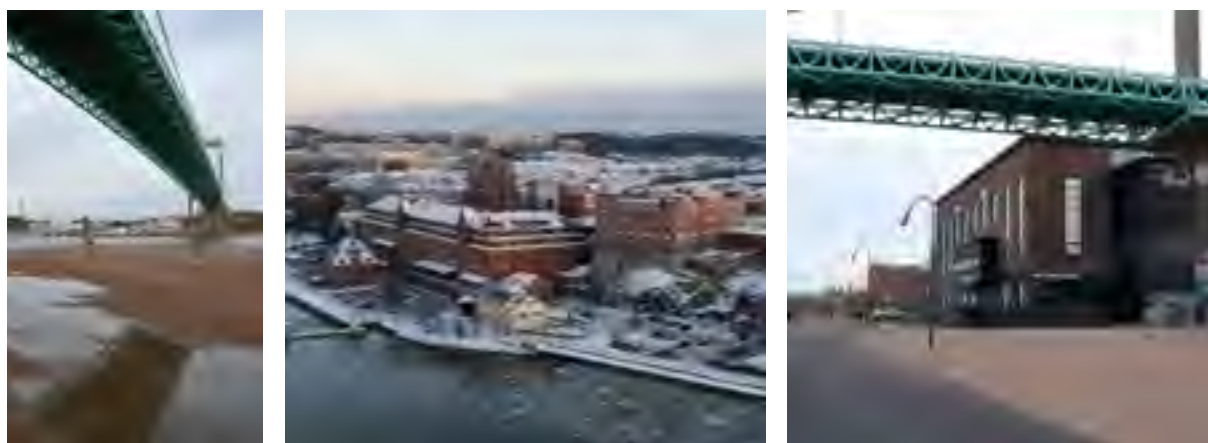


Fig.20: 1 - under the Älvsborgsbron bridge, 2 - well preserved and restored old warehouses, 3 - Rödasten Museum.

4.1.10. Majnabee

It is a part of the harbour, between Klippan and Fiskhamnen. Main tenant of this area is Stena Line - ferries' destination is Germany. Majnabee is partly isolated from the E45 bypass by a small housing area with large amount of greenery. You can also find the Galleri Majnabee here. This small lovely area brings warm feelings. It looks like a greenery island surrounded by asphalt sea. Its inhabitants prevent the greenery from oblivion and maintain the area in its most natural way.



Fig.21: 1 - Stena line port, 2 - a calm housing area, 3 - E 45 road, a bypass that separates Majnabee and the city.

4.1.11. Fiskhamnen

Fiskhamnen is a large area along the coast with warehouses owned by Göteborgs Fiskauktion. It has been established in 1910 and nowadays it is the biggest fish market in Sweden and the second one in the whole Scandinavia. Close to the port there is a large business and service center. It is supplied with numerous parking lots.

Within the growth of the company the site become less friendly for the locals. What is more, there are no more fishing vessels that bring the ships directly to the warehouses. The place serves only as a sorting and packing one. There is obviously no reason to keep it so close to the central town on such a valuable site.



Fig.22: 1 - Fishmarket, where is no retail, it works only for large companies, 2 - main building of Göteborgs Fiskauktion.

4.1.12. Stenakajen

This is Stena Line main port for ferries running to Denmark. Whole area is inaccessible and protected by a high fence, cameras and barbed wire. It ends at the Järntorgetmotet, where it is possible to finally cross the road. There is one more footbridge, which leads like a tunnel across the street to housing district.

There is nothing good that can be said about the site. There is very little movement for passers-by - a 1km long fenced road on both sides. What is interesting there are some people, especially cyclists who are using this way. It is all on the same level what makes it quite easy for people, who do not want to ride all the time up and down. There are also no traffic lights or crowded junctions.



Fig.23: 1 - overview of the Stena line port, 2 - road along the port, 3 - entrance to port area.

4.1.13. Rosenlund

It is mainly known for its large transfer station Järntorget junction and city ferries running to Lindholmen and Lilla Bomen. Here also the bypass goes down to the tunnel to avoid a downtown. This is also the beginning of the Rosenlund Channel that is a remnant of a moat that bordered the old town.



Fig.24: 1 - view through the fences of the bypass E45, 2 - long pedestrian crossing to cross the bypass, 3 - junction - asphalt area, required by the trucks, to get to the Stena line port.

4.1.14. Skeppsbron

This part of harbour is mostly recognised as a one big car park place. Here one can find even a floating 3-storey parking. Narrow sidewalk is restricted by the road and coast. There are no trees and the most attractive part of Skeppsbron district is a view of the horizon with bridge towers, dock cranes and other dominants.

The area does not look friendly. It is too narrow and does not gives a choice where to walk - only one, straight, neverending route.



Fig.25: 1 - parking area, in the back there is a 3-storey parking, 2 - footpath along the river bank.

4.1.15. Stenpiren

It was built in 1845 in place of the old wooden pier. Stenpiren was the first constant ferry crossing in Göteborg. In 1922 a new larger wooden pier was built, which was in use for 32 years and after that was demolished. At the end of the existing pier there is a copy of Delaware Monument, which is a reference to an original one erected in Wilmington (USA), where a colony of New Sweden has been set up in 1638.



Fig.26: 1 - sculpture, 2 - monument; in the background there are cranes, located on the opposite side of the river.

4.1.16. Packhuskajen

It is a place surrounded by the high scarp and a road running in its foot. There is a Casino Cosmpol and the Court of Appeal in Packhuskajen. The whole harbour area is in a good shape but nevertheless there are not many passers-by. There is also a large square from which you can easily access Maritiman Museum. The site has been discussed several times - how to bring live to it. None of the solutions has worked out up to now.



Fig.27: Docks, partly still in use. In the west part there are tribunes and small racetrack.

4.1.17. Lilla Bommen

It is a small marina for yachts and small ships. It lies directly in the north of the old town at the end of the Östra Hamngatan, which further continues into Kungssportsavenyn. Marina itself is surrounded by the Göteborgs Opera House on the west and Göteborgs Utkiken on the east side. Further to the east you can find business and industrial area, named Gullbergsvass. From here it is possible to go by a ferry to Rosenlund or Klippan. It seems to be a perfect spot to begin or finish any trip around the town. Unfortunately, it is more like a dead end of city's main street.



Fig.28: 1 - Göteborg's Opera, 2 - old yacht port, 3 - Utkiken, recognizable symbol of the town.

4.1.18. Majorna

It is a residential area, located west of the city just outside the city center, with Göta älv to the north, Masthugget and Slottsskogen to the east. Majorna has been a typical working class area, with a population of industrial workers and dockers. It has not much changed, and nowadays it still has a strong working-class identity.

The buildings significant for Majorna are the 3-storey high buildings where the ground storey is built in stone and the topmost two are built in wood. In Majorna the flat urban neighborhood is typical, with tree lined avenues, courtyards and small shops in the ground floor of the buildings. On the tops of the hills mostly buildings from the 1960s-70s are situated, some of them in a functional style.

On the one hand Majorna is relatively close to the water, but on the other the accessibility is as difficult as it only can be.



Fig.29: 1 - one of the 'no ending' streets, perpendicular to the river bank, shortened by the bypass, 2 - another street, similar to the first one, 3 - road E45, the bypass looks like a scar on the city's face.

4.2. Buildings

There are just few buildings that have been developed on the southern waterfront close to the river bank (despite the risk of flooding). These are mostly warehouses, some reminiscences from the past, when harbour was used mostly by fishermen and ferries. Despite the fact that there are quite strong patterns behind the road E45, none of them have been used in a process of planning the existing harbour sites. It is visible, that the road cut off the patterns and does not allow any of them to emerge on the other side.

North side of the river has been recently covered with plenty of housings that face directly the river bank. Such a solution has created an opportunity to design a response on the opposite - southern side.

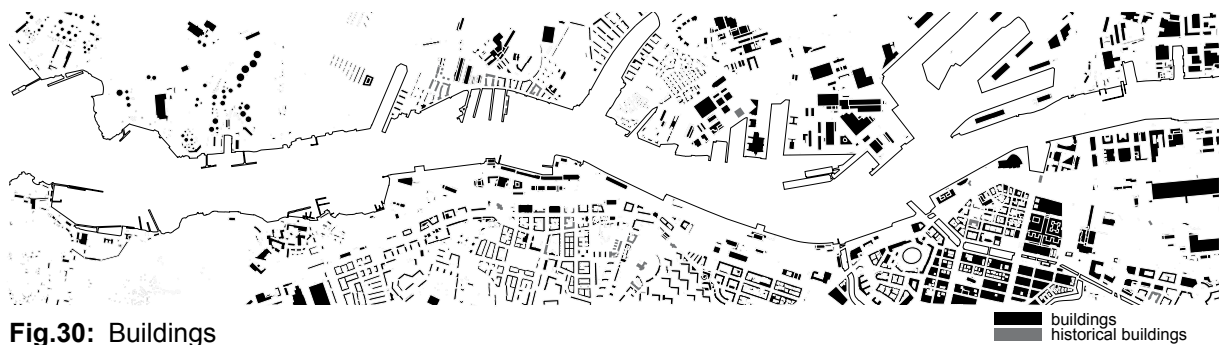


Fig.30: Buildings

4.3. Flooding

Locating especially valuable or important buildings on the areas of high risk of flooding should be avoided, or adequate precautions should be made (for example placing buildings on floating pontoons). Green areas, parks, playgrounds, pitches or any other public spaces must be designed with flood danger in mind.

Moreover, alternative solutions for public transport like trams and buses are recommended for the endangered zones, as they already boast a crowded E45 bypass and the need for another noisy road is non-existent, if the project aims at inhabitants' welfare.

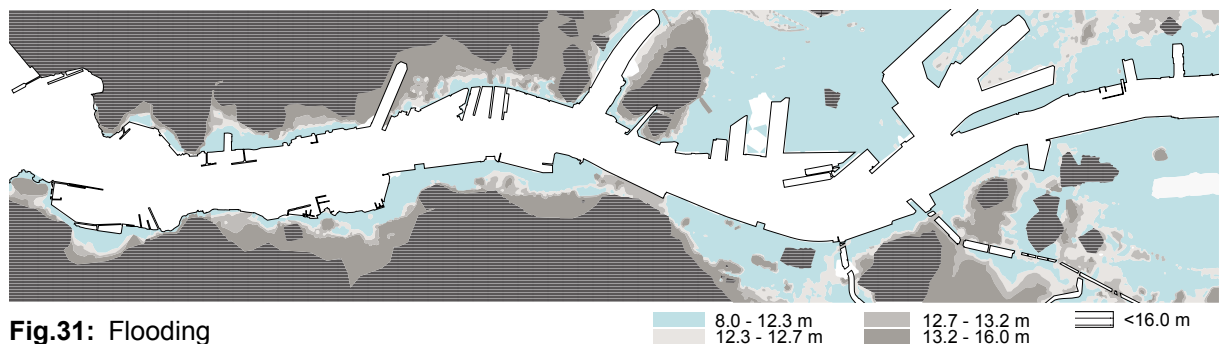


Fig.31: Flooding

4.4. Greenery spaces

There are few small squares and small green parks, which are not big enough for any physical activity or for a long stroll. Central part of the town is very densely urbanized. Most used greenery spaces are located along the moles around the old town.

Closest leisure area like that is Slottsskogen. Apart from that, there are large green zones on the south-western side of the city center, but to get there it is required to take a tram or a bus and therefore they hardly fulfill city center inhabitants' needs.

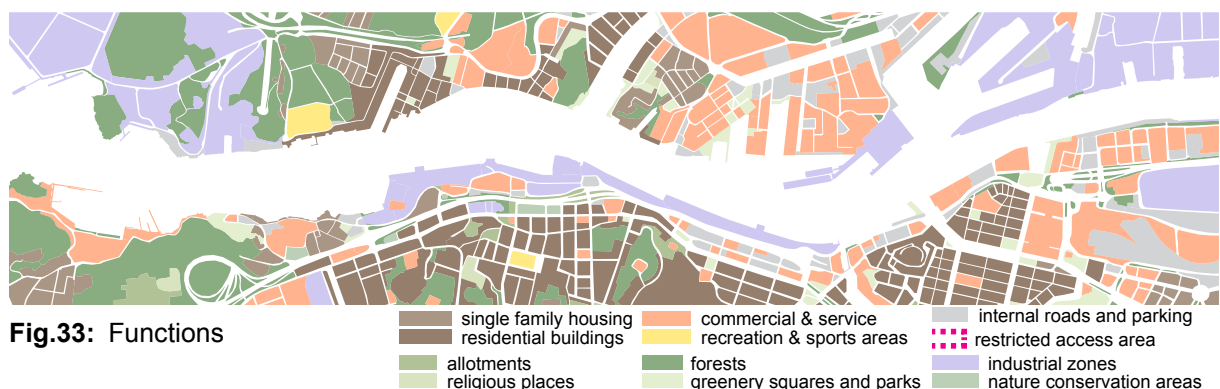
Southern harbour is completely asphalted - what is visible here. There are no greenery spaces at all.



4.5. Functions

Southern river bank is neither a green space nor a housing district - it is mostly of trade, marine or industrial use. Even though the city is a fully developed one and the analyzed area is central and most valuable - existing functions are blocking the access to the river. It is important to emphasize the importance of large housing districts on the southern side - potential users of our development.

Additionally, on the northern side of the river there is a Lindholmen student campus, where everyday thousands of students are coming. The housing emerging around old docks becomes also a great place to live in a relative closeness with to the central part of the city.



4.6. Streets

A southern side of the central part of the city is sliced by the roads in a net pattern: streets are either perpendicular to the river bank or parallel. Any project that will be extended to the river should follow this pattern.

Worth noting is a E45 bypass which starts at Älvsborgsbron and then goes underground. It is a kind of scar on city *face*, that has cut all of the perpendicular streets and made the river bank even more inaccessible than it already is.

It seems easy from this plan to fuse the harbour with the city - all is needed is an extension of existing perpendicular streets. But to accomplish that, first the E45 road has to be at least partly rerouted.



Fig.34: Streets

4.7. Public transport

One of the pros of the city is an expansive tram net, that follows all of the main roads and connects the most important places. Buses have almost the same routes as the trams, the difference is that they can skip some of the stops using the bypass E45 and reach other stops quicker. Moreover, the ferries are crossing the river several times during every trip. Up to now they are the fastest way to reach the opposite river bank for citizens.

It is important to notice that the lines of all inland transport follows the topographical situation. Because of economic, logic and historical reasons trams and buses are either going on the same level through the city - along the coastline, or they are perpendicular to it - going uphill.



Fig.35: Public transport

4.8. Bike paths

There are several bike paths parallel to the river and they are used by many people. It has to be pointed out that bike paths are much more popular, when they are not going up and down. It is advisable in further development of an already prosperous bike net to avoid crossroads and any other obstacles that make the ride uncomfortable.

All kind of cyclists, who use their bike everyday choose to use the least difficult and demanding routes. The longer the distance they have to deal with, the more they are concerned about the road they have to follow. The easiest way would be to go at least on the same level all the time, to avoid ups and downs. That is why paths along the coastline are the most important ones.



Fig.36: Bike paths

4.9. Industry

Companies that occupy the river bank do not allow pedestrians to come closer to the river. Most of them have fenced their territories, which in the city center adds up to the bad first impression of the city.

It is noticeable that most of them is nowadays located away from the central part of the city. Except the southern waterfront, which is still occupied. Even the north side, relatively less valuable side of the river has been recently redeveloped with housing districts.

What is more there are very little open spaces on the dense southern side of the river. The river bank might serve as a place, where one can rest and *take a breathe* looking far away ahead.



Fig.37: Industry

4.10. Sunlight

The unsolvable problem that appears on the southern waterfront redevelopment is the sunlight. Natural sun illuminates only the opposite side of the river bank. Southern harbour has limited sunlight during the daytime because of the hills and existing buildings. Nevertheless, there are some open spaces, that aren't obstructed by the sunrays at all. Especially in the late summer afternoons there some parts of the southern harbour are fully exposed to the sunlight.

Please, note that the northern direction is tilted to the right on the following pictures.



Fig.38: Shadow scheme: 21-03 at 12.00 AM / 23-09 at 12.00 AM



Fig.39: Shadow scheme: 22-06 at 12.00 AM



Fig.40: Shadow scheme: 22-12 at 12.00 PM



Fig.41: Shadow scheme: 22-06 at 8.00 PM

4.11. Topography

Altitudes in Göteborg are very diverse. Göteborg area, same as whole Scandinavian Peninsula has been formed by the glacier. The city lies on several hills, which reach up to 130m above the sea level. Various heights and accessibility were very important in the design and creation process of the city. Main routes have been created in valleys and gullies. Even nowadays, roads or pedestrian paths are being created in depressions, to protect them from the wind, insolation (too much sunlight?) and water disadvantages and erosion. Nowadays on these routes a public transport has been set, which is used by almost all of the citizens.



Fig.42: Altitude

Moreover, people are following their instincts and they also choose easier accessible places. That is why the main transport and routes are made so close to the harbour – because of the flat terrain. Nobody wants to be exhausted and sweaty after walking for one hour through up and down the hills. This has both advantages and disadvantages. On the one hand the transport and main communication flow concentrates in the harbour. On the other hand this leads to a problem of the maximum capacity of the designed routes.

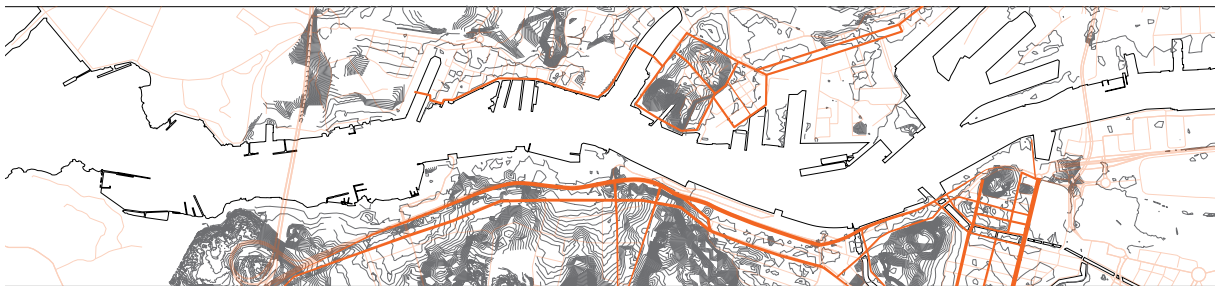


Fig.43: Orange colour represents the intensity of traffic flow (along the main routes).

4.12. Accessibility

There is a great possibility of developing the southern waterfront to become an open public space. The analyzed area is currently owned by only a few companies, which makes the future changes easier to make.



4.13. Conclusions



Fig.49: Buildings typography - shows areas that has common structure, which can be extended to surroundings.

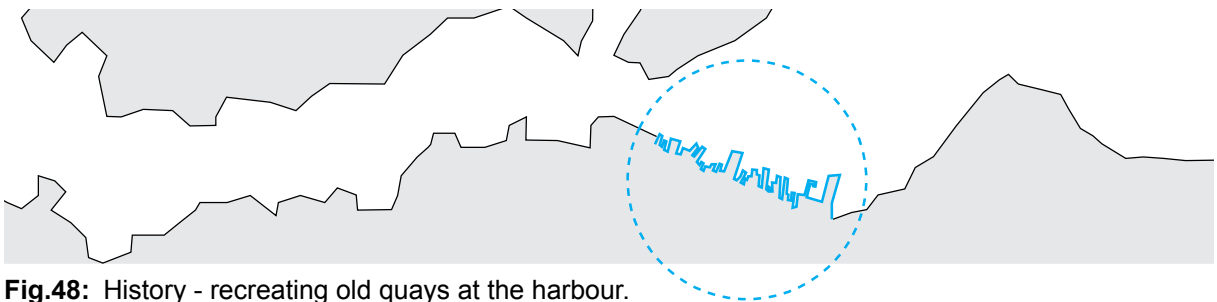


Fig.48: History - recreating old quays at the harbour.

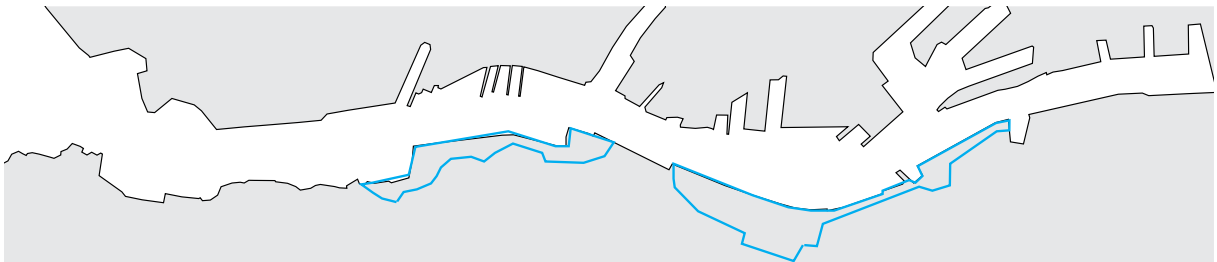


Fig.47: Flooding - areas with high risk - suggested greenery, or special design buildings.

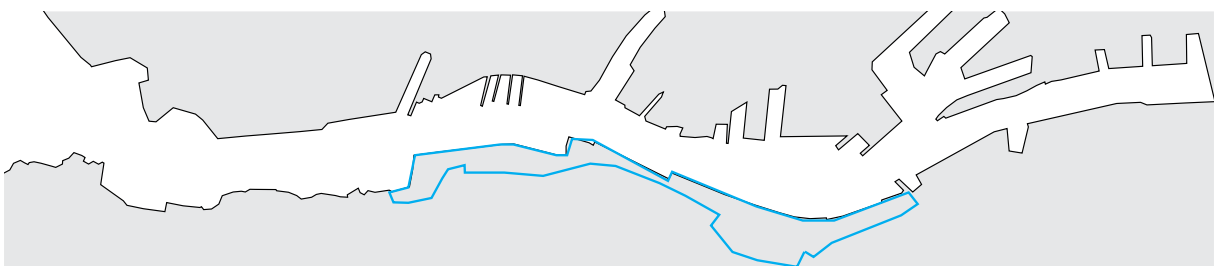


Fig.46: Greenery - area where is no greenery at all, conclusion: implement some green parks, that can survive floodings and constant wind.

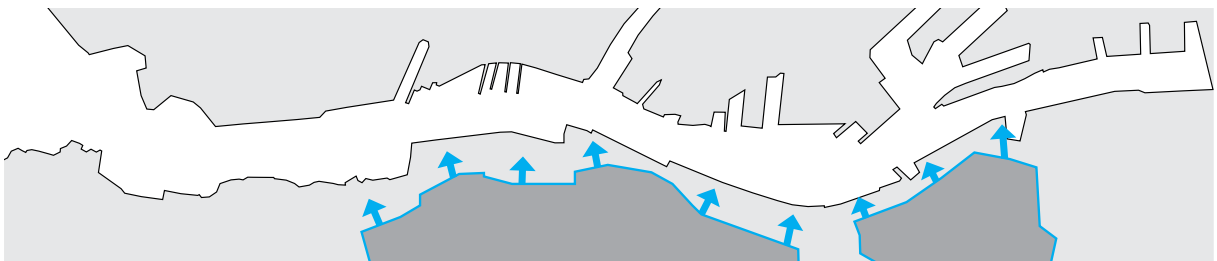


Fig.45: Functions - housing areas - strengthening connection with the river bank is suggested.

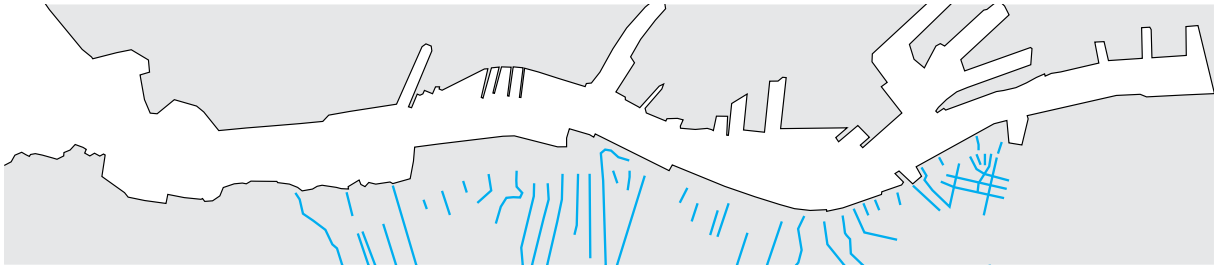


Fig.50: Streets - most of them are perpendicular to the harbour - extending some of them to bind the harbour to the town is advisable.

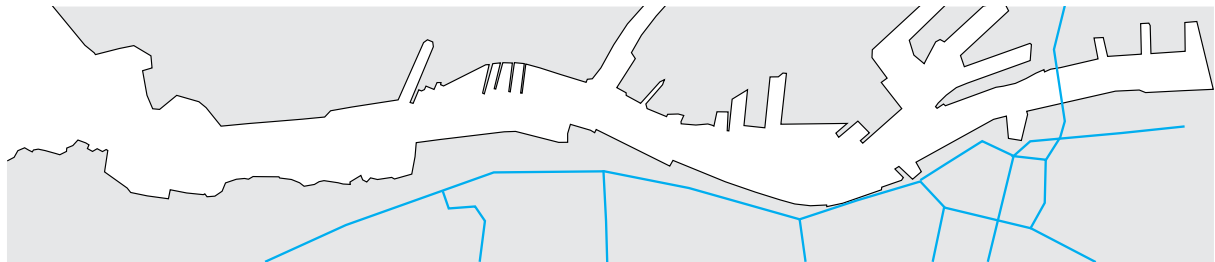


Fig.51: Public transport - bus and tram lines are going along the harbour - majority of the people travelling around centrum passing the harbour everyday.

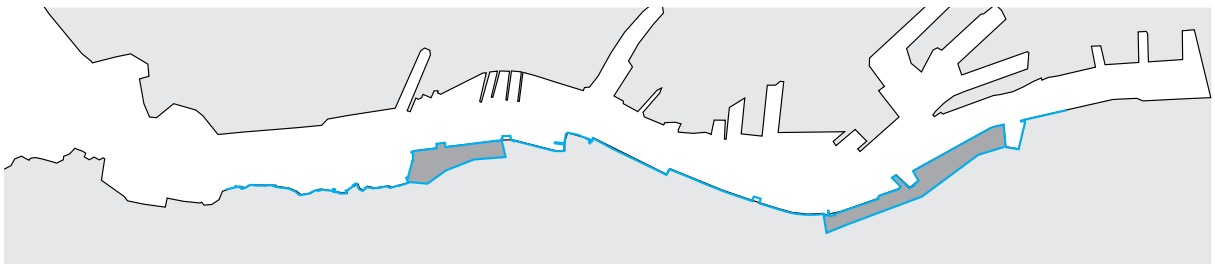


Fig.52: Sunlight - marked areas are the ones that are the most exposed to the sun in the evening, conclusion: there should be some public places like parks, that are accessible for everyone.

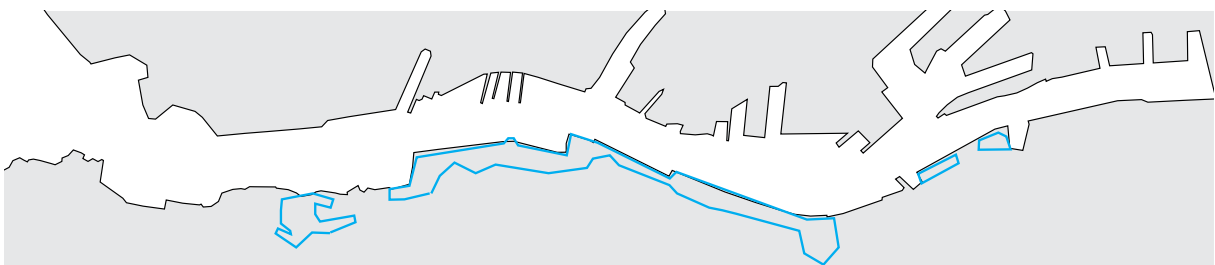


Fig.53: Industry and services - these are the main factors that keep the harbour away from citizens.



Fig.54: Bike paths - they are designed to avoid hills and valleys - that is why travelling along harbour is so popular among cyclists.

Project

5. Project

5.1. Phase one

In the phase one, all effort should be put on the creation of the *line*. The concept is to link two strong symbols of the town: building of Utkiken (painted with red and white stripes on it), which is located in the very center of old town and Roda Sten Museet. The name 'Roda Sten' comes from the big brightly red painted rock on the river's shore. It is just a few meters away from the magnificent Alvborgsbron bridge's pillars. Those two *reds* can be treated as a symbolic endings of the path.

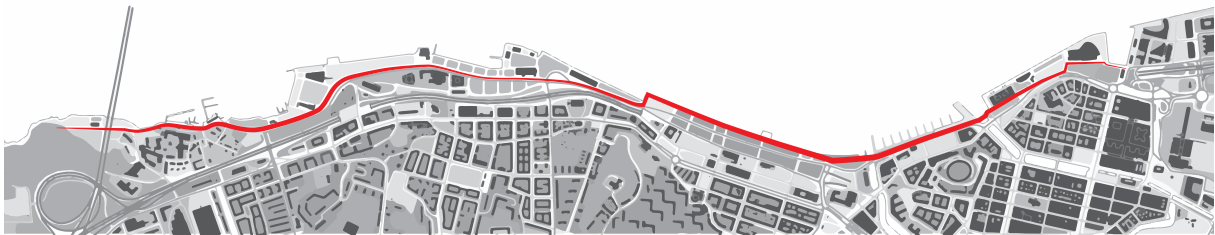


Fig.55: Conceptual *line*

There are also a lot of city's dominants (Sjöfartsmuseet's tower), recognisable places and squares (Stenpiren and Fiskhamn) and passenger's transfer centres (like Järntorgsmotet). According to urban scales pointed out by Kevin Lynch⁸, it is essential to moderate the impression of any project. Otherwise, people will do that by themselves subconsciously. As the next phases progress (revitalization of enclosed areas), the journey will be enriched with new spots. They should give an opportunity for growing number of users to find a calm and personal favourite part. Such a growth of the number of elements will strengthen the bond between the users and the harbour. It is essential to connect the citizens with the site from the very beginning. They should be either informed about or even involved in the process of new areas' development, especially parks, greenery and placing of the equipment for outdoor sport activities. The proposition of the *line* may present imaginary visions of the harbour - concepts, that will attract the users and give them opportunity to express their opinions.

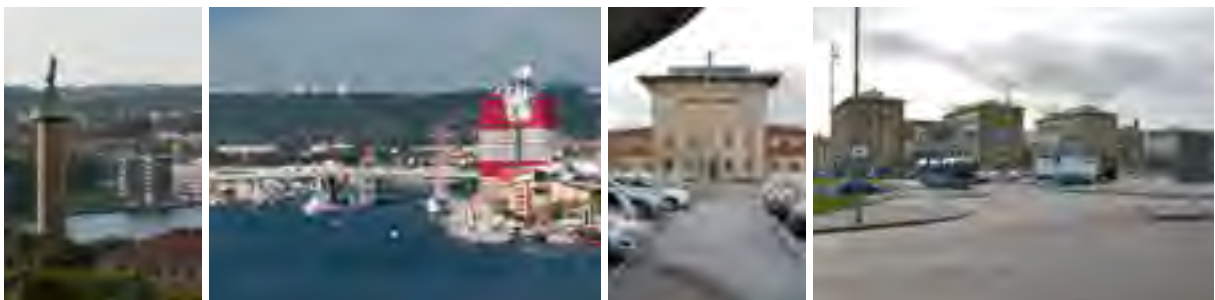


Fig.56: 1 - Sjöfartsmuseet's tower, 2 - Utkiken, 3 - Fiskhamn, 4 - Järntorgsmotet

8 Lynch, K. A. (1960) *Image of the city*. Cambridge MA: MIT Press

Technically that *line* should provide uninterrupted, safe and to some extent eye-catching journey from the central old town to the recently renewed historical Klippan district. It might be only a temporary solution, that will be changed after some time.

On the other hand it is important to remember, that there are only two bridges, that gives access to the Hisingen island, that is on the other side of the river. Within the newly established housing (revitalized old docks) along the north waterfront, the importance of ferry stops will increase. There might be also a need to place new stops as well as rebuilt existing ones.



Fig.57: Aerial view of the Southern Waterfront model.

5.2. Phase two

It is not possible to say which phase could come next. The complexity of this process and collaboration work of several managements as well as site residents allow only to present the final result in a total masterplan.

The overall goal is to revitalize the whole site, so it would match the neighbourhood districts and follow citizens' needs.

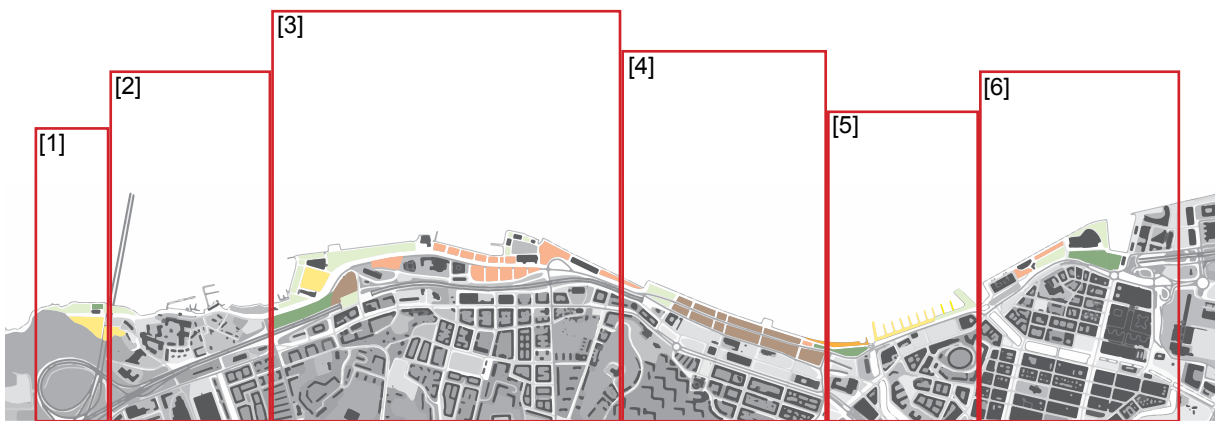


Fig.58: Phase two. Numbers present the sites that share the same concept characteristics.



Fig.59: Aerial view of the Southern Waterfront model.

5.2.1.[1] Roda Sten to Alvborgsbron

Roda Sten is already a developing area. The art centre and adjacent lawns make good ground for further development - in form of arranged greenery or temporary exterior exhibitions. Due to the fact, that Roda Sten is not threatened by flooding, it was decided to localize a gym and sport fields in an inland area to ensure full revival of Roda Sten.

use: daytime / evening

line: promenade, bike path

area: sports area, leisure area

point: gym/sports center, pergolas, arranged green area, temporary exhibition, large car park



Fig.60: Section (mirror view)

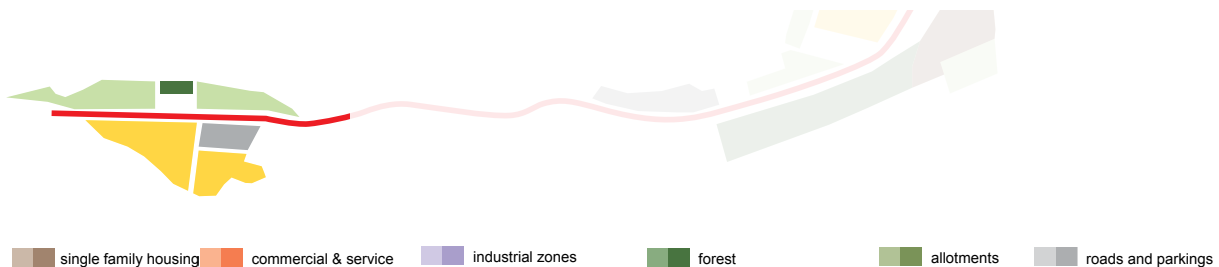


Fig.61: Project proposal



Fig.62: Masterplan

5.2.2.[2] Alvsborgsbron to Majnabbegatan (junction)

Klippan is characterized by the existing yachts port and the necessary infrastructure of restaurants and hotels. Fluid transition from Roda Sten and Majorna is achieved through a promenade and the inflow of people is secured by two large parking lots. The exquisite view of the tourist-popular Älvsborgsbron is enhanced through especially designed viewpoints.

use: daytime

line: promenade, bike path

area: yachts port

point: large car park, yachts port



Fig.63: Section (mirror view)

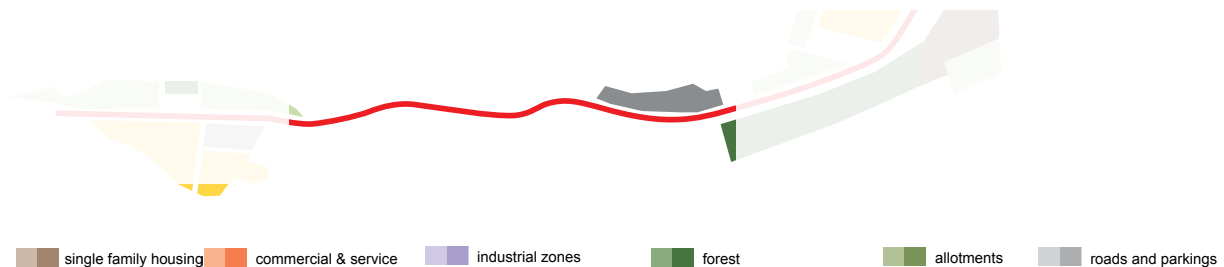


Fig.64: Project proposal



Fig.65: Masterplan

5.2.3.[3] Majnabbegatan to 'topographical change'

Majorna's exposed riverbank plays prominent part in the project. The nearby multi-family housing district is in a desperate need of a decent park. And the waterfront is perfectly suited for this function. The extensive program of leisure activities was allocated to the area now occupied by ferry port. The gardens and green houses interweave with sport fields, playgrounds and an open stage, which turns into an ice rink in the winter. On the other hand, Eastern side of Majorna is dominated by business and this characteristic is being preserved and strengthened by additional plots assigned for new developments. In time, the area will provide employment for adjacent housing district. Green spots are inserted in all possible places surrounding the fish market, to bring leisure and pleasure into everyday business.

use: daytime

line: promenade, bike path, tram, bus, road

area: sports area, park/leisure area, business center

point: basketball, volleyball, minigolf, open air stage, artificial pools, multi-use playgrounds, hedge labyrinth, chinese garden, country garden, glass green house, english garden, alpinarium, japanese garden, rosarium



Fig.66: Section (mirror view)



Fig.67: Project proposal



Fig.68: Masterplan

5.2.4.[4] 'Topographical change' to Järntorgsmotet

Stigberget is another area, which has been given a brand new face. The project envisages Stigberget to become lively student housing district. Good access to the city through tram lanes and bike routes, as well as sparse density of buildings and splendid views of the river will make this area coveted by students. The necessary infrastructure of market place, playgrounds and parking lots is provided for the convenience of the tenants.

use: daytime / evening

line: promenade, bike path, tram, bus

area: student housing, marketplace

point: playground, park, car park

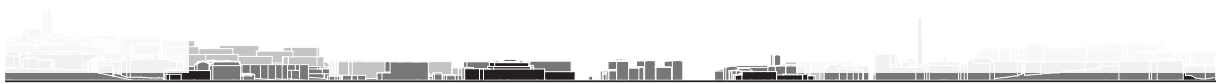


Fig.69: Section (mirror view)



Fig.70: Project proposal



Fig.71: Masterplan

5.2.5.[5] Järntorgsmotet to Hamnkanalen

The historical piers of the Jarntorgetsmotet are restored for the yachts port development. A proper marina in the city center is a requisite component of every self-respecting European coastal city. It brings romantic associations with the past times and the desirable maritime feel to the old city. Making the city center accessible for sailors is a huge step in the development of the touristic character of the whole Southern Waterfront.

use: daytime / evening

line: promenade, bike path, bus, road

area: yachts port, leisure area

point: yachts' piers



Fig.72: Section (mirror view)

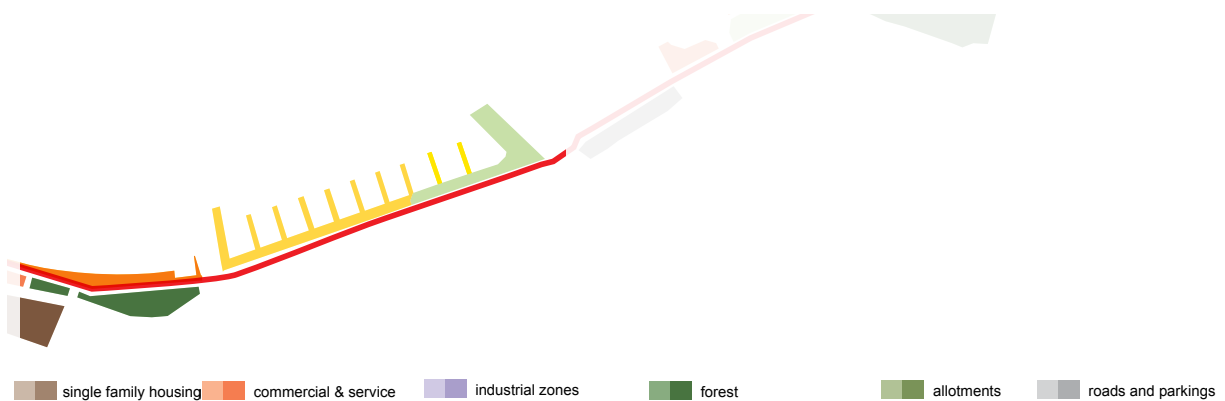


Fig.73: Project proposal

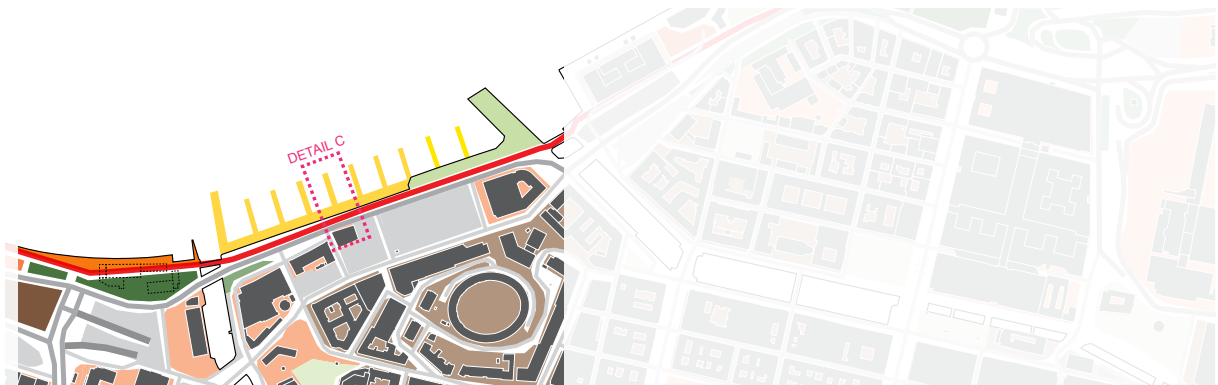


Fig.74: Masterplan

5.2.6.[6] Hamnkanalen to Göta alvbron

The old town waterfront's image has already been altered by the construction of the Opera House and the landmark of Skanska building. What the area needs are tourist facilities in form of souvenir shops and marketplace, neatly interwoven with a theme park that will present the history of Göteborg and its waterfront.

use: daytime / evening

line: promenade, bike path, bus, road

area: marketplace, arranged area around land mark - Utkiken

point: theme park, old ships museum, souvenir shops, snack shops



Fig.75: Section (mirror view)

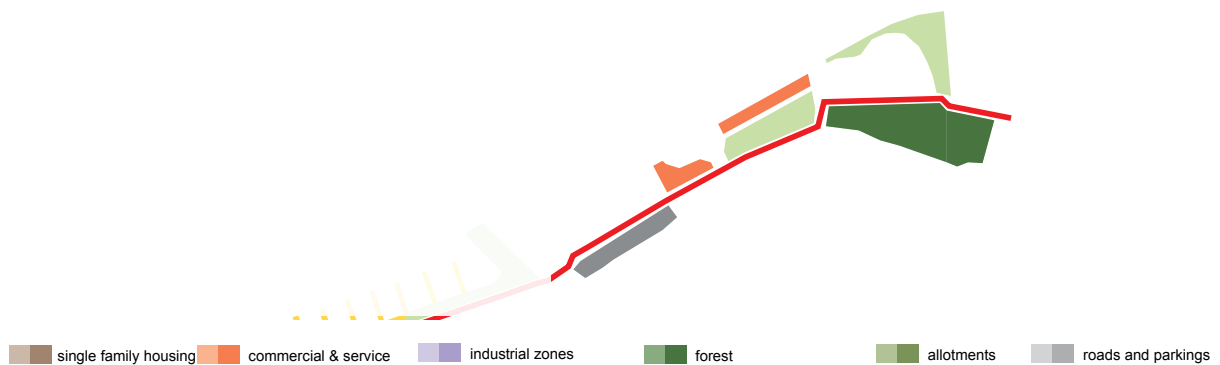


Fig.76: Project proposal



Fig.77: Masterplan

5.3. Hypothesis - human urban scale

The concept of revitalization of the area of Göta älv bank has evolved into the masterplan. The masterplan in itself is extensive and complex piece of work that leads to many conclusions and further project opportunities. There are several distinctive characteristics of the site, that should be taken into consideration. Unfortunately, that require many more people to work towards the final solutions. To check how the proposed masterplan works on the site, three parts of the project were chosen, that were designed in details. They serve as images of the most nagging and differential problems that affect the Southern Waterfront.



Fig.78: 1- 3d section A, 1- 3d section B, 1- 3d section C

5.3.1. Detail A - 3d section

The Southern Waterfront is characterized by the weaving of the river's edge and city landscape of communication hub. The site is exposed to the sun, especially in the late evening. What is more, the site borders with Majorna - housing district. High risk of flooding makes it hinder to create any housing areas. On the other hand it is a great opportunity to place there a large greenery area. It may attract also many more both citizens and tourists who might be looking for a rest place. Presented 3d section is just an example, how the site may look like after revitalization.



Fig.79: Detail A



Fig.80: 1 - primary Southern Waterfront connection to the city through the green belt concept; 2 - skatepark and other sport amenities localized in the green belt provide free-time opportunities; 3 - leisure corner with natural monument and circular wooden benches; 4 - Southern Waterfront green belt provides the city with new pedestrian routes for strolling and leisure; 5 - one of the boulevards is covered with medium-sized trees to provide shade for relaxation; 6 - new streetcar double-lane connects remote parts of the city and provides citizens from further districts with access to the waterfront; 7 - covering the road with the green roof creates additional green public spaces in the city and provides acoustic barrier for local residents.

5.3.2.Detail B - 3d section

Student housing district is implemented in the former Stenaline premises. Due to the flooding restrictions, ground floors are left uninhabited. Main pedestrian roots are drawn out from the existing road axes and finish directly at the waterfront. The area is served by streetcar and bike lanes. Housing plots are vast and belong to common green belt of the waterfront.

Placement of student housing on the river bank is a great solution for an area with 'no feelings' across citizens. It is like giving a new heart, which starts to beat very strong and evenly. Students, who has different backgrounds, mostly brought out from the city with their way of living can in a couple of years change the common sense of that part of the harbour. What is more, this housing is located in equal distance between two Chalmers' campuses.



Fig.81: Detail B



Fig.82: 1 - student housing is situated in a green belt area of the waterfront; 2 - the area is served by a network of bike lanes, due to fact, that students moreover choose them over cars; 3 - the vast green area can be used for leisure and sport activities; 4 - student housing district is directly connected to the Southern Waterfront.

5.3.3.Detail C - 3d section

It is the place where public needs dominate over the city landscape. It is also used as a proper connection to Rosenlund.

The concept of wooden piers comes came up with the historical maps. Around this area used to be a large fishing port with countless number of quays. Nowadays, there is little space, divided to three parts: road, bike lane and pavement. To extend the harbour area, the easiest would be to build several wooden quays. Some of them may serve for small sailing or motorboats. The visual widen of the road might be neccessary to engage passers-by attention and rope them to the harbour area. All site is exposed to west direction, what makes it even more attractive for spending afternoons and late evenings during the summer time.



Fig.83: Detail C



Fig.84: Southern Waterfront promenade with mooring piers is disconnected from the vehicular communication and therefore quite place for leisure and sport activities. Rediscovery of the advantages of the Göta river's quay is celebrated by a spectacular wooden boardwalk which brings an unique sailing climate.

6. Bibliography

6.1. Books

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6.2. Websites

- www.wikipedia.en/Göteborg
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6.3. Figures

- Filip Knapczyk, figures: 1, 5 - 10, 13 - 84
- www.google.maps.pl, figures: 2, 3, 12-1
- www.rosekennedygreenway.org, figure: 12-2
- unknown, figure: 4
- West 8, figure: 11

7. Appendix

- Four posters downsized to A4 format, that have been presented at the Department of Architecture at Chalmers University of Technology on the 28th of May 2013
- A DVD containing a video of 3D model of the site, digital version of posters, report and presentation used at the day of critique.



DETAIL A
Primary Southern Waterfront connections to the city through the green belt
The green belt early levels into key city landscape.

DETAIL B
Secondary boulevard is covered with medium-sized trees to provide shade for relaxation.
The green belt early levels into key city landscape.

DETAIL C
Southern Waterfront green belt provides the city with new pedestrian routes for walking and cycling.
The green belt early levels into key city landscape.

DETAIL D
Southern Waterfront green belt provides the city with new pedestrian routes for walking and cycling.
The green belt early levels into key city landscape.

- DETAIL A**
Primary Southern Waterfront connections to the city through the green belt
The green belt early levels into key city landscape.
- DETAIL B**
Secondary boulevard is covered with medium-sized trees to provide shade for relaxation.
The green belt early levels into key city landscape.
- DETAIL C**
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DETAIL A
Primary Southern Waterfront connections to the city through the green belt
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