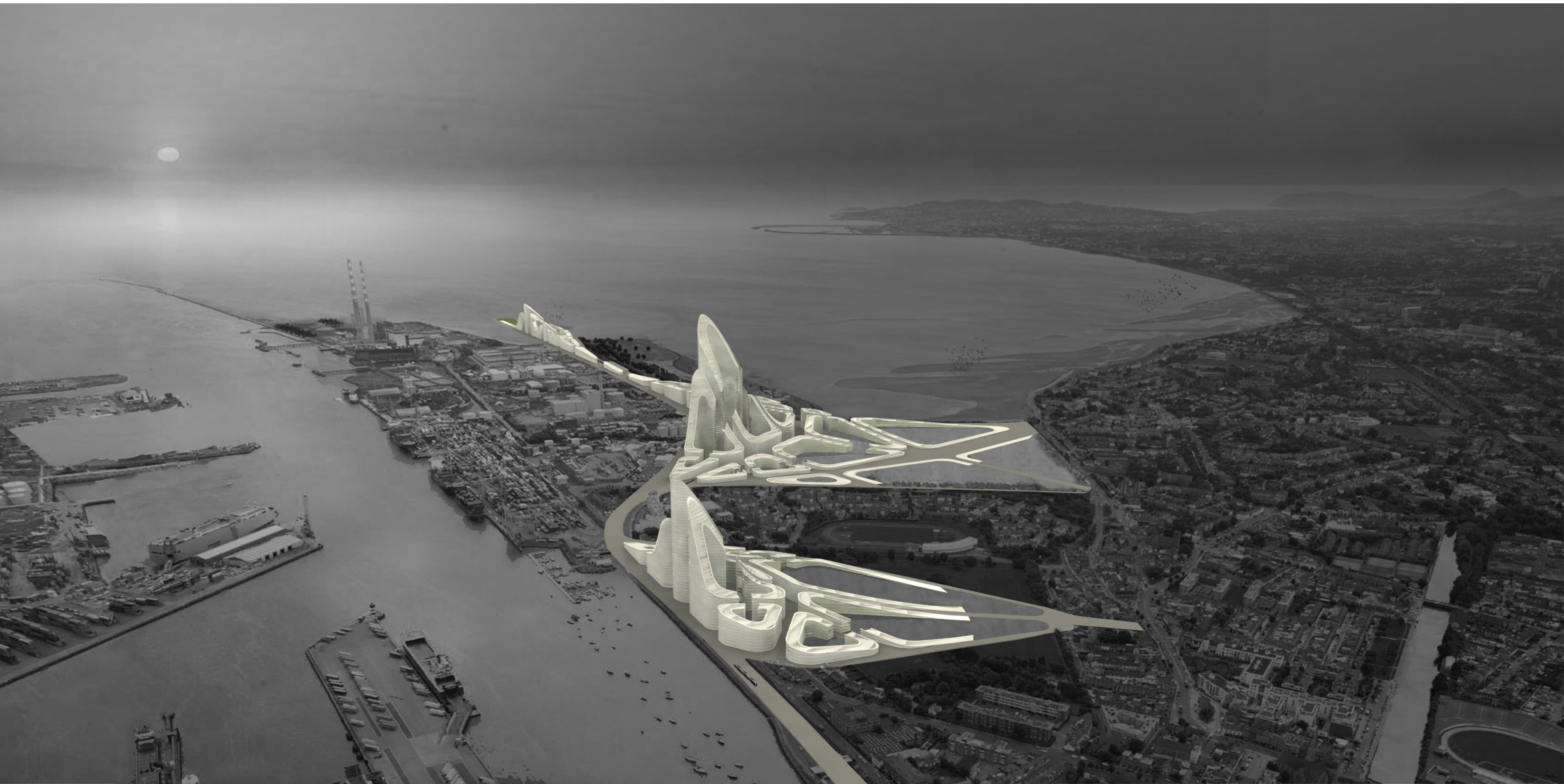
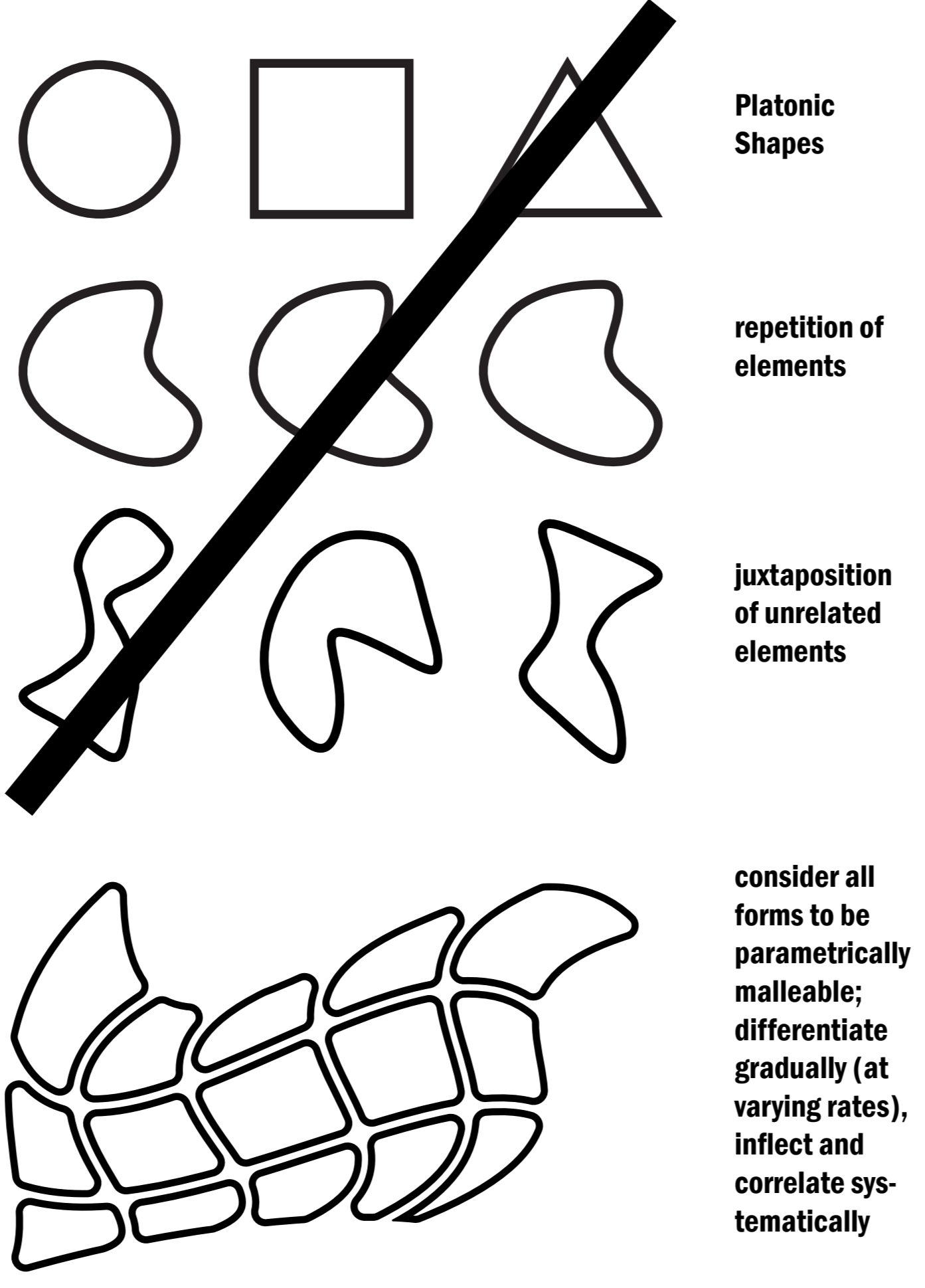
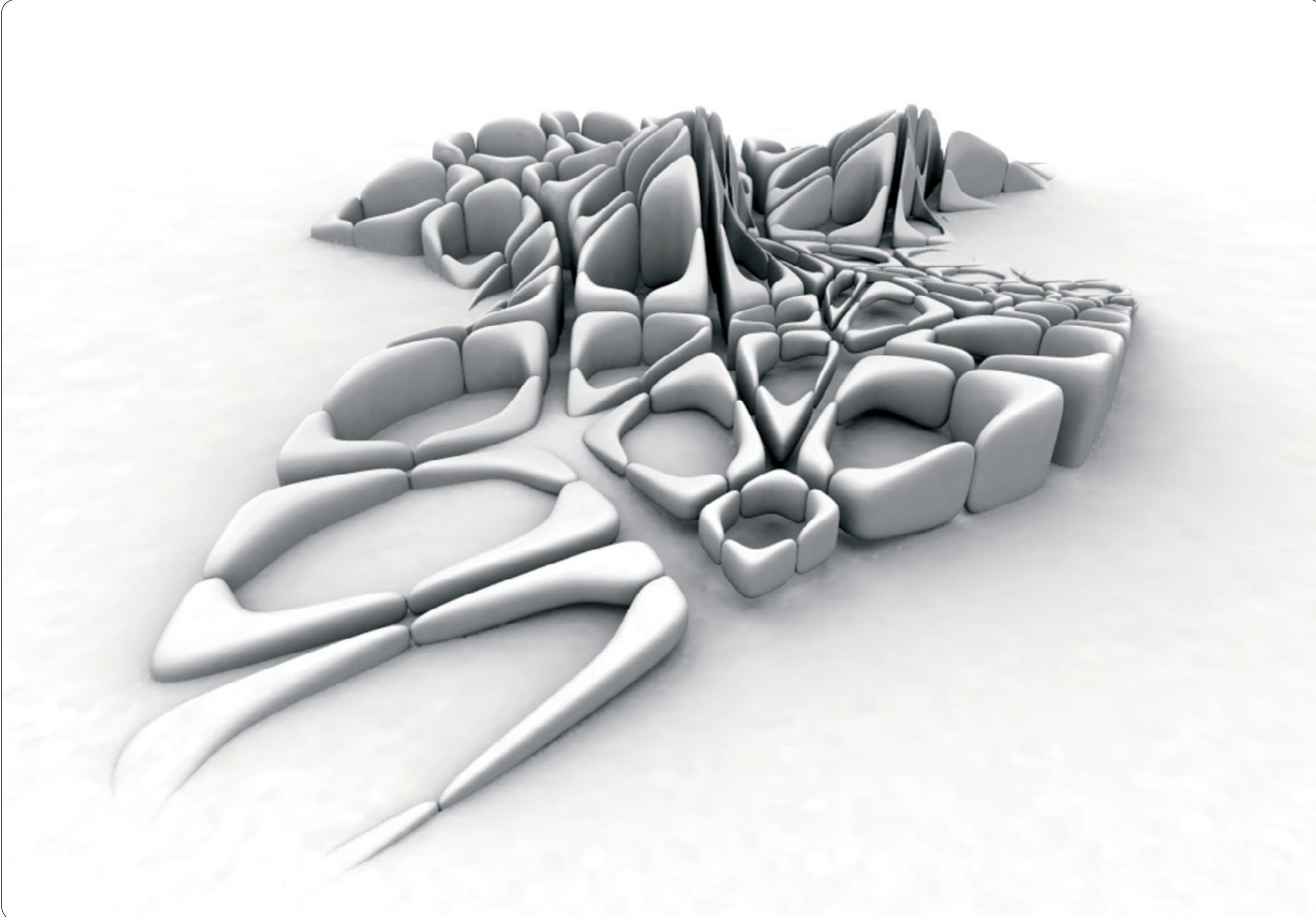


# PARAMETRIC DUBLIN



# PARAMETRICISM

## METHOD



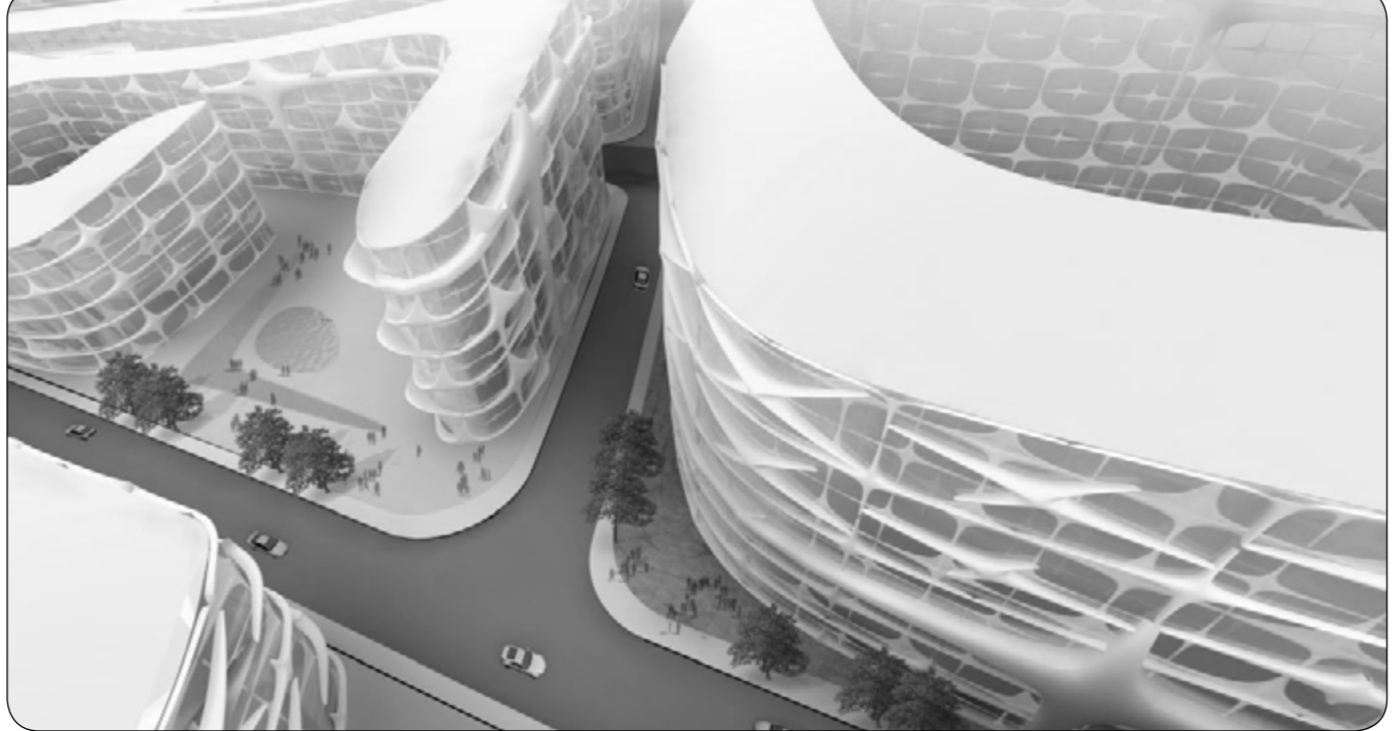
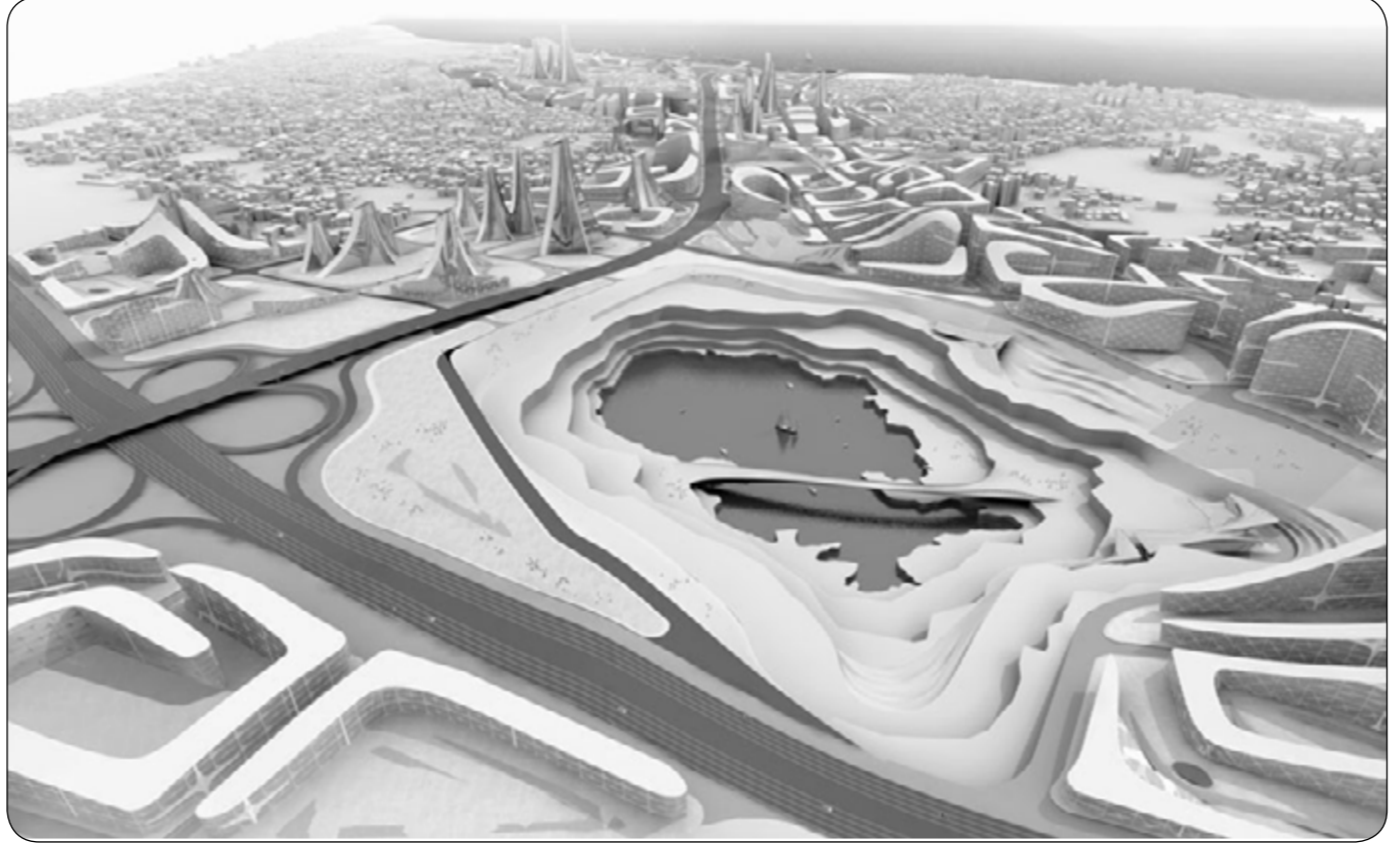
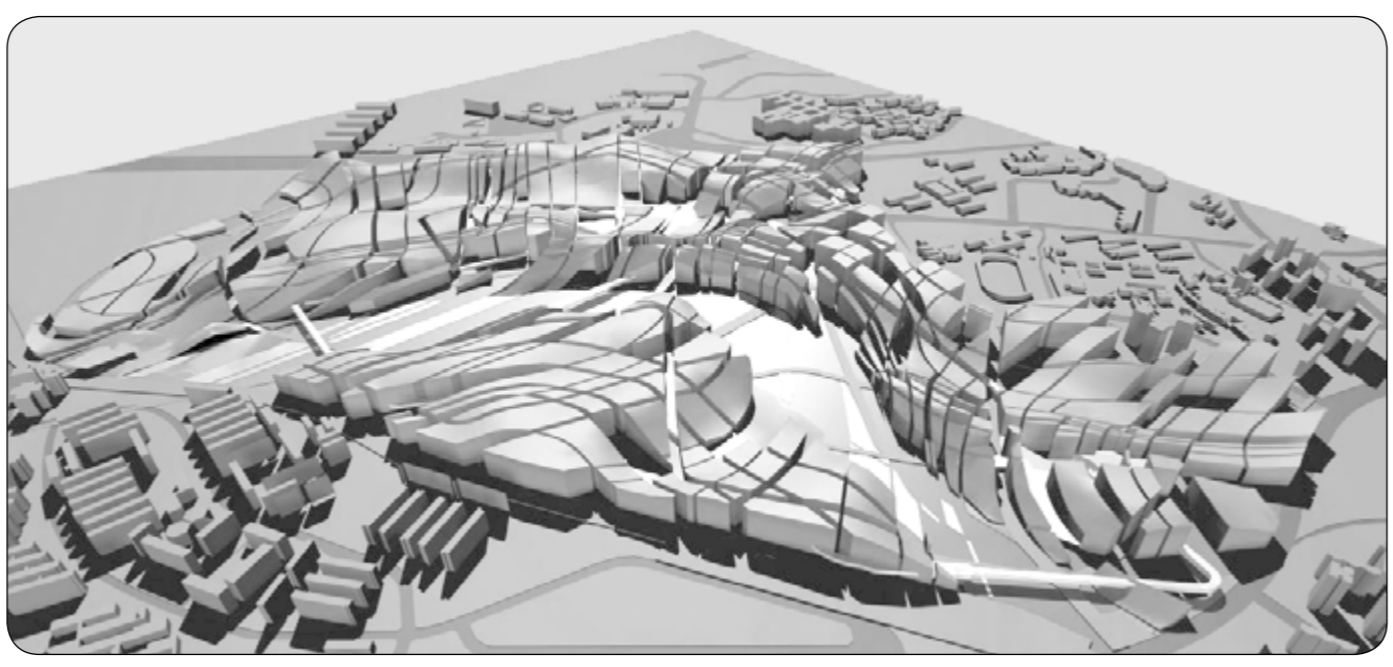
**PARAMETRICISM**  
**A New Global Style for Architecture and Urban Design**  
 Though parametricism has its roots in the digital animation techniques of the mid-1990s, it has only fully emerged in recent years with the development of advanced parametric design systems. **Patrik Schumacher** explains why parametricism has become the dominant, single style for avant-garde practice today and why it is particularly suited to large-scale urbanism as exemplified by a series of competition-winning masterplans by **Zaha Hadid Architects**. There is a global convergence in recent avant-garde architecture that justifies its designation as a new style: **parametricism**. It is a style rooted in digital animation techniques, its latest refinements based on advanced parametric design systems and scripting methods. Developed over the past 15 years and now claiming hegemony within avant-garde architecture practice, it succeeds Modernism as the next long wave of systematic innovation. Parametricism finally brings to an end the transitional phase of uncertainty engendered by the *crisis of Modernism* and marked by a series of relatively short-lived architectural episodes that included *Postmodernism*, *Deconstructivism* and *Minimalism*. So pervasive is the application of its techniques that parametricism is now evidenced at all scales from architecture to interior design to large urban design. Indeed, the larger the project, the more pronounced is parametricism's superior capacity to articulate programmatic complexity. The urbanist potential of parametricism has been explored in a three-year research agenda at the **AADRl** titled 'Parametric Urbanism' and is demonstrated by a series of competition-winning masterplans by Zaha Hadid Architects.

**Parametricism as Style**  
 Avant-garde architecture and urbanism are going through a cycle of innovative adaptation – retooling and refashioning the discipline to meet the socioeconomic demands of the post-Fordism era. The mass society that was characterised by a universal consumption standard has evolved into the heterogeneous society of the multitude, marked by a proliferation of lifestyles and extensive work-path differentiation. It is the task of architecture and urbanism to organise and articulate the increased complexity of our post-Fordist society. Contemporary avant-garde architecture and urbanism seek to address this societal demand via a rich panoply of parametric design techniques. However, what confronts us is a new style rather than merely a new set of techniques. The techniques in question – the employment of animation, simulation and form-finding tools, as well as parametric modelling and scripting – have inspired a new collective movement with radically new ambitions and values. In turn, this development has led to many new, systematically connected design problems that are being worked on competitively by a global network of design researchers. Over and above aesthetic recognisability, it is this pervasive, long-term consistency of shared design ambitions/problems that justifies the enunciation of a new style in the sense of an epochal phenomenon. Parametricism is a mature style. There has been talk of 'continuous differentiation', versioning, iteration and mass customisation among other things for quite some time now within architectural avant-garde discourse. Not long ago we witnessed an accelerated, cumulative build-up of virtuosity, resolution and refinement facilitated by the simultaneous development of parametric design tools and scripts that allow the precise formulation and execution of intricate correlations between elements and subsystems. The shared concepts, computational techniques, formal repertoires and tectonic logics that characterise this work are crystallising into a solid new hegemonic paradigm for architecture. Parametricism emerges from the creative exploitation of parametric design systems in the course of articulating increasingly complex social processes and

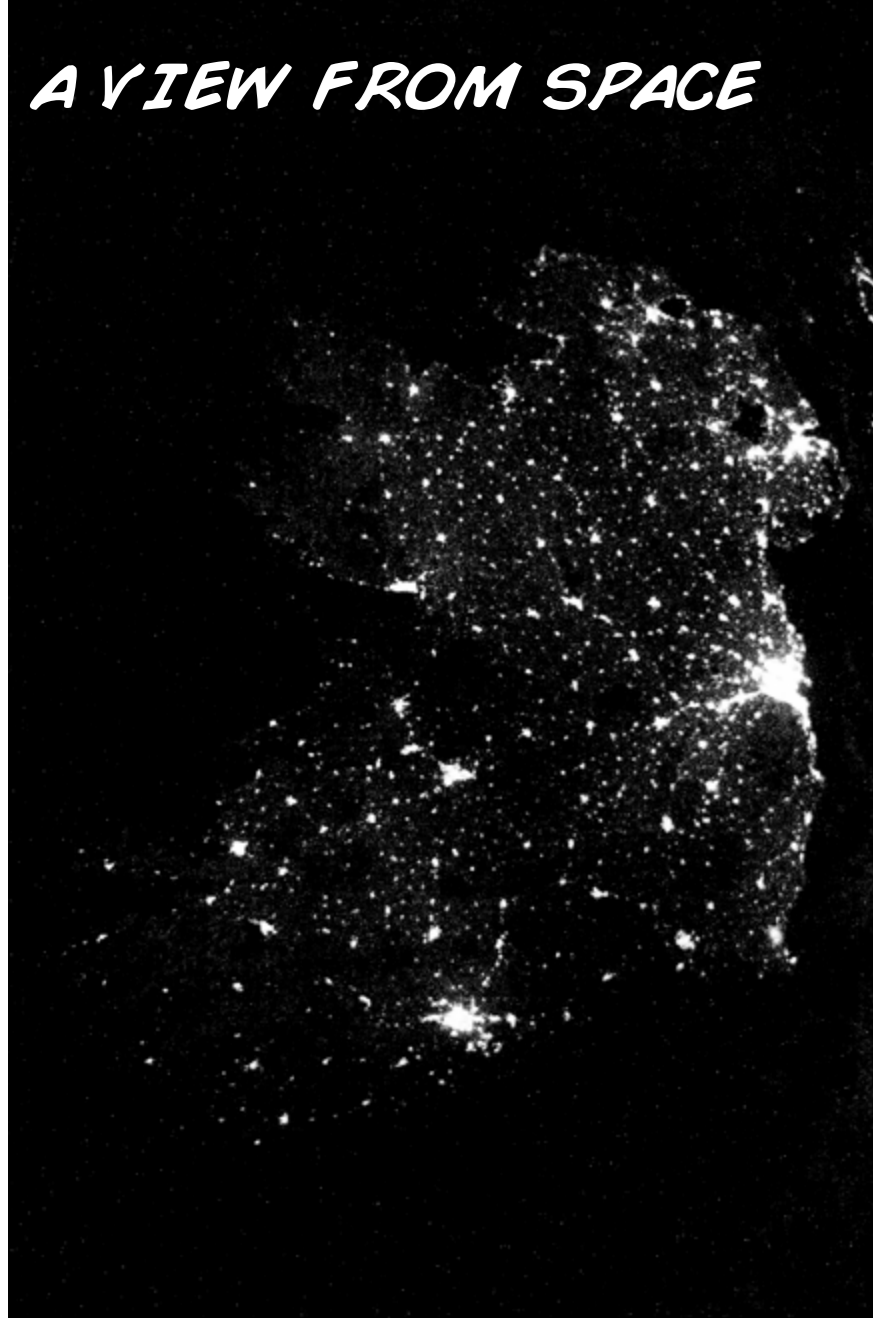
institutions. That parametric design tools themselves do not account for this profound shift in style from Modernism to parametricism is evidenced by the fact that late Modernist architects are employing parametric tools in ways which result in the maintenance of a Modernist aesthetic, using parametric modelling inconspicuously to absorb complexity. The parametricist sensibility, however, pushes in the opposite direction, aiming for maximum emphasis on conspicuous differentiation and the visual amplification differentiating logics. Aesthetically, it is the elegance of ordered complexity and the sense of seamless fluidity, akin to natural systems that constitute the hallmark of parametricism.

**Styles as Design Research Programmes**  
 Avant-garde styles can be interpreted and evaluated analogously to new scientific paradigms, affording a new conceptual framework and formulating new aims, methods and values. Thus a new direction for concerted research work is established. Thus styles are design research programmes. Innovation in architecture proceeds via the progression of styles so understood: as the alternation between periods of cumulative advancement within a style and of periods of revolutionary transition between styles. Styles therefore represent cycles of innovation, gathering design research efforts into a collective endeavour. Here, stable self-identity is as much a necessary precondition of evolution as it is in the case of organic life. To hold on to the new principles in the face of difficulties is crucial for the chance of eventual success, something that is incompatible with an understanding of styles as transient fashions. Basic principles and methodologies need to be preserved and defended with tenacity in the face of initial difficulties and setbacks: each style has its hard core of principles and a characteristic way of tackling design problems/tasks. The programme/style consists of methodological rules: some tell us what paths of research to avoid (negative heuristics), and others what paths to pursue (positive heuristics). Negative heuristics formulates strictures that prevent relapse into old patterns that are not fully consistent with the core; positive heuristics offers guiding principles and preferred techniques that allow the work to fast-forward in a particular direction.

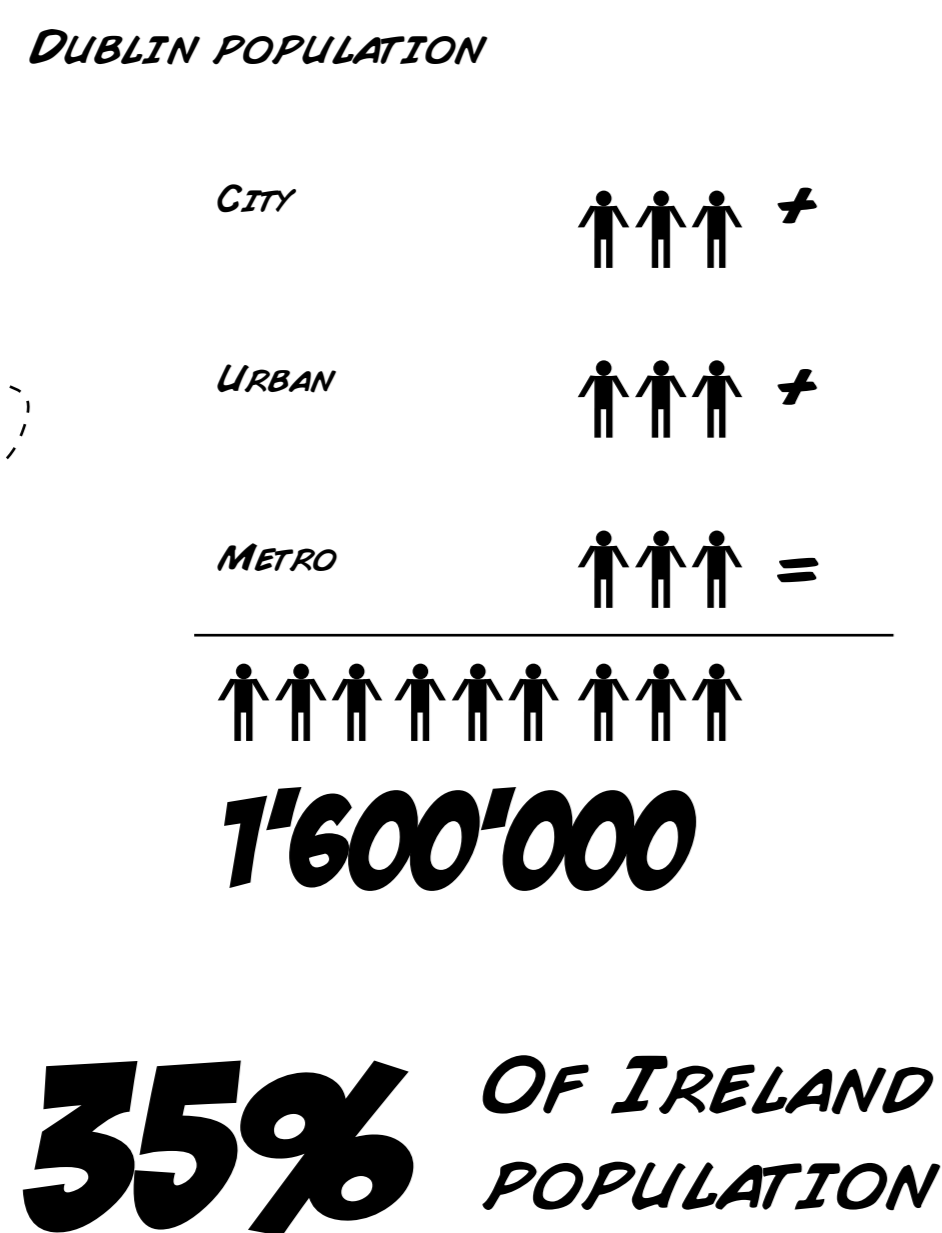
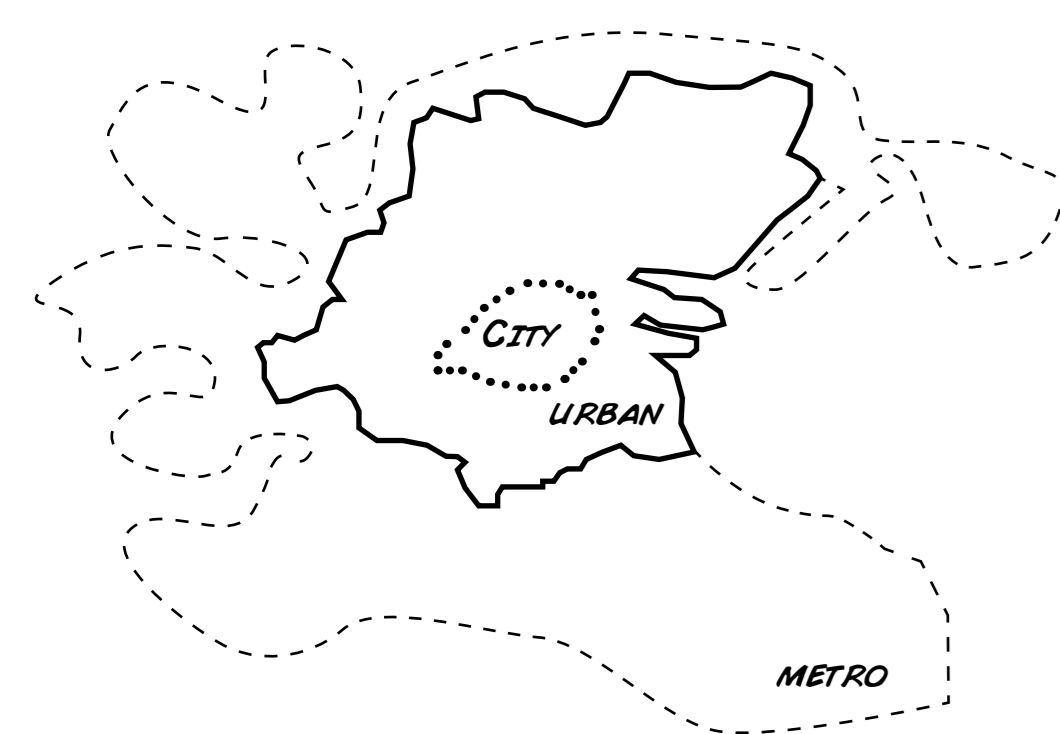
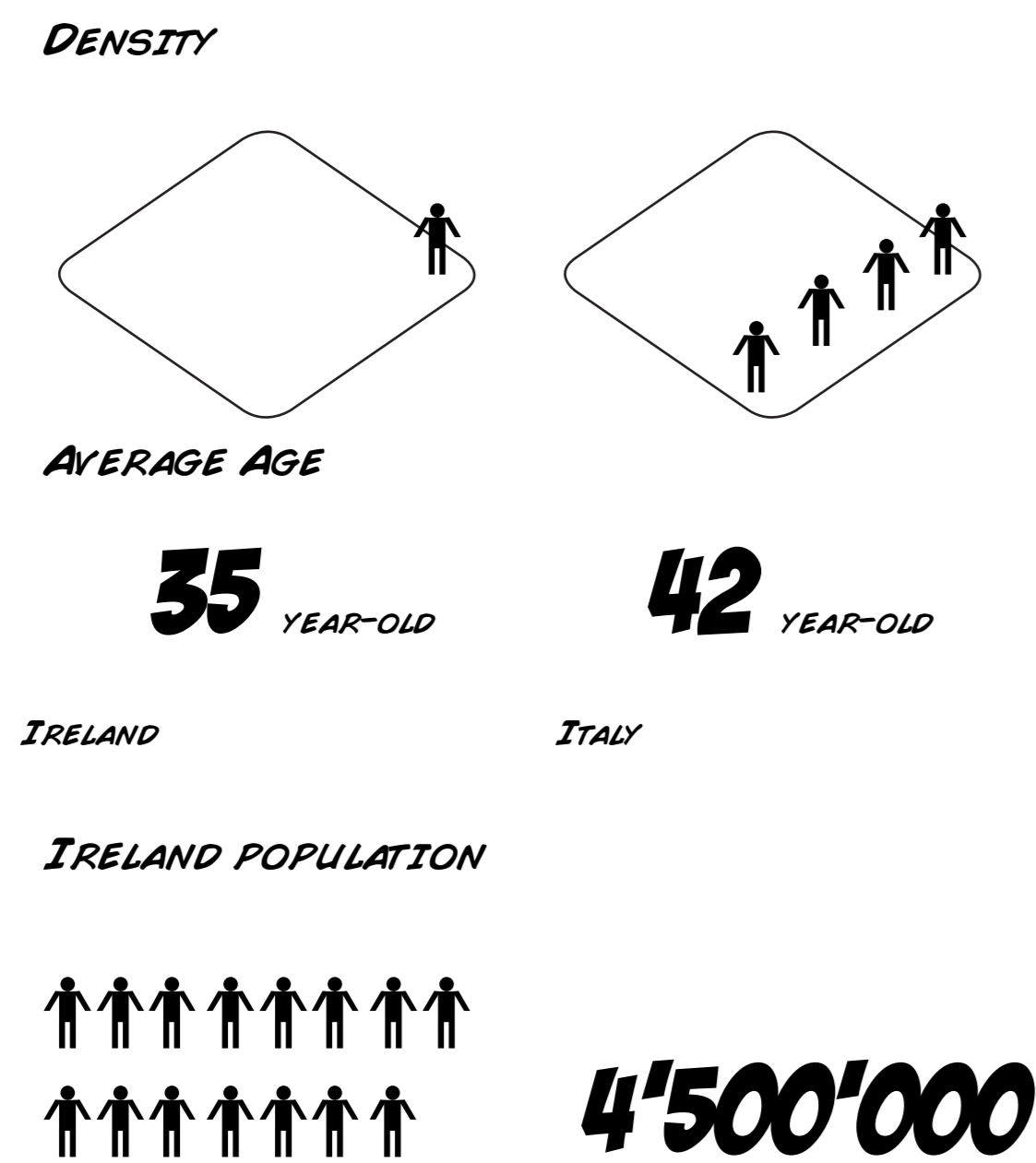
**Defining Heuristics and Pertinent Agendas**  
 The defining heuristics of parametricism is fully reflected in the taboos and dogmas of contemporary avant-garde design culture:  
 • Negative heuristics (taboos): avoid rigid geometric primitives such as squares, triangles and circles; avoid simple repetition of elements, avoid juxtaposition of unrelated elements or systems.  
 • Positive heuristics (dogmas): consider all forms to be parametrically malleable; differentiate gradually (at varying rates), inflect and correlate systematically.  
 The current stage of development within parametricism is as much to do with the continuous advancement of the attendant computational design processes as it is due to the designer's grasp of the unique formal and organisational opportunities afforded by these processes. Parametricism can only exist via the continuous advancement and sophisticated appropriation of computational geometry. Finally, computationally advanced design techniques such as scripting (in Mel-script or Rhino-script) and parametric modelling (with tools such as GC or DP) are becoming a pervasive reality such that it is no longer possible to compete within the contemporary avant-garde architecture scene without mastering and refining them. However, the advancement of techniques should go hand in hand with the formulation of yet more ambitions and goals.



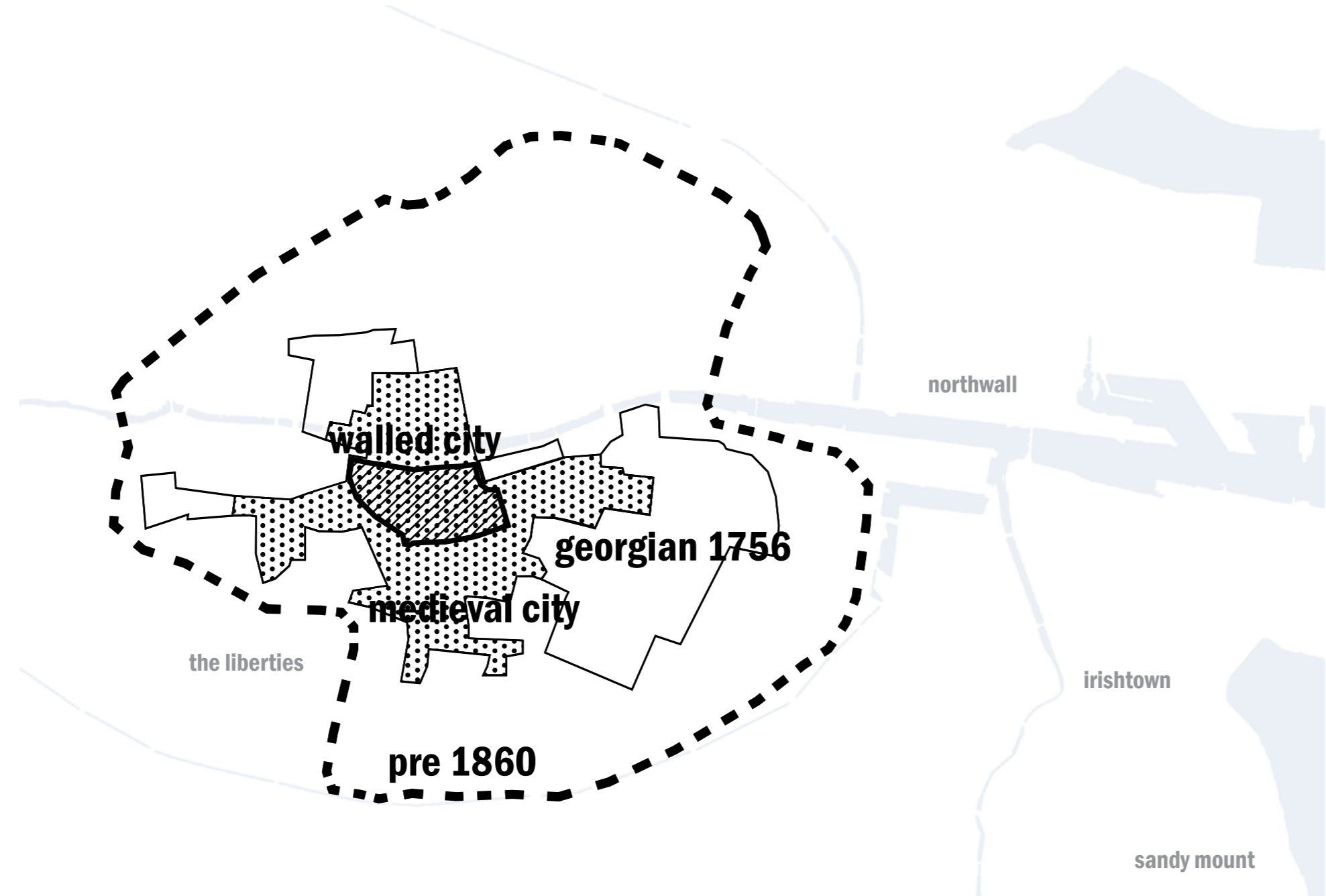
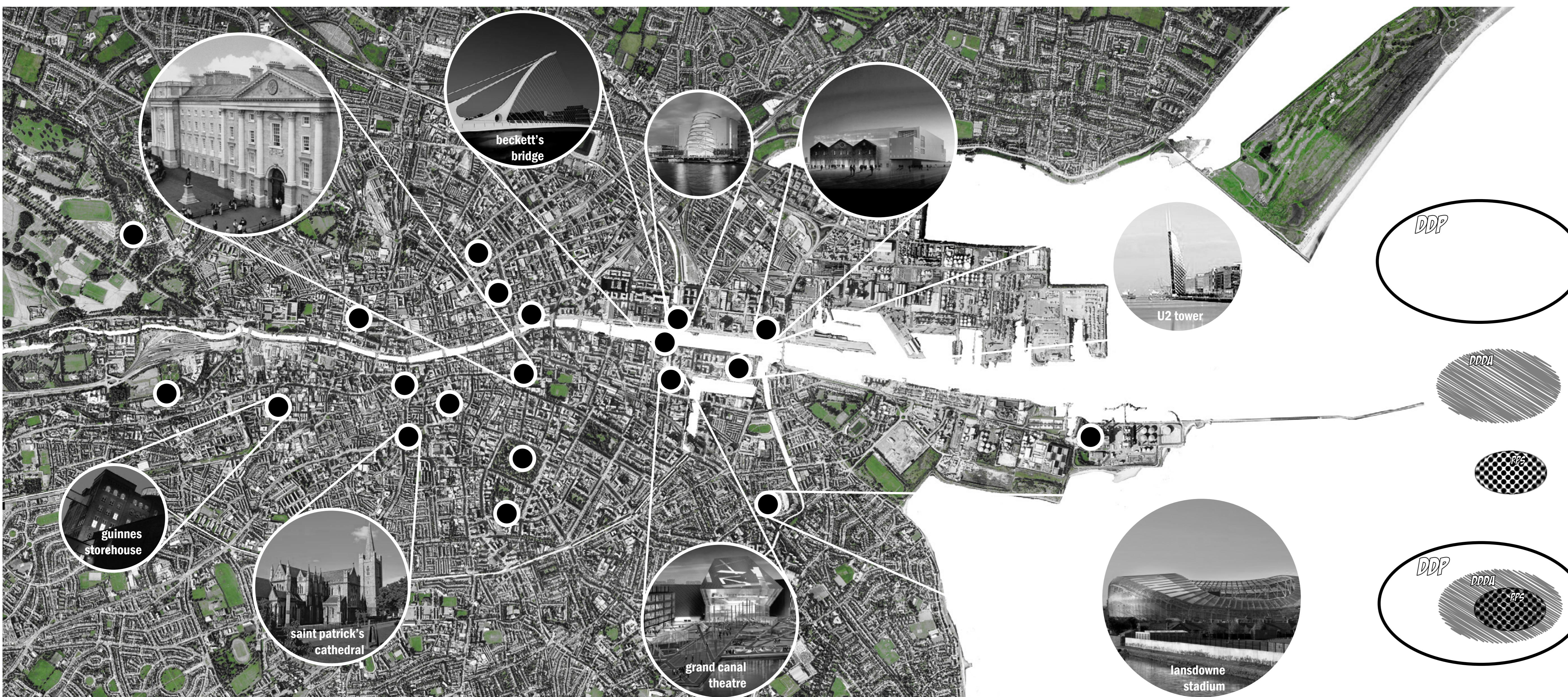
# DUBLIN ANALYSIS



## IRELAND IS DUBLIN?



## DUBLIN IS IRELAND?



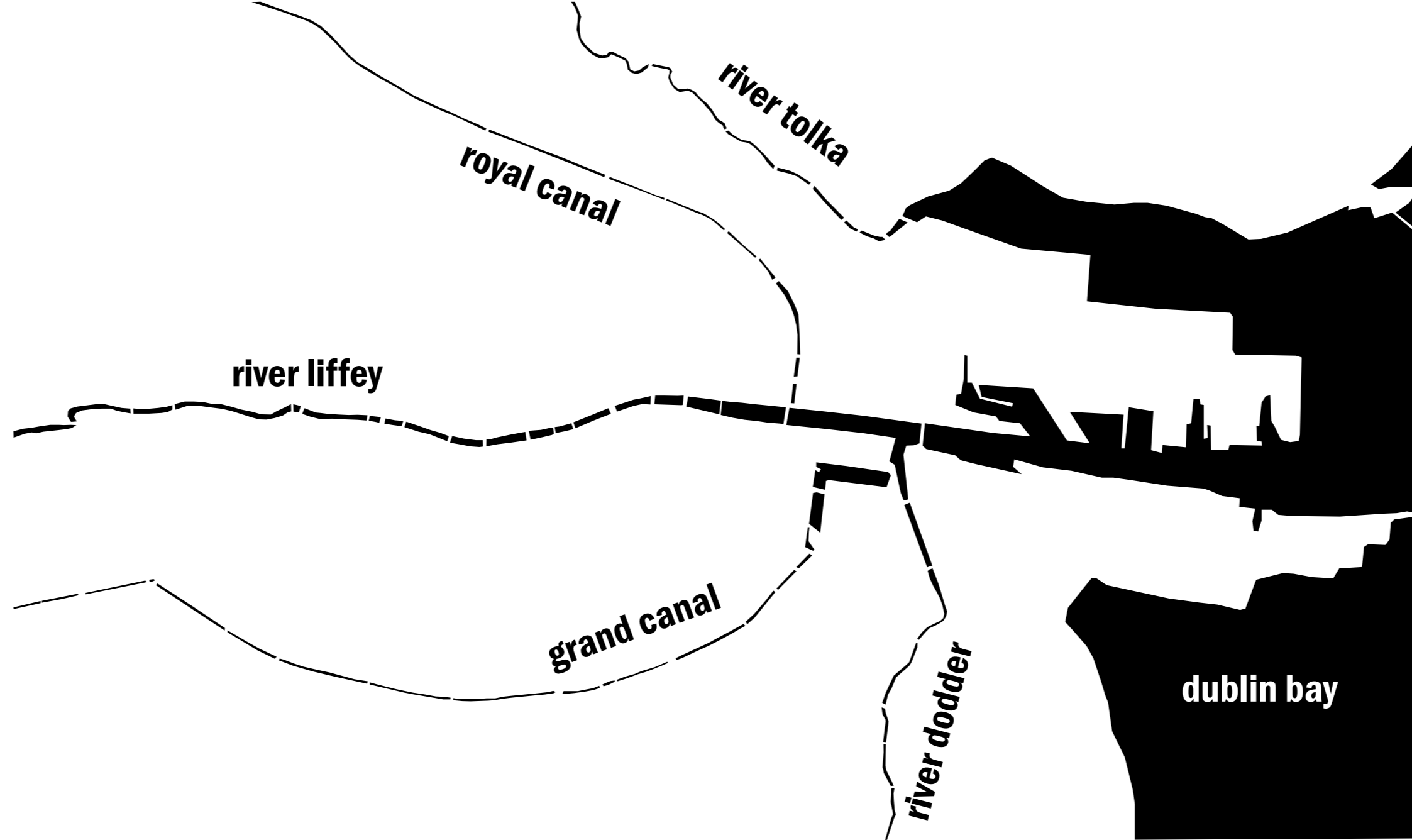
### dublin historical growth

This scheme shows the historical growth of Dublin, from the inner walled city toward the pre 1860 part. It's clear that Dublin is a **small city**, living in the city centre allows you to literally get rid of using a car. Walking is the best way to discover this city and if you are living there, there's a bike sharing service in many places. Dublin has always been divided between two categories: **Vikings and Celts**, **Irish and English** and between **Catholics and Anglicans**. Actually the city has two names, Dublin is after a Viking name (**An Dubh Linn**) and the other one (**Baile Átha Cliath**) is coming from Celts. About history, Dublin was an English colony for the most of her time. England left an important footprint which was hideous to Irish people. During the sixties some English symbols were removed, for instance Colonel Nelson's column replaced by the Spire. Georgian Dublin is also an important and large English heritage. Several houses were broken down and replaced by new buildings.

### Nowadays problems & potential

Dublin was for decades a city of emigrants and just in the last two decades this process was reversed. However the outskirts of Dublin kept growing, without any planification, so without any service of any kind. They soon became unsafe places, where criminality could easily grow. In the meantime many areas more or less close to the city centre have to be redeveloped due to change of destination. The closer areas have more chance to become the extension of the city core, they should become high density residential areas and attract new people, preferably young couple with children.

How can Dublin City Core be an attractor of new families? what are the project's tools?



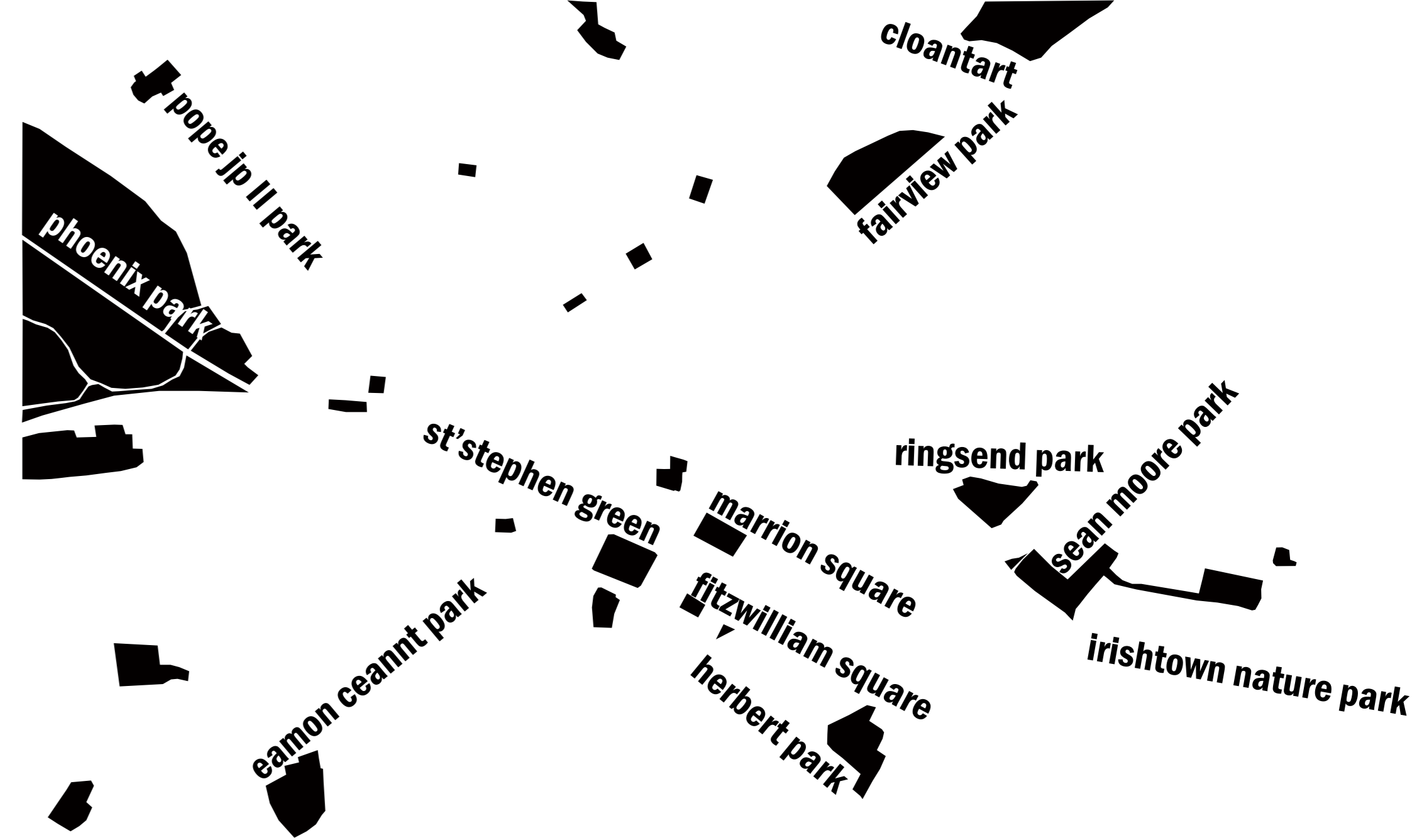
### system of water bodies

Nevertheless Dublin is near the shore, it is so detached by it that people, while they are strolling along Grafton Street, aren't aware to be so close to the sea. This is due to Dublin's growth toward east, due to the presence of the port and due to the fight against tides. The **river Liffey** is the main river. It was firstly used as a dump and lately as a waterway, to get to the Dublin harbour. Looking at urban scale of the city it's possible to notice that this river is the spine of the city. Many of the public attractions lay along it. It divides the city in Dublin North, which is the poorest and Dublin south, the richest. The **Grand canal** and the **Royal canal** take water from river Shannon, they were used as waterways from west to east Ireland. The former is in the south side and the latter in the north side. River Dodder and River Tolka lay between Dublin bay and the twin canals. They have waving courses and sometimes river Tolka had given floodings. Generally floods are a threat coming from the sea. Walls facing the shore were built to prevent them. Now they lay in the Docklands between the city and the harbour.

### 1th tool\_water

Since Dublin's plan missed any regularity and a coherent planning, it's a natural consequence to follow waterways to get an orientation. In this vision river Liffey is really the spine of the city. Nowadays what is missing is an adequate ending of the Liffey's spine. Our mission is to create a gate way, a urban structure which is in between the river and the bay. From the urban spine to the quiet bay. It would be possible also collect into the bay the path along river Dodder. Waterways should carry bike routes and foot paths.

How waterbodies can be strenghtened ?



### system of parks

Dublin hasn't actually squares, covered with limestone to gather people in summertime. However there are many parks spread all over the city called squares. People use to enjoy going there in sunshine for a brief lunch, among nature. Therefore the presence of public parks are really important. **St' Stephen Green Park** is the most famous, it is adjacent to one of Dublin's main shopping streets, Grafton Street, and to a shopping centre named for it, while on its surrounding streets are the offices of a number of public bodies. It is the largest among Georgian squares (**Marrion's square Park** and **Fitzwilliam square**). The largest urban park is **Phoenix Park**. It is so huge to have been reckoned as the largest European Park. It includes large areas of grassland and tree-lined avenues, and since the seventeenth century has been home to a herd of wild Follow deer. Among many sports facilities this park hosts the Dublin zoo, the Wellington Monument and the Pupal Cross, built in occasion of the visit of Pope John Paul II in 1979.

### 2th tool\_cultural importance of green

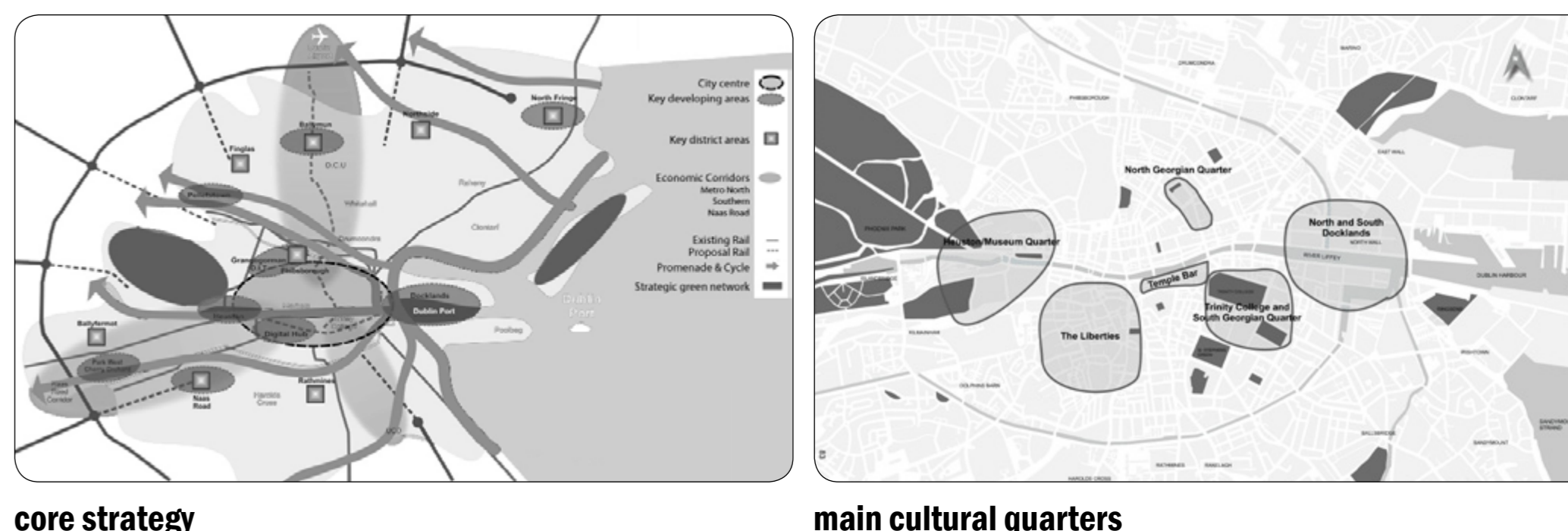
Ireland and Dublin are famous for green lawns. Thank to humidity growing a perfect lawn is easy. Due to weather changings it's possible to have at least a sunny half an hour in a day. Dubliners like to enjoy sun laying on the grass in public parks. The presence of trees can easily stop strong winds and be a shelter from rain. Green is palced along rivers and canals, not only in parks.

How green can be used to redesign the city ?

**DDP**

The Dublin Development Plan regulate the development of the city through 6 points:

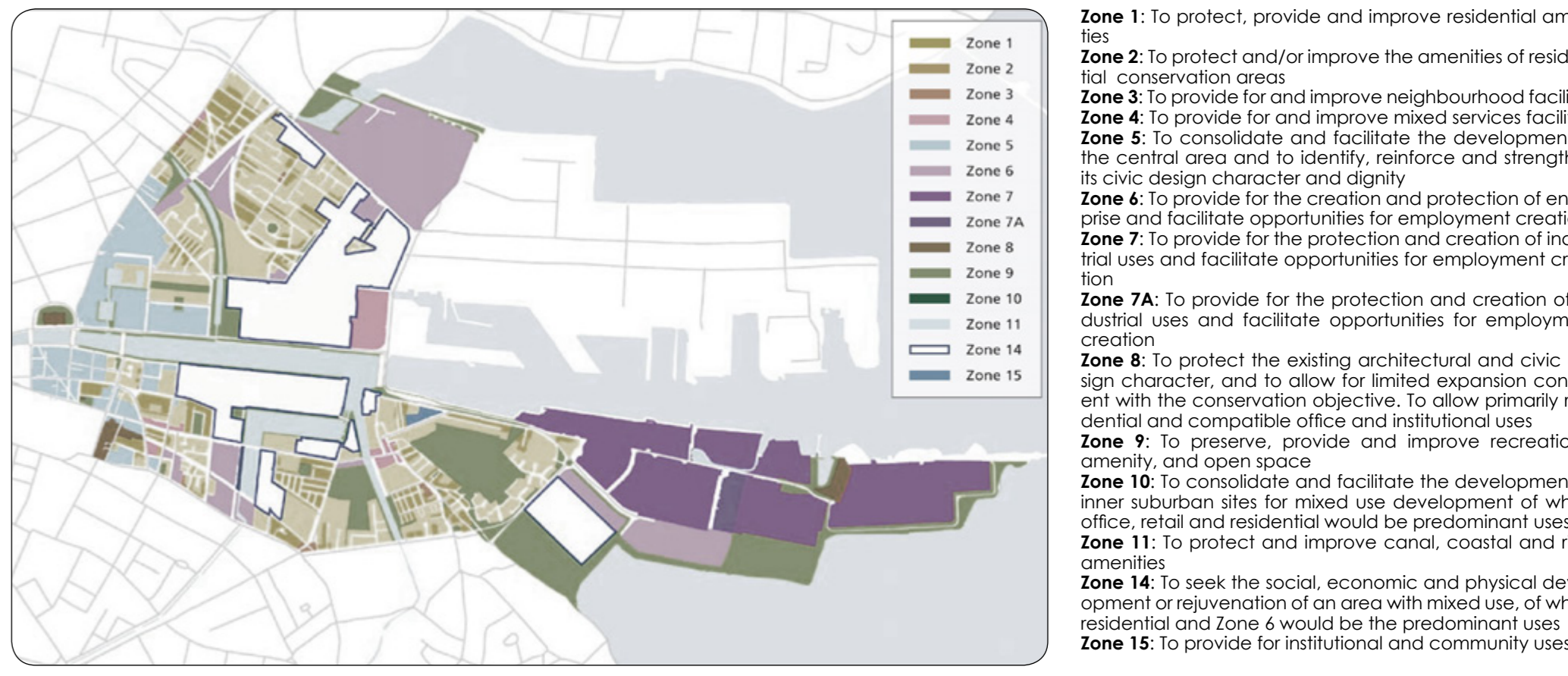
- 1\_shaping the city
- 2\_boosting infrastructures
- 3\_greening the city
- 4\_fostering culture
- 5\_providing quality homes in a compact city
- 6\_create good neighbourhoods



**DDDA**

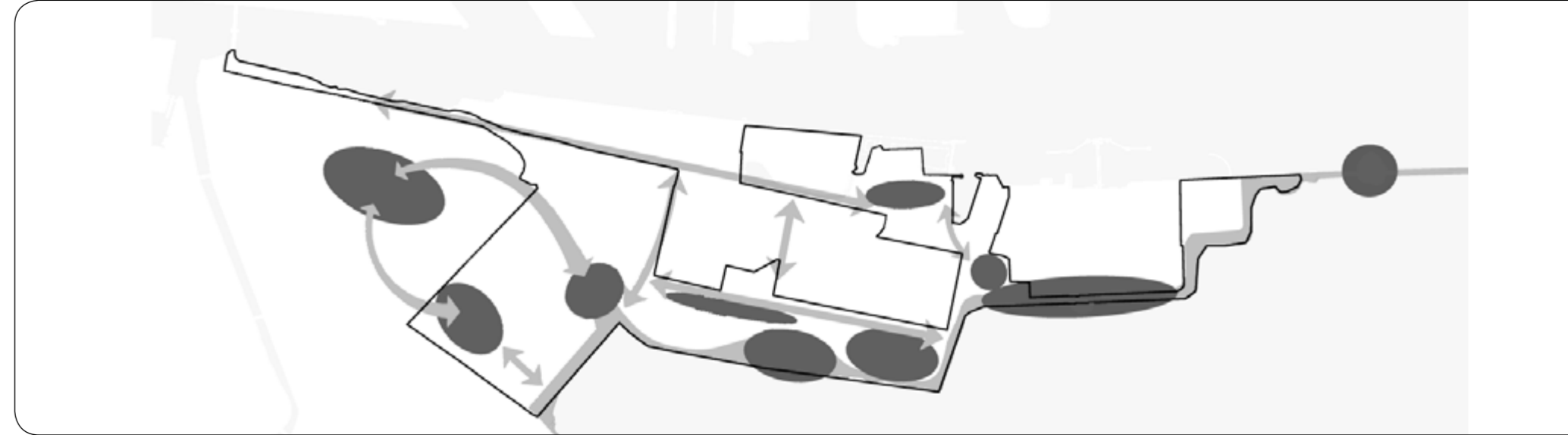
The Dublin Docklands Development Authority regulates the re-development of the docklands. Once this area was just an industrial area with factories and plants, due to the presence of the port. Now this area is going to be re-urbanized because factories have been closed and broken down. There are 5 priorities:

- 1\_speeding up physical transformations
- 2\_create an Architectural identity
- 3\_exploiting docklands potential
- 4\_quality of life
- 5\_create an image



**PPS**

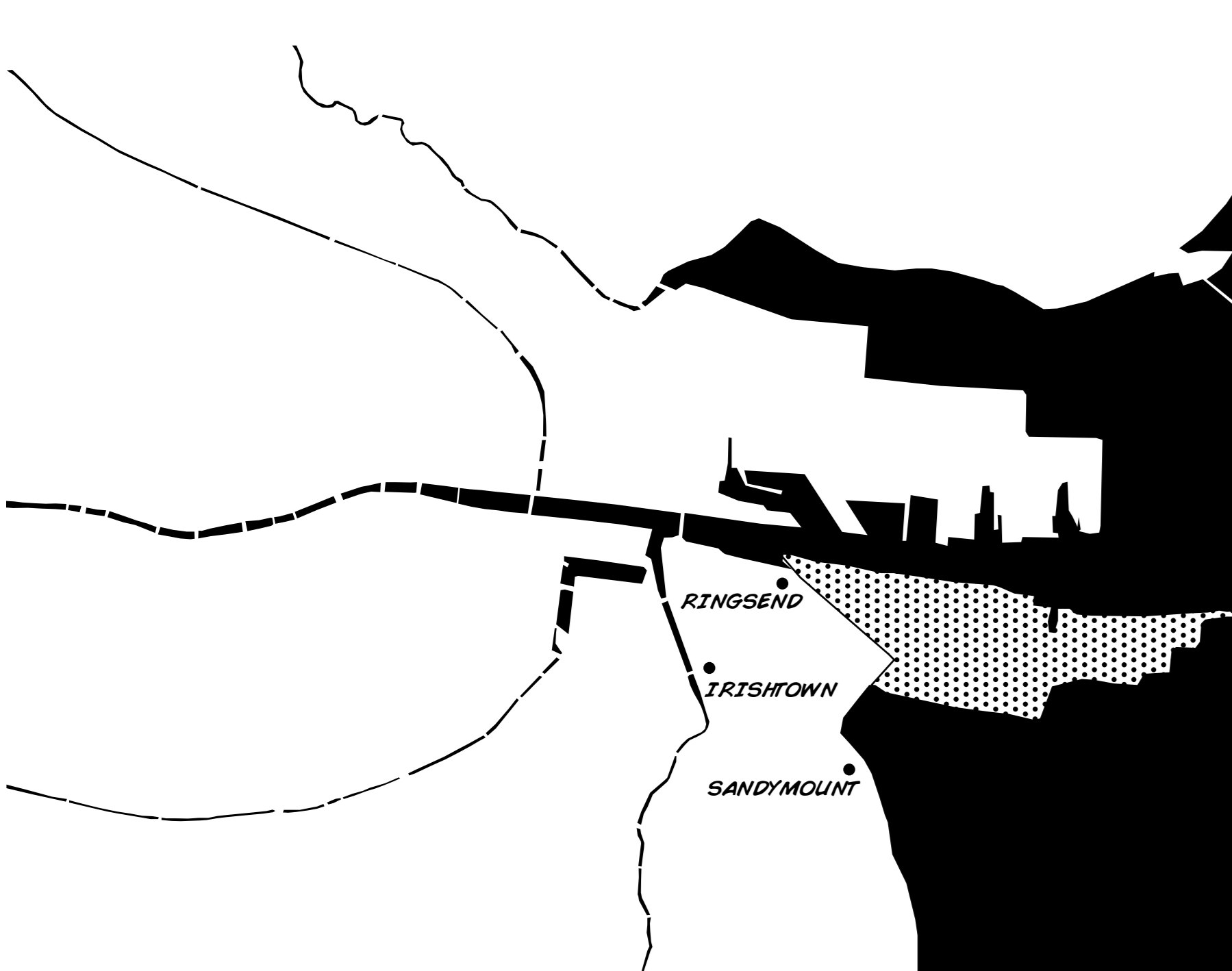
The Poolbeg Planning Scheme regulates the re-development of this artificial peninsula on the south side of river Liffey's mouth. One of the principles is to extend the city toward east, taking advantage from the empty lot of the former glass bottle factory.



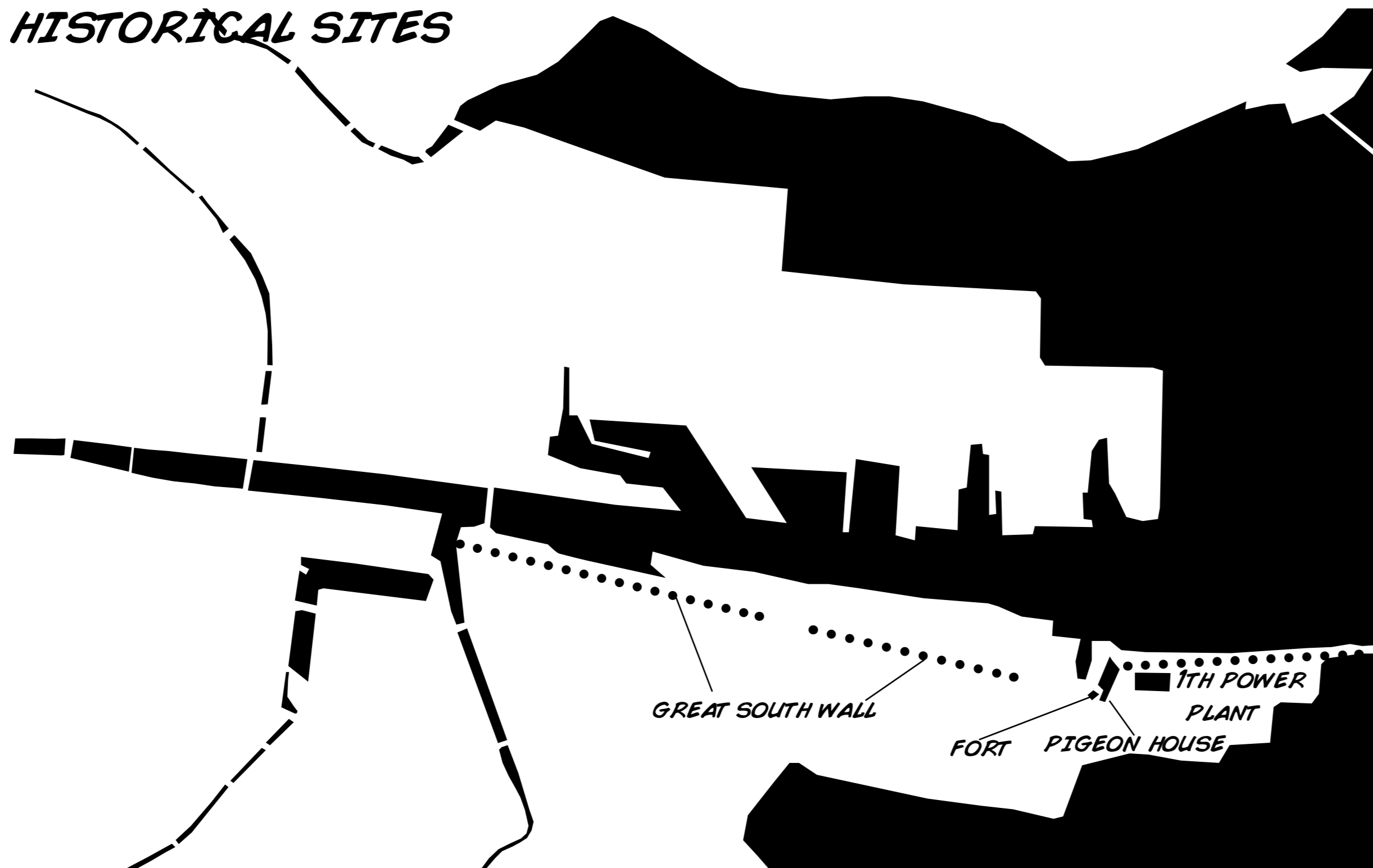
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## SPOTTING THE AREA



## HISTORICAL SITES



**lighthouse**  
first outpost of Dublin toward the sea. The wharf is almost 2 km long.

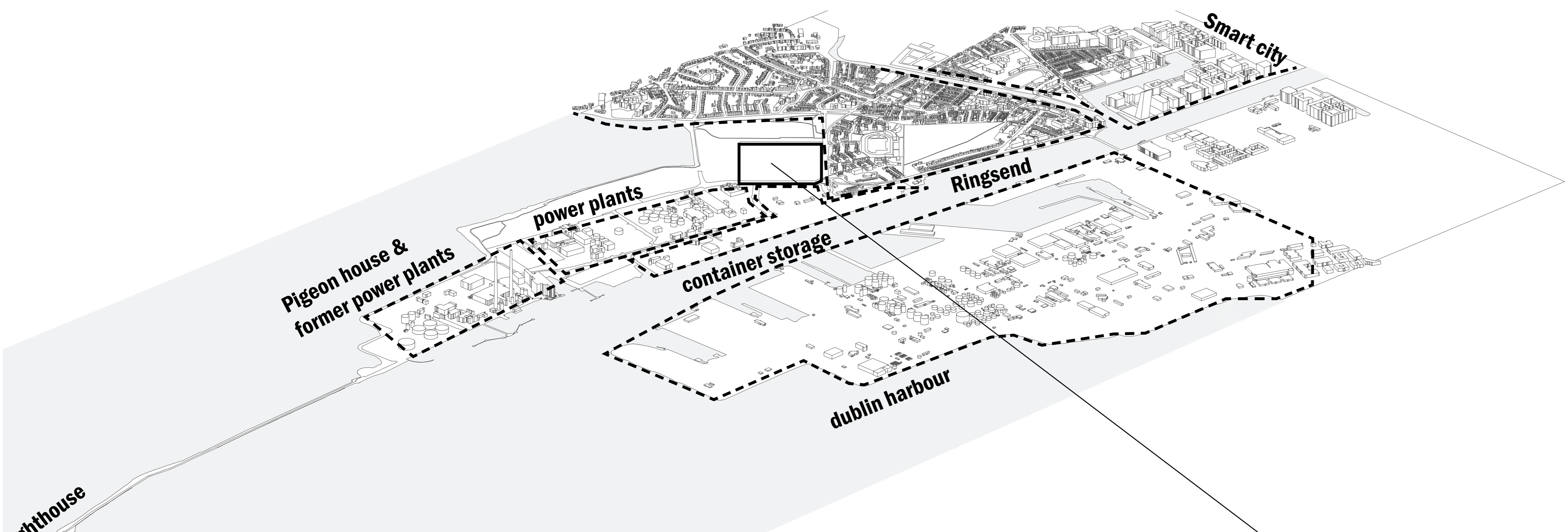
**pigeon house & former power plants**  
regeneration areas what will these areas become?

**power plants**  
they supply energy for all the city and a large part of Ireland the development of Dublin should cohabit with them

**ringsend**  
dwellings and lack of facilities the core of this neighbourhood is a park with just rugby fields, soccer fields, tennis courts, hurling pitches and playground

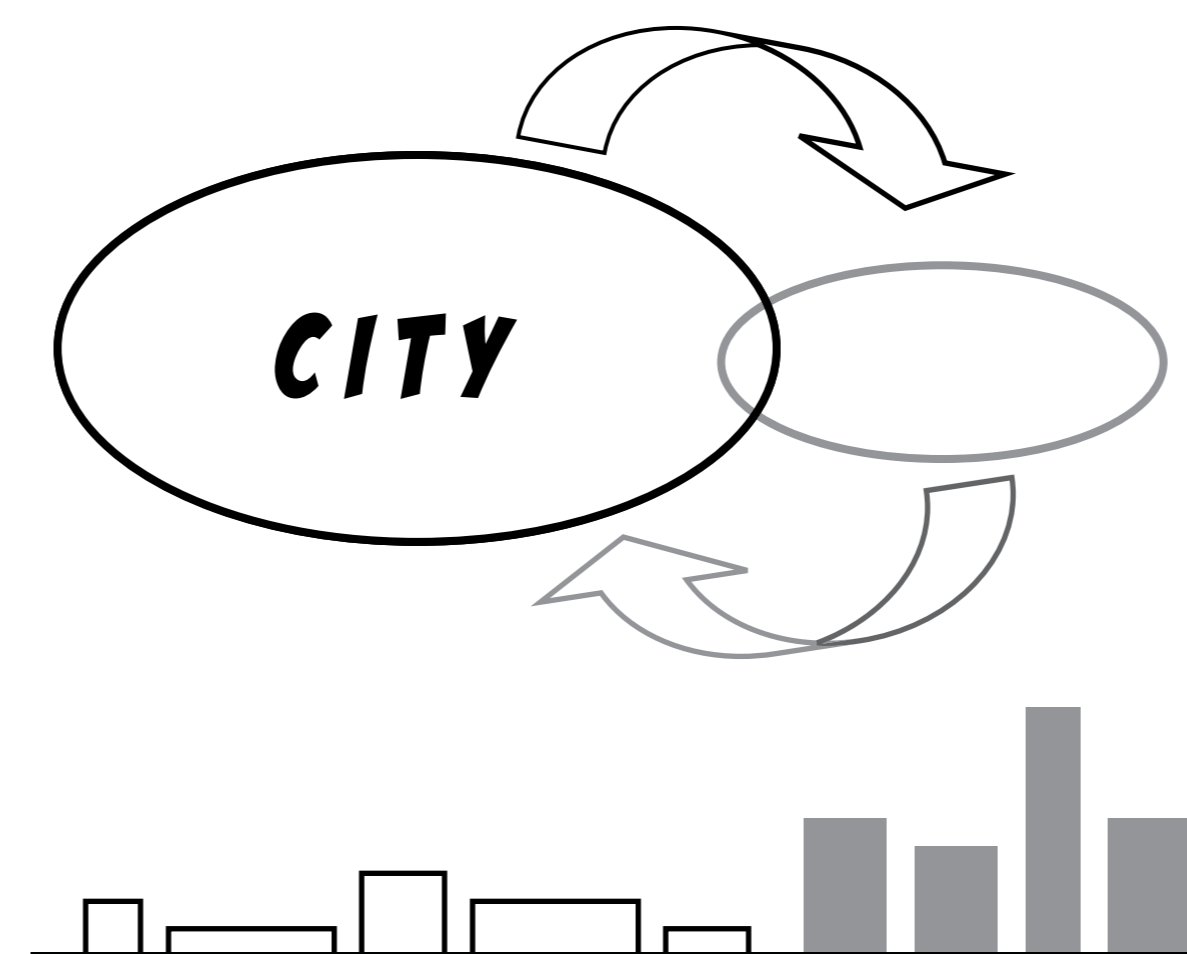
**"smart" city**  
regeneration of Dublin. this is the twentyone-century face of the city. many archistar were called to design their masterpiece: for instance there is a bridge on the Liffey by Calatrava, a theatre by Libeskind, a five star hotel from Aires Mateus and a square by Martha Schwartz.

**dublin harbour**  
it is the biggest port of the country. 2/3 of Irish import/export shipping passes through it. most of port area is occupied with containers and some of them are allocated in the southern quay. Some warves are use d by cruise ships. so the port area is more or less the first impression of the city for cruise 's passengers. Something exiting should happen here, there's a need of a gateway.



## KEY POINT

The former glass bottle factory is an empty area for a new development. The lot is around 300 x 300 meters, almost a perfect square. There is nearby another empty lot called Fabrizia between the former actory and the Dublin Bay. This area needs to be connected with the "smart" city and with the former power plant.



## COMPACT CITY

- no suburban sprawl
- no traffic jam
- no smog
- healthy

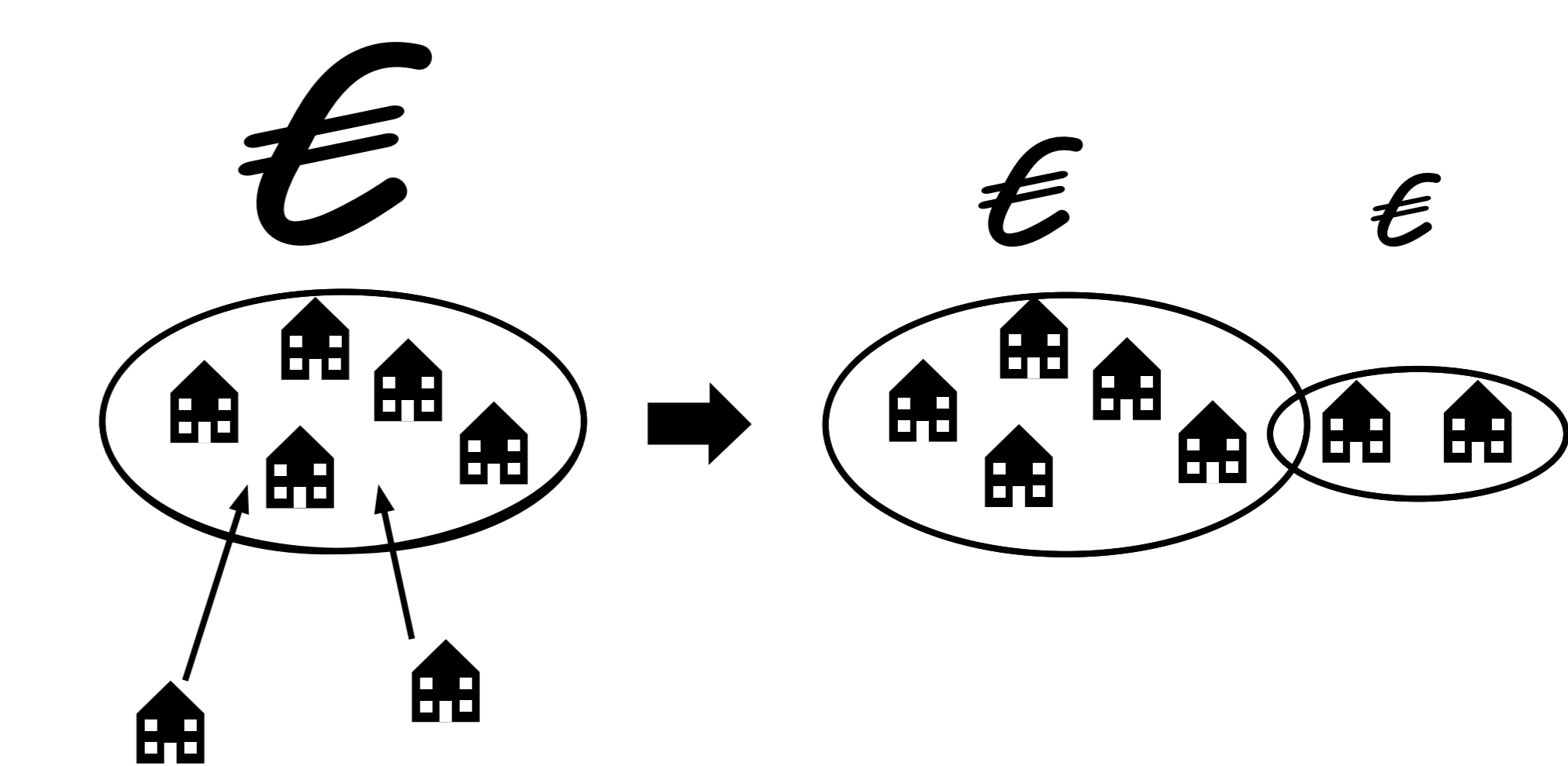
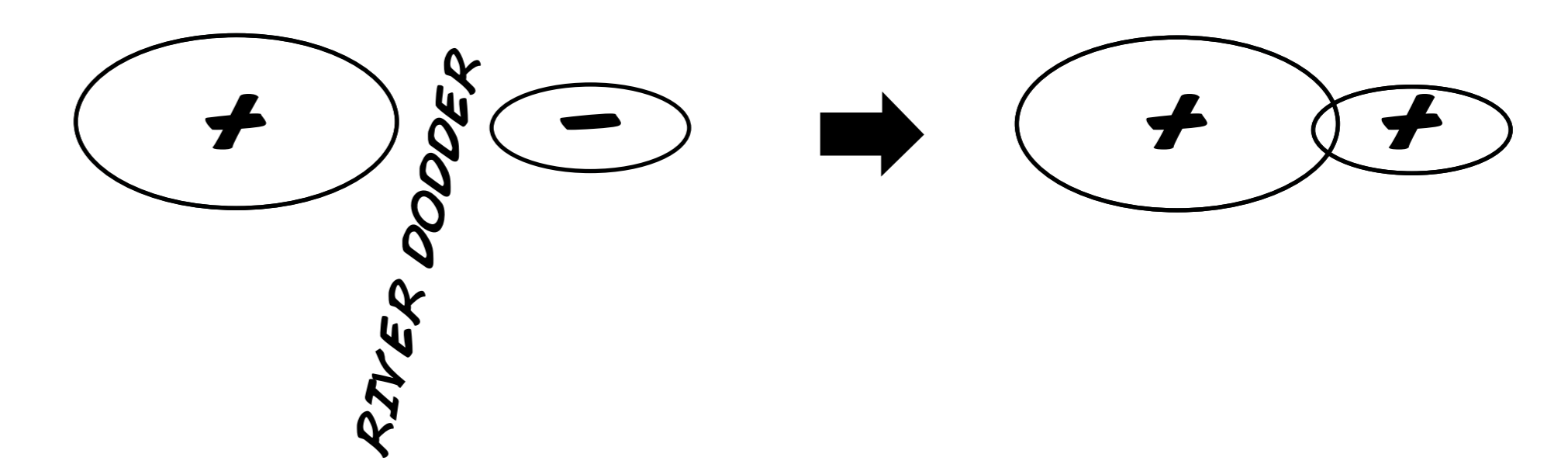
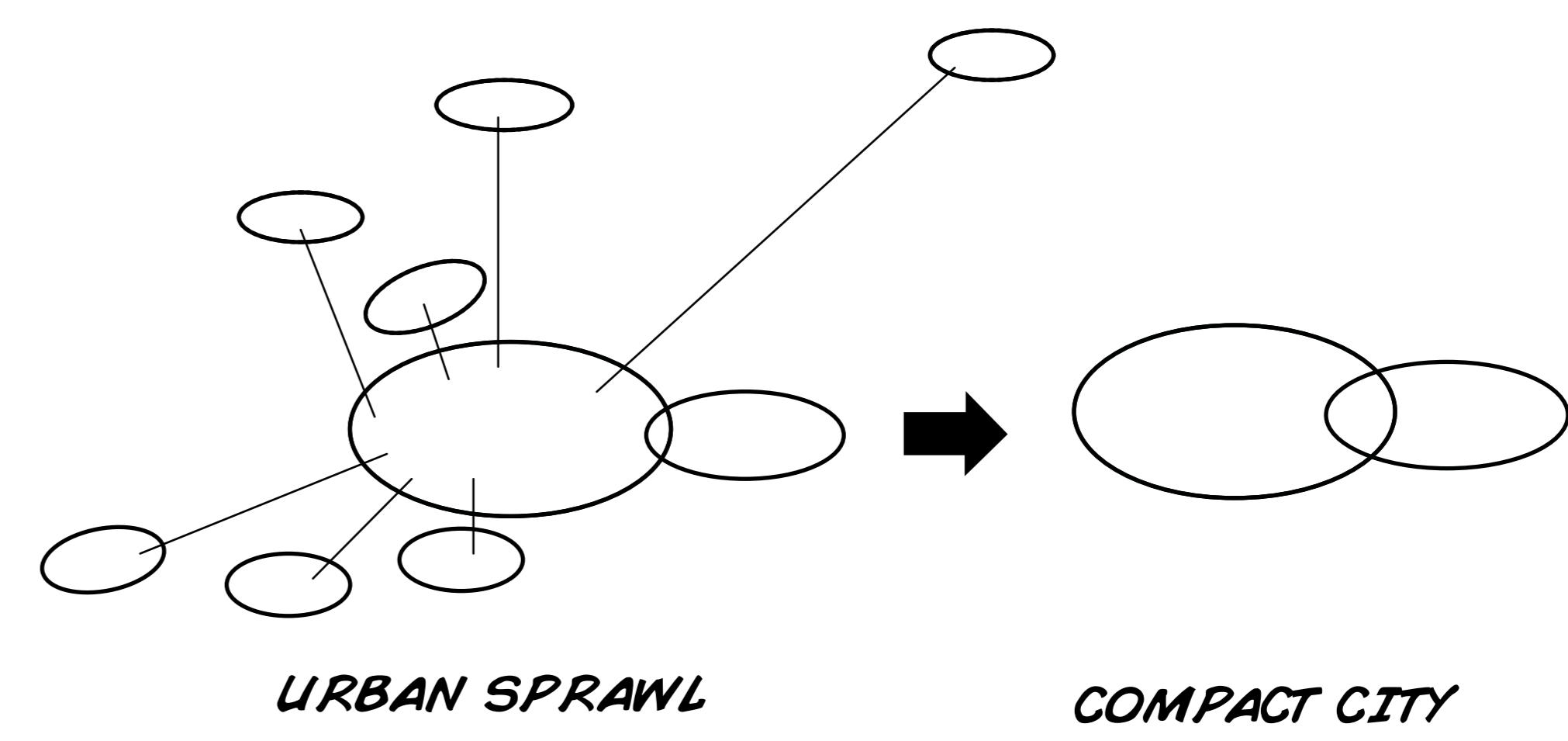
## MORE SERVICE

- easier life

## MORE HOUSE

## NEAR THE CENTER

- more supply
- lower rent
- house for everyone



## compact the city

compact the city, to avoid urban sprawl, which is one of the micro criminality's reasons. For long time during the economic growth of Ireland Dublin have been growing off her boundaries, without a proper planning scheme. The most of outskirt's quarter are lacking of public and private services. Living without neighbourhood's service forces people to use cars to do grocery shopping and so on. Social alienation is another of the results and most of the people use theri homes just ad a dormitory, actually living their life in the city centre.

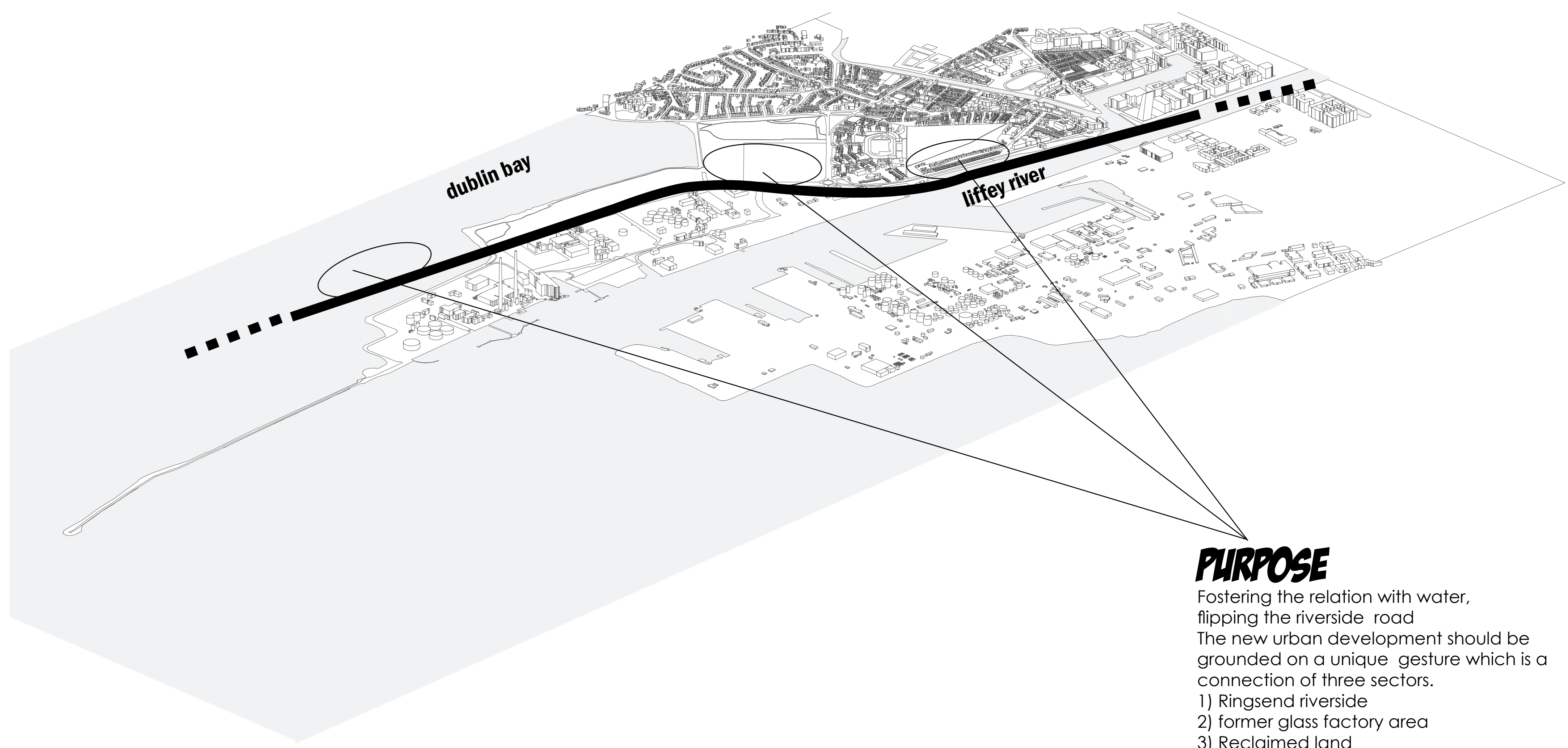
## spread

## public services

Overtake the natural barrier which river Dodder is, with a new bridge to create a f isical connection between city and ringsend. There would be more accesibility to public services have been created in the last decade in the Smart City. The new development should add further public and private services, which would be used also by inhabitants of ringsend who are actually living in detached or terraced houses.

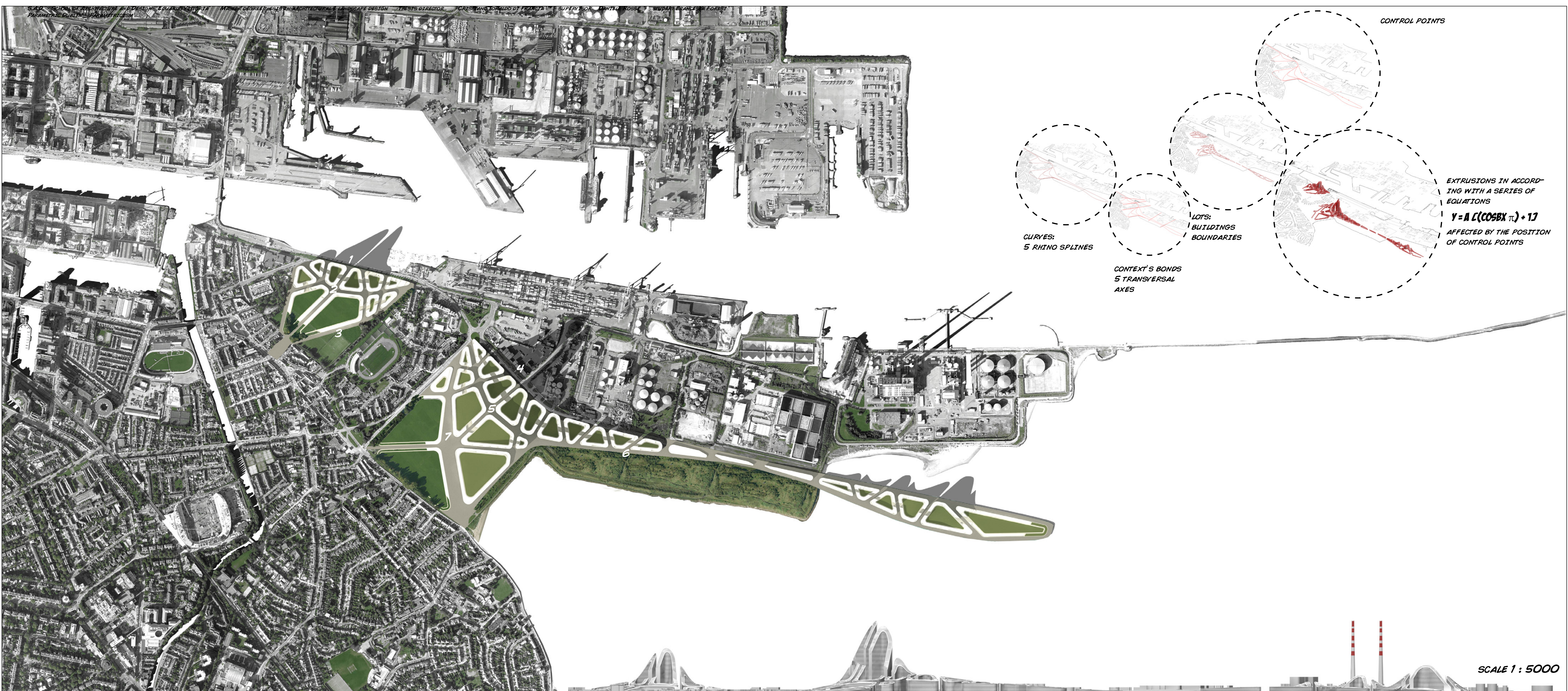
## more affordable houses

Houses in the city are too expensive and there's no room to build new ones. New houses in poolbeg are cheaper and close to the city centre. Offering a large amount of cheaper houses here will decrease city centre's house rates. These new units are addressed to young couple with children and to young or old single. There should be ground for vegetable gardens among buildings and on the rooftops.

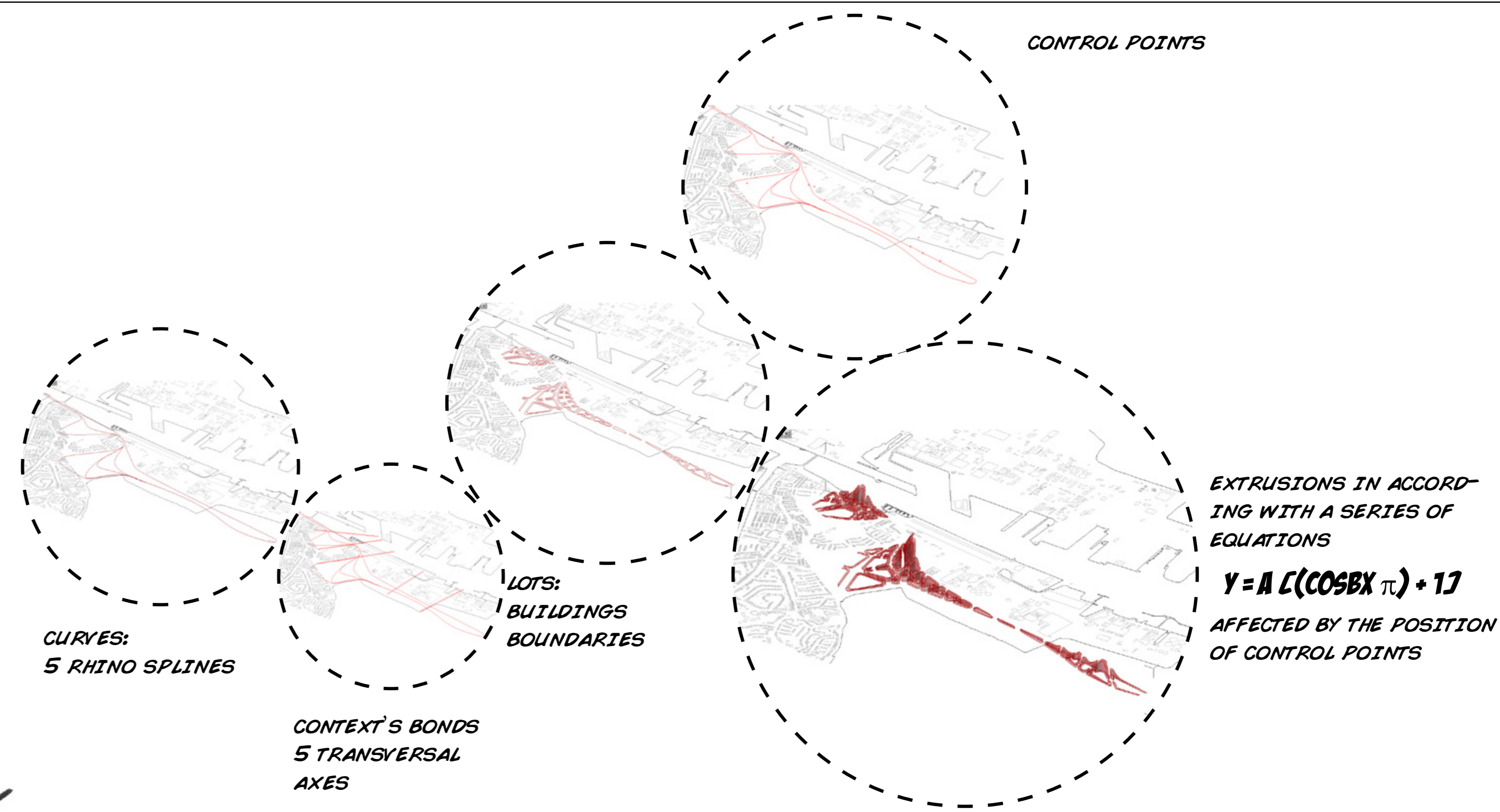


## PURPOSE

Fostering the relation with water, flipping the riverside road. The new urban development should be grounded on a unique gesture which is a connection of three sectors.  
 1) Ringsend riverside  
 2) former glass factory area  
 3) Reclaimed land

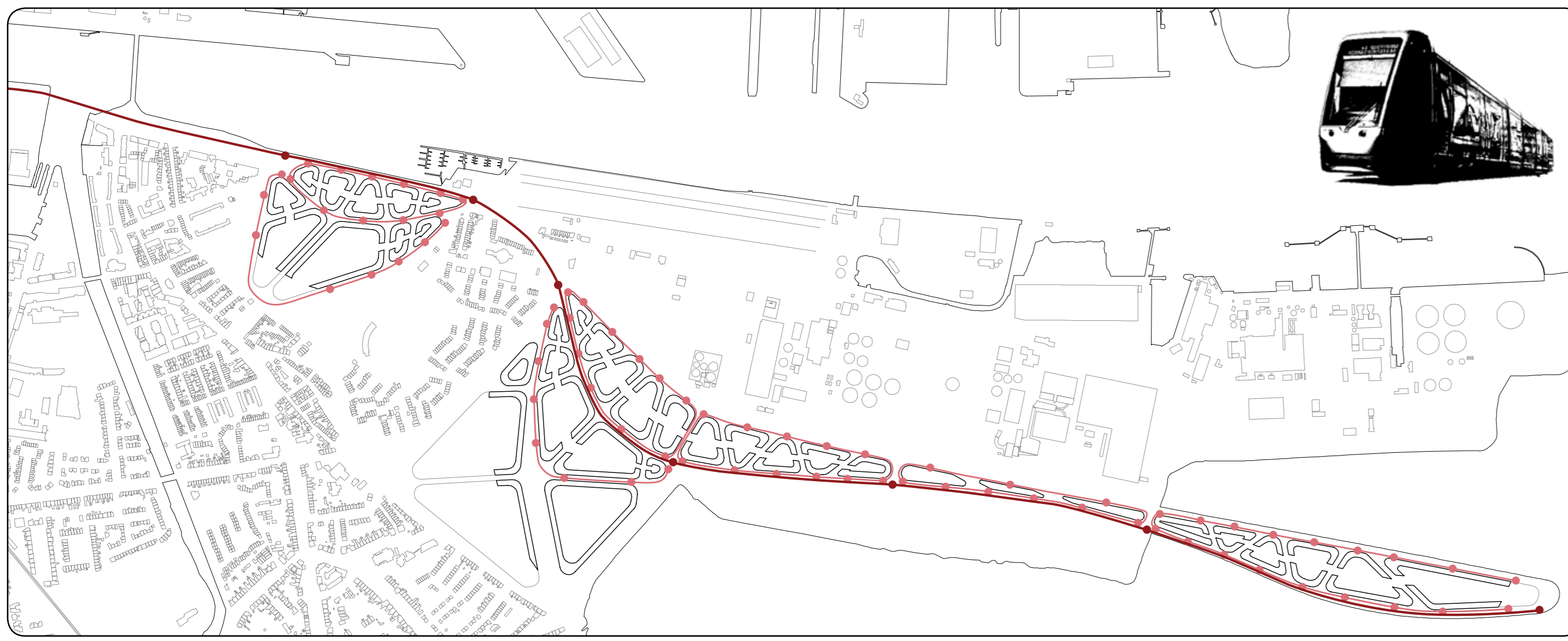


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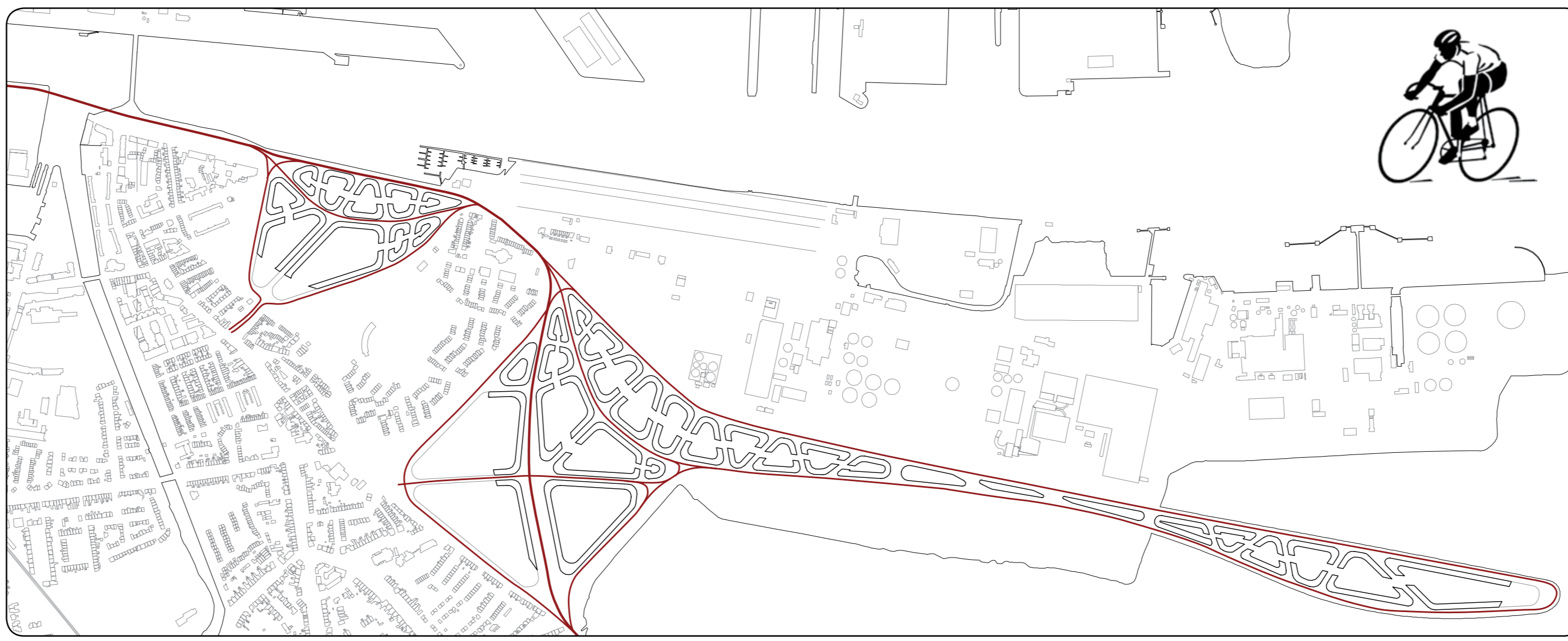


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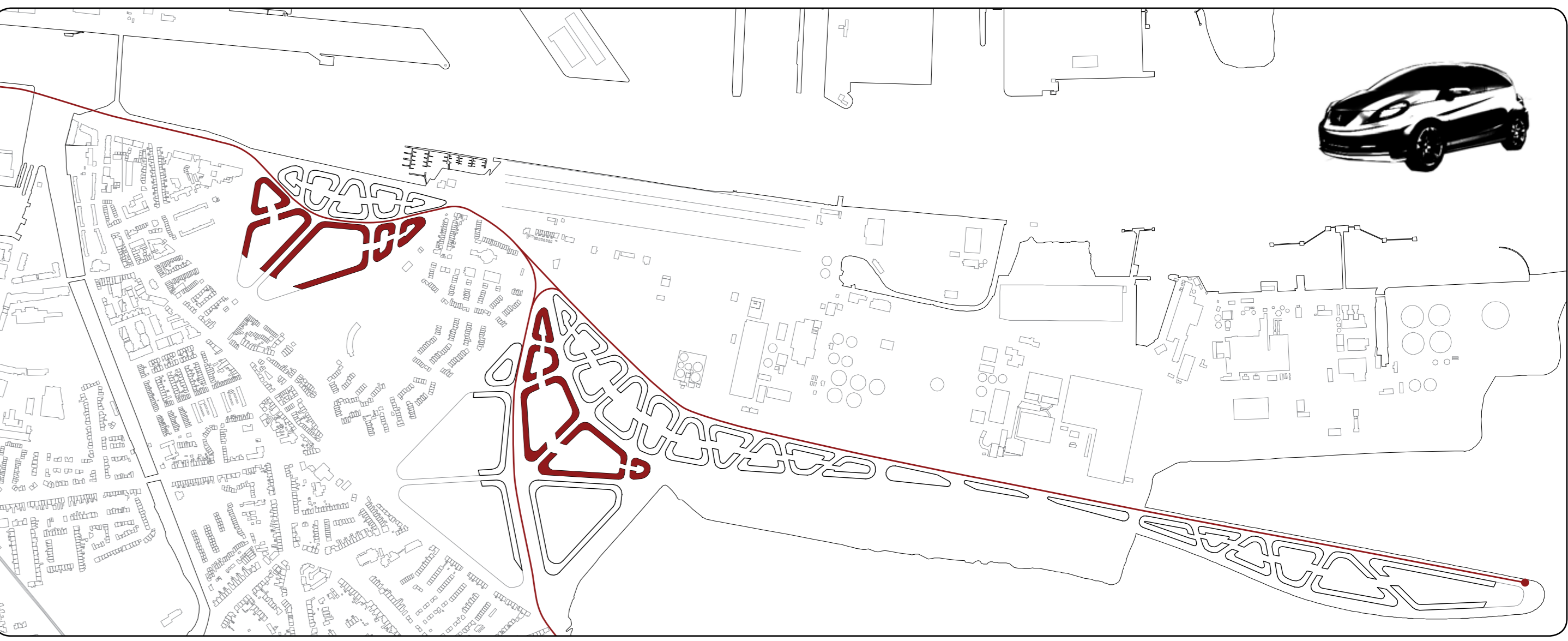
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BIKE'S ROUTES



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