

11th LE:NOTRE Landscape Forum April 26 - 30, 2022 in Rimini, Italy



LE:NOTRE *Institute*
Linking landscape education, research and innovative practice

ECLAS
EUROPEAN COUNCIL OF
LANDSCAPE ARCHITECTURE
SCHOOLS

 **Regione Emilia-Romagna**

INTERNATIONAL STUDENT COMPETITION

Rimini - Dancing to the Future

Prize-winning teams of the 8th LE:NOTRE Institute Student Competition



First Prize: Dancing with Fellini

Hana Gačnik, Zala Janežič, Magda Merhar, Kristina Oražem
University of Ljubljana, Slovenia

Red thread of this project is the atmosphere that Fellini is showing in his movie *Amarcord* – I remember. We understand Fellini as a synonym for strong community.

As in Fellini's time, Rimini still has one main city centre. Nowadays one centre is not enough to support the whole city, because it has grown too much. In addition, there is a significant problem with the barriers such as heavy traffic roads, railway and river channels. These are challenging to overcome for pedestrians, cyclists and residents who live in hinterlands and work in the city.

Our proposal is to use Fellini's inspiration and design the city with a network of strong communities. To achieve a strong social system, we need other supportive systems. To create an environment friendly to pedestrians and cyclists, car traffic has to be moved out of the city and replaced with developed public transport network. To create a healthier and more pleasant living space, the existing green areas will be connected with new ones. With that we reduce heat islands. New more self-sufficient neighbourhoods are created by using natural resources such as water and sun energy. City is protected with anti-flood measures, while utilizing floods to produce electric energy.

When we were designing the public space of Rimini we were trying to see it through Fellini's eyes. We became the scenarists of the city and designed Rimini a place that makes dreams come true. Like Fellini said: "living a dream is like making a movie".

There are two main barriers that were preventing visitors on the weekend. It is a densely dense city, where these areas are separated from each other by strong barriers that are formed by transport infrastructure. Due to car culture and density in dense it is necessary to have a car for everyday migrations. But traffic is inefficient and people are being driven off the streets.

SOCIAL AND ECONOMY



City social and economy division is strongly visible. (SOC-ECON)

Fellini is a synonym for strong community and good landscape connections. (SOC-ECON)



Barriers used to be small enough that one city center could fill people's needs. (SOC-ECON)



Now the barriers are dividing the city in landscape and city space with good potential of strong community. (SOC-ECON)



There is a potential to develop Barri's one main city center to collection of districts. (SOC-ECON)



Streets of Barri have the potential to build strong community. (SOC-ECON)



Creating no-car areas lead to pedestrian-friendly space that improves social connections. (SOC-ECON)



AMARCORD "I remember..."



How is the community connection applied in space? (SOC-ECON)



How does transport network connect with green infrastructure and people activities? (SOC-ECON)



Can we connect nature and humans to produce energy? (SOC-ECON)



Road risk is becoming a big problem because of sea level rise. (SOC-ECON)



Solar panels are the main sustainable way of producing electricity. (SOC-ECON)



PROBLEMS

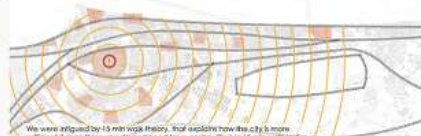


"...this was a town made for people..."

DANCING WITH FELLINI

LEGEND

- public green area
- beach area
- water
- industrial area
- bulk area
- agriculture area
- community park place
- problem with beach privatization
- hotel
- building
- center
- hotel area
- degraded area
- heat island
- area with potential
- solar panel
- restaurant
- cultural heritage
- school
- post office
- hospital
- theater, cinema
- bank office
- prison, stadium
- parking lot
- family
- barrier
- main line
- bike lane
- bus route
- railway
- metro bus
- road
- pedestrian/cycling passage
- pedestrian/cycling passage
- pedestrian zone
- parked measures
- taxi line
- open public space
- solar panel



We were inspired by 15 min walk theory, that explains how the city is more sufficient if everything you all need for everyday life is in 15 min walk radius. Distances between type yellow lines on the scheme represents the 15 min walk.

EVALUATION CRITERIA

The areas were chosen because of potential to develop transport, green infrastructure, energy production and water system. When these criteria will be reached, we will create self-sufficient communities.

SYSTEM GOALS

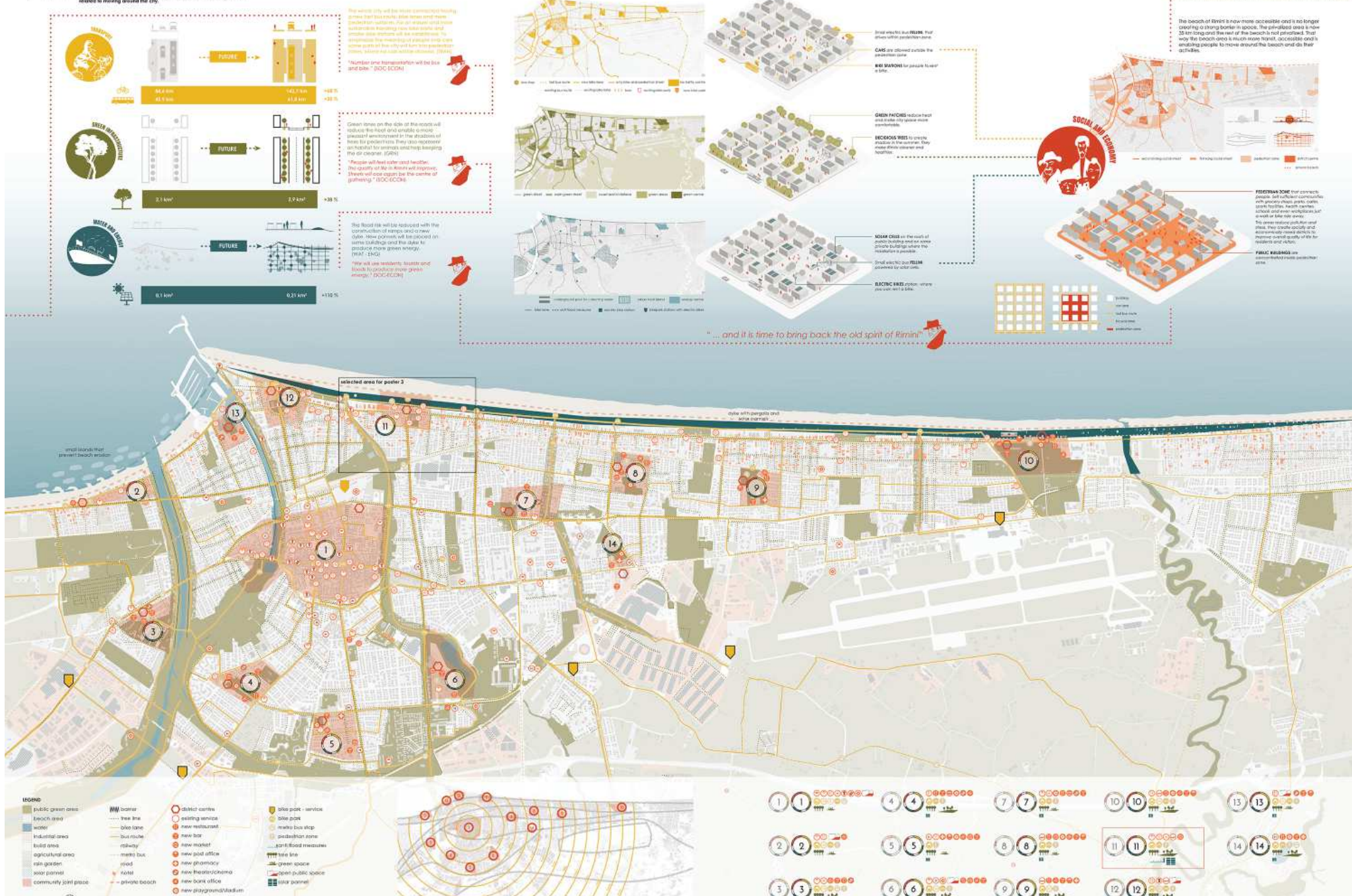
SOC-ECON: Open public space and main services (not a walk or bike ride away).

ENV: Integration and cycle friendly environment, developed public transport, less traffic.

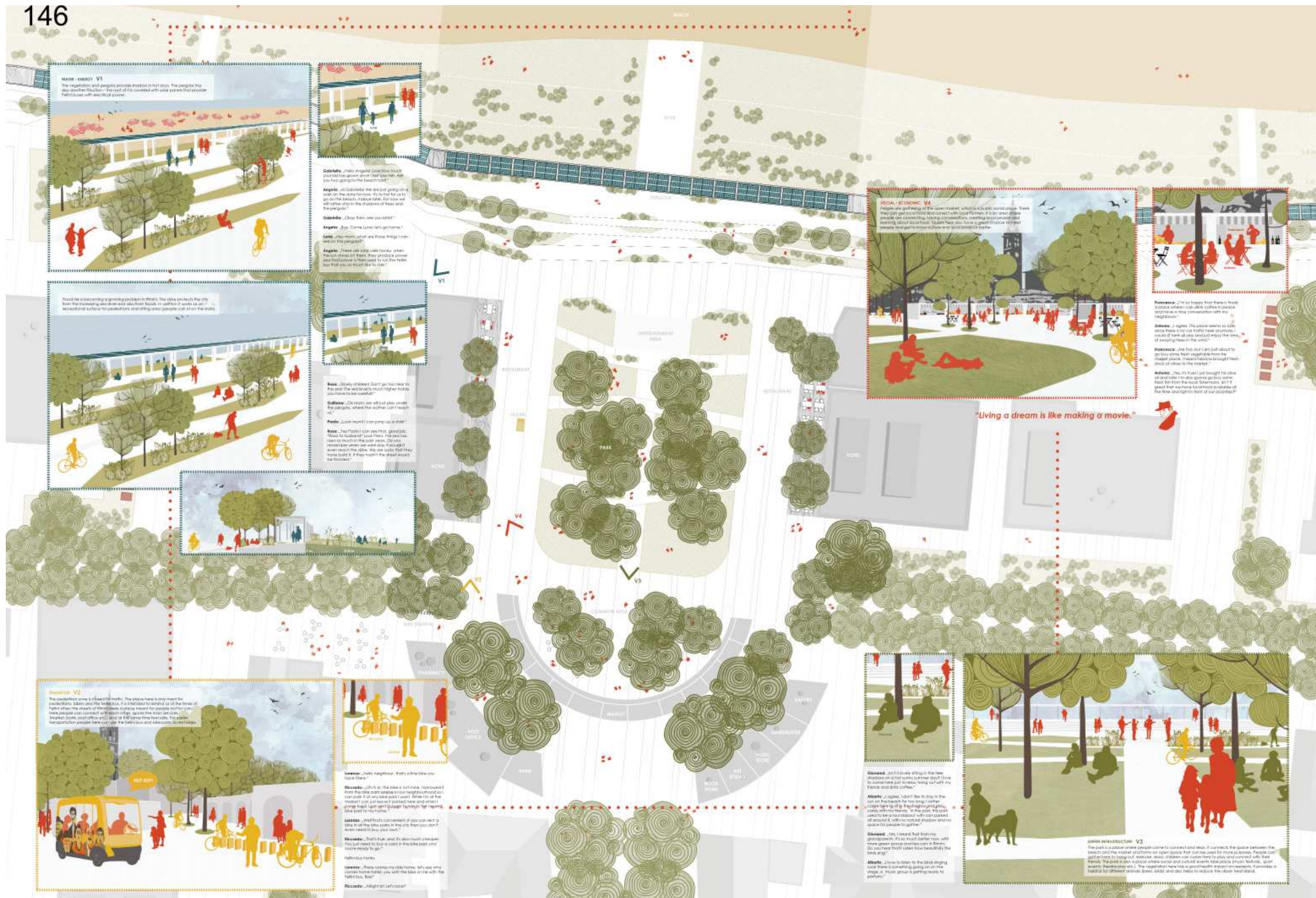
GRN: Recreational area, more green areas and less trees, reducing heat islands.

WARNING: Protecting coastline from erosion, unbridled construction impact on the landscape.











Second Prize: Motioning towards Eco-Journey

Angkita Hawlader, Mahasta Mahfouzi, Isat Jahan Nishat, Maximilian Stauch

HSWT Weihenstephan-Triesdorf & HfWU Nürtingen-Geislingen, Germany

Rimini is a landscape of complex mechanisms within different layers - tourism, industry, small-business and agriculture. Thus, we found its resemblance to a machine and envisioned Rimini as a machine of landscape.

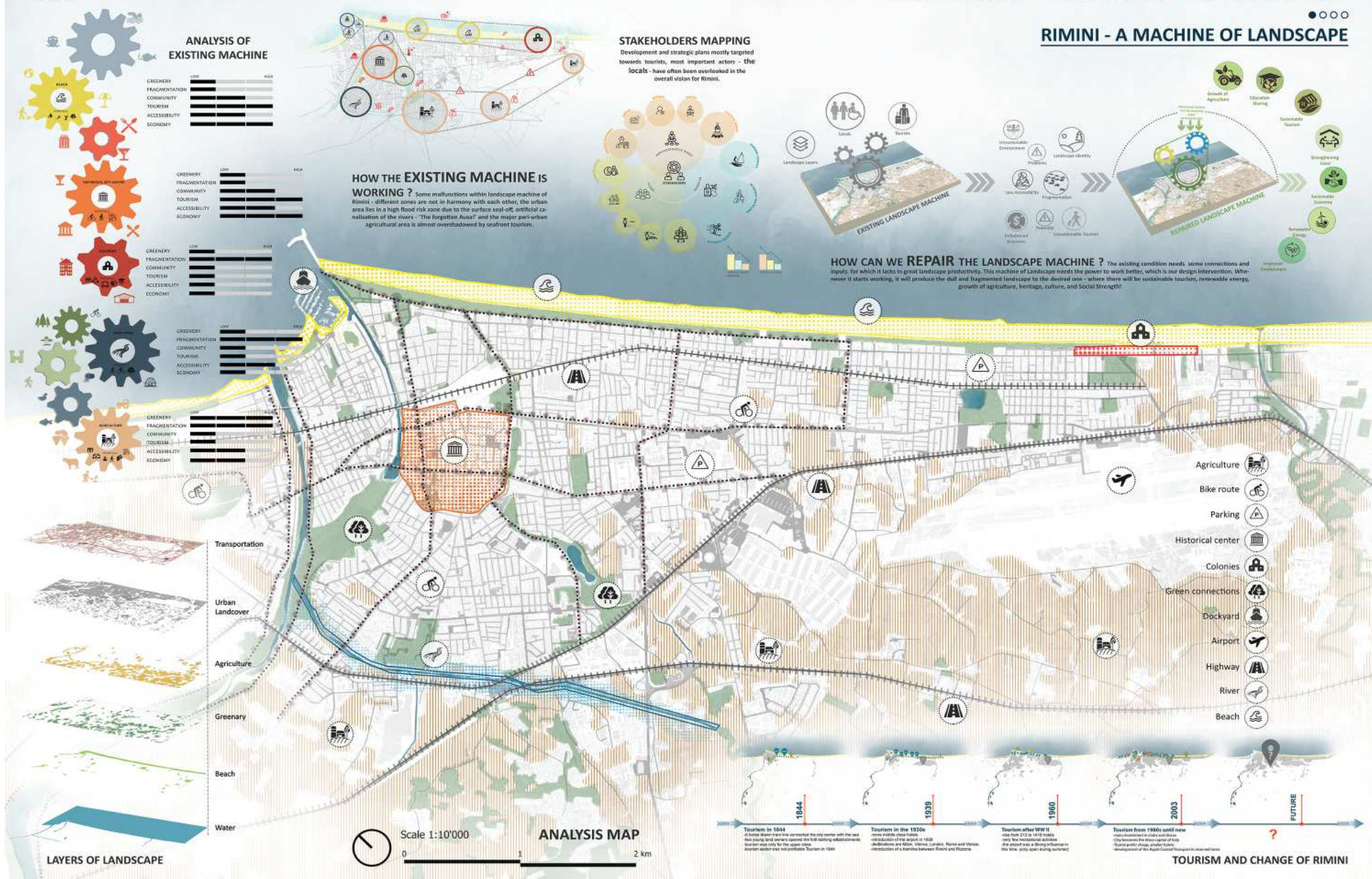
Though the terms 'landscape' and 'machine' are dissonant, this contradiction is justified while considering a large-scale landscape like Rimini. Locals are barely involved in its landscape intervention. Meanwhile, this landscape serves significant purposes as agricultural-production, natural reserves, and urban-infrastructure territory. These two practical facets aid in perceiving the machine aspect of this landscape.

Rimini landscape machine needs the power to work better, which is our design intervention. As our concept, we added new functions in different zones with physical and functional connectivity, so that each individual function of this machine can get integrated and start moving. We have introduced a new shoreline for Rimini - the eco-corridor - promoting ecological buffer and sustainable growth for the future.

In our focus area, the potential of historically significant River Ausa is enhanced by renaturalizing, connecting with the existing green network and developing community gardens around it, resulting in a new aura - with more greenery, less fragmentation, improved accessibility, boosting community and tourist participation - thus increasing its economic factors.

Whenever this landscape machine starts working, it will convert the dull and fragmented landscape to a landscape with sustainable tourism, renewable energy, agricultural growth, heritage, culture, and social strength. For a while, it may seem immobile but with time the landscape machine of Rimini will start motioning towards eco-journey.

RIMINI - A MACHINE OF LANDSCAPE



INTEGRATING THE UNITS

HOW ARE WE REPAIRING THE LANDSCAPE MACHINE OF RIMINI ?

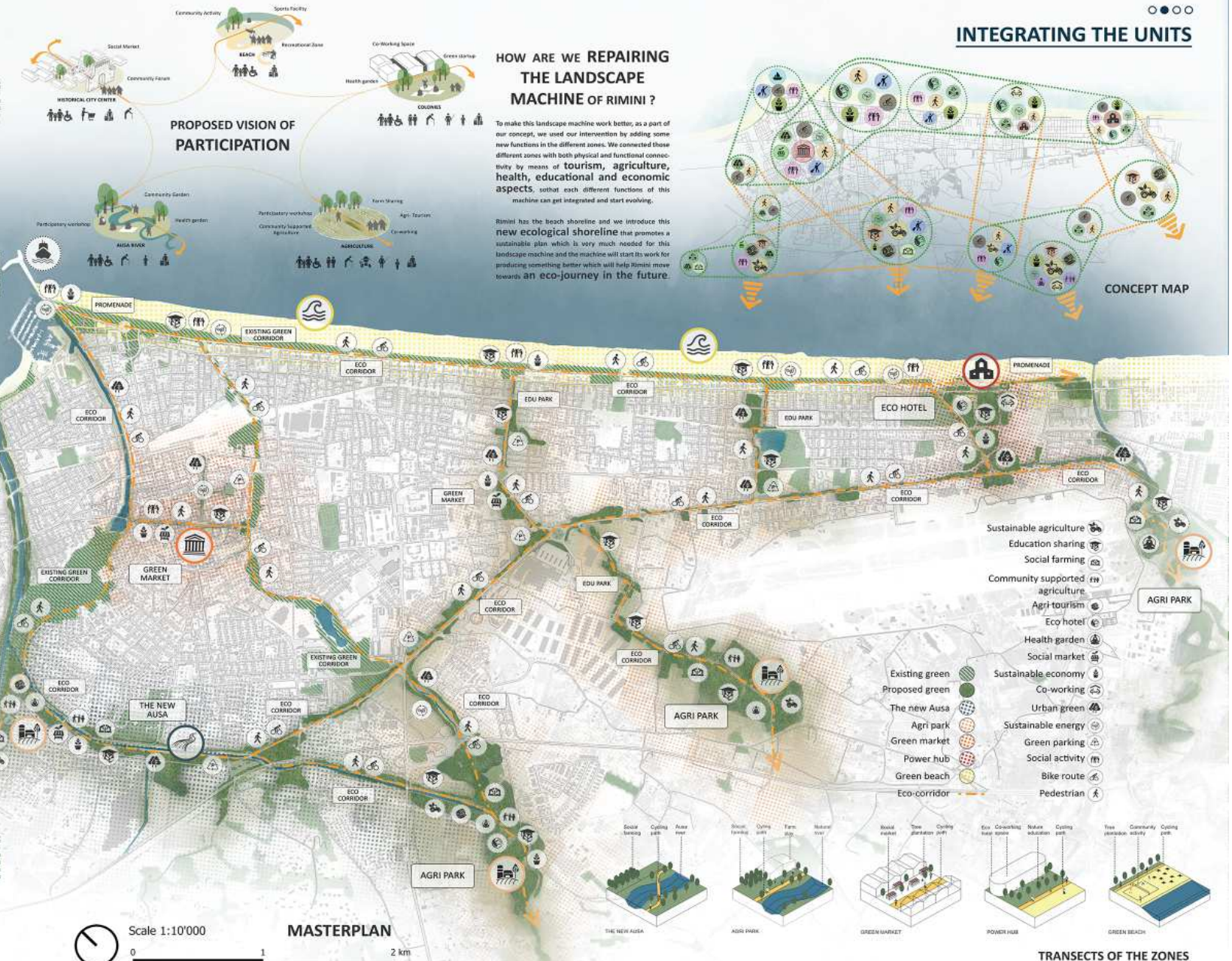
To make this landscape machine work better, as a part of our concept, we used our intervention by adding some new functions in the different zones. We connected these different zones with both physical and functional connectivity by means of tourism, agriculture, health, educational and economic aspects, so that each different functions of this machine can get integrated and start evolving.

Rimini has the beach shoreline and we introduce this new ecological shoreline that promotes a sustainable plan which is very much needed for this landscape machine and the machine will start its work for producing something better which will help Rimini move towards an eco-journey in the future.

PROPOSED VISION OF PARTICIPATION



INTERVENTION ZONES



- Sustainable agriculture
- Education sharing
- Social farming
- Community supported agriculture
- Agri-tourism
- Eco hotel
- Health garden
- Social market
- Sustainable economy
- Co-working
- Urban green
- Sustainable energy
- Green market
- Green parking
- Social activity
- Bike route
- Pedestrian

TRANSECTS OF THE ZONES



THE NEW STORY OF AUSA





MOTIONING TOWARDS ECO-JOURNEY

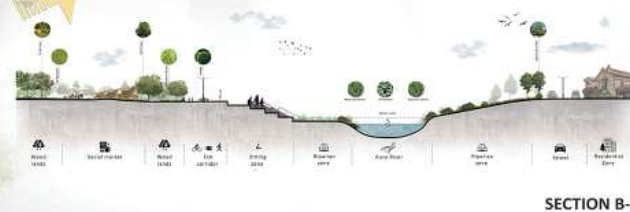
THE AUSA HUB

In 'the Ausa hub', different activities and functions come together and are interconnected with other parts of Rimini. The remastered Ausa has a wide and diverse riparian zone as a natural flood protection. From the bicycle and pedestrian orange path one can either enter a recreational deck which gives a close access to the river or the recreational meadow. Community gardens and social farms along the path are used by the community and for ecotourism. Directly next to it is the green market where the regional produced food can be sold and shared.

KEYPLAN



SECTION A-A



SECTION B-B



SECTION C-C



SOCIAL FARMING



SOCIAL MARKET



BANK OF AUSA



Scale 1:200

DETAILED AREA

0 10 20 40m

- 01. COMMUNITY GARDEN
- 02. HEALTH GARDEN
- 03. ORCHARD
- 04. SOCIAL MARKET
- 05. BYCICLE AND PEDESTRIAN ROUTE
- 06. RECREATIONAL DECK
- 07. RIPARIAN ZONE
- 08. RECREATIONAL MEADOW



Honorable Mention: Rimini Electri-City

Ena Grgur, Luka Jaušovec, Manca Šega, Vid Stropnik, Alen Ternik

University of Ljubljana, Slovenia

Rimini is one of the most attractive coastal cities in Italy, visited by millions of tourists every year. This fact is also reflected in its historic development, city characteristics as well as in different conflicts between uses. Recognized conflicts are addressed with multi-sectoral solutions of three main sectors (society, economy and environment), which will transform Rimini into a holistic and connected system.

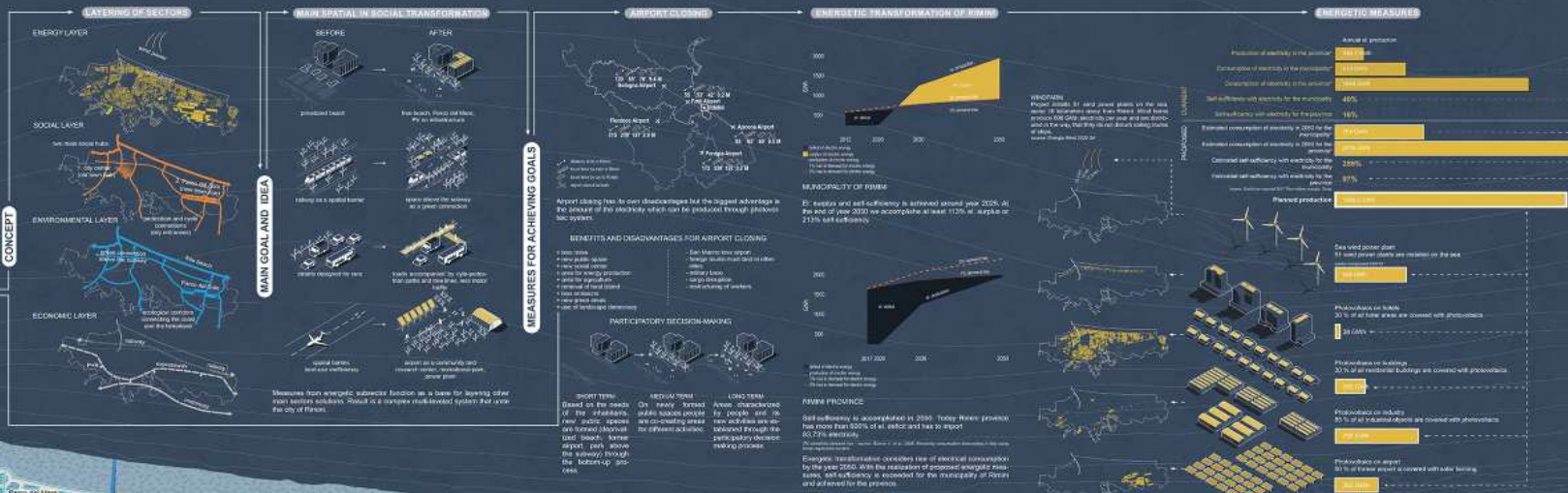
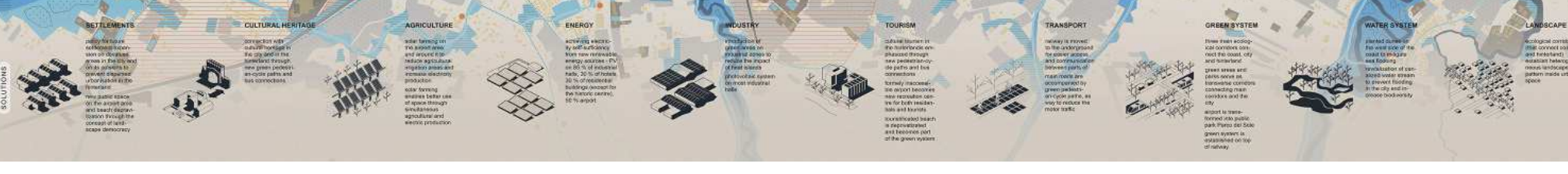
This system is being realized in newly established green corridors, formation of public spaces, transport and social connections coast – city – hinterland. Leading factor in transforming Rimini into the unified system are energy-based measures. They realize the goal of self-sufficiency with renewable energy sources. Photovoltaic system is being implemented on residential buildings, hotels, industrial areas and the airport, while wind farms are being built on the sea. These steps serve as a base for other sub-sectors solutions and thus energetic transformation of the city is not only energetic but also comprehensive.

The airport closing functions as a combining area of all three main sectors and as an opportunity to realize a set of goals by introducing solar farming which connects electrical and agricultural production, expansion of green corridors as well as shaping of the public space through the process of landscape democracy. It also becomes a new entrance to the city and its coast from the hinterland by establishing additional cycle-pedestrian and bus connections. Through the bottom-up principle the airport runway is being transformed into an undefined public area that is open to all inhabitants for interpretation.

106 Rimini the Electri-City

Main goals are the following: self-sufficiency with electricity from renewable energy sources, close link-up of the city with its coast and hinterland and transformation of the city with the concept of landscape democracy. Goals will be achieved through energetic transformation of the city, this transformation is not only energy-based, but it involves all sectors and its changes. Introduction of renewable energy sources (photovoltaic system on residential buildings, hotels, industrial areas, airport and sea wind farm) and will serve as a base for other subsequent solutions. Airport closing becomes an opportunity to develop local energy production of Rimini by introducing solar farming which connects electrical and agricultural production. Additionally, the former airport becomes a new entrance to the city and its coast. Through the concept of landscape democracy, it is transformed into the public space. Thus, it enables an expansion of the green corridor from the hinterland to the city, new transport connections and introduction of new social programs in the existing airport infrastructure.

Deposited beach is transformed into a public space which belongs to everyone - residents and tourists, free of charge. The sand beach is without problematic sections and belongs to the community. The airport becomes a new public space for everyone. Without problematic sections and free to be used for recreation of all city residents. Private car parks, motorbikes, park bikes, to on the ground, rest, walk, sports or simply just enjoy the space. Hangers are adapted and used as community based social spaces. The precinct is used for the classic recreational beach and sports.



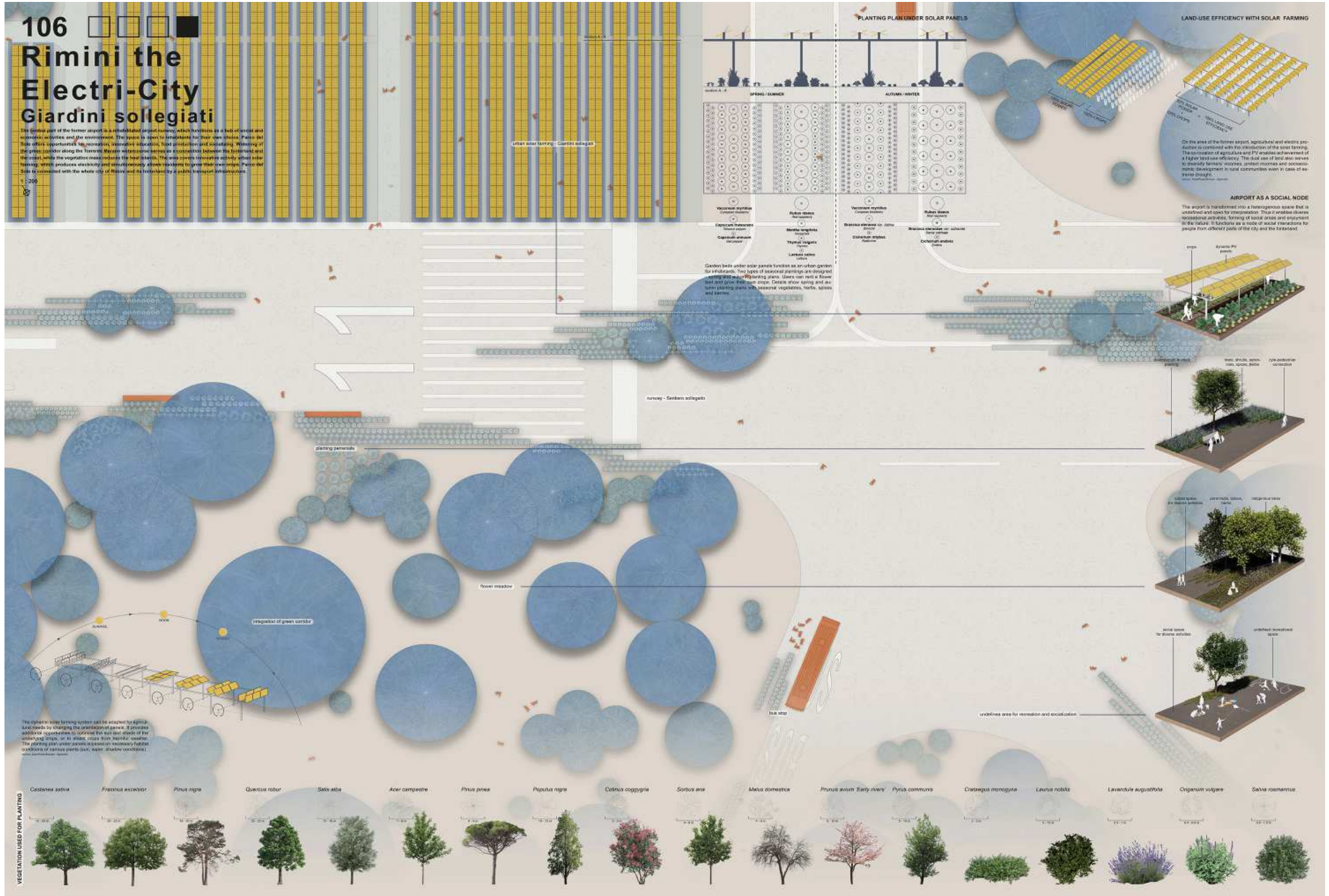
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Rimini the Electri-City

Giardini collegati

The former part of the former airport is a rehabilitated airport runway, which functions as a bed of social and economic activities and the environment. The space is open to inhabitants for their own choice. Paris is the main reference for the project. The project is a rehabilitation of the former airport runway, which functions as a bed of social and economic activities and the environment. The space is open to inhabitants for their own choice. Paris is the main reference for the project.

1:200





Honorable Mention:

Rimini - Do you know your neighbourhood?

Jakob Authenrieth, Jonas Kania, Luise Lonnemann, Pauline Sachs, Sarah Schuster
HfWU Nürtingen-Geislingen, Germany

The challenges associated with the task in Rimini are manifold. A major issue is the homogeneity of the urban structure, the separation of the tourist areas from the rest of the city and the great difference between summer and winter.

To meet these challenges, Rimini is being transformed from a large-scale city into a district city. On the one hand, this is done by developing and designating new green corridors that are oriented towards and extend existing green structures. On the other hand, the newly created districts are oriented towards existing use structures.

To form each new district into a functioning unit, the following 5 principles are applied: Decentralize the tourist areas to revitalize other parts of the city in summer and the beach areas in winter. Reduce and transform traffic towards urban friendly transport. This includes the promotion of public transport through a more effective bus network that allows for quick and spontaneous journeys. Developing green structures into high quality green spaces that can provide recreation and reduce the temperature in and bring fresh air to the city. Creation of identity features of the individual districts that together provide an overall identity for Rimini. Through unique structures and well-chosen uses, a district can be given its own identity. Create a short-way-city that minimizes long distances through good distribution and diversity of uses.

These principles applied to the districts in Rimini creates a good foundation to deal with future challenges together as whole district city.

0 9 2

RIMINI

Do You Know Your Neighbourhood?

ANALYSIS

Rimini is a city at the Italian Adriatic coast in Emilia-Romagna which is influenced by a long history and is known for its tourism sector, which has expanded steadily. There are huge potentials and initial approaches for the municipal development. The previous image as a location only for seaside resort is about to be redirected to a overarching vacation area with a wide range of diverse activities. Due to the fast population and tourism growth since the 1840's the city

structure has expanded mainly guided by economically interests. In the following analysis it is presented in detail how the result of that is a city with a lot of structural separation, long distances and the remaining pressures of the touristic seasons on the environment. The challenge to find an all over solution will be addressed with a more heterogeneous, decentralized approach.

MAIN STREETS AND CYCLE PATHS



GREEN & BLUE INFRASTRUCTURE



PUBLIC TRANSPORT



USES OF BUILDINGS

- RESIDENTIAL BUILDINGS
- EDUCATIONAL INSTITUTION
- CAPITAL INSTITUTION
- HOTELS AND RESTAURANTS

- USES OF LAND
- MIXED USES
- COMMERCIAL AREA
- HIGH QUALITY GREENSPACES
- TRAFFIC SPACES

IMPORTANT LOCATIONS

- PORT
- HOTEL REACHES
- HOSPITAL
- SHOPPING
- MARKET
- FAIR
- AIRPORT

FOUNDATION OF THE COLONIA ANIMINUM 100 BC

ARCH OF AUGUSTUS 10 BC

ROMAN WALL OF THE FIRST CENTURY

ROMAN WALL OF THE SECOND CENTURY

ROMAN WALL OF THE THIRD CENTURY

ROMAN WALL OF THE FOURTH CENTURY

ROMAN WALL OF THE FIFTH CENTURY

ROMAN WALL OF THE SIXTH CENTURY

ROMAN WALL OF THE SEVENTH CENTURY

ROMAN WALL OF THE EIGHTH CENTURY

ROMAN WALL OF THE NINTH CENTURY

STRUCTURAL TOURISM BORDER



GENERAL INFLUENCES ON RIMINI



BIG STRUCTURE



EXISTING DISTRICTS



TARGET: CONNECTED DISTRICT CITY

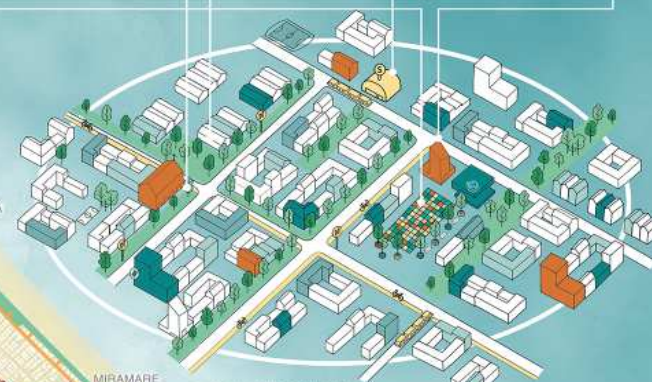


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POTENTIAL OF THE NEW DISTRICTS

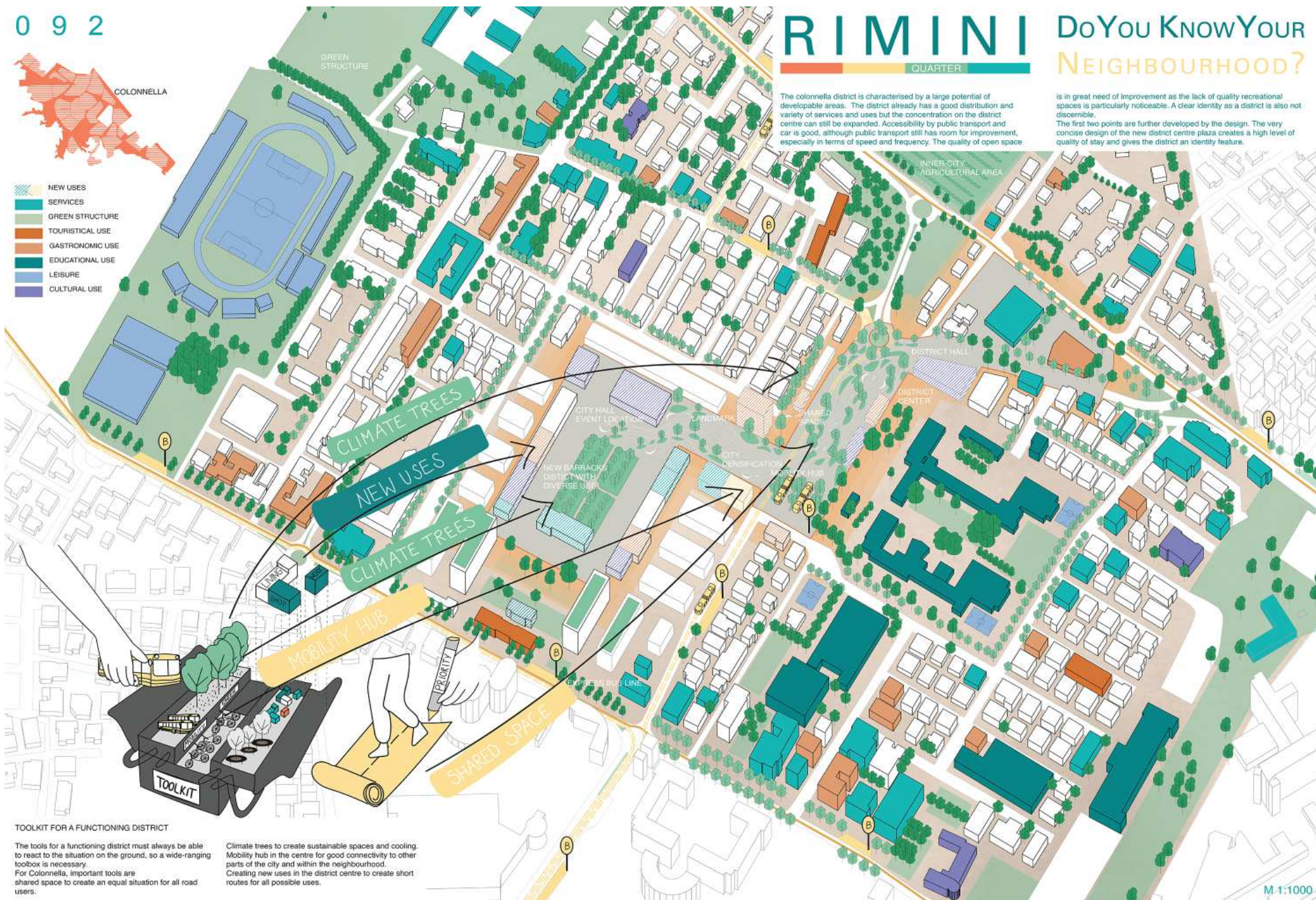


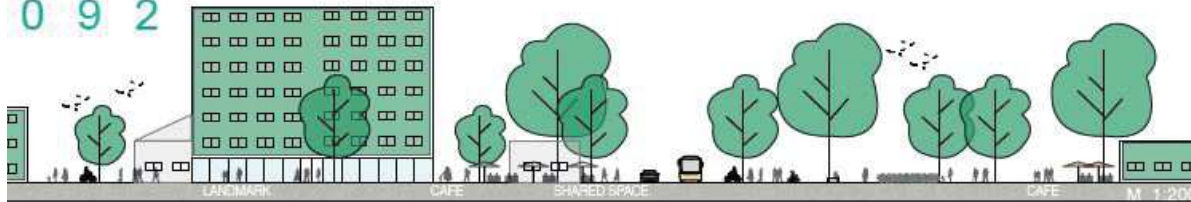
PRINCIPLES FOR FUNCTIONING DISTRICTS



The colonnella district is characterised by a large potential of developable areas. The district already has a good distribution and variety of services and uses but the concentration on the district centre can still be expanded. Accessibility by public transport and car is good, although public transport still has room for improvement, especially in terms of speed and frequency. The quality of open space

The first two points are further developed by the design. The very concise design of the new district centre plaza creates a high level of quality of stay and gives the district an identity feature.





RIMINI

DETAIL

Do You Know Your NEIGHBOURHOOD?

To connect the already existing district center in the north with the barracks area, a new space is created. A space with new uses for everybody. Cafes, restaurants, which have green roofs and facades, come into close proximity to enliven the space. To prevent a disconnection, a shared space area is created. This also makes it more pleasant and safer for pedestrians. The curved white lines are there to

guide the pedestrian and simultaneously are giving the square more dynamic. „Green islands“ with climate trees are placed in a similar form for greenery and shade. The entire surface is made of drainable paving for better infiltration and drainage. Bicycle and car sharing in the district center allows everyone to arrive quickly their destinations. This will further strengthen and improve the existing identity of the district.





Honorable Mention: In between Forests

Pauline Borremans, Marie Cornoedus, Jaron Rop, Yuri Schillewaert

Hogent Kask & Conservatorium, Belgium

Reconnecting the hinterland and the coastline through productive forestscapes

To understand the challenges Rimini faces now and in the future, it is necessary to look beyond the urbanized area. As in many contemporary cities, the link between hinterland and city has been diluted over the past centuries. The hinterland makes urban life possible and has provided the city with food, drinking water, and so much more since its inception. With the threat of climate change, the hinterland becomes even more important than before, but we find that the hinterland itself has never been more fragile than it is now. Massive deforestation has greatly reduced biodiversity, constantly eroding fertile soils and reducing water buffer capacity.

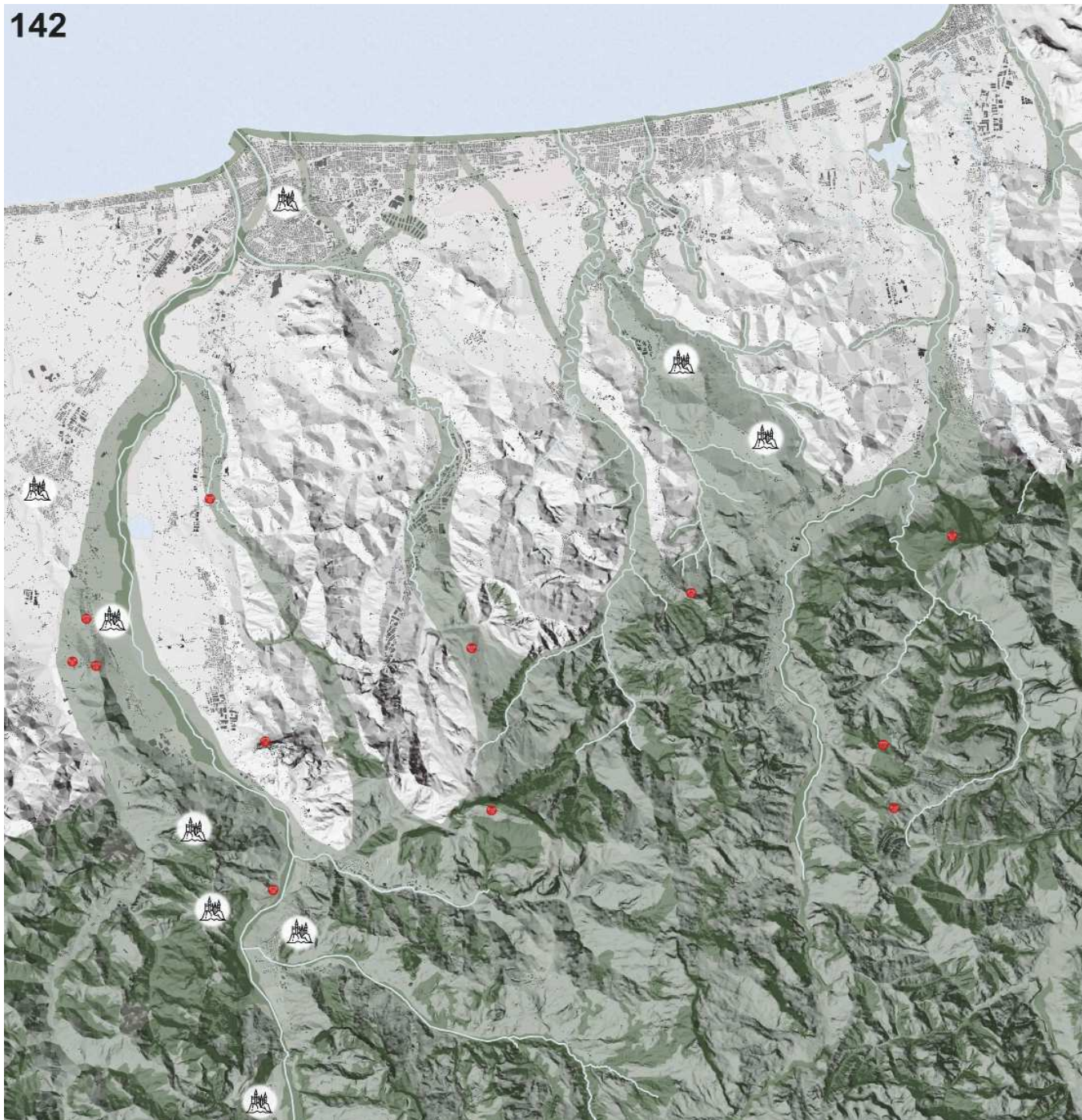
This combined with the standardization and mechanization of agriculture creates poorer soils and more vulnerable crops. In our opinion, the key to a climate-adaptive Rimini lies in the hinterland. In doing so, this region has another great asset up its sleeve. Due to the rich history of the province, the hinterland has a wealth of beautiful castles and historical landmarks. At present, the hinterland is still a hidden gem hidden behind a busy seaside town. In our design we therefore not only include the ecosystem but also want to combine this with an expansion of tourist destinations in the area.

To protect the city against climate change and improve the quality of life, we want to reconnect the city with the hinterland and all its advantages. This we want to achieve by making six corridors. By allowing corridors into the city, space is being created in the densely built-up city. These green axes of the hinterland bring back the biodiversity and productivity to Rimini. It also creates passageways for the inhabitants of the city to rediscover the hinterland and its rich history.

The corridors connect the underlying productive landscape with the sea. Throughout the corridors, paths will be constructed for the vulnerable road user who in this way not only comes into contact with the beach but also gets to know the beautiful hinterland. One of the 6 corridors that we have designed to make the city more fordable, more biodiverse and more liveable is the residential corridor. This corridor was created by connecting existing open spaces in the urban fabric. In order to make the connection with the hinterland, the system of forestscapes has been extended to the sea. Each forestscape has its own vegetation and function. They are connected by the soft road and provide a fascinating and varied landscape. One of these parts is the dune belt, its connection to the sea is an important intervention in our project.

Currently, the sea is difficult to access publicly due to the privatization of large parts of the beach. In addition, the beach strip currently has no added value for biodiversity. Therefore we propose to construct natural dunes along the ecological corridors. These are connected with the ecosystem of the hinterland and prevent the uprooting of the dunes. In the sea we work with a system of coastbusters. By creating a sustainable structure in the water, a real sea forest can be created. This forest increases the biodiversity in the sea area but also creates a productive mussel and oyster farm. In addition, the sea forest also acts as a breakwater. This will reduce erosion of the beach and in the future, when the sea level rises, it will reduce the intensity of the waves.

Due to the rise of the sea level, many houses will flood. By reinforcing the foundations of the existing houses and turning them into stilt houses, we want to ensure that they can still be used. The stilt houses have access via a path that is built at height. By strengthening the foundation, an extra floor can be built in a wooden construction to compensate for the loss of the ground floor. The foundations of the houses become part of the sea forest because they also provide a home for mussels, oysters and other sea life.



IN BETWEEN FORESTS

reconnecting the hinterland and coastline through productive forestscapes

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WATER SUPPLY

In this study of Riccardo Santolini and his colleagues, we see the capacity of the Marecchia River in providing drinking water for the city. Currently, the mountains are used as the city's water factory. By reforesting through agroforestry, we can activate this factory even more and create a larger buffer for the periods of droughts and tropical rains that climate change brings.



SEA LEVEL RISE

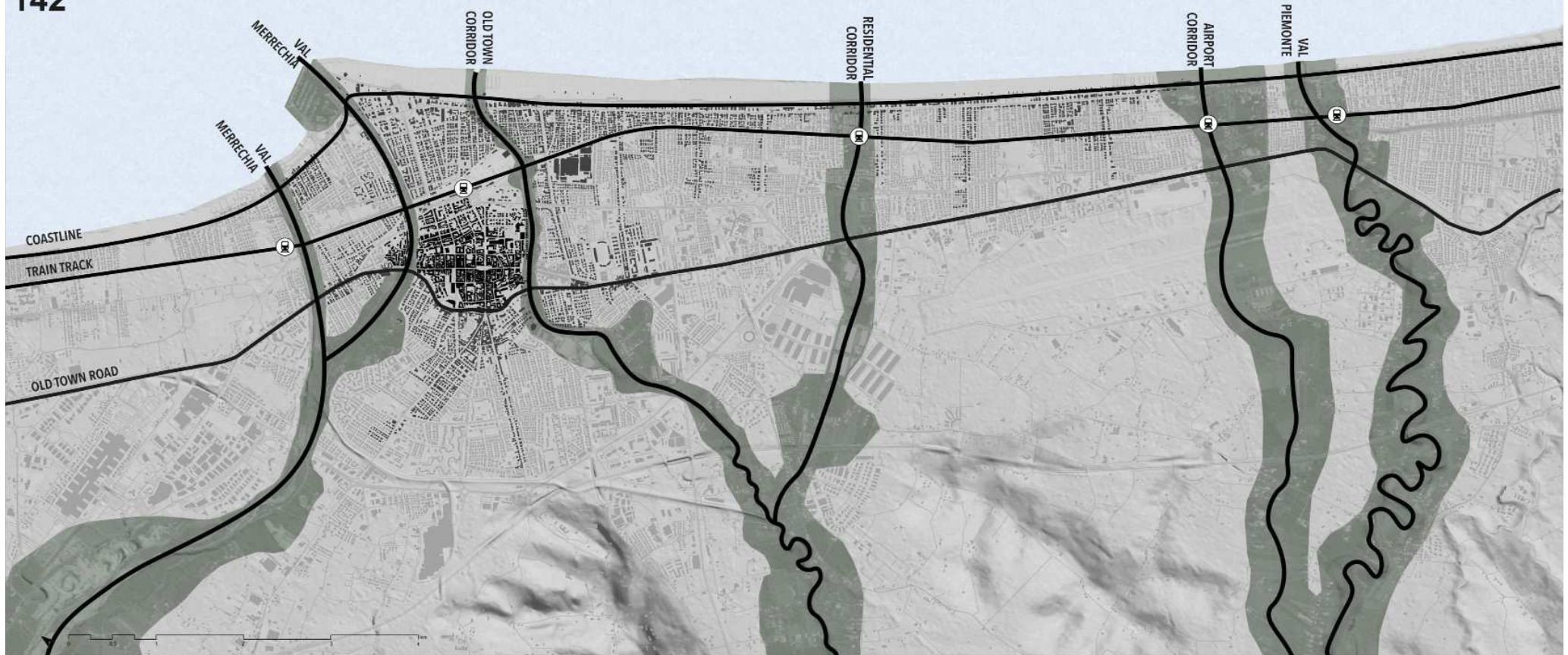
A major consequence of climate change is rising sea levels. Compared to Venice, Rimini is at the edge of the delta to be flooded. The scenario of a 4°C rise predicts the raising of the sea level up to the ancient city walls.



LAND USE

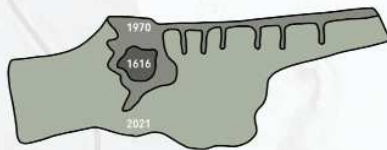
During the Renaissance, Italy experienced major deforestation due to agriculture. This map shows the land uses in the province. As you can see, most of the space is taken up by agriculture. It fragments the natural areas.





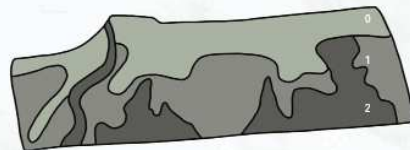
EVOLUTION CITY

For a long time Rimini has remained within the walls of the old city center. It wasn't until Rimini became a beach destination that the city began to grow. The city expanded first mainly along the coastline with a couple of strings reaching to the hinterland. After 1970 the city expanded exponentially.



BIODIVERSITY

Rimini is not doing well in terms of biodiversity. Over the entire coast, Rimini is given a score of 0 on a scale of 5. This score applies to the entire urban fabric with the exception of the Marecchia valley which scores a poor 2 out of 5.



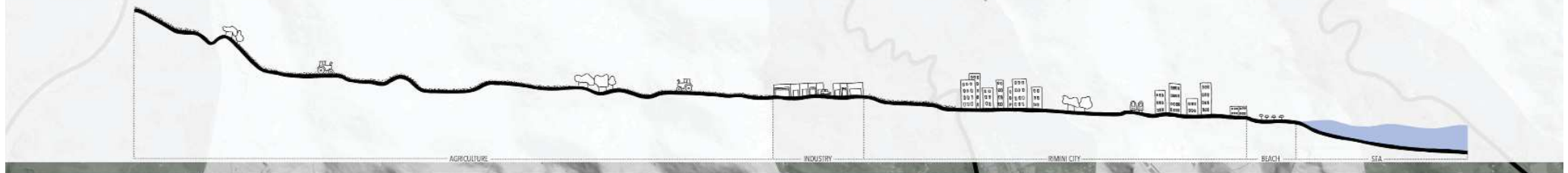
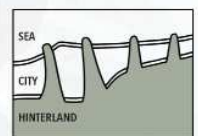
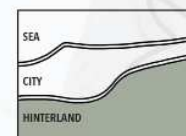
STRUCTURE PLAN

In Rimini, the streets are still dominated by the car. This makes getting around in Rimini less attractive for the vulnerable road user. In our design, we looked for a clear structure to make the city more walkable for soft traffic while connecting it to the hinterland. A major change that we make is the addition of 4 more train stops along the coastline. This will allow tourists to park inland and move easily through the coastal city.



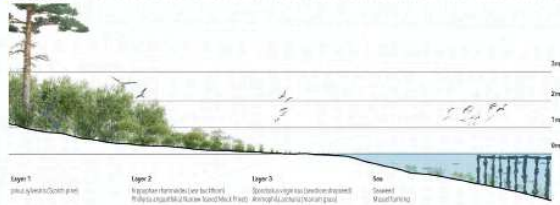
CONCEPT

To protect the city against climate change and improve the quality of life, it is important that the city is reconnected with the hinterland and all its advantages. By allowing corridors into the city space is being created in the densely built-up city. These green axes of the hinterland bring back the biodiversity and productivity to Rimini. It also creates passageways for the inhabitants of the city to rediscover the hinterland and its rich history.



RESIDENTIAL CORRIDOR

DUNES



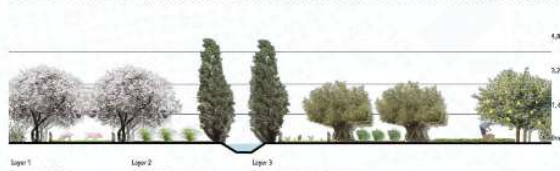
URBAN FOREST AND GARDENS



FOOD FOREST



AGROFORESTRY



To make Rimini climate adaptive for the future, we propose to integrate several green corridors in the city. These corridors connect the underlying productive landscape with the sea. Throughout the corridors, paths will be constructed for the vulnerable road users who in this way not only comes into contact with the beach but also gets to know the beautiful hinterland.

The residential corridor is one of the 6 corridors that we have designed to make the city more fordable, more biodiverse and more liveable. The corridor was created by connecting existing open spaces in the urban fabric. In order to make the connection with the hinterland, the system of forestscapes has been extended to the sea. Each forestscape has its own vegetation and function. They are connected by the soft road and provide a structuring and varied landscape.



COASTLINE

The dune belt and its connection to the sea are an important intervention in our project. Currently, the sea is difficult to access publicly due to the privatization of large parts of the beach. In addition, the beach strip currently has no added value for biodiversity. Therefore we propose to construct natural dunes along the ecological corridors. These are connected with the ecosystem of the hinterland and prevent the spreading of the dunes.

In the sea we work with a system of coadapters. By creating a sustainable structure in the water, a real sea forest can be created. This forest increases the biodiversity in the sea area but also creates a productive mussel and oyster farm. In addition, the sea forest also acts as a water break. This will reduce erosion of the beach and in the future, when the sea level rises, it will reduce the intensity of the waves.

Due to the rise of the sea level, many houses will flood. By reinforcing the foundations of the existing houses and turning them into stilts houses, we want to ensure that they can still be used. The stilts houses have access via a path that is built at height. By strengthening the foundation, an extra floor can be built in a wooden construction to compensate for the loss of the ground floor. The foundations of the houses become part of the sea forest because they also provide a home for mussels and oysters.

Existing situation

- Agricultural land
- Hinterland
- Water break

Fase 1

- Docks
- Green corridor (not interrupted by terrain)
- Urban form and pattern
- Building footprint (including old building) except for the new building by the existing pattern.
- Stilts house (building a temporary structure to help to bring the building back to produce in time)
- Public space
- Introducing a forest, present character of the coastline (and a large landscape)

Fase 2

- Forest
- Urban form and pattern
- Creating a path structure that gives access to the buildings
- Making it focus out of the existing buildings by reinforcing the foundations, the foundations are seen as a platform for the new green.
- Sea forest
It is a structure where buildings are connected:
 - Water and air (paths and stairs)
 - Air and soil (grass and stones)
 - Land and sea (mussel and oyster)Access to the sea is provided by the new path to the sea forest.

Legend:

- SEA FOREST
- WATER AND AIR (PATHS AND STAIRS)
- AIR AND SOIL (GRASS AND STONES)
- LAND AND SEA (MUSSEL AND OYSTER)

The dumb bell and its connection to the sea are an important information in our project. Currently, the sea is difficult to access publicly due to the privatization of large parts of the beach. In addition, the beach strip currently has no added value for biodiversity. Therefore we propose to connect natural dunes along the ecological corridor. These are connected with the ecosystem of the hinterland and prevent the uprooting of the dunes.

In the sea we work with a system of coastbeacons. By creating a sustainable structure in the water, a real sea forest can be created. This forest increases the biodiversity in the sea area but also creates a productive marsh and oyster farm. In addition, the sea forest also acts as a water break. This will reduce erosion of the beach and in the future, when the sea level rises, it will reduce the intensity of the waves.

Due to the rise of the sea level, many houses will flood. By reinforcing the foundations of the existing houses and turning them into tilt houses, we want to ensure that they will still be usable. The tilt houses have access via a path that is built at height. By strengthening the foundation, an extra floor can be built in a wooden construction to compensate for the loss of the ground floor. The foundations of the houses become part of the sea forest because they also provide a home for mollusks and mussels.

