

Sustainable port design

The Beirut port with an integrated urban sustainability approach



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AWARDS



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Introduction:

August 4, 2020, 18:08:18 EEST marked the Zero hour of one of the biggest nonnuclear explosions in history with the force of a 3.5 magnitude earthquake - and is believed to have been fueled by 2,750 tons of ammonium nitrate stored in warehouse-12 at the port. Aside from the mass destruction caused by this explosion, at Least 204 people were killed (with an additional 3 missing) and 6,500 were injured.

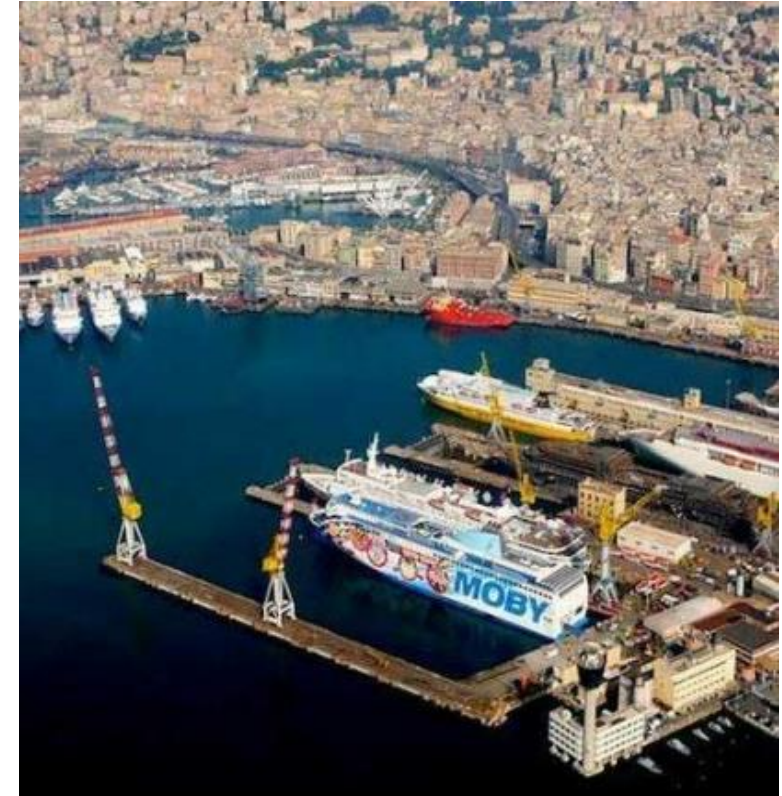


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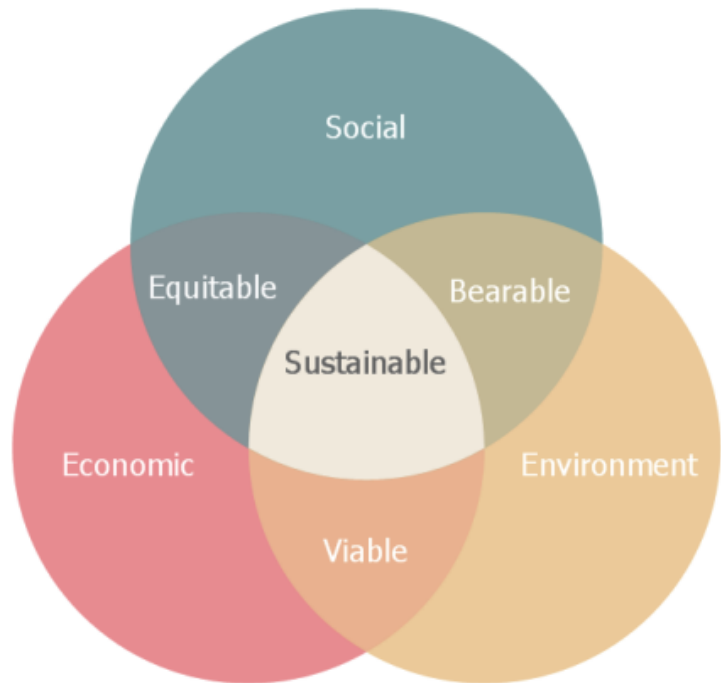
Challenge:

Participants are challenged to not only think of the new port as a piece of architecture or an urban master plan but raising the question of how to exploit the very expensive lands for the benefit of fostering the economy and commerce as well as restoring the indispensable storage area and the essential port-functions: the mission is to bring back the port's competitive aptness in its context in order to further engage in the world trading markets. Also, the government of Kuwait (The main funder that financed the initial Silos building) also offered their donations to construct a new one considering that the last surviving piece of architecture (initially built by a Czech architect) has now become the symbolic landmark of this incident. Yet, a silos building is significantly recommended and needed in this area. After a long history of fortification, it is about time for the port to synergize with the city of Beirut emanating inherent social and economic opportunities. One of the main weightiness in the current competition is to ensure that the memory of the lost souls (from civilians to firefighters, employees, and others) is protuberant inviting the public to commemorate their beloved ones in a memorial area.



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Goals and strategies for sustainable development of Beirut port

Targets	Strategy	Implementation policies
Sustainable physical development	Reducing energy consumption	Proper location and orientation of passages and buildings
Sustainable social development	Increasing social interactions in the port	Creating suitable places for people to gather
Sustainable economic development	Tourist, recreational and commercial potentials of the port	Design of recreational, tourist and commercial centers
Sustainable environmental development	Development of green space and reduction of port pollution	Designing a green route along the coast and using new technologies for energy supply

Ideological level:

It is firmly essential to generate a sustainable identity for the port that addresses the questions of global warming and sea-level rise caused primarily by human pollution acknowledging that the port also emanates a huge amount of contamination to the city. To that extent, Long-term sustainable port development requires accounting for the intrinsic values of ecosystems throughout the planning and design of the port's infra structure .For instance, the harbor enclave is eminently surrounded by congestion. Thus, while taking into account the port-city interface, it is vital to depict a cultural and leisure pedestrian connection in harmony with the traffic flow. The design should attract local citizens, international tourists, and investors. Thus, the mission is to create a diversified futuristic port center that engages with the public needs (cultural, leisure, commercial...etc.) creating opportunities and a prospective flourishing future. There are many good examples of diversified ports around the world like: Barcelona Port, Genoa Port, Marseille Port.

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Program:

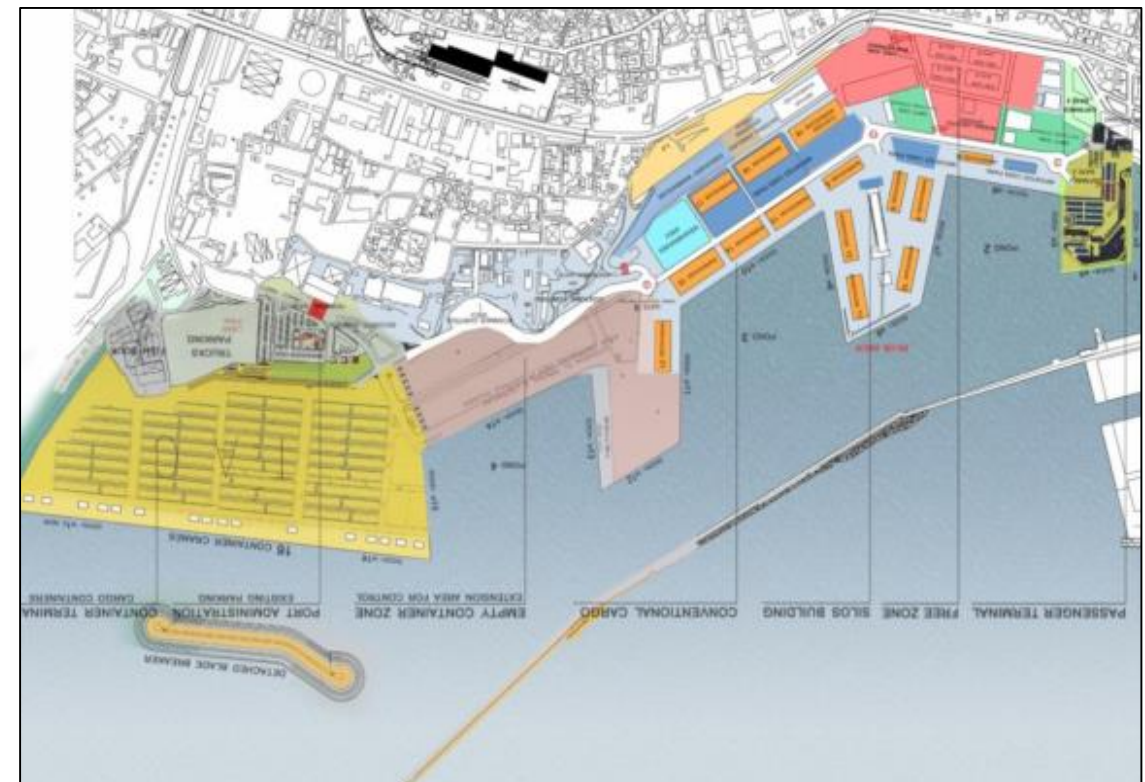
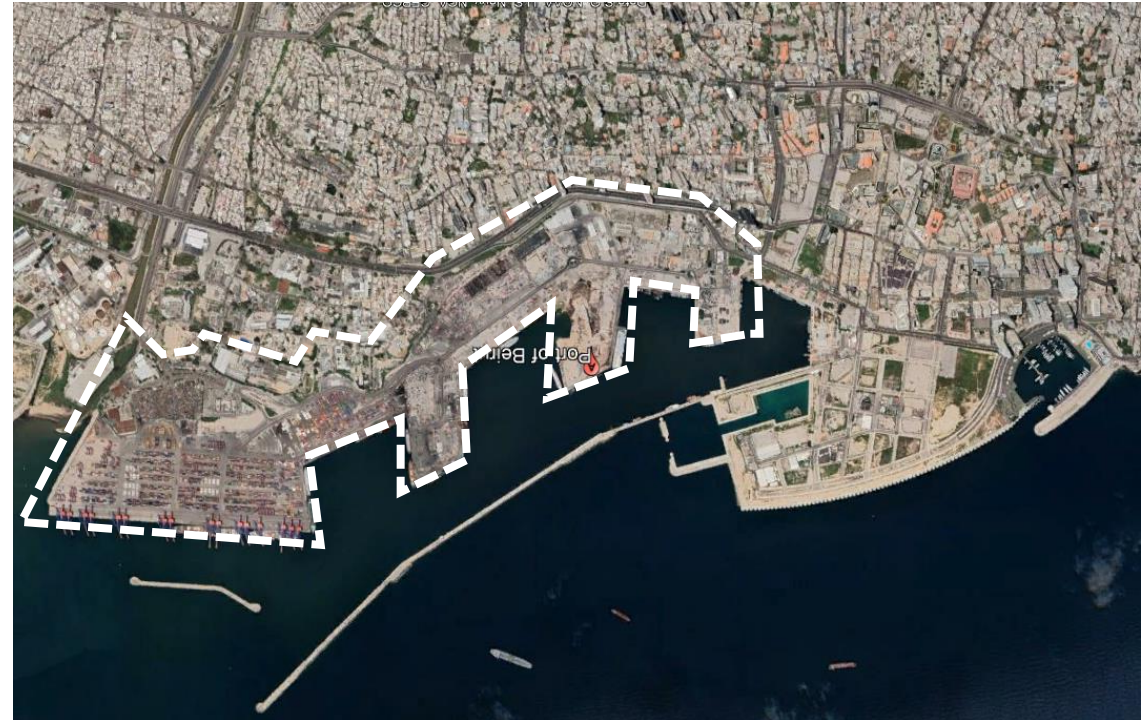
The port needs to operate flawlessly with the seven main operational areas:

The container terminal, the empty container zone, the general/conventional cargo zone, the silos building, the free zone, the passenger terminal, and the existing port administration with its parking.

Aside from the mandatory program, students have the freedom to propose the alleged supplementary program that requires recreational areas, cultural areas, commercial and socio-economic areas, memorial areas, transportation.

Before the explosion, the port of Beirut operated flawlessly according to seven main cluster areas that can be seen in the operation map:

- 1- The container terminal
- 2- The Empty container zone
- 3- Conventional cargo zone
- 4- Silos Building
- 5- Free zone
- 6- Passenger terminal
- 7- Port administration



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The Beirut Port vision

Prospective, diverse, related port design Indigenous culture, history and identity, fun and with Prosperous, sustainable and environmentally friendly economy Lived.

The new port hosts a wide range of outdoor and public spaces activities. That makes it possible for people with different spectrums to be on the beach and interact with the water Will increase. The main purpose of this plan is to pay attention to economic and commercial prosperity The port while maintaining environmental sustainability and in harmony with natural and ecological elements Will be, in this regard, the environmental potentials as well as the historical and indigenous city Beirut will be used.



We imagine a new environment ...



Fun and joyful environment

Flexible environment for cultural and social activities



Sustainable and green environment

Smart and creative urban environment



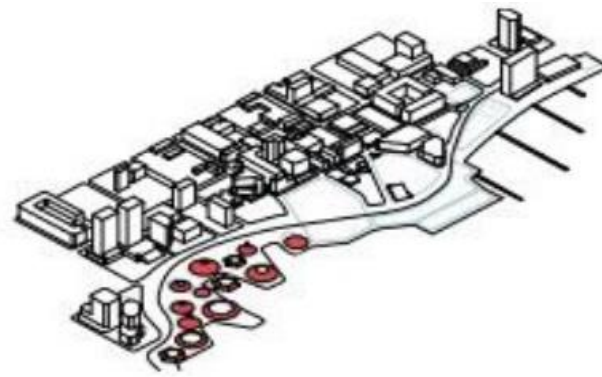
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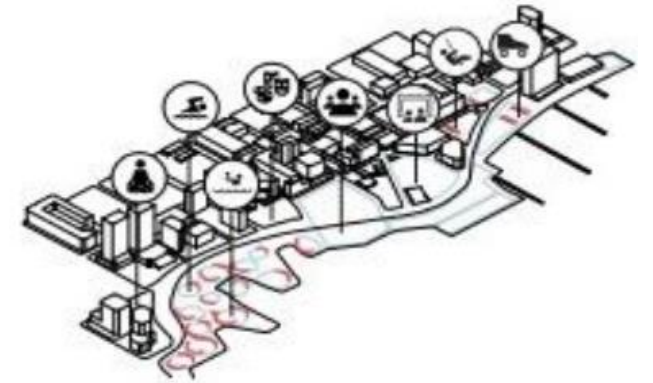
Port revitalization planning with a sustainable development approach



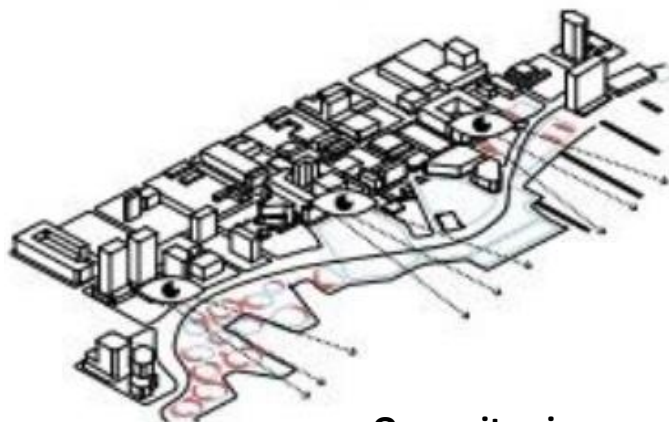
Bioclimatic pier



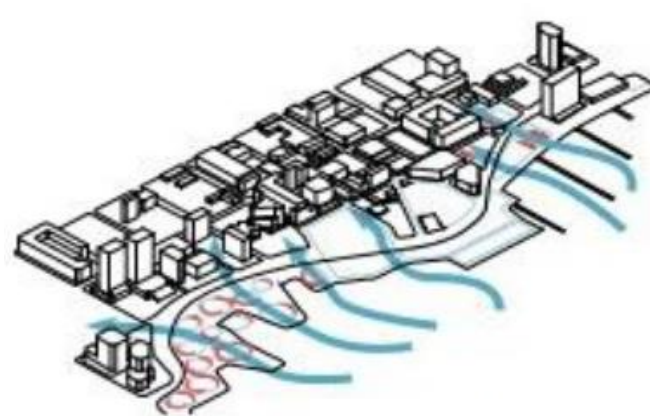
Bioclimatic canopies



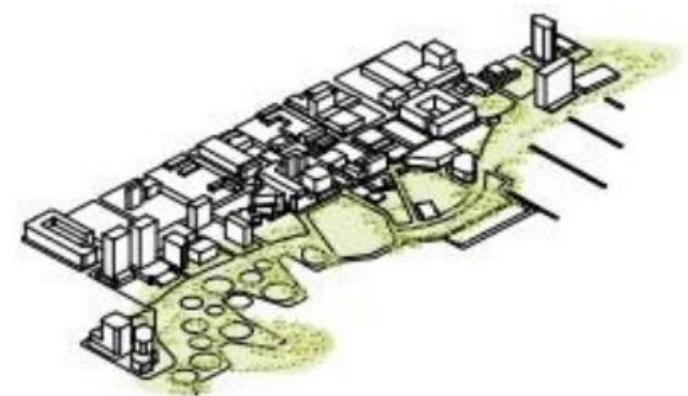
Thematic public squares



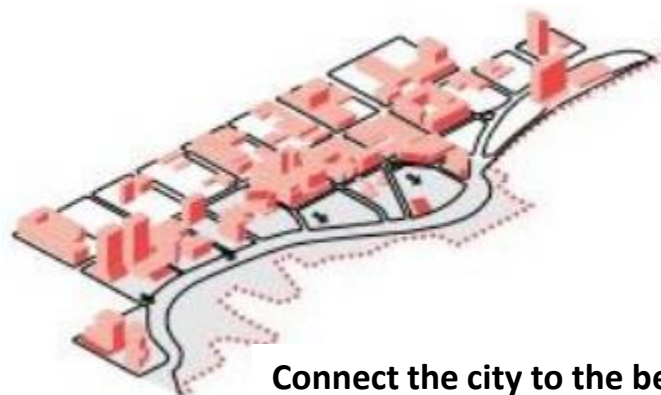
Open city views



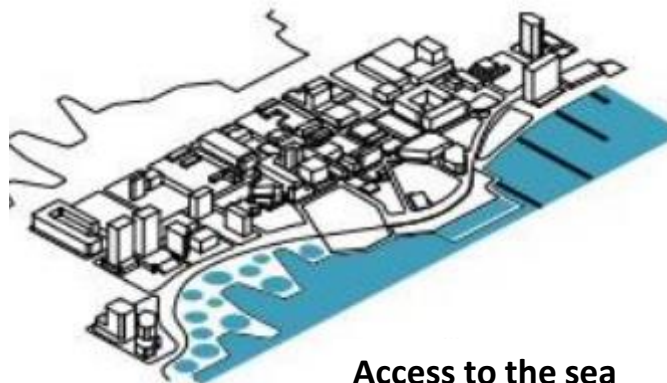
Open the path of movement



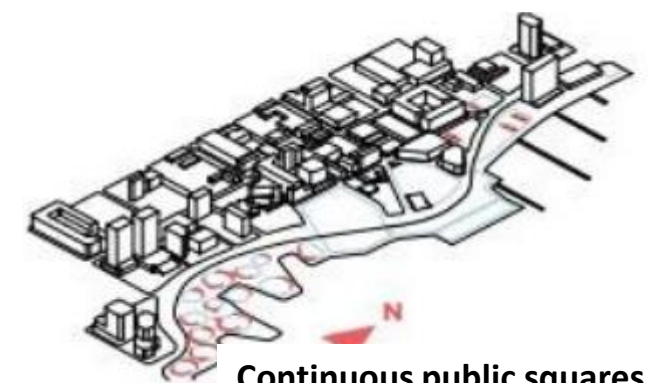
Green Beach Revival



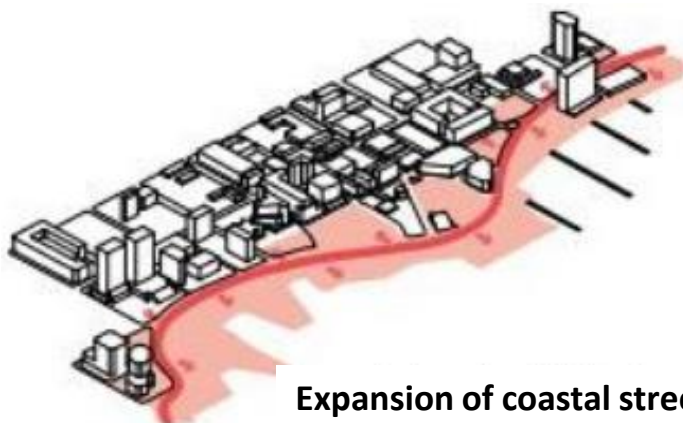
Connect the city to the beach



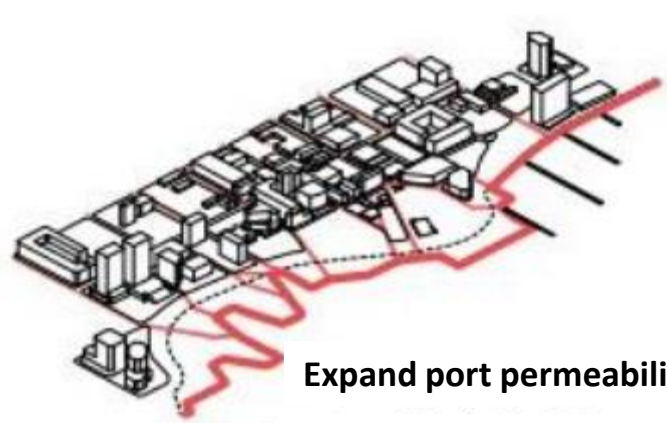
Access to the sea



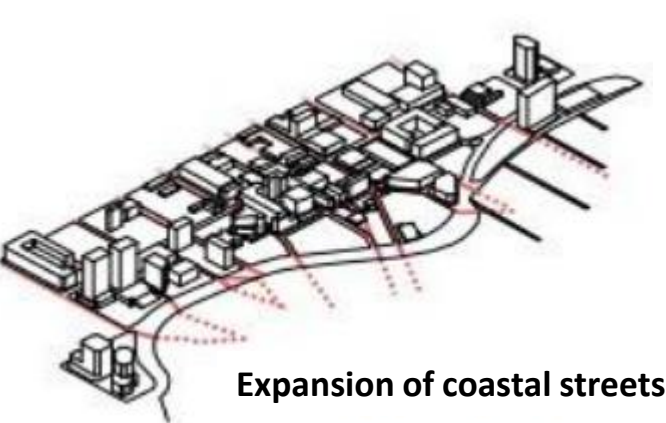
Continuous public squares



Expansion of coastal streets



Expand port permeability



Expansion of coastal streets

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Commercial and cultural crossings :

Creating dynamic and active paths between buildings Which is similar to the structure of the old alleys of Beirut Is another suggestion of this plan . These paths or alleys are a desirable possibility for The presence of people and daily shopping and communication Will give social . Ability to walk in a diverse environment along with Climate security and comfort and lighting systems Equipped and urban furniture suitable conditions for Provide activities in spaces . The main purpose of these alleys is to connect the old town to The beach will be new.



Outdoor amphitheater :

Design of a part of the beach in an open space To hold big city events and types Cultural activities such as concerts, plays , Dance performances and so on . To protect against noise and environmental pollution Space from other port spaces from the green space belt will be used. With the expansion of open space Common towards beach and sea flexibility It is used for other combined activities such as Recreation and sports will increase.



Coastal green belt :

In order to increase the permeability of the beach, the green path in The whole coastline for the presence of citizens and tourists is considered. This is the local route for Holding big civic celebrations and events and fun Take personal and social activities such as rest , Meeting, eating or even working in a pleasant environment Was . This route is a vast and green promenade and durable in At the same time, it will be a climate-comfortable environment Creates a creative relationship between public space and water

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The Memorial monument:

The monument was designed to commemorate the victims of the August 4, 2020 explosion, and its main idea was based on the installation of high wind turbines to supply energy. 12 wind turbines with a height of 13 meters and similar to the design of destroyed silos have been designed. Next to these turbines, a new museum will be built to view photos of the day of the accident and the victims.



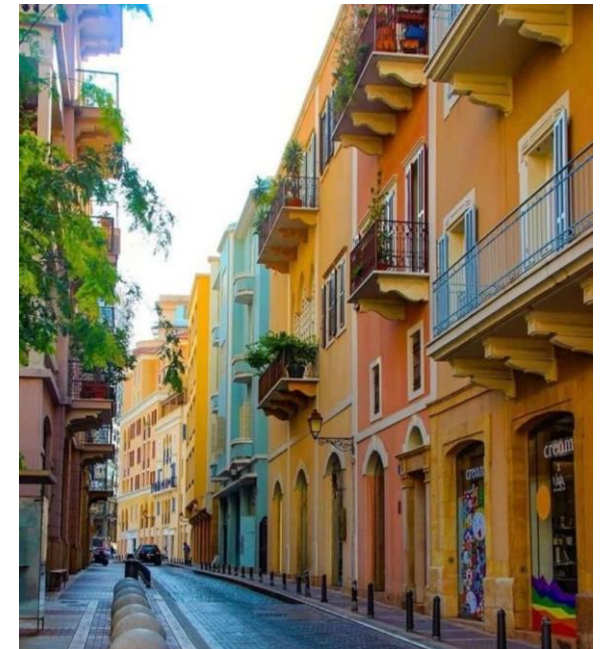
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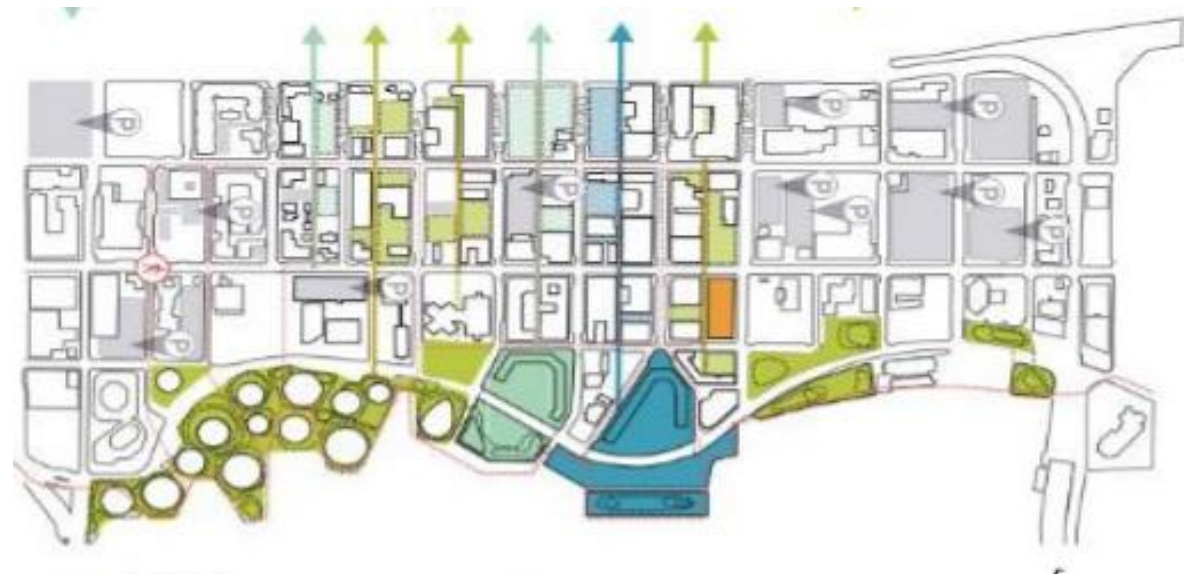


Passages to the city:

Deep and direct connection of the port coast to the city from active urban passages using the native and old architectural patterns of Beirut . Cultural Crossing, Commercial Crossing, Recreational Crossing, Green Crossing, Social Crossing, Children's Play Crossing and Art Crossing.



1. Cultural passage
2. Commercial passage
3. Residential passage
4. Recreational passage
5. Art passage
6. Music passage
7. Crossroads of social interactions
8. The passage of friendship and love
9. Civil Passage
10. Green passage



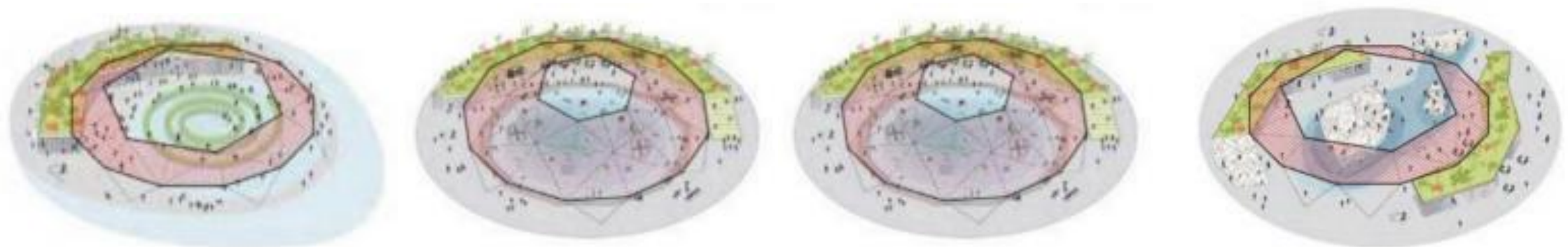
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Leisure, tourist, catering, nutrition and art circles:

The purpose of designing and implementing these circular structures is to create a suitable platform for collective, artistic and recreational activities. Which are located independently of each other and in the public green space. The main goal of this section is the presence of Lebanese citizens along with foreign tourists and the provision of appropriate services.

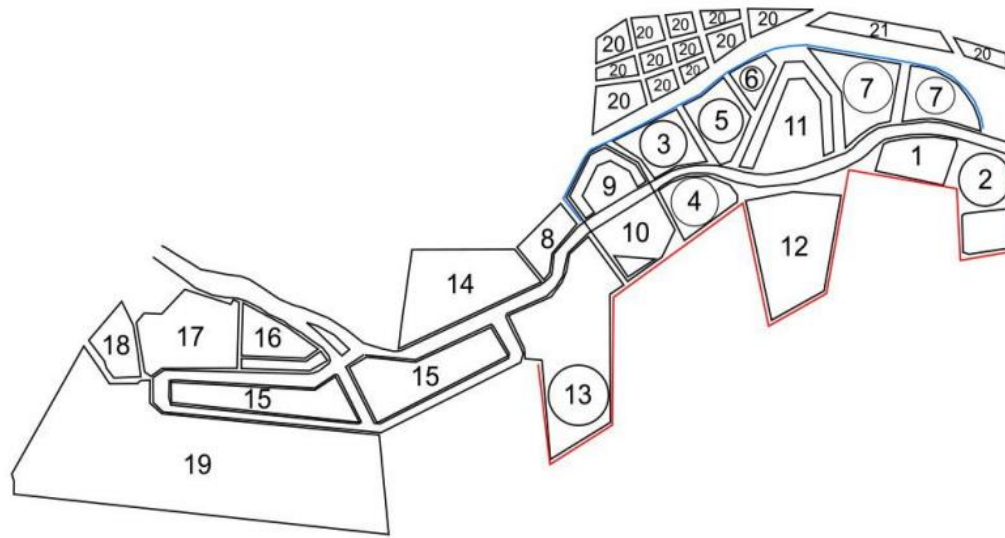
1. **Indigenous food ring:** In this ring, local and traditional Lebanese food will be offered to tourists.
2. **Circle of artistic and social activities:** holding collective exhibitions of art and music.
3. **Marine and recreational sports circle:** water games and related sports activities



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Guide to spaces designed in the new port



1. Sand Square
2. Marine sports field
3. Rock climbing field
4. Water playground
5. Handicrafts field
6. Public Art Square
7. Playground and liveliness
8. Forest and flower field
9. Amphitheater Square
10. Multipurpose field
11. Cafe and restaurant square

12. Monument and museum
13. Marine passenger lounge
14. Hotel and accommodation
15. Public green space
16. Administrative management
17. Truck parking
18. Fish market
19. Containers and transit
20. Crossroads of social and cultural
21. Car parking

